NORTHEAST
SITE SOLUTIONS
Turnkey Wireless Development

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

August 16, 2019

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

RE: Notice of Exempt Modification
1050 Buckley Highway, Union CT 06076
Latitude: 41.999219
Longitude: -72.152397
T-Mobile Site#: CT11144C_L600

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 140-foot level of the existing 168-foot lattice tower at 1050 Buckley Highway, Union CT 06076. The tower is owned by New England Site Management, LLC. The property is owned by Wayne Kemp and Kathy Lee. T-Mobile now intends to replace six (6) of its existing antennas with three (3) new 600/700/2100 MHz antenna and three (3) 1900 MHz, replace (3) RRU, remove six (6) coax and add (3) hybrid cables. The new antennas would be installed at the 140-foot level of the tower.

Planned Modifications:
Remove:
(6) 1-5/8" Coax

Remove and Replace:
(3)RR90 Antenna (REMOVE) - (3) RFS-APXAARR24_43-U-NA20 Antenna 600/700/2100 MHz (REPLACE)
(3)LNX6515 Antenna (REMOVE) - (3) APX16DWV Antenna 1900 MHz (REPLACE)
(3)RRUS11 B12 (REMOVE) - (3) RRU4449 (REPLACE)

Install New:
(3) Hybrid Cable
(3) RRU4415
(3) Mount Reinforcement Standoff

Existing to Remain:
(3) Twin TMA
(6) 1-5/8" Coax

Ground:
Upgrade 6131 Cabinet (Internally)

This facility was approved by Town of Union PZC. Site plan approval was granted September 16, 1998. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectman David D Eaton, Elected Official and Mathieu J Silberman Planning and Zoning Commissioner for the Town of Union, as well as the property owner and the tower owner.

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

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

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

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

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

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site. ·

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

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

Sincerely,

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

Attachments
cc Union Town Hall
First Selectman David D Eaton
1043 Buckley Hwy
Union CT 06076

Union Town Hall
1043 Buckley Hwy
Union CT 06076
ATTN: Zoning Department
Mathieu J Silbermann– Planning and Zoning Commissioner

Union Town Hall
1043 Buckley Hwy
Union CT 06076
ATTN: Building Department
Joe Pajak – Building Official

New England Site Management, LLC
Kenneth Lindeland
1515 North Stone Street
West Suffield, CT 06093

Wayne and Kathy Kemp
1050 Buckley Highway
Union, CT 06076

Navigator Properties
PO Box 2600
Kennebunkport, ME 04046
Nancy Auman

Exhibit A

Copy Distribution:

White - Planning & Zoning Commission
Yellow - Building Inspector
Blue - Assessor
Green - Applicant

OP# 9719

Date 9-16-98

TOWN OF UNION, CONNECTICUT

OCCUPANCY/USE PERMIT

This is to certify that the Planning and Zoning Commission and/or the Building Official of the Town of Union, Connecticut, have inspected the

158' RADIO TOWER

(sized _____) located at 1050 BUCKLEY HWY

and permitted under Zoning Permit No. 505 issued to

WAYNE KEMP of 1050 BUCKLEY HWY

and the location and use of this structure and premises complies with the provisions of The Town of Union Zoning Regulations and substantially complies with the Connecticut Building Code.

Inspected for Connecticut Building Code Compliance

by Edward F Stanewski

Date 9-16-98

Use Group _____

Type of Construction _____

Live load 1st floor _____

Live load 2nd floor _____

Fire Grading _____

Inspection for Zoning Compliance by:

James Burgh

Date Inspected 11/4/98

PLANNING AND ZONING COMMISSION
TOWN OF UNION, CONNECTICUT

James Burgh
Chairman

Joseph Kratochvil
(Acct.) Secretary

TELEPHONE TOWER
RADIO TOWER

Copy Distribution:

White - Planning & Zoning Commission
Yellow - Building Inspector
Blue - Assessor
Green - Applicant

ZP # № 505
Date 6-4-97

TOWN OF UNION, CONNECTICUT

ZONING PERMIT

This is to certify that the Planning and Zoning Commission of the Town of Union, Connecticut, acting upon the application of WAYNE KEMP presently residing at 1050 BUCKLEY HIGHWAY do hereby approve and grant said applicant a Zoning Permit for:

RADIO TOWER
sized 158 feet high

to be located at the following location: 1050 BUCKLEY HIGHWAY.

Be it understood that the requirements of the Zoning Regulations of the Town of Union Connecticut be fulfilled and that before occupancy of said structure or use of such building an Occupancy/Use Permit must be obtained from the Building Inspector and the Planning & Zoning Commission.

This document is not a Building Permit but is an approval from the Zoning Board that what you propose to do complies with the Town of Union Zoning Regulations.

A BUILDING PERMIT MUST BE OBTAINED BEFORE CONSTRUCTION BEGINS. PLEASE BE SURE TO CONTACT THE BUILDING INSPECTOR BEFORE PROCEEDING WITH ANY CONSTRUCTION.

PLANNING AND ZONING COMMISSION
TOWN OF UNION, CONNECTICUT

James Dunk
Chairman

Diane Williams
Secretary

PLANNING AND ZONING COMMISSION

TOWN OF UNION, CONNECTICUT

Mail Address: 1024 Buckley Highway, Union, CT 06076

SPECIAL PERMIT

Description of Premises: 1052 BUCKLEY HIGHWAY UNION CT

Nature of Special Permit: TO PERMIT THE CONSTRUCTION OF A TELECOMMUNICATIONS FACILITY

Applicable Regulation(s): UNION PZ SECTION 3.11

Owners of Record: WAYNE & KATHY KEMP

Date Issued: JUNE 4, 1997

Chairman Union Planning & Zoning

COPY

Exhibit B

1050 BUCKLEY HIGHWAY

Location	1050 BUCKLEY HIGHWAY	**Mblu**	13/ 18/ 20C/ /
Acct#	131820C	**Owner**	NEW ENGLAND SITE MANAGEMENT, LLC
Assessment	$442,390	**Appraisal**	$631,980
PID	183821	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$631,980	$0	$631,980
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$442,390	$0	$442,390

Owner of Record

Owner	NEW ENGLAND SITE MANAGEMENT, LLC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	1515 NORTH STONE ST WEST SUFFIELD, CT 06093	**Book & Page**	41/381
		Sale Date	11/01/1997
		Instrument	29

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
NEW ENGLAND SITE MANAGEMENT, LLC	$0		41/381	29	11/01/1997

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes

Field	Description
Style	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	

Building Photo

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

Building Layout


Building Layout (ParcelSketch.ashx?pid=183821&bid=820)

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	4340
Description	Cell Tower
Zone	
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0
Frontage	
Depth	
Assessed Value	$0
Appraised Value	$0

Outbuildings

Outbuildings	Legend

Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
CELL	CELL TENANT			3.00 UNITS	$630,000	1
FN4	FENCE-8' CHAIN			200.00 L.F.	$1,980	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$631,980	$0	$631,980
2017	$681,130	$0	$681,130
2013	$848,430	$0	$848,430

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$442,390	$0	$442,390
2017	$476,800	$0	$476,800
2013	$593,910	$0	$593,910

neccog

Ashford Brooklyn Canterbury Chaplin Eastford Hampton Killingly Plainfield Pomfret Putnam Scotland Sterling Thompson Union Voluntown Woodstock

Parcel Information:

Report Generated: *7/31/2019 11:42:39 AM*

GIS ID: CT-145-13-18-000020

Assessment: $407,340.00

Owner Name: ***KEMP WAYNE & KATHY LEE***

Appraissal:

Street Address: 1050 BUCKLEY HIGHWAY

Mailing Address:

Land: 5.40

Buildings:

