NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

February 27, 2020

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

RE: Notice of Exempt Modification
23 Kelleher Court, Wethersfield CT 06109
Latitude: 41.715275
Longitude: -72.690275
T-Mobile Site#: CTHA014A_L700 4x2-PI

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 151-foot level of the existing 179-foot monopole tower at 23 Kelleher Court, Wethersfield CT. The 179-foot tower and property are both owned by the Town of Wethersfield. T-Mobile now intends to add a new handrail and reinforcement kit. The kit would be installed at the 151-foot level of the tower.

Planned Modifications:

Remove: NONE

Remove and Replace: NONE

Install New:
Handrail and Reinforcement Mounting Kit

Existing to Remain:
(12) 1-5/8" Coax
(4) Fiber Hybrid Line
(3) Twin TMA
(3) RRU
(9) Antenna

This facility was approved by the Wethersfield ZBA–on April 17, 2002 Town of Wethersfield was approved to erect two (2) tower shelters and a tower in the side yard of 23 Kelleher CT. Please see attached minutes provided by the Town of Wethersfield Zoning Department.

NORTHEAST SITE SOLUTIONS

Turnkey Wireless Development

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to Mayor Michael L. Rell, Elected Official and Peter Gillespie, Director of Planning and Economic Development for the Town of Wethersfield, 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

Attachments
cc: Mayor Michael L. Rell -Wethersfield elected official
Peter Gillespie – Director of Planning and Economic Development
Town of Wethersfield - as property and tower owner

Exhibit A

Town of Wethersfield
505 SILAS DEANE HIGHWAY
WETHERSFIELD, CONNECTICUT 06109

17 April 2002

Mr. Michael J. Turner
Town Engineer
Town of Wethersfield
505 Silas Deane Highway
Wethersfield, Connecticut 06109

Dear Mr. Turner:

Re: Application No. 5694-2002

At a meeting of the Zoning Board of Appeals held on Monday, April 15, 2002, it was unanimously voted that the application seeking variance to erect two equipment shelters and tower in the side yard at 23 Kelleher Court, east side, A-1 Residence Zone, **BE APPROVED AS SUBMITTED.**

A building permit must be obtained from, and all construction is done under the supervision of the Building Inspection Division, Town of Wethersfield.

The effective date of this permission is **April 19, 2002.** *This variance must be recorded with the Town Clerk, Town of Wethersfield immediately after the 15 days from the effective date of this permission. Please come to the Building Department first to pick up the form to be recorded in the Town Clerk's Office.*

Very truly yours,

TOWN OF WETHERSFIELD
ZONING BOARD OF APPEALS
MORRIS R. BOREA, CHAIRMAN

Nancy Azeredo

Nancy Azeredo, Duly Authorized for
Bruce T. Bockstael, Clerk

na
Enc.

Cc: Lee C. Erdmann, Town Manager

WETHERSFIELD ZONING BOARD OF APPEALS
PUBLIC HEARING **April 15, 2002**

The Wethersfield Zoning Board of Appeals held a public hearing on April 15, 2002 at 7:30 PM in the Town Hall, 505 Silas Deane Highway, Wethersfield, Connecticut.

PRESENT: Morris R. Borea, Chairman
Bruce T. Bockstael, Clerk
Frank A. Falvo, Jr.
Thomas J. Vaughan, Jr.
Cynthia Clancy, Alternate

ABSENT: J. Edward Brymer, Jr., Vice Chairman

Also Present: Brian O'Connor, Assistant Building & Zoning Official

Chairman Borea opened the meeting. Before the meeting started, the public was welcomed to speak regarding anything except specific cases in the past or on the night's agenda. There was no one present who wished to speak.

Mr. O'Connor requested that the agenda be taken out of order as the last applicant, (Application No. 5694-2002), has to be at the Town Council Meeting being held in the Council Chambers at the same time as this meeting. Commissioner Bockstael stated that at the end of the meeting the public would again be asked if they would like to speak regarding Application No. 5694-2002 in case there were any late arrivals.

Commissioner Bockstael read the legal notice into the record.

APPLICATION NO. 5694-2002. Town of Wethersfield seeking variance to erect two equipment shelters and tower in the side yard at 23 Kelleher Court, east side, A-1 Residence Zone. (Section 167-75)

Mike Turner, Town Engineer appeared before the Board of behalf of the Town of Wethersfield, seeking variance for the location of the two equipment shelters and antenna tower that they would like to locate at Fire House #3 at 23 Kelleher Court. He stated that this is one of three tower sites that the Town is pursuing as part of the new town wide radio system that they are constructing. Mr. Turner stated that this tower site would be the main tower site where most of the radio equipment would be located.

Mr. Turner stated that the regulations require that any tower be located in the rear yard. He stated that the upper portion of the site by the parking lot is around elevation 130 to 131, the site drops off in the rear to about elevation 102. Therefore the rear portion of the property would require an antenna tower to be built around 29 to 30 feet taller. He stated that this tower site needs to have a clear line of site to the Newington tower, around 30 to 40 feet above of the tree line. Therefore what they are proposing is that the construction of the tower be in the south west corner of the property, with the equipment shelter adjacent to the tower, generally around 10 feet from the tower.

Chairman Borea questioned how high the tower is going to be. Mr. Turner stated 190 feet. Chairman Borea verified that if it were to be put in the rear yard the tower would have to be around 220 feet. Mr. Turner stated that this was correct, adding that anything over 199 feet needs flashing lights, strobe lights, etc.

There were no further questions or comments from the Board.

There was no one in the audience who wished to speak in favor of this application.

The following audience member wished to speak in opposition to this application:

1. Mr. Robert Young, 20 Coppermill Road, Wethersfield, CT – Stated that he feels this location is a bad site and feels that it will bring down the property value of homes in this area, which will in turn bring down his property value. He stated that he also feels that not all the facts were presented to the public.

APPLICATION NO. 5689-2002. Jeannine Steucek seeking variance to erect a 24'X26' detached garage over the building line at 931 Prospect Street, north side, A-1 Residence Zone. (Section 167-114)

Jeannine Steucek, 931 Prospect Street, Wethersfield, CT, appeared before the Board seeking variance to erect a detached garage over the building line. She stated that she has never had a garage but would like a garage for the protection of her car.

April 15, 2002

APPLICATION NO. 5693-2002. Sebastian A. Panioto seeking variance to construct a single car garage and attached entry having less than the required side yard at 95 Mohawk Lane, north side, A Residence Zone. (Section 167-172)

Upon motion made by Commissioner Falvo, Jr., seconded by Chairman Borea and a poll of the Board it was unanimously voted that the above application **BE APPROVED** as submitted.

APPLICATION NO. 5694-2002. Town of Wethersfield seeking variance to erect two equipment shelters and tower in the side yard at 23 Kelleher Court, east side, A-1 Residence Zone. (Section 167-75)

Upon motion made Chairman Borea, seconded by Commissioner Falvo, Jr., and a poll of the Board it was unanimously voted that the above application **BE APPROVED** as submitted.

APPROVAL OF MINUTES

Tabled until next meeting.

ADJOURNMENT

The meeting was adjourned at 8:30PM.

Exhibit B

Property Location: 23 KELLEHER CT | **MAP ID:** 073/ 060/ / / | **Bldg Name:** | **State Use:** 901C

Vision ID: 10410 | **Account #** 073-060- | **Bldg #:** 1 of 1 | **Sec #:** 1 of 1 | **Card** 1 of 1 | **Print Date:** 02/22/2014 17:26

CURRENT OWNER

WETHERSFIELD TOWN OF
FIREHOUSE #3
23 KELLEHER CT

WETHERSFIELD, CT 06109
Additional Owners:

TOPO.		UTILITIES		STRT./ROAD		LOCATION	
1	Level	1	All Public				

SUPPLEMENTAL DATA

Other ID:		SIDE	E1
LOT NO	7-18	SEQ NO	470400
CALLBACK		PENALTY	
CENSUS	4923	Notice 1 Val	
SECTION	1	DISBLD EX	
GIS ID:	073060	ASSOC PID#	

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
EXEMPT	BAAX	642,900	450,000
EXEMPT	BAAX	117,400	82,200
EXEMPT	BAAX	1,371,600	960,100
	Total	2,131,900	1,492,300

6159
WETHERSFIELD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
WETHERSFIELD TOWN OF	0169/0075	06/25/1956	U		0	

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2012	100	1,629,500	2010	BAAX	467,300	2008	BAAX	467,300
2012	100	84,700	2010	BAAX	84,700	2008	BAAX	84,700
			2010	BAAX	1,162,200	2008	BAAX	1,162,200
	Total:	1,714,200		Total:	1,714,200		Total:	1,714,200

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm. Int.

This signature acknowledges a visit by a Data Collector or Assessor

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	642,900
Appraised XF (B) Value (Bldg)	0
Appraised OB (L) Value (Bldg)	1,371,600
Appraised Land Value (Bldg)	117,400
Special Land Value	0
Total Appraised Parcel Value	2,131,900
Valuation Method:	C
Adjustment:	0
Net Total Appraised Parcel Value	2,131,900

ASSESSING NEIGHBORHOOD

NBHD/ SUB	NBHD NAME	STREET INDEX NAME	TRACING	BATCH
0001/A				

NOTES

CELL TOWER + EQUIP ON SITE
2000 GAL DIESEL TANK
CELL TOWER VALUE= 5 SITES@ 3000/MONTH
5 X 3000 X 12= 180,000
LESS 25% EXP= 135,000/.11= 1,227,250

METRO PCS LEASE

FIREHOUSE 3

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments
M-13-170	08/14/2013	HA	HVAC	21,165	10/07/2013	100	10/01/2013	REPL ONE ROOFTOP A
B-13-46	03/26/2013	CM	Commercial	20,000	05/01/2013	100	10/01/2013	LEASE AREA EXPANDI
B-10-152	08/12/2010	BP		15,000	05/11/2012	100	03/02/2012	Install 3 antnnas, 3 dishes
BP0097	05/11/2009	BP		5,000	10/05/2009	100		Add antenna's and cabine
BP-0093	04/29/2009	BP		15,000	10/05/2009	100		Install antennas and radi
EP-0320	11/25/2008	CM	Commercial	15,000	10/05/2009	100		100 amp service & shutof
EP07225	07/27/2007	EL	Electric	6,400		100		200 amp svce for T-Mobil

VISIT/ CHANGE HISTORY

Date	Type	IS	ID	Cd.	Purpose/Result	
10/7/2013			CR	49	No Change	After Inspe
5/1/2013			CR	49	No Change	After Inspe
5/11/2012			CR	49	No Change	After Inspe
10/5/2009			CR	49	No Change	After Inspe
7/25/2008			JL	51	Field review	

LAND LINE VALUATION SECTION

B #	Use Code	Use Description	Zone	D	Frontage	Depth	Units		Unit Price	I. Factor	S.A.		C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing		Adj. Unit Price	Land Value
1	901C	Municipal MDL-94	A1				1.00	AC	118,800.00	1.00	F		1.00	010	0.90				106,920.00	106,900
1	901C	Municipal MDL-94	A1				1.30	AC	9,000.00	1.00	0		1.00	010	0.90				8,100.00	10,500

Total Card Land Units: 2.30 AC | **Parcel Total Land Area:** 2.3 AC | **Total Land Value:** 117,400

Property Location: 23 KELLEHER CT | **MAP ID:** 073/ 060/ / / | **Bldg Name:** | **State Use:** 901C

Vision ID: 10410 | **Account #** 073-060- | **Bldg #:** 1 of 1 | **Sec #:** 1 of 1 | **Card** 1 of 1 | **Print Date:** 02/22/2014 17:26

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
Style	59		Fire Station
Model	96		Ind/Comm
Grade	06		Good
Occupancy	1		
Exterior Wall 1	20		Brick
Exterior Wall 2			
Roof Structure	03		Gable/Hip
Roof Cover	03		Asphalt Shingl
Interior Wall 1	05		Drywall
Interior Wall 2	03		Plaster
Interior Floor 1	05		Vinyl/Asphalt
Interior Floor 2	03		Concr-Finished
Heating Fuel	03		Oil/Gas
Heating Type	05		Hot Water
AC Type	03		Central
Bldg Use	907		Fire-Vol
Total Rooms			
Total Bedrms	00		
Total Baths	0		
Heat/AC	02		HEAT/AC SPLIT
Frame Type	03		MASONRY
Baths/Plumbing	02		AVERAGE
Ceiling/Wall	06		CEIL & WALLS
Rooms/Prtns	02		AVERAGE
Wall Height	12		
% Comn Wall	0		

CONSTRUCTION DETAIL (CONTINUED)

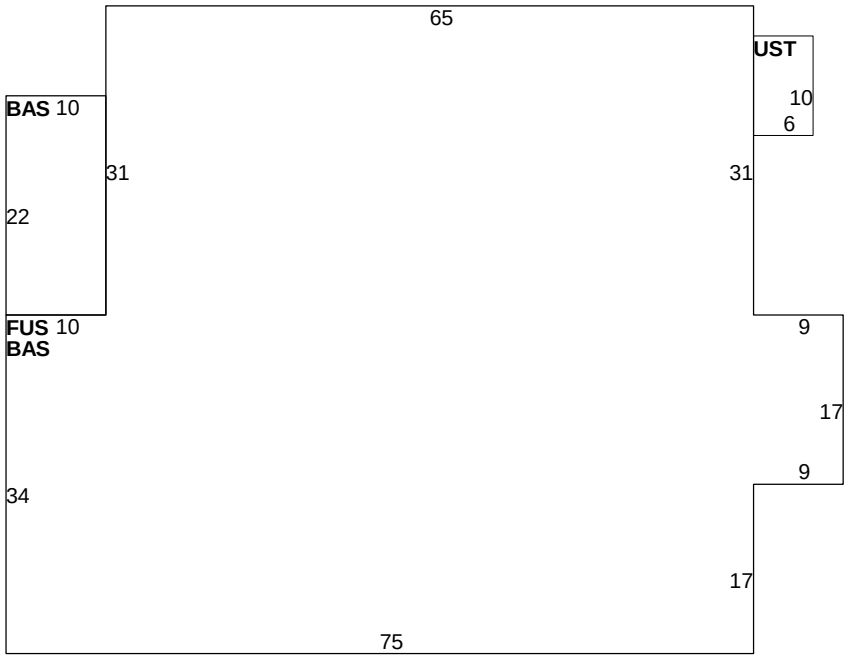
Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
901C	Municipal MDL-94	100

COST/MARKET VALUATION

Adj. Base Rate:	85.19
AYB	1969
Dep Code	G
Remodel Rating	
Year Remodeled	
Dep %	22
Functional Obslnc	0
External Obslnc	0
Cost Trend Factor	
Condition	
% Complete	
Overall % Cond	78
Apprais Val	642,900
Dep % Ovr	0
Dep Ovr Comment	
Misc Imp Ovr	0
Misc Imp Ovr Comment	
Cost to Cure Ovr	0
Cost to Cure Ovr Comment	

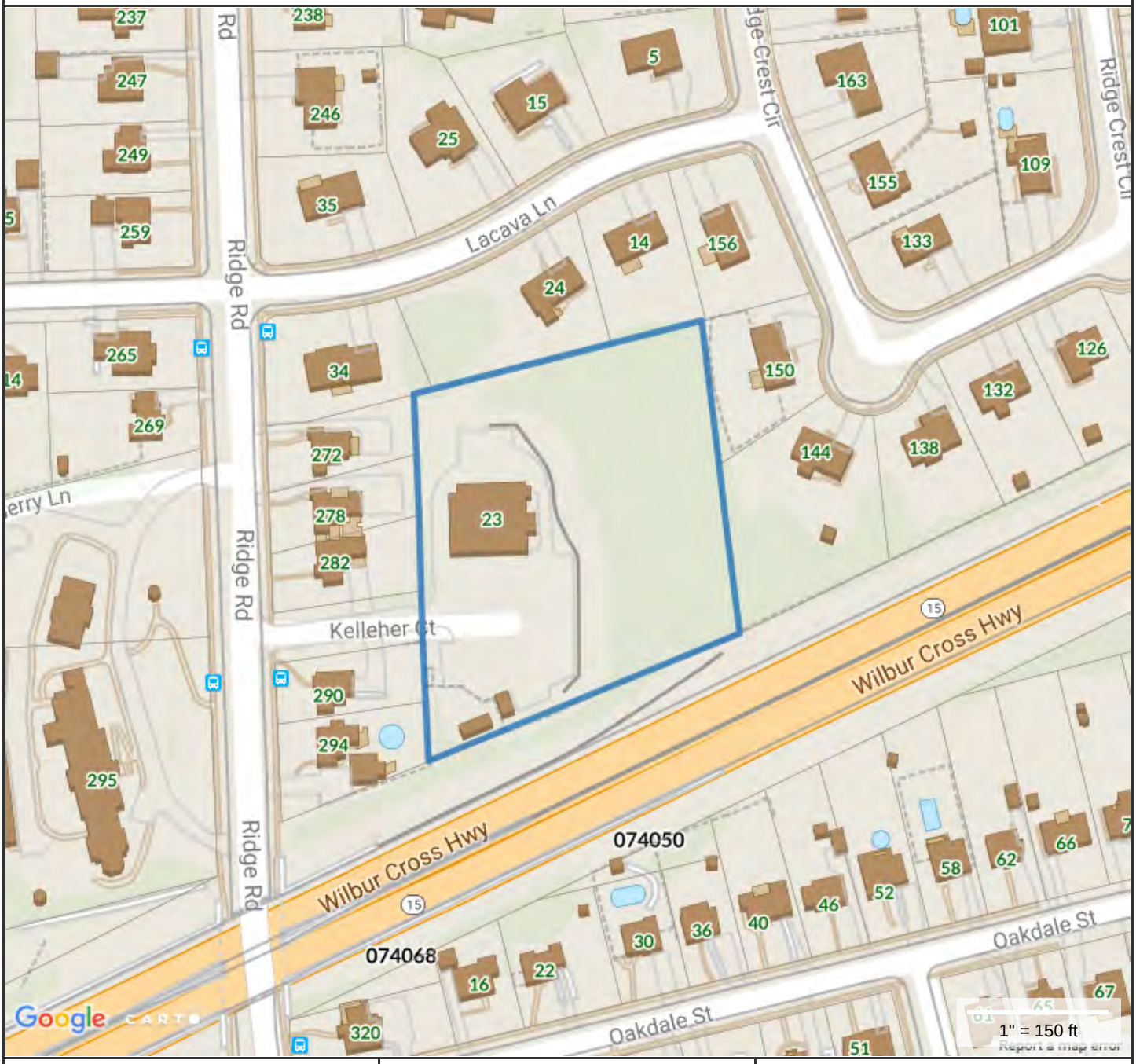


OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
PAV1	Asphalt Paving			L	3,600	1.60	1999			G	75	4,300
CB3	PreCastConCel			L	200	350.00	2008			A	50	35,000
CB3	PreCastConCel			L	240	350.00	2008			A	50	42,000
CB3	PreCastConCel			L	360	350.00	2008			A	50	63,000
	CELL SITES			L	5	245,450.00	2008					1,227,300

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
BAS	First Floor	4,938	4,938			
FUS	Finished Upper Story	4,718	4,718			
UST	Unfinished Storage	0	60			
	Ttl. Gross Liv/Lease Area:	9,656	9,716			



Property Information

Property ID	073060
Location	23 KELLEHER CT
Owner	WETHERSFIELD TOWN OF

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Wethersfield, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Parcels updated 11/14/17
Properties updated daily

Exhibit C

ANTENNA UPGRADES BY

T-Mobile

T-MOBILE NORTHEAST LLC

PROJECT: L700 4X2

SITE NUMBER: CTHA014A

SITE NAME: HA014/T OF WETHERSFIELD_MP

SITE ADDRESS: 23 KELLEHER COURT
WETHERSFIELD, CT 06109
(RF CONFIGURATION 67D92DB)

PROJECT SCOPE:

UPGRADE OF EXISTING WIRELESS FACILITY AS FOLLOWS:

MODIFY EXISTING ANTENNA MOUNT ON THE TOWER.

PROJECT NOTES:

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION:
   HANDICAPPED ACCESS IS NOT REQUIRED.
   POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
   NO OUTDOOR STORAGE OR ANY
   SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACES THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES, ORDINANCES AND SPECIFICATIONS.
4. REFER TO TOWER STRUCTURAL ANALYSIS REPORT AND MOUNT STRUCTURAL ANALYSIS REPORT - MONOPOLE " SITE ID: CTHA014A, DATED FEBRUARY 7, 2020, PREPARED EFI GLOBAL INC.

APPLICABLE STATE ADOPTION CODES:

2018 CONNECTICUT STATE BUILDING CODE (CSBC).

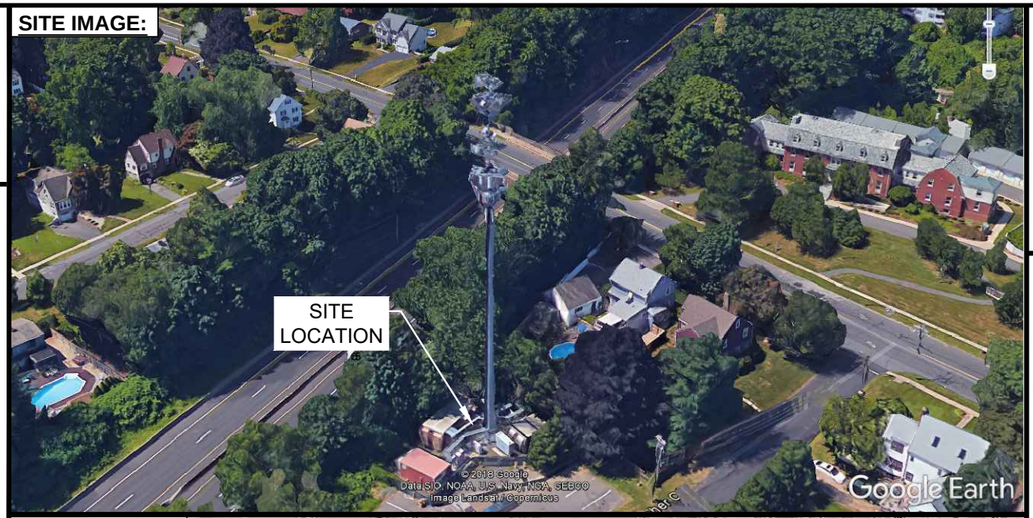
ANSI/TIA-222-G-2005 STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

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

APPROVALS:

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

SITE IMAGE:



VICINITY MAP:

PROJECT INFORMATION:

ADDRESS:	23 KELLEHER COURT WETHERSFIELD, CT 06109
STRUCTURE TYPE:	MONOPOLE TOWER
COORDINATES:	41.715275 N, -72.690275W
TOWER HEIGHT:	179'-0" AGL
TOP OF T-MOBILE ANTENNAS ELEV:	155'-0" AGL

PROJECT TEAM:

APPLICANT:	T-MOBILE NORTHEAST, LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 860-692-7100
LANDLORD:	TOWN OF WETHERSFIELD 505 SILAS DEANE HIGHWAY WETHERSFIELD, CT 06109 PHONE: (860) 721-2801 FAX: (860) 721-2994
PROJECT MANAGER:	NORTHEAST SITE SOLUTIONS 420 MAIN STREET, BLDG 4 STURBRIDGE, MA 01566 SHELDON FREINCLE SHELDON@NORTHEASTSITESOLUTIONS.COM 201-776-8521
CONSULTANTS:	FORESITE LLC 462 WALNUT ST NEWTON, MA 02460 SAEED MOSSAVAT SMOSSAVAT@FORESITELLC.COM 617-212-3123

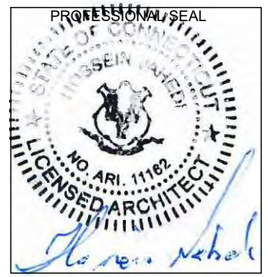
SHEET INDEX:

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

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

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

PROFESSIONAL SEAL



REV	DESCRIPTION	DATE
A	PRELIMINARY	09/18/18
B	CHANGED TO DELTA GEN.	10/18/18
0	SIGNED AND SEALED	10/18/18
1	UPDATED STRUCTURAL REF.	11/13/18
2	ADDED PROP. LINE SETBACKS	12/10/18
3	RELOCATED GENERATOR	01/25/19
4	MODIFY ANTENNA MOUNT	02/19/20

SITE NUMBER: CTHA014A
SITE NAME: HA014/T OF WETHERSFIELD_MP
SITE ADDRESS: 23 KELLEHER COURT
WETHERSFIELD, CT 06109

SHEET TITLE:
T-1: TITLE SHEET

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

11. BOLTING:

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

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

C. ALL CONNECTIONS SHALL BE 2 BOLTS MINIMUM.

12. FABRICATION:

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

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

13. ERECTION OF STEEL:

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

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

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

14. ANTENNA INSTALLATION:

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

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

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

15. ANTENNA AND COAXIAL / FIBER CABLE GROUNDING:

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

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

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

A. FLASHING OF OPENING INTO OUTSIDE WALLS

B. SEALING AND CAULKING ALL OPENINGS

C. PAINTING

D. CUTTING AND PATCHING

17. REQUIREMENTS OF REGULATORY AGENCIES:

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

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

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

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

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

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

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

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

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

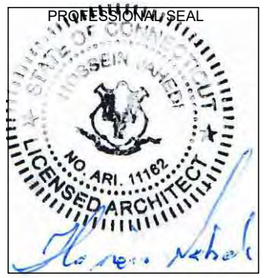
J. 2009 LIFE SAFETY CODE NFPA – 101.

