NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Victoria Masse
420 Main Street #2, Sturbridge, MA 01566
860-306-2326
victoria@northeastsitesolutions.com

February 10, 2021

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

RE: Notice of Exempt Modification
200 Cold Highway, Farmington CT 06032
Latitude: 41.70088000
Longitude: -72.83218400
T-Mobile Site#: CT11134A_L700 4x2

Dear Ms. Bachman:

T-Mobile is requesting to file an exempt modification for an existing 120-foot Guyed Tower located at 200 Colt Highway, Farmington CT 06032. T-Mobile currently maintains nine (9) antennas at the 103-foot level of the existing 120-foot tower. The guyed tower is owned by WVIT/Outlet Broadcasting Inc. The property is owned by Outlet Broadcasting Inc. T-Mobile now intends to replace three (3) existing antenna with three (3) new 600/700/1900/2100 MHz 5G antenna as well as upgrade the existing mount. The new antennas would be installed at the 103-foot and level of the tower.

Planned Modifications:
Remove: NONE

Remove and Replace:
(3) LNX-6515DS Antenna (**Remove**) – (3) RFS APXVAALL24- 600/700 MHz **5G** Antenna (**Replace**)
(3) RRUS11 B12 (**Remove**) – (3) Radio 4449 B71+B85 (**Replace**)
(3) Existing Sector Mounts (**Remove**) - (3) Valmont/ SitePro 1 VFA 12-HD Mount (**Replace**)

Install New:
(2) Hybrid Lines

Existing to Remain:
(3) AIR21 B2A B4P- 1900/2100 MHz Antenna
(3) AIR32 B66A B2A- 1900/2100 MHz Antenna
(3) Twin Style 1B-AWS TMA
(6) 1- 1/4” Coax
(2) Hybrid Lines

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This facility was approved by the Town of Farmington PZC. The tower was built in the 1980's the original zoning approval file is not available – See attached letter from the Town Planner.

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 Kathleen A. Blonski, Town Manager, for the Town of Farmington, Shannon P.E. Rutherford, Acting Town Planner, and Bruce C. Cyr, Zoning Enforcement, 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,

Victoria Masse
Mobile: 860-306-2326
Fax: 413-521-0558
Office: 420 Main Street, Unit 2, Sturbridge MA 01566
Email: victoria@northeastsitesolutions.com

NORTHEAST SITE SOLUTIONS
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Attachments
cc: Kathleen A. Blonski– Town Manager
Shannon Rutherford – Acting Town Planner
Bruce C. Cyr –Zoning Enforcement
Outlet Broadcasting Inc - Tower and property owner

Exhibit A

Denise Sabo
Project Manager, Northeast Site Solutions
54 Main St. Unit 3
Sturbridge, MA 01566

June 8th, 2016

RE : Zoning Compliance Letter for transmission towers at 190 & 200 Colt Highway, Farmington, CT.

Dear Ms. Sabo

The purpose of this letter is to confirm zoning compliance for the above referenced subject property.

Please be advised the subject property is located in the Residential R80 zone. As you requested we have searched town archives and we have been unable to locate the original zoning approval. As I have indicated the town zoning authority has consistently signed off on building permits for modifications to the towers which indicates zoning compliance. We are not aware of any zoning violations at the subject property at this time.

Thank you.

Sincerely,

William Warner, AICP
Town Planner
Farmington, CT

Exhibit B

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2012.

Information on the Property Records for the Municipality of Farmington was last updated on 5/4/2017.

Property Summary Information

Parcel Data And Values | Building | Outbuildings | Sales | Google Map

Parcel Information

Location:	200 COLT HIGHWAY	Property Use:	Industrial	Primary Use:	Utility Building
Unique ID:	03750200	Map Block Lot:	0141 7B	Acres:	10.00
490 Acres:	0.00	Zone:	EE	Volume / Page:	0554/0608
Developers Map / Lot:		Census:	4602-02		

Value Information

	Appraised Value	70% Assessed Value
Land	600,000	420,000
Buildings	291,886	204,320

	Appraised Value	70% Assessed Value
Detached Outbuildings	0	0
Total	891,886	624,320

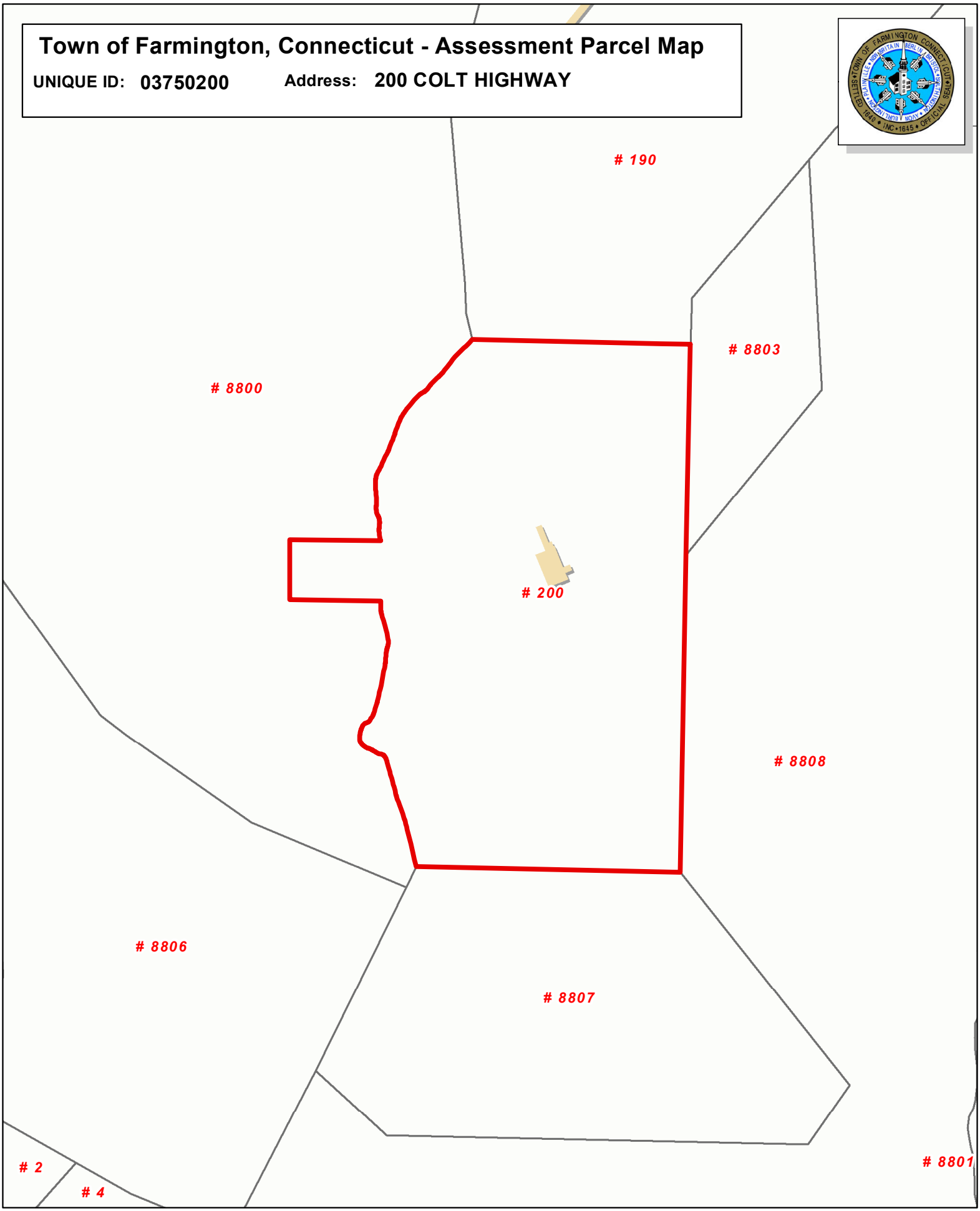
Owner's Information

Owner's Data
OUTLET BROADCASTING INC E-PROPERTY TAX DEPT 201 ONE COMCAST CENTER,32ND FL PHILADELPHIA, PA 19103

Back To Search (JavaScript:window.history.back(1);)
Print View (PrintPage.aspx?towncode=052&uniqueid=03750200)

Town of Farmington, Connecticut - Assessment Parcel Map

UNIQUE ID: 03750200 **Address:** 200 COLT HIGHWAY



Map Produced Mar 2017

Approximate Scale: 1 inch = 200 feet

Exhibit C

EQUIPMENT AND ANTENNA UPGRADES BY

T-Mobile

T-MOBILE NORTHEAST LLC

PROJECT TITLE: L600

SITE NUMBER: CT11134A
SITE NAME: FARMINGTON/ I-84 X 37_1
SITE ADDRESS: 200 COLT HIGHWAY
FARMINGTON, CT 06032
(RF CONFIG: 67D92DB_2xAIR+1OP)

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.

STRUCTURAL NOTE:

PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT CONTRACTOR SHOULD REVIEW THE STRUCTURAL ANALYSIS REPORT TITLED "STRUCTURAL ANALYSIS REPORT" SITE ID: CT11134A, DATED OCTOBER 27, 2020 AND ANTENNA MOUNT ANALYSIS REPORT DATED DECEMBER 8, 2020 BOTH PREPARED BY EFI GLOBAL, INC. AND ADHERE TO THE REPORT FULLY AND ALL THE RECOMMENDATIONS THEREIN, INCLUDING BUT NOT LIMITED TO ANTENNA PLACEMENT, COAX ROUTING, STRUCTURAL IMPROVEMENTS, ETC.

CODE COMPLIANCE:

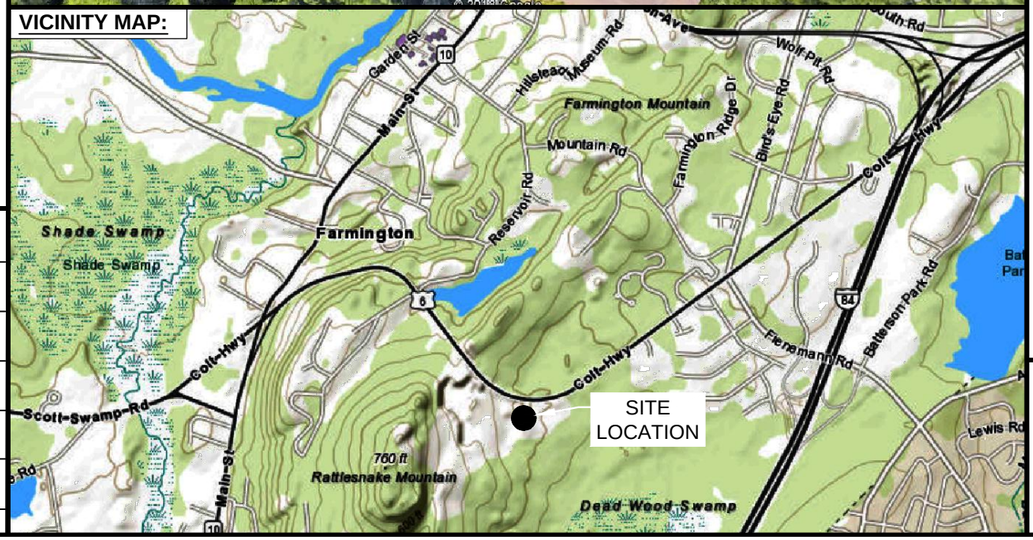
ALL WORK SHALL COMPLY WITH THE CURRENT NATIONAL AND CONNECTICUT STATE BUILDING AND LIFE SAFETY CODES, SUPPLEMENTS AND AMENDMENTS INCLUDING BUT NOT LIMITED TO THE LATEST EDITION OF:
CONNECTICUT STATE BUILDING CODE (CSBC).
ANSI/TIA-222-G STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.
NATIONAL ELECTRICAL CODE (NEC) FOR POWER AND GROUNDING REQUIREMENTS.
OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
NFPA - NATIONAL FIRE PROTECTION ASSOCIATION.

APPROVALS:

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

SITE IMAGE:

VICINITY MAP:



PROJECT SCOPE:

UPGRADE OF EXISTING WIRELESS FACILITY AS FOLLOWS:

UPGRADE (E) 6102 CABINET INTERNALLY.
REPLACE EXISTING ANTENNA MOUNT.
REPLACE (3) OF (9) EXISTING ANTENNAS.
REPLACE (3) REMOTE RADIO UNITS AT ANTENNAS.
ADD (2) 6X12 HCS CABLE FOR FINAL COUNT OF (1) 9X18 HCS, (3) 6X12 HCS AND (6) 1-1/4" COAX CABLES.

PROJECT INFORMATION:

ADDRESS:	200 COLT HIGHWAY FARMINGTON, CT 06032
STRUCTURE TYPE:	GUYED TOWER
COORDINATES:	41.7008800 N, -72.832184 W
ZONING DISTRICT:	R-80
PARCEL ID:	141 7B
AVERAGE GROUND ELEVATION:	725' ± (AMSL)

PROJECT TEAM:

APPLICANT:	T-MOBILE NORTHEAST, LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 860-692-7100
LAND OWNER:	OUTLET BROADCASTING INC ONE COMCAST CENTER, 32ND FL PHILADELPHIA PA 19103
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

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CONSULTANT:
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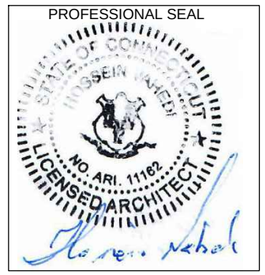
PROFESSIONAL SEAL



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SITE NAME: FARMINGTON/ I-84 X 37_1
SITE ADDRESS: 200 COLT HIGHWAY
FARMINGTON, CT 06032

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. 2018 LIFE SAFETY CODE NFPA - 101.

APPLICANT:

T-MOBILE NORTHEAST LLC

35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

PROJECT MANAGER

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

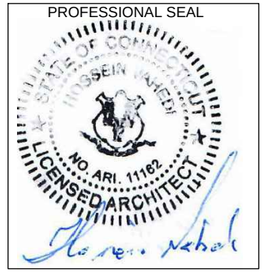
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:

FORESITE LLC
Architects . Engineers . Surveyors

462 WALNUT STREET
NEWTON, MA 02460
617-212-3123

PROFESSIONAL SEAL



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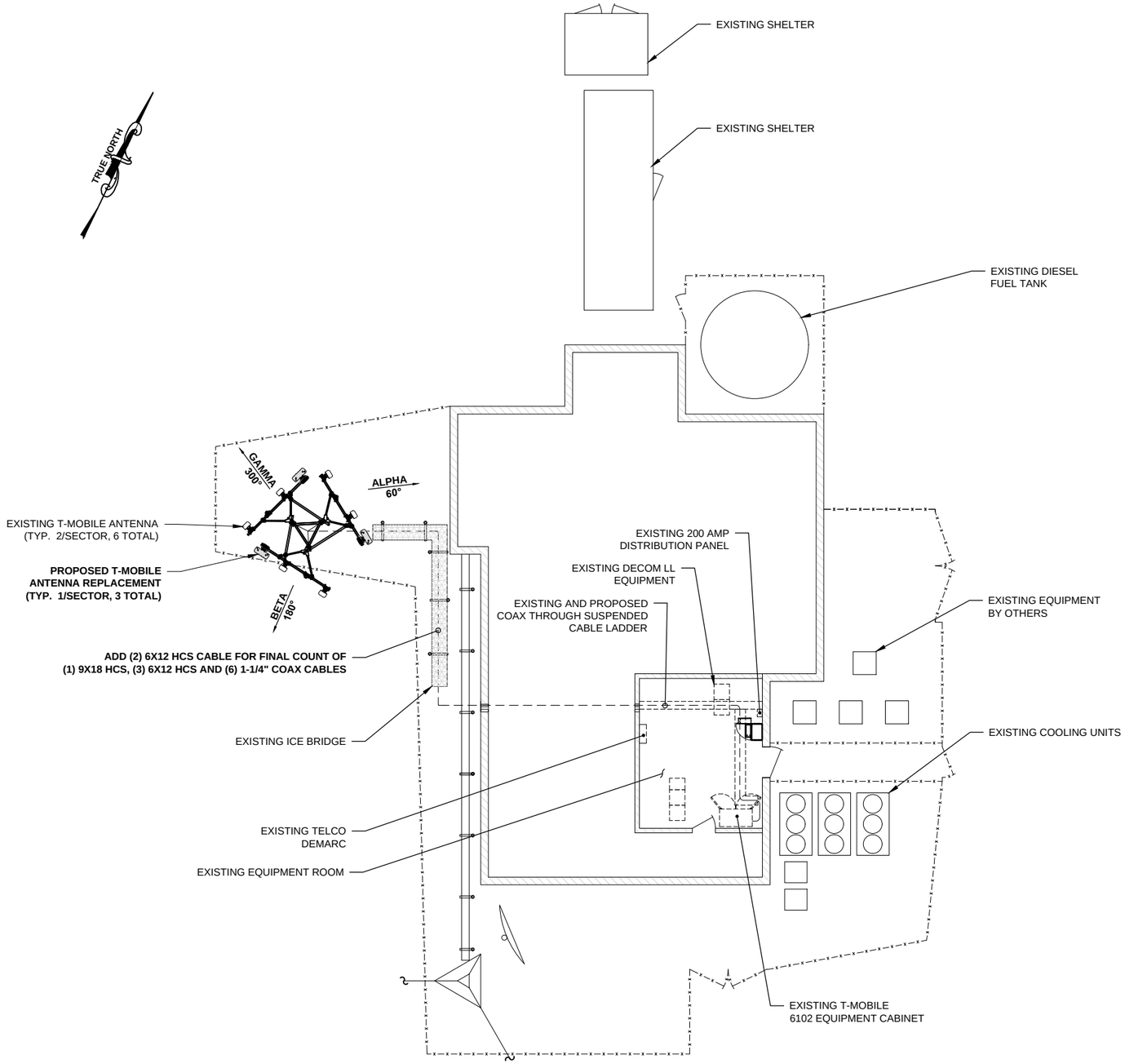
SITE NAME: FARMINGTON/ I-84 X 37_1
SITE ADDRESS: 200 COLT HIGHWAY
FARMINGTON, CT 06032

SHEET TITLE:

N-1: NOTES AND DISCLAIMERS



SITE PLAN
SCALE: 1/16" = 1'-0"

1
A-1

APPLICANT:

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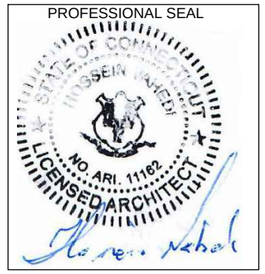

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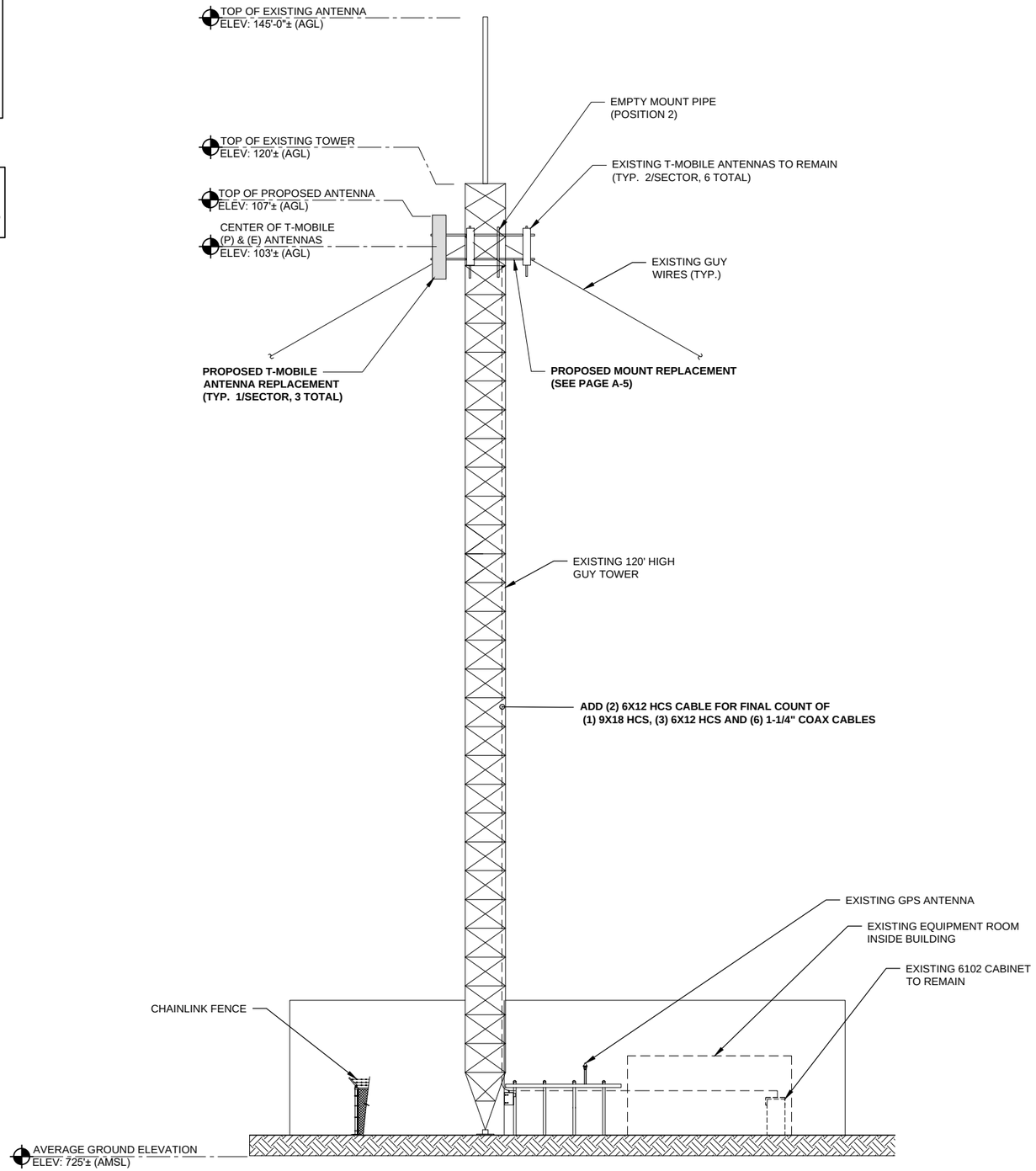
SHEET TITLE:
A-1: SITE PLAN

STRUCTURAL NOTES:
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS PROVIDED BY EFI GLOBAL INC TO DETERMINE IF THERE ARE ANY SUPPLEMENTAL OR SPECIAL REQUIREMENTS FOR TOWER TOP EQUIPMENT AND FOR CABLE BUNDLING, SHIELDING, MOUNTING OR RELOCATION ARRANGEMENTS.

REFER TO MOUNT STRUCTURAL ANALYSIS REPORT -REPLACEMENT DATED OCTOBER 27, 2020 AND STRUCTURAL ANALYSIS REPORT TITLED " STRUCTURAL ANALYSIS REPORT - GUYED TOWER " SITE ID: CT11134A, DATED DECEMBER 4, 2020, PREPARED BY EFI GLOBAL INC.

ELEVATION NOTES:

ABOVE MEAN SEA LEVEL ELEVATIONS (AMSL) SHOWN ARE APPROXIMATIONS ONLY AND OBTAINED FROM GOOGLE EARTH APP AND NOT THE RESULT OF A SURVEY.



ELEVATION
SCALE: 1/16" = 1'-0"

1
A-2

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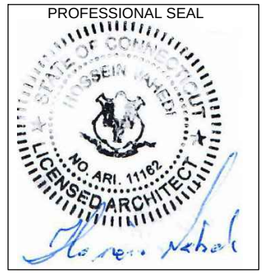

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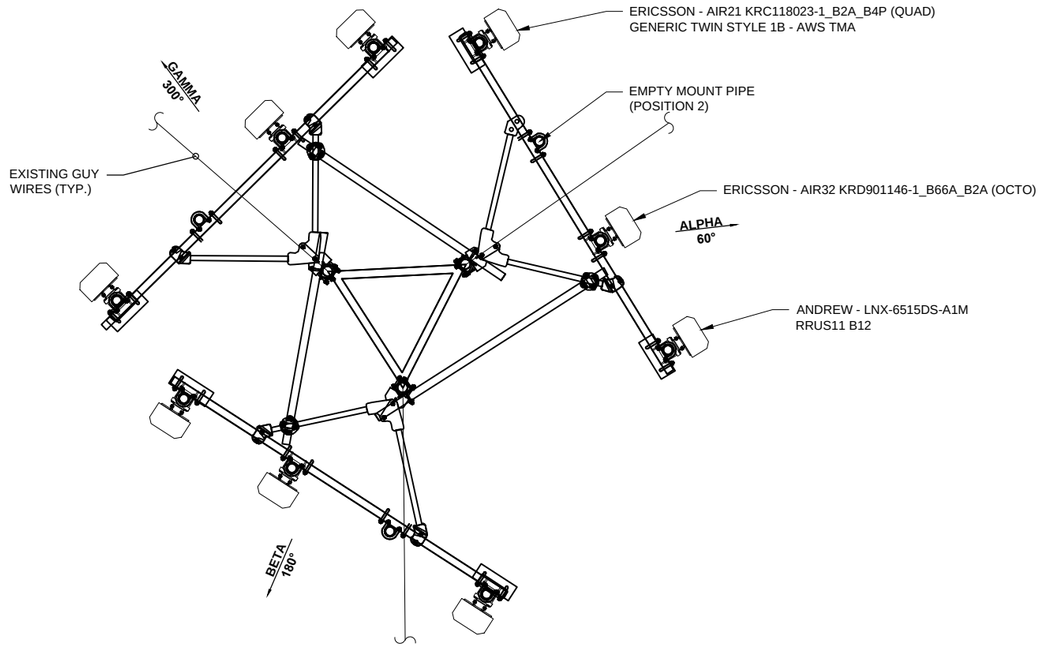

EXISTING ANTENNA PLAN
N.T.S.

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A-3

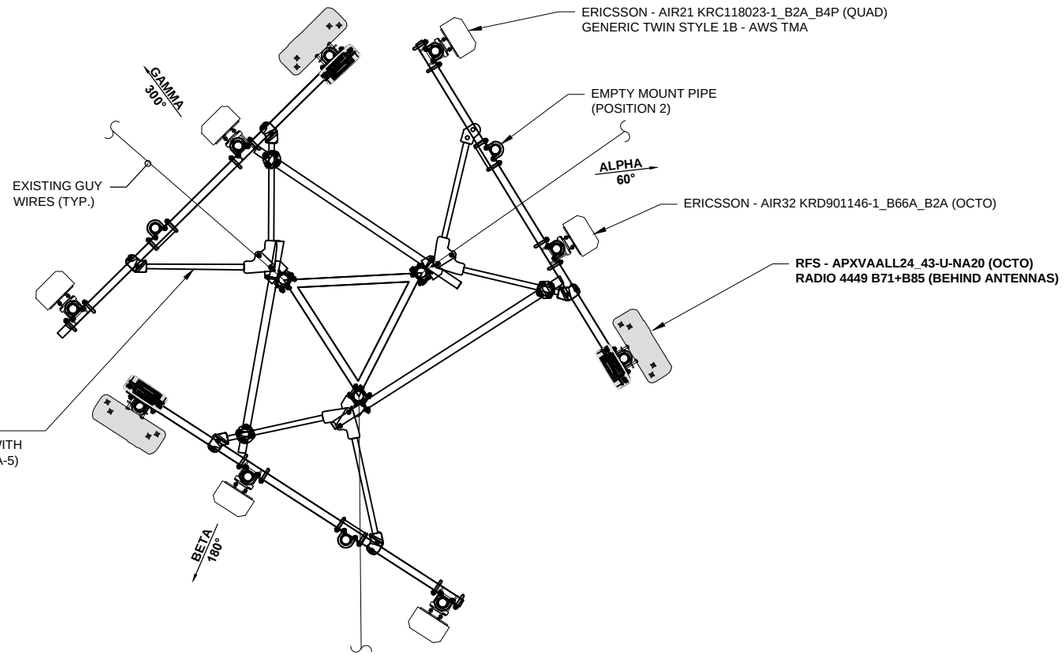
SPECIAL CONSTRUCTION NOTES:

1- REPLACE EXISTING ANTENNA MOUNTS WITH (3) VALMONT/SITE PRO 1 12'-6" HEAVY DUTY V-FRAME WITH TWO STIFF ARMS (P/N: VFA12-HD) (REFER TO PAGE A-5)

2- THE MOUNT CENTERLINE IS EQUAL TO THE RAD CENTERLINE.

3- (4) 96" LONG 2.0 STD MOUNT PIPES ARE EQUALLY SPACED ALONG THE FACE.

4- THE (2) STIFF ARMS ARE ATTACHED DIRECTLY TO THE ADJACENT MOUNT'S TOWER LEGS.



PROPOSED ANTENNA PLAN
N.T.S.