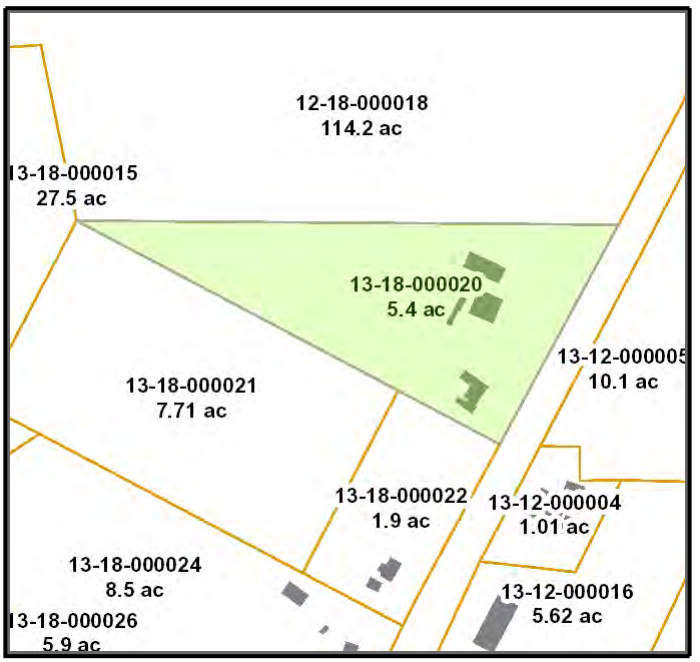
	Land Value:	Improvement Value:	Total Value:
Appraised			
Assessed			$407,340.00

Sale Date:

Sale Price: $135,000

Year Built: 1959

Primary Structure Area: 1,720.00 sq. ft.



Taxlot highlighted in blue

Exhibit C

MODIFICATION OF EXISTING WIRELESS FACILITY BY

T-Mobile

T-MOBILE NORTHEAST LLC

L600 PROJECT

SITE NUMBER: CT11144C

SITE NAME: UNION/ I-84 X73-74/CEMET1

SITE ADDRESS: 1050 BUCKLEY HIGHWAY

UNION, CT 06076

(RF CONFIG: CUSTOM)

PROJECT NOTES:

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION:
   HANDICAPPED ACCESS IS NOT REQUIRED.
   POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
   NO OUTDOOR STORAGE OR ANY
   SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACES THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES, ORDINANCES AND SPECIFICATIONS.

STRUCTURAL NOTES:

PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT CONTRACTOR SHOULD REVIEW THE STRUCTURAL EVALUATION REPORT (REV 2) DATED JULY 12, 2019 AND MOUNT EVALUATION REPORT DATED JUNE 4, 2019, BOTH PREPARED BY DESTEK ENGINEERING, LLC. AND ADHERE TO THE REPORT FULLY AND ALL THE RECOMMENDATIONS THEREIN, INCLUDING BUT NOT LIMITED TO ANTENNA PLACEMENT, COAX ROUTING, STRUCTURAL IMPROVEMENTS, ETC.

APPLICABLE CODES AND STANDARDS:

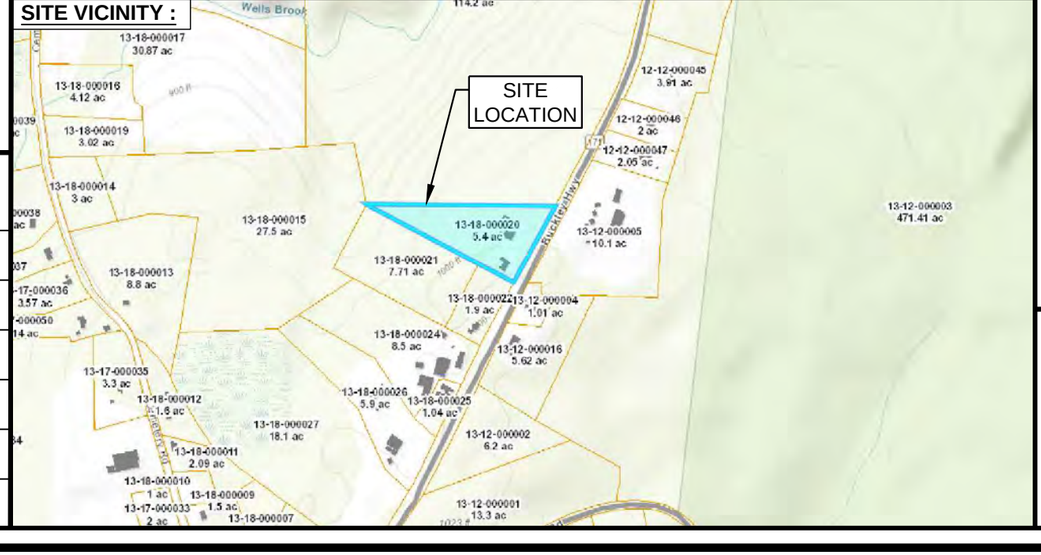
LATEST EDITION OF:
CONNECTICUT STATE BUILDING CODE (CSBC).
ANSI/TIA-222-G STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.
NATIONAL ELECTRICAL CODE (NEC) FOR POWER AND GROUNDING REQUIREMENTS.
OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
NFPA - NATIONAL FIRE PROTECTION ASSOCIATION.

APPROVALS:

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

SITE IMAGE:

SITE VICINITY :



PROJECT SCOPE:

THE PROPOSED PROJECT SCOPE WILL CONSIST OF:

UPGRADE EXISTING RBS 6201 INTERNALLY.

REPLACE (6) OF (6) EXISTING ANTENNAS.
REPLACE (3) OF (3) EXISTING AND ADD (3) REMOTE RADIO UNITS AT ANTENNAS.

REMOVE (6) OF (12) EXISTING 1-5/8" COAX, ADD (3) 6X12 HCS FOR FINAL CONFIGURATION OF (3) 6X12 HYBRID AND (6) 1-5/8" COAX CABLES.

PROJECT INFORMATION:

ADDRESS:	1050 BUCKLEY HIGHWAY UNION, CT 06076
COORDINATES:	41° 59' 57.19" N, 72° 09' 08.63" W
STRUCTURE TYPE:	LATTICE TOWER
JURISDICTION:	TOWN OF UNION, CT

PROJECT TEAM:

APPLICANT:	T-MOBILE NORTHEAST, LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 860-692-7100
LANDLORD:	NEW ENGLAND SITE MANAGEMENT, LLC 1515 NORTH STONE STREET WEST SUFFIELD, CT 06093
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	05/15/19
B	REVISED PER COMMENTS	06/23/19
C	UPDATE STRUCTURAL REF.	07/12/19
0	FINAL ISSUED	07/29/19
1	CORRECTED TOWER HEIGHT	08/16/19