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

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

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

PROFESSIONAL SEAL



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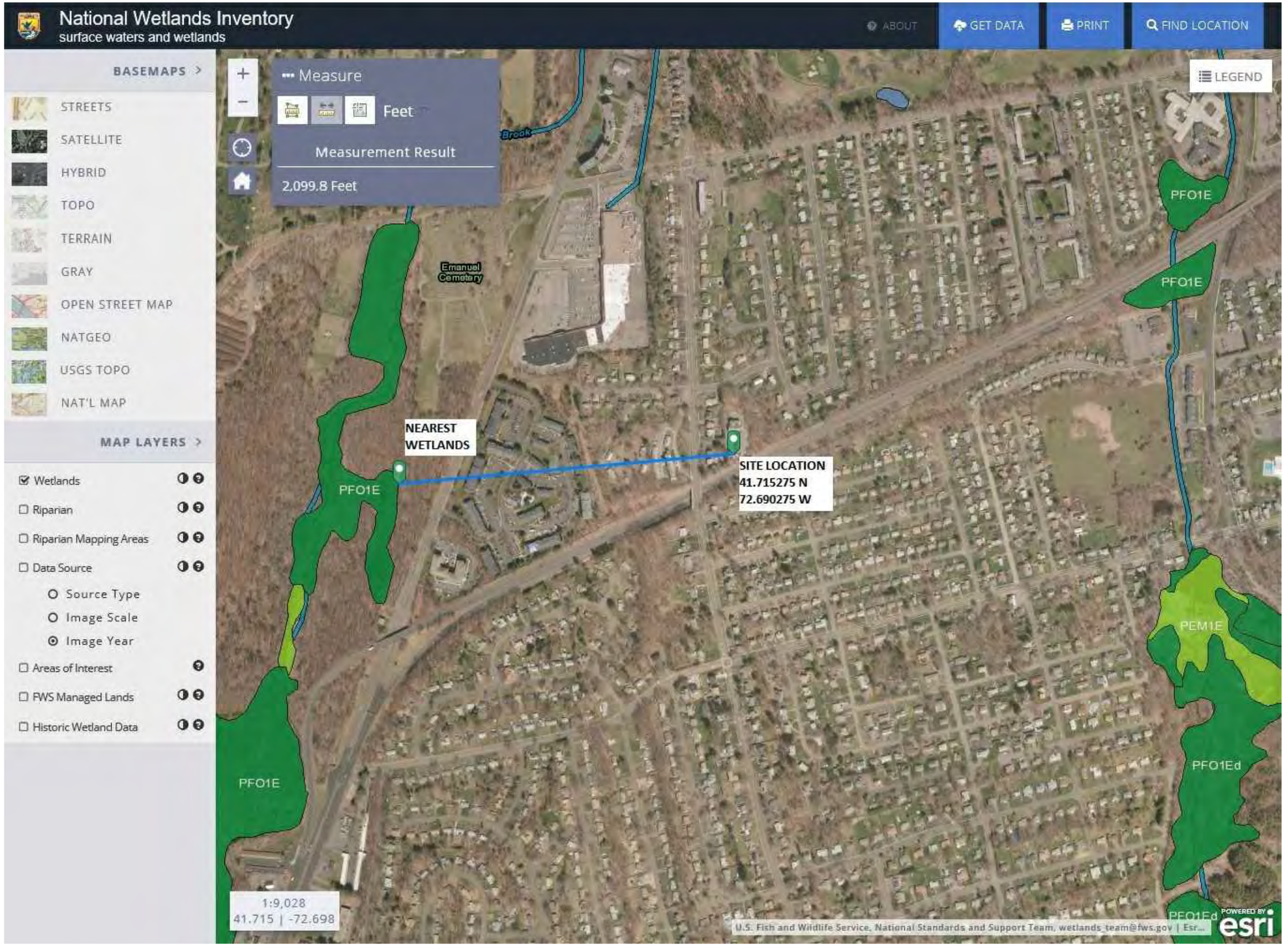
3	RELOCATED GENERATOR	01/25/19
4	MODIFY ANTENNA MOUNT	02/19/20

SITE NUMBER: CTHA014A
SITE NAME: HA014/T OF WETHERSFIELD_MP
SITE ADDRESS: 23 KELLEHER COURT
WETHERSFIELD, CT 06109

SHEET TITLE:
N-1: NOTES AND DISCLAIMERS



WETLANDS LOCATION

SCALE: NTS

1
A-1

APPLICANT:

T-MOBILE NORTHEAST LLC

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

PROJECT MANAGER

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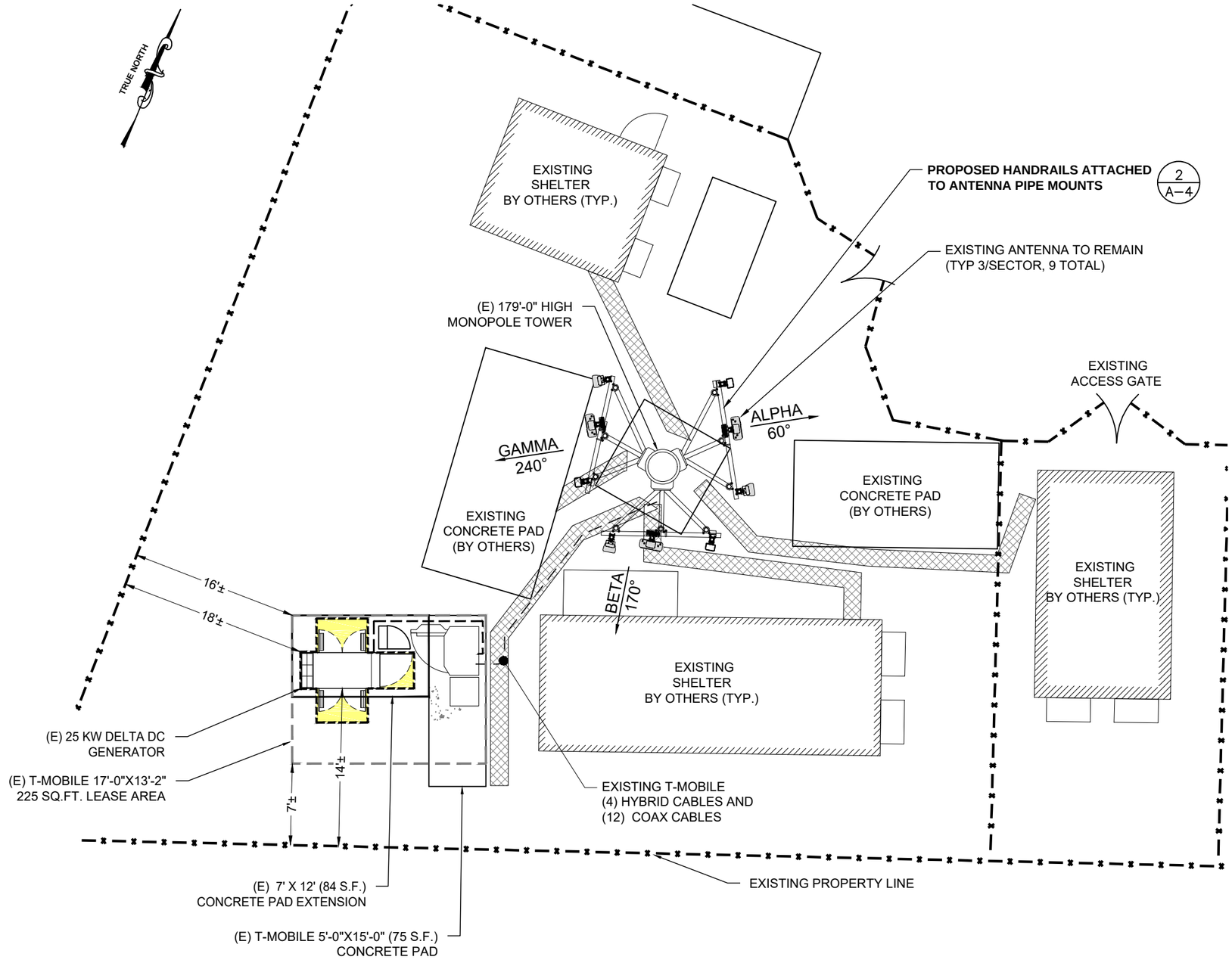
SHEET TITLE:
A-1: WETLANDS LOCATION



SITE PLAN
SCALE: 1" = 10'-0"

1
A-2

APPLICANT:

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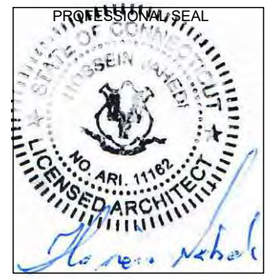

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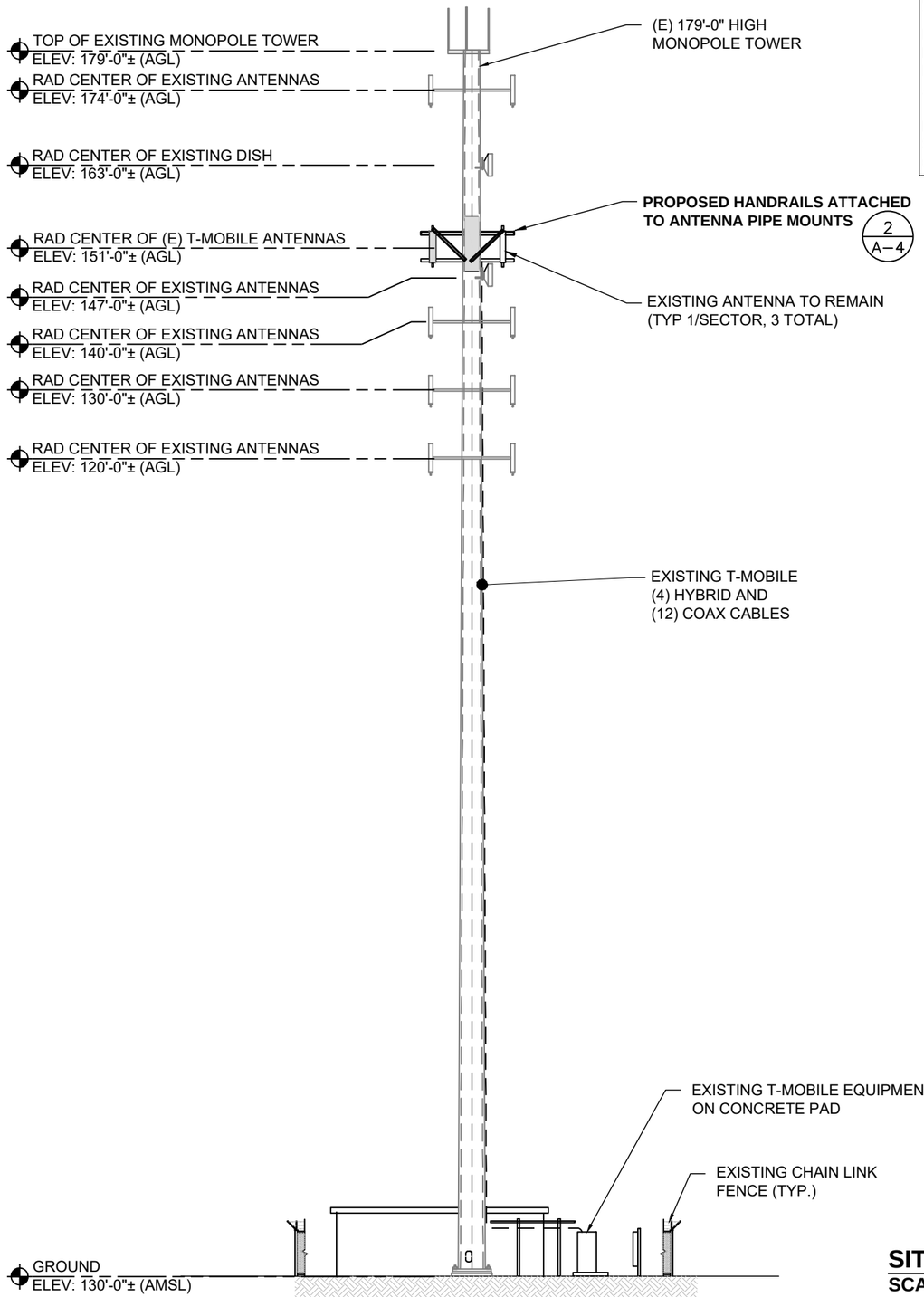
WETHERSFIELD, CT 06109

SHEET TITLE:
A-2: SITE PLAN



SITE ELEVATION

SCALE: 1/20"=1'-0"

1
A-3

STRUCTURAL NOTES:

PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS PROVIDED BY DESTEK 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 TOWER STRUCTURAL ANALYSIS REPORT AND MOUNT STRUCTURAL ANALYSIS REPORT - MONOPOLE " SITE ID: CTHA014A, DATED FEBRUARY 7, 2020, PREPARED EFI GLOBAL INC.

APPLICANT:

T-MOBILE NORTHEAST LLC

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BLOOMFIELD, CT 06002
860-692-7100

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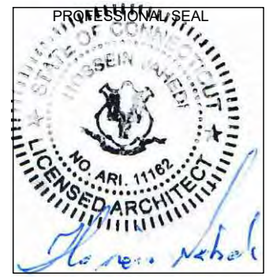

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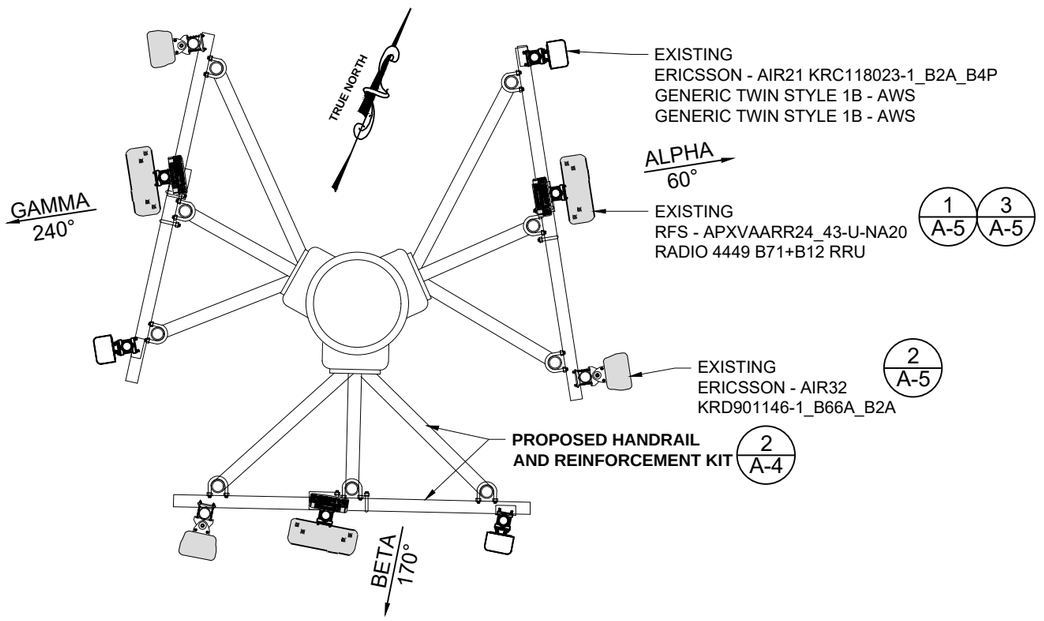
WETHERSFIELD, CT 06109

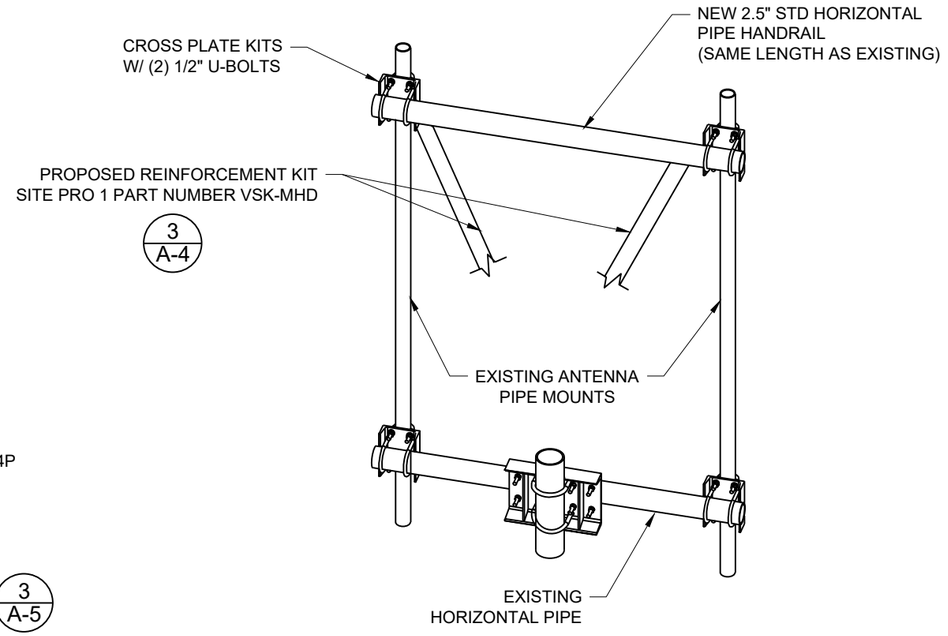
SHEET TITLE:

A-3: ELEVATION



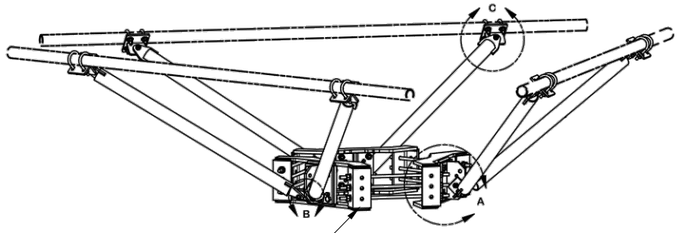
ANTENNA PLAN
SCALE: NTS

1 A-4



HANDRAIL DETAILS
SCALE: NTS

2 A-4



HANDRAIL REINFORCEMENT KIT
SCALE: NTS

3 A-4

APPLICANT:

T-Mobile

T-MOBILE NORTHEAST LLC

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

PROJECT MANAGER

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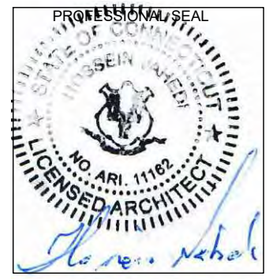
PROFESSIONAL SEAL



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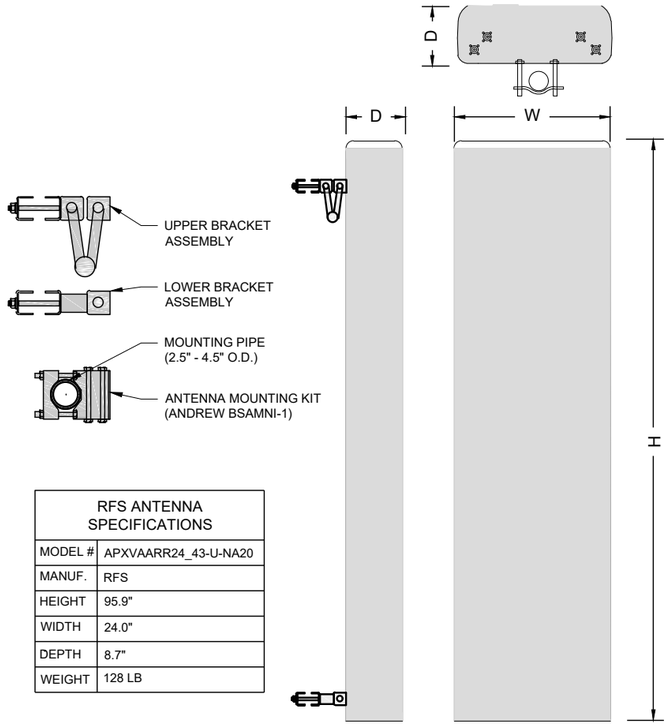
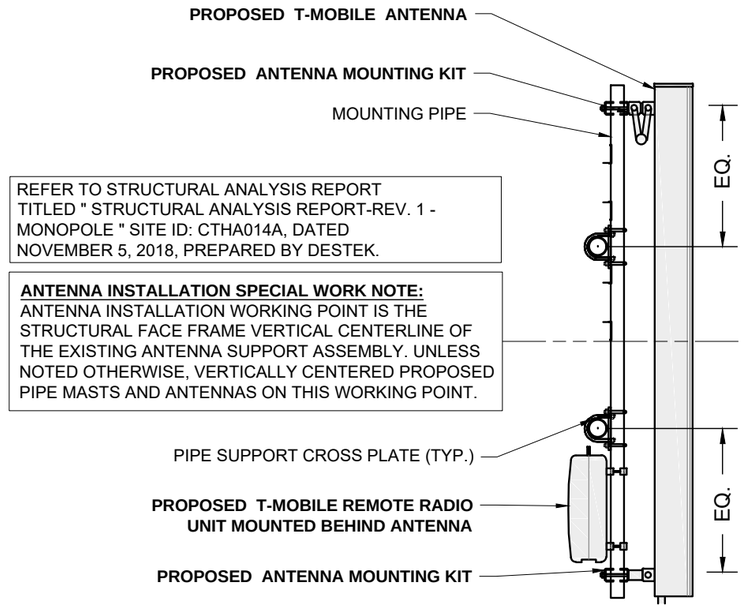
SHEET TITLE:
A-4: ANTENNA PLAN



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

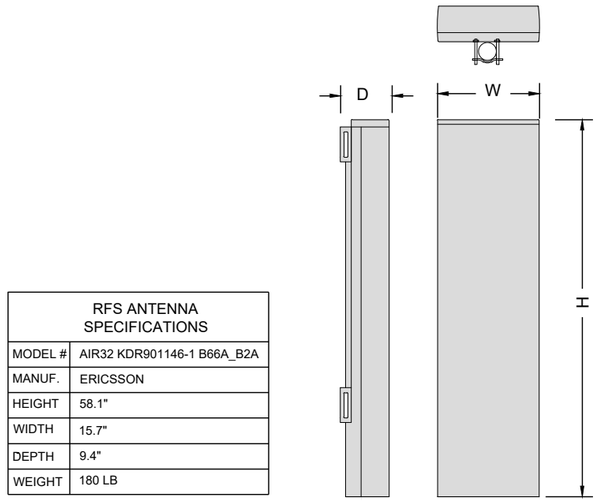
RFS ANTENNA
N.T.S
1 A-5



REFER TO STRUCTURAL ANALYSIS REPORT TITLED " STRUCTURAL ANALYSIS REPORT-REV. 1 - MONOPOLE " SITE ID: CTHA014A, DATED NOVEMBER 5, 2018, PREPARED BY DESTEK.