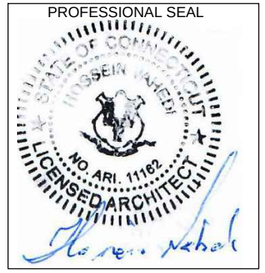
2
A-3

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

PROJECT MANAGER
NORTHEAST SITE SOLUTIONS
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
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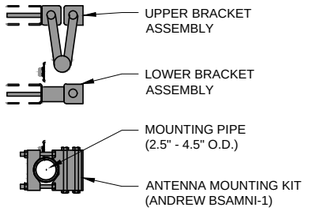
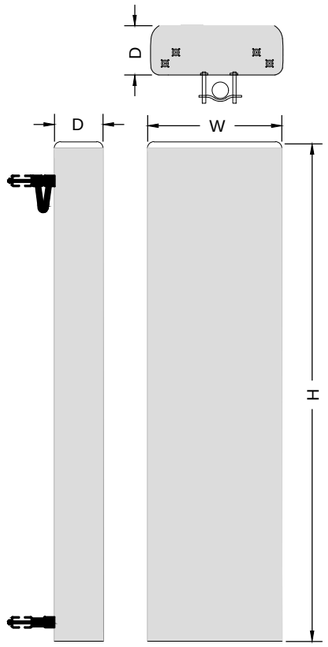
C	REVISED PER COMMENTS	12/07/20
D	REVISED PER COMMENTS	01/15/21
0	FINAL ISSUED	01/15/21

SITE NUMBER: CT11134A
SITE NAME: FARMINGTON/ I-84 X 37_1
SITE ADDRESS: 200 COLT HIGHWAY
FARMINGTON, CT 06032

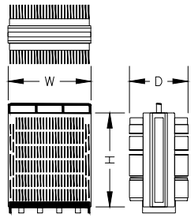
SHEET TITLE:
A-3: ANTENNA PLAN AND DETAILS



RFS ANTENNA SPECIFICATIONS	
MODEL #	RFS - APXVAALL24_43-UNA20 (OCTO)
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24.0"
DEPTH	8.5"
WEIGHT	149.9 LB



RFS-APX ANTENNA (1 / A-4)
N.T.S.



REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4449 B71+B85
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	10.4"
WEIGHT	74 LB

REMOTE RADIO UNIT (RRU) (2 / A-4)
N.T.S.

APPLICANT:
T-MOBILE NORTHEAST LLC
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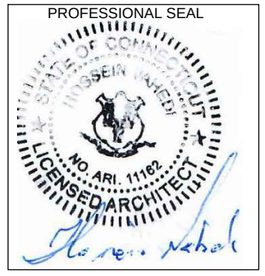
PROFESSIONAL SEAL



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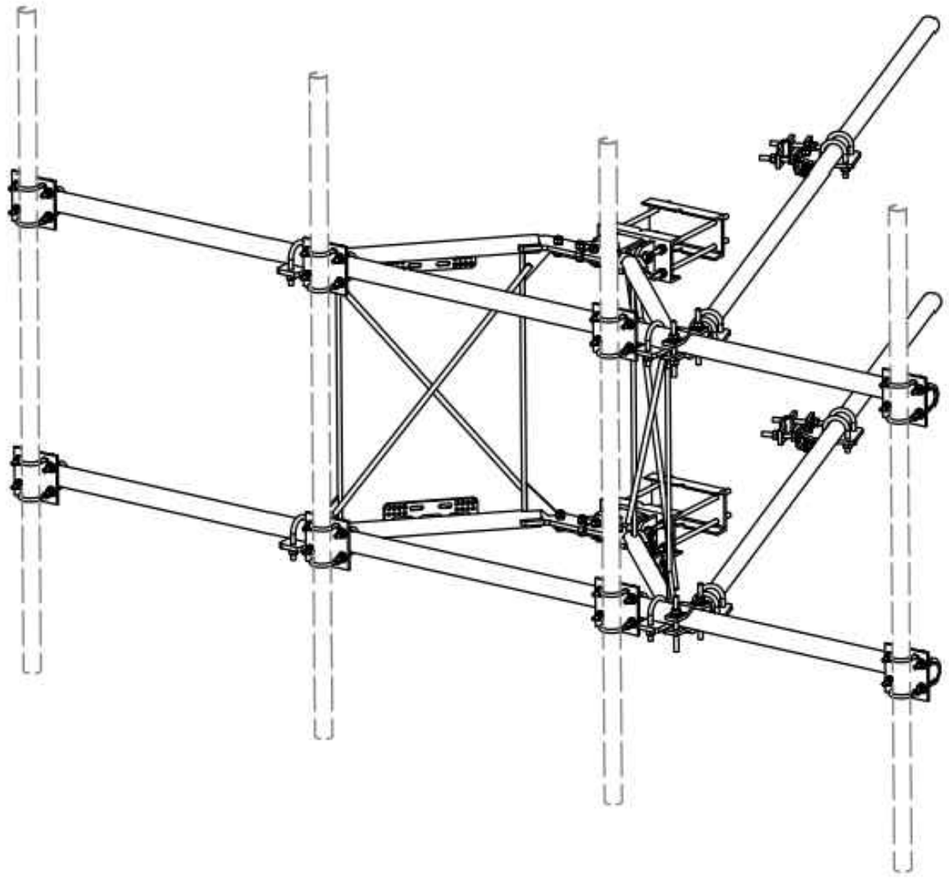
SITE ADDRESS: 200 COLT HIGHWAY
FARMINGTON, CT 06032

SHEET TITLE:
A-4: EQUIPMENT SPECIFICATIONS



PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFAW	SUPPORT ARM		71.41	142.81
2	2	X-HDPMW	HEAVY DUTY PIPE MOUNT WELDMENT		18.61	37.21
3	2	X-HDPMBP	HEAVY DUTY PIPE MOUNT BACKING PLATE	12 in	13.44	26.89
4	2	X-VFAPL3	VFA-HD PIVOT PLATE	24 in	9.69	19.38
5	1	X-LPB	LOWER PIVOT BRACKET		8.84	8.84
6	1	X-UPB	UPPER PIVOT BRACKET		8.84	8.84
7	4	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	23.49
8	4	X-TBCA	TIE BACK CLIP ANGLE		2.01	8.02
9	8	SCK2	CROSSOVER PLATE	7 in	4.80	38.37
10	4	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	14.37
11	8	DCP	1/2" THICK, 5-3/4" CNTER TO CENTER CLAMP HALF	8 1/8 in	2.42	19.36
12	2	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	81.50
13	2	P30150	2-7/8" X 150" (2-1/2" SCH. 40) GALVANIZED PIPE	150 in	76.94	153.87
14	6	A34212	3/4" x 2-1/2" UNC HEX BOLT (A325)	2 1/2 in	0.48	2.87
15	6	G34LW	3/4" HDG LOCKWASHER		0.04	0.26
16	6	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	1.27
17	8	G58R-18	5/8" x 18" THREADED ROD (HDG.)	18 in	0.40	3.19
18	4	G58R-12	5/8" x 12" THREADED ROD (HDG.)		1.05	4.18
19	8	G58R-8	5/8" x 8" THREADED ROD (HDG.)		0.70	5.58
20	4	X-UB5300	5/8" X 3" X 5-1/4" X 2-1/2" U-BOLT (HDG.)		1.15	4.60
21	8	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	8.00
22	8	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	2.50
23	8	G5804	5/8" x 4" HDG HEX BOLT GR5		0.44	3.55
24	4	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.08
25	20	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.41
26	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
27	70	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	9.09
28	32	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	23.64
29	16	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	10.00
30	64	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.18
31	64	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.89
32	64	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	4.58
					TOTAL WT. #	682.94

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

REVISION HISTORY

TOLERANCE NOTES

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

DESCRIPTION
12' 6" HEAVY DUTY
V-FRAME ASSEMBLY
WITH TWO STIFF ARMS

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

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
	CEK 1/25/2017		VFA12-HD	1 OF 5
CLASS 81 / SUB 02	DRAWING USAGE: CUSTOMER	CHECKED BY: BMC 8/4/2017	DWG. NO.: VFA12-HD	

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

PROJECT MANAGER
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
STATE OF CONNECTICUT — HOSSEIN NAHEL — NO. ARI. 11182 — LICENSED ARCHITECT

REV	DESCRIPTION	DATE
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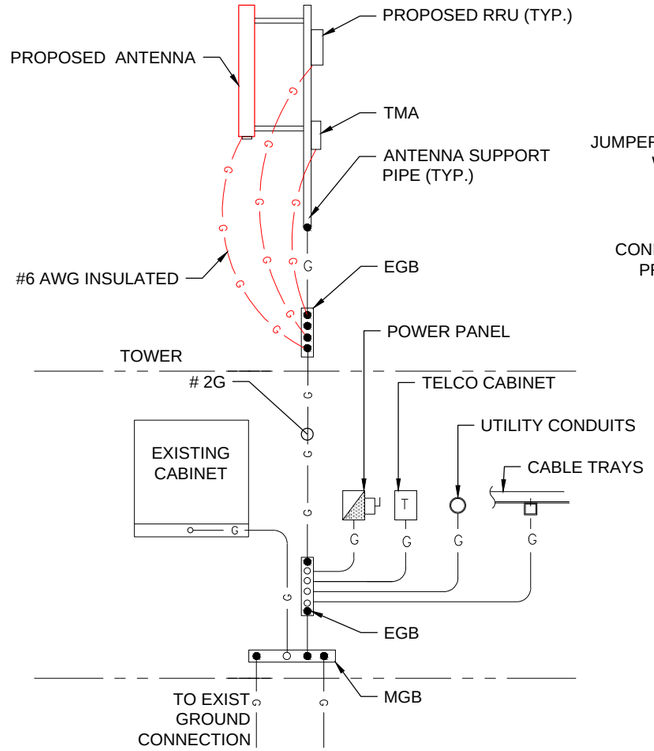
SITE NUMBER: CT11134A
SITE NAME: FARMINGTON/ I-84 X 37_1
SITE ADDRESS: 200 COLT HIGHWAY
FARMINGTON, CT 06032

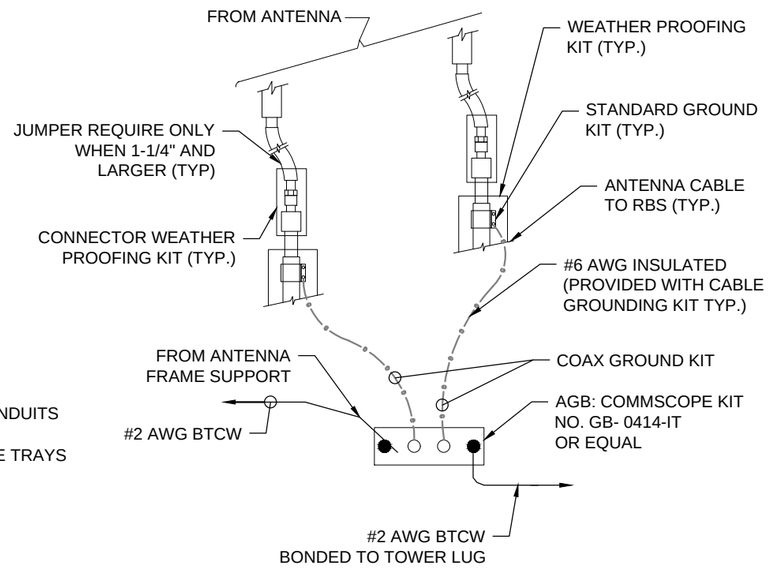
SHEET TITLE:
A-5: MOUNT SPECIFICATIONS

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.

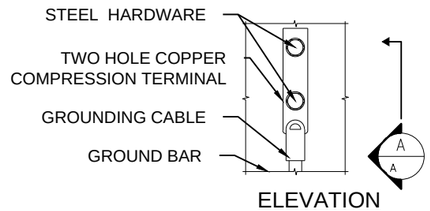


GROUNDING RISER DIAGRAM (1 / E-1)
N.T.S.

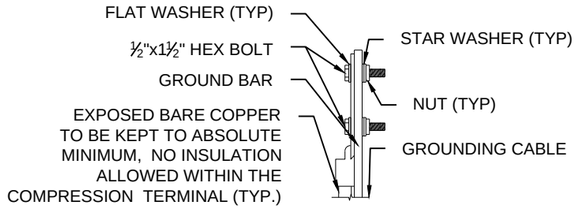


NOTES:
INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB

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



ELEVATION



SECTION A-A

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

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

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

PROJECT MANAGER
NORTHEAST SITE SOLUTIONS
420 MAIN STREET, BLDG 4
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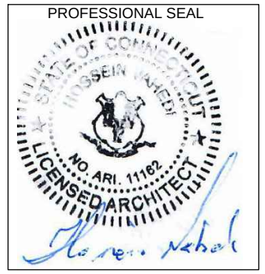

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SITE NAME: FARMINGTON/ I-84 X 37_1
SITE ADDRESS: 200 COLT HIGHWAY
FARMINGTON, CT 06032

SHEET TITLE:
E-1: GROUNDING DETAILS

Exhibit D

STRUCTURAL ANALYSIS REPORT
GUYED TOWER

Prepared For:

T-Mobile Northeast, LLC
35 Griffin Road South
Bloomfield, CT 06002

Structure Rating

Guyed Tower:	**Pass (53.3%)**

Sincerely,
EFI Global, Inc.
License No: PEC0001245

10/27/2020

STATE OF CONNECTICUT
AHMET COLAKOGLU
PEN. 27057
LICENSED
PROFESSIONAL ENGINEER

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

Site ID: CT11134A
Site Name: Farmington/ I-84 X37_1
200 Colt Highway,
Farmington, CT 06032

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1117 Perimeter Center West, Suite E500, Atlanta GA 30338 - Tel: (770) 693-0835

CONTENTS

EFI GLOBAL, INC.
1117 Perimeter Center West, Suite E500, Atlanta GA 30338 - Tel: (770) 693-0835

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the existing 120 feet tall guyed tower, located at 200 Colt Highway, Farmington, CT 06032 for the additions and alterations proposed by T-Mobile.

The structural analysis is based on the following information provided to EFI Global, Inc. (EFI):

- RFDS prepared by T-Mobile, dated 10/19/2020.
- Mount Structural Analysis Report prepared by EFI, dated 10/27/2020.
- Structural Analysis Report prepared by Destek Engineering, LLC, dated 07/23/2018.
- Construction Drawings prepared by ForeSite, LLC, dated 05/05/2017.
- Site Audit pictures, dated 04/20/2017.

1.1 STRUCTURE

The structure is a 120 feet tall, triangular based guyed tower. The tower solid rod legs are X-braced along the elevation with solid rods. The tower is 6 feet wide from top to bottom and guyed at 103.5' with an anchor radius of 250' on ground. Please refer to the software output in Appendix A, for tower geometry, member sizes and other details.

2.0 EXISTING AND PROPOSED APPURTENANCES

Existing Configuration of T-Mobile Appurtenances:

RAD Center (ft.)	Antennas and Equipment	Coax	Mount
103	(3) Ericsson AIR21 B2A B4P (3) Ericsson AIR32 B66A B2A (3) Andrew LNX-6515DS-A1M (3) RRUS11 B12 (3) Generic Twin Style 1B-AWS TMA	(6) 1-1/4'' (1) 9x18 hybrid (1) 6x12 hybrid	(3) Existing Sector Mounts

Proposed and Final Configuration of T-Mobile Appurtenances:

RAD Center (ft.)	Antennas and Equipment	Coax	Mount
103	(3) Ericsson AIR21 B2A B4P (3) Ericsson AIR32 B66A B2A (3) RFS APXVAALL24_43-U-NA20 (3) Radio 4449 B71+B85* (3) Generic Twin Style 1B-AWS TMA*	(6) 1-1/4'' (1) 9x18 hybrid (3) 6x12 hybrid	(3) Proposed Valmont/ SitePro 1 VFA 12-HD

*** To be mounted behind antennas.**

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Existing and Remaining Appurtenances by Others:

RAD Center (ft.)	Antennas and Equipment	Coax	Mount
120	(1) TFU-30J	(1) 6-1/8"	-

3.0 CODES AND LOADING

This analysis has been performed in accordance with the *2018 Connecticut State Building Code* based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the *TIA-222-G Standard* per Exception #5 of Section 1609.1.1. Exposure Category B with a maximum topographic factor, Kzt, of 1.00 and Risk Category II were used in this analysis. The following wind loading criteria was used in this analysis:

- Ultimate Wind Speed of 125 mph, equivalent to a Nominal Wind Speed of 97 mph (V)
- Nominal wind speed 50 mph with design ice thickness of 1.00" (V_i and t_i)
- Exposure B, Risk Category II
- Topographic Category 1

The following load combinations were used with wind blowing at 0°, 30°, 45°, 60°, and 90° measured from a line normal to the face of the smokestack.

- 1.2 D + 1.6 W_0
- 0.9 D + 1.6 W_0
- 1.2 D + 1.0 D_i + 1.0 W_i

D: Dead Load of structure and appurtenances
W_0: Wind Load, without ice
W_i: Wind Load, with ice
D_i: Weight of Ice

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4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided to EFI and is assumed to be current and correct. Unless otherwise noted, the structure and the foundation system are assumed to be in good condition, free of defects and can achieve theoretical strength.

It is assumed that the structure has been maintained and shall be maintained during its service. The superstructure and the foundation system are assumed to be designed with proper engineering practice and fabricated, constructed and erected in accordance with the design documents. EFI will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance.

The analysis does not include a qualification of the mounts attached on the structure or their connections. The analysis is performed to verify the capacity of the main structural members, which is the current practice in the tower industry.

The analysis results presented in this report are only applicable for the previously mentioned existing and proposed additions and alterations. Any deviation of the proposed equipment and placement, etc., will require EFI to generate an additional structural analysis.

5.0 ANALYSIS AND ASSUMPTIONS

The tower was analyzed by utilizing tnxTower, a non-linear, three-dimensional, finite element-analysis software package, a product of Tower Numerics, Inc. Software output for this analysis is provided in Appendix A of this report.

All member end connection details are sufficient to resist the maximum supported member loading.

EFI GLOBAL, INC.
1117 Perimeter Center West, Suite E500, Atlanta GA 30338 - Tel: (770) 693-0835

6.0 RESULTS AND CONCLUSION

Based on a structural analysis per *ANSI/TIA-222-G*, the existing guyed tower **has adequate** structural capacity for the proposed changes by T-Mobile. For the aforementioned load combinations and as a maximum, the guy wires attached at 103.5' are stressed to **53.3%.** The tower legs and additional bracing members are stressed to **10.2% and 34.0%** of capacity, respectively.

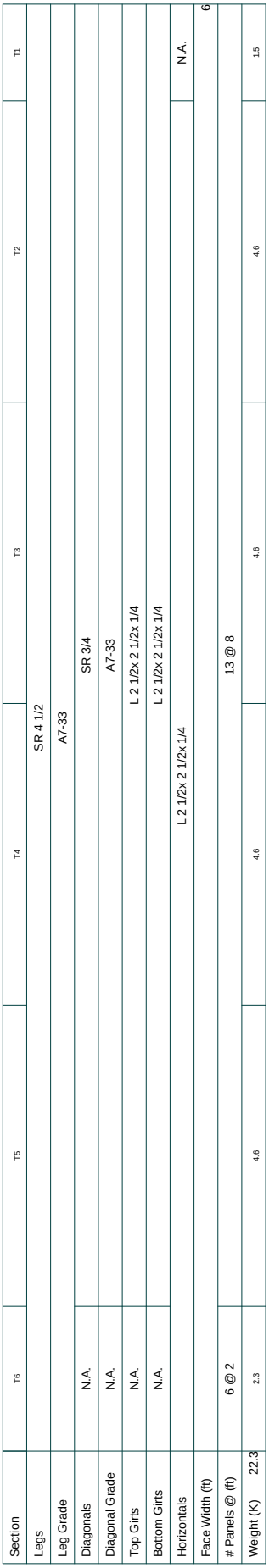
Information regarding the tower and guy anchor foundation was not available at the time of this analysis, thus a qualification of the foundation could not be completed.

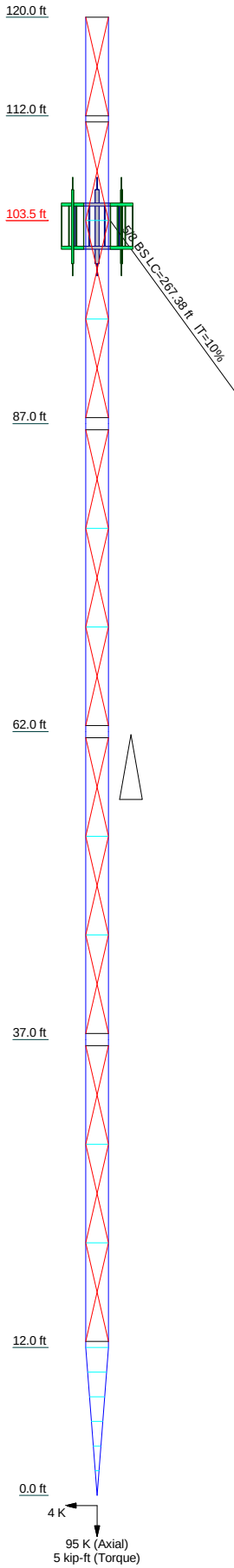
Therefore, the proposed additions by T-Mobile **can** be implemented as intended and with the conditions outlined in this report.

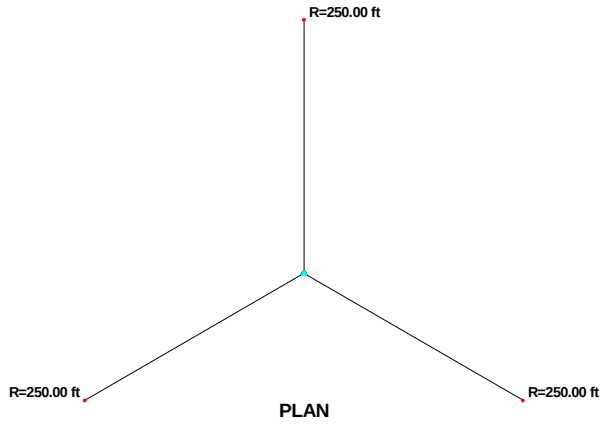
Should you need any clarifications or have any questions about this report, please contact EFI at telecom@efiglobal.com.

EFI GLOBAL, INC.
1117 Perimeter Center West, Suite E500, Atlanta GA 30338 - Tel: (770) 693-0835

APPENDIX A
SOFTWARE OUTPUT







DESIGNED APPURTENANCE LOADING

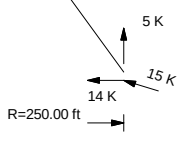
TYPE	ELEVATION	TYPE	ELEVATION
TFU-30J	120	APXVAALL24_43-U-NA20 w/ Mount Pipe	103
AIR 21 B2A/B4P w/ Mount Pipe	103	Radio 4449 B71+B85	103
AIR 21 B2A/B4P w/ Mount Pipe	103	Radio 4449 B71+B85	103
AIR 21 B2A/B4P w/ Mount Pipe	103	Radio 4449 B71+B85	103
AIR -32 B2A/B66AA w/ Mount Pipe	103	8'-P2x0.203	103
AIR -32 B2A/B66AA w/ Mount Pipe	103	8'-P2x0.203	103
AIR -32 B2A/B66AA w/ Mount Pipe	103	8'-P2x0.203	103
Generic Twin AWS TMA	103	Valmont/Site Pro 1 VFA 12-HD	103
Generic Twin AWS TMA	103	Valmont/Site Pro 1 VFA 12-HD	103
Generic Twin AWS TMA	103	Valmont/Site Pro 1 VFA 12-HD	103
APXVAALL24_43-U-NA20 w/ Mount Pipe	103		
APXVAALL24_43-U-NA20 w/ Mount Pipe	103		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A7-33	33 ksi	60 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 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. TOWER RATING: 53.3%



ALL REACTIONS ARE FACTORED

EFI Global, Inc.
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Phone: (770) 693 - 0835
FAX:

Job: ***CT11134A***			
Project: ***049.00941 - 2075082***			
Client: T-Mobile	Drawn by: Patrick.Baxter	App'd:	
Code: TIA-222-G	Date: 10/27/20	Scale: NTS	
Path: C:\Users\patrick.baxter\inSync Share\EFI Marietta Workspace\Projects\2020\75 - ForeSite LLC\082 - CT11134A\TNX\CT11134A.eri		Dwg No. E-1	

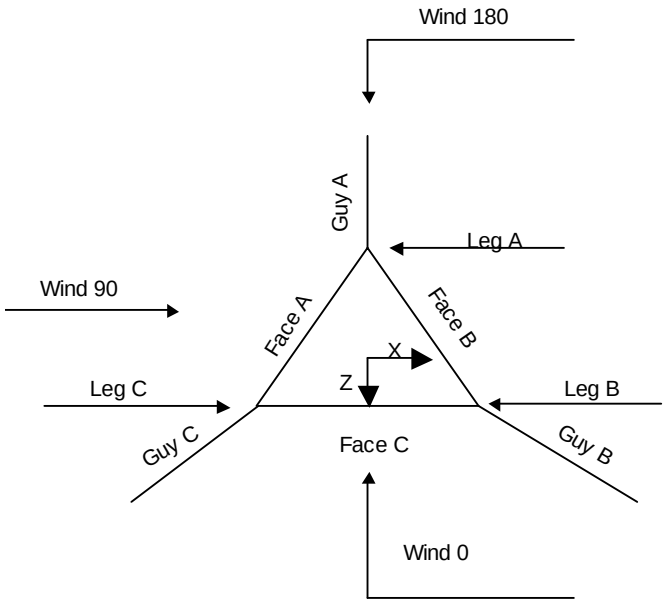
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 120.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 6.00 ft at the top and tapered at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category B.
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.
Pressures are calculated at each section.
Safety factor used in guy design is 1.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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



Corner & Starmount Guyed Tower

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	120.00-112.00			6.00	1	8.00
T2	112.00-87.00			6.00	1	25.00
T3	87.00-62.00			6.00	1	25.00
T4	62.00-37.00			6.00	1	25.00
T5	37.00-12.00			6.00	1	25.00
T6	12.00-0.00			6.00	1	12.00

Tower Section Geometry *(cont'd)*

Tower Section	*Tower Elevation*	*Diagonal Spacing*	*Bracing Type*	*Has K Brace End Panels*	*Has Horizontals*	*Top Girt Offset*	*Bottom Girt Offset*
	ft	*ft*				*in*	*in*
T1	120.00-112.00	8.00	TX Brace	No	Yes	0.0000	0.0000
T2	112.00-87.00	8.00	TX Brace	No	Yes	6.0000	6.0000
T3	87.00-62.00	8.00	TX Brace	No	Yes	6.0000	6.0000
T4	62.00-37.00	8.00	TX Brace	No	Yes	6.0000	6.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T5	37.00-12.00	8.00	TX Brace	No	Yes	6.0000	6.0000
T6	12.00-0.00	2.00	X Brace	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 120.00-112.00	Solid Round	4 1/2	A7-33 (33 ksi)	Solid Round	3/4	A7-33 (33 ksi)
T2 112.00-87.00	Solid Round	4 1/2	A7-33 (33 ksi)	Solid Round	3/4	A7-33 (33 ksi)
T3 87.00-62.00	Solid Round	4 1/2	A7-33 (33 ksi)	Solid Round	3/4	A7-33 (33 ksi)
T4 62.00-37.00	Solid Round	4 1/2	A7-33 (33 ksi)	Solid Round	3/4	A7-33 (33 ksi)
T5 37.00-12.00	Solid Round	4 1/2	A7-33 (33 ksi)	Solid Round	3/4	A7-33 (33 ksi)
T6 12.00-0.00	Solid Round	4 1/2	A7-33 (33 ksi)	Solid Round		A7-33 (33 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 120.00-112.00	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)
T2 112.00-87.00	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)
T3 87.00-62.00	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)
T4 62.00-37.00	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)
T5 37.00-12.00	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 120.00-112.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)
T2 112.00-87.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T3 87.00-62.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)
T4 62.00-37.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)
T5 37.00-12.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)
T6 12.00-0.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L 2 1/2x 2 1/2x 1/4	A7-33 (33 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 120.00-112.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.0000
T2 112.00-87.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.0000
T3 87.00-62.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.0000
T4 62.00-37.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.0000
T5 37.00-12.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.0000
T6 12.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
120.00-112.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
112.00-87.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
87.00-62.00				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
62.00-37.00				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
37.00-12.00				1	1	1	1	1	1	1
T6 12.00-0.00	Yes	Yes	0.2	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 120.00-112.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 112.00-87.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 87.00-62.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 62.00-37.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 37.00-12.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 12.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
103.5	BS	A	5/8	4.80	10%	24000	0.820	267.17	250.00	0.0000	0.00	100%
		B	5/8	4.80	10%	24000	0.820	267.17	250.00	0.0000	0.00	100%
		C	5/8	4.80	10%	24000	0.820	267.17	250.00	0.0000	0.00	100%

Guy Data*(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
103.5	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
103.50	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
103.5	0.22	0.22	0.22		6.05 4.2 sec/pulse	6.05 4.2 sec/pulse	6.05 4.2 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
103.5	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
103.5	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
103.5	A	51.75	17	4	2.0920
	B	51.75	17	4	2.0920
	C	51.75	17	4	2.0920

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom K	F_x K	F_y K	F_z K	M_x kip-ft	M_y kip-ft	M_z kip-ft
103.5	A	22.7735	4.88 4.80	0.00	1.98	-4.46	-6.87	0.00	0.00
	B	22.7735	4.88 4.80	3.87	1.98	2.23	3.44	0.00	-5.95
	C	22.7735	4.88	-3.87	1.98	2.23	3.44	-0.00	5.95

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
			4.80						
			Sum:	0.00	5.95	0.00	0.00	0.00	0.00