SITE NUMBER: CT11144C
SITE NAME: UNION/ I-84 X73-74/CEMET1
SITE ADDRESS: 1050 BUCKLEY HIGHWAY
UNION, CT 06076

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

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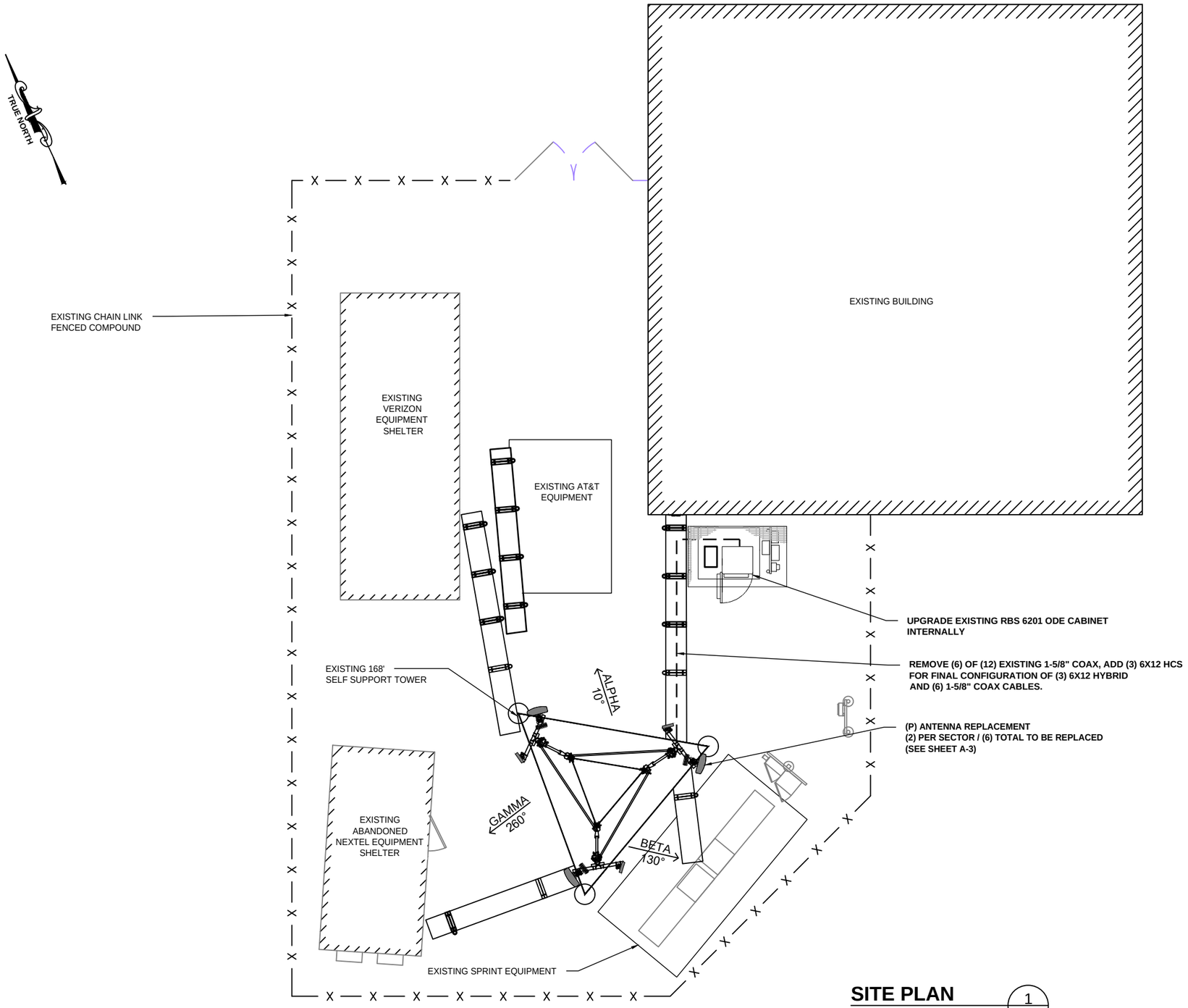
UNION, CT 06076

SHEET TITLE:
N-1: GENERAL NOTES



SITE PLAN

SCALE: 3/32" = 1'-0"

1 / A-1

APPLICANT:

T-MOBILE NORTHEAST LLC

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

PROJECT MANAGER

NSS NORTHEAST SITE SOLUTIONS
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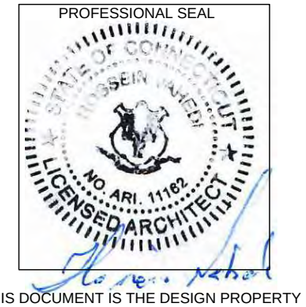

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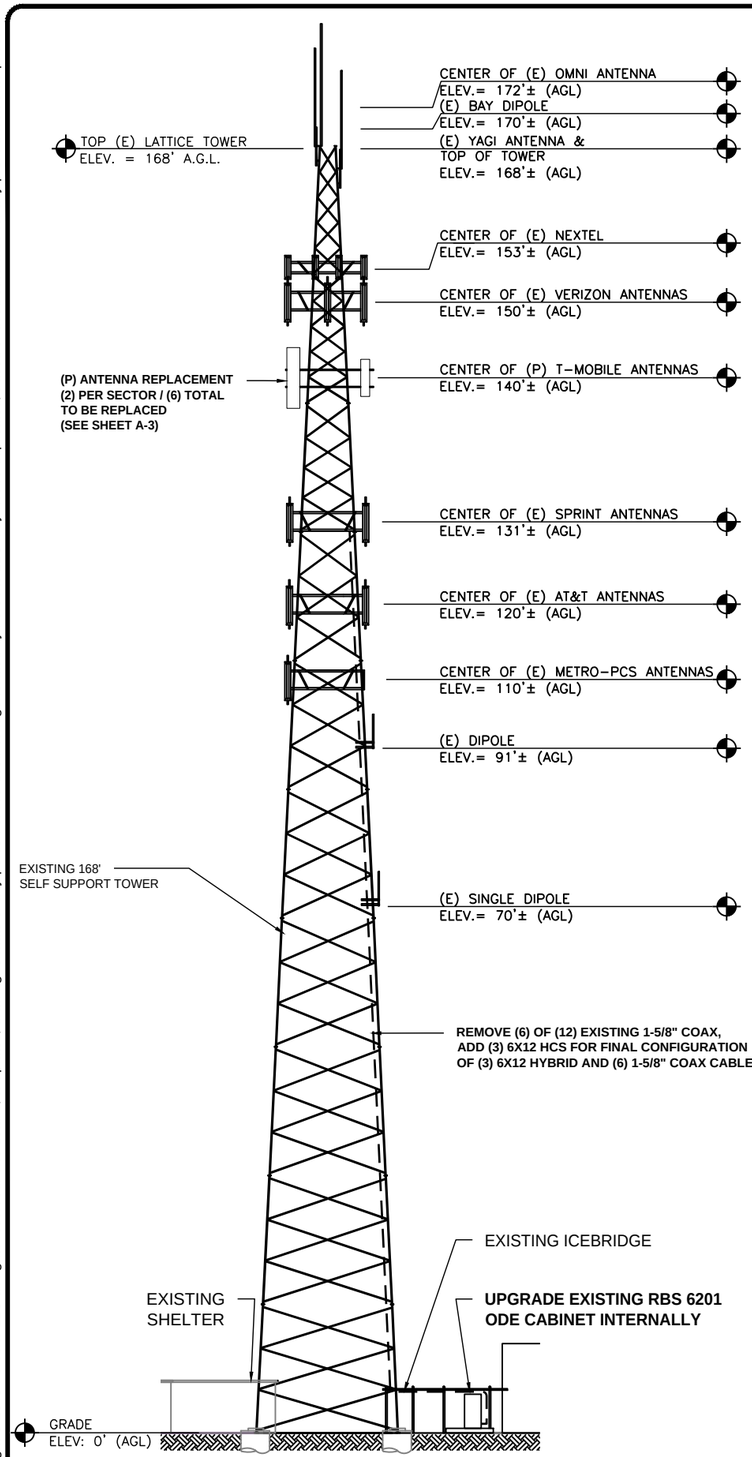
SHEET TITLE:

A-1: SITE PLAN



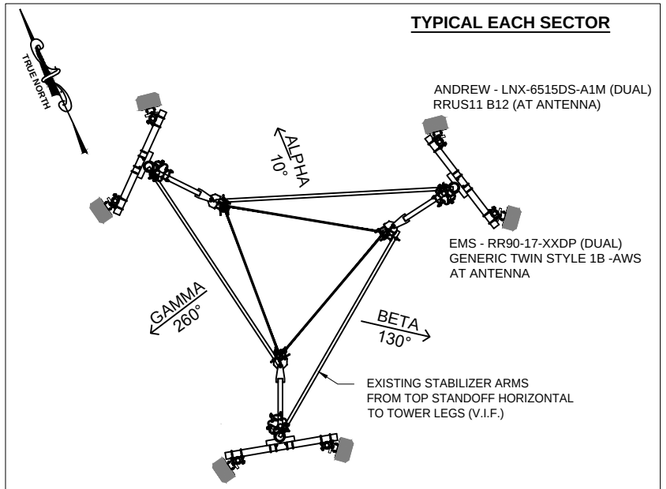
ELEVATION
SCALE: NTS

1 / A-2

STRUCTURAL NOTES:

PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT CONTRACTOR SHOULD REVIEW THE STRUCTURAL EVALUATION REPORT AND MOUNT EVALUATION REPORT BOTH PREPARED BY DESTEK ENGINEERING, LLC. DATED JUNE 4, 2019 AND ADHERE TO THE REPORT FULLY AND ALL THE RECOMMENDATIONS THEREIN, INCLUDING BUT NOT LIMITED TO ANTENNA PLACEMENT, COAX ROUTING, STRUCTURAL IMPROVEMENTS, ETC.