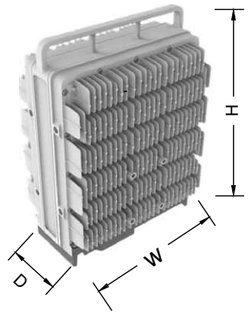
ANTENNA INSTALLATION SPECIAL WORK NOTE:
ANTENNA INSTALLATION WORKING POINT IS THE STRUCTURAL FACE FRAME VERTICAL CENTERLINE OF THE EXISTING ANTENNA SUPPORT ASSEMBLY. UNLESS NOTED OTHERWISE, VERTICALLY CENTERED PROPOSED PIPE MASTS AND ANTENNAS ON THIS WORKING POINT.

ANTENNA MOUNTING DETAIL
N.T.S
4 A-5

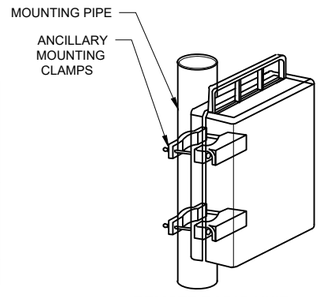


RFS ANTENNA SPECIFICATIONS	
MODEL #	AIR32 KDR901146-1 B66A_B2A
MANUF.	ERICSSON
HEIGHT	58.1"
WIDTH	15.7"
DEPTH	9.4"
WEIGHT	180 LB

ERICSSON ANTENNA
N.T.S
2 A-5



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



REMOTE RADIO UNIT MOUNTING DETAIL

RADIO 4449 B71+B12 REMOTE RADIO UNIT
N.T.S
3 A-5

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

PROJECT MANAGER
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
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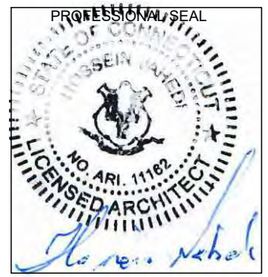
STURBRIDGE, MA 01566
203-275-6669

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

PROFESSIONAL SEAL



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WETHERSFIELD, CT 06109

SHEET TITLE:
A-5: ANTENNA DETAILS

Exhibit D

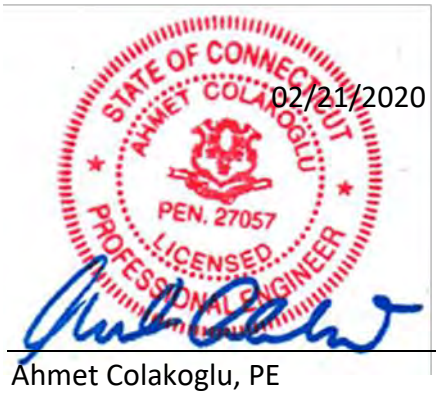
STRUCTURAL ANALYSIS REPORT REV
MONOPOLE

Prepared For:

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

Structure Rating	
Monopole:	**Pass (76.0%)**
Anchor Rods:	**Pass (80.9%)**
Base Plate:	**Pass (82.1%)**
Foundation:	**Pass (65.0%)**

Sincerely,
EFI Global, Inc.
License No: PEC0001245



02/21/2020

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

Site ID: CTHA014A
Site Name: HA014/TofWethersfield_MP
23 Kelleher Court
Wethersfield, CT 06109

EFI GLOBAL, INC.
1281 Kennestone Circle, Ste 100, Marietta, GA 30066-Tel: (770) 693-0835

CONTENTS

EFI GLOBAL, INC.
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 -Tel: (770) 693-0835

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the existing 179 feet tall monopole tower, located at 23 Kelleher Court, Wethersfield, CT 06109 for the additions and alterations proposed by T-Mobile.

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

- Structural Analysis Report prepared by Destek Engineering, LLC, dated 11/29/2016.
- Construction Drawings prepared by Clough Harbour & Associates LLP, dated 08/01/2006.
- RFDS prepared by T-Mobile, dated 05/08/2018.
- Site Audit pictures, dated 04/23/2018.
- Monopole Feasibility Study prepared by Maser Consulting Connecticut, dated 03/02/2018.

1.1 STRUCTURE

The structure is a 179'-0" tall, (18) sided monopole, which is attached to the foundation with anchor bolts and a base plate. Please refer to the software output in Appendix A, for tower geometry, member sizes, and other details.

ELEVATION (FEET)	SECTION LENGTH (FEET)	LAP SPLICE (FT)	SHAFT THICKNESS (IN)	TOP DIAMETER (IN)	BOTTOM DIAMETER (IN)	YIELD STRENGTH (KSI)
179.00-141.25	37.75	4.33	0.250	23.100	33.249	65
141.25-92.58	53.00	5.92	0.375	31.585	45.834	65
92.58-45.50	53.00	7.50	0.375	43.492	57.742	65
45.50-0.0	53.00	-	0.375	54.976	69.225	65

*Does not include description of existing monopole modifications.

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

2.0 EXISTING AND PROPOSED APPURTENANCES

This analysis was based on the following existing and proposed appurtenances:

Existing Configuration of T-MOBILE Appurtenances:

RAD CENTER (FT)	ANTENNA & TMA	COAX	MOUNT
151	(3) APXVAARR24_43-U-NA20 (3) AIR32 KRD901146-1_B66A_B2A (3) AIR21 KRC118023-1_B2A_B4P (3) Radio 4449 B12/B71 (3) Generic Twin Style 1B-AWS TMA	*(12) 1-5/8'' + **(2) 9x18 + **(2) 6x12 Hybrid Cables	(3) Existing Sector Mounts

***6 of these cables are inside monopole.**
****Outside monopole.**

Proposed and Final Configuration of T-MOBILE Appurtenances:

RAD CENTER (FT)	ANTENNA & TMA	COAX	MOUNT
151	(3) APXVAARR24_43-U-NA20 (3) AIR32 KRD901146-1_B66A_B2A (3) AIR21 KRC118023-1_B2A_B4P (3) Radio 4449 B12/B71 (3) Generic Twin Style 1B-AWS TMA	*(12) 1-5/8'' + **(2) 9x18 + **(2) 6x12 Hybrid Cables	(3) *** Existing Sector Mounts + VSK-MHD + Proposed Handrails

***6 of these cables are inside monopole.**
****Outside monopole.**
*****Refer to the Mount Analysis Report by EFI Global, Inc, dated 02/21/2020.**

Existing and Remaining Appurtenances by Others:

Rad. Center (ft)	Antenna & TMA	Mount	Feedlines
188	(1) 10' Omni	(1) Pipe Mount	*(1) 1-1/4"
186	(2) 6' Omni	(2) Pipe Mounts	*(2) 7/8"
185	(2) 4' Omni (1) 4' Dipole	(3) Pipe Mounts	*(4) 1-5/8"
181	(1) Distribution Box	-	*(2) 1/2"
174	(2) APXVSPP18-C w/Mount Pipe (1) ET-X-TU-42-15 w/Mount Pipe (3) APXV9TM14 w/Mount Pipe (3) RRH 8X20-25	(3) Sector Mounts	*(3) 1-1/4" **(1) 1-1/4"
170	(3) RRH 800 (3) RRH 1900	(1) Ring Mount	-

EFI GLOBAL, INC.
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 -Tel: (770) 693-0835

Existing and Remaining Appurtenances by Others (Continued):

Rad. Center (ft)	Antenna & TMA	Mount	Feedlines
159	(1) 2’ Dish	(1) Pipe Mount	*(1) 1/4”
142	(3) Ericsson RRUS 11 (3) Ericsson RRUS 32 B2	(1) Ring Mount	*(12) 1-5/8" *(2) DC Cable *(1) Fiber Cable
140	(3) 7770.00 w/Mount Pipe (2) SBNHH-1D65A w/Mount Pipe (2) HPA-65R-BUU-H8 w/Mount Pipe (2) TPA-65R-LCUUUU-H8 w/Mount Pipe (2) Kathrein 80010966 w/Mount Pipe (1) Kathrein 80010964 w/Mount Pipe (3) Ericsson RRUS 4478 B14 (3) Ericsson RRUS 32 B66 (3) Ericsson RRUS 32 (6) Powerwave LGP 21401 (3) Raycap DC6-48-60-0-8C	(3) Sector Mounts	
130	(3) BXA-171063-12CF w/Mount Pipe (3) BXA-70063-4CF w/Mount Pipe (3) BXA-70063-6CF w/Mount Pipe (3) MGD3-900 w/Mount Pipe (3) RRH2X40 AWS (1) RXXDC-3315-PF-48	(1) Platform Mount	*(12) 1-5/8” **(6) 1-5/8” **(1) 1/4”
126	(1) 2’ Dish	(1) Pipe Mount	*(1) 1/4”

***Inside monopole.**

****Outside monopole.**

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3.0 CODES AND LOADING

The tower was analyzed per *TIA/EIA-222-G* as referenced by the *2018 Connecticut State Building Code* with all of the adopted Addendums and Supplements. The following wind loading was used in compliance with the standard for Hartford, CT:

- Basic wind speed 125 mph (equivalent to 97 mph ASD) without ice (W_o)
- Basic wind speed 50 mph with 1" escalating ice (W_i)
- Exposure Category C
- Topographic Category 1
- Structure Class II

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 monopole tower.

- 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

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 antenna 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.

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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.

This analysis assumes that the modifications detailed in the Structural Modification Drawings prepared by Hudson Design Group, dated 08/23/2016, have been installed.

6.0 RESULTS AND CONCLUSION

The structural modifications detailed in the Structural Modification Drawings prepared by Hudson Design Group, dated 8/23/2016, have been incorporated into our analysis. After analyzing the upgraded structure, EFI has deemed the modifications to be **ineffective** due to the inadequate thickness of the reinforcement plates. The added wind area of the reinforcement has been considered in this analysis.

Based on a structural analysis per ANSI/TIA-222-G, the existing monopole tower has **adequate** structural capacity for the proposed changes by T-Mobile. For the aforementioned load combinations and as a maximum, the monopole shaft between the elevation 0' and 45.5' is stressed to **76%** of its structural capacity. The anchor rods and base plate are stressed to **80.9%** and **82.1%** of their structural capacities.

The existing foundation is found to have **adequate** capacity to support the proposed installation by T-Mobile. For the code specified load combinations and as a maximum, the base foundation is stressed to **65.0%** of its structural capacity.

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

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

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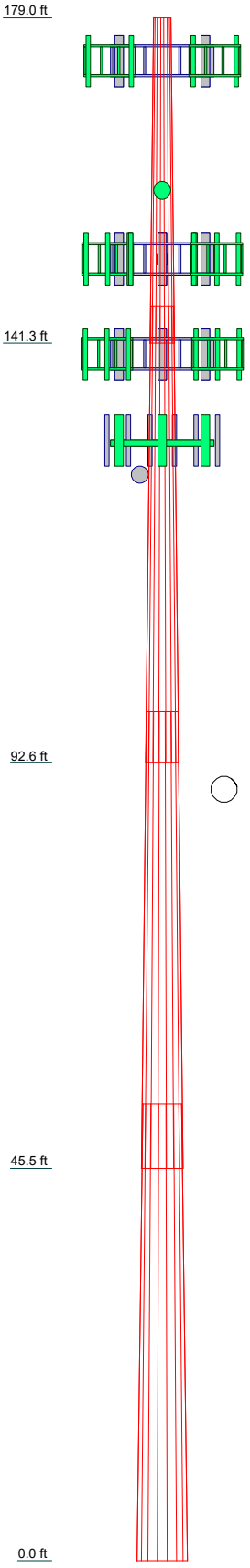
APPENDIX A
CALCULATIONS

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	37.75	18	0.2500	4.33	23.1000	33.2490	A572-65	2846.3
2	53.00	18	0.3750	5.92	31.5849	45.8340		8228.8
3	53.00	18	0.3750	7.50	43.4924	57.7420		10784.9
4	53.00	18	0.3750		54.9755	69.2250		13249.9



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(3) 6' x 2" Mount Pipe	181	AIR 21 B4A/B2P w/ Mount Pipe	151
(3) 6' x 2" Mount Pipe	181	RRUS-11	142
(3) 6' x 2" Mount Pipe	181	RRUS-11	142
Omni 4"x6'	181	RRUS 32 B2	142
Omni 2"x6'	181	RRUS 32 B2	142
Distribution Box	181	RRUS 32 B2	142
Omni 3"x4'	181	RRUS-11	142
Omni 3"x10'	181	7770.00 w/ Mount Pipe	140
Distribution Box	181	7770.00 w/ Mount Pipe	140
Omni 3" x 4'	181	TPA-65R-LCUUUU-H8 w/ Mount Pipe	140
4' Dipole	181	TPA-65R-LCUUUU-H8 w/ Mount Pipe	140
TA 702-3	181	CCI HPA-65R-BUU-H8 with pipe	140
ET-X-TU-42-15-37-18-iR-ST w/ Mount Pipe	174	CCI HPA-65R-BUU-H8 with pipe	140
APXVSPP18-C w/ Mount Pipe	174	(2) SBNHH-1D65A w/ Mount Pipe	140
APXVSPP18-C w/ Mount Pipe	174	RRUS 32	140
APXV9TM14 w/ Mount Pipe	174	RRUS 32	140
APXV9TM14 w/ Mount Pipe	174	RRUS 32	140
APXV9TM14 w/ Mount Pipe	174	(2) LGP21401	140
TA 602-3	174	(2) LGP21401	140
RRH8x20-25	174	(2) LGP21401	140
RRH8x20-25	174	800 10966 w/mount pipe	140
RRH8x20-25	174	800 10966 w/mount pipe	140
RRH800MHz	170	800 10964 w/ Mount Pipe	140
RRH800MHz	170	RRUS 4478 B14	140
RRH800MHz	170	RRUS 4478 B14	140
RRH1900MHz	170	RRUS 4478 B14	140
RRH1900MHz	170	RRUS 32 B66	140
RRH1900MHz	170	RRUS 32 B66	140
Ring Mount	170	RRUS 32 B66	140
HP2-102	159	DC6-48-60-0-8C	140
AIR 21 B4A/B2P w/ Mount Pipe	151	DC6-48-60-0-8C	140
AIR 21 B4A/B2P w/ Mount Pipe	151	DC6-48-60-0-8C	140
Gen TMA	151	TA 602-3	140
Gen TMA	151	7770.00 w/ Mount Pipe	140
Gen TMA	151	BXA-70080-4CF-EDIN w/ Mount Pipe	130
AIR -32 B2A/B66AA w/ Mount Pipe	151	BXA-70080-6CF-EDIN w/ Mount Pipe	130
AIR -32 B2A/B66AA w/ Mount Pipe	151	Rymsa MGD3-900	130
AIR -32 B2A/B66AA w/ Mount Pipe	151	RRH2x40-AWS	130
APXVAARR24_43-U-NA20 w/ Mount Pipe	151	BXA-171063-12CF-EDIN w/ Mount Pipe	130
APXVAARR24_43-U-NA20 w/ Mount Pipe	151	BXA-70080-4CF-EDIN w/ Mount Pipe	130
APXVAARR24_43-U-NA20 w/ Mount Pipe	151	BXA-70080-6CF-EDIN w/ Mount Pipe	130
RADIO 4449 B12/B71	151	Rymsa MGD3-900	130
RADIO 4449 B12/B71	151	RRH2x40-AWS	130
RADIO 4449 B12/B71	151	BXA-171063-12CF-EDIN w/ Mount Pipe	130
Pipe 2.0STD Handrail	151	BXA-70080-4CF-EDIN w/ Mount Pipe	130
Pipe 2.0STD Handrail	151	BXA-70080-6CF-EDIN w/ Mount Pipe	130
Pipe 2.0STD Handrail	151	Rymsa MGD3-900	130
(2) Pipe 2.5STD Vertical	151	RRH2x40-AWS	130
(2) Pipe 2.5STD Vertical	151	RxxDC-3315-PF-48	130
(2) Pipe 2.5STD Vertical	151	Pirod 13' Low Profile Platform	130
Side Arm Mount [SO 102-3]	151	BXA-171063-12CF-EDIN w/ Mount Pipe	130
TA 602-3	151	HP2-102	126

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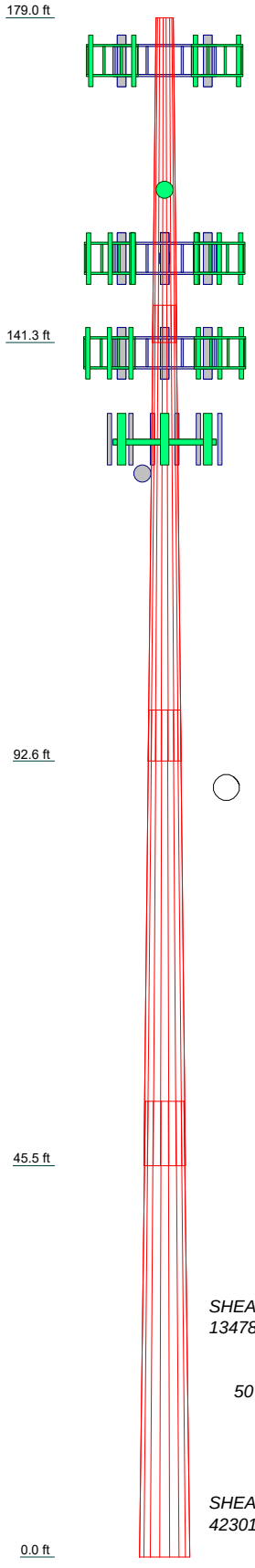
Phone: (770) 693-0835
FAX:

Job: ***CTHA014A - Rev***			
Project: ***049.00094 - 2075004***			
Client: T-Mobile	Drawn by: Ahmet Colakoglu	App'd:	
Code: TIA-222-G	Date: 02/21/20	Scale: NTS	
Path: S:\Projects\2020\75 - ForeSite LLC\049.00094 - 2075004 - CTHA014A\TNX\CTHA014A - Rev.er		Dwg No. E-1	

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	37.75	18	0.2500	4.33	23.1000	33.2490	A572-65	2846.3
2	53.00	18	0.3750	5.92	31.5849	45.8340		8228.8
3	53.00	18	0.3750	7.50	43.4924	57.7420		10784.9
4	53.00	18	0.3750		54.9755	69.2250		13249.9
								35110.0



ALL REACTIONS ARE FACTORED

AXIAL 132837 lb

SHEAR 13478 lb

MOMENT 1740 kip-ft

TORQUE 1 kip-ft
50 mph WIND - 1.0000 in ICE

AXIAL 61721 lb

SHEAR 42301 lb

MOMENT 5102 kip-ft

TORQUE 3 kip-ft
REACTIONS - 97 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-G Standard.
2. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 76%

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Marietta, GA
Phone: (770) 693-0835
FAX:

Job: ***CTHA014A - Rev***			
Project: ***049.00094 - 2075004***			
Client: T-Mobile	Drawn by: Ahmet Colakoglu	App'd:	
Code: TIA-222-G	Date: 02/21/20	Scale: NTS	
Path: S:\Projects\2020\75 - ForeSite LLC\049.00094 - 2075004 - CTHA014A\TNX\CTHA014A - Rev.eri		Dwg No. E-1	

Tower Input Data

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

Basic wind speed of 97 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
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

Tapered Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Splice Length* *ft*	*Number of Sides*	*Top Diameter* *in*	*Bottom Diameter* *in*	*Wall Thickness* *in*	*Bend Radius* *in*	*Pole Grade*
L1	179.00-141.25	37.75	4.33	18	23.1000	33.2490	0.2500	1.0000	A572-65 (65 ksi)
L2	141.25-92.58	53.00	5.92	18	31.5849	45.8340	0.3750	1.5000	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L3	92.58-45.50	53.00	7.50	18	43.4924	57.7420	0.3750	1.5000	A572-65 (65 ksi)
L4	45.50-0.00	53.00		18	54.9755	69.2250	0.3750	1.5000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	23.4178	18.1315	1196.0325	8.1118	11.7348	101.9219	2393.6388	9.0675	3.6256	14.502
	33.7234	26.1847	3602.3567	11.7146	16.8905	213.2772	7209.4536	13.0948	5.4118	21.647
L2	33.1964	37.1476	4571.4330	11.0795	16.0451	284.9110	9148.8811	18.5773	4.8989	13.064
	46.4832	54.1076	14126.5228	16.1379	23.2837	606.7137	28271.6336	27.0589	7.4068	19.751
L3	45.7217	51.3205	12054.0604	15.3067	22.0941	545.5773	24123.9819	25.6651	6.9947	18.652
	58.5749	68.2811	28389.7820	20.3653	29.3329	967.8466	56816.9200	34.1470	9.5026	25.34
L4	57.8133	64.9883	24477.4753	19.3832	27.9276	876.4625	48987.1587	32.5003	9.0157	24.042
	70.2351	81.9487	49078.0698	24.4417	35.1663	1395.5995	98220.7178	40.9821	11.5236	30.73

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 179.00-141.25				1	1	1			
L2 141.25-92.58				1	1	1			
L3 92.58-45.50				1	1	1			
L4 45.50-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
AVA6-50(1-1/4)	B	No	Surface Ar (CaAa)	6.00 - 174.00	1	1	0.000 0.000	1.5600		0.46
AL7-50(1-5/8")	C	No	Surface Ar (CaAa)	6.00 - 151.00	6	6	-0.100 -0.100	1.9600		0.52
AVA6-50(1-1/4)	C	No	Surface Af (CaAa)	6.00 - 151.00	2	2	-0.125 -0.125	1.5600	4.9009	0.46
HB114-13U6-S12F18(1-1/4")	C	No	Surface Af (CaAa)	6.00 - 151.00	2	2	-0.123 -0.123	1.5400	4.8381	1.51
AL7-50(1-5/8")	C	No	Surface Ar (CaAa)	6.00 - 130.00	6	6	0.100 0.300	1.9600		0.52
ATCB-B01(1/4")	C	No	Surface Ar (CaAa)	6.00 - 130.00	1	1	0.313 0.313	0.3150		0.07
*****										
Step Pegs (Surface Ar)	C	No	Surface Ar (CaAa)	6.00 - 179.00	1	1	0.000 0.000	0.8000		2.72
****										

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
8x0.5	A	No	Surface Af (CaAa)	30.00 - 0.00	1	1	0.000 0.000	8.0000	17.0000	13.61
8x0.5	B	No	Surface Af (CaAa)	30.00 - 0.00	1	1	0.000 0.000	8.0000	17.0000	13.61
8x0.5	C	No	Surface Af (CaAa)	30.00 - 0.00	1	1	0.000 0.000	8.0000	17.0000	13.61

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
AL7-50(1-5/8")	B	No	No	Inside Pole	6.00 - 179.00	4	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.52 0.52 0.52
AVA6-50(1-1/4)	B	No	No	Inside Pole	6.00 - 179.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.46 0.46 0.46
AL5-50(7/8")	B	No	No	Inside Pole	6.00 - 179.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.26 0.26 0.26
HJ4-50(1/2")	B	No	No	Inside Pole	6.00 - 179.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.25 0.25 0.25
****									
AVA6-50(1-1/4)	B	No	No	Inside Pole	6.00 - 174.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.46 0.46 0.46
****									
ATCB-B01(1/4")	B	No	No	Inside Pole	6.00 - 159.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.07 0.07 0.07
****									
AL7-50(1-5/8")	C	No	No	Inside Pole	6.00 - 151.00	6	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.52 0.52 0.52
*****									
AL7-50(1-5/8")	A	No	No	Inside Pole	6.00 - 140.00	12	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.52 0.52 0.52
FB-L98-002-XXX(3/8")	A	No	No	Inside Pole	6.00 - 140.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.06 0.06 0.06
WR-VG122ST-BRD A(7/16")	A	No	No	Inside Pole	6.00 - 140.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.25 0.25 0.25
****									
AL7-50(1-5/8")	C	No	No	Inside Pole	6.00 - 130.00	12	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.52 0.52 0.52
***									
ATCB-B01(1/4")	B	No	No	Inside Pole	6.00 - 126.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.07 0.07 0.07