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
103.5	A	22.7735	12.54	0.00	5.73	-11.15	-19.85	0.00	0.00
			11.73						
	B	22.7735	12.54	9.66	5.73	5.57	9.92	0.00	-17.19
			11.73						
	C	22.7735	12.54	-9.66	5.73	5.57	9.92	-0.00	17.19
			11.73						
			Sum:	0.00	17.19	0.00	0.00	0.00	0.00

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
103.5	A	22.7735	4.88	0.00	1.98	-4.46	-6.87	0.00	0.00
			4.80						
	B	22.7735	4.88	3.87	1.98	2.23	3.44	0.00	-5.95
			4.80						
	C	22.7735	4.88	-3.87	1.98	2.23	3.44	-0.00	5.95
			4.80						
			Sum:	0.00	5.95	0.00	0.00	0.00	0.00

Guy-Tensioning Information

				Temperature At Time Of Tensioning													
				0 F		20 F		40 F		60 F		80 F		100 F		120 F	
Guy Elevation		H	V	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept
ft		ft	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft
103.5	A	246.54	103.50	6.481	4.49	5.905	4.92	5.343	5.44	4.800	6.05	4.282	6.78	3.798	7.63	3.357	8.62
	B	246.54	103.50	6.481	4.49	5.905	4.92	5.343	5.44	4.800	6.05	4.282	6.78	3.798	7.63	3.357	8.62
	C	246.54	103.50	6.481	4.49	5.905	4.92	5.343	5.44	4.800	6.05	4.282	6.78	3.798	7.63	3.357	8.62

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
MACX675A (6-1/8 AIR)	A	No	No	Ar (CaAa)	120.00 - 10.00	-18.0000	0	1	1	6.0800	6.0800		4.52
Climbing Ladder	C	No	No	Ar (CaAa)	120.00 - 0.00	0.0000	0.3	2	2	24.0000 0.2500	2.0000		7.90
Feedline Ladder (Af)	B	No	No	Ar (CaAa)	103.00 - 0.00	-6.0000	0.3	2	2	3.0000	3.0000		8.40
LDF6-50A (1-1/4 FOAM)	B	No	No	Ar (CaAa)	103.00 - 0.00	-8.0000	0.3	6	4	1.5500	1.5500		0.66
Highcapacity Hybrid for TMO - 1.584"	B	No	No	Ar (CaAa)	103.00 - 0.00	-2.0000	0.32	1	1	1.5840	1.5840		1.61
Highcapacity Hybrid for TMO - 1.584"	B	No	No	Ar (CaAa)	103.00 - 0.00	-2.0000	0.34	2	2	1.5840	1.5840		1.61

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	120.00-112.00	A	0.000	0.000	3.119	0.000	0.04
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	3.200	0.000	0.13
T2	112.00-87.00	A	0.000	0.000	9.963	0.000	0.11
		B	0.000	0.000	32.083	0.000	0.41
		C	0.000	0.000	10.000	0.000	0.40
T3	87.00-62.00	A	0.000	0.000	10.383	0.000	0.11
		B	0.000	0.000	50.130	0.000	0.64
		C	0.000	0.000	10.000	0.000	0.40
T4	62.00-37.00	A	0.000	0.000	11.008	0.000	0.11
		B	0.000	0.000	50.130	0.000	0.64
		C	0.000	0.000	10.000	0.000	0.40
T5	37.00-12.00	A	0.000	0.000	11.829	0.000	0.11
		B	0.000	0.000	50.130	0.000	0.64
		C	0.000	0.000	10.000	0.000	0.40
T6	12.00-0.00	A	0.000	0.000	0.946	0.000	0.01
		B	0.000	0.000	24.062	0.000	0.31
		C	0.000	0.000	4.800	0.000	0.19

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	120.00-112.00	A	2.268	0.000	0.000	8.493	0.000	0.22
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	10.457	0.000	0.32
T2	112.00-87.00	A	2.233	0.000	0.000	26.367	0.000	0.68

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	98.181	0.000	1.93
		C		0.000	0.000	32.334	0.000	0.97
T3	87.00-62.00	A	2.170	0.000	0.000	26.048	0.000	0.66
		B		0.000	0.000	151.452	0.000	2.94
		C		0.000	0.000	31.697	0.000	0.95
T4	62.00-37.00	A	2.083	0.000	0.000	25.614	0.000	0.63
		B		0.000	0.000	148.785	0.000	2.84
		C		0.000	0.000	30.828	0.000	0.91
T5	37.00-12.00	A	1.941	0.000	0.000	24.907	0.000	0.59
		B		0.000	0.000	144.450	0.000	2.68
		C		0.000	0.000	29.413	0.000	0.86
T6	12.00-0.00	A	1.687	0.000	0.000	1.891	0.000	0.04
		B		0.000	0.000	65.597	0.000	1.15
		C		0.000	0.000	12.895	0.000	0.37

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	120.00-112.00	-1.8756	1.3208	-2.4483	1.6636
T2	112.00-87.00	3.5518	4.0565	2.7498	4.5279
T3	87.00-62.00	5.7045	4.9850	5.0473	5.5033
T4	62.00-37.00	5.6391	4.9268	5.1084	5.5597
T5	37.00-12.00	5.5809	4.8748	5.2065	5.6484
T6	12.00-0.00	3.3566	2.9901	2.6934	2.8909

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	MACX675A (6-1/8 AIR)	112.00 - 120.00	1.0000	0.5020
T1	2	Climbing Ladder	112.00 - 120.00	0.6000	0.5020
T2	1	MACX675A (6-1/8 AIR)	87.00 - 112.00	1.0000	0.5561
T2	2	Climbing Ladder	87.00 - 112.00	0.6000	0.5561
T2	3	Feedline Ladder (Af)	87.00 - 103.00	0.6000	0.5561
T2	4	LDF6-50A (1-1/4 FOAM)	87.00 - 103.00	0.6000	0.5561
T2	5	Highcapacity Hybrid for TMO - 1.584"	87.00 - 103.00	0.6000	0.5561
T2	6	Highcapacity Hybrid for TMO - 1.584"	87.00 - 103.00	0.6000	0.5561
T3	1	MACX675A (6-1/8 AIR)	62.00 - 87.00	1.0000	0.5635
T3	2	Climbing Ladder	62.00 - 87.00	0.6000	0.5635
T3	3	Feedline Ladder (Af)	62.00 - 87.00	0.6000	0.5635
T3	4	LDF6-50A (1-1/4 FOAM)	62.00 - 87.00	0.6000	0.5635
T3	5	Highcapacity Hybrid for TMO - 1.584"	62.00 - 87.00	0.6000	0.5635
T3	6	Highcapacity Hybrid for TMO - 1.584"	62.00 - 87.00	0.6000	0.5635

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	1	MACX675A (6-1/8 AIR)	37.00 - 62.00	1.0000	0.5737
T4	2	Climbing Ladder	37.00 - 62.00	0.6000	0.5737
T4	3	Feedline Ladder (Af)	37.00 - 62.00	0.6000	0.5737
T4	4	LDF6-50A (1-1/4 FOAM)	37.00 - 62.00	0.6000	0.5737
T4	5	Highcapacity Hybrid for TMO - 1.584"	37.00 - 62.00	0.6000	0.5737
T4	6	Highcapacity Hybrid for TMO - 1.584"	37.00 - 62.00	0.6000	0.5737
T5	1	MACX675A (6-1/8 AIR)	12.00 - 37.00	1.0000	0.5903
T5	2	Climbing Ladder	12.00 - 37.00	0.6000	0.5903
T5	3	Feedline Ladder (Af)	12.00 - 37.00	0.6000	0.5903
T5	4	LDF6-50A (1-1/4 FOAM)	12.00 - 37.00	0.6000	0.5903
T5	5	Highcapacity Hybrid for TMO - 1.584"	12.00 - 37.00	0.6000	0.5903
T5	6	Highcapacity Hybrid for TMO - 1.584"	12.00 - 37.00	0.6000	0.5903
T6	1	MACX675A (6-1/8 AIR)	10.00 - 12.00	1.0000	0.4205
T6	2	Climbing Ladder	0.00 - 12.00	0.6000	0.4205
T6	3	Feedline Ladder (Af)	0.00 - 12.00	0.6000	0.4205
T6	4	LDF6-50A (1-1/4 FOAM)	0.00 - 12.00	0.6000	0.4205
T6	5	Highcapacity Hybrid for TMO - 1.584"	0.00 - 12.00	0.6000	0.4205
T6	6	Highcapacity Hybrid for TMO - 1.584"	0.00 - 12.00	0.6000	0.4205

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
120ft									
TFU-30J	B	None		0.0000	120.00	No Ice	50.00	50.00	0.10
						1/2" Ice	53.43	53.43	0.35
						1" Ice	56.86	56.86	0.62
103ft									
AIR 21 B2A/B4P w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	3.14 3.45 3.76	2.58 2.88 3.18	0.10 0.15 0.21
AIR 21 B2A/B4P w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	3.14 3.45 3.76	2.58 2.88 3.18	0.10 0.15 0.21
AIR 21 B2A/B4P w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	3.14 3.45 3.76	2.58 2.88 3.18	0.10 0.15 0.21
AIR -32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	6.75 7.20 7.65	6.07 6.87 7.58	0.15 0.21 0.28
AIR -32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	6.75 7.20 7.65	6.07 6.87 7.58	0.15 0.21 0.28
AIR -32 B2A/B66AA w/	C	From Leg	4.00	0.0000	103.00	No Ice	6.75	6.07	0.15

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Pipe			0.00			1/2" Ice	7.20	6.87	0.21
			0.00			1" Ice	7.65	7.58	0.28
Generic Twin AWS TMA	A	From Leg	4.00	0.0000	103.00	No Ice	0.64	0.64	0.02
			0.00			1/2" Ice	0.82	0.82	0.03
			0.00			1" Ice	1.00	1.00	0.04
Generic Twin AWS TMA	B	From Leg	4.00	0.0000	103.00	No Ice	0.64	0.64	0.02
			0.00			1/2" Ice	0.82	0.82	0.03
			0.00			1" Ice	1.00	1.00	0.04
Generic Twin AWS TMA	C	From Leg	4.00	0.0000	103.00	No Ice	0.64	0.64	0.02
			0.00			1/2" Ice	0.82	0.82	0.03
			0.00			1" Ice	1.00	1.00	0.04
APXVAALL24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00	0.0000	103.00	No Ice	14.69	6.87	0.18
			0.00			1/2" Ice	15.46	7.55	0.31
			0.00			1" Ice	16.23	8.25	0.45
APXVAALL24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00	0.0000	103.00	No Ice	14.69	6.87	0.18
			0.00			1/2" Ice	15.46	7.55	0.31
			0.00			1" Ice	16.23	8.25	0.45
APXVAALL24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00	0.0000	103.00	No Ice	14.69	6.87	0.18
			0.00			1/2" Ice	15.46	7.55	0.31
			0.00			1" Ice	16.23	8.25	0.45
Radio 4449 B71+B85	A	From Leg	4.00	0.0000	103.00	No Ice	1.97	1.59	0.07
			0.00			1/2" Ice	2.15	1.75	0.09
			0.00			1" Ice	2.33	1.92	0.12
Radio 4449 B71+B85	B	From Leg	4.00	0.0000	103.00	No Ice	1.97	1.59	0.07
			0.00			1/2" Ice	2.15	1.75	0.09
			0.00			1" Ice	2.33	1.92	0.12
Radio 4449 B71+B85	C	From Leg	4.00	0.0000	103.00	No Ice	1.97	1.59	0.07
			0.00			1/2" Ice	2.15	1.75	0.09
			0.00			1" Ice	2.33	1.92	0.12
8'-P2x0.203	A	From Leg	4.00	0.0000	103.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
8'-P2x0.203	B	From Leg	4.00	0.0000	103.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
8'-P2x0.203	C	From Leg	4.00	0.0000	103.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
Valmont/Site Pro 1 VFA 12-HD	A	From Leg	4.00	0.0000	103.00	No Ice	13.20	9.20	0.66
			0.00			1/2" Ice	19.50	14.60	0.80
			0.00			1" Ice	25.80	19.50	1.01
Valmont/Site Pro 1 VFA 12-HD	B	From Leg	4.00	0.0000	103.00	No Ice	13.20	9.20	0.66
			0.00			1/2" Ice	19.50	14.60	0.80
			0.00			1" Ice	25.80	19.50	1.01
Valmont/Site Pro 1 VFA 12-HD	C	From Leg	4.00	0.0000	103.00	No Ice	13.20	9.20	0.66
			0.00			1/2" Ice	19.50	14.60	0.80
			0.00			1" Ice	25.80	19.50	1.01
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Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	120 - 112	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-3.63	-0.35	0.20
			Max. Mx	5	-0.71	0.39	-0.04
			Max. My	8	-0.58	0.00	0.42
			Max. Vy	5	-0.58	-0.00	0.00
			Max. Vx	2	0.59	0.00	0.00
		Diagonal	Max Tension	9	2.10	0.00	0.00
		Top Girt	Max Tension	2	0.35	0.00	0.00
			Max. Compression	6	-0.73	0.00	0.00
			Max. Mx	19	0.08	-0.09	0.00
			Max. My	10	-0.72	0.00	0.00
			Max. Vy	19	-0.06	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	10	-0.00	0.00	0.00
		Bottom Girt	Max Tension	4	0.07	0.00	0.00
			Max. Compression	5	-0.68	0.00	0.00
			Max. Mx	19	-0.21	-0.09	0.00
			Max. My	10	-0.54	0.00	0.00
			Max. Vy	19	-0.06	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
T2	112 - 87	Leg	Max Tension	8	2.21	0.00	0.42
			Max. Compression	17	-20.28	-0.01	0.01
			Max. Mx	5	-7.26	-1.30	-0.04
			Max. My	8	-7.07	-0.05	-1.27
			Max. Vy	5	-1.24	-0.56	-0.12
			Max. Vx	2	1.35	0.00	0.61
		Diagonal	Max Tension	9	4.46	0.00	0.00
		Horizontal	Max Tension	19	7.30	0.00	0.00
			Max. Compression	9	-2.64	0.00	0.00
			Max. Mx	19	0.31	-0.09	0.00
			Max. My	10	0.21	0.00	0.00
			Max. Vy	19	-0.06	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
		Top Girt	Max Tension	2	0.07	0.00	0.00
			Max. Compression	6	-0.61	0.00	0.00
			Max. Mx	19	0.00	-0.09	0.00
			Max. My	10	-0.59	0.00	0.00
			Max. Vy	19	-0.06	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
		Bottom Girt	Max Tension	6	0.38	0.00	0.00
			Max. Compression	10	-1.38	0.00	0.00
			Max. Mx	19	0.10	-0.09	0.00
			Max. My	10	-1.38	0.00	0.00
			Max. Vy	19	-0.06	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
		Guy A	Bottom Tension	21	14.55		
			Top Tension	21	15.36		
			Top Cable Vert	21	6.85		
			Top Cable Norm	21	13.74		
			Top Cable Tan	21	0.00		
			Bot Cable Vert	21	-4.71		
			Bot Cable Norm	21	13.77		
			Bot Cable Tan	21	0.00		
		Guy B	Bottom Tension	25	14.22		
			Top Tension	25	15.02		
			Top Cable Vert	25	6.72		
			Top Cable Norm	25	13.43		
			Top Cable Tan	25	0.00		
			Bot Cable Vert	25	-4.58		
			Bot Cable Norm	25	13.46		
			Bot Cable Tan	25	0.00		
		Guy C	Bottom Tension	17	14.56		
			Top Tension	17	15.36		
			Top Cable Vert	17	6.85		
			Top Cable Norm	17	13.75		
			Top Cable Tan	17	0.00		
			Bot Cable Vert	17	-4.71		
			Bot Cable Norm	17	13.78		
			Bot Cable Tan	17	0.00		
T3	87 - 62	Leg	Max Tension	10	9.62	0.07	-0.16
			Max. Compression	17	-28.49	0.01	-0.02
			Max. Mx	5	0.41	0.68	0.13
			Max. My	2	1.43	-0.01	-0.73
			Max. Vy	5	-1.23	0.06	0.01

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	1.34	-0.00	-0.06
		Diagonal	Max Tension	9	3.70	0.00	0.00
		Horizontal	Max Tension	4	0.49	0.00	0.00
			Max. Compression	9	-1.89	0.00	0.00
			Max. Mx	19	0.41	-0.09	0.00
			Max. My	10	0.35	0.00	0.00
			Max. Vy	19	0.06	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
		Top Girt	Max Tension	8	0.25	0.00	0.00
			Max. Compression	9	-1.14	0.00	0.00
			Max. Mx	19	-0.11	-0.09	0.00
			Max. My	10	-0.87	0.00	0.00
			Max. Vy	19	0.06	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
		Bottom Girt	Max Tension	6	0.14	0.00	0.00
			Max. Compression	10	-0.63	0.00	0.00
			Max. Mx	19	0.06	-0.09	0.00
			Max. My	9	-0.61	0.00	0.00
			Max. Vy	19	0.06	0.00	0.00
			Max. Vx	9	-0.00	0.00	0.00
T4	62 - 37	Leg	Max Tension	10	9.59	-0.08	0.03
			Max. Compression	17	-32.50	0.12	-0.03
			Max. Mx	10	6.62	-0.39	0.06
			Max. My	2	6.17	-0.11	-0.36
			Max. Vy	10	-0.63	-0.08	0.06
			Max. Vx	2	-0.57	-0.01	-0.07
		Diagonal	Max Tension	10	1.93	0.00	0.00
		Horizontal	Max Tension	17	0.56	0.00	0.00
			Max. Compression	10	-0.92	0.00	0.00
			Max. Mx	19	0.49	-0.09	0.00
			Max. My	9	0.50	0.00	0.00
			Max. Vy	19	-0.06	0.00	0.00
			Max. Vx	9	-0.00	0.00	0.00
		Top Girt	Max Tension	16	0.01	0.00	0.00
			Max. Compression	9	-0.49	0.00	0.00
			Max. Mx	19	-0.03	-0.09	0.00
			Max. My	9	-0.49	0.00	0.00
			Max. Vy	19	-0.06	0.00	0.00
			Max. Vx	9	-0.00	0.00	0.00
		Bottom Girt	Max Tension	24	0.05	0.00	0.00
			Max. Compression	4	-0.66	0.00	0.00
			Max. Mx	19	-0.00	-0.09	0.00
			Max. My	9	-0.03	0.00	0.00
			Max. Vy	19	-0.06	0.00	0.00
			Max. Vx	9	-0.00	0.00	0.00
T5	37 - 12	Leg	Max Tension	10	6.51	-0.08	0.06
			Max. Compression	25	-33.93	-0.27	-0.07
			Max. Mx	25	-32.58	1.53	0.94
			Max. My	21	-32.18	0.09	-1.78
			Max. Vy	24	-3.60	1.50	0.92
			Max. Vx	21	3.85	0.09	-1.78
		Diagonal	Max Tension	10	4.43	0.00	0.00
		Horizontal	Max Tension	25	0.59	0.00	0.00
			Max. Compression	10	-2.37	0.00	0.00
			Max. Mx	19	0.54	-0.08	0.00
			Max. My	9	0.49	0.00	0.00
			Max. Vy	19	0.05	0.00	0.00
			Max. Vx	9	-0.00	0.00	0.00
		Top Girt	Max Tension	6	0.11	0.00	0.00
			Max. Compression	10	-0.89	0.00	0.00
			Max. Mx	19	0.04	-0.08	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	9	-0.14	0.00	0.00
			Max. Vy	19	0.05	0.00	0.00
			Max. Vx	9	-0.00	0.00	0.00
		Bottom Girt	Max Tension	19	1.96	0.00	0.00
			Max. Compression	10	-0.10	0.00	0.00
			Max. Mx	19	1.96	-0.08	0.00
			Max. My	9	0.67	0.00	0.00
			Max. Vy	19	0.05	0.00	0.00
			Max. Vx	9	-0.00	0.00	0.00
T6	12 - 0	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-35.86	-0.15	-0.11
			Max. Mx	17	-34.09	1.87	-0.14
			Max. My	3	-15.72	0.00	1.36
			Max. Vy	17	1.12	-0.42	0.03
			Max. Vx	3	-0.45	-0.25	0.64
		Horizontal	Max Tension	15	2.70	0.06	-0.03
			Max. Compression	19	-0.14	0.02	0.02
			Max. Mx	3	1.10	0.14	-0.20
			Max. My	3	1.10	-0.11	0.21
			Max. Vy	10	-0.22	0.11	-0.00
			Max. Vx	10	-0.07	0.04	0.03

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	19	94.53	-0.75	-0.32
	Max. H_x	11	46.16	3.48	0.10
	Max. H_z	2	47.12	0.02	3.53
	Max. M_x	1	0.00	0.02	0.06
	Max. M_z	1	0.00	0.02	0.06
	Max. Torsion	9	4.86	1.77	-3.03
	Min. Vert	1	37.03	0.02	0.06
	Min. H_x	5	46.18	-3.44	0.10
	Min. H_z	8	45.14	0.02	-3.37
	Min. M_x	1	0.00	0.02	0.06
	Min. M_z	1	0.00	0.02	0.06
	Min. Torsion	3	-4.87	-1.79	3.13
Guy C @ 250 ft Elev 0 ft Azimuth 240 deg	Max. Vert	10	-0.17	-0.52	0.30
	Max. H_x	10	-0.17	-0.52	0.30
	Max. H_z	17	-4.71	-11.93	6.89
	Min. Vert	4	-5.27	-11.18	6.45
	Min. H_x	17	-4.71	-11.93	6.89
	Min. H_z	10	-0.17	-0.52	0.30
Guy B @ 250 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-0.18	0.52	0.30
	Max. H_x	25	-4.58	11.66	6.73
	Max. H_z	25	-4.58	11.66	6.73
	Min. Vert	12	-5.20	11.03	6.37
	Min. H_x	6	-0.18	0.52	0.30
	Min. H_z	6	-0.18	0.52	0.30
Guy A @ 250 ft Elev 0 ft	Max. Vert	2	-0.18	0.00	-0.61

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Azimuth 0 deg					
	Max. H_x	24	-3.74	0.25	-11.35
	Max. H_z	2	-0.18	0.00	-0.61
	Min. Vert	9	-5.26	0.08	-12.92
	Min. H_x	18	-3.75	-0.25	-11.38
	Min. H_z	21	-4.71	-0.00	-13.77

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	37.03	-0.02	-0.06	0.00	0.00	0.01
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	47.12	-0.02	-3.53	0.00	0.00	2.99
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	46.20	1.79	-3.13	0.00	0.00	4.87
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	45.17	3.07	-1.86	0.00	0.00	4.65
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	46.18	3.44	-0.10	0.00	0.00	2.70
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	47.21	2.98	1.66	0.00	0.00	1.04
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	45.95	1.51	2.65	0.00	0.00	-0.29
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	45.14	-0.02	3.37	0.00	0.00	-3.10
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	46.26	-1.77	3.03	0.00	0.00	-4.86
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	47.31	-3.13	1.73	0.00	0.00	-4.48
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	46.16	-3.48	-0.10	0.00	0.00	-2.71
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	45.11	-2.99	-1.79	0.00	0.00	-1.11
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	45.87	-1.60	-2.75	0.00	0.00	0.30
1.2 Dead+1.0 Ice+1.0 Temp+Guy	94.07	-0.15	-0.20	0.00	0.00	0.08
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	94.47	-0.15	-1.24	0.00	0.00	0.84
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	94.32	0.42	-1.18	0.00	0.00	1.75
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	94.19	0.87	-0.79	0.00	0.00	1.69
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	94.35	0.94	-0.20	0.00	0.00	0.77
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	94.53	0.75	0.32	0.00	0.00	0.49
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	94.35	0.35	0.67	0.00	0.00	0.11
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	94.19	-0.15	0.84	0.00	0.00	-0.77
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	94.35	-0.71	0.78	0.00	0.00	-1.74
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	94.52	-1.16	0.39	0.00	0.00	-1.72

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	94.31	-1.23	-0.20	0.00	0.00	-0.84
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	94.15	-1.05	-0.72	0.00	0.00	-0.43
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	94.29	-0.64	-1.06	0.00	0.00	-0.08
Dead+Wind 0 deg - Service+Guy	37.16	-0.02	-0.91	0.00	0.00	0.75
Dead+Wind 30 deg - Service+Guy	37.12	0.42	-0.81	0.00	0.00	1.22
Dead+Wind 60 deg - Service+Guy	37.09	0.73	-0.49	0.00	0.00	1.14
Dead+Wind 90 deg - Service+Guy	37.12	0.83	-0.06	0.00	0.00	0.67
Dead+Wind 120 deg - Service+Guy	37.16	0.73	0.37	0.00	0.00	0.27
Dead+Wind 150 deg - Service+Guy	37.11	0.37	0.60	0.00	0.00	-0.07
Dead+Wind 180 deg - Service+Guy	37.09	-0.02	0.78	0.00	0.00	-0.75
Dead+Wind 210 deg - Service+Guy	37.12	-0.45	0.70	0.00	0.00	-1.21
Dead+Wind 240 deg - Service+Guy	37.17	-0.79	0.39	0.00	0.00	-1.13
Dead+Wind 270 deg - Service+Guy	37.12	-0.86	-0.06	0.00	0.00	-0.67
Dead+Wind 300 deg - Service+Guy	37.08	-0.74	-0.47	0.00	0.00	-0.27
Dead+Wind 330 deg - Service+Guy	37.11	-0.40	-0.72	0.00	0.00	0.07

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-31.74	0.00	-0.00	31.74	-0.00	0.000%
2	-0.00	-38.02	-14.20	-0.00	38.02	14.20	0.001%
3	7.13	-37.95	-12.35	-7.13	37.95	12.35	0.001%
4	12.29	-37.89	-7.09	-12.29	37.89	7.09	0.001%
5	14.00	-37.95	0.00	-14.00	37.95	0.00	0.001%
6	12.30	-38.02	7.10	-12.30	38.02	-7.10	0.001%
7	6.64	-37.95	11.50	-6.64	37.95	-11.50	0.001%
8	0.00	-37.89	13.89	0.00	37.89	-13.89	0.001%
9	-7.13	-37.95	12.35	7.13	37.95	-12.35	0.001%
10	-12.56	-38.02	7.25	12.56	38.02	-7.25	0.001%
11	-14.00	-37.95	-0.00	14.00	37.95	0.00	0.001%
12	-12.03	-37.89	-6.94	12.03	37.89	6.94	0.002%
13	-6.64	-37.95	-11.50	6.64	37.95	11.50	0.001%
14	0.00	-83.27	0.00	0.00	83.27	0.00	0.001%
15	-0.00	-83.36	-5.15	-0.00	83.36	5.15	0.000%
16	2.66	-83.27	-4.61	-2.66	83.27	4.61	0.001%
17	4.70	-83.18	-2.71	-4.70	83.18	2.71	0.001%
18	5.20	-83.27	0.00	-5.20	83.27	0.00	0.000%
19	4.46	-83.36	2.58	-4.46	83.36	-2.58	0.000%
20	2.51	-83.27	4.34	-2.51	83.27	-4.34	0.000%
21	0.00	-83.18	5.12	0.00	83.18	-5.12	0.001%
22	-2.66	-83.27	4.61	2.66	83.27	-4.61	0.001%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
23	-4.73	-83.36	2.73	4.73	83.36	-2.73	0.000%
24	-5.20	-83.27	-0.00	5.20	83.27	0.00	0.001%
25	-4.43	-83.18	-2.56	4.43	83.18	2.56	0.000%
26	-2.51	-83.27	-4.34	2.51	83.27	4.34	0.001%
27	0.00	-31.75	-3.40	-0.00	31.75	3.39	0.001%
28	1.70	-31.74	-2.95	-1.70	31.74	2.95	0.000%
29	2.94	-31.72	-1.70	-2.94	31.72	1.70	0.000%
30	3.35	-31.74	0.00	-3.35	31.74	0.00	0.001%
31	2.94	-31.75	1.70	-2.94	31.75	-1.70	0.000%
32	1.59	-31.74	2.75	-1.59	31.74	-2.75	0.000%
33	0.00	-31.72	3.32	0.00	31.72	-3.32	0.000%
34	-1.70	-31.74	2.95	1.70	31.74	-2.95	0.000%
35	-3.00	-31.75	1.73	3.00	31.75	-1.73	0.000%
36	-3.35	-31.74	0.00	3.35	31.74	0.00	0.000%
37	-2.88	-31.72	-1.66	2.88	31.72	1.66	0.000%
38	-1.59	-31.74	-2.75	1.59	31.74	2.75	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	8	0.00000001	0.00003255
2	Yes	13	0.00000001	0.00007536
3	Yes	13	0.00000001	0.00007412
4	Yes	10	0.00000001	0.00005357
5	Yes	13	0.00000001	0.00005617
6	Yes	13	0.00000001	0.00006410
7	Yes	13	0.00000001	0.00004342
8	Yes	9	0.00000001	0.00004957
9	Yes	13	0.00000001	0.00007628
10	Yes	13	0.00000001	0.00009489
11	Yes	13	0.00000001	0.00005578
12	Yes	9	0.00000001	0.00009076
13	Yes	13	0.00000001	0.00004145
14	Yes	7	0.00000001	0.00008635
15	Yes	11	0.00000001	0.00003523
16	Yes	10	0.00000001	0.00008847
17	Yes	9	0.00000001	0.00005230
18	Yes	11	0.00000001	0.00004125
19	Yes	11	0.00000001	0.00004533
20	Yes	11	0.00000001	0.00002899
21	Yes	9	0.00000001	0.00004027
22	Yes	10	0.00000001	0.00009774
23	Yes	11	0.00000001	0.00004613
24	Yes	10	0.00000001	0.00009688
25	Yes	9	0.00000001	0.00003898
26	Yes	10	0.00000001	0.00007527
27	Yes	9	0.00000001	0.00009220
28	Yes	9	0.00000001	0.00005800
29	Yes	9	0.00000001	0.00002950
30	Yes	9	0.00000001	0.00007284
31	Yes	10	0.00000001	0.00002094
32	Yes	9	0.00000001	0.00005726
33	Yes	8	0.00000001	0.00009186
34	Yes	9	0.00000001	0.00006373
35	Yes	10	0.00000001	0.00002055