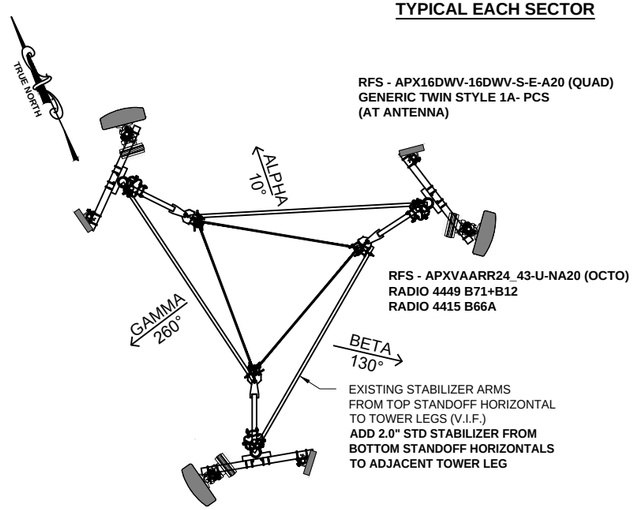
TYPICAL EACH SECTOR



EXISTING ANTENNA PLAN
N.T.S.

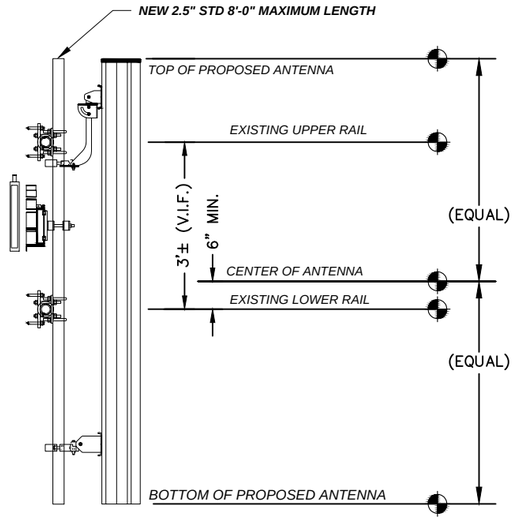
2 / A-2

TYPICAL EACH SECTOR



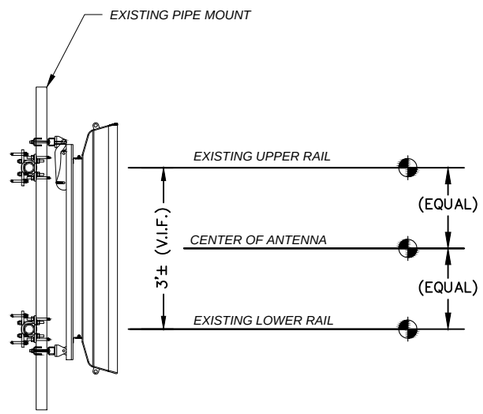
FINAL ANTENNA PLAN
N.T.S.

3 / A-2



APXVAAR24_43-U-NA20
ANTENNA MOUNTING
N.T.S.

4 / A-2



RFS - APX16DWV-16DWV-S-E-A20
ANTENNA MOUNTING
N.T.S.

5 / A-2

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

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

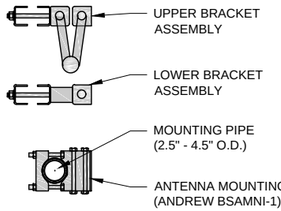
CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 WALNUT STREET
NEWTON, MA 02460
617-212-3123

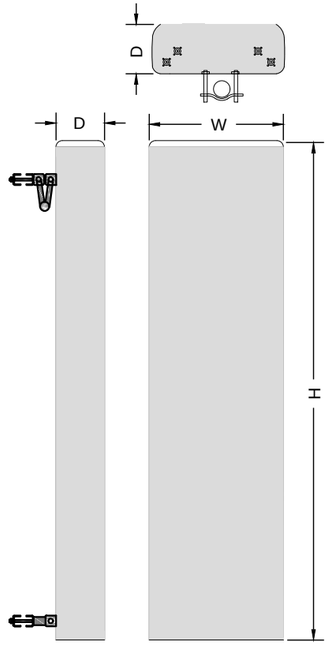
PROFESSIONAL SEAL

REV	DESCRIPTION	DATE
A	PRELIMINARY	05/15/19
B	REVISED PER COMMENTS	06/23/19
C	UPDATE STRUCTURAL REF.	07/12/19
0	FINAL ISSUED	07/29/19
1	CORRECTED TOWER HEIGHT	08/16/19

SITE NUMBER: CT11144C
SITE NAME: UNION/ I-84 X73-74/CEMET1
SITE ADDRESS: 1050 BUCKLEY HIGHWAY
UNION, CT 06076

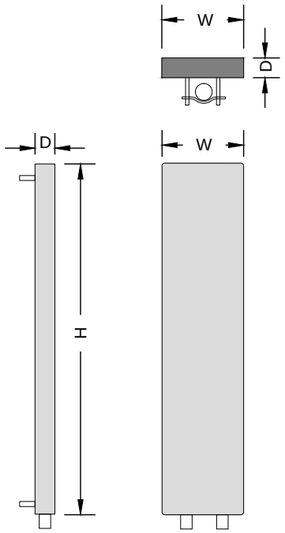
SHEET TITLE:
A-2: ELEVATION AND MOUNTING DETAILS





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

RFS APX ANTENNA
N.T.S.
1 A-3

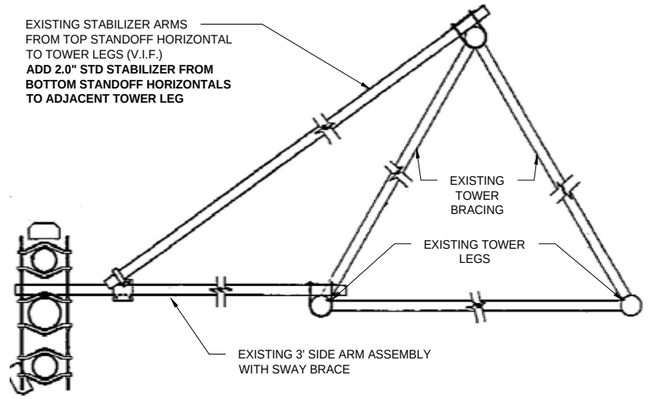


APX ANTENNA SPECIFICATIONS	
MODEL #	APX16DWV-16DWVS-E-A20
MANUF.	RFS
HEIGHT	55.9"
WIDTH	13"
DEPTH	3.15"
WEIGHT	40.7 LB

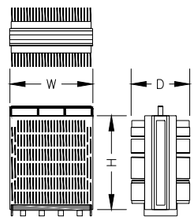
RFS APX16 ANTENNA
N.T.S.
2 A-3

STRUCTURAL NOTES:

PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT CONTRACTOR SHOULD REVIEW THE STRUCTURAL EVALUATION REPORT (REV 2) DATED JULY 12, 2019 AND MOUNT EVALUATION REPORT DATED JUNE 4, 2019, BOTH PREPARED BY DESTEK ENGINEERING, LLC. AND ADHERE TO THE REPORT FULLY AND ALL THE RECOMMENDATIONS THEREIN, INCLUDING BUT NOT LIMITED TO ANTENNA PLACEMENT, COAX ROUTING, STRUCTURAL IMPROVEMENTS, ETC.