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 lb
L1	179.00-141.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	5.109	0.000	195.98
		C	0.000	0.000	24.561	0.000	201.93
L2	141.25-92.58	A	0.000	0.000	0.000	0.000	322.67
		B	0.000	0.000	7.593	0.000	268.97
		C	0.000	0.000	156.607	0.000	980.90
L3	92.58-45.50	A	0.000	0.000	0.000	0.000	320.36
		B	0.000	0.000	7.344	0.000	261.29
		C	0.000	0.000	164.631	0.000	1051.53
L4	45.50-0.00	A	0.000	0.000	40.000	0.000	677.08
		B	0.000	0.000	46.162	0.000	627.52
		C	0.000	0.000	178.125	0.000	1290.53

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 lb
L1	179.00-141.25	A	2.341	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	20.441	0.000	561.30
		C		0.000	0.000	40.730	0.000	1149.22
L2	141.25-92.58	A	2.268	0.000	0.000	0.000	0.000	322.67
		B		0.000	0.000	30.377	0.000	811.88
		C		0.000	0.000	222.305	0.000	5926.24
L3	92.58-45.50	A	2.152	0.000	0.000	0.000	0.000	320.36
		B		0.000	0.000	28.696	0.000	760.52
		C		0.000	0.000	239.746	0.000	6044.11
L4	45.50-0.00	A	1.929	0.000	0.000	52.909	0.000	1308.23
		B		0.000	0.000	76.068	0.000	1644.04
		C		0.000	0.000	249.930	0.000	5825.35

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	179.00-141.25	2.1421	3.9114	1.5894	2.2296
L2	141.25-92.58	1.7775	10.9480	0.0999	6.3723
L3	92.58-45.50	1.5668	13.0387	-0.2995	7.9607
L4	45.50-0.00	1.1511	9.5266	-0.2594	6.7172

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	7	AVA6-50(1-1/4)	141.25 - 174.00	1.0000	1.0000
L1	12	AL7-50(1-5/8")	141.25 - 151.00	1.0000	1.0000
L1	13	AVA6-50(1-1/4)	141.25 - 151.00	1.0000	1.0000
L1	14	HB114-13U6-S12F18(1-1/4")	141.25 - 151.00	1.0000	1.0000
L1	28	Step Pegs (Surface Ar)	141.25 - 179.00	1.0000	1.0000
L1	23	AL7-50(1-5/8")	141.25 - 130.00	1.0000	1.0000
L1	24	ATCB-B01(1/4")	141.25 - 130.00	1.0000	1.0000
L2	7	AVA6-50(1-1/4)	92.58 - 141.25	1.0000	1.0000
L2	12	AL7-50(1-5/8")	92.58 - 141.25	1.0000	1.0000
L2	13	AVA6-50(1-1/4)	92.58 - 141.25	1.0000	1.0000
L2	14	HB114-13U6-S12F18(1-1/4")	92.58 - 141.25	1.0000	1.0000
L2	23	AL7-50(1-5/8")	92.58 - 130.00	1.0000	1.0000
L2	24	ATCB-B01(1/4")	92.58 - 130.00	1.0000	1.0000
L2	28	Step Pegs (Surface Ar)	92.58 - 141.25	1.0000	1.0000
L3	7	AVA6-50(1-1/4)	45.50 - 92.58	1.0000	1.0000
L3	12	AL7-50(1-5/8")	45.50 - 92.58	1.0000	1.0000
L3	13	AVA6-50(1-1/4)	45.50 - 92.58	1.0000	1.0000
L3	14	HB114-13U6-S12F18(1-1/4")	45.50 - 92.58	1.0000	1.0000
L3	23	AL7-50(1-5/8")	45.50 - 92.58	1.0000	1.0000
L3	24	ATCB-B01(1/4")	45.50 - 92.58	1.0000	1.0000
L3	28	Step Pegs (Surface Ar)	45.50 - 92.58	1.0000	1.0000
L3	30	8x0.5	45.50 - 30.00	1.0000	1.0000
L3	31	8x0.5	45.50 - 30.00	1.0000	1.0000
L3	32	8x0.5	45.50 - 30.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(3) 6' x 2" Mount Pipe	A	From Face	2.00 0.00 0.00	0.0000	181.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	22.00 32.83 47.71
(3) 6' x 2" Mount Pipe	B	From Face	2.00 0.00 0.00	0.0000	181.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	22.00 32.83 47.71
(3) 6' x 2" Mount Pipe	C	From Face	2.00 0.00 0.00	0.0000	181.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	22.00 32.83 47.71

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Omni 4"x6'	A	From Face	2.00 0.00 5.00	0.0000	181.00	No Ice 1/2" Ice 1" Ice	2.09 2.46 2.83	2.09 2.46 2.83	20.00 37.13 54.26
Omni 2"x6'	A	From Face	2.00 0.00 5.00	0.0000	181.00	No Ice 1/2" Ice 1" Ice	1.20 1.80 2.40	1.20 1.80 2.40	25.00 34.39 43.78
Distribution Box	A	From Face	2.00 0.00 0.00	0.0000	181.00	No Ice 1/2" Ice 1" Ice	2.33 2.55 2.77	1.36 1.54 1.50	10.00 26.33 42.66
Omni 3"x4'	B	From Face	2.00 0.00 4.00	0.0000	181.00	No Ice 1/2" Ice 1" Ice	1.00 1.25 1.50	1.00 1.25 5.06	15.00 23.96 32.92
Omni 3"x10'	B	From Face	2.00 0.00 7.00	0.0000	181.00	No Ice 1/2" Ice 1" Ice	3.00 4.03 5.06	3.00 4.03 1.72	20.00 41.79 63.58
Distribution Box	B	From Face	2.00 0.00 0.00	0.0000	181.00	No Ice 1/2" Ice 1" Ice	2.33 2.55 2.77	1.36 1.54 1.50	10.00 26.33 42.66
Omni 3" x 4'	C	From Face	2.00 0.00 4.00	0.0000	181.00	No Ice 1/2" Ice 1" Ice	1.00 1.25 1.50	1.00 1.25 2.18	15.00 23.96 32.92
4' Dipole	C	From Face	2.00 0.00 2.00	0.0000	181.00	No Ice 1/2" Ice 1" Ice	1.64 1.91 2.18	1.64 1.91 2.18	15.00 32.13 49.26
TA 702-3	A	None		0.0000	181.00	No Ice 1/2" Ice 1" Ice	5.64 6.55 7.46	5.64 6.55 7.46	339.00 429.00 519.00
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ET-X-TU-42-15-37-18-iR-ST w/ Mount Pipe	A	From Face	3.00 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice 1" Ice	8.68 9.18 9.68	4.50 5.17 5.84	68.25 127.30 192.77
APXVSPP18-C w/ Mount Pipe	B	From Face	3.00 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	90.09 154.53 229.77
APXVSPP18-C w/ Mount Pipe	C	From Face	3.00 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	90.09 154.53 229.77
APXV9TM14 w/ Mount Pipe	A	From Face	3.00 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice 1" Ice	7.21 7.77 8.33	5.03 5.89 6.75	91.90 147.31 202.72
APXV9TM14 w/ Mount Pipe	B	From Face	3.00 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice 1" Ice	7.21 7.77 8.33	5.03 5.89 6.75	91.90 147.31 202.72
APXV9TM14 w/ Mount Pipe	C	From Face	3.00 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice 1" Ice	7.21 7.77 8.33	5.03 5.89 6.75	91.90 147.31 202.72
TA 602-3	C	None		0.0000	174.00	No Ice 1/2" Ice 1" Ice	11.59 15.44 19.29	11.59 15.44 19.29	774.00 990.00 1206.00
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RRH1900MHz	A	From Face	1.50 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice	2.60 2.84 3.09	3.72 4.10 4.50	59.13 97.16 139.81
RRH1900MHz	B	From Face	1.50 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice	2.60 2.84 3.09	3.72 4.10 4.50	59.13 97.16 139.81
RRH1900MHz	C	From Face	1.50	0.0000	170.00	No Ice	2.60	3.72	59.13

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 lb
			0.00				1/2" Ice	2.84	4.10	97.16
			0.00				1" Ice	3.09	4.50	139.81
RRH800MHz	A	From Face	1.50		0.0000	170.00	No Ice	2.24	2.41	49.43
			0.00				1/2" Ice	2.49	2.75	78.53
			0.00				1" Ice	2.74	3.11	111.69
RRH800MHz	B	From Face	1.50		0.0000	170.00	No Ice	2.24	2.41	49.43
			0.00				1/2" Ice	2.49	2.75	78.53
			0.00				1" Ice	2.74	3.11	111.69
RRH800MHz	C	From Face	1.50		0.0000	170.00	No Ice	2.24	2.41	49.43
			0.00				1/2" Ice	2.49	2.75	78.53
			0.00				1" Ice	2.74	3.11	111.69
RRH8x20-25	A	From Face	1.50		0.0000	174.00	No Ice	4.72	1.70	70.00
			0.00				1/2" Ice	5.01	1.92	97.14
			0.00				1" Ice	5.30	2.14	124.28
RRH8x20-25	B	From Face	1.50		0.0000	174.00	No Ice	4.72	1.70	70.00
			0.00				1/2" Ice	5.01	1.92	97.14
			0.00				1" Ice	5.30	2.14	124.28
RRH8x20-25	C	From Face	1.50		0.0000	174.00	No Ice	4.72	1.70	70.00
			0.00				1/2" Ice	5.01	1.92	97.14
			0.00				1" Ice	5.30	2.14	124.28
Ring Mount	C	None			0.0000	170.00	No Ice	1.40	1.40	90.00
							1/2" Ice	2.40	2.40	130.00
							1" Ice	3.40	3.40	170.00
151ft T Mobile										
AIR 21 B4A/B2P w/ Mount Pipe	A	From Face	3.00		0.0000	151.00	No Ice	6.16	5.55	103.38
			0.00				1/2" Ice	6.60	6.30	159.18
			1.00				1" Ice	7.03	7.00	221.63
AIR 21 B4A/B2P w/ Mount Pipe	B	From Face	3.00		0.0000	151.00	No Ice	6.16	5.55	103.38
			0.00				1/2" Ice	6.60	6.30	159.18
			1.00				1" Ice	7.03	7.00	221.63
AIR 21 B4A/B2P w/ Mount Pipe	C	From Face	3.00		0.0000	151.00	No Ice	6.16	5.55	103.38
			0.00				1/2" Ice	6.60	6.30	159.18
			1.00				1" Ice	7.03	7.00	221.63
Gen TMA	A	From Face	2.00		0.0000	151.00	No Ice	0.68	0.45	13.20
			0.00				1/2" Ice	0.80	0.56	18.38
			0.00				1" Ice	0.92	0.67	23.56
Gen TMA	B	From Face	2.00		0.0000	151.00	No Ice	0.68	0.45	13.20
			0.00				1/2" Ice	0.80	0.56	18.38
			0.00				1" Ice	0.92	0.67	23.56
Gen TMA	C	From Face	2.00		0.0000	151.00	No Ice	0.68	0.45	13.20
			0.00				1/2" Ice	0.80	0.56	18.38
			0.00				1" Ice	0.92	0.67	23.56
AIR -32 B2A/B66AA w/ Mount Pipe	A	From Leg	3.00		0.0000	151.00	No Ice	6.75	6.07	153.07
			0.00				1/2" Ice	7.20	6.87	214.04
			0.00				1" Ice	7.65	7.58	281.89
AIR -32 B2A/B66AA w/ Mount Pipe	B	From Leg	3.00		0.0000	151.00	No Ice	6.75	6.07	153.07
			0.00				1/2" Ice	7.20	6.87	214.04
			0.00				1" Ice	7.65	7.58	281.89
AIR -32 B2A/B66AA w/ Mount Pipe	C	From Leg	3.00		0.0000	151.00	No Ice	6.75	6.07	153.07
			0.00				1/2" Ice	7.20	6.87	214.04
			0.00				1" Ice	7.65	7.58	281.89
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	3.00		0.0000	151.00	No Ice	14.69	6.87	186.18
			0.00				1/2" Ice	15.46	7.55	314.71
			0.00				1" Ice	16.23	8.25	457.66
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	3.00		0.0000	151.00	No Ice	14.69	6.87	186.18
			0.00				1/2" Ice	15.46	7.55	314.71
			0.00				1" Ice	16.23	8.25	457.66

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 lb
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	186.18 314.71 457.66
RADIO 4449 B12/B71	A	From Leg	3.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice 1" Ice	1.65 1.81 1.98	1.30 1.44 1.60	75.00 92.20 112.11
RADIO 4449 B12/B71	B	From Leg	3.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice 1" Ice	1.65 1.81 1.98	1.30 1.44 1.60	75.00 92.20 112.11
RADIO 4449 B12/B71	C	From Leg	3.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice 1" Ice	1.65 1.81 1.98	1.30 1.44 1.60	75.00 92.20 112.11
Pipe 2.0STD Handrail	A	From Leg	3.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice 1" Ice	2.98 7.04 9.13	2.98 7.04 9.13	45.75 64.97 84.19
Pipe 2.0STD Handrail	B	From Leg	3.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice 1" Ice	2.98 7.04 9.13	2.98 7.04 9.13	45.75 64.97 84.19
Pipe 2.0STD Handrail	C	From Leg	3.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice 1" Ice	2.98 7.04 9.13	2.98 7.04 9.13	45.75 64.97 84.19
(2) Pipe 2.5STD Vertical	A	From Leg	3.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice 1" Ice	2.01 4.52 5.69	2.01 4.52 5.69	40.60 54.72 68.84
(2) Pipe 2.5STD Vertical	B	From Leg	3.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice 1" Ice	2.01 4.52 5.69	2.01 4.52 5.69	40.60 54.72 68.84
(2) Pipe 2.5STD Vertical	C	From Leg	3.00 0.00 0.00	0.0000	151.00	No Ice 1/2" Ice 1" Ice	2.01 4.52 5.69	2.01 4.52 5.69	40.60 54.72 68.84
Side Arm Mount [SO 102-3]	C	None		0.0000	151.00	No Ice 1/2" Ice 1" Ice	3.60 4.18 4.75	3.60 4.18 4.75	75.00 105.00 135.00
TA 602-3	C	None		0.0000	151.00	No Ice 1/2" Ice 1" Ice	11.59 15.44 19.29	11.59 15.44 19.29	774.00 990.00 1206.00
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RRUS-11	A	From Face	1.00 0.00 0.00	0.0000	142.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	47.62 68.42 92.25
RRUS-11	B	From Face	1.00 0.00 0.00	0.0000	142.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	47.62 68.42 92.25
RRUS-11	C	From Face	1.00 0.00 0.00	0.0000	142.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	47.62 68.42 92.25
RRUS 32 B2	A	From Face	1.00 0.00 0.00	0.0000	142.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	52.90 73.96 98.21
RRUS 32 B2	B	From Face	1.00 0.00 0.00	0.0000	142.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	52.90 73.96 98.21
RRUS 32 B2	C	From Face	1.00 0.00 0.00	0.0000	142.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	52.90 73.96 98.21
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7770.00 w/ Mount Pipe	A	From Face	3.00	0.0000	140.00	No Ice	5.75	4.25	55.38

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00				1/2" Ice	6.18	5.01	102.81
			0.00				1" Ice	6.61	5.71	156.64
7770.00 w/ Mount Pipe	B	From Face	3.00		0.0000	140.00	No Ice	5.75	4.25	55.38
			0.00				1/2" Ice	6.18	5.01	102.81
			0.00				1" Ice	6.61	5.71	156.64
7770.00 w/ Mount Pipe	C	From Face	3.00		0.0000	140.00	No Ice	5.75	4.25	55.38
			0.00				1/2" Ice	6.18	5.01	102.81
			0.00				1" Ice	6.61	5.71	156.64
TPA-65R-LCUUUU-H8 w/ Mount Pipe	A	From Face	3.00		0.0000	140.00	No Ice	11.85	8.99	114.51
			0.00				1/2" Ice	12.77	9.88	209.92
			0.00				1" Ice	13.71	10.79	319.13
TPA-65R-LCUUUU-H8 w/ Mount Pipe	B	From Face	3.00		0.0000	140.00	No Ice	11.85	8.99	114.51
			0.00				1/2" Ice	12.77	9.88	209.92
			0.00				1" Ice	13.71	10.79	319.13
CCI HPA-65R-BUU-H8 with pipe	A	From Face	3.00		0.0000	140.00	No Ice	13.28	9.65	122.85
			0.00				1/2" Ice	14.00	11.15	220.33
			0.00				1" Ice	14.73	12.68	327.71
CCI HPA-65R-BUU-H8 with pipe	B	From Face	3.00		0.0000	140.00	No Ice	13.28	9.65	122.85
			0.00				1/2" Ice	14.00	11.15	220.33
			0.00				1" Ice	14.73	12.68	327.71
(2) SBNHH-1D65A w/ Mount Pipe	C	From Face	3.00		0.0000	140.00	No Ice	3.04	2.45	54.10
			0.00				1/2" Ice	3.34	2.75	103.56
			0.00				1" Ice	3.65	3.05	161.89
RRUS 32	A	From Face	1.00		0.0000	140.00	No Ice	2.86	1.78	55.12
			0.00				1/2" Ice	3.08	1.97	77.39
			0.00				1" Ice	3.32	2.17	102.93
RRUS 32	B	From Face	1.00		0.0000	140.00	No Ice	2.86	1.78	55.12
			0.00				1/2" Ice	3.08	1.97	77.39
			0.00				1" Ice	3.32	2.17	102.93
RRUS 32	C	From Face	1.00		0.0000	140.00	No Ice	2.86	1.78	55.12
			0.00				1/2" Ice	3.08	1.97	77.39
			0.00				1" Ice	3.32	2.17	102.93
(2) LGP21401	A	From Face	2.00		0.0000	140.00	No Ice	1.10	0.21	14.10
			0.00				1/2" Ice	1.24	0.27	21.26
			0.00				1" Ice	1.38	0.35	30.32
(2) LGP21401	B	From Face	2.00		0.0000	140.00	No Ice	1.10	0.21	14.10
			0.00				1/2" Ice	1.24	0.27	21.26
			0.00				1" Ice	1.38	0.35	30.32
(2) LGP21401	C	From Face	2.00		0.0000	140.00	No Ice	1.10	0.21	14.10
			0.00				1/2" Ice	1.24	0.27	21.26
			0.00				1" Ice	1.38	0.35	30.32
800 10966 w/mount pipe	A	From Leg	3.00		0.0000	140.00	No Ice	17.36	9.40	154.90
			0.00				1/2" Ice	17.99	10.82	268.18
			0.00				1" Ice	18.63	12.09	391.69
800 10966 w/mount pipe	B	From Leg	3.00		0.0000	140.00	No Ice	17.36	9.40	154.90
			0.00				1/2" Ice	17.99	10.82	268.18
			0.00				1" Ice	18.63	12.09	391.69
800 10964 w/ Mount Pipe	C	From Leg	3.00		0.0000	140.00	No Ice	7.14	3.68	35.00
			0.00				1/2" Ice	7.52	4.03	79.18
			0.00				1" Ice	7.90	4.38	123.36
RRUS 4478 B14	A	From Leg	3.00		0.0000	140.00	No Ice	1.84	1.06	59.90
			0.00				1/2" Ice	2.01	1.20	75.78
			0.00				1" Ice	2.19	1.34	94.29
RRUS 4478 B14	B	From Leg	3.00		0.0000	140.00	No Ice	1.84	1.06	59.90
			0.00				1/2" Ice	2.01	1.20	75.78
			0.00				1" Ice	2.19	1.34	94.29
RRUS 4478 B14	C	From Leg	3.00		0.0000	140.00	No Ice	1.84	1.06	59.90

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 lb
			0.00				1/2" Ice	2.01	1.20	75.78
			0.00				1" Ice	2.19	1.34	94.29
RRUS 32 B66	A	From Leg	3.00		0.0000	140.00	No Ice	2.74	1.67	53.00
			0.00				1/2" Ice	2.96	1.86	74.11
			0.00				1" Ice	3.19	2.05	98.42
RRUS 32 B66	B	From Leg	3.00		0.0000	140.00	No Ice	2.74	1.67	53.00
			0.00				1/2" Ice	2.96	1.86	74.11
			0.00				1" Ice	3.19	2.05	98.42
RRUS 32 B66	C	From Leg	3.00		0.0000	140.00	No Ice	2.74	1.67	53.00
			0.00				1/2" Ice	2.96	1.86	74.11
			0.00				1" Ice	3.19	2.05	98.42
DC6-48-60-0-8C	A	From Face	1.00		0.0000	140.00	No Ice	0.85	0.85	18.90
			0.00				1/2" Ice	1.36	1.36	35.59
			0.00				1" Ice	1.53	1.53	54.69
DC6-48-60-0-8C	B	From Face	1.00		0.0000	140.00	No Ice	0.85	0.85	18.90
			0.00				1/2" Ice	1.36	1.36	35.59
			0.00				1" Ice	1.53	1.53	54.69
DC6-48-60-0-8C	C	From Face	1.00		0.0000	140.00	No Ice	0.85	0.85	18.90
			0.00				1/2" Ice	1.36	1.36	35.59
			0.00				1" Ice	1.53	1.53	54.69
TA 602-3	C	None			0.0000	140.00	No Ice	11.59	11.59	774.00
							1/2" Ice	15.44	15.44	990.00
							1" Ice	19.29	19.29	1206.00
****										
BXA-171063-12CF-EDIN w/ Mount Pipe	A	From Face	3.00		0.0000	130.00	No Ice	5.04	5.30	38.50
			0.00				1/2" Ice	5.59	6.47	84.59
			0.00				1" Ice	6.11	7.36	138.12
BXA-70080-4CF-EDIN w/ Mount Pipe	A	From Face	3.00		0.0000	130.00	No Ice	5.41	3.70	28.25
			0.00				1/2" Ice	5.86	4.32	70.71
			0.00				1" Ice	6.31	4.94	113.17
BXA-70080-6CF-EDIN w/ Mount Pipe	A	From Face	3.00		0.0000	130.00	No Ice	7.99	5.82	42.55
			0.00				1/2" Ice	8.64	6.99	103.53
			0.00				1" Ice	9.29	8.16	164.51
Rymsa MGD3-900	A	From Face	3.00		0.0000	130.00	No Ice	5.37	3.60	22.00
			0.00				1/2" Ice	5.83	4.04	51.69
			0.00				1" Ice	6.29	4.48	81.38
RRH2x40-AWS	A	From Face	2.00		0.0000	130.00	No Ice	2.16	1.42	44.00
			0.00				1/2" Ice	2.36	1.59	61.40
			0.00				1" Ice	2.57	1.77	81.69
BXA-171063-12CF-EDIN w/ Mount Pipe	B	From Face	3.00		0.0000	130.00	No Ice	5.04	5.30	38.50
			0.00				1/2" Ice	5.59	6.47	84.59
			0.00				1" Ice	6.11	7.36	138.12
BXA-70080-4CF-EDIN w/ Mount Pipe	B	From Face	3.00		0.0000	130.00	No Ice	5.41	3.70	28.25
			0.00				1/2" Ice	5.86	4.32	70.71
			0.00				1" Ice	6.31	4.94	113.17
BXA-70080-6CF-EDIN w/ Mount Pipe	B	From Face	3.00		0.0000	130.00	No Ice	7.99	5.82	42.55
			0.00				1/2" Ice	8.64	6.99	103.53
			0.00				1" Ice	9.29	8.16	164.51
Rymsa MGD3-900	B	From Face	3.00		0.0000	130.00	No Ice	5.37	3.60	22.00
			0.00				1/2" Ice	5.83	4.04	51.69
			0.00				1" Ice	6.29	4.48	81.38
RRH2x40-AWS	B	From Face	2.00		0.0000	130.00	No Ice	2.16	1.42	44.00
			0.00				1/2" Ice	2.36	1.59	61.40
			0.00				1" Ice	2.57	1.77	81.69
BXA-171063-12CF-EDIN w/ Mount Pipe	C	From Face	3.00		0.0000	130.00	No Ice	5.04	5.30	38.50
			0.00				1/2" Ice	5.59	6.47	84.59
			0.00				1" Ice	6.11	7.36	138.12