36	Yes	9	0.00000001	0.00006452
37	Yes	8	0.00000001	0.00002459
38	Yes	9	0.00000001	0.00005175

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	120 - 112	1.530	35	0.0576	0.2161
T2	112 - 87	1.425	35	0.0575	0.2162
T3	87 - 62	1.157	35	0.0574	0.2162
T4	62 - 37	0.887	35	0.0605	0.2043
T5	37 - 12	0.558	35	0.0646	0.1512
T6	12 - 0	0.172	35	0.0676	0.0896

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
120.00	TFU-30J	35	1.530	0.0576	0.2161	85703
103.50	Guy	35	1.326	0.0573	0.2163	86637
103.00	AIR 21 B2A/B4P w/ Mount Pipe	35	1.321	0.0573	0.2163	89980

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	120 - 112	10.619	10	0.4076	0.7819
T2	112 - 87	9.902	10	0.4071	0.7821
T3	87 - 62	7.896	10	0.4071	0.7845
T4	62 - 37	5.872	10	0.4204	0.7366
T5	37 - 12	3.615	10	0.4383	0.5818
T6	12 - 0	1.144	10	0.4509	0.3573

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
120.00	TFU-30J	10	10.619	0.4076	0.7819	20923
103.50	Guy	10	9.189	0.4063	0.7839	21666
103.00	AIR 21 B2A/B4P w/ Mount Pipe	10	9.149	0.4063	0.7841	22571

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T2	103.50 (A) (171)	5/8 BS	4.80	48.00	15.36	28.80	1.000	1.875
	103.50 (B) (170)	5/8 BS	4.80	48.00	15.02	28.80	1.000	1.918
	103.50 (C) (169)	5/8 BS	4.80	48.00	15.36	28.80	1.000	1.875

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	120 - 112	4 1/2	8.00	8.00	85.3 K=1.00	15.9043	-3.63	332.40	0.011 [1]
T2	112 - 87	4 1/2	25.00	8.00	85.3 K=1.00	15.9043	-19.81	332.40	0.060 [1]
T3	87 - 62	4 1/2	25.00	8.00	85.3 K=1.00	15.9043	-28.23	332.40	0.085 [1]
T4	62 - 37	4 1/2	25.00	8.00	85.3 K=1.00	15.9043	-32.50	332.40	0.098 [1]
T5	37 - 12	4 1/2	25.00	8.00	85.3 K=1.00	15.9043	-33.93	332.40	0.102 [1]
T6	12 - 0	4 1/2	12.49	2.08	4.4 K=0.20	15.9043	-35.86	471.91	0.076 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	112 - 87	L 2 1/2x 2 1/2x 1/4	6.00	5.63	130.7 K=0.95	1.1900	-2.64	15.49	0.170 [1]
T3	87 - 62	L 2 1/2x 2 1/2x 1/4	6.00	5.63	130.7 K=0.95	1.1900	-1.89	15.49	0.122 [1]
T4	62 - 37	L 2 1/2x 2 1/2x 1/4	6.00	5.63	130.7 K=0.95	1.1900	-0.92	15.49	0.060 [1]
T5	37 - 12	L 2 1/2x 2 1/2x 1/4	6.00	5.63	130.7 K=0.95	1.1900	-2.37	15.49	0.153 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T6	12 - 0	L 2 1/2x 2 1/2x 1/4	4.00	3.63	104.3 K=1.18	1.1900	-0.14	20.91	0.007 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	120 - 112	L 2 1/2x 2 1/2x 1/4	6.00	5.63	130.7 K=0.95	1.1900	-0.73	15.49	0.047 [1]
T2	112 - 87	L 2 1/2x 2 1/2x 1/4	6.00	5.63	130.7 K=0.95	1.1900	-0.61	15.49	0.040 [1]
T3	87 - 62	L 2 1/2x 2 1/2x 1/4	6.00	5.63	130.7 K=0.95	1.1900	-1.14	15.49	0.074 [1]
T4	62 - 37	L 2 1/2x 2 1/2x 1/4	6.00	5.63	130.7 K=0.95	1.1900	-0.49	15.49	0.032 [1]
T5	37 - 12	L 2 1/2x 2 1/2x 1/4	6.00	5.63	130.7 K=0.95	1.1900	-0.89	15.49	0.058 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	120 - 112	L 2 1/2x 2 1/2x 1/4	6.00	5.63	130.7 K=0.95	1.1900	-0.68	15.49	0.044 [1]
T2	112 - 87	L 2 1/2x 2 1/2x 1/4	6.00	5.63	130.7 K=0.95	1.1900	-1.38	15.49	0.089 [1]
T3	87 - 62	L 2 1/2x 2 1/2x 1/4	6.00	5.63	130.7 K=0.95	1.1900	-0.63	15.49	0.041 [1]
T4	62 - 37	L 2 1/2x 2 1/2x 1/4	6.00	5.63	130.7 K=0.95	1.1900	-0.66	15.49	0.043 [1]
T5	37 - 12	L 2 1/2x 2 1/2x 1/4	6.00	5.63	130.7 K=0.95	1.1900	-0.10	15.49	0.007 [1]

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	112 - 87	4 1/2	25.00	0.50	5.3	15.9043	2.21	472.36	0.005 [1]
T3	87 - 62	4 1/2	25.00	0.50	5.3	15.9043	9.62	472.36	0.020 [1]
T4	62 - 37	4 1/2	25.00	0.50	5.3	15.9043	9.59	472.36	0.020 [1]
T5	37 - 12	4 1/2	25.00	0.50	5.3	15.9043	6.51	472.36	0.014 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	120 - 112	3/4	10.00	9.38	600.0	0.4418	2.10	13.12	0.160 [1]
T2	112 - 87	3/4	10.00	9.38	600.0	0.4418	4.46	13.12	0.340 [1]
T3	87 - 62	3/4	10.00	9.38	600.0	0.4418	3.70	13.12	0.282 [1]
T4	62 - 37	3/4	10.00	9.38	600.0	0.4418	1.93	13.12	0.147 [1]
T5	37 - 12	3/4	10.00	9.38	600.0	0.4418	4.43	13.12	0.338 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	112 - 87	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	7.30	35.34	0.207 [1]
T3	87 - 62	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	0.49	35.34	0.014 [1]
T4	62 - 37	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	0.56	35.34	0.016 [1]
T5	37 - 12	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	0.59	35.34	0.017 [1]
T6	12 - 0	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	2.70	35.34	0.076 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	120 - 112	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	0.35	35.34	0.010 [1]
T2	112 - 87	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	0.07	35.34	0.002 [1]
T3	87 - 62	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	0.25	35.34	0.007 [1]
T4	62 - 37	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	0.01	35.34	0.000 [1]
T5	37 - 12	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	0.11	35.34	0.003 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	120 - 112	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	0.07	35.34	0.002 [1]
T2	112 - 87	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	0.38	35.34	0.011 [1]
T3	87 - 62	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	0.14	35.34	0.004 [1]
T4	62 - 37	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	0.05	35.34	0.001 [1]
T5	37 - 12	L 2 1/2x 2 1/2x 1/4	6.00	5.63	87.8	1.1900	1.96	35.34	0.056 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	120 - 112	Leg	4 1/2	1	-3.63	332.40	1.1	Pass
T2	112 - 87	Leg	4 1/2	16	-19.81	332.40	6.0	Pass
T3	87 - 62	Leg	4 1/2	49	-28.23	332.40	8.5	Pass
T4	62 - 37	Leg	4 1/2	82	-32.50	332.40	9.8	Pass
T5	37 - 12	Leg	4 1/2	116	-33.93	332.40	10.2	Pass
T6	12 - 0	Leg	4 1/2	149	-35.86	471.91	7.6	Pass
T1	120 - 112	Diagonal	3/4	14	2.10	13.12	16.0	Pass
T2	112 - 87	Diagonal	3/4	30	4.46	13.12	34.0	Pass
T3	87 - 62	Diagonal	3/4	81	3.70	13.12	28.2	Pass
T4	62 - 37	Diagonal	3/4	92	1.93	13.12	14.7	Pass
T5	37 - 12	Diagonal	3/4	125	4.43	13.12	33.8	Pass
T2	112 - 87	Horizontal	L 2 1/2x 2 1/2x 1/4	42	7.30	35.34	20.7	Pass
T3	87 - 62	Horizontal	L 2 1/2x 2 1/2x 1/4	75	-1.89	15.49	12.2	Pass
T4	62 - 37	Horizontal	L 2 1/2x 2 1/2x 1/4	97	-0.92	15.49	6.0	Pass
T5	37 - 12	Horizontal	L 2 1/2x 2 1/2x 1/4	130	-2.37	15.49	15.3	Pass
T6	12 - 0	Horizontal	L 2 1/2x 2 1/2x 1/4	151	2.70	35.34	7.6	Pass
T1	120 - 112	Top Girt	L 2 1/2x 2 1/2x 1/4	4	-0.73	15.49	4.7	Pass
T2	112 - 87	Top Girt	L 2 1/2x 2 1/2x 1/4	19	-0.61	15.49	4.0	Pass
T3	87 - 62	Top Girt	L 2 1/2x 2 1/2x 1/4	54	-1.14	15.49	7.4	Pass
T4	62 - 37	Top Girt	L 2 1/2x 2 1/2x 1/4	87	-0.49	15.49	3.2	Pass
T5	37 - 12	Top Girt	L 2 1/2x 2 1/2x 1/4	118	-0.89	15.49	5.8	Pass
T1	120 - 112	Bottom Girt	L 2 1/2x 2 1/2x 1/4	7	-0.68	15.49	4.4	Pass
T2	112 - 87	Bottom Girt	L 2 1/2x 2 1/2x 1/4	24	-1.38	15.49	8.9	Pass
T3	87 - 62	Bottom Girt	L 2 1/2x 2 1/2x 1/4	57	-0.63	15.49	4.1	Pass
T4	62 - 37	Bottom Girt	L 2 1/2x 2 1/2x 1/4	88	-0.66	15.49	4.3	Pass
T5	37 - 12	Bottom Girt	L 2 1/2x 2 1/2x 1/4	123	1.96	35.34	5.6	Pass
T2	112 - 87	Guy A@103.5	5/8	171	15.36	28.80	53.3	Pass
T2	112 - 87	Guy B@103.5	5/8	170	15.02	28.80	52.1	Pass
T2	112 - 87	Guy C@103.5	5/8	169	15.36	28.80	53.3	Pass
						Summary		
						Leg (T5)	10.2	Pass
						Diagonal (T2)	34.0	Pass
						Horizontal (T2)	20.7	Pass
						Top Girt (T3)	7.4	Pass
						Bottom Girt	8.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
						(T2)		
						Guy A (T2)	53.3	Pass
						Guy B (T2)	52.1	Pass
						Guy C (T2)	53.3	Pass
						RATING =	**53.3**	**Pass**

Exhibit E

Date: 12/8/2020

To: T-Mobile Northeast, LLC
35 Griffin Road South
Bloomfield, CT 06002

Subject:	**Mount Structural Analysis Report – Replacement - Rev. 1**	
T-Mobile Designation:	**Site Name:**	Farmington/I-84 X37_1
	Site ID:	CT11134A
EFI Designation:	**Project Number:**	049.00941 - 2075082
Site Data:	**200 Colt Highway, Farmington, CT 06032** **Latitude 41.700880°, Longitude -72.832184°**	

EFI Global, Inc. is pleased to submit this **"Mount Structural Analysis Report – Replacement - Rev. 1"** to determine the structural capacity of the antenna mounts utilized by T-Mobile at the above referenced site.

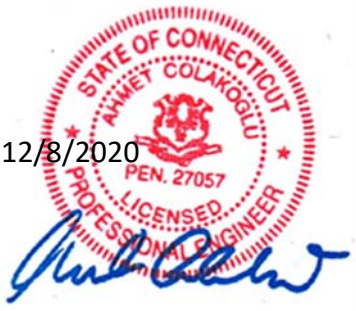
The purpose of the analysis is to determine acceptability of the mount stress level for the changes proposed by T-Mobile. Under the following load case we have determined the mounts to have:

Existing + Proposed Equipment **Adequate Capacity (58.1%)**
Note: See Analysis Criteria for loading configuration

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

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

Sincerely,
EFI Global, Inc.
License No: PEC0001245



12/8/2020

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

EFI Global, Inc.
1117 Perimeter Center West, Suite E500, Atlanta GA 30338 - Tel: (770) 693-0835

1) ANALYSIS CRITERIA

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

Table 1 – Loading and Analysis Criteria

Rad Center	103’
Structure Type	Self-Support Tower
Exposure Category	B
Basic Wind Speed (3-Second Gust)	125 * √0.6 = 97 mph (ASD)
Ice Loading	1.00” with 50 mph Wind
Risk Category	II
Topographic Factor	Kzt = 1.0

Table 1.1 – Existing Appurtenance Configuration

Qty	Model
3	Ericsson AIR21 KRC118023-1_B2A_B4P – Antennas
3	Ericsson AIR32 KRD901146-1_B66A_B2A – Antennas
3	Andrew LNX-6515DS-A1M – Antennas
3	RRUS11 B12 – RRUs
3	Generic Twin Style 1B-AWS – TMAs

Table 1.2 – Proposed and Final Appurtenance Configuration

Qty	Model
3	Ericsson AIR21 KRC118023-1_B2A_B4P – Antennas
3	Ericsson AIR32 KRD901146-1_B66A_B2A – Antennas
3	RFS APXVAALL24_43-U-NA20 – Antennas
3	Radio 4449 B71 + B85 – RRUs*
3	Generic Twin Style 1B-AWS – TMAs*

*** To be mounted behind the antennas**

Table 1.3 – Assumed Material Properties

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

2) ANALYSIS PROCEDURE

The analysis is based on the following information:

Table 2 – Documents

Document	Provided By	Date
RFDS	T-Mobile	10/19/2020
Structural Analysis Report	Destek Engineering, LLC	07/23/2018
Mount Assessment Letter	Destek Engineering, LLC	07/21/2018

2.1) Analysis Method

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

EFI Global, Inc.
1117 Perimeter Center West, Suite E500, Atlanta GA 30338 - Tel: (770) 693-0835

2.2) Analysis Conditions and Assumptions

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

EFI Global, Inc. (EFI), must be notified immediately if any of these assumptions are discovered to be incorrect. The results of this analysis may be affected if any of the assumptions are not valid or have been made in error.

3) ANALYSIS RESULTS AND CONCLUSION

The analysis results are shown on the table below.

Table 3.1 – Mount Component Stresses vs. Capacity

Component	% Capacity	Pass / Fail
Horizontal Face Pipes	42.7	Pass
V-Arm Horizontal Pipes	39.3	Pass
V-Arm Vertical Solid Rods	58.1	Pass
V-Arm Diagonal Solid Rods	35.2	Pass
V-Arm Connection Plates	48.9	Pass
Stiff Arm Pipes	29.5	Pass
Antenna Mount Pipes	54.6	Pass

Sector Mounts: The proposed replacement sector mounts have **adequate** capacity for the proposed changes by T-Mobile**.** For the code specified load combinations and as a maximum, the mount members are stressed to **58.1%** of their structural capacity.

EFI Global, Inc. has assumed that Valmont/Site Pro 1 12'-6'' Heavy Duty V-Frame with Two Stiff Arms (P/N: VFA12-HD, Specs attached) will be installed at this site prior to the equipment installation proposed in this analysis. The analysis also assumes the following:

- **The mount centerline is equal to the RAD centerline.**
- **(4) 96" long 2.0 STD mount pipes are equally spaced along the face.**
- **The (2) stiff arms are attached directly to the adjacent mount's tower legs.**

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APPENDIX

INPUT LOADS
ANALYSIS OUTPUT
MOUNT SPECIFICATIONS

EFI Global, Inc.
1117 Perimeter Center West, Suite E500, Atlanta GA 30338 - Tel: (770) 693-0835

CLIENT: ForeSite

PROJECT: CT11134A

SUBJECT: Antenna Loads - G Code with Sections 16 Revisions

Tower Height	120.00	ft	Type of Mount: Sector
Basic Wind Speed, V	97	mph (=Ultimate Speed*Sqrt(0.6))	
Basic Wind Speed with Ice, V_i	50	mph	
Maintanence Load Factor, L_{FM}	0.0957	Load Factor for Maint. Load Cases (Basic Wind Speed=30 mph)	
Design Ice Thickness, t_i	1	inches	

Table 2-3 Importance Factors

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

1

Table 2-4 Exposure Category Coefficients

Exposure Category	Zg	α	Kzmin	Ke	m
B	1200	7	0.7	0.9	0.55

Table 2-5 Topographic Categories

Kzt 1.000

Table 2-2 Wind Directionality Factor, Kd

Structure Type	Kd	
1 Lattice Tower	0.95	DOES NOT CHANGE

Gust Effect Factor Gh

Structure Type	Gh	
3 Guyed Mast	1.00	DOES NOT CHANGE

Shielding Factor, Ka

Structure Type	Ka	
Guyed Mast	0.90	DOES NOT CHANGE

CLIENT: ForeSite

PROJECT: CT11134A

SUBJECT: Antenna Loads - G Code with Sections 16 Revisions

Rad Center **103.00** ft

Antenna AND Mount Without Ice

Mounting Pole	Height (ft)	Model Number	#	Weight (lbs)	H (in)	*W (in)	D (in)	Ka	**A_N (ft2)	***A_T (ft2)	Aspect (FRONT)	Aspect (SIDE)	Ca (FRONT)	Ca (SIDE)	K_z	q_z (psf)	Pounds: Wind Load (Front)	Wind Load (Side)	Dead Load	Total Wind Load (Front)	Total Wind Load (Side)	Total Dead Load
Pos. 1	**103.00**	Ericsson AIR21 B2A B4P	1	91.5	56.0	12.1	7.9	0.90	4.71	3.06	4.63	7.12	1.29	1.40	0.997	22.8	125.0	88.2	91.5	125	92	103
	103.00	Generic Twin Style 1B-AWS	1	11.0	7.0	N/A	3.0	0.90	-	0.15	-	2.33	-	1.20	0.997	22.8	0.0	3.6	11			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
																				63	**46**	**52**
Pos. 2		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0	0	0	0
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
																				0	**0**	**0**
Pos. 3	**103.00**	Ericsson AIR32 B66A_B2A	1	172.0	59.3	12.9	8.7	0.90	5.31	3.58	4.59	6.81	1.29	1.39	0.997	22.8	140.9	102.2	171.96	141	102	172
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
																				71	**52**	**86**
Pos. 4	**103.00**	RFS APXVAALL24-43-U-NA20	1	149.9	95.9	24.0	8.5	0.90	15.98	5.66	4.00	11.28	1.27	1.54	0.997	22.8	415.5	179.2	149.9	415	212	223
	103.00	Radio 4449 B71+B85	1	73.2	17.9	N/A	10.6	0.90	-	1.32	-	1.68	-	1.20	0.997	22.8	0.0	32.6	73.21			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0			
																				208	**106**	**112**

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

** A_N is the product of H and W

*** A_T is the product of H and D

DL #REF!

Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	*** Ca	K_z	q_z (psf)	Wind Load (PLF)
	103.00	2 STD Pipe	12.00	2.38	0.00	1.20	0.997	20.5	5
	103.00	2.5 STD Pipe	12.00	2.88	0.00	1.20	0.997	20.5	6
	103.00	3.0 STD Pipe	0.00	3.50	0.00	-	-	-	-
	103.00	5/8" SR	12.00	0.63	0.00	1.20	0.997	20.5	1
	103.00	3/4" SR	12.00	0.75	0.00	1.20	0.997	20.5	2
	103.00	L3x3x4	0.00	3.00	3.00	-	-	-	-
	103.00	L2x2x2	0.00	2.00	2.00	-	-	-	-
	103.00	Angle Diagonal	0.00	0.00	0.00	-	-	-	-
	103.00	Plate Horizontal (PL0.625x3.5)	12.00	0.63	3.50	2.00	0.997	20.5	2
	103.00	Plate Horizontal (PL 8 x 3/16)	0.00	8.00	0.19	-	-	-	-
	103.00	Tube Radial (2x2)	0.00	2.00	2.00	-	-	-	-
	103.00	Double Angle (LL2x2x3x0)	0.00	2.00	2.00	-	-	-	-
	103.00	Double Angle (LL3x3x4x0)	0.00	3.00	3.00	-	-	-	-
	103.00	Channel (Weak Axis Bending)	0.00	0.00	0.00	-	-	-	-
	103.00	Invert U 5.375x3.625x.375	0.00	3.63	5.38	-	-	-	-

* The dimension L is the longest dimension of the member

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

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

CLIENT: ForeSite

PROJECT: CT11134A

SUBJECT: Antenna Loads - G Code with Sections 16 Revisions

ti (in) 2.241106 Kiz 1.1205528 reduction 0.2657

Antenna AND Mount With Ice

Mounting Pole	Height (ft)	Model Number	#	H (in)	W (in)	D (in)	Ka	*A_N (ft2)	*A_T (ft2)	*Volume Ice (ft3)	*Weight Ice (lbs)	**Ca (FRONT)	**Ca (SIDE)	Kz	q_z (psf)	Pounds: Ice Wind Load (Front)	Ice Wind Load (Side)	Combined Wind Load (Front)	Combined Wind Load (Side)	Ice Dead Load	**Total Wind Load (Front)	**Total Wind Load (Side)	Total Ice Load
Pos. 1	**103.00**	Ericsson AIR21 B2A B4P	1	56.0	12.1	7.9	0.90	2.26	2.13	4.08	228.66	0.73	0.75	0.997	6.1	8.9	8.7	42.2	32.2	229	42	35	254
	103.00	Generic Twin Style 1B-AWS	1	7.0	6.0	3.0	0.90	-	0.45	0.45	25.10	0.70	0.70	0.997	6.1	0.0	1.7	0.0	2.7	25			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					22	**18**	**127**
Pos. 2		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0	0	0	0
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					0	**0**	**0**
Pos. 3	**103.00**	Ericsson AIR32 B66A_B2A	1	59.3	12.9	8.7	0.90	2.39	2.25	4.60	257.76	0.73	0.75	0.997	6.1	9.4	9.2	46.9	36.4	258	47	36	258
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					24	**19**	**129**
Pos. 4	**103.00**	RFS APXVAALL24-43-U-NA20	1	95.9	24.0	8.5	0.90	3.87	3.39	10.16	568.88	0.72	0.82	0.997	6.1	15.3	15.1	125.6	62.7	569	126	75	681
	103.00	Radio 4449 B71+B85	1	17.9	13.2	10.6	0.90	-	1.03	2.01	112.47	0.70	0.70	0.997	6.1	0.0	3.9	0.0	12.6	112			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					63	**38**	**341**

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

** Ca will equal 1.2 for all ice load calculations

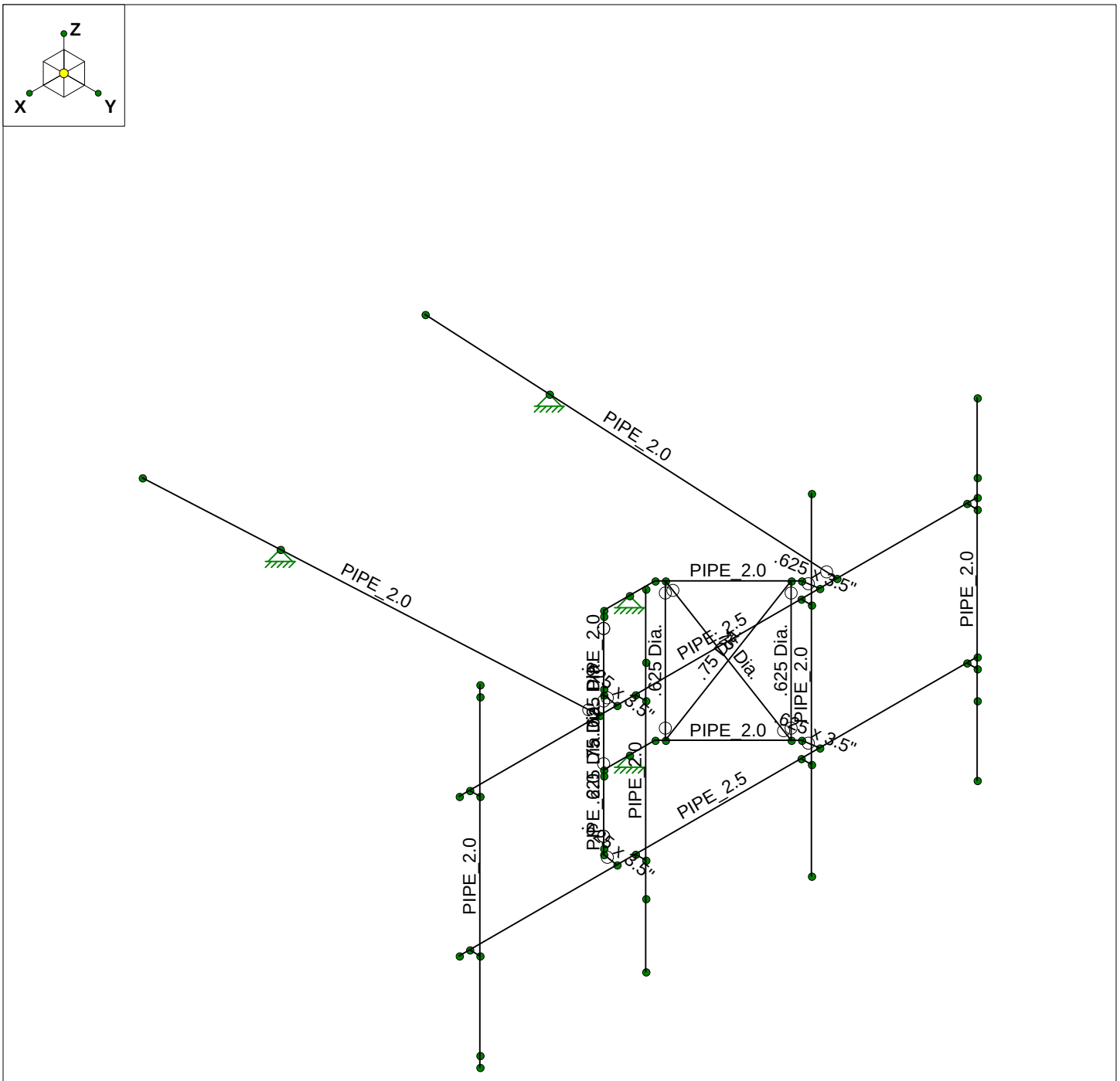
Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	***A_N (ft2)	Volume Ice (ft3)	Weight Ice (lbs)	****Ca (FRONT)	Kz	q_z (psf)	PLF: Ice Wind Load (Front)	Combined Wind Load (Front)	Ice Dead Load
	103.00	2 STD Pipe	12.00	2.38	0.00	0.59	0.23	12.65	1.20	0.997	5.5	3.8	5.1	13
	103.00	2.5 STD Pipe	12.00	2.88	0.00	0.60	0.25	14.02	1.20	0.997	5.5	3.9	5.5	14
	103.00	3.0 STD Pipe	0.00	3.50	0.00	-	-	-	-	-	-	-	-	-
	103.00	5/8" SR	12.00	0.63	0.00	0.53	0.14	7.86	1.20	0.997	5.5	3.5	3.8	8
	103.00	3/4" SR	12.00	0.75	0.00	0.54	0.15	8.19	1.20	0.997	5.5	3.5	3.9	8
	103.00	L3x3x4	0.00	3.00	3.00	-	-	-	-	-	-	-	-	-
	103.00	L2x2x2	0.00	2.00	2.00	-	-	-	-	-	-	-	-	-
	103.00	Angle Diagonal	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	103.00	Plate Horizontal (PL0.625x3.5)	12.00	0.63	3.50	0.53	0.37	20.94	1.20	0.997	5.5	3.5	4.1	21
	103.00	Plate Horizontal (PL 8 x 3/16)	0.00	8.00	0.19	-	-	-	-	-	-	-	-	-
	103.00	Tube Radial (2x2)	0.00	2.00	2.00	-	-	-	-	-	-	-	-	-
	103.00	Double Angle (LL2x2x3x0)	0.00	2.00	2.00	-	-	-	-	-	-	-	-	-
	103.00	Double Angle (LL3x3x4x0)	0.00	3.00	3.00	-	-	-	-	-	-	-	-	-
	103.00	Channel (Weak Axis Bending)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	103.00	Invert U 5.375x3.625x.375	0.00	3.63	5.38	-	-	-	-	-	-	-	-	-