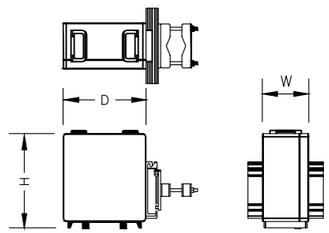


PLAN



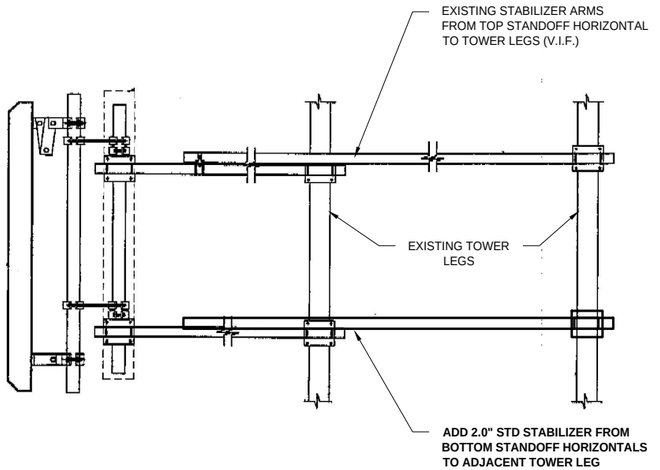
REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4449 B71+B12
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	10.4"
WEIGHT	74 LB

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



REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4415 B66A
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	5.4"
WEIGHT	46.3 LB

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



ELEVATION

ANTENNA MOUNT MODS
N.T.S.
5 A-3

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
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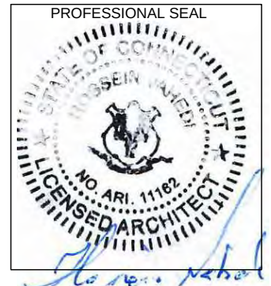
PROFESSIONAL SEAL



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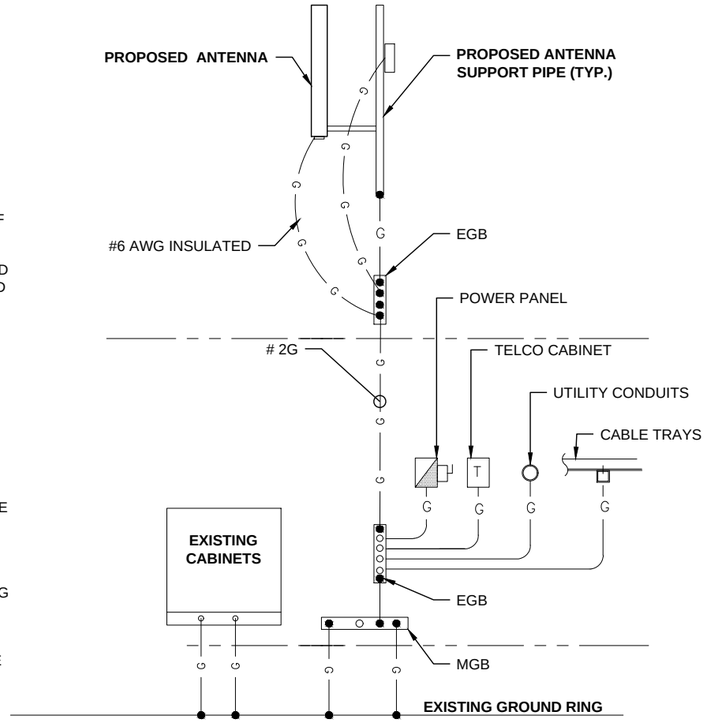
SITE NUMBER: CT11144C
SITE NAME: UNION/ I-84 X73-74/CEMET1
SITE ADDRESS: 1050 BUCKLEY HIGHWAY
UNION, CT 06076

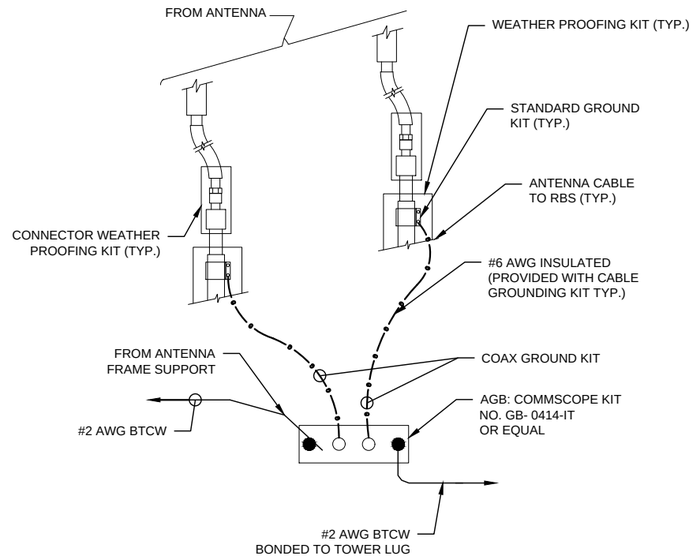
SHEET TITLE:
A-3: ANTENNA SPECIFICATIONS AND ANTENNA PLANS

ELECTRICAL & GROUNDING NOTES

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



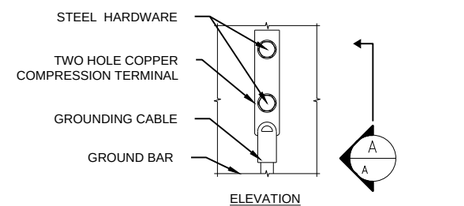
GROUNDING RISER DIAGRAM 1 E-1
N.T.S.



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

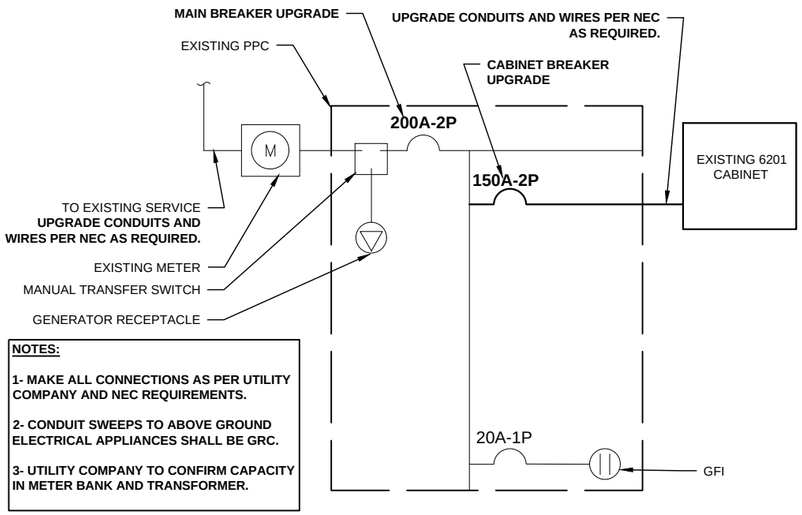
ANTENNA CABLE GROUNDING 2 E-1
N.T.S.

NOTE:
CONTRACTOR TO VERIFY THE POWER FEED & PHASE OF METER BANK AND THAT THE EXISTING AND PROPOSED CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSED LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.



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

GROUND BAR CONNECTIONS 3 E-1
N.T.S.



NOTES:

1- MAKE ALL CONNECTIONS AS PER UTILITY COMPANY AND NEC REQUIREMENTS.

2- CONDUIT SWEEPS TO ABOVE GROUND ELECTRICAL APPLIANCES SHALL BE GRC.

3- UTILITY COMPANY TO CONFIRM CAPACITY IN METER BANK AND TRANSFORMER.

TYPICAL ONE LINE DIAGRAM 4 E-1
N.T.S.