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 lb
BXA-70080-4CF-EDIN w/ Mount Pipe	C	From Face	3.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	5.41 5.86 6.31	3.70 4.32 4.94	28.25 70.71 113.17
BXA-70080-6CF-EDIN w/ Mount Pipe	C	From Face	3.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	7.99 8.64 9.29	5.82 6.99 8.16	42.55 103.53 164.51
Rymsa MGD3-900	C	From Face	3.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	5.37 5.83 6.29	3.60 4.04 4.48	22.00 51.69 81.38
RRH2x40-AWS	C	From Face	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	2.16 2.36 2.57	1.42 1.59 1.77	44.00 61.40 81.69
RxxDC-3315-PF-48	C	From Face	2.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	3.49 3.73 3.98	2.19 2.39 2.61	21.40 50.67 83.51
Pirod 13' Low Profile Platform *******	C	None		0.0000	130.00	No Ice 1/2" Ice 1" Ice	15.70 20.10 24.50	15.70 20.10 24.50	1300.00 1765.00 2230.00

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
HP2-102	C	Paraboloid w/Shroud (HP)	From Face	1.50 0.00 0.00	0.0000		159.00	2.00	No Ice 1/2" Ice 1" Ice	3.14 3.41 3.68	25.00 42.49 59.98
HP2-102	A	Paraboloid w/Shroud (HP)	From Face	1.50 0.00 0.00	0.0000		126.00	2.00	No Ice 1/2" Ice 1" Ice	3.14 3.41 3.68	25.00 42.49 59.98

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice

Comb. No.	Description
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	179 - 141.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27264.85	-0.91	-1.46
			Max. Mx	8	-8878.54	-253.51	-2.64
			Max. My	2	-8888.42	2.01	250.24
			Max. Vy	8	14185.90	-253.51	-2.64
			Max. Vx	2	-14155.04	2.01	250.24
			Max. Torque	8			0.46
L2	141.25 - 92.58	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68629.77	-4.62	-7.02
			Max. Mx	8	-24678.98	-1463.54	-13.02
			Max. My	2	-24700.14	10.57	1452.17
			Max. Vy	8	30688.14	-1463.54	-13.02
			Max. Vx	2	-30502.68	10.57	1452.17

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	23			-3.42
L3	92.58 - 45.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-95125.13	-6.69	-19.22
			Max. Mx	8	-39334.47	-2990.25	-26.04
			Max. My	2	-39346.36	20.97	2968.83
			Max. Vy	8	36372.82	-2990.25	-26.04
			Max. Vx	2	-36189.11	20.97	2968.83
			Max. Torque	23			-3.13
L4	45.5 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-132837.10	-8.84	-32.99
			Max. Mx	8	-61694.65	-5081.97	-41.10
			Max. My	14	-61694.94	-40.20	-5050.68
			Max. Vy	8	42222.41	-5081.97	-41.10
			Max. Vx	2	-42045.92	32.85	5048.91
			Max. Torque	23			-3.13

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	32	132837.10	-6752.72	-11650.56
	Max. H_x	20	61720.83	42142.27	192.10
	Max. H_z	2	61720.83	223.27	42007.90
	Max. M_x	2	5048.91	223.27	42007.90
	Max. M_z	8	5081.97	-42184.14	-243.50
	Max. Torsion	11	3.06	-36606.44	-21197.98
	Min. Vert	5	46290.62	-20881.32	36315.76
	Min. H_x	8	61720.83	-42184.14	-243.50
	Min. H_z	14	61720.83	-263.28	-41973.93
	Min. M_x	14	-5050.68	-263.28	-41973.93
	Min. M_z	20	-5074.38	42142.27	192.10
	Min. Torsion	23	-3.13	36558.22	21218.66

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	51434.02	0.00	0.00	3.12	-0.86	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	61720.83	-223.27	-42007.90	-5048.91	32.85	0.70
0.9 Dead+1.6 Wind 0 deg - No Ice	46290.62	-223.27	-42007.89	-5006.58	32.81	0.71
1.2 Dead+1.6 Wind 30 deg - No Ice	61720.83	20881.32	-36315.76	-4361.95	-2509.47	-1.05
0.9 Dead+1.6 Wind 30 deg - No Ice	46290.62	20881.32	-36315.76	-4325.50	-2487.68	-1.05
1.2 Dead+1.6 Wind 60 deg - No Ice	61720.83	36422.27	-20836.15	-2498.42	-4383.49	-2.35
0.9 Dead+1.6 Wind 60 deg - No Ice	46290.62	36422.27	-20836.15	-2477.95	-4345.62	-2.36
1.2 Dead+1.6 Wind 90 deg - No	61720.83	42184.14	243.50	41.10	-5081.97	-3.03

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	kip-ft	kip-ft	kip-ft
Ice						
0.9 Dead+1.6 Wind 90 deg - No Ice	46290.62	42184.13	243.50	39.77	-5038.10	-3.04
1.2 Dead+1.6 Wind 120 deg - No Ice	61720.83	36606.44	21197.98	2560.16	-4412.64	-3.05
0.9 Dead+1.6 Wind 120 deg - No Ice	46290.62	36606.44	21197.98	2537.23	-4374.51	-3.06
1.2 Dead+1.6 Wind 150 deg - No Ice	61720.83	21262.10	36463.23	4392.07	-2567.02	-2.24
0.9 Dead+1.6 Wind 150 deg - No Ice	46290.62	21262.10	36463.23	4353.45	-2544.71	-2.25
1.2 Dead+1.6 Wind 180 deg - No Ice	61720.83	263.28	41973.93	5050.68	-40.20	-0.76
0.9 Dead+1.6 Wind 180 deg - No Ice	46290.62	263.28	41973.92	5006.44	-39.57	-0.77
1.2 Dead+1.6 Wind 210 deg - No Ice	61720.83	-20902.81	36252.57	4359.89	2509.73	1.05
0.9 Dead+1.6 Wind 210 deg - No Ice	46290.62	-20902.81	36252.57	4321.56	2488.49	1.05
1.2 Dead+1.6 Wind 240 deg - No Ice	61720.83	-36406.48	20824.72	2503.21	4379.70	2.35
0.9 Dead+1.6 Wind 240 deg - No Ice	46290.62	-36406.48	20824.72	2480.81	4342.40	2.36
1.2 Dead+1.6 Wind 270 deg - No Ice	61720.83	-42142.27	-192.10	-25.32	5074.38	3.03
0.9 Dead+1.6 Wind 270 deg - No Ice	46290.62	-42142.26	-192.10	-26.04	5031.12	3.04
1.2 Dead+1.6 Wind 300 deg - No Ice	61720.83	-36558.22	-21218.66	-2556.57	4403.81	3.12
0.9 Dead+1.6 Wind 300 deg - No Ice	46290.62	-36558.22	-21218.66	-2535.57	4366.29	3.13
1.2 Dead+1.6 Wind 330 deg - No Ice	61720.83	-21240.42	-36478.17	-4387.87	2562.43	2.25
0.9 Dead+1.6 Wind 330 deg - No Ice	46290.62	-21240.42	-36478.17	-4351.18	2540.69	2.26
1.2 Dead+1.0 Ice+1.0 Temp	132837.10	0.02	0.05	32.99	-8.84	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	132837.10	-29.90	-13443.25	-1670.14	-4.26	0.20
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	132837.10	6702.32	-11638.26	-1441.33	-857.83	-0.27
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	132837.10	11645.94	-6701.73	-815.82	-1484.86	-0.64
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	132837.10	13464.52	34.61	38.59	-1716.13	-0.84
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	132837.10	11666.81	6747.70	888.93	-1488.34	-0.84
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	132837.10	6752.72	11650.56	1509.40	-865.54	-0.62
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	132837.10	39.16	13435.33	1734.93	-14.77	-0.21
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	132837.10	-6707.28	11623.58	1505.19	840.65	0.28
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	132837.10	-11642.30	6699.03	881.36	1466.71	0.64
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	132837.10	-13454.83	-22.65	29.70	1697.05	0.83
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	132837.10	-11655.64	-6752.54	-823.69	1468.95	0.86
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	132837.10	-6747.72	-11654.09	-1444.02	847.20	0.62
Dead+Wind 0 deg - Service	51434.02	-47.77	-8988.05	-1072.66	6.32	0.15

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	kip-ft	kip-ft	kip-ft
Dead+Wind 30 deg - Service	51434.02	4467.79	-7770.15	-926.38	-534.99	-0.23
Dead+Wind 60 deg - Service	51434.02	7792.94	-4458.12	-529.60	-934.01	-0.51
Dead+Wind 90 deg - Service	51434.02	9025.75	52.10	11.12	-1082.75	-0.65
Dead+Wind 120 deg - Service	51434.02	7832.35	4535.54	547.50	-940.24	-0.66
Dead+Wind 150 deg - Service	51434.02	4549.26	7801.71	937.56	-547.25	-0.48
Dead+Wind 180 deg - Service	51434.02	56.33	8980.78	1077.78	-9.22	-0.17
Dead+Wind 210 deg - Service	51434.02	-4472.39	7756.63	930.69	533.71	0.23
Dead+Wind 240 deg - Service	51434.02	-7789.56	4455.68	535.36	931.87	0.51
Dead+Wind 270 deg - Service	51434.02	-9016.80	-41.10	-3.02	1079.80	0.65
Dead+Wind 300 deg - Service	51434.02	-7822.03	-4539.96	-541.99	937.02	0.67
Dead+Wind 330 deg - Service	51434.02	-4544.62	-7804.90	-931.91	544.93	0.49

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	lb	lb	lb	lb	lb	lb	
1	0.00	-51434.02	0.00	0.00	51434.02	0.00	0.000%
2	-223.27	-61720.83	-42007.89	223.27	61720.83	42007.90	0.000%
3	-223.27	-46290.62	-42007.89	223.27	46290.62	42007.89	0.000%
4	20881.32	-61720.83	-36315.76	-20881.32	61720.83	36315.76	0.000%
5	20881.32	-46290.62	-36315.76	-20881.32	46290.62	36315.76	0.000%
6	36422.27	-61720.83	-20836.15	-36422.27	61720.83	20836.15	0.000%
7	36422.27	-46290.62	-20836.15	-36422.27	46290.62	20836.15	0.000%
8	42184.12	-61720.83	243.50	-42184.14	61720.83	-243.50	0.000%
9	42184.12	-46290.62	243.50	-42184.13	46290.62	-243.50	0.000%
10	36606.44	-61720.83	21197.98	-36606.44	61720.83	-21197.98	0.000%
11	36606.44	-46290.62	21197.98	-36606.44	46290.62	-21197.98	0.000%
12	21262.10	-61720.83	36463.23	-21262.10	61720.83	-36463.23	0.000%
13	21262.10	-46290.62	36463.23	-21262.10	46290.62	-36463.23	0.000%
14	263.28	-61720.83	41973.92	-263.28	61720.83	-41973.93	0.000%
15	263.28	-46290.62	41973.92	-263.28	46290.62	-41973.92	0.000%
16	-20902.81	-61720.83	36252.57	20902.81	61720.83	-36252.57	0.000%
17	-20902.81	-46290.62	36252.57	20902.81	46290.62	-36252.57	0.000%
18	-36406.48	-61720.83	20824.72	36406.48	61720.83	-20824.72	0.000%
19	-36406.48	-46290.62	20824.72	36406.48	46290.62	-20824.72	0.000%
20	-42142.25	-61720.83	-192.10	42142.27	61720.83	192.10	0.000%
21	-42142.25	-46290.62	-192.10	42142.26	46290.62	192.10	0.000%
22	-36558.22	-61720.83	-21218.66	36558.22	61720.83	21218.66	0.000%
23	-36558.22	-46290.62	-21218.66	36558.22	46290.62	21218.66	0.000%
24	-21240.42	-61720.83	-36478.17	21240.42	61720.83	36478.17	0.000%
25	-21240.42	-46290.62	-36478.17	21240.42	46290.62	36478.17	0.000%
26	0.00	-132837.10	0.00	-0.02	132837.10	-0.05	0.000%
27	-29.90	-132837.10	-13443.08	29.90	132837.10	13443.25	0.000%
28	6702.24	-132837.10	-11638.12	-6702.32	132837.10	11638.26	0.000%
29	11645.79	-132837.10	-6701.65	-11645.94	132837.10	6701.73	0.000%
30	13464.35	-132837.10	34.61	-13464.52	132837.10	-34.61	0.000%
31	11666.66	-132837.10	6747.61	-11666.81	132837.10	-6747.70	0.000%
32	6752.64	-132837.10	11650.41	-6752.72	132837.10	-11650.56	0.000%
33	39.16	-132837.10	13435.15	-39.16	132837.10	-13435.33	0.000%
34	-6707.19	-132837.10	11623.43	6707.28	132837.10	-11623.58	0.000%
35	-11642.15	-132837.10	6698.94	11642.30	132837.10	-6699.03	0.000%
36	-13454.66	-132837.10	-22.66	13454.83	132837.10	22.65	0.000%
37	-11655.49	-132837.10	-6752.46	11655.64	132837.10	6752.54	0.000%
38	-6747.63	-132837.10	-11653.94	6747.72	132837.10	11654.09	0.000%
39	-47.77	-51434.02	-8988.04	47.77	51434.02	8988.05	0.000%
40	4467.79	-51434.02	-7770.15	-4467.79	51434.02	7770.15	0.000%
41	7792.94	-51434.02	-4458.12	-7792.94	51434.02	4458.12	0.000%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
42	9025.75	-51434.02	52.10	-9025.75	51434.02	-52.10	0.000%
43	7832.35	-51434.02	4535.54	-7832.35	51434.02	-4535.54	0.000%
44	4549.26	-51434.02	7801.70	-4549.26	51434.02	-7801.71	0.000%
45	56.33	-51434.02	8980.78	-56.33	51434.02	-8980.78	0.000%
46	-4472.38	-51434.02	7756.63	4472.39	51434.02	-7756.63	0.000%
47	-7789.56	-51434.02	4455.67	7789.56	51434.02	-4455.68	0.000%
48	-9016.79	-51434.02	-41.10	9016.80	51434.02	41.10	0.000%
49	-7822.03	-51434.02	-4539.96	7822.03	51434.02	4539.96	0.000%
50	-4544.62	-51434.02	-7804.90	4544.62	51434.02	7804.90	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00014509
3	Yes	4	0.00000001	0.00006139
4	Yes	5	0.00000001	0.00037999
5	Yes	5	0.00000001	0.00016916
6	Yes	5	0.00000001	0.00039892
7	Yes	5	0.00000001	0.00017823
8	Yes	4	0.00000001	0.00052833
9	Yes	4	0.00000001	0.00033654
10	Yes	5	0.00000001	0.00038464
11	Yes	5	0.00000001	0.00016999
12	Yes	5	0.00000001	0.00040926
13	Yes	5	0.00000001	0.00018213
14	Yes	4	0.00000001	0.00041091
15	Yes	4	0.00000001	0.00025036
16	Yes	5	0.00000001	0.00038984
17	Yes	5	0.00000001	0.00017401
18	Yes	5	0.00000001	0.00037456
19	Yes	5	0.00000001	0.00016641
20	Yes	4	0.00000001	0.00085913
21	Yes	4	0.00000001	0.00054641
22	Yes	5	0.00000001	0.00041459
23	Yes	5	0.00000001	0.00018477
24	Yes	5	0.00000001	0.00038582
25	Yes	5	0.00000001	0.00017093
26	Yes	4	0.00000001	0.00006462
27	Yes	5	0.00000001	0.00040198
28	Yes	5	0.00000001	0.00053893
29	Yes	5	0.00000001	0.00054334
30	Yes	5	0.00000001	0.00041379
31	Yes	5	0.00000001	0.00056214
32	Yes	5	0.00000001	0.00056806
33	Yes	5	0.00000001	0.00041566
34	Yes	5	0.00000001	0.00055161
35	Yes	5	0.00000001	0.00054981
36	Yes	5	0.00000001	0.00040761
37	Yes	5	0.00000001	0.00054000
38	Yes	5	0.00000001	0.00053182
39	Yes	4	0.00000001	0.00002617
40	Yes	4	0.00000001	0.00012517
41	Yes	4	0.00000001	0.00014665
42	Yes	4	0.00000001	0.00004374

43	Yes	4	0.00000001	0.00012502
44	Yes	4	0.00000001	0.00015110
45	Yes	4	0.00000001	0.00002807
46	Yes	4	0.00000001	0.00013640
47	Yes	4	0.00000001	0.00012075
48	Yes	4	0.00000001	0.00004682
49	Yes	4	0.00000001	0.00015686
50	Yes	4	0.00000001	0.00012482

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	179 - 141.25	21.328	43	0.9929	0.0027
L2	145.58 - 92.58	14.586	43	0.9084	0.0022
L3	98.5 - 45.5	6.727	43	0.6497	0.0009
L4	53 - 0	1.946	43	0.3363	0.0003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
181.00	(3) 6' x 2" Mount Pipe	43	21.328	0.9929	0.0027	88625
174.00	ET-X-TU-42-15-37-18-iR-ST w/ Mount Pipe	43	20.294	0.9831	0.0027	88625
170.00	RRH1900MHz	43	19.470	0.9750	0.0026	49236
159.00	HP2-102	43	17.229	0.9497	0.0025	22156
151.00	AIR 21 B4A/B2P w/ Mount Pipe	43	15.637	0.9269	0.0024	15825
142.00	RRUS-11	43	13.906	0.8945	0.0022	12798
140.00	7770.00 w/ Mount Pipe	43	13.531	0.8863	0.0021	12548
130.00	BXA-171063-12CF-EDIN w/ Mount Pipe	43	11.716	0.8395	0.0018	11448
126.00	HP2-102	43	11.019	0.8186	0.0017	11060

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	179 - 141.25	99.991	10	4.6599	0.0128
L2	145.58 - 92.58	68.405	10	4.2641	0.0104
L3	98.5 - 45.5	31.559	10	3.0497	0.0043
L4	53 - 0	9.129	10	1.5783	0.0016

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
181.00	(3) 6' x 2" Mount Pipe	10	99.991	4.6599	0.0128	19179
174.00	ET-X-TU-42-15-37-18-iR-ST w/ Mount Pipe	10	95.150	4.6140	0.0125	19179
170.00	RRH1900MHz	10	91.289	4.5760	0.0123	10654
159.00	HP2-102	10	80.786	4.4578	0.0116	4792
151.00	AIR 21 B4A/B2P w/ Mount Pipe	10	73.331	4.3509	0.0109	3422
142.00	RRUS-11	10	65.217	4.1992	0.0100	2764
140.00	7770.00 w/ Mount Pipe	10	63.460	4.1604	0.0098	2709
130.00	BXA-171063-12CF-EDIN w/ Mount Pipe	10	54.953	3.9411	0.0085	2467
126.00	HP2-102	10	51.684	3.8427	0.0079	2381

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	179 - 141.25 (1)	TP33.249x23.1x0.25	37.75	0.00	0.0	25.2610	-8870.86	1748390.00	0.005
L2	141.25 - 92.58 (2)	TP45.834x31.5849x0.375	53.00	0.00	0.0	52.2132	-24666.00	3714610.00	0.007
L3	92.58 - 45.5 (3)	TP57.742x43.4924x0.375	53.00	0.00	0.0	65.8810	-39327.10	4311140.00	0.009
L4	45.5 - 0 (4)	TP69.225x54.9755x0.375	53.00	0.00	0.0	81.9487	-61694.50	4812990.00	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	179 - 141.25 (1)	TP33.249x23.1x0.25	254.61	1144.56	0.222	0.00	1144.56	0.000
L2	141.25 - 92.58 (2)	TP45.834x31.5849x0.375	1469.59	3348.51	0.439	0.00	3348.51	0.000
L3	92.58 - 45.5 (3)	TP57.742x43.4924x0.375	3002.58	4912.18	0.611	0.00	4912.18	0.000
L4	45.5 - 0 (4)	TP69.225x54.9755x0.375	5101.56	6830.50	0.747	0.00	6830.50	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	179 - 141.25 (1)	TP33.249x23.1x0.25	14235.60	874196.00	0.016	0.17	2294.63	0.000
L2	141.25 - 92.58	TP45.834x31.5849x0.375	30810.90	1857310.00	0.017	3.06	6713.85	0.000

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L3	92.58 - 45.5 (2) (3)	TP57.742x43.4924x0.375	36494.10	2155570.00	0.017	3.06	9846.42	0.000
L4	45.5 - 0 (4)	TP69.225x54.9755x0.375	42339.60	2406490.00	0.018	3.05	13689.00	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	179 - 141.25 (1)	0.005	0.222	0.000	0.016	0.000	0.228	1.000	4.8.2
L2	141.25 - 92.58 (2)	0.007	0.439	0.000	0.017	0.000	0.446	1.000	4.8.2
L3	92.58 - 45.5 (3)	0.009	0.611	0.000	0.017	0.000	0.621	1.000	4.8.2
L4	45.5 - 0 (4)	0.013	0.747	0.000	0.018	0.000	0.760	1.000	4.8.2

Section Capacity Table

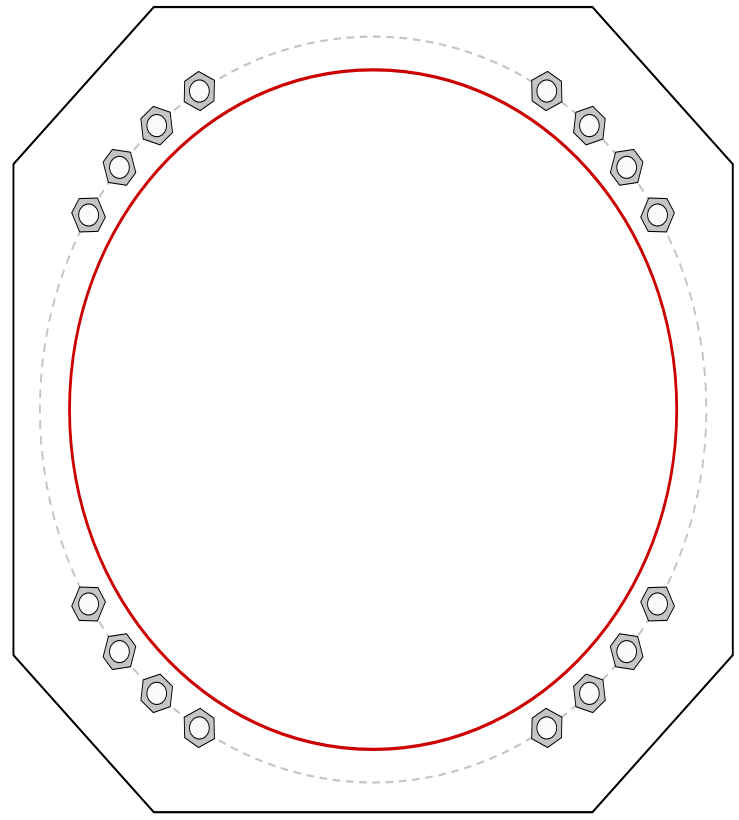
Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	179 - 141.25	Pole	TP33.249x23.1x0.25	1	-8870.86	1748390.00	22.8	Pass
L2	141.25 - 92.58	Pole	TP45.834x31.5849x0.375	2	-24666.00	3714610.00	44.6	Pass
L3	92.58 - 45.5	Pole	TP57.742x43.4924x0.375	3	-39327.10	4311140.00	62.1	Pass
L4	45.5 - 0	Pole	TP69.225x54.9755x0.375	4	-61694.50	4812990.00	76.0	Pass
							Summary	
						Pole (L4)	76.0	Pass
						RATING =	**76.0**	**Pass**

Monopole Base Plate Connection

Site Info	
BU #	
Site Name	CTHA014A REV
Order #	

Analysis Considerations	
TIA-222 Revision	G
Grout Considered:	No
l_{ar} (in)	0
Eta Factor, η	0.5

Applied Loads	
Moment (kip-ft)	5101.55
Axial Force (kips)	61.69
Shear Force (kips)	42.34



Connection Properties

Anchor Rod Data

(16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 76" BC

Anchor Spacing: 6 in

Base Plate Data

82" OD x 2.25" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

69.225" x 0.375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_c = 205.16	ϕPn_t = 260	**Stress Rating**
Vu = 2.65	ϕVn = n/a	**80.9%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	44.35	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**82.1%**	**Pass**

Pier and Pad Foundation

BU # :	
Site Name:	CTHA014A REV
App. Number:	

TIA-222 Revision:	G
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	61.7	kips
Base Shear, Vu_comp:	42.3	kips
Moment, M_u:	5102	ft-kips
Tower Height, **H**:	179	ft
BP Dist. Above Fdn, bp_{dist}:	3	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	8.5	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	9	
Pier Rebar Quantity, **mc**:	41	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	14	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	6.5	ft
Pad Width, **W**:	30	ft
Pad Thickness, **T**:	2.5	ft
Pad Rebar Size (Bottom), **Sp**:	9	
Pad Rebar Quantity (Bottom), **mp**:	33	
Pad Clear Cover, cc_{pad}:	3	in

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

Soil Properties		
Total Soil Unit Weight, **γ**:	100	pcf
Ultimate Net Bearing, Qnet:	6.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, **ϕ**:	30	degrees
SPT Blow Count, N_{blows}:		
Base Friction, **μ**:	0.4	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	299.71	42.30	**14.1%**	**Pass**
Bearing Pressure (ksf)	4.99	1.89	**37.8%**	**Pass**
*Overturning (kip*ft)*	9407.49	5408.68	**57.5%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	8140.58	5292.35	**65.0%**	**Pass**
Pier Compression (kip)	27087.80	107.66	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	3598.09	1882.33	**52.3%**	**Pass**
Pad Shear - 1-way (kips)	748.54	262.39	**35.1%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.055	**33.4%**	**Pass**

Soil Rating:	**57.5%**
Structural Rating:	**65.0%**

Exhibit E

Date: 2/21/2020

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

Subject:	**Mount Structural Analysis Report**	
T-Mobile Designation:	**Site Name:**	HA014/TofWethersfield_MP
	Site Number:	CTHA014A
EFI Designation:	**Project Number:**	049.00094 - 2075004
Site Data:	**23 Kelleher Court, Wethersfield, CT 06109** **Latitude 41° 42' 55.0", Longitude -72° 41' 25.0"**	

EFI Global, Inc. is pleased to submit this **"Mount Structural Analysis Report"** 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 (52.7%)**
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

2/21/2020

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

EFI Global, Inc.
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 - Tel: (770) 693-0835

1) ANALYSIS CRITERIA

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

Table 1 – Loading and Analysis Criteria

Rad Center	151’
Structure Type	Monopole
Exposure Category	C
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	AIR21 KRC118023-1 B2A B4P – Antennas
3	APXVAARR24-43-U-NA20 – Antennas
3	AIR32 KRD901146-1 B66A B2A – Antennas
3	Generic Twin Style 1B AWS – TMAs
3	Radio 4449 B71 + B12 – RRHs

Table 1.2 – Proposed and Final Appurtenance Configuration

T-Mobile is proposing to add support rails at the sector mounts. The support rails should be composed of 2.5” STD pipes connected to all antenna pipe mounts with crossover plate kits. The rail pipes should be braced to the monopole with Valmont/Site Pro 1 P/N: VSK-MHD or approved similar.