* The dimension L is the longest dimension of the member

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

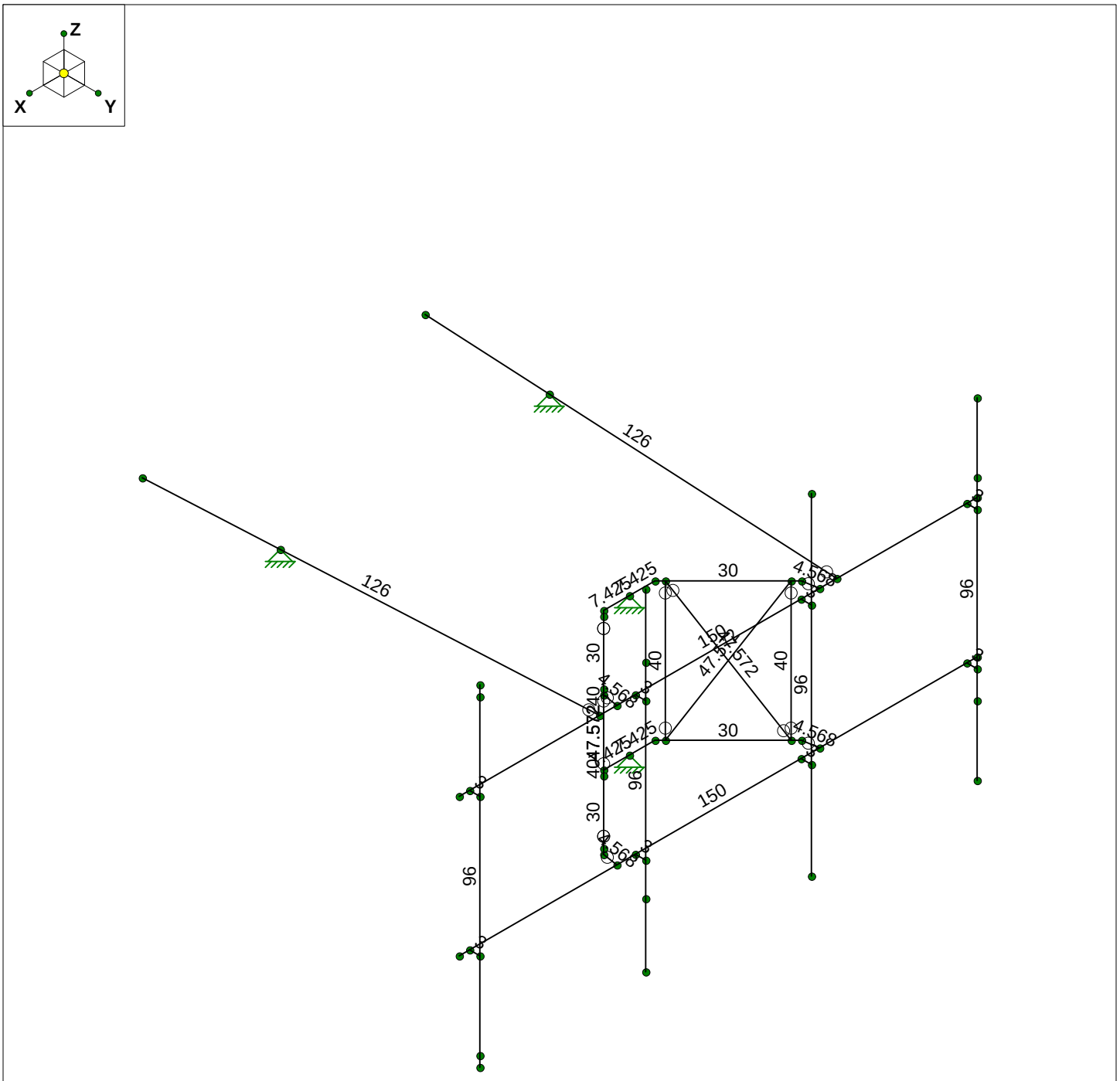
*** A_N is the area of ice built up on the LW plane

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



Envelope Only Solution

ForeSite/EFI	CT11134A	SK - 1
		Oct 23, 2020 at 6:31 PM
049.00941 - 2075082		CT11134A - VFA12-HD.r3d



Member Length (in) Displayed
Envelope Only Solution

ForeSite/EFI	CT11134A	SK - 2
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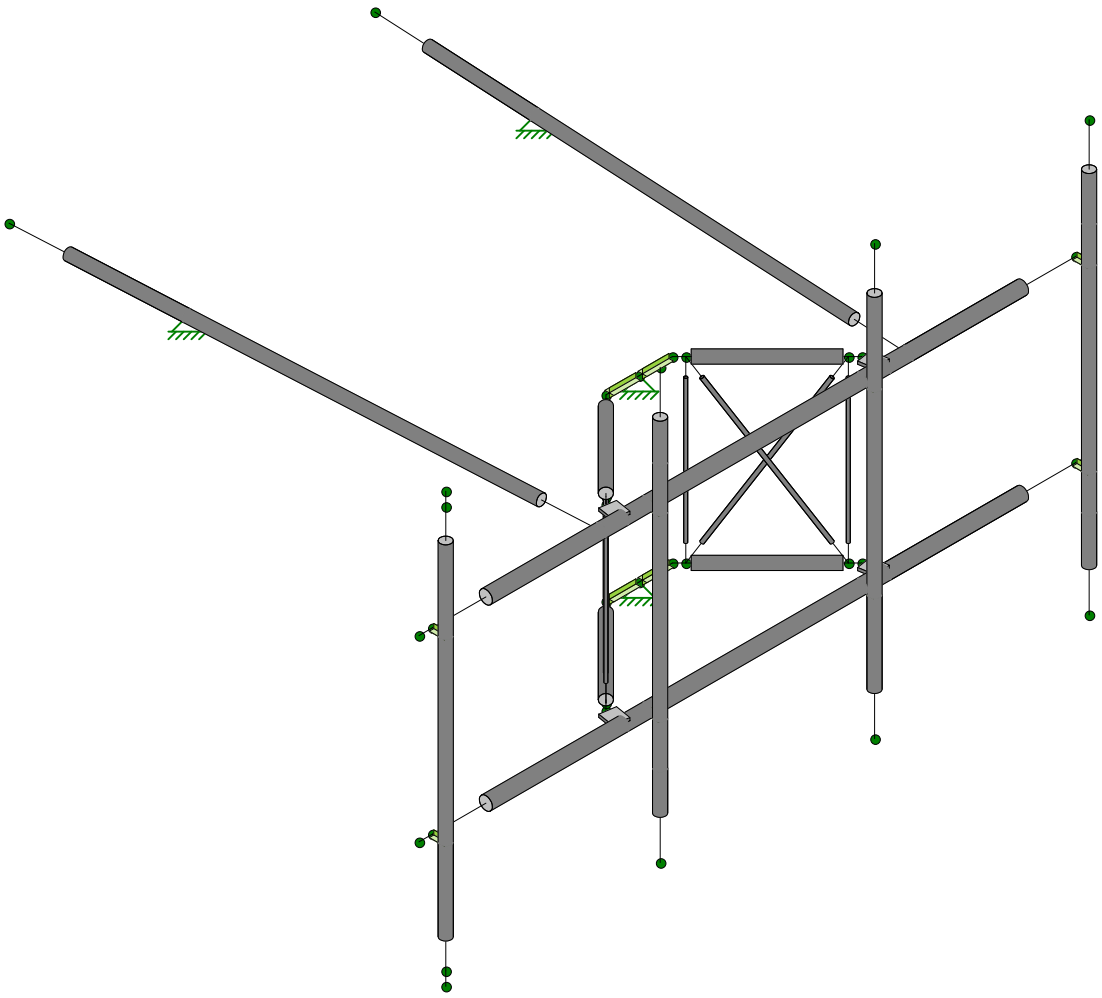

Envelope Only Solution

ForeSite/EFI	CT11134A	SK - 3
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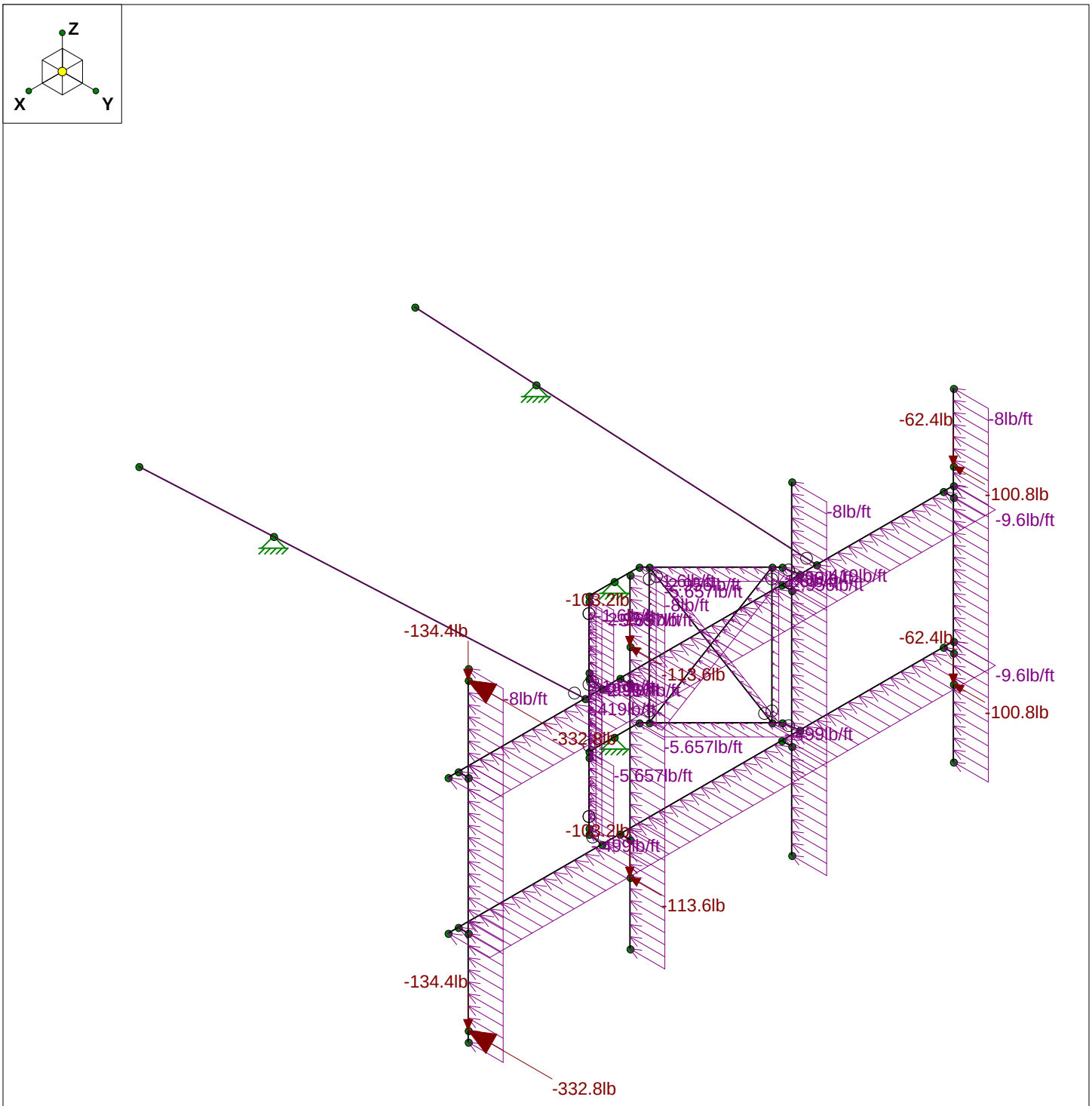

Loads: LC 1, DL + WL (NO ICE) 0 Degree
Envelope Only Solution

ForeSite/EFI	CT11134A	SK - 4
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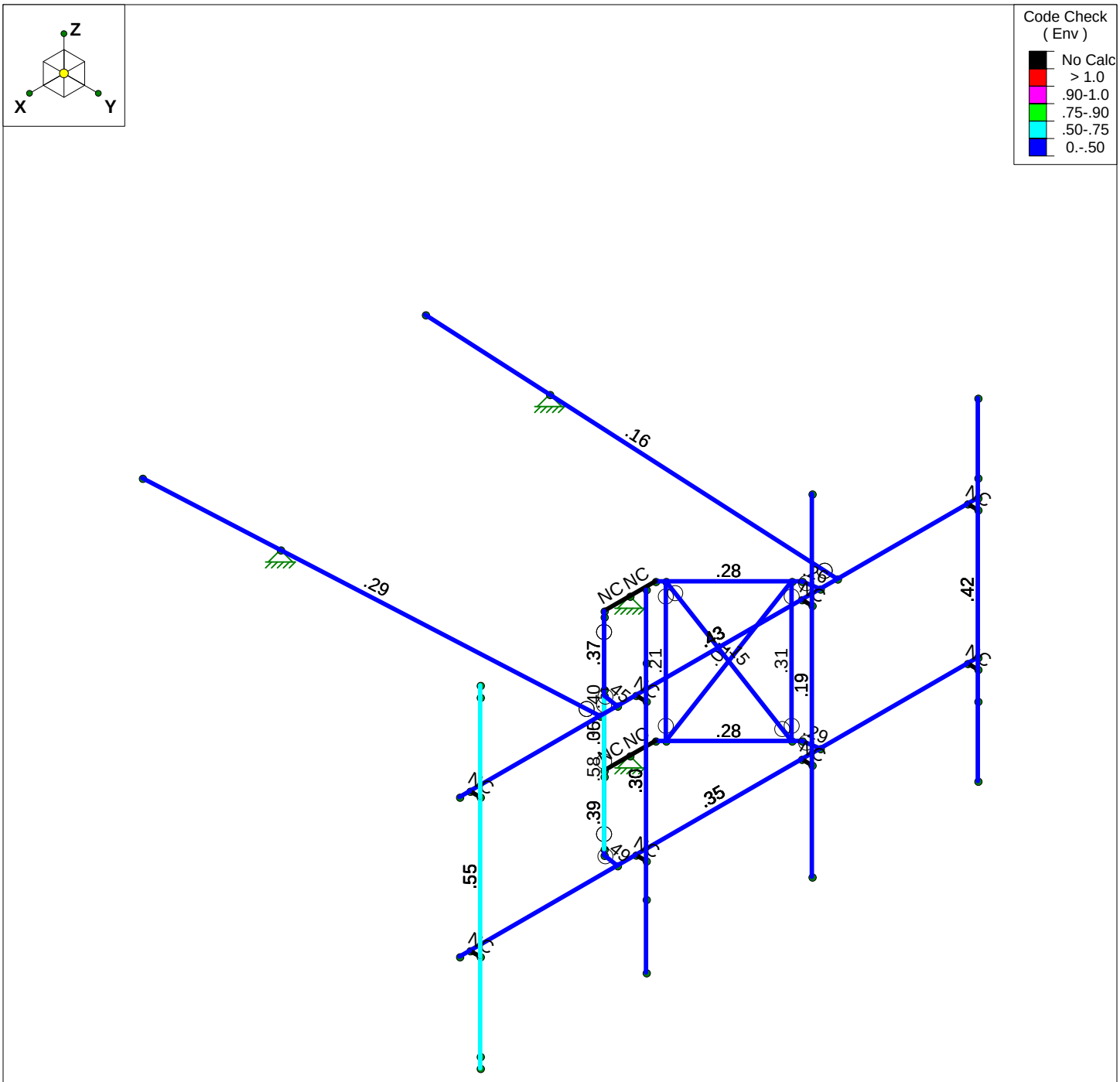

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

ForeSite/EFI	CT11134A	SK - 5
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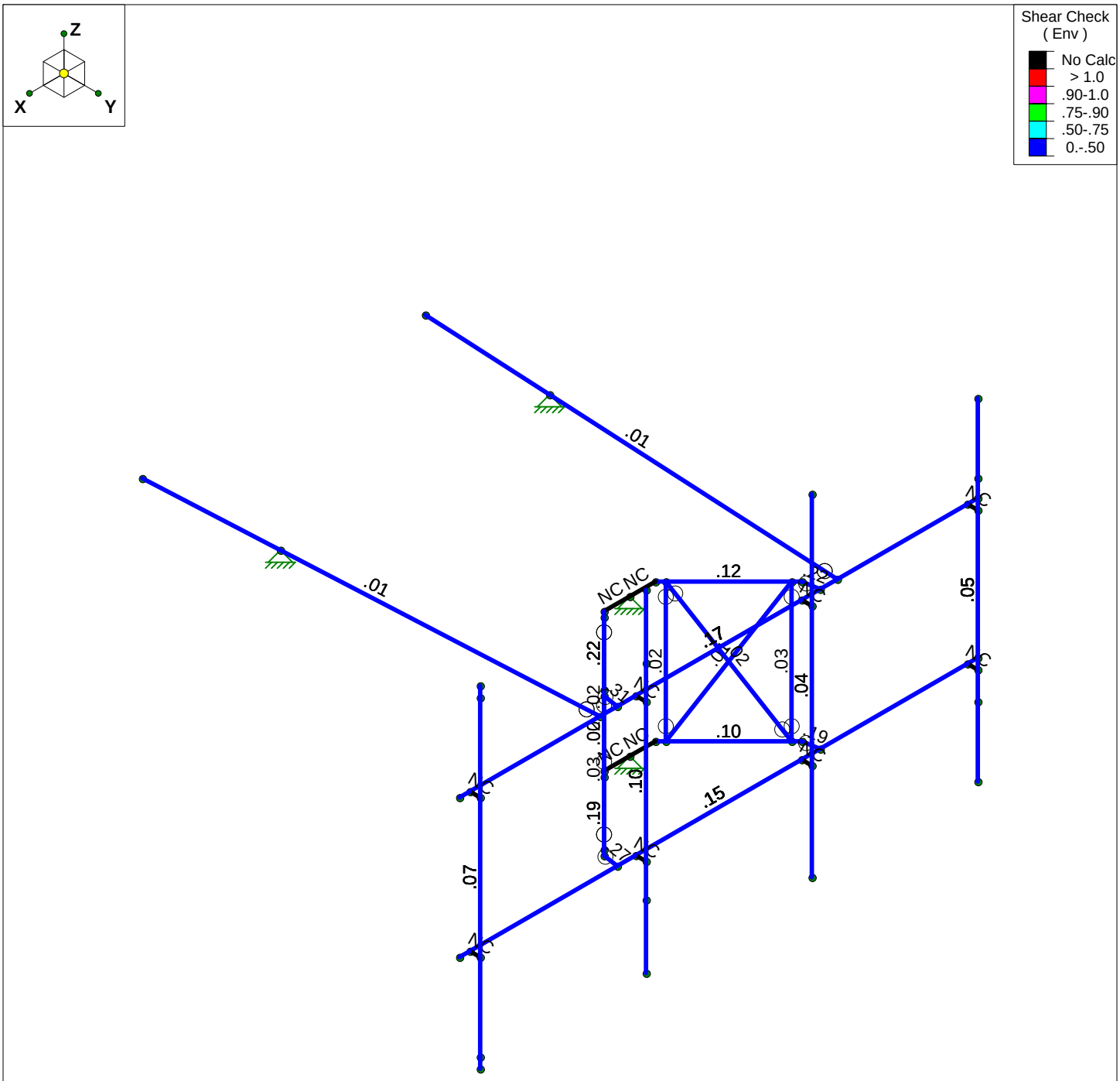

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

ForeSite/EFI	CT11134A	SK - 6
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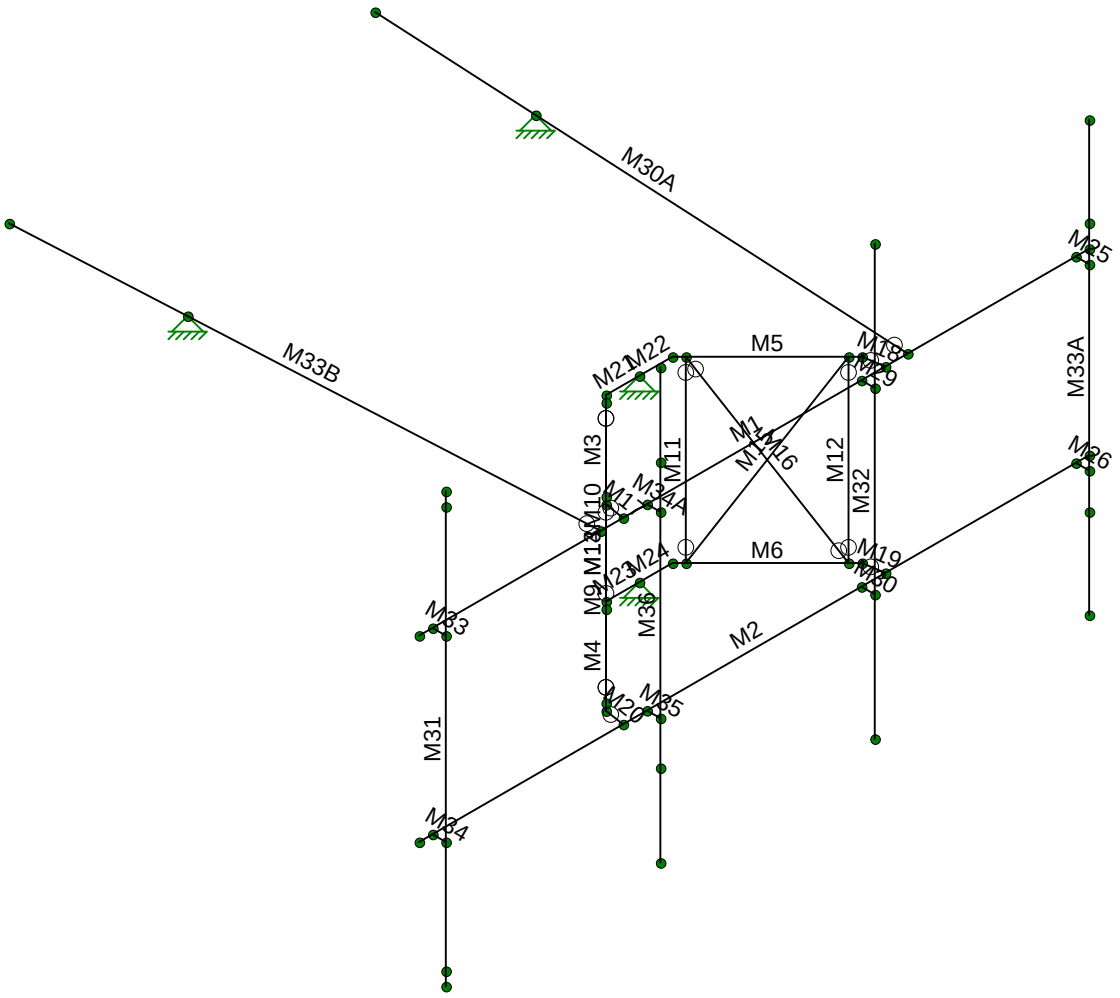

Envelope Only Solution

ForeSite/EFI	CT11134A	SK - 7
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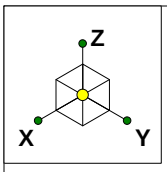
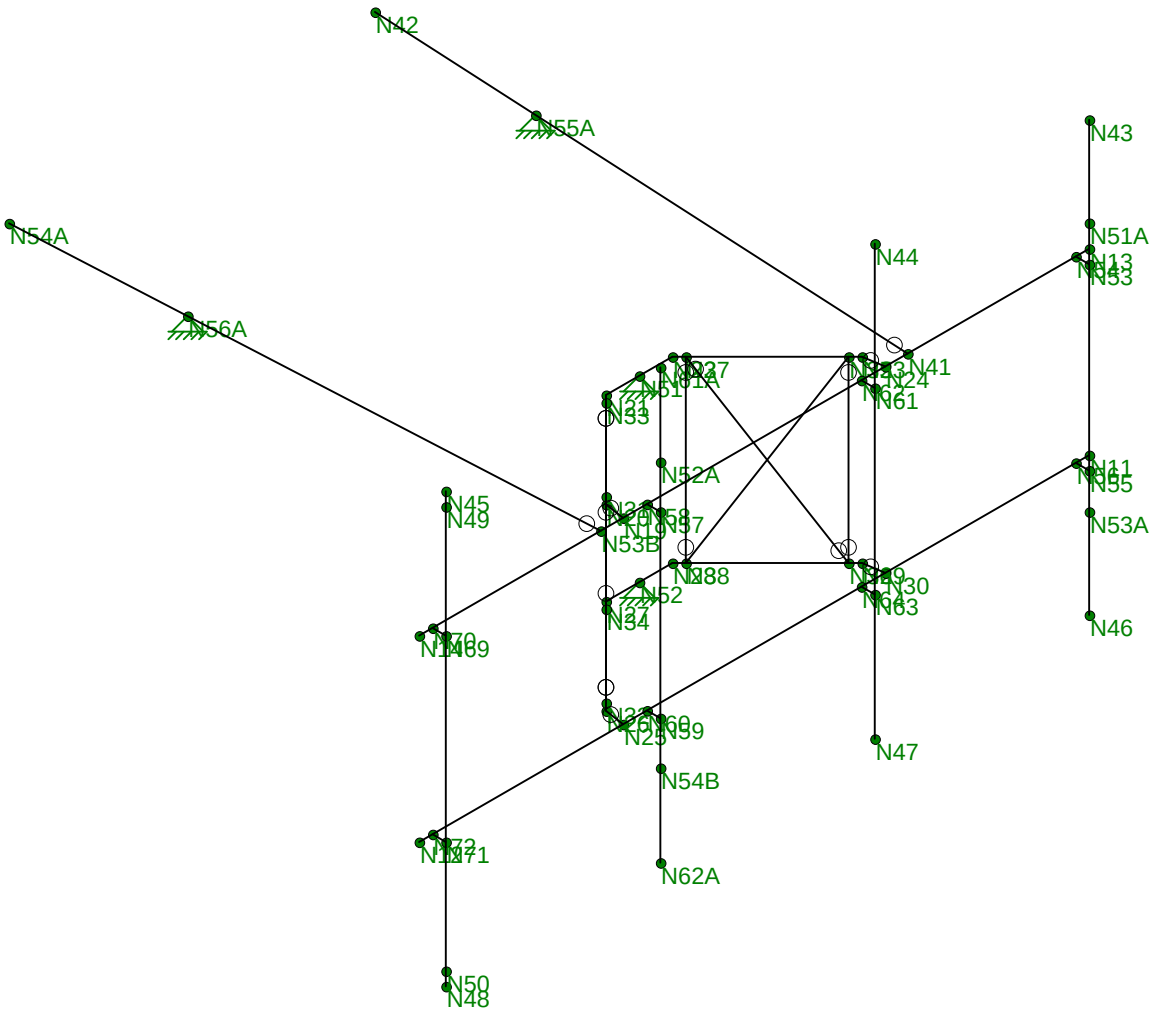




Envelope Only Solution

ForeSite/EFI	CT11134A	SK - 8
		Oct 23, 2020 at 6:34 PM
049.00941 - 2075082		CT11134A - VFA12-HD.r3d

(Global) Model Settings

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

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): LRFD
Cold Formed Steel Code	AISI S100-12: LRFD
Wood Code	AF&PA NDS-05/08: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-05
Masonry Code	ACI 530-05: ASD
Aluminum Code	AA ADM1-05: ASD - Building
	AISC 14th(360-10): LRFD

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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.035
Ct Z	.035
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	8.5
R Z	8.5
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	Not Entered
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Project Grid Lines

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

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[lb/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	490	50	1.1	65	1.2
3	A992	29000	11154	.3	.65	490	50	1.1	65	1.2
4	A500 Gr.42	29000	11154	.3	.65	490	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	490	46	1.2	58	1.1
6	A53 Gr.B	29000	11154	.3	.65	490	35	1.5	60	1.2
7	A529 Gr.50	29000	11154	.3	.65	490	50	1.1	65	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	HR1A	C15X50	Beam	Wide Flange	A36 Gr.36	Typical	14.7	11	404	2.65