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

PROJECT MANAGER
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
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CONSULTANT:
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Architects . Engineers . Surveyors
462 WALNUT STREET
NEWTON, MA 02460
617-212-3123

PROFESSIONAL SEAL

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1	CORRECTED TOWER HEIGHT	08/16/19

SITE NUMBER: CT11144C
SITE NAME: UNION/ I-84 X73-74/CEMET1
SITE ADDRESS: 1050 BUCKLEY HIGHWAY
UNION, CT 06076

SHEET TITLE:
E-1: GROUNDING DETAILS

Exhibit D

STRUCTURAL ANALYSIS REPORT REV.2
SELF-SUPPORT

Prepared For:

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

Structure Rating:

Self-Support Tower:	**97.9% (Pass)**
Anchor Bolts:	**65.6% (Pass)**

Sincerely,
Destek Engineering, LLC
Firm License No: PEC0001429

07-12-2019

STATE CONNECTICUT
AHMET COLAKOGLU
PEN 27057
LICENSED
PROFESSIONAL ENGINEER

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

Site ID: CT11144C
Site Name: Union/I-84 X73-74/Cemet1
1050 Buckley Highway
Union, CT 06076

Destek Job No: 1975066 July 12, 2019

CONTENTS

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 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 168' tall self-support tower located at 1050 Buckley Highway, Union, CT 06076 for the additions and alterations proposed by T-Mobile.

The structural analysis is based on the following documentation provided to Destek Engineering, LLC (Destek):

- RFDS provided by T-Mobile, dated 06/07/2019.
- Structural Analysis Report prepared by Ramaker & Associates Inc, dated 04/17/2018.
- Construction Drawings prepared by EBI Consulting, dated 04/07/2015.
- Photographs provided by Foresite, LLC, dated 04/16/2019.

1.1 STRUCTURE

The subject structure is a three-sided, 168' tall self-support lattice tower formed by (8) 20ft sections and (1) 8ft section. Pipe legs are X-braced with single angle diagonals throughout the length of the tower. The tower tapers from 18.85ft wide at the base to 6.69ft wide at 120 ft. Between 120 ft. and 168 ft., the tower is 6.69 feet wide. Please refer to the software output in Appendix A for tower geometry, member sizes, and other details.

2.0 EXISTING AND PROPOSED APPURTENANCES

Existing Configuration of T-Mobile Appurtenances:

Rad Center (ft.)	Antennas & Equipment	Coax	Mounts
140	(3) EMS RR90-17-XXDP (3) Andrew LNX-6515DS-A1M (3) Ericsson RRUS11 B12 (3) Generic Twin Style 1A - PCS	(12) 1-5/8"	(3) Side Arm Mounts

Proposed and Final Configuration of T-Mobile Appurtenances:

Rad Center (ft.)	Antennas & Equipment	Coax	Mounts
140	(3) RFS APX16DWV-16DWV-S-E-A20 (3) RFS APXVAARR24_43-U-NA20 (3) Ericsson Radio4449 B71+B12* (3) Ericsson Radio4415 B66A* (3) Generic Twin Style 1A - PCS	(6) 1-5/8" (3) 6x12 HCS	(3) Side Arm Mounts

*** Proposed RRUs to be mounted behind the antennas**

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

Appurtenances by Others:

Rad Center (ft.)	Antennas & Equipment	Coax	Mounts
178	(1) 20’ 4-Bay Dipole	(1) 1-5/8’’	Leg mounted
174	(1) 2’’ Dia 8’ Omni	(1) 1-1/4’’	(3) Pipe Mounts
173	(1) 6’ Dipole	(1) 7/8’’	
170	(1) 6’ Yagi	(1) 7/8’’	
152	-	-	(3) Side Arm mounts
150	(6) Andrew SBNHH-1D65B (3) Antel WPA-80063/4CF (3) Antel WPA-80080/4CF (3) alcatel lucent B13 RRH4x30-4R (3) alcatel lucent B66A RRH4x45-4R (2) raycap RCMDC-3315-PF-48	(12) 1-5/8’’ (2) 1-1/4’’	(3) Sector Mounts
130.3	(3) Commscope NNVV-65B-R4 (3) rfs celwave APXV9TM14-ALU-I20 (3) alcatel lucent TD-RRH8x20-25 (3) alcatel lucent RRH2x50-800 (3) Alcatel RRH4x45-1900	(4) 1-1/4’’	(3) Sector Mounts
120	(3) Powerwave 7770.00 (2) Powerwave P65-17-XL-R (1) Powerwave AM-X-CD-16-65-00T (3) Ericsson RRUS11 (3) Powerwave LGP214nn (3) RET Module (1) raycap DC6-48-60-18-8F	(6) 1-1/4’’ (2) 3/4’’ (1) 5/16’’ (1) 1/4’’	(3) Sector Mounts
91	2’ Omni	(1) 1/2’’	Leg Mounted
86	-	-	(1) Side Arm Mount
82	GPS	(1) 1/2’’	Leg Mounted
71	12’ Dipole	(1) 3/8’’	(1) Standoff Mount
68	(1) Flood Light	(1) 1/2’’	Leg Mounted
62	(1) Flood Light	(1) 1/2’’	Leg Mounted
23	(1) Camera	(1) 1/4’’	Leg Mounted

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

3.0 CODES AND LOADING

This analysis has been performed in accordance with the TIA-222-H Standard. This analysis utilizes an ultimate 3-second gust wind speed of 125 mph from the 2018 Connecticut Building Code (2015 IBC):

- Ultimate 3-second gust wind speed of 125 mph without ice (V)
- Wind speed of 50 mph concurrent with the ultimate ice thickness of 2" (Vi and ti)
- Exposure Category C, Topographic Category 1, Risk Category II.

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

- $1.2\ D + 1.0\ W_0$
- $0.9\ D + 1.0\ W_0$
- $1.2\ D + 1.0\ D_i + 1.0\ W_i + 1.0\ T_i$

D: Dead load of structures and appurtenances
D_i: Weight of ice due to factored ice thickness (based upon t_i)
T_i: Load effects due to temperature
W_0: Wind load without ice (based upon V)
W_i: Wind load with ice (based upon V_i)

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided to Destek 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. Destek will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance.

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

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

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

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.

The split pipe reinforcements were assumed to be of grade A53 Gr. B steel and welded to the original leg at a spacing of 18 inches.

6.0 RESULTS AND CONCLUSION

Based on a structural analysis per *TIA-222-H* Standard*,* the existing self-support tower is found to have **adequate** structural capacity for the proposed changes by T-Mobile. For the code specified load combinations and as a maximum, the diagonals bolts from 120 ft. to 124 ft. are stressed to **97.9%** of their structural capacity. The legs and secondary horizontals are stressed to **85.8%** and **35.0%** of their structural capacities, respectively. The anchor bolts are stressed to **65.6%** of their structural capacity.

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

Note: Capacities per TIA-222-H, Section 15.5

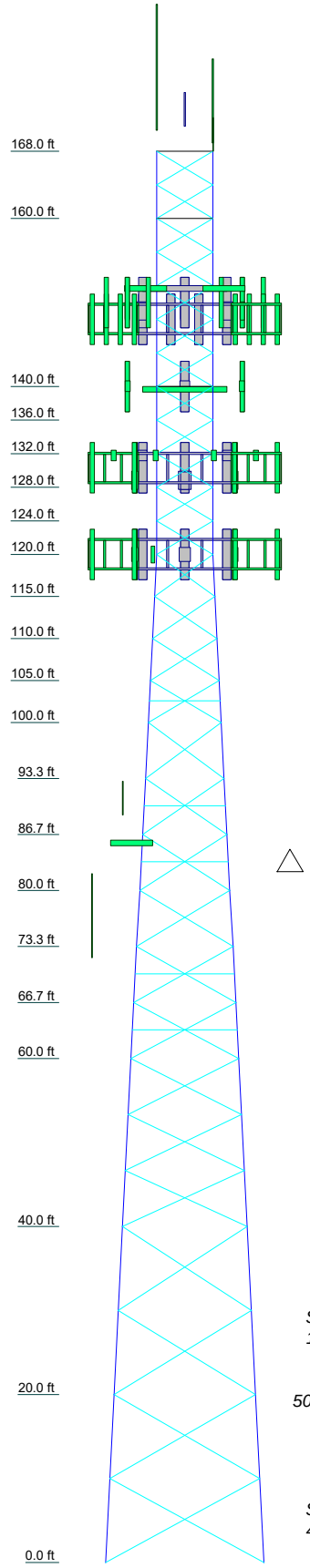
Therefore, the proposed alterations and additions by T-Mobile **can** be implemented as intended with the conditions outlined in this report.