No changes to the appurtenances are proposed by T-Mobile.

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

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2) ANALYSIS PROCEDURE

The analysis is based on the following information:

Table 2 – Documents

Document	Provided By	Date
RFDS	T-Mobile	05/08/2018
Structural Analysis Report	Destek Engineering, LLC	11/29/2016
Structural Analysis Report	EBI Consulting	11/19/2014
Specification Sheet	Valmont - Site Pro 1	08/29/2019

2.1) Analysis Method

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

2.2) Analysis Conditions and Assumptions

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

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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
Standoff Tube Arm	42.2	Pass
Antenna Mount Pipe	52.7	Pass
Pipe Face Horizontal	40.5	Pass
Pipe Face Support Rail	23.6	Pass
Pipe Support Rail Bracing	< 20	Pass

Sector Mounts: T-Mobile is proposing to modify the existing mount by adding support rail horizontals. The support rails should be composed of 2.5" STD pipes connected to all antenna pipe mounts with crossover plate kits. Also, the rail pipes should be braced to the monopole with Valmont/Site Pro 1 P/N: VSK-MHD or approved similar. ***All existing mount member sizes, lengths and distribution should be field verified prior to material ordering.***

The ***modified 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 **52.7%** of their structural capacity.

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APPENDIX

INPUT LOADS
ANALYSIS OUTPUT

EFI Global, Inc.
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 - Tel: (770) 693-0835

CLIENT: ForeSite LLC - T-Mobile

PROJECT: CTHA014A

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

Tower Height	179.00	ft	Type of Mount: Sector
Basic Wind Speed, V	97	mph (=Ultimate Speed*Sqrt(0.6))	
Basic Wind Speed with Ice, V_i	40	mph	
Maintanence Load Factor, L_{FM}	0.0957	Load Factor for Maint. Load Cases (Basic Wind Speed=30 mph)	
Design Ice Thickness, t_i	0.75	inches	

Table 2-3 Importance Factors

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

1

Table 2-4 Exposure Category Coefficients

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

Table 2-5 Topographic Categories

Kzt 1.000

Table 2-2 Wind Directionality Factor, Kd

Structure Type	Kd	
2	0.95	DOES NOT CHANGE
Monopole		

Gust Effect Factor Gh

Structure Type	Gh	
2	1.00	DOES NOT CHANGE
Monopole		

Shielding Factor, Ka

Structure Type	Ka	
	0.90	DOES NOT CHANGE
Monopole		

Seismic Factors

Ss	0.181	
S1	0.064	
Fa	16	
Fv	24	
R	1.5	Truss or Pole

CLIENT: ForeSite LLC - T-Mobile

PROJECT: CTHA014A

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

Rad Center **151.00** ft

Antenna AND Mount Without Ice

Mounting Pole	Height (ft)	Model Number	#	Weight (lbs)	H (in)	*W (in)	D (in)	Ka	**A_N (ft2)	***A_T (ft2)	Aspect (FRONT)	Aspect (SIDE)	Ca (FRONT)	Ca (SIDE)	K_z	q_z (psf)	Pounds: Wind Load (Front)	Wind Load (Side)	Dead Load	Total Wind Load (Front)	Total Wind Load (Side)	Total Dead Load	Lateral Load (Seismic)	Vertical Load (Seismic)
Pos. 1	**151.00**	Ericsson AIR-21 KRC 118 023-1	1	91.5	56.0	12.1	7.9	0.90	4.71	3.06	4.63	7.12	1.29	1.40	1.380	31.6	173.2	122.1	91.5	190	144	116	81	45
	151.00	E15Z01P13	1	24.0	13.0	5.5	7.2	0.90	0.50	0.65	2.36	1.81	1.20	1.20	1.380	31.6	16.9	22.2	24					
		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					
																				96	**73**	**58**	**40**	**22**
Pos.2	**151.00**	RFS APXVAARR24-43-U-NA20	1	153.3	95.9	24.0	8.7	0.90	15.98	5.79	4.00	11.02	1.27	1.53	1.380	31.6	575.4	252.7	153.3	632	293	223	156	86
	151.00	Ericsson Radio 4449 B71+B12	1	70.0	18.0	13.2	9.4	0.90	1.65	1.18	1.36	1.91	1.20	1.20	1.380	31.6	56.3	40.1	70					
		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					
																				316	**147**	**112**	**78**	**43**
Pos.3		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0	0	0	0	0	0
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				0	**0**	**0**	**0**	**0**
Pos.4	**151.00**	Ericsson AIR32 KRD 901 146-1 B66A	1	143.0	59.3	12.9	8.7	0.90	5.30	3.56	4.60	6.84	1.29	1.39	1.380	31.6	194.7	141.1	143	195	141	143	100	55
		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					
																				98	**71**	**72**	**50**	**28**

* 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 482

Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	Weight (lb/ft)	*** Ca	K_z	q_z (psf)	Wind Load (PLF)	Lateral Load (Seismic)	Vertical Load (Seismic)
	151.00	2 STD Pipe	12.00	2.38	0.00		1.20	1.380	28.4	7	-	-
	151.00	2.5 STD Pipe	12.00	2.88	0.00		1.20	1.380	28.4	8	-	-
	151.00	3 STD Pipe	12.00	3.50	0.00		1.20	1.380	28.4	10	-	-
	151.00	Angle Horizontal	0.00	0.00	0.00		-	-	-	-	-	-
	151.00	Angle Vertical	0.00	0.00	0.00		-	-	-	-	-	-
	151.00	Angle Diagonal	0.00	0.00	0.00		-	-	-	-	-	-
	151.00	Tube Standoff (4x4)	12.00	4.00	4.00		2.00	1.380	28.4	19	-	-
	151.00	Tube Horizontal	0.00	0.00	0.00		-	-	-	-	-	-
	151.00	Plate	0.00	0.00	0.00		-	-	-	-	-	-
	151.00	Double Angle	0.00	0.00	0.00		-	-	-	-	-	-
	151.00	Double Angle	0.00	0.00	0.00		-	-	-	-	-	-
	151.00	Channel (Weak Axis Bending)	0.00	0.00	0.00		-	-	-	-	-	-
	151.00	Channel (Strong Axis Bending)	0.00	0.00	0.00		-	-	-	-	-	-

* 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 LLC - T-Mobile

PROJECT: CTHA014A

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

ti (in) 1.746375 Kiz 1.1642501 reduction 0.17005

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	**151.00**	Ericsson AIR-21 KRC 118 023-1	1	56.0	12.1	7.9	0.90	1.74	1.63	3.01	168.78	0.73	0.76	1.380	5.4	6.1	6.0	35.6	26.8	169	40	32	203
	151.00	E15Z01P13	1	13.0	5.5	7.2	0.90	0.53	0.57	0.62	34.71	0.70	0.70	1.380	5.4	1.8	1.9	4.7	5.7	35			
		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			
																					21	**17**	**102**
Pos.2 on standoff	**151.00**	RFS APXVAARR24-43-U-NA20	1	95.9	24.0	8.7	0.90	2.99	2.62	7.69	430.82	0.72	0.83	1.380	5.4	10.5	10.5	108.3	53.4	431	121	63	508
	151.00	Ericsson Radio 4449 B71+B12	1	18.0	13.2	9.4	0.90	0.84	0.75	1.38	77.52	0.70	0.70	1.380	5.4	2.8	2.5	12.4	9.4	78			
		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			
																					61	**32**	**255**
Pos.3		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.4	**151.00**	Ericsson AIR32 KRD 901 146-1 B66A	1	59.3	12.9	8.7	0.90	1.83	1.73	3.40	190.33	0.73	0.76	1.380	5.4	6.5	6.4	39.6	30.3	190	40	30	190
		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			
																					20	**16**	**96**

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

** Ca will equal 1.2 for all ice load calculations

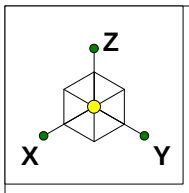
Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	***A_N (ft2)	Volume Ice (ft3)	Weight Ice (lbs)	****Ca (FRONT)	Kz	q_z (psf)	PLF: Ice Wind Load (Front)	Combined Wind Load (Front)	Ice Dead Load
	151.00	2 STD Pipe	12.00	2.38	0.00	0.43	0.16	8.80	1.20	1.380	4.8	2.5	3.7	9
	151.00	2.5 STD Pipe	12.00	2.88	0.00	0.45	0.18	9.86	1.20	1.380	4.8	2.6	4.0	10
	151.00	3 STD Pipe	12.00	3.50	0.00	0.46	0.20	11.19	1.20	1.380	4.8	2.7	4.4	11
	151.00	Angle Horizontal	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	151.00	Angle Vertical	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	151.00	Angle Diagonal	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	151.00	Tube Standoff (4x4)	12.00	4.00	4.00	0.47	0.39	21.97	1.20	1.380	4.8	2.7	6.0	22
	151.00	Tube Horizontal	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	151.00	Plate	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	151.00	Double Angle	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	151.00	Double Angle	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	151.00	Channel (Weak Axis Bending)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	151.00	Channel (Strong Axis Bending)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-

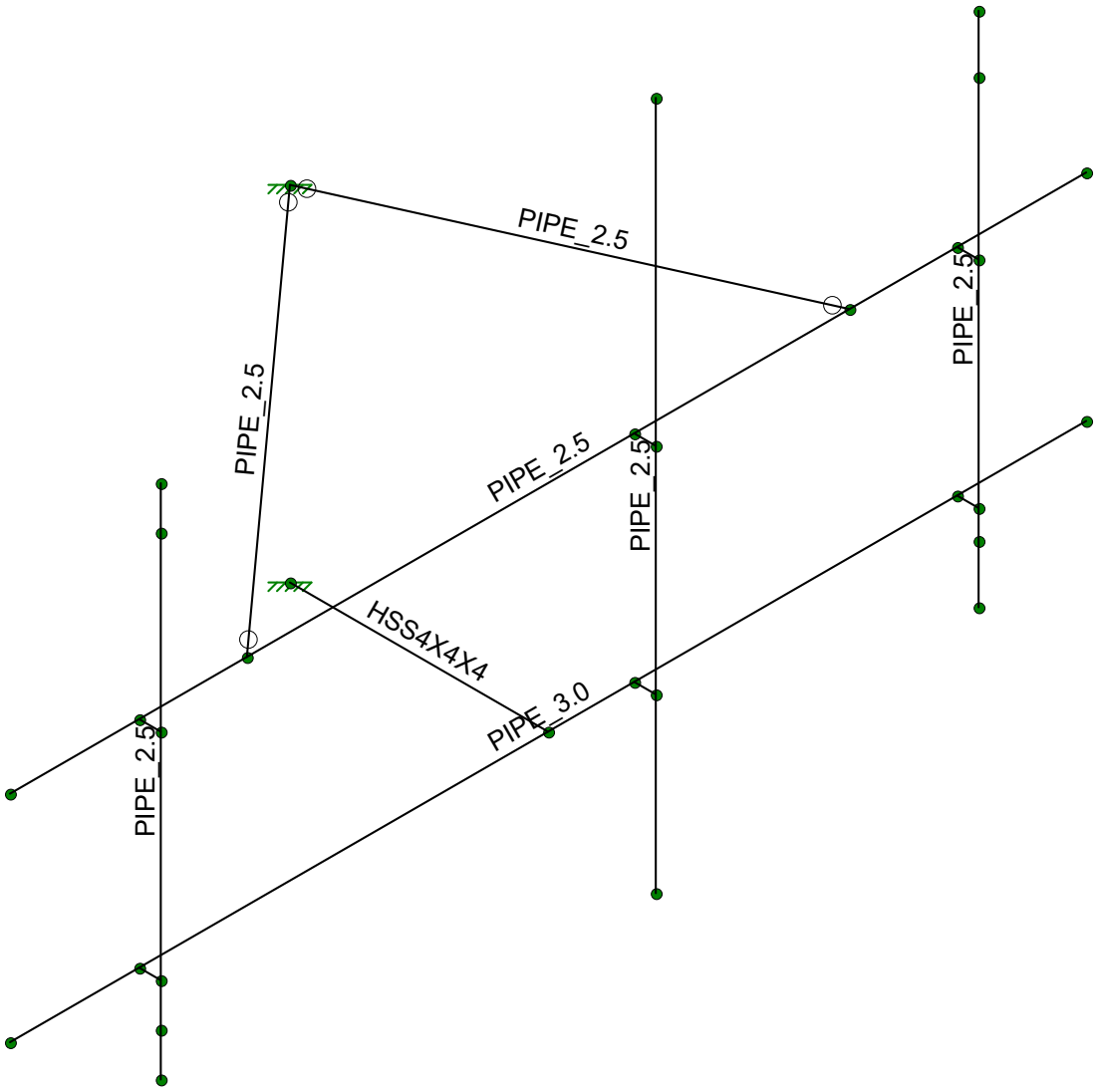
* The dimension L is the longest dimension of the member

** 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

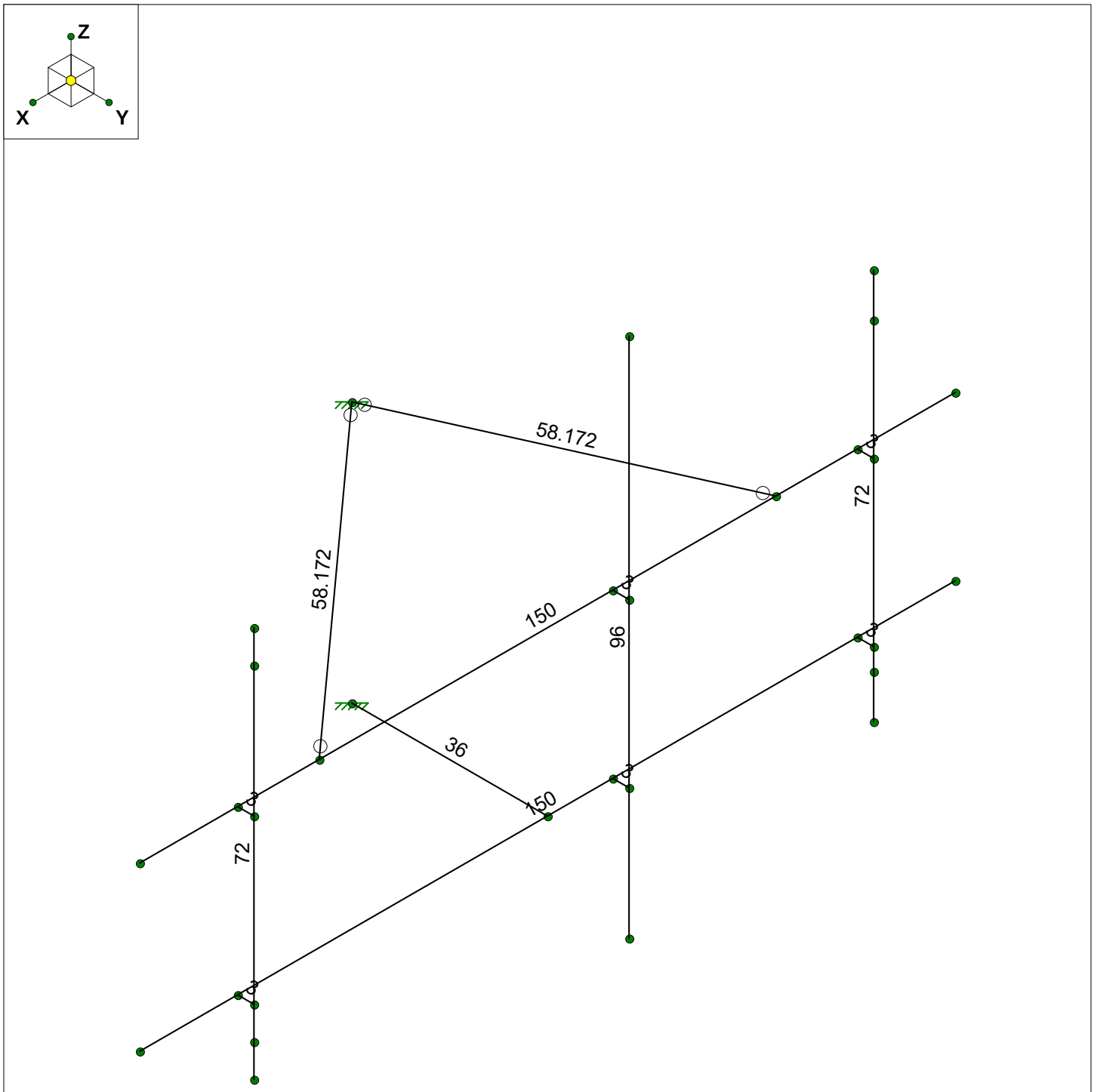
**** Ca will equal 1.2 for all ice load calculations





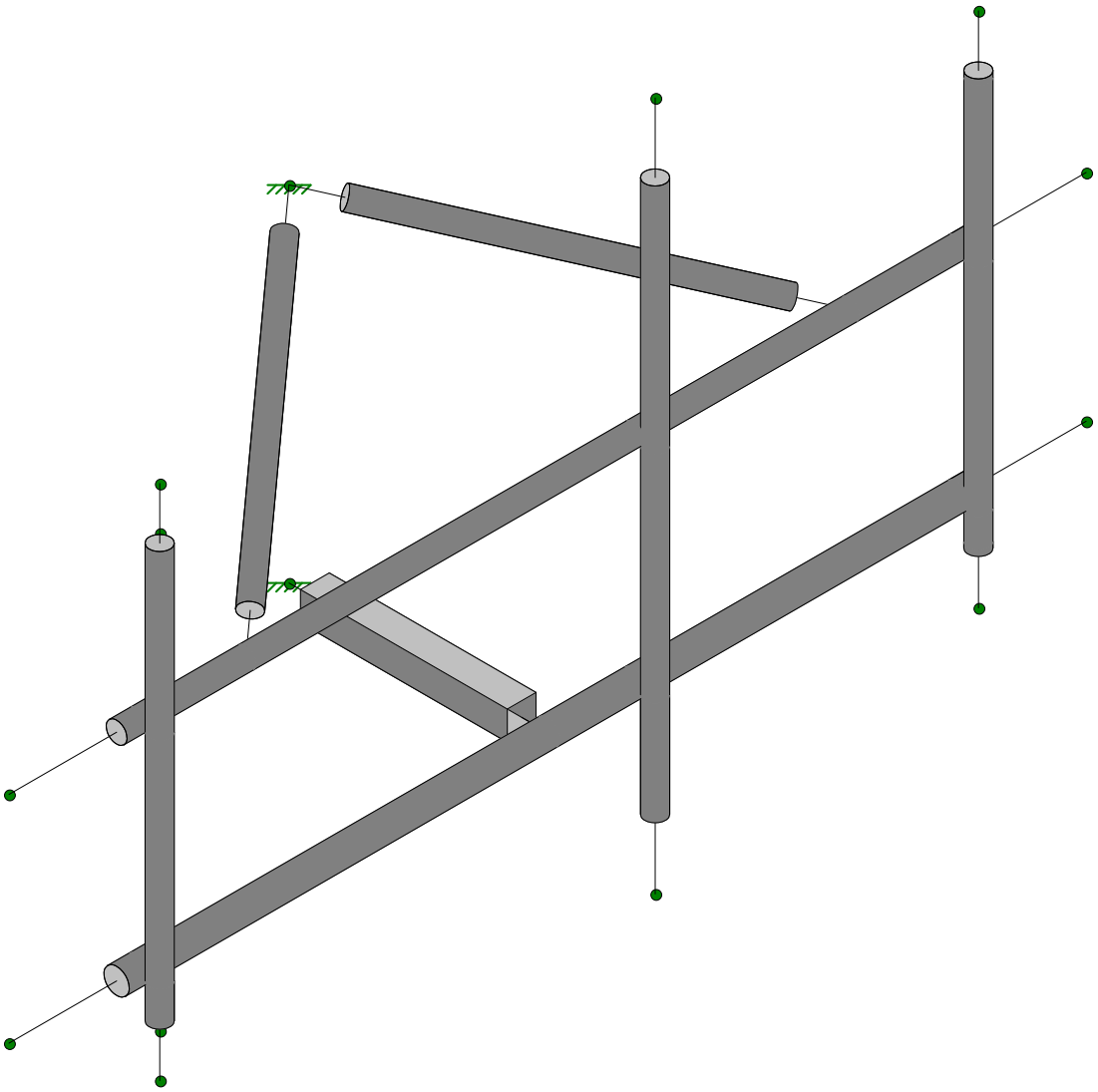
Envelope Only Solution

T-Mobile / EFI Global Inc	CTHA014A - Mount with Support rail	SK - 1
		Feb 21, 2020 at 4:01 PM
2075004		CTHA014A Mount G-Code with Se...