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rota...	Section/Shape	Type	Design...	Material	Desig...
1	M21	N21	N51			RIGID	None	None	LINK	Typical
2	M22	N51	N22			RIGID	None	None	LINK	Typical
3	M23	N52	N27			RIGID	None	None	LINK	Typical
4	M24	N28	N52			RIGID	None	None	LINK	Typical
5	M25	N53	N54			RIGID	None	None	LINK	Typical
6	M26	N55	N56			RIGID	None	None	LINK	Typical
7	M29	N61	N62			RIGID	None	None	LINK	Typical
8	M30	N63	N64			RIGID	None	None	LINK	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rota...	Section/Shape	Type	Design...	Material	Desig...
9	M33	N69	N70			RIGID	None	None	LINK	Typical
10	M34	N71	N72			RIGID	None	None	LINK	Typical
11	M34A	N57	N58			RIGID	None	None	LINK	Typical
12	M35	N59	N60			RIGID	None	None	LINK	Typical
13	M1	N13	N14			PIPE_2.5	Bea...	Pipe	A53 Gr.B	Typical
14	M2	N11	N12			PIPE_2.5	Bea...	Pipe	A53 Gr.B	Typical
15	M3	N21	N20			PIPE_2.0	Bea...	Pipe	A53 Gr.B	Typical
16	M4	N27	N26			PIPE_2.0	Bea...	Pipe	A53 Gr.B	Typical
17	M5	N22	N23			PIPE_2.0	Bea...	Pipe	A53 Gr.B	Typical
18	M6	N28	N29			PIPE_2.0	Bea...	Pipe	A53 Gr.B	Typical
19	M30A	N41	N42			PIPE_2.0	Bea...	Wide F...	A53 Gr.B	Typical
20	M31	N45	N48			PIPE_2.0	Bea...	Wide F...	A53 Gr.B	Typical
21	M32	N44	N47			PIPE_2.0	Bea...	Wide F...	A53 Gr.B	Typical
22	M33A	N43	N46			PIPE_2.0	Bea...	Wide F...	A53 Gr.B	Typical
23	M33B	N53B	N54A			PIPE_2.0	Bea...	Wide F...	A53 Gr.B	Typical
24	M36	N61A	N62A			PIPE_2.0	Bea...	Wide F...	A53 Gr.B	Typical
25	M17	N20	N19			.625 x 3.5"	Bea...	RECT	A36 Gr.36	Typical
26	M18	N23	N24			.625 x 3.5"	Bea...	RECT	A36 Gr.36	Typical
27	M19	N29	N30			.625 x 3.5"	Bea...	RECT	A36 Gr.36	Typical
28	M20	N26	N25			.625 x 3.5"	Bea...	RECT	A36 Gr.36	Typical
29	M9	N31	N32			.625 Dia.	Bea...	BAR	A36 Gr.36	Typical
30	M10	N33	N34			.625 Dia.	Bea...	BAR	A36 Gr.36	Typical
31	M11	N37	N38			.625 Dia.	Bea...	BAR	A36 Gr.36	Typical
32	M12	N35	N36			.625 Dia.	Bea...	BAR	A36 Gr.36	Typical
33	M13	N33	N32			.75 Dia.	Bea...	BAR	A36 Gr.36	Typical
34	M14	N31	N34			.75 Dia.	Bea...	BAR	A36 Gr.36	Typical
35	M15	N35	N38			.75 Dia.	Bea...	BAR	A36 Gr.36	Typical
36	M16	N37	N36			.75 Dia.	Bea...	BAR	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
1	M21						Yes			None
2	M22						Yes			None
3	M23						Yes			None
4	M24						Yes			None
5	M25						Yes			None
6	M26						Yes			None
7	M29						Yes			None
8	M30						Yes			None
9	M33						Yes			None
10	M34						Yes			None
11	M34A						Yes			None
12	M35						Yes			None
13	M1						Yes			None
14	M2						Yes			None
15	M3						Yes			None
16	M4						Yes			None
17	M5						Yes			None
18	M6						Yes			None
19	M30A	BenPIN					Yes			None
20	M31						Yes			None
21	M32						Yes			None
22	M33A						Yes			None
23	M33B	BenPIN					Yes			None
24	M36						Yes			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
25	M17		BenPIN				Yes			None
26	M18		BenPIN				Yes			None
27	M19		BenPIN				Yes			None
28	M20		BenPIN				Yes			None
29	M9	BenPIN	BenPIN				Yes			None
30	M10	BenPIN	BenPIN				Yes			None
31	M11	BenPIN	BenPIN				Yes			None
32	M12	BenPIN	BenPIN				Yes			None
33	M13	BenPIN	BenPIN				Yes			None
34	M14					Tension O...	Yes			None
35	M15					Tension O...	Yes			None
36	M16	BenPIN	BenPIN				Yes			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	PIPE_2.5	150									Lateral
2	M2	PIPE_2.5	150									Lateral
3	M3	PIPE_2.0	30									Lateral
4	M4	PIPE_2.0	30									Lateral
5	M5	PIPE_2.0	30									Lateral
6	M6	PIPE_2.0	30									Lateral
7	M30A	PIPE_2.0	126			Lbyy						Lateral
8	M31	PIPE_2.0	96			Lbyy						Lateral
9	M32	PIPE_2.0	96			Lbyy						Lateral
10	M33A	PIPE_2.0	96			Lbyy						Lateral
11	M33B	PIPE_2.0	126			Lbyy						Lateral
12	M36	PIPE_2.0	96			Lbyy						Lateral
13	M17	.625 x 3.5"	4.568									Lateral
14	M18	.625 x 3.5"	4.568									Lateral
15	M19	.625 x 3.5"	4.568									Lateral
16	M20	.625 x 3.5"	4.568									Lateral
17	M9	.625 Dia.	40	33.62	33.62				.7	.7		Lateral
18	M10	.625 Dia.	40	33.62	33.62				.7	.7		Lateral
19	M11	.625 Dia.	40	33.62	33.62				.7	.7		Lateral
20	M12	.625 Dia.	40	33.62	33.62				.7	.7		Lateral
21	M13	.75 Dia.	47.572						.7	.7		Lateral
22	M14	.75 Dia.	47.572									Lateral
23	M15	.75 Dia.	47.572									Lateral
24	M16	.75 Dia.	47.572						.7	.7		Lateral

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N11	-75	0	0	0	
2	N12	75	0	0	0	
3	N13	-75	0	40	0	
4	N14	75	0	40	0	
5	N19	29.35	0	40	0	
6	N20	28.637825	-4.5125	40	0	
7	N21	7.424621	-25.725704	40	0	
8	N22	-7.424621	-25.725704	40	0	
9	N23	-28.637825	-4.5125	40	0	
10	N24	-29.35	0	40	0	
11	N25	29.35	0	7.1e-15	0	
12	N26	28.637825	-4.5125	0	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
13	N27	7.424621	-25.725704	0	0	
14	N28	-7.424621	-25.725704	0	0	
15	N29	-28.637825	-4.5125	0	0	
16	N30	-29.35	0	-7.1e-15	0	
17	N31	27.135223	-6.015102	40	0	
18	N32	27.135223	-6.015102	0	0	
19	N33	8.927223	-24.223102	40	0	
20	N34	8.927223	-24.223102	0	0	
21	N35	-27.135223	-6.015102	40	0	
22	N36	-27.135223	-6.015102	0	0	
23	N37	-8.927223	-24.223102	40	0	
24	N38	-8.927223	-24.223102	0	0	
25	N51	0	-25.725704	40	0	
26	N52	0	-25.725704	0	0	
27	N53	-72	3	40	0	
28	N54	-72	0	40	0	
29	N55	-72	3	0	0	
30	N56	-72	0	0	0	
31	N61	-24	3	40	0	
32	N62	-24	0	40	0	
33	N63	-24	3	0	0	
34	N64	-24	0	0	0	
35	N69	72	3	40	0	
36	N70	72	0	40	0	
37	N71	72	3	0	0	
38	N72	72	0	0	0	
39	N41	-34.35	0	40	0	
40	N42	-40.94433	-125.827321	40	0	
41	N43	-72	3	68	0	
42	N44	-24	3	68	0	
43	N45	72	3	68	0	
44	N46	-72	3	-28	0	
45	N47	-24	3	-28	0	
46	N48	72	3	-28	0	
47	N49	72	3	65	0	
48	N50	72	3	-25	0	
49	N51A	-72	3	48	0	
50	N52A	24	3	49.65	0	
51	N53A	-72	3	-8	0	
52	N54B	24	3	-9.65	0	
53	N53B	34.35	0	40	0	
54	N54A	40.94433	-125.827321	40	0	
55	N55A	-38.955564	-87.879399	40	0	
56	N56A	38.955564	-87.879399	40	0	
57	N57	24	3	40	0	
58	N58	24	0	40	0	
59	N59	24	3	0	0	
60	N60	24	0	0	0	
61	N61A	24	3	68	0	
62	N62A	24	3	-28	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N51	Reaction	Reaction	Reaction			
2	N52	Reaction	Reaction	Reaction			

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
3	N55A	Reaction	Reaction	Reaction			
4	N56A	Reaction	Reaction	Reaction			

Basic Load Cases

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

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N51A	L	Z	-52
2	N53A	L	Z	-52
3	N52A	L	Z	-86
4	N54B	L	Z	-86
5	N49	L	Z	-112
6	N50	L	Z	-112

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N51A	L	Z	-127
2	N53A	L	Z	-127
3	N52A	L	Z	-129
4	N54B	L	Z	-129
5	N49	L	Z	-341
6	N50	L	Z	-341

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N51A	L	Y	-63
2	N53A	L	Y	-63
3	N52A	L	Y	-71
4	N54B	L	Y	-71
5	N49	L	Y	-208
6	N50	L	Y	-208

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N51A	L	X	-46
2	N53A	L	X	-46
3	N52A	L	X	-52
4	N54B	L	X	-52

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
5	N49	L	X	-106
6	N50	L	X	-106

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N51A	L	Y	-22
2	N53A	L	Y	-22
3	N52A	L	Y	-24
4	N54B	L	Y	-24
5	N49	L	Y	-63
6	N50	L	Y	-63

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N51A	L	X	-18
2	N53A	L	X	-18
3	N52A	L	X	-19
4	N54B	L	X	-19
5	N49	L	X	-38
6	N50	L	X	-38

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N11	L	Z	-250

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N12	L	Z	-250

Joint Loads and Enforced Displacements (BLC 10 : MAINTENANCE LOAD 1)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N46	L	Z	-500

Joint Loads and Enforced Displacements (BLC 11 : MAINTENANCE LOAD 2)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N47	L	Z	-500

Joint Loads and Enforced Displacements (BLC 12 : MAINTENANCE LOAD 3)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N62A	L	Z	-500

Joint Loads and Enforced Displacements (BLC 13 : MAINTENANCE LOAD 4)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N48	L	Z	-500

Member Point Loads

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

Member Distributed Loads (BLC 2 : DEAD LOAD ICE)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M1	Z	-14	-14	0	0
2	M2	Z	-14	-14	0	0
3	M3	Z	-13	-13	0	0
4	M4	Z	-13	-13	0	0
5	M5	Z	-13	-13	0	0
6	M6	Z	-13	-13	0	0
7	M30A	Z	-13	-13	0	0
8	M31	Z	-13	-13	0	0
9	M32	Z	-13	-13	0	0
10	M33A	Z	-13	-13	0	0
11	M33B	Z	-13	-13	0	0
12	M36	Z	-13	-13	0	0
13	M17	Z	-21	-21	0	0
14	M18	Z	-21	-21	0	0
15	M19	Z	-21	-21	0	0
16	M20	Z	-21	-21	0	0
17	M9	Z	-8	-8	0	0
18	M10	Z	-8	-8	0	0
19	M11	Z	-8	-8	0	0
20	M12	Z	-8	-8	0	0
21	M13	Z	-8	-8	0	0
22	M14	Z	-8	-8	0	0
23	M15	Z	-8	-8	0	0
24	M16	Z	-8	-8	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M1	PY	-6	-6	0	0
2	M2	PY	-6	-6	0	0
3	M3	PY	-5	-5	0	0
4	M4	PY	-5	-5	0	0
5	M5	PY	-5	-5	0	0
6	M6	PY	-5	-5	0	0
7	M30A	PY	-5	-5	0	0
8	M31	PY	-5	-5	0	0
9	M32	PY	-5	-5	0	0
10	M33A	PY	-5	-5	0	0
11	M33B	PY	-5	-5	0	0
12	M36	PY	-5	-5	0	0
13	M17	PY	-2	-2	0	0
14	M18	PY	-2	-2	0	0
15	M19	PY	-2	-2	0	0
16	M20	PY	-2	-2	0	0
17	M9	PY	-1	-1	0	0
18	M10	PY	-1	-1	0	0
19	M11	PY	-1	-1	0	0
20	M12	PY	-1	-1	0	0
21	M13	PY	-2	-2	0	0
22	M14	PY	-2	-2	0	0
23	M15	PY	-2	-2	0	0
24	M16	PY	-2	-2	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M1	PX	-6	-6	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
2	M2	PX	-6	-6	0	0
3	M3	PX	-5	-5	0	0
4	M4	PX	-5	-5	0	0
5	M5	PX	-5	-5	0	0
6	M6	PX	-5	-5	0	0
7	M30A	PX	-5	-5	0	0
8	M31	PX	-5	-5	0	0
9	M32	PX	-5	-5	0	0
10	M33A	PX	-5	-5	0	0
11	M33B	PX	-5	-5	0	0
12	M36	PX	-5	-5	0	0
13	M17	PX	-2	-2	0	0
14	M18	PX	-2	-2	0	0
15	M19	PX	-2	-2	0	0
16	M20	PX	-2	-2	0	0
17	M9	PX	-1	-1	0	0
18	M10	PX	-1	-1	0	0
19	M11	PX	-1	-1	0	0
20	M12	PX	-1	-1	0	0
21	M13	PX	-2	-2	0	0
22	M14	PX	-2	-2	0	0
23	M15	PX	-2	-2	0	0
24	M16	PX	-2	-2	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M1	PY	-5.5	-5.5	0	0
2	M2	PY	-5.5	-5.5	0	0
3	M3	PY	-5.1	-5.1	0	0
4	M4	PY	-5.1	-5.1	0	0
5	M5	PY	-5.1	-5.1	0	0
6	M6	PY	-5.1	-5.1	0	0
7	M30A	PY	-5.1	-5.1	0	0
8	M31	PY	-5.1	-5.1	0	0
9	M32	PY	-5.1	-5.1	0	0
10	M33A	PY	-5.1	-5.1	0	0
11	M33B	PY	-5.1	-5.1	0	0
12	M36	PY	-5.1	-5.1	0	0
13	M17	PY	-4.1	-4.1	0	0
14	M18	PY	-4.1	-4.1	0	0
15	M19	PY	-4.1	-4.1	0	0
16	M20	PY	-4.1	-4.1	0	0
17	M9	PY	-3.8	-3.8	0	0
18	M10	PY	-3.8	-3.8	0	0
19	M11	PY	-3.8	-3.8	0	0
20	M12	PY	-3.8	-3.8	0	0
21	M13	PY	-3.9	-3.9	0	0
22	M14	PY	-3.9	-3.9	0	0
23	M15	PY	-3.9	-3.9	0	0
24	M16	PY	-3.9	-3.9	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M1	PX	-5.5	-5.5	0	0
2	M2	PX	-5.5	-5.5	0	0
3	M3	PX	-5.1	-5.1	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
4	M4	PX	-5.1	-5.1	0	0
5	M5	PX	-5.1	-5.1	0	0
6	M6	PX	-5.1	-5.1	0	0
7	M30A	PX	-5.1	-5.1	0	0
8	M31	PX	-5.1	-5.1	0	0
9	M32	PX	-5.1	-5.1	0	0
10	M33A	PX	-5.1	-5.1	0	0
11	M33B	PX	-5.1	-5.1	0	0
12	M36	PX	-5.1	-5.1	0	0
13	M17	PX	-4.1	-4.1	0	0
14	M18	PX	-4.1	-4.1	0	0
15	M19	PX	-4.1	-4.1	0	0
16	M20	PX	-4.1	-4.1	0	0
17	M9	PX	-3.8	-3.8	0	0
18	M10	PX	-3.8	-3.8	0	0
19	M11	PX	-3.8	-3.8	0	0
20	M12	PX	-3.8	-3.8	0	0
21	M13	PX	-3.9	-3.9	0	0
22	M14	PX	-3.9	-3.9	0	0
23	M15	PX	-3.9	-3.9	0	0
24	M16	PX	-3.9	-3.9	0	0

Member Area Loads

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

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	DL + WL (NO ICE) 0 Degree	Y...	Y		1	1.2			3	1.6																
2	DL + WL (NO ICE) 30 Degree	Y...	Y		1	1.2			3	1....	4	.8														
3	DL + WL (NO ICE) 60 Degree	Y...	Y		1	1.2			3	.8	4	1....														
4	DL + WL (NO ICE) 90 Degree	Y...	Y		1	1.2					4	1.6														
5	DL + WL (NO ICE) 120 Degree	Y...	Y		1	1.2			3	-.8	4	1....														
6	DL + WL (NO ICE) 150 Degree	Y...	Y		1	1.2			3	-1....	4	.8														
7	DL + WL (NO ICE) 180 Degree	Y...	Y		1	1.2			3	-1.6																
8	DL + WL (NO ICE) 210 Degree	Y...	Y		1	1.2			3	-1....	4	-.8														
9	DL + WL (NO ICE) 240 Degree	Y...	Y		1	1.2			3	-.8	4	-1....														
10	DL + WL (NO ICE) 270 Degree	Y...	Y		1	1.2					4	-1.6														
11	DL + WL (NO ICE) 300 Degree	Y...	Y		1	1.2			3	.8	4	-1....														
12	DL + WL (NO ICE) 330 Degree	Y...	Y		1	1.2			3	1....	4	-.8														
13	DL + DL ICE + WL (ICE) 0 Degree	Y...	Y		1	1.2	2	1	5	1																
14	DL + DL ICE + WL (ICE) 30 Degree	Y...	Y		1	1.2	2	1	5	.866	6	.5														
15	DL + DL ICE + WL (ICE) 60 Degree	Y...	Y		1	1.2	2	1	5	.5	6	.866														
16	DL + DL ICE + WL (ICE) 90 Degree	Y...	Y		1	1.2	2	1			6	1														
17	DL + DL ICE + WL (ICE) 120 Degree	Y...	Y		1	1.2	2	1	5	-.5	6	.866														
18	DL + DL ICE + WL (ICE) 150 Degree	Y...	Y		1	1.2	2	1	5	-.8...	6	.5														
19	DL + DL ICE + WL (ICE) 180 Degree	Y...	Y		1	1.2	2	1	5	-1																
20	DL + DL ICE + WL (ICE) 210 Degree	Y...	Y		1	1.2	2	1	5	-.8...	6	-.5														
21	DL + DL ICE + WL (ICE) 240 Degree	Y...	Y		1	1.2	2	1	5	-.5	6	-.8...														
22	DL + DL ICE + WL (ICE) 270 Degree	Y...	Y		1	1.2	2	1			6	-1														
23	DL + DL ICE + WL (ICE) 300 Degree	Y...	Y		1	1.2	2	1	5	.5	6	-.8...														
24	DL + DL ICE + WL (ICE) 330 Degree	Y...	Y		1	1.2	2	1	5	.866	6	-.5														
25	DEAD LOAD + LIVE LOAD1	Y...	Y		1	1.2					7	1.5														
26	DEAD LOAD + LIVE LOAD2	Y...	Y		1	1.2					8	1.5														

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
27	DEAD LOAD + LIVE LOAD3	Y...	Y		1	1.2					9	1.5																
28	DL + MAIN L1+30MPH WL FRONT	Y...	Y		1	1.2	10	1.5	3	.096																		
29	DL + MAIN L2+30MPH WL FRONT	Y...	Y		1	1.2	11	1.5	3	.096																		
30	DL + MAIN L3+30MPH WL FRONT	Y...	Y		1	1.2	12	1.5	3	.096																		
31	DL + MAIN L4+30MPH WL FRONT	Y...	Y		1	1.2	13	1.5	3	.096																		
32	DL + MAIN L1+30MPH WL SIDE	Y...	Y		1	1.2	10	1.5	4	.096																		
33	DL + MAIN L2+30MPH WL SIDE	Y...	Y		1	1.2	11	1.5	4	.096																		
34	DL + MAIN L3+30MPH WL SIDE	Y...	Y		1	1.2	12	1.5	4	.096																		
35	DL + MAIN L4+30MPH WL SIDE	Y...	Y		1	1.2	13	1.5	4	.096																		
36	DL + MAIN L1+30MPH WL FRONT (REVERS..	Y...	Y		1	1.2	10	1.5	3	-.0...																		
37	DL + MAIN L2+30MPH WL FRONT (REVERS..	Y...	Y		1	1.2	11	1.5	3	-.0...																		
38	DL + MAIN L3+30MPH WL FRONT (REVERS..	Y...	Y		1	1.2	12	1.5	3	-.0...																		
39	DL + MAIN L4+30MPH WL FRONT (REVERS..	Y...	Y		1	1.2	13	1.5	3	-.0...																		
40	DL + MAIN L1+30MPH WL SIDE (REVERSED)	Y...	Y		1	1.2	10	1.5	4	-.0...																		
41	DL + MAIN L2+30MPH WL SIDE (REVERSED)	Y...	Y		1	1.2	11	1.5	4	-.0...																		
42	DL + MAIN L3+30MPH WL SIDE (REVERSED)	Y...	Y		1	1.2	12	1.5	4	-.0...																		
43	DL + MAIN L4+30MPH WL SIDE (REVERSED)	Y...	Y		1	1.2	13	1.5	4	-.0...																		

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N51	max	994.348	32	2473.531	7	2809.556	18	0	1	0	1	0	1
2		min	-1759.119	43	-3796.461	1	813.565	8	0	1	0	1	0	1
3	N52	max	1758.719	35	2555.683	13	663.522	24	0	1	0	1	0	1
4		min	-993.844	40	-175.763	7	166.36	2	0	1	0	1	0	1
5	N55A	max	105.769	3	1447.733	1	129.059	20	0	1	0	1	0	1
6		min	-107.374	9	-1468.038	7	31.176	1	0	1	0	1	0	1
7	N56A	max	157.914	6	2539.013	1	130.332	18	0	1	0	1	0	1
8		min	-156.075	12	-2554.323	7	29.581	1	0	1	0	1	0	1
9	Totals:	max	1206.166	4	1724.594	1	3714.137	23						
10		min	-1206.166	10	-1724.593	7	1085.651	6						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
1	N11	max	.064	11	.224	8	.095	39	1.627e-03	9	1.584e-03	35	7.141e-03	1
2		min	-.086	5	-.244	2	-.422	28	-2.221e-03	3	-5.959e-03	40	-7.009e-03	7
3	N12	max	.064	11	.752	7	-.024	28	1.136e-02	7	7.856e-03	17	1.723e-02	7
4		min	-.087	5	-.752	1	-.566	18	-1.198e-02	1	-6.155e-04	11	-1.716e-02	1
5	N13	max	.036	43	.218	7	.095	39	2.017e-03	12	1.596e-03	39	6.499e-03	1
6		min	-.022	32	-.224	1	-.422	28	-2.526e-03	6	-5.951e-03	28	-6.244e-03	7
7	N14	max	.037	43	.558	7	-.027	40	3.529e-03	2	7.525e-03	39	1.647e-02	7
8		min	-.021	32	-.551	1	-.559	16	-4.032e-03	8	-4.047e-07	28	-1.656e-02	1
9	N19	max	.037	43	.016	1	.009	36	2.004e-03	2	6.46e-03	35	4.528e-03	7
10		min	-.021	32	-.016	7	-.135	13	-2.334e-03	8	7.957e-05	40	-4.511e-03	1
11	N20	max	.021	39	.018	1	.024	36	5.723e-05	7	3.762e-03	35	2.028e-03	32
12		min	-.012	28	-.016	7	-.095	24	-4.154e-03	13	-8.811e-04	40	-3.572e-03	43
13	N21	max	0	24	.022	43	.021	28	-7.013e-04	4	5.011e-03	39	3.005e-03	43
14		min	0	7	-.013	32	-.037	39	-2.376e-03	23	-2.794e-03	28	-1.731e-03	32
15	N22	max	0	7	.013	32	.037	39	-7.013e-04	4	5.011e-03	39	3.005e-03	43
16		min	0	1	-.022	43	-.021	28	-2.376e-03	23	-2.794e-03	28	-1.731e-03	32
17	N23	max	.02	43	.007	1	.057	43	-1.166e-03	9	1.925e-03	35	2.127e-03	32
18		min	-.012	32	-.009	7	-.059	32	-4.736e-03	14	-2.59e-03	40	-3.422e-03	43
19	N24	max	.036	43	.007	1	.046	43	2.145e-03	12	1.37e-03	35	2.499e-03	1
20		min	-.022	32	-.007	7	-.08	28	-2.465e-03	6	-4.964e-03	40	-2.395e-03	7
21	N25	max	.064	11	.087	6	.009	28	5.362e-03	7	6.419e-03	39	9.681e-03	7

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
22		min	-.086	5	-.082	12	-.132	20	-5.88e-03	1	7.758e-05	28	-9.618e-03	1
23	N26	max	.056	12	.085	6	.025	32	-8.598e-04	2	4.046e-03	39	4.746e-03	35
24		min	-.07	6	-.081	12	-.089	43	-4.606e-03	20	-5.599e-04	28	-2.968e-03	40
25	N27	max	0	36	.015	6	.019	28	5.12e-05	39	4.642e-03	39	2.045e-03	6
26		min	0	15	-.023	12	-.034	39	-5.468e-04	14	-2.573e-03	28	-3.096e-03	12
27	N28	max	0	28	.023	12	.034	39	5.12e-05	39	4.642e-03	39	2.045e-03	6
28		min	0	39	-.015	6	-.019	28	-5.468e-04	14	-2.573e-03	28	-3.096e-03	12
29	N29	max	.052	12	.074	12	.057	31	-9.567e-04	12	1.625e-03	31	4.653e-03	35
30		min	-.066	6	-.081	6	-.055	36	-4.672e-03	18	-2.852e-03	40	-3.062e-03	40
31	N30	max	.064	11	.075	12	.046	31	9.954e-04	8	1.374e-03	39	3.91e-03	2
32		min	-.086	5	-.084	6	-.079	36	-1.453e-03	2	-4.943e-03	28	-3.645e-03	8
33	N31	max	.018	8	.021	1	.026	36	2.112e-04	7	3.341e-03	35	1.914e-03	32
34		min	-.012	2	-.017	7	-.087	31	-3.433e-03	24	-1.036e-03	40	-3.353e-03	43
35	N32	max	.054	12	.08	6	.028	36	-7.644e-04	2	3.624e-03	39	4.524e-03	35
36		min	-.065	6	-.078	12	-.08	31	-3.776e-03	20	-6.822e-04	28	-2.872e-03	40
37	N33	max	.002	32	.026	43	.023	28	-4.822e-04	6	4.456e-03	39	2.287e-03	43
38		min	-.004	43	-.015	32	-.046	39	-1.998e-03	23	-2.646e-03	28	-1.309e-03	32
39	N34	max	.005	12	.019	6	.023	28	3.854e-04	39	4.107e-03	39	2.37e-03	6
40		min	-.003	6	-.028	12	-.041	39	-5.31e-04	29	-2.429e-03	28	-3.124e-03	12
41	N35	max	.015	31	.008	2	.058	43	-1.085e-03	10	2.01e-03	35	1.987e-03	32
42		min	-.009	36	-.011	8	-.053	32	-4.445e-03	15	-2.232e-03	40	-3.232e-03	43
43	N36	max	.049	12	.07	12	.058	43	-8.055e-04	12	1.686e-03	31	4.478e-03	35
44		min	-.06	6	-.075	6	-.048	32	-4.338e-03	18	-2.503e-03	40	-2.918e-03	40
45	N37	max	.002	32	.015	32	.043	39	-6.426e-04	12	4.633e-03	39	2.265e-03	43
46		min	-.004	43	-.026	43	-.026	28	-2.512e-03	17	-2.441e-03	28	-1.321e-03	32
47	N38	max	.005	12	.027	12	.041	39	1.95e-04	40	4.275e-03	39	2.198e-03	6
48		min	-.003	6	-.018	6	-.023	28	-7.716e-04	17	-2.239e-03	28	-2.917e-03	12
49	N51	max	0	43	0	1	0	8	-7.013e-04	4	5.011e-03	39	3.005e-03	43
50		min	0	32	0	7	0	18	-2.376e-03	23	-2.794e-03	28	-1.731e-03	32
51	N52	max	0	40	0	7	0	2	5.12e-05	39	4.642e-03	39	2.045e-03	6
52		min	0	35	0	13	0	24	-5.468e-04	14	-2.573e-03	28	-3.096e-03	12
53	N53	max	.034	9	.2	7	.087	39	2.017e-03	12	1.596e-03	39	6.499e-03	1
54		min	-.022	32	-.204	1	-.404	28	-2.526e-03	6	-5.951e-03	28	-6.244e-03	7
55	N54	max	.036	43	.2	7	.091	39	2.017e-03	12	1.596e-03	39	6.499e-03	1
56		min	-.022	32	-.204	1	-.404	28	-2.526e-03	6	-5.951e-03	28	-6.244e-03	7
57	N55	max	.056	11	.205	8	.087	39	1.627e-03	9	1.584e-03	35	7.141e-03	1
58		min	-.078	5	-.224	2	-.405	28	-2.221e-03	3	-5.959e-03	40	-7.009e-03	7
59	N56	max	.064	11	.205	8	.09	39	1.627e-03	9	1.584e-03	35	7.141e-03	1
60		min	-.086	5	-.224	2	-.404	28	-2.221e-03	3	-5.959e-03	40	-7.009e-03	7
61	N61	max	.035	43	.02	1	.036	43	2.181e-03	12	1.631e-03	35	2.452e-03	1
62		min	-.022	32	-.02	7	-.057	32	-2.454e-03	6	-3.541e-03	40	-2.331e-03	7
63	N62	max	.036	43	.02	1	.038	43	2.181e-03	12	1.631e-03	35	2.452e-03	1
64		min	-.022	32	-.02	7	-.057	28	-2.454e-03	6	-3.541e-03	40	-2.331e-03	7
65	N63	max	.063	11	.087	12	.036	43	9.462e-04	8	1.65e-03	39	3.161e-03	2
66		min	-.086	5	-.094	6	-.057	32	-1.369e-03	2	-3.508e-03	28	-2.929e-03	8
67	N64	max	.064	11	.087	12	.038	31	9.462e-04	8	1.65e-03	39	3.161e-03	2
68		min	-.086	5	-.094	6	-.057	36	-1.369e-03	2	-3.508e-03	28	-2.929e-03	8
69	N69	max	.059	12	.508	7	-.03	28	3.529e-03	2	7.525e-03	39	1.647e-02	7
70		min	-.044	6	-.501	1	-.538	17	-4.032e-03	8	-4.781e-07	28	-1.656e-02	1
71	N70	max	.037	43	.508	7	-.026	40	3.529e-03	2	7.525e-03	39	1.647e-02	7
72		min	-.021	32	-.501	1	-.537	16	-4.032e-03	8	-4.78e-07	28	-1.656e-02	1
73	N71	max	.11	12	.7	7	-.03	28	1.136e-02	7	7.856e-03	17	1.723e-02	7
74		min	-.133	6	-.7	1	-.539	17	-1.198e-02	1	-6.155e-04	11	-1.716e-02	1
75	N72	max	.064	11	.7	7	-.024	28	1.136e-02	7	7.856e-03	17	1.723e-02	7
76		min	-.087	5	-.7	1	-.542	18	-1.198e-02	1	-6.155e-04	11	-1.716e-02	1
77	N41	max	.036	43	.005	7	.052	39	2.13e-03	12	1.126e-03	35	2.939e-03	1
78		min	-.022	32	-.006	1	-.109	28	-2.473e-03	6	-6.388e-03	40	-2.859e-03	7