Should you have any questions about this report or require any additional information, please contact Ahmet Colakoglu at (770) 693-0835 or acolakoglu@destekengineering.com

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

APPENDIX A
SOFTWARE OUTPUT

Section	T20	T19	T18	T17	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	ROHN 6 EH	ROHN 6 EHS	ROHN 5 EH	ROHN 4 EH		ROHN 3.5 EH					B			A					ROHN 2.5 STD	
Leg Grade	A572-50																			
Diagonals	L3 1/2x3 1/2x1/4		L3x3x1/4	L 2 1/2x 2 1/2x 1/4		L 2 1/2x2 1/2x3/16					L2x2x3/16								L1 3/4x1 3/4x3/16	
Diagonal Grade	A36																			
Top Girts	C																		L2x2x1/8	
Sec. Horizontals	N.A.			E	D	N.A.	L2x2x3/16		N.A.	D								N.A.		
Face Width (ft)	18.85	16.82	14.8	12.77	12.09	11.42	10.74	10.07	9.39	8.72	8.21	7.7	7.2	6.69						
# Panels @ (ft)	2 @ 9.99		2 @ 10	3 @ 6.66667		6 @ 6.67					4 @ 5			12 @ 4						
Weight (K)	15.6	3.1	2.7	2.6	0.8	0.7	0.6	0.6	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.9	0.4



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
20' 4-Bay Dipole	168	LGP214nn	140
6' Dipole	168	LGP214nn	140
2" Dia 8' Omni	168	Side Arm Mount [SO 203-3]	140
6' Yagi	168	NNVV-65B-R4 w/ Mount Pipe	130.3
2'x2" Pipe Mount	168	NNVV-65B-R4 w/ Mount Pipe	130.3
2'x2" Pipe Mount	168	NNVV-65B-R4 w/ Mount Pipe	130.3
10'x2" Pipe Mount	165	APXV9TM14-ALU-I20 w/ Mount Pipe	130.3
Side Arm Mount [SO 311-1]	152	APXV9TM14-ALU-I20 w/ Mount Pipe	130.3
Side Arm Mount [SO 311-1]	152	APXV9TM14-ALU-I20 w/ Mount Pipe	130.3
Side Arm Mount [SO 311-1]	152	TD-RRH8x20-25	130.3
(2) SBNHH-1D65B w/ Mount Pipe	150	TD-RRH8x20-25	130.3
(2) SBNHH-1D65B w/ Mount Pipe	150	TD-RRH8x20-25	130.3
(2) SBNHH-1D65B w/ Mount Pipe	150	Alcatel TME-FD-RRH-4x45-1900	130.3
WPA-80063/4CF w/ Mount Pipe	150	Alcatel TME-FD-RRH-4x45-1900	130.3
WPA-80063/4CF w/ Mount Pipe	150	Alcatel TME-FD-RRH-4x45-1900	130.3
WPA-80063/4CF w/ Mount Pipe	150	(2) RRH2X50-800	130.3
WPA-80080/4CF w/ Mount Pipe	150	(2) RRH2X50-800	130.3
WPA-80080/4CF w/ Mount Pipe	150	(2) RRH2X50-800	130.3
WPA-80063/4CF w/ Mount Pipe	150	Sector Mount [SM 701-3]	130.3
B13 RRH4X30-4R	150	7770.00 w/ Mount Pipe	120
B13 RRH4X30-4R	150	7770.00 w/ Mount Pipe	120
B13 RRH4X30-4R	150	7770.00 w/ Mount Pipe	120
B66A RRH4X45-4R	150	P65-17-XL-R w/ Mount Pipe	120
B66A RRH4X45-4R	150	P65-17-XL-R w/ Mount Pipe	120
B66A RRH4X45-4R	150	AM-X-CD-16-65-00T-RET w/ Mount Pipe	120
(2) RCMDC-3315-PF-48	150		
Sector Mount [SM 506-3]	148	(2) LGP214nn	120
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	140	(2) LGP214nn	120
		(2) LGP214nn	120
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	140	RET Module	120
		RET Module	120
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	140	RET Module	120
		RRUS 11	120
APXVAARR24_43-U-NA20 w/ Mount Pipe	140	RRUS 11	120
		RRUS 11	120
APXVAARR24_43-U-NA20 w/ Mount Pipe	140	DC6-48-60-18-8F	120
APXVAARR24_43-U-NA20 w/ Mount Pipe	140	Sector Mount [SM 401-3]	120
		2' Omni	91
RADIO 4449 B12/B71	140	Side Arm Mount [SO 305-1]	86
RADIO 4449 B12/B71	140	GPS	82
RADIO 4449 B12/B71	140	12' Dipole	71
RADIO 4415 B66A	140	6'x2" PIpe MOunt	71
RADIO 4415 B66A	140	Flood Light	68
RADIO 4415 B66A	140	Flood Light	62
LGP214nn	140	Camera2	23

ALL RE
ARE FA

MAX. C
DOW
SHEA

UPLI
SHEA

AXIAL
121 K

SHEAR
14 K

TORQUE 6
50 mph WIND

AX
37

SHEAR
44 K

MOMENT
4120 kip-ft

TORQUE 26 kip-ft
REACTIONS - 125 mph WIND

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P2.5x0.276 with Half Pipe P3x0.216	D	L3x3x3/16
B	P3x0.216 with Half Pipe P3.5x0.226	E	L2x2x3/16
C	L1 3/4x1 3/4x3/16		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

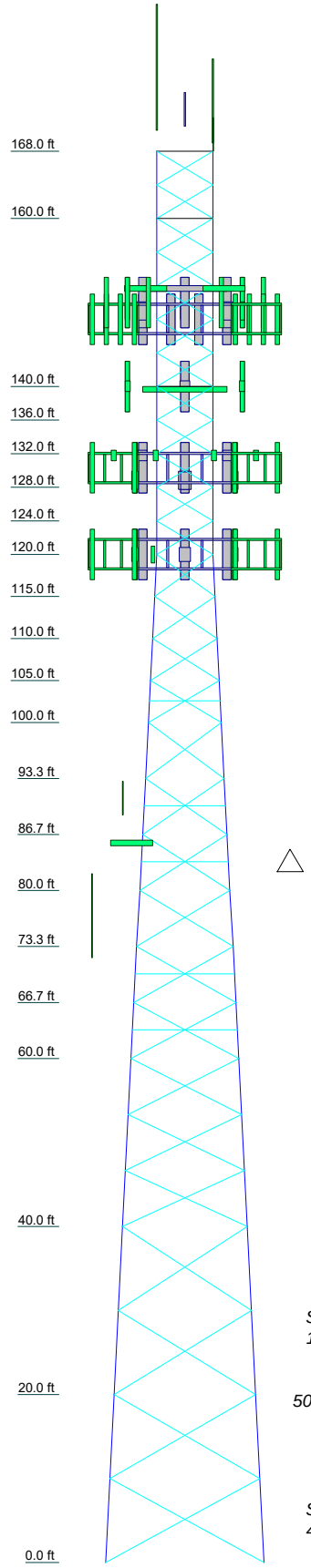
TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 2.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TIA-222-H Annex S
9. TOWER RATING: 97.9%

Destek Engineering, LLC
1281 Kennestone Circle, Ste 100
Marietta, GA
Phone: (770) 693-0835
FAX:

Job: **1975066**			
Project: **CT11144C Rev2**			
Client: Foresite LLC	Drawn by: Ahmet Colakoglu	App'd:	
Code: TIA-222-H	Date: 07/11/19	Scale: NTS	
Path: S:\Projects\2019\75 - Foresite LLC\066 - CT11144C\TNX\Rev.2\CT11144C_Rev.2.eri		Dwg No. E-1	