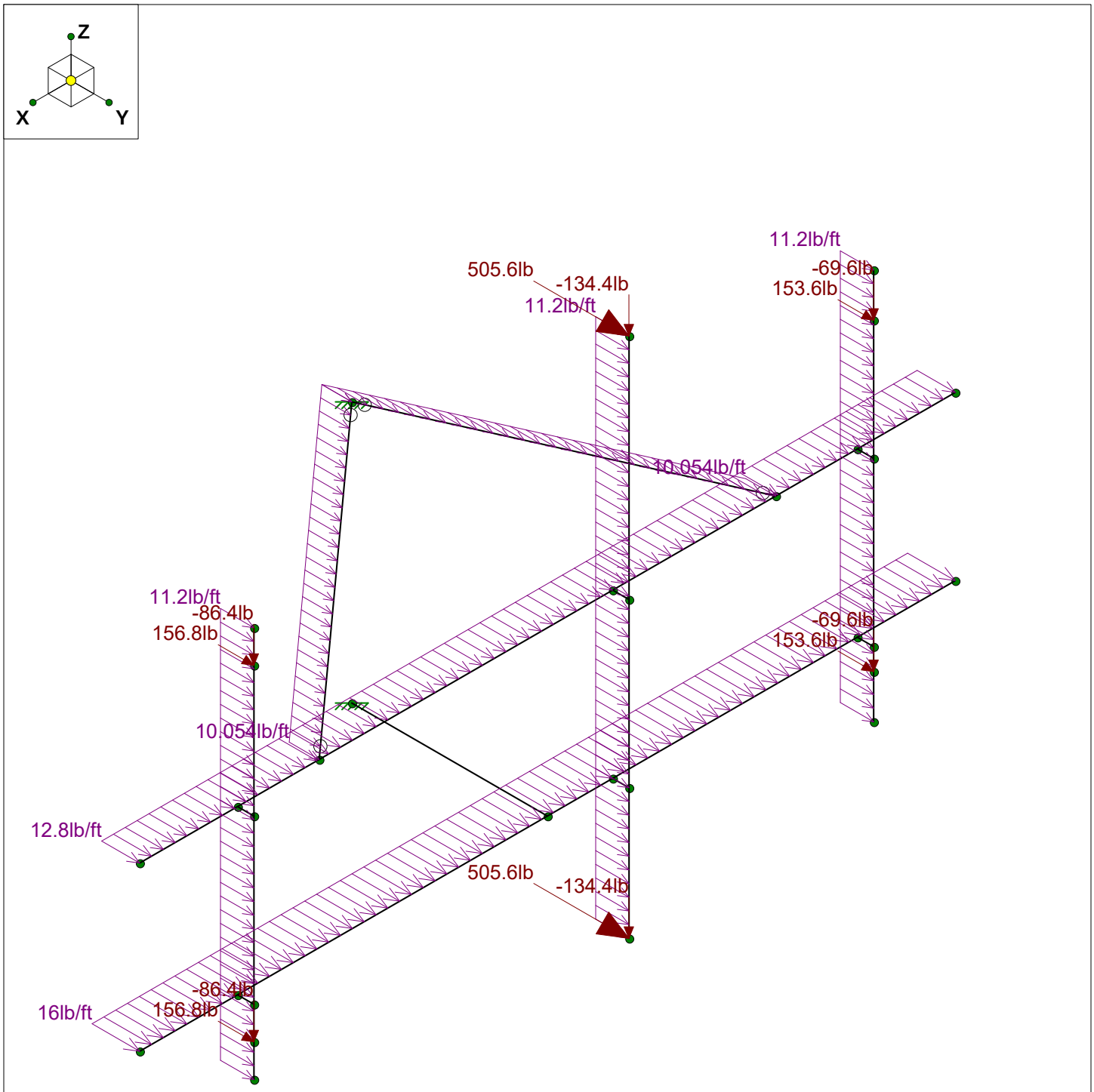
Member Length (in) Displayed
Envelope Only Solution

T-Mobile / EFI Global Inc	CTHA014A - Mount with Support rail	SK - 2
		Feb 21, 2020 at 4:02 PM
2075004		CTHA014A Mount G-Code with Se...



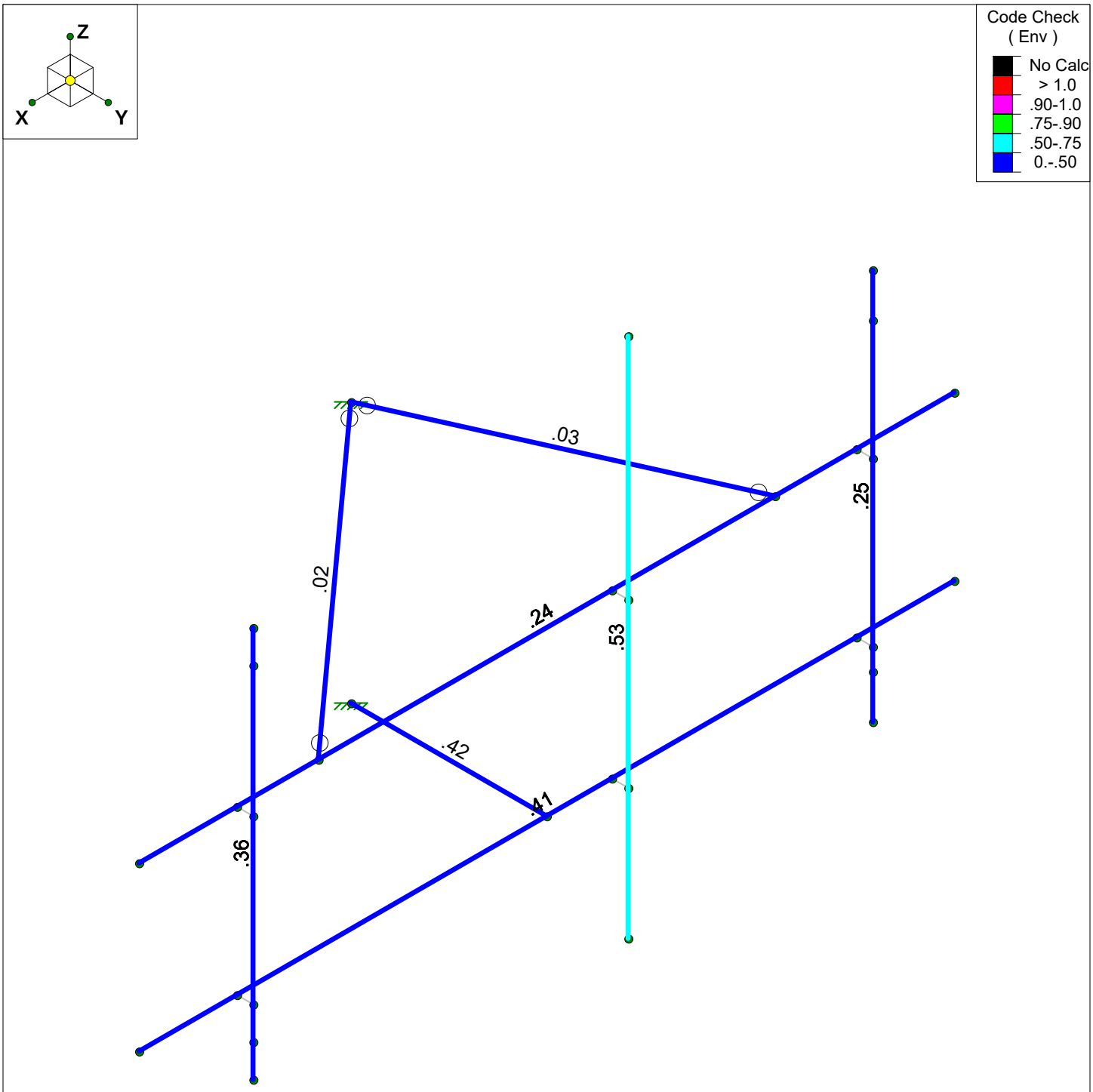
Envelope Only Solution

T-Mobile / EFI Global Inc	CTHA014A - Mount with Support rail	SK - 3
		Feb 21, 2020 at 4:02 PM
2075004		CTHA014A Mount G-Code with Se...



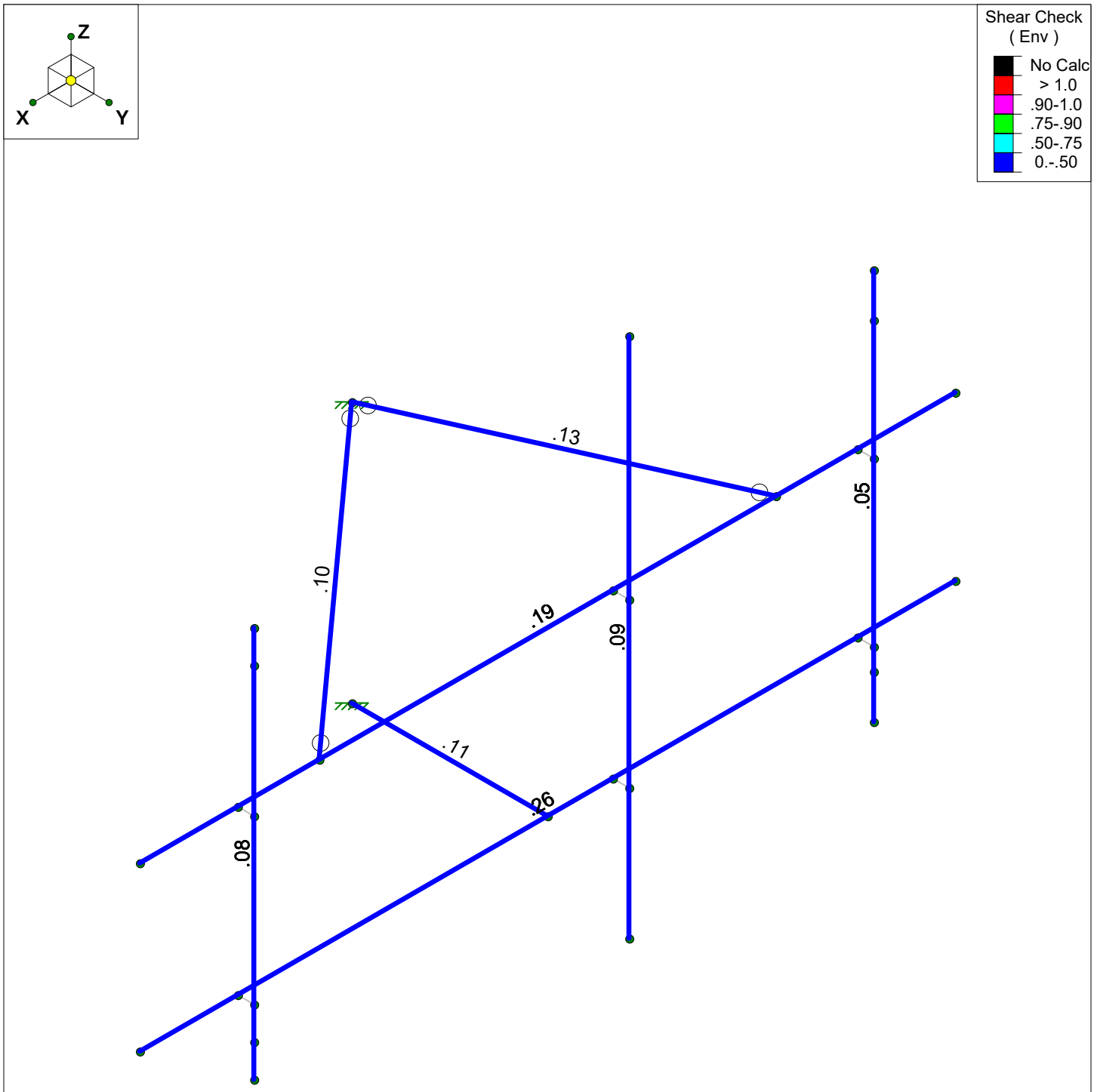
Loads: LC 1, DL + WL (NO ICE) 0 Degree
Envelope Only Solution

T-Mobile / EFI Global Inc	CTHA014A - Mount with Support rail	SK - 4
		Feb 21, 2020 at 4:02 PM
2075004		CTHA014A Mount G-Code with Se...



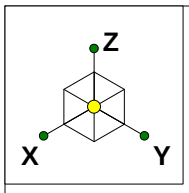
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

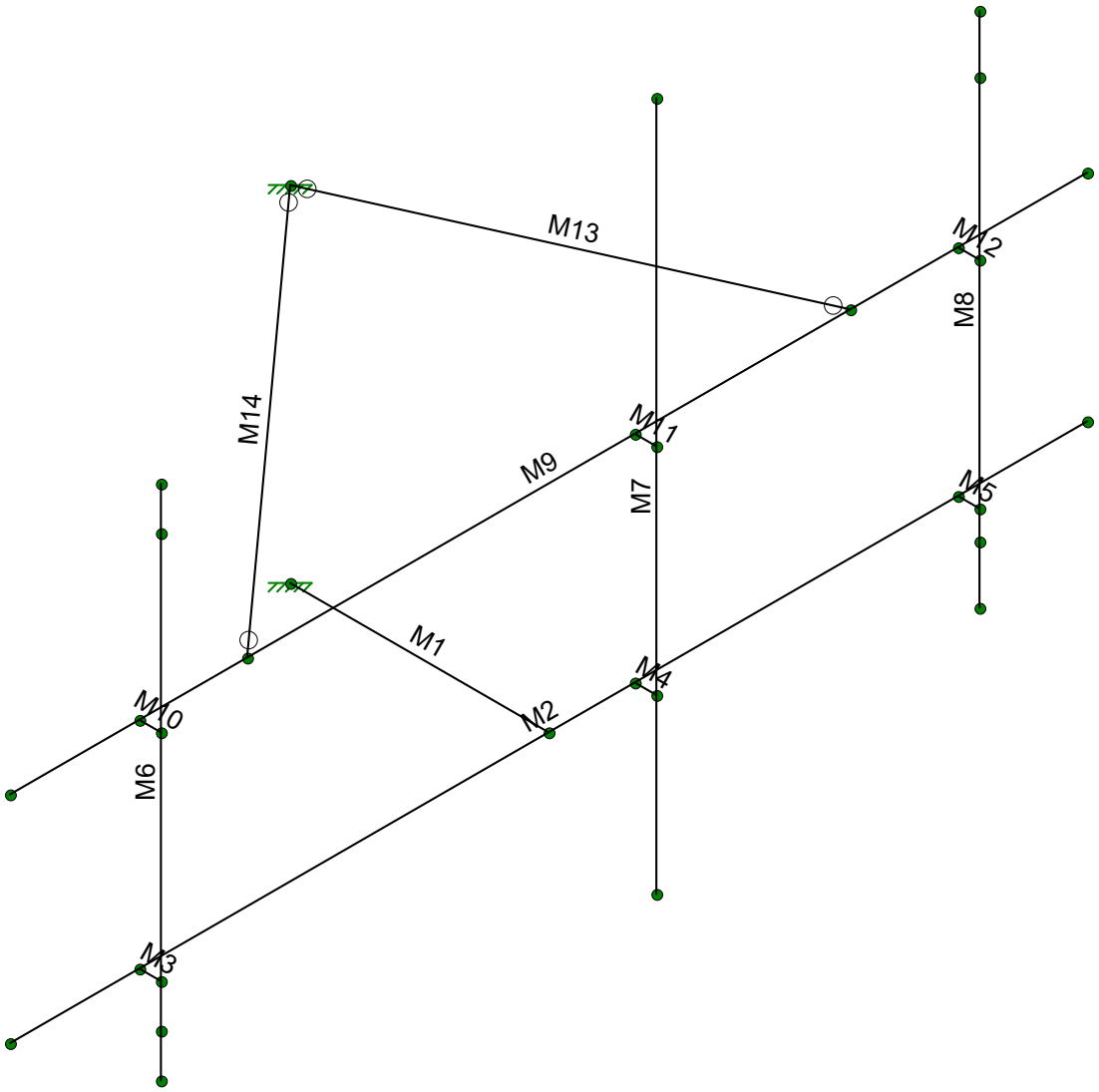
T-Mobile / EFI Global Inc	CTHA014A - Mount with Support rail	SK - 5
		Feb 21, 2020 at 4:03 PM
2075004		CTHA014A Mount G-Code with Se...



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

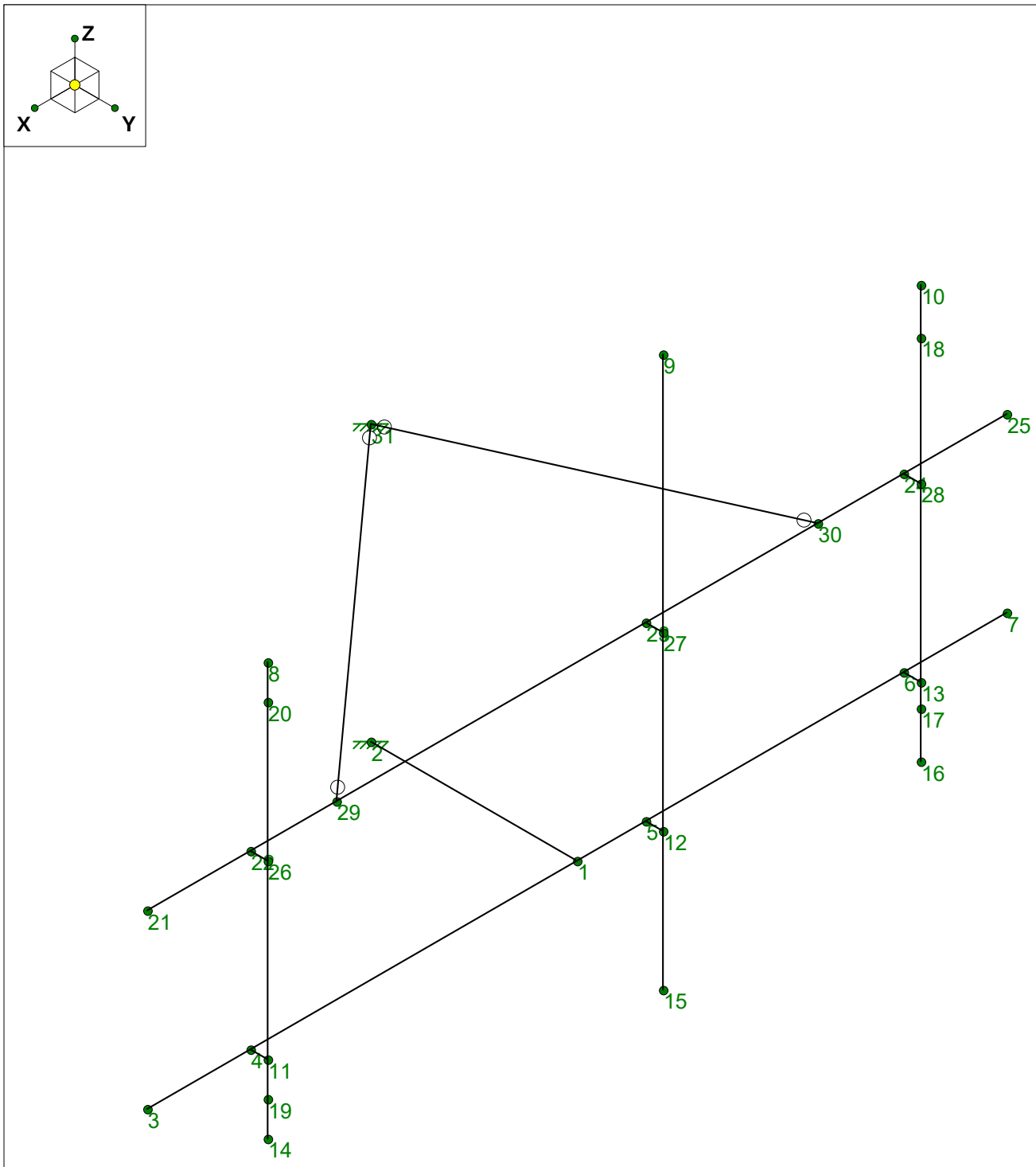
T-Mobile / EFI Global Inc	CTHA014A - Mount with Support rail	SK - 6
		Feb 21, 2020 at 4:03 PM
2075004		CTHA014A Mount G-Code with Se...





Envelope Only Solution

T-Mobile / EFI Global Inc	CTHA014A - Mount with Support rail	SK - 7
		Feb 21, 2020 at 4:03 PM
2075004		CTHA014A Mount G-Code with Se...



Envelope Only Solution

T-Mobile / EFI Global Inc	CTHA014A - Mount with Support rail	SK - 8
		Feb 21, 2020 at 4:04 PM
2075004		CTHA014A Mount G-Code with Se...

(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 NAS-01: ASD
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
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

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

(Global) Model Settings, Continued

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

Project Grid Lines

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

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.5	60	1.2
7	A529 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.2

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]	Yield[ksi]	Fu[ksi]
1	A570_33	29500	11346	.3	.65	.49	33	52
2	A607_C1_55	29500	11346	.3	.65	.49	55	70

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Standoff Tube Arm	HSS4X4X4	Beam	None	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
2	Face Pipe Horizontal	PIPE_3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
3	Antenna Pipe Mount	PIPE_2.5	Column	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
4	Pipe Rail	PIPE_2.5	Beam	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
5	Pipe Rail Brace	PIPE_2.5	VBrace	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF1A	1.5CU1.25X035	Beam	CU	A570_33	Typical	.131	.022	.052	5.4e-5

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
1	M1	2	1			Standoff Tube Arm	Beam	None	A500 Gr...	Typical
2	M2	3	7		180	Face Pipe Horizontal	Beam	None	A53 Gr.B	Typical
3	M3	4	11			RIGID	None	None	LINK	Typical
4	M4	5	12			RIGID	None	None	LINK	Typical
5	M5	6	13			RIGID	None	None	LINK	Typical
6	M6	8	14		270	Antenna Pipe Mount	Column	None	A53 Gr.B	Typical
7	M7	9	15		270	Antenna Pipe Mount	Column	None	A53 Gr.B	Typical
8	M8	10	16		270	Antenna Pipe Mount	Column	None	A53 Gr.B	Typical
9	M9	21	25		180	Pipe Rail	Beam	None	A53 Gr.B	Typical
10	M10	22	26			RIGID	None	None	LINK	Typical
11	M11	23	27			RIGID	None	None	LINK	Typical
12	M12	24	28			RIGID	None	None	LINK	Typical
13	M13	30	31			Pipe Rail Brace	VBrace	None	A53 Gr.B	Typical
14	M14	29	31			Pipe Rail Brace	VBrace	None	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ratio O...	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	M2						Yes				None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	M8						Yes	** NA **			None
9	M9						Yes	Default			None
10	M10						Yes	** NA **			None
11	M11						Yes	** NA **			None
12	M12						Yes	** NA **			None
13	M13	BenPIN	BenPIN				Yes	** NA **			None
14	M14	BenPIN	BenPIN				Yes	** NA **			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	Standoff Tu...	36			Lbyy						Lateral
2	M2	Face Pipe ...	150			Lbyy						Lateral
3	M6	Antenna Pip...	72									Lateral
4	M7	Antenna Pip...	96									Lateral
5	M8	Antenna Pip...	72									Lateral
6	M9	Pipe Rail	150			Lbyy						Lateral
7	M13	Pipe Rail Br...	58.172									Lateral
8	M14	Pipe Rail Br...	58.172									Lateral

Cold Formed Steel Design Parameters

Label	Shape	Lengt...	Lbyy[in]	Lbzz[in]	Lcomp to..	Lcomp b...	Kyy	Kzz	Cm-yy	Cm-zz	Cb	R	y sway	z sway
No Data to Print ...														