Envelope Joint Displacements (Continued)

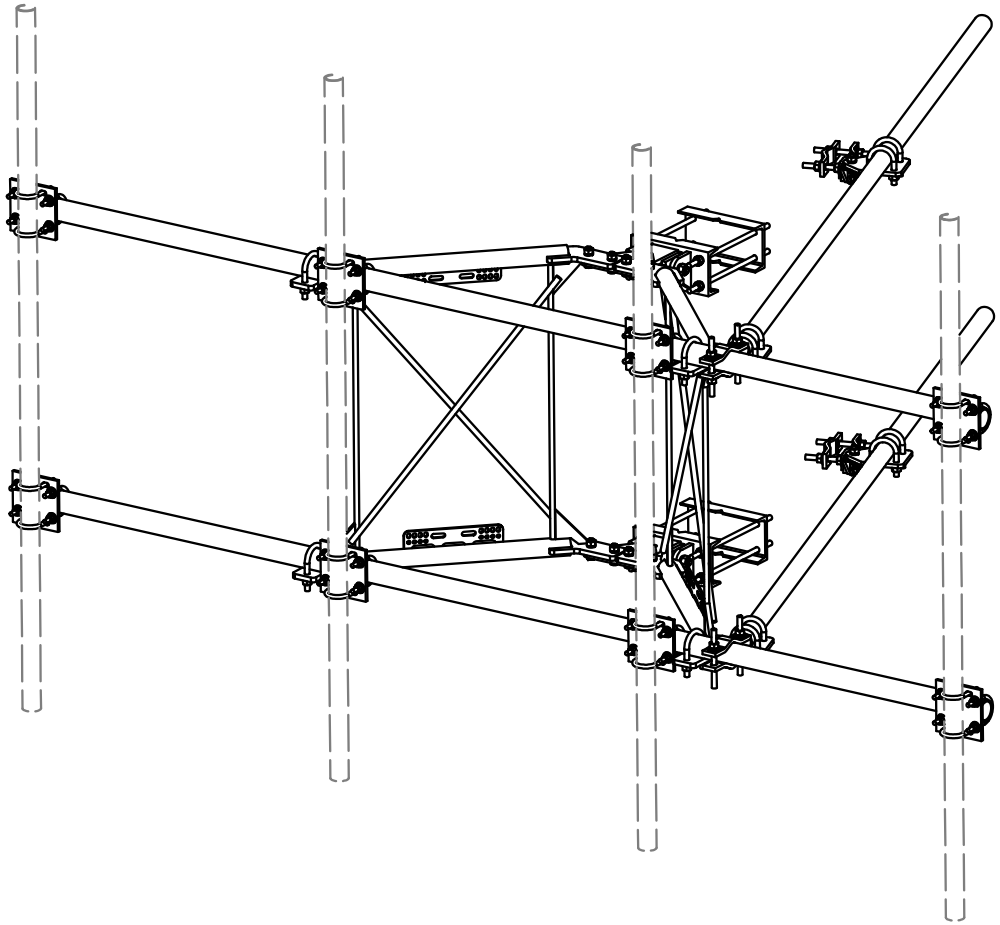
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
79	N42	max	.009	32	0	43	.047	28	6.881e-04	39	1.048e-03	35	2.437e-04	32
80		min	-.016	43	0	32	-.022	39	-1.522e-03	28	-6.302e-03	40	-4.043e-04	43
81	N43	max	.079	39	.265	7	.087	39	2.355e-03	12	1.597e-03	39	6.499e-03	1
82		min	-.189	28	-.255	1	-.404	28	-2.864e-03	6	-5.952e-03	28	-6.244e-03	7
83	N44	max	.08	43	.054	6	.036	43	2.327e-03	12	1.624e-03	39	2.452e-03	1
84		min	-.12	32	-.046	12	-.057	32	-2.6e-03	6	-3.535e-03	28	-2.331e-03	7
85	N45	max	.256	22	.76	7	-.03	28	1.062e-02	1	8.146e-03	22	1.647e-02	7
86		min	-.049	4	-.739	1	-.539	17	-1.112e-02	7	-2.37e-03	4	-1.656e-02	1
87	N46	max	.214	40	.253	8	.087	39	1.821e-03	9	1.604e-03	35	7.141e-03	1
88		min	-.114	35	-.289	2	-.406	28	-2.415e-03	3	-5.859e-03	40	-7.009e-03	7
89	N47	max	.148	40	.072	11	.036	43	1.091e-03	8	1.651e-03	35	3.161e-03	2
90		min	-.117	35	-.092	5	-.057	32	-1.515e-03	2	-3.507e-03	40	-2.929e-03	8
91	N48	max	.176	11	1.162	7	-.03	28	1.862e-02	7	8.622e-03	16	1.723e-02	7
92		min	-.311	17	-1.18	1	-.539	17	-1.924e-02	1	-3.909e-03	10	-1.716e-02	1
93	N49	max	.232	23	.727	7	-.03	28	1.062e-02	1	8.146e-03	22	1.647e-02	7
94		min	-.042	4	-.707	1	-.539	17	-1.112e-02	7	-2.37e-03	4	-1.656e-02	1
95	N50	max	.165	11	1.106	7	-.03	28	1.862e-02	7	8.622e-03	16	1.723e-02	7
96		min	-.287	5	-1.122	1	-.539	17	-1.924e-02	1	-3.909e-03	10	-1.716e-02	1
97	N51A	max	.047	39	.217	7	.087	39	2.302e-03	12	1.596e-03	39	6.499e-03	1
98		min	-.069	28	-.218	1	-.404	28	-2.811e-03	6	-5.952e-03	28	-6.244e-03	7
99	N52A	max	.083	43	.02	12	.006	36	2.253e-03	2	4.857e-03	39	3.406e-03	7
100		min	-.024	32	-.017	6	-.108	24	-2.529e-03	8	-3.587e-04	28	-3.473e-03	1
101	N53A	max	.097	40	.218	8	.087	39	1.79e-03	9	1.6e-03	35	7.141e-03	1
102		min	-.087	5	-.242	2	-.405	28	-2.385e-03	3	-5.916e-03	40	-7.009e-03	7
103	N54B	max	.08	12	.087	6	.006	36	5.122e-03	7	4.802e-03	35	7.861e-03	7
104		min	-.127	6	-.087	12	-.108	24	-5.598e-03	1	-3.795e-04	40	-7.685e-03	1
105	N53B	max	.037	43	.01	7	.007	36	2.183e-03	2	8.158e-03	17	6.473e-03	7
106		min	-.021	32	-.009	1	-.17	14	-2.533e-03	8	5.332e-04	40	-6.359e-03	1
107	N54A	max	.009	32	0	32	.075	14	8.832e-05	40	8.06e-03	17	2.351e-04	32
108		min	-.016	43	0	43	-.003	36	-2.156e-03	15	5.8e-04	40	-4.13e-04	43
109	N55A	max	0	9	0	7	0	1	4.702e-04	39	1.06e-03	35	4.365e-04	4
110		min	0	3	0	1	0	20	-1.74e-03	28	-6.29e-03	40	-6.076e-04	10
111	N56A	max	0	12	0	7	0	1	-1.296e-04	40	8.013e-03	17	4.34e-04	4
112		min	0	6	0	1	0	18	-3.054e-03	15	5.686e-04	40	-6.117e-04	10
113	N57	max	.037	43	.037	1	.006	36	1.833e-03	2	4.855e-03	39	3.406e-03	7
114		min	-.021	32	-.037	7	-.108	24	-2.109e-03	8	-3.586e-04	28	-3.473e-03	1
115	N58	max	.037	43	.037	1	.008	36	1.833e-03	2	4.855e-03	39	3.406e-03	7
116		min	-.021	32	-.037	7	-.107	24	-2.109e-03	8	-3.586e-04	28	-3.473e-03	1
117	N59	max	.086	12	.05	5	.006	36	4.64e-03	7	4.798e-03	39	7.861e-03	7
118		min	-.108	6	-.045	11	-.107	24	-5.116e-03	1	-3.758e-04	28	-7.685e-03	1
119	N60	max	.064	11	.05	5	.008	28	4.64e-03	7	4.798e-03	39	7.861e-03	7
120		min	-.086	5	-.045	11	-.104	21	-5.116e-03	1	-3.758e-04	28	-7.685e-03	1
121	N61A	max	.172	43	.039	8	.006	36	2.294e-03	2	4.857e-03	39	3.406e-03	7
122		min	-.03	32	-.03	2	-.108	24	-2.57e-03	8	-3.587e-04	28	-3.473e-03	1
123	N62A	max	.072	12	.175	6	.006	36	5.169e-03	7	4.804e-03	35	7.861e-03	7
124		min	-.207	39	-.184	12	-.108	24	-5.645e-03	1	-3.823e-04	40	-7.685e-03	1

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

	Member	Shape	Code Che...	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M9	.625 Dia.	.581	21.25	15	.034	0		35	3055.133	9940.19	.104	.104	1...	H1-1a
2	M31	PIPE_2.0	.546	28	22	.069	28		20	14916.0...	32130	1.872	1.872	4...	H1-1b
3	M20	.625 x 3.5"	.489	0	18	.272	0	y	18	68522.7...	70875	.923	5.168	1...	H1-1b
4	M17	.625 x 3.5"	.455	0	13	.310	4.568	y	14	68522.7...	70875	.923	5.168	1...	H1-1b
5	M1	PIPE_2.5	.427	109.375	7	.168	107....		7	14558.7...	50715	3.596	3.596	1...	H1-1b
6	M33A	PIPE_2.0	.422	68	36	.054	28		36	14916.0...	32130	1.872	1.872	4...	H1-1b

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

	Member	Shape	Code Che...	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
7	M10	.625 Dia.	.403	21.25	17	.021	0		12	3055.133	9940.19	.104	.104	1....	H1-1a
8	M4	PIPE_2.0	.393	27.813	18	.191	28.125		18	29810.2...	32130	1.872	1.872	1....	H1-1b
9	M3	PIPE_2.0	.368	1.875	20	.220	0		15	29810.2...	32130	1.872	1.872	1....	H1-1b
10	M13	.75 Dia.	.352	23.786	15	.021	47.572		5	3164.278	14313.8...	.179	.179	1....	H1-1a
11	M2	PIPE_2.5	.346	104.688	13	.146	104....		1	14558.7...	50715	3.596	3.596	1....	H1-1b
12	M12	.625 Dia.	.308	25.833	28	.034	0		39	3055.133	9940.19	.104	.104	1....	H1-1a
13	M36	PIPE_2.0	.300	28	23	.102	28		12	14916.0...	32130	1.872	1.872	3....	H1-1b
14	M33B	PIPE_2.0	.295	87.938	1	.008	87.938		22	8922.084	32130	1.872	1.872	1....	H1-1a
15	M19	.625 x 3.5"	.287	0	40	.194	0	y	40	68522.7...	70875	.923	5.168	1....	H1-1b
16	M5	PIPE_2.0	.282	0	43	.124	0		21	29810.2...	32130	1.872	1.872	1....	H1-1b
17	M6	PIPE_2.0	.276	0	35	.099	28.125		41	29810.2...	32130	1.872	1.872	1....	H1-1b
18	M18	.625 x 3.5"	.263	0	28	.215	0	y	28	68522.7...	70875	.923	5.168	1....	H1-1b
19	M11	.625 Dia.	.212	25.833	28	.017	0		23	3055.133	9940.19	.104	.104	1....	H1-1a
20	M32	PIPE_2.0	.194	68	6	.040	28		4	14916.0...	32130	1.872	1.872	2....	H1-1b
21	M30A	PIPE_2.0	.162	87.938	1	.008	87.938		16	8922.084	32130	1.872	1.872	1....	H1-1b*
22	M16	.75 Dia.	.147	23.786	23	.018	0		5	3164.278	14313.8...	.179	.179	1....	H1-1b
23	M15	.75 Dia.	.010	0	35	.012	47.572		6	1550.496	14313.8...	.179	.179	2....	H1-1b*
24	M14	.75 Dia.	.000	0	1	.000	0		1	1550.496	14313.8...	.179	.179	1	H1-1a



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFAW	SUPPORT ARM		71.41	142.81
2	2	X-HDPMW	HEAVY DUTY PIPE MOUNT WELDMENT		18.61	37.21
3	2	X-HDPMBP	HEAVY DUTY PIPE MOUNT BACKING PLATE	12 in	13.44	26.89
4	2	X-VFAPL3	VFA-HD PIVOT PLATE	24 in	9.69	19.38
5	1	X-LPB	LOWER PIVOT BRACKET		8.84	8.84
6	1	X-UPB	UPPER PIVOT BRACKET		8.84	8.84
7	4	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	23.49
8	4	X-TBCA	TIE BACK CLIP ANGLE		2.01	8.02
9	8	SCX2	CROSSOVER PLATE	7 in	4.80	38.37
10	4	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	14.37
11	8	DCP	1/2" THICK, 5-3/4" CNTER TO CENTER CLAMP HALF	8 1/8 in	2.42	19.36
12	2	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	81.50
13	2	P30150	2-7/8" X 150" (2-1/2" SCH. 40) GALVANIZED PIPE	150 in	76.94	153.87
14	6	A34212	3/4" x 2-1/2" UNC HEX BOLT (A325)	2 1/2 in	0.48	2.87
15	6	G34LW	3/4" HDG LOCKWASHER		0.04	0.26
16	6	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	1.27
17	8	G58R-18	5/8" x 18" THREADED ROD (HDG.)	18 in	0.40	3.19
18	4	G58R-12	5/8" x 12" THREADED ROD (HDG.)		1.05	4.18
19	8	G58R-8	5/8" x 8" THREADED ROD (HDG.)		0.70	5.58
20	4	X-UB5300	5/8" X 3" X 5-1/4" X 2-1/2" U-BOLT (HDG.)		1.15	4.60
21	8	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	8.00
22	8	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	2.50
23	8	G5804	5/8" x 4" HDG HEX BOLT GR5		0.44	3.55
24	4	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.08
25	20	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.41
26	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
27	70	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	9.09
28	32	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	23.64
29	16	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	10.00
30	64	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.18
31	64	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.89
32	64	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	4.58
					TOTAL WT. #	682.94

TOLERANCE NOTES

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BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

REVISION HISTORY

DESCRIPTION
12' 6" HEAVY DUTY
V-FRAME ASSEMBLY
WITH TWO STIFF ARMS

SITE PRO 1
A valmont COMPANY

Engineering Support Team:
1-888-753-7446

Locations:
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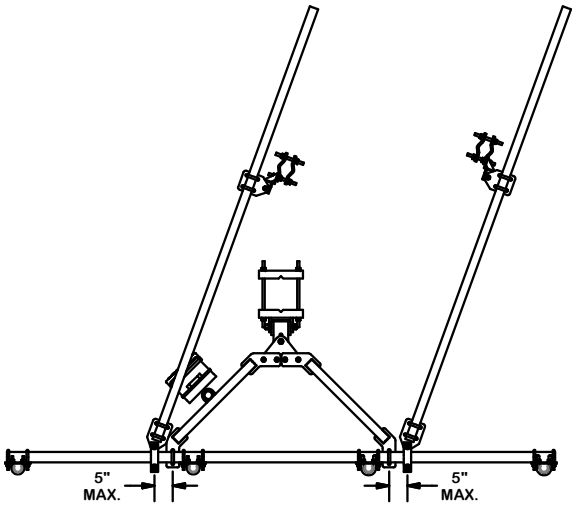
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

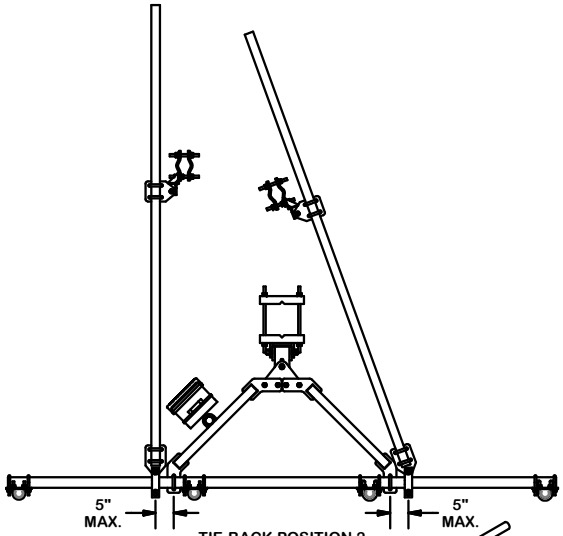
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 1/25/2017		VFA12-HD

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 8/4/2017	VFA12-HD

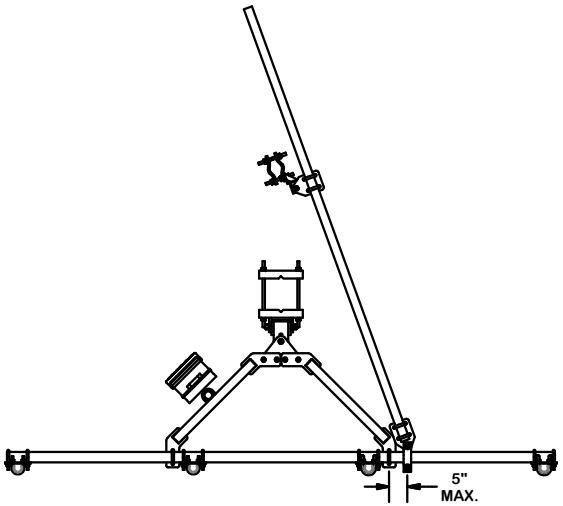
TIE-BACK POSITIONS



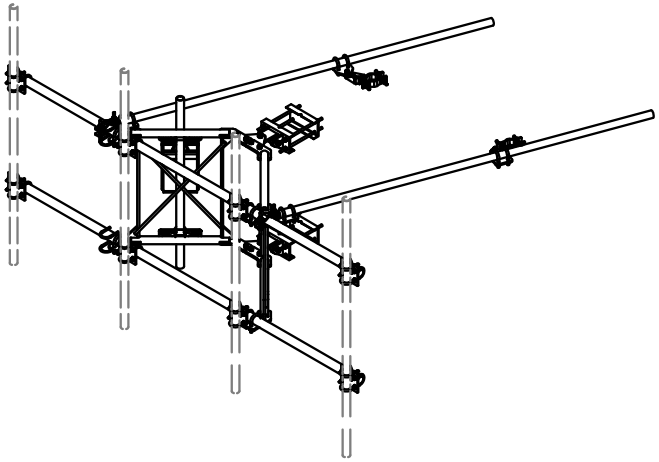
TIE-BACK POSITION 1
-20° / +20° TOP PARALLEL

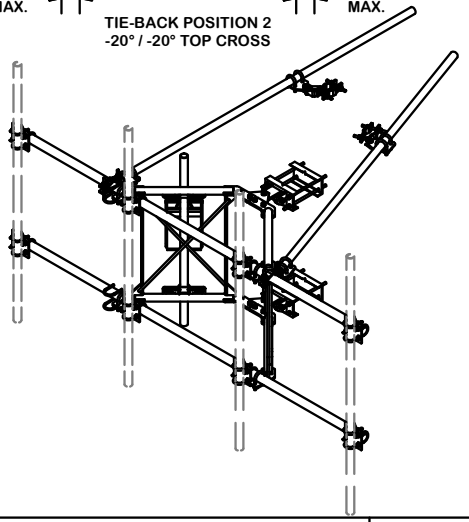


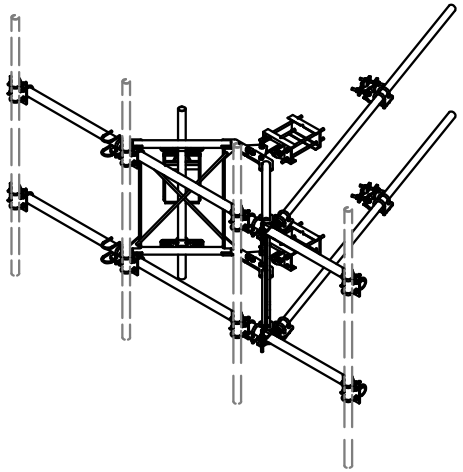
TIE-BACK POSITION 2
-20° / -20° TOP CROSS



TIE-BACK POSITION 3
-20° SAME SIDE STACKED







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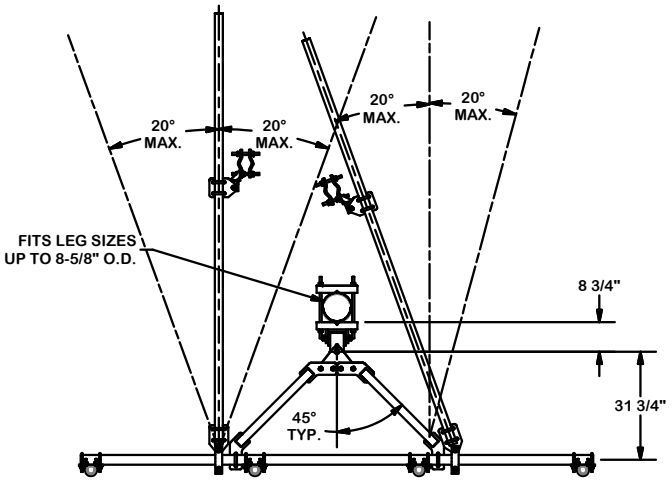
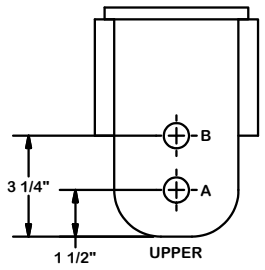
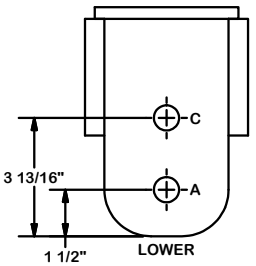
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 8/4/2017	VFA12-HD

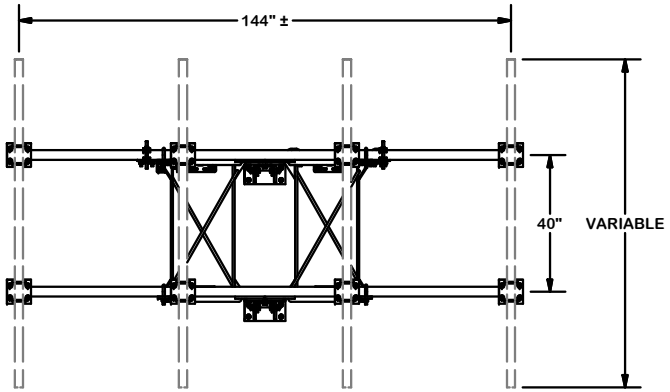


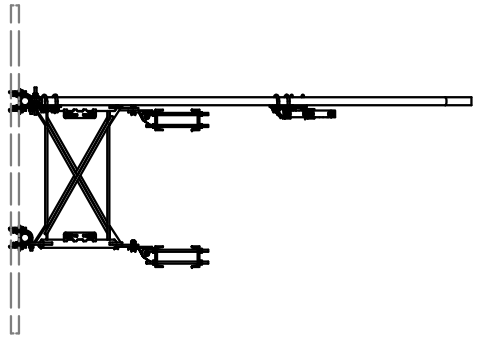




NOTES:

1. USE HOLE "A' IN UPPER AND LOWER BRACKETS FOR STRAIGHT LEGS.
2. USE HOLE "A" IN UPPER BRACKET AND HOLE "C" IN LOWER BRACKET FOR 2" IN 20' TAPER LEGS (3.309°)
3. USE HOLE "B" IN UPPER BRACKET AND HOLE "C" IN LOWER BRACKET FOR 6" IN 20' TAPER LEGS. (0.827°)





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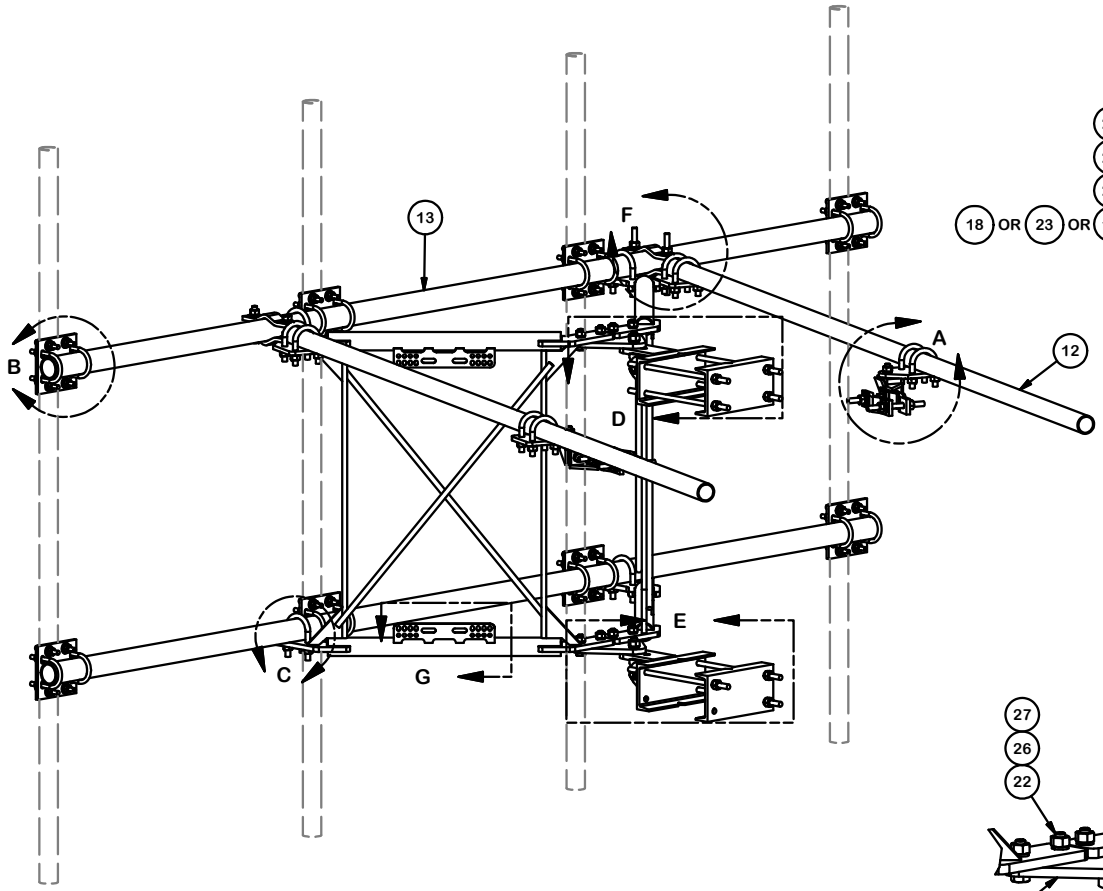

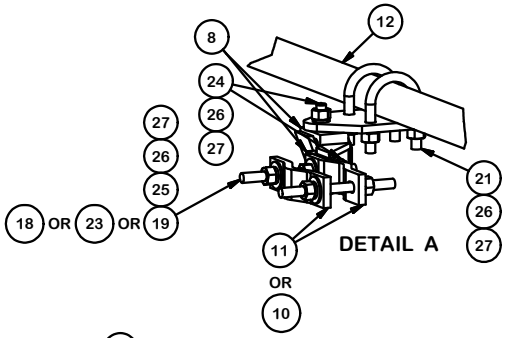

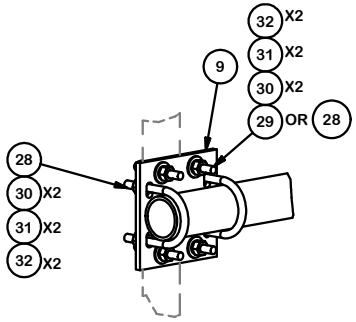

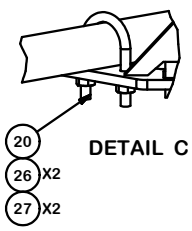

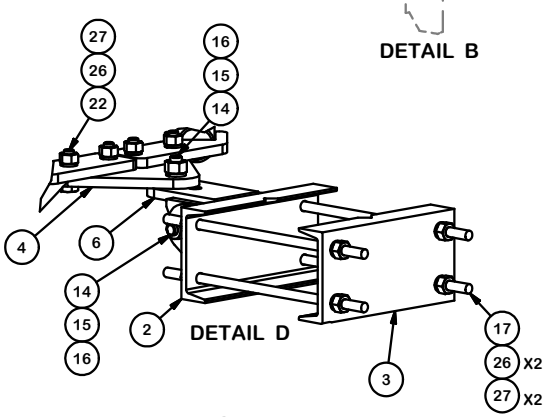

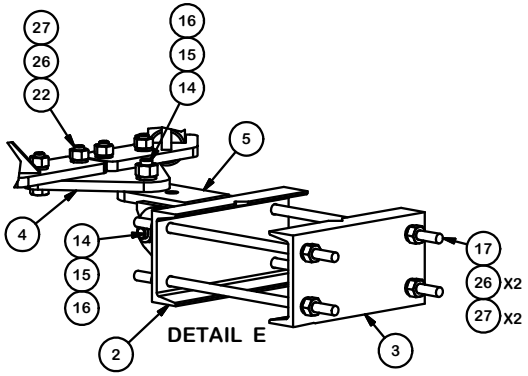

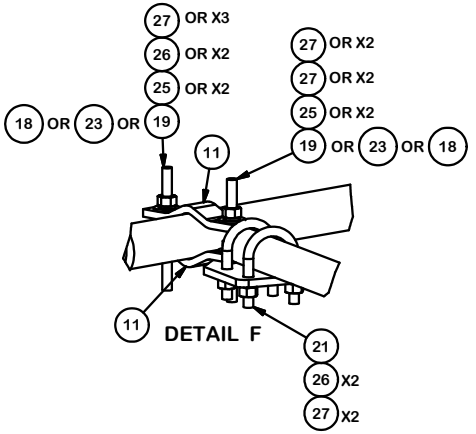

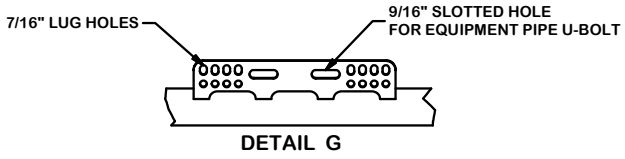

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REVISION HISTORY

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V-FRAME ASSEMBLY
WITH TWO STIFF ARMS

SITE PRO 1 — A valmont COMPANY

Engineering Support Team: 1-888-753-7446

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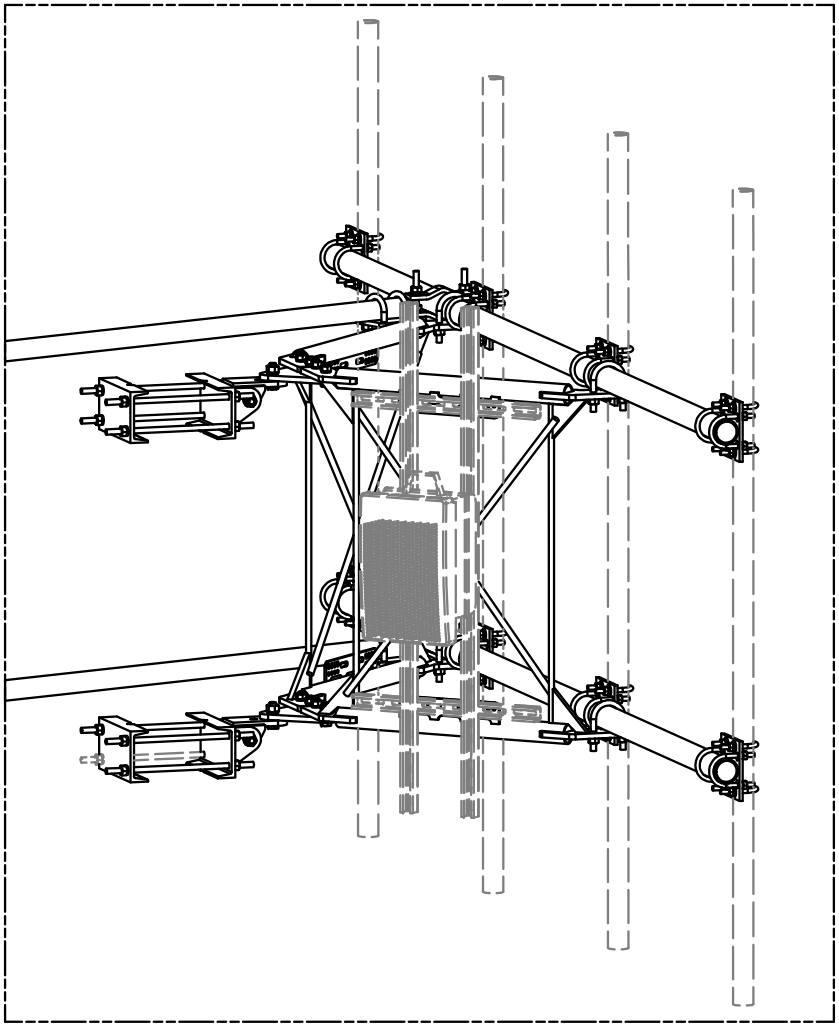
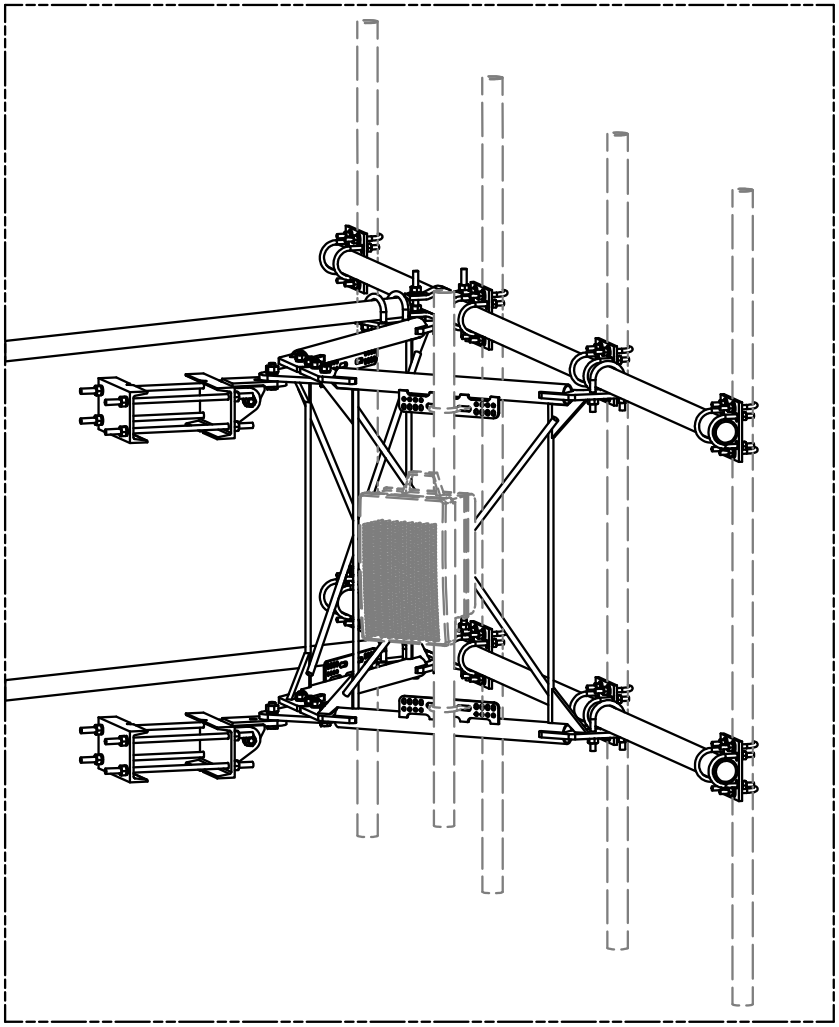
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 8/4/2017	VFA12-HD



UNISTRUT AND HARDWARE
SOLD SEPARATELY.

REQUIRES 3/8" HARDWARE



EQUIPMENT PIPE AND HARDWARE
SOLD SEPARATELY.

REQUIRES 1/2" HARDWARE
AND 2-3/8" TO 4-1/2" O.D. PIPE

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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: CT11134A

Farmington/ I-84 X 37_1
200 Colt Highway
Farmington, Connecticut 06032

November 6, 2020

EBI Project Number: 6220005794

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**13.15%**

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

November 6, 2020

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

Emissions Analysis for Site: CT11134A - Farmington/ I-84 X 37_1

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **200 Colt Highway** in **Farmington, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 200 Colt Highway in Farmington, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

7) 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.

8) 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.

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

10) The antennas used in this modeling are the Ericsson AIR 21 for the 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s) in Sector A, the Ericsson AIR 21 for the 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s) in Sector B, the Ericsson AIR 21 for the 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

11) The antenna mounting height centerline of the proposed antennas is 103 feet above ground level (AGL).

12) 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.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd
Height (AGL):	103 feet	Height (AGL):	103 feet	Height (AGL):	103 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts
ERP (W):	6,169.82	ERP (W):	6,169.82	ERP (W):	6,169.82
Antenna A1 MPE %:	**2.09%**	Antenna B1 MPE %:	**2.09%**	Antenna C1 MPE %:	**2.09%**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd
Height (AGL):	103 feet	Height (AGL):	103 feet	Height (AGL):	103 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	8,728.31	ERP (W):	8,728.31	ERP (W):	8,728.31
Antenna A2 MPE %:	**2.96%**	Antenna B2 MPE %:	**2.96%**	Antenna C2 MPE %:	**2.96%**
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	103 feet	Height (AGL):	103 feet	Height (AGL):	103 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts
ERP (W):	3,757.34	ERP (W):	3,757.34	ERP (W):	3,757.34
Antenna A3 MPE %:	**3.01%**	Antenna B3 MPE %:	**3.01%**	Antenna C3 MPE %:	**3.01%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	8.06%
NBC	0.32%
Metro PCS	0.68%
CNG	0.39%
MediaFLO	0.04%
Sirius XM Radio	0.09%
Verizon	2.8%
Clearwire	0.05%
Sprint	0.72%
Site Total MPE % :	13.15%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	8.06%
T-Mobile Sector B Total:	8.06%
T-Mobile Sector C Total:	8.06%
Site Total MPE % :	13.15%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 1900 MHz GSM	4	1028.30	103.0	13.94	1900 MHz GSM	1000	1.39%
T-Mobile 2100 MHz UMTS	2	1028.30	103.0	6.97	2100 MHz UMTS	1000	0.70%
T-Mobile 1900 MHz LTE	2	2056.61	103.0	13.94	1900 MHz LTE	1000	1.39%
T-Mobile 2100 MHz LTE	2	2307.55	103.0	15.64	2100 MHz LTE	1000	1.56%
T-Mobile 600 MHz LTE	2	591.73	103.0	4.01	600 MHz LTE	400	1.00%
T-Mobile 600 MHz NR	2	591.73	103.0	4.01	600 MHz NR	400	1.00%
T-Mobile 700 MHz LTE	2	695.22	103.0	4.71	700 MHz LTE	467	1.01%
						Total:	**8.06%**

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

Summary

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

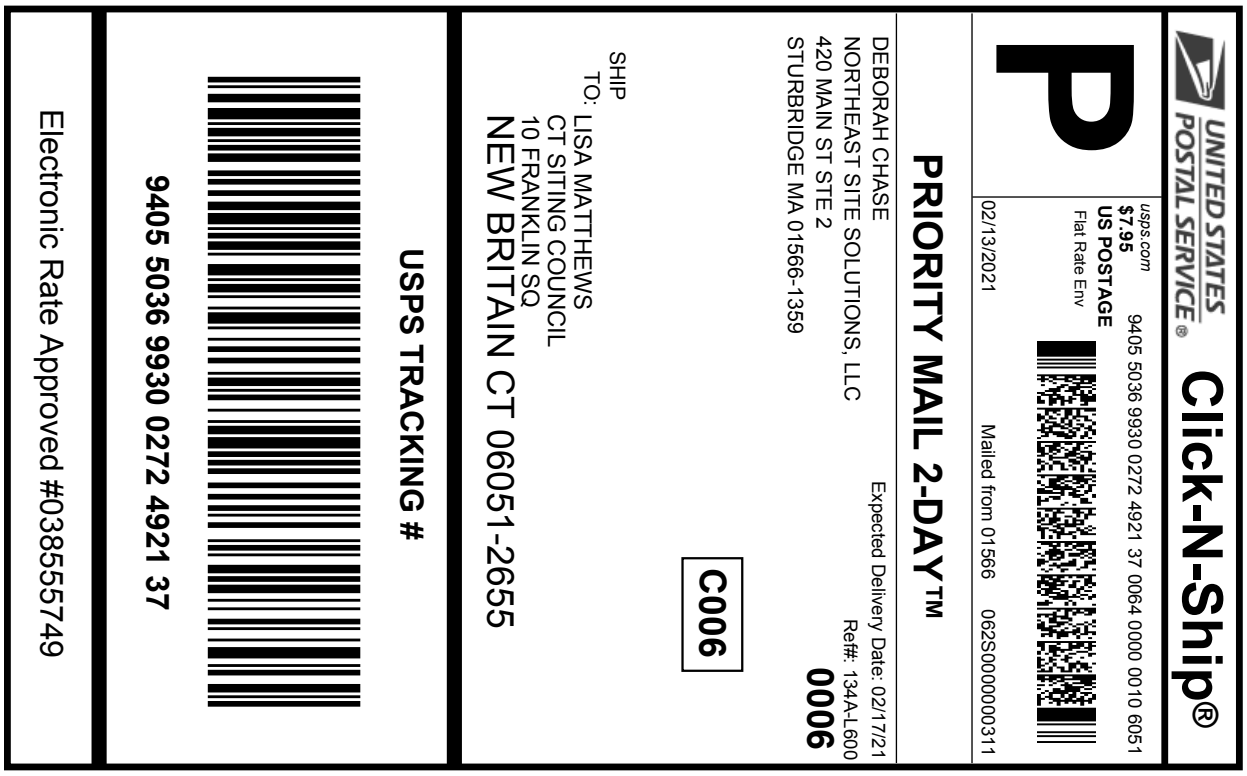
The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	8.06%
Sector B:	8.06%
Sector C:	8.06%
T-Mobile Maximum MPE % (Sector A):	8.06%
Site Total:	13.15%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **13.15%** 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



Cut on dotted line.

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9405 5036 9930 0272 4921 37

Trans. #:	524558006
Print Date:	02/10/2021
Ship Date:	02/13/2021
Expected Delivery Date:	02/17/2021

Priority Mail® Postage:	**$7.95**
Total:	**$7.95**

From: DEBORAH CHASE Ref#: 134A-L600
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: LISA MATTHEWS
CT SITING COUNCIL
10 FRANKLIN SQ
NEW BRITAIN CT 06051-2655

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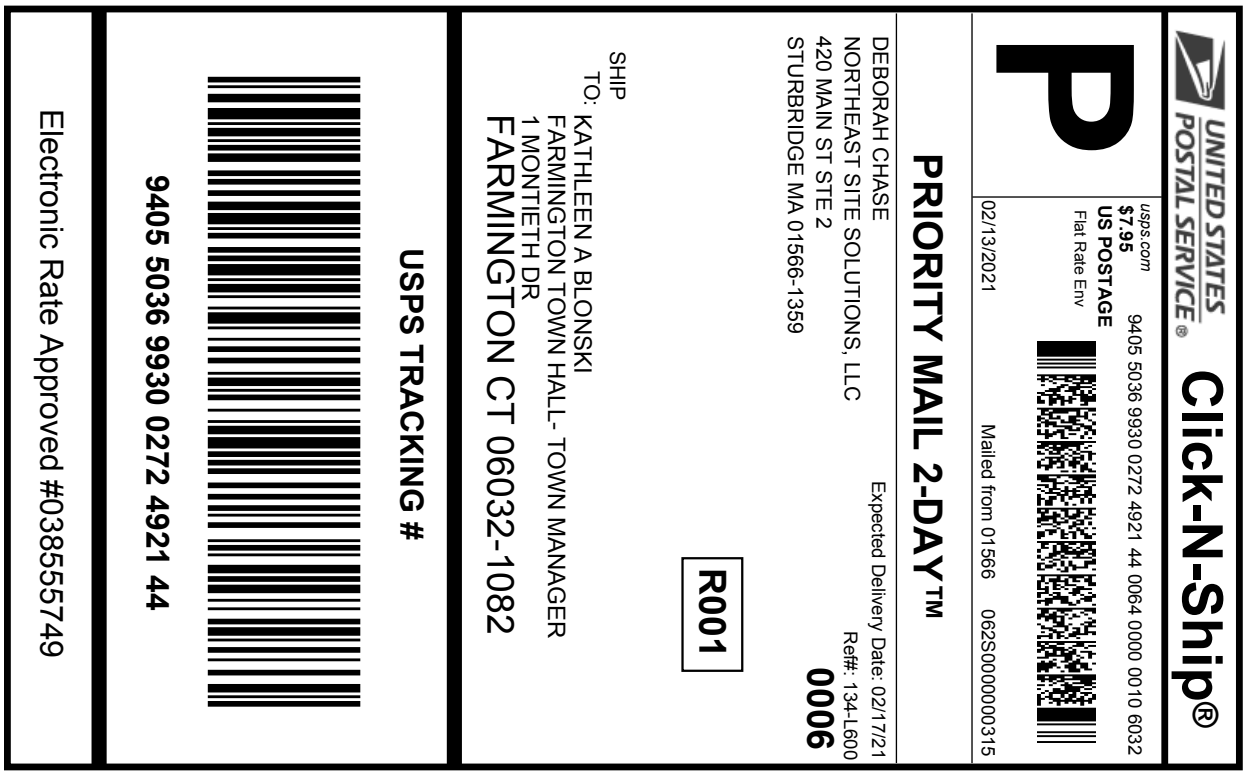

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9405 5036 9930 0272 4921 44

Trans. #:	524558006
Print Date:	02/10/2021
Ship Date:	02/13/2021
Expected Delivery Date:	02/17/2021

Priority Mail® Postage:	**$7.95**
Total:	**$7.95**

From: DEBORAH CHASE Ref#: 134-L600
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: KATHLEEN A BLONSKI
FARMINGTON TOWN HALL- TOWN MANAGER
1 MONTIETH DR
FARMINGTON CT 06032-1082

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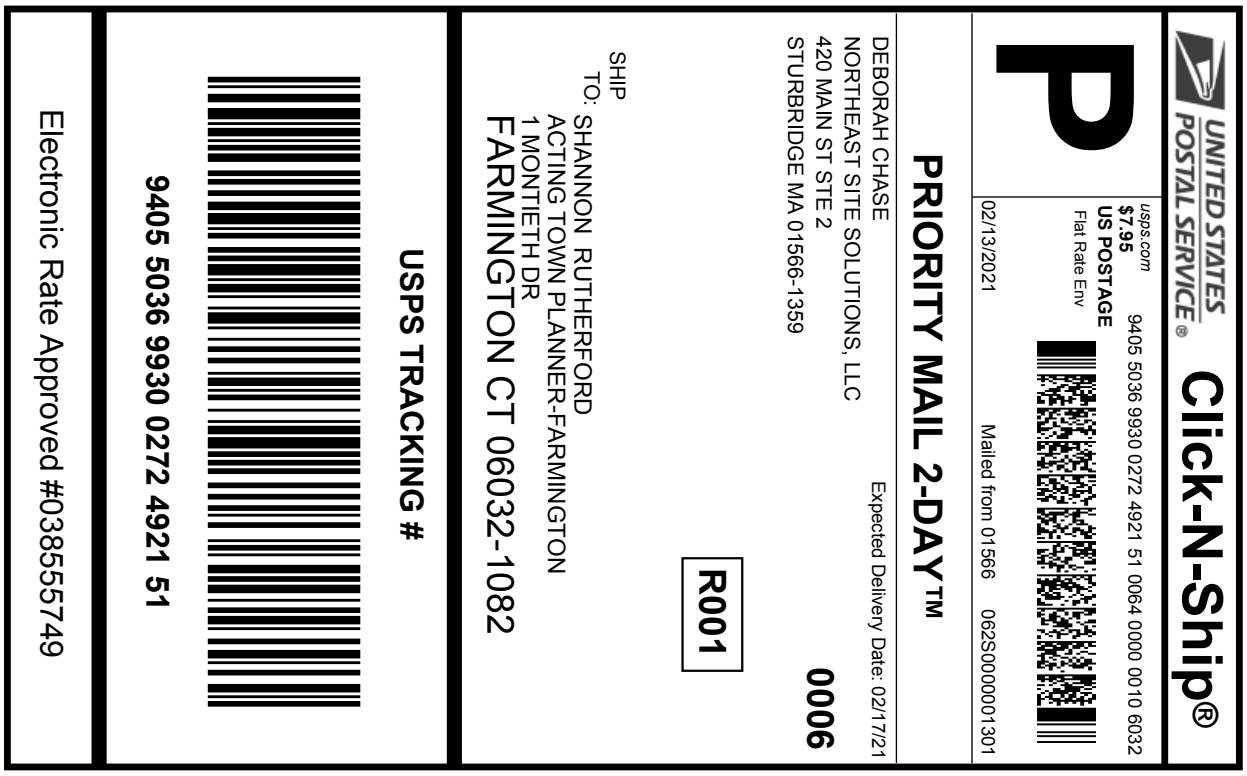

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Trans. #:	524558006
Print Date:	02/10/2021
Ship Date:	02/13/2021
Expected Delivery Date:	02/17/2021

Priority Mail® Postage:	**$7.95**
Total:	**$7.95**

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

To: SHANNON RUTHERFORD
ACTING TOWN PLANNER-FARMINGTON
1 MONTIETH DR
FARMINGTON CT 06032-1082

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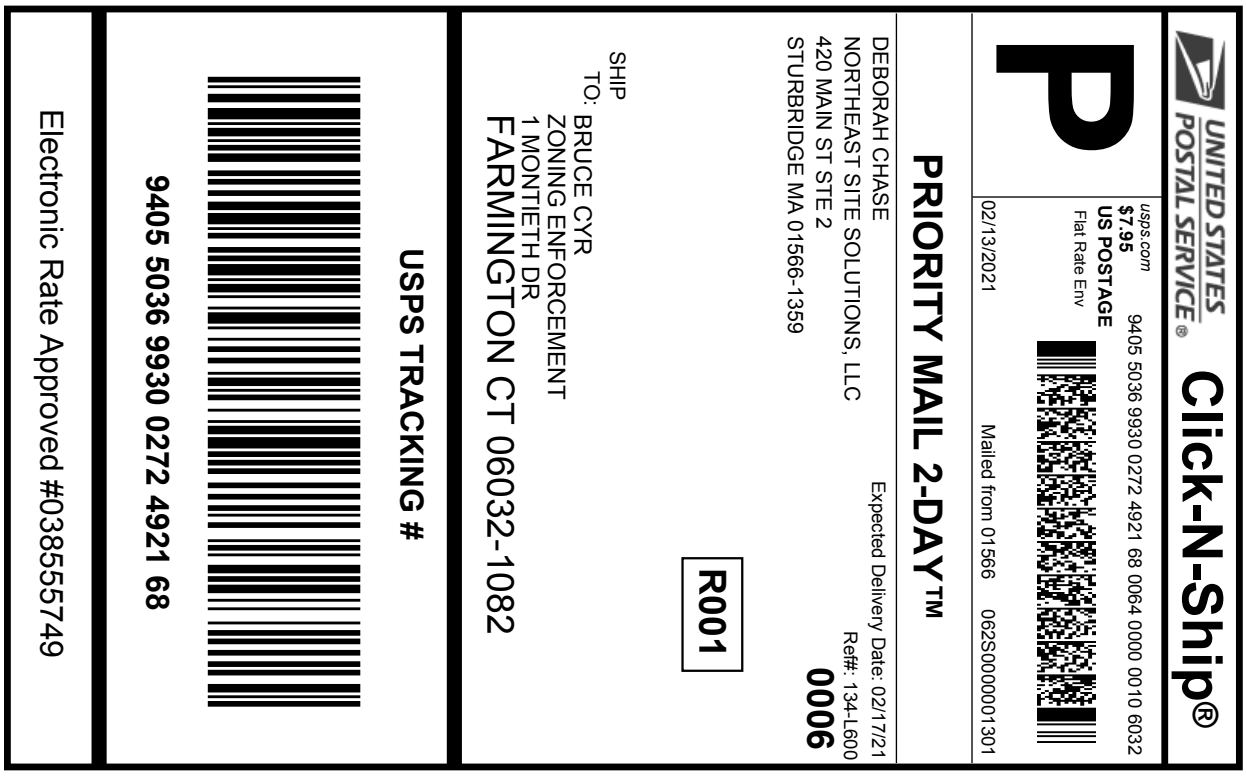

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USPS TRACKING # :
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Trans. #:	524558006
Print Date:	02/10/2021
Ship Date:	02/13/2021
Expected Delivery Date:	02/17/2021

Priority Mail® Postage:	**$7.95**
Total:	**$7.95**

From: DEBORAH CHASE Ref#: 134-L600
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: BRUCE CYR
ZONING ENFORCEMENT
1 MONTIETH DR
FARMINGTON CT 06032-1082

* 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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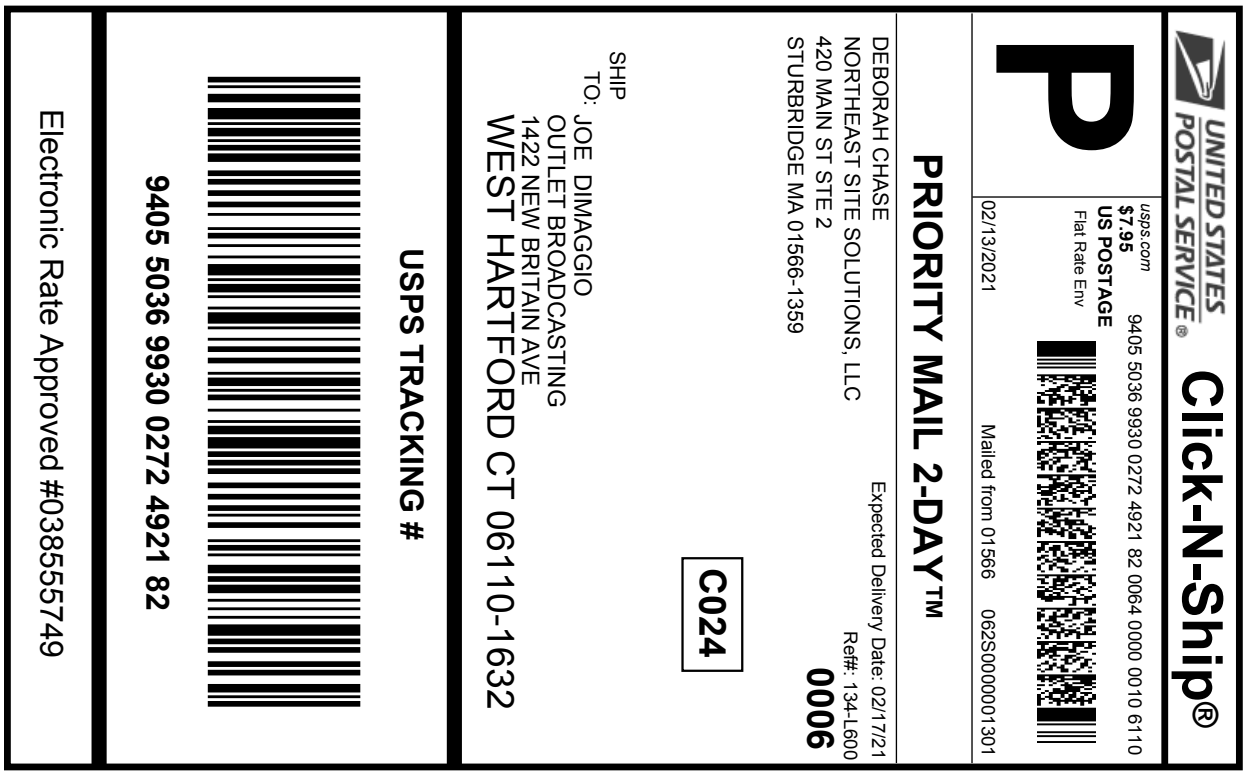

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9405 5036 9930 0272 4921 82

Trans. #:	524558006
Print Date:	02/10/2021
Ship Date:	02/13/2021
Expected Delivery Date:	02/17/2021

Priority Mail® Postage:	**$7.95**
Total:	**$7.95**

From: DEBORAH CHASE Ref#: 134-L600
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: JOE DIMAGGIO
OUTLET BROADCASTING
1422 NEW BRITAIN AVE
WEST HARTFORD CT 06110-1632

* 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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Exhibit H

Deborah Chase

From: Deborah Chase
Sent: Wednesday, February 10, 2021 6:27 PM
To: 'Kathy Blonski'; 'rutherfords@farmington-ct.org'; 'cyrb@farmington-ct.org'
Cc: 'joe.dimaggio@nbcuni.com'
Subject: 200 COLT HIGHWAY FARMINGTON CT 06032 T-MOBILE EM APPLICATION (CT11134A-L700 4X2)
Attachments: 200 COLT HIGHWAY FARMINGTON CT 06032 T-MOBILE EM APPLICATION (CT11134A L700 4x2).pdf

Good afternoon,
This is to inform you that you will be receiving a copy of T-Mobile's Exempt Modification (Zoning) Application to the CT Siting Council for the site listed above.
It will be delivered via Priority Mail.
Please let me know if you have any questions.
Thank you very much

Deborah Chase
Senior Project Coordinator & Analyst
Mobile: 860-490-8839

Save a tree. Refuse.Reduce. Reuse. Recycle.