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Di...
1	1	-0.	36	0	0	
2	2	0	0	0	0	
3	3	75	36	0	0	
4	4	57	36	0	0	
5	5	-12	36	0	0	
6	6	-57	36	0	0	
7	7	-75	36	0	0	
8	8	57	39	60	0	
9	9	-12	39	72	0	
10	10	-57	39	60	0	
11	11	57	39	0	0	
12	12	-12	39	0	0	
13	13	-57	39	0	0	
14	14	57	39	-12	0	
15	15	-12	39	-24	0	
16	16	-57	39	-12	0	
17	17	-57	39	-4	0	
18	18	-57	39	52	0	
19	19	57	39	-6	0	
20	20	57	39	54	0	
21	21	75	36	30	0	
22	22	57	36	30	0	
23	23	-12	36	30	0	
24	24	-57	36	30	0	
25	25	-75	36	30	0	
26	26	57	39	30	0	
27	27	-12	39	30	0	
28	28	-57	39	30	0	
29	29	42	36	30	0	
30	30	-42	36	30	0	
31	31	0	0	48	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	2	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	31	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	DEAD LOAD	None			-1	6				
2	DEAD LOAD ICE	None				6		8		
3	WIND LOAD (NO ICE) FRONT	None				6		8		
4	WIND LOAD (NO ICE) SIDE	None				6		8		
5	WIND LOAD (ICE) FRONT	None				6		8		
6	WIND LOAD (ICE) SIDE	None				6		8		
7	LIVE LOAD1	None				1				
8	LIVE LOAD2	None				1				

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
9	LIVE LOAD3	None				1				
10	MAINTENANCE LOAD 1	None				1				
11	MAINTENANCE LOAD 2	None				1				
12	MAINTENANCE LOAD 3	None								
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...
1	18	L	Z	-58
2	17	L	Z	-58
3	9	L	Z	-112
4	15	L	Z	-112
5	20	L	Z	-72
6	19	L	Z	-72

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	18	L	Z	-102
2	17	L	Z	-102
3	9	L	Z	-255
4	15	L	Z	-255
5	20	L	Z	-96
6	19	L	Z	-96

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	18	L	Y	96
2	17	L	Y	96
3	9	L	Y	316
4	15	L	Y	316
5	20	L	Y	98
6	19	L	Y	98

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	18	L	X	73
2	17	L	X	73
3	9	L	X	147
4	15	L	X	147
5	20	L	X	71
6	19	L	X	71

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	18	L	Y	21
2	17	L	Y	21
3	9	L	Y	61
4	15	L	Y	61
5	20	L	Y	20
6	19	L	Y	20

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...

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	18	L	X	17
2	17	L	X	17
3	9	L	X	32
4	15	L	X	32
5	20	L	X	16
6	19	L	X	16

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	3	L	Z	-250

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

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

Joint Loads and Enforced Displacements (BLC 9 : LIVE LOAD3)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	7	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...
1	14	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...
1	15	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...
1	16	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	-22	-22	0	%100
2	M2	Z	-11	-11	0	%100
3	M9	Z	-10	-10	0	%100
4	M13	Z	-10	-10	0	%100
5	M14	Z	-10	-10	0	%100
6	M6	Z	-9	-9	0	%100
7	M7	Z	-9	-9	0	%100
8	M8	Z	-9	-9	0	%100

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	19	19	0	%100
2	M2	PY	10	10	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
3	M9	PY	8	8	0	%100
4	M13	PY	8	8	0	%100
5	M14	PY	8	8	0	%100
6	M6	PY	7	7	0	%100
7	M7	PY	7	7	0	%100
8	M8	PY	7	7	0	%100

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	19	19	0	%100
2	M2	PX	10	10	0	%100
3	M9	PX	8	8	0	%100
4	M13	PX	8	8	0	%100
5	M14	PX	8	8	0	%100
6	M6	PX	7	7	0	%100
7	M7	PX	7	7	0	%100
8	M8	PX	7	7	0	%100

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	6	6	0	%100
2	M2	PY	4.4	4.4	0	%100
3	M9	PY	4	4	0	%100
4	M13	PY	4	4	0	%100
5	M14	PY	4	4	0	%100
6	M6	PY	3.7	3.7	0	%100
7	M7	PY	3.7	3.7	0	%100
8	M8	PY	3.7	3.7	0	%100

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	6	6	0	%100
2	M2	PX	4.4	4.4	0	%100
3	M9	PX	4	4	0	%100
4	M13	PX	4	4	0	%100
5	M14	PX	4	4	0	%100
6	M6	PX	3.7	3.7	0	%100
7	M7	PX	3.7	3.7	0	%100
8	M8	PX	3.7	3.7	0	%100

Member Area Loads

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

Load Combinations

	Description	Solve 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	Yes	Y		1	1.2			3	1.6															
2	DL + WL (NO ICE) 30 Degree	Yes	Y		1	1.2			3	1....	4	.8													
3	DL + WL (NO ICE) 60 Degree	Yes	Y		1	1.2			3	.8	4	1....													
4	DL + WL (NO ICE) 90 Degree	Yes	Y		1	1.2					4	1.6													
5	DL + WL (NO ICE) 120 Degree	Yes	Y		1	1.2			3	-.8	4	1....													
6	DL + WL (NO ICE) 150 Degree	Yes	Y		1	1.2			3	-1....	4	.8													

Load Combinations (Continued)

	Description	Solve	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
7	DL + WL (NO ICE) 180 Degree	Yes	Y		1	1.2			3	-1.6																
8	DL + WL (NO ICE) 210 Degree	Yes	Y		1	1.2			3	-1....	4	-.8														
9	DL + WL (NO ICE) 240 Degree	Yes	Y		1	1.2			3	-.8	4	-1....														
10	DL + WL (NO ICE) 270 Degree	Yes	Y		1	1.2					4	-1.6														
11	DL + WL (NO ICE) 300 Degree	Yes	Y		1	1.2			3	.8	4	-1....														
12	DL + WL (NO ICE) 330 Degree	Yes	Y		1	1.2			3	1....	4	-.8														
13	DL + DL ICE + WL (ICE) 0 Degree	Yes	Y		1	1.2	2	1	5	1																
14	DL + DL ICE + WL (ICE) 30 Degree	Yes	Y		1	1.2	2	1	5	.866	6	.5														
15	DL + DL ICE + WL (ICE) 60 Degree	Yes	Y		1	1.2	2	1	5	.5	6	.866														
16	DL + DL ICE + WL (ICE) 90 Degree	Yes	Y		1	1.2	2	1			6	1														
17	DL + DL ICE + WL (ICE) 120 Degree	Yes	Y		1	1.2	2	1	5	-.5	6	.866														
18	DL + DL ICE + WL (ICE) 150 Degree	Yes	Y		1	1.2	2	1	5	-.8...	6	.5														
19	DL + DL ICE + WL (ICE) 180 Degree	Yes	Y		1	1.2	2	1	5	-1																
20	DL + DL ICE + WL (ICE) 210 Degree	Yes	Y		1	1.2	2	1	5	-.8...	6	-.5														
21	DL + DL ICE + WL (ICE) 240 Degree	Yes	Y		1	1.2	2	1	5	-.5	6	-.8...														
22	DL + DL ICE + WL (ICE) 270 Degree	Yes	Y		1	1.2	2	1			6	-1														
23	DL + DL ICE + WL (ICE) 300 Degree	Yes	Y		1	1.2	2	1	5	.5	6	-.8...														
24	DL + DL ICE + WL (ICE) 330 Degree	Yes	Y		1	1.2	2	1	5	.866	6	-.5														
25	DEAD LOAD + LIVE LOAD1	Yes	Y		1	1.2					7	1.5														
26	DEAD LOAD + LIVE LOAD2	Yes	Y		1	1.2					8	1.5														
27	DEAD LOAD + LIVE LOAD3	Yes	Y		1	1.2					9	1.5														
28	DL + MAIN L1+30MPH WL FRONT	Yes	Y		1	1.2	10	1.5	3	.096																
29	DL + MAIN L2+30MPH WL FRONT	Yes	Y		1	1.2	11	1.5	3	.096																
30	DL + MAIN L3+30MPH WL FRONT	Yes	Y		1	1.2	12	1.5	3	.096																
31	DL + MAIN L4+30MPH WL FRONT	Yes	Y		1	1.2	13	1.5	3	.096																
32	DL + MAIN L1+30MPH WL SIDE	Yes	Y		1	1.2	10	1.5	4	.096																
33	DL + MAIN L2+30MPH WL SIDE	Yes	Y		1	1.2	11	1.5	4	.096																
34	DL + MAIN L3+30MPH WL SIDE	Yes	Y		1	1.2	12	1.5	4	.096																
35	DL + MAIN L4+30MPH WL SIDE	Yes	Y		1	1.2	13	1.5	4	.096																
36	DL + MAIN L1+30MPH WL FRONT (REVE...	Yes	Y		1	1.2	10	1.5	3	-.0...																
37	DL + MAIN L2+30MPH WL FRONT (REVE...	Yes	Y		1	1.2	11	1.5	3	-.0...																
38	DL + MAIN L3+30MPH WL FRONT (REVE...	Yes	Y		1	1.2	12	1.5	3	-.0...																
39	DL + MAIN L4+30MPH WL FRONT (REVE...	Yes	Y		1	1.2	13	1.5	3	-.0...																
40	DL + MAIN L1+30MPH WL SIDE (REVER...	Yes	Y		1	1.2	10	1.5	4	-.0...																
41	DL + MAIN L2+30MPH WL SIDE (REVER...	Yes	Y		1	1.2	11	1.5	4	-.0...																
42	DL + MAIN L3+30MPH WL SIDE (REVER...	Yes	Y		1	1.2	12	1.5	4	-.0...																
43	DL + MAIN L4+30MPH WL SIDE (REVER...	Yes	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	2	max	892.071	10	1042.137	7	2206.082	19	5.261	19	1.047	43	3.893	4
2		min	-941.587	4	-465.667	1	77.431	1	-.081	1	-1.025	32	-3.879	9
3	31	max	638.192	43	1271.331	7	927.704	1	.174	1	.294	9	.137	3
4		min	-569.583	32	-1847.813	1	-589.881	7	-.321	7	-.275	3	-.147	9
5	Totals:	max	1332.267	10	2313.468	7	2516.585	22						
6		min	-1332.267	4	-2313.48	1	1005.125	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
1	1	max	.131	3	0	1	.006	1	4.217e-04	1	3.102e-03	32	6.382e-03	9
2		min	-.133	9	0	7	-.137	19	-4.776e-03	19	-3.167e-03	43	-6.183e-03	3
3	2	max	0	43	0	43	0	43	0	43	0	43	0	43
4		min	0	1	0	1	0	1	0	1	0	1	0	1
5	3	max	.131	3	.54	10	.143	10	1.735e-03	2	6.042e-03	32	7.653e-03	10

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
6		min	-.134	9	-.681	4	-.6	32	-2.342e-03	8	-3.317e-03	10	-9.972e-03	4
7	4	max	.131	3	.402	10	.088	11	1.735e-03	2	6.032e-03	32	7.653e-03	10
8		min	-.134	9	-.502	4	-.492	32	-2.342e-03	8	-3.327e-03	10	-9.972e-03	4
9	5	max	.131	3	.083	3	.022	2	7.974e-04	12	2.758e-03	3	8.835e-03	9
10		min	-.134	9	-.094	9	-.163	20	-2.767e-03	18	-5.206e-03	43	-7.468e-03	3
11	6	max	.131	3	.452	3	.175	3	1.82e-03	27	4.456e-03	3	1.121e-02	9
12		min	-.133	9	-.566	9	-.428	39	-1.706e-03	32	-5.462e-03	9	-8.607e-03	3
13	7	max	.131	3	.607	3	.255	3	1.82e-03	27	4.446e-03	3	1.122e-02	9
14		min	-.133	9	-.768	9	-.526	43	-1.706e-03	32	-5.508e-03	27	-8.616e-03	3
15	8	max	.454	3	.45	10	.087	11	4.656e-03	7	5.645e-03	3	7.117e-03	10
16		min	-.466	9	-.593	4	-.488	32	-3.754e-03	1	-5.793e-03	9	-9.094e-03	4
17	9	max	.692	4	.953	1	.023	2	2.523e-02	7	1.193e-02	4	9.743e-03	9
18		min	-.704	10	-1.053	7	-.172	20	-2.352e-02	1	-1.189e-02	10	-8.487e-03	3
19	10	max	.43	3	.59	3	.173	2	5.81e-03	7	4.799e-03	3	1.072e-02	9
20		min	-.482	9	-.75	9	-.423	39	-4.975e-03	1	-5.816e-03	9	-8.204e-03	3
21	11	max	.16	4	.402	10	.087	11	1.735e-03	2	6.032e-03	32	7.653e-03	10
22		min	-.155	9	-.502	4	-.488	32	-2.342e-03	8	-3.327e-03	10	-9.972e-03	4
23	12	max	.153	3	.083	3	.023	2	7.974e-04	12	2.758e-03	3	8.835e-03	9
24		min	-.16	9	-.094	9	-.171	20	-2.767e-03	18	-5.206e-03	43	-7.468e-03	3
25	13	max	.157	3	.452	3	.173	2	1.82e-03	27	4.456e-03	3	1.121e-02	9
26		min	-.167	9	-.566	9	-.423	39	-1.706e-03	32	-5.462e-03	9	-8.607e-03	3
27	14	max	.107	3	.386	10	.087	11	1.815e-03	2	6.018e-03	32	7.653e-03	10
28		min	-.119	9	-.492	4	-.488	32	-2.421e-03	8	-3.258e-03	10	-9.972e-03	4
29	15	max	.134	4	.134	2	.023	2	5.176e-03	1	2.409e-03	28	8.835e-03	9
30		min	-.105	10	-.193	8	-.171	20	-7.14e-03	7	-5.162e-03	39	-7.468e-03	3
31	16	max	.109	4	.442	3	.173	2	1.82e-03	27	4.425e-03	3	1.121e-02	9
32		min	-.106	10	-.558	9	-.424	39	-1.706e-03	32	-5.431e-03	9	-8.607e-03	3
33	17	max	.139	3	.448	3	.173	2	1.82e-03	27	4.427e-03	3	1.121e-02	9
34		min	-.145	9	-.563	9	-.424	39	-1.706e-03	32	-5.435e-03	43	-8.607e-03	3
35	18	max	.392	3	.565	3	.173	2	5.808e-03	7	4.797e-03	3	1.072e-02	9
36		min	-.435	9	-.718	9	-.423	39	-4.973e-03	1	-5.814e-03	9	-8.204e-03	3
37	19	max	.133	3	.394	10	.087	11	1.814e-03	2	6.02e-03	32	7.653e-03	10
38		min	-.137	9	-.497	4	-.488	32	-2.421e-03	8	-3.259e-03	10	-9.972e-03	4
39	20	max	.42	3	.447	10	.087	11	4.655e-03	7	5.644e-03	3	7.117e-03	10
40		min	-.431	9	-.584	4	-.488	32	-3.753e-03	1	-5.793e-03	9	-9.094e-03	4
41	21	max	.267	3	.562	10	.157	10	3.315e-03	6	4.706e-03	3	7.117e-03	10
42		min	-.28	9	-.713	4	-.562	32	-2.421e-03	12	-4.822e-03	9	-9.094e-03	4
43	22	max	.267	3	.434	10	.092	11	3.315e-03	6	4.69e-03	3	7.117e-03	10
44		min	-.28	9	-.55	4	-.495	32	-2.421e-03	12	-4.838e-03	9	-9.094e-03	4
45	23	max	.267	3	.181	2	.051	1	1.155e-02	7	5.473e-03	3	9.743e-03	9
46		min	-.281	9	-.21	8	-.182	19	-9.849e-03	1	-5.477e-03	9	-8.487e-03	3
47	24	max	.268	3	.499	3	.185	2	4.577e-03	7	3.961e-03	3	1.072e-02	9
48		min	-.281	9	-.633	9	-.43	39	-3.743e-03	1	-5.027e-03	43	-8.204e-03	3
49	25	max	.268	3	.647	3	.251	3	4.577e-03	7	3.945e-03	3	1.074e-02	9
50		min	-.281	9	-.827	9	-.52	43	-3.743e-03	1	-5.043e-03	43	-8.22e-03	3
51	26	max	.292	3	.434	10	.087	11	3.315e-03	6	4.69e-03	3	7.117e-03	10
52		min	-.299	9	-.55	4	-.488	32	-2.421e-03	12	-4.838e-03	9	-9.094e-03	4
53	27	max	.293	3	.181	2	.023	2	1.155e-02	7	5.473e-03	3	9.743e-03	9
54		min	-.31	9	-.21	8	-.172	20	-9.849e-03	1	-5.477e-03	9	-8.487e-03	3
55	28	max	.292	3	.499	3	.174	2	4.577e-03	7	3.961e-03	3	1.072e-02	9
56		min	-.313	9	-.633	9	-.423	39	-3.743e-03	1	-5.027e-03	43	-8.204e-03	3
57	29	max	.266	3	.328	10	.068	11	4.646e-03	7	5.875e-03	32	7.295e-03	9
58		min	-.28	9	-.416	4	-.419	32	-3.838e-03	1	-2.396e-03	43	-9.036e-03	3
59	30	max	.268	3	.38	3	.149	2	6.013e-03	7	2.732e-03	3	1.e-02	10
60		min	-.281	9	-.478	9	-.339	39	-5.207e-03	1	-6.631e-03	43	-7.58e-03	4
61	31	max	0	43	0	43	0	43	0	43	0	43	0	43
62		min	0	1	0	1	0	1	0	1	0	1	0	1

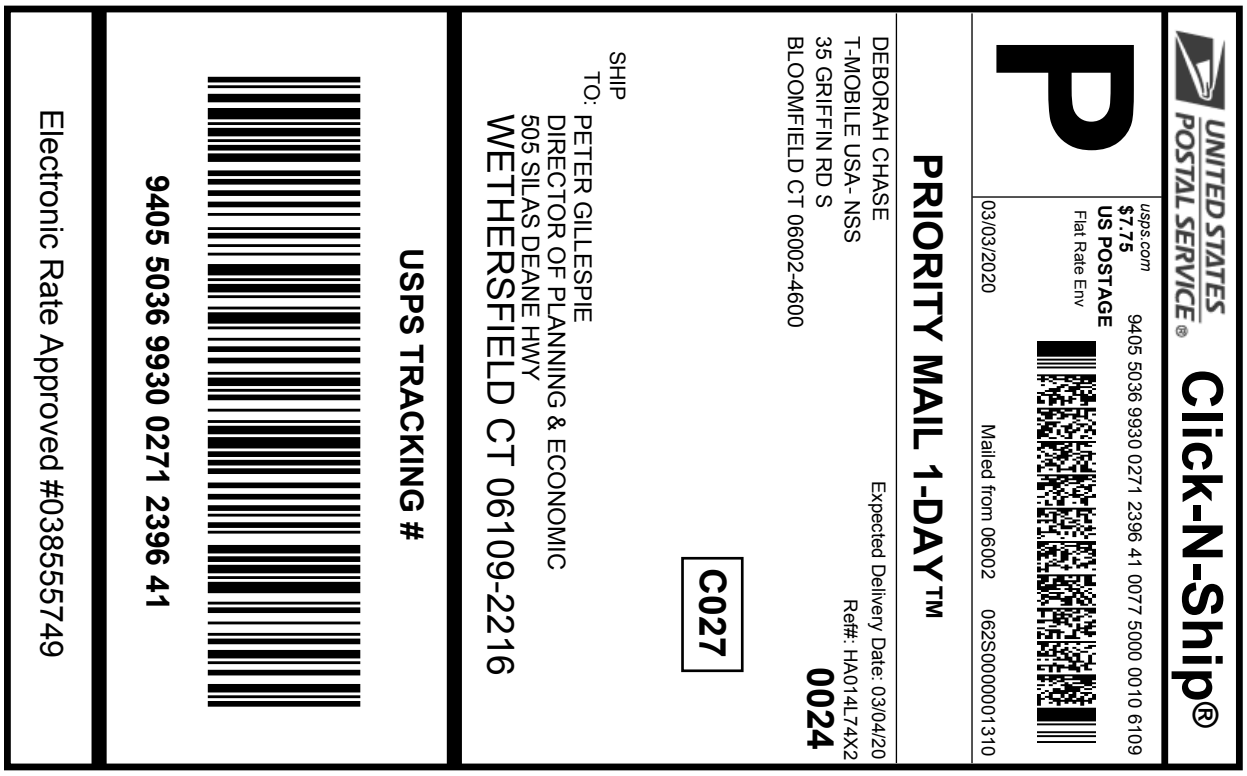
Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc.....		Shea...	Loc.....	...	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
1	M1	HSS4X4...	.422	0	9	.114	0	z	43 13436...	139518	16.181	16.181	...	H1-1b
2	M2	PIPE_3.0	.405	75	39	.265	75		20 28250...	65205	5.749	5.749	...	H1-1b
3	M6	PIPE_2.5	.363	60	36	.081	30		32 37773...	50715	3.596	3.596	...	H1-1b
4	M7	PIPE_2.5	.527	42	7	.087	42		43 30038...	50715	3.596	3.596	...	H1-1b
5	M8	PIPE_2.5	.247	60	39	.049	60		39 37773...	50715	3.596	3.596	...	H1-1b
6	M9	PIPE_2.5	.236	87.5	12	.188	115...		7 14558...	50715	3.596	3.596	...	H1-1b
7	M13	PIPE_2.5	.025	58....	7	.130	0		8 41842...	50715	3.596	3.596	...	H1-1b*
8	M14	PIPE_2.5	.023	58....	7	.096	0		32 41842...	50715	3.596	3.596	...	H1-1b*

Envelope AISI NAS-01: ASD Cold Formed Steel Code Checks

Memb...	Shape	Code Check	Loc[.....	She...	Loc.....	...	Pn/O...	Tn/O...	Mnyy/..	Mnzz...	Cb	Cm...	Cm...	Eqn
No Data to Print ...														

Exhibit F



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0271 2396 41

Trans. #:	485387841
Print Date:	03/02/2020
Ship Date:	03/03/2020
Expected Delivery Date:	03/04/2020

Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

From: DEBORAH CHASE
T-MOBILE USA- NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-4600

Ref#: HA014L74X2

To: PETER GILLESPIE
DIRECTOR OF PLANNING & ECONOMIC DEVELOPMENT
505 SILAS DEANE HWY
WETHERSFIELD CT 06109-2216

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

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

UNITED STATES POSTAL SERVICE®

Click-N-Ship®

9405 5036 9930 0271 2396 58 0077 5000 0010 6109

usps.com
$7.75
US POSTAGE
Flat Rate Env

P

03/03/2020 Mailed from 06002 062S0000001311

PRIORITY MAIL 1-DAY™

DEBORAH CHASE
T-MOBILE USA- NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-4600

Expected Delivery Date: 03/04/20
Ref#: HA014L74X2

0024

Carrier -- Leave if No Response

C027

SHIP TO: MICHAEL L RELL
MAYOR OF WETHERSFIELD CT
505 SILAS DEANE HWY
WETHERSFIELD CT 06109-2216

USPS TRACKING #

9405 5036 9930 0271 2396 58

Electronic Rate Approved #038555749

Cut on dotted line.

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5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0271 2396 58

Trans. #:	485387841
Print Date:	03/02/2020
Ship Date:	03/03/2020
Expected Delivery Date:	03/04/2020

Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

From: DEBORAH CHASE
T-MOBILE USA- NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-4600

Ref#: HA014L74X2

To: MICHAEL L RELL
MAYOR OF WETHERSFIELD CT
505 SILAS DEANE HWY
WETHERSFIELD CT 06109-2216

* 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.

UNITED STATES POSTAL SERVICE®

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

UNITED STATES POSTAL SERVICE®

Click-N-Ship®

9405 5036 9930 0271 2396 72 0077 5000 0010 6109

usps.com
$7.75
US POSTAGE
Flat Rate Env

P

03/03/2020 Mailed from 06002 062S0000000312

PRIORITY MAIL 1-DAY™

DEBORAH CHASE
T-MOBILE USA- NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-4600

Expected Delivery Date: 03/04/20
Ref#: HA014XL7PI

0024

Carrier -- Leave if No Response

C027

SHIP TO: GARY EVANS
TOWN MANAGER- TOWN OF WETHERSFIELD
505 SILAS DEANE HWY
WETHERSFIELD CT 06109-2216

USPS TRACKING #

9405 5036 9930 0271 2396 72

Electronic Rate Approved #038555749

Cut on dotted line.

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9405 5036 9930 0271 2396 72

Trans. #:	485387841
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Ship Date:	03/03/2020
Expected Delivery Date:	03/04/2020

Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

From: DEBORAH CHASE
T-MOBILE USA- NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-4600

Ref#: HA014XL7PI

To: GARY EVANS
TOWN MANAGER- TOWN OF WETHERSFIELD
505 SILAS DEANE HWY
WETHERSFIELD CT 06109-2216

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