Section		T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20
Legs		ROHN 2.5 STD					A		B				ROHN 3.5 EH			ROHN 4 EH			ROHN 5 EH	ROHN 6 EHS	ROHN 6 EH
Leg Grade		A572-50																			
Diagonals		L1 3/4x1 3/4x3/16							L2x2x3/16				L2 1/2x2 1/2x3/16			L 2 1/2x 2 1/2x 1/4			L3x3x1/4	L3 1/2x3 1/2x1/4	
Diagonal Grade		A36																			
Top Girts		L2x2x1/8																			
Sec. Horizontals		C										D					D	E		N.A.	
Face Width (ft)	18.85	6.69							7.2		7.7	8.21	N.A.	9.39	10.07	N.A.	11.42	12.09	12.77	14.8	16.82
# Panels @ (ft)	15.6	12 @ 4							4 @ 5				N.A.	6 @ 6.67					3 @ 6.66667	2 @ 10	2 @ 9.99
Weight (K)		0.4	0.9	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.5	0.6	0.6	0.8	0.7	2.6	2.7	3.1



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P2.5x0.276 with Half Pipe P3x0.216	D	L3x3x3/16
B	P3x0.216 with Half Pipe P3.5x0.226	E	L2x2x3/16
C	L1 3/4x1 3/4x3/16		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

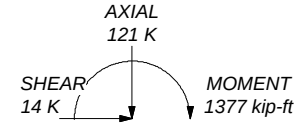
TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 2.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TIA-222-H Annex S
9. TOWER RATING: 97.9%

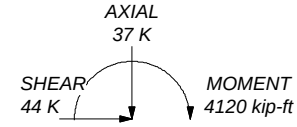
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 254 K
SHEAR: 26 K

UPLIFT: -221 K
SHEAR: 23 K



TORQUE 6 kip-ft
50 mph WIND - 2.0000 in ICE



TORQUE 26 kip-ft
REACTIONS - 125 mph WIND

Destek Engineering, LLC
1281 Kennestone Circle, Ste 100
Marietta, GA
Phone: (770) 693-0835
FAX:

Job: **1975066**			
Project: ***CT11144C Rev2***			
Client: Foresite LLC	Drawn by: Ahmet Colakoglu		App'd:
Code: TIA-222-H	Date: 07/11/19		Scale: NTS
Path: S:\Projects\2019\75 - Foresite LLC\066 - CT11144C\TNX\Rev.2\CT11144C_Rev.2.eri			Dwg No. E-1

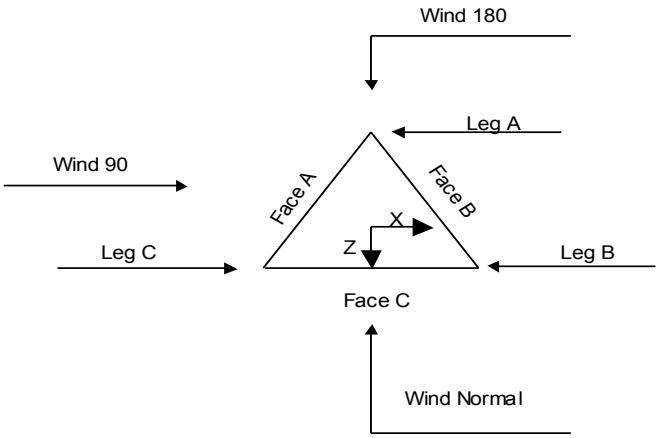
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 168.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 6.69 ft at the top and 18.85 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Tolland County, Connecticut.
Tower base elevation above sea level: 984.00 ft.
Basic wind speed of 125 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 2.0000 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.
TIA-222-H Annex S.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Stress ratio used in tower member design is 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	168.00-160.00			6.69	1	8.00
T2	160.00-140.00			6.69	1	20.00
T3	140.00-136.00			6.69	1	4.00
T4	136.00-132.00			6.69	1	4.00
T5	132.00-128.00			6.69	1	4.00
T6	128.00-124.00			6.69	1	4.00
T7	124.00-120.00			6.69	1	4.00
T8	120.00-115.00			6.69	1	5.00
T9	115.00-110.00			7.20	1	5.00
T10	110.00-105.00			7.70	1	5.00
T11	105.00-100.00			8.21	1	5.00
T12	100.00-93.33			8.72	1	6.67
T13	93.33-86.66			9.39	1	6.67
T14	86.66-79.99			10.07	1	6.67
T15	79.99-73.32			10.74	1	6.67
T16	73.32-66.65			11.42	1	6.67
T17	66.65-59.98			12.09	1	6.67
T18	59.98-39.98			12.77	1	20.00
T19	39.98-19.98			14.80	1	20.00
T20	19.98-0.00			16.82	1	19.98

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	168.00-160.00	4.00	X Brace	No	No	0.0000	0.0000
T2	160.00-140.00	4.00	X Brace	No	No	0.0000	0.0000
T3	140.00-136.00	4.00	X Brace	No	No	0.0000	0.0000
T4	136.00-132.00	4.00	X Brace	No	No	0.0000	0.0000
T5	132.00-128.00	4.00	X Brace	No	No	0.0000	0.0000
T6	128.00-124.00	4.00	X Brace	No	No	0.0000	0.0000
T7	124.00-120.00	4.00	X Brace	No	No	0.0000	0.0000
T8	120.00-115.00	5.00	X Brace	No	No	0.0000	0.0000
T9	115.00-110.00	5.00	X Brace	No	No	0.0000	0.0000
T10	110.00-105.00	5.00	X Brace	No	No	0.0000	0.0000
T11	105.00-100.00	5.00	X Brace	No	Yes	0.0000	0.0000
T12	100.00-93.33	6.67	X Brace	No	No	0.0000	0.0000
T13	93.33-86.66	6.67	X Brace	No	Yes	0.0000	0.0000
T14	86.66-79.99	6.67	X Brace	No	Yes	0.0000	0.0000
T15	79.99-73.32	6.67	X Brace	No	No	0.0000	0.0000
T16	73.32-66.65	6.67	X Brace	No	Yes	0.0000	0.0000
T17	66.65-59.98	6.67	X Brace	No	Yes	0.0000	0.0000
T18	59.98-39.98	6.67	X Brace	No	No	0.0000	0.0000
T19	39.98-19.98	10.00	X Brace	No	No	0.0000	0.0000
T20	19.98-0.00	9.99	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 168.00-160.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 160.00-140.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T3 140.00-136.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T4 136.00-132.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T5 132.00-128.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T6 128.00-124.00	Arbitrary Shape	P2.5x0.276 with Half Pipe P3x0.216	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T7 124.00-120.00	Arbitrary Shape	P2.5x0.276 with Half Pipe P3x0.216	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T8 120.00-115.00	Arbitrary Shape	P3x0.216 with Half Pipe P3.5x0.226	A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T9 115.00-110.00	Arbitrary Shape	P3x0.216 with Half Pipe P3.5x0.226	A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T10 110.00-105.00	Arbitrary Shape	P3x0.216 with Half Pipe P3.5x0.226	A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T11 105.00-100.00	Arbitrary Shape	P3x0.216 with Half Pipe P3.5x0.226	A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T12 100.00-93.33	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T13 93.33-86.66	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T14 86.66-79.99	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T15 79.99-73.32	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Single Angle	L 2 1/2x 2 1/2x 1/4	A36 (36 ksi)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T16 73.32-66.65	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Single Angle	L 2 1/2x 2 1/2x 1/4	A36 (36 ksi)
T17 66.65-59.98	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Single Angle	L 2 1/2x 2 1/2x 1/4	A36 (36 ksi)
T18 59.98-39.98	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T19 39.98-19.98	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)
T20 19.98-0.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 168.00-160.00	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 160.00-140.00	Equal Angle	L2x2x1/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T3 140.00-136.00	Equal Angle	L2x2x1/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T11 105.00-100.00	Equal Angle	L3x3x3/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T13 93.33-86.66	Equal Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T14 86.66-79.99	Equal Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T16 73.32-66.65	Equal Angle	L3x3x3/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T17 66.65-59.98	Equal Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 168.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 140.00-136.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 136.00-132.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 132.00-128.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 128.00-124.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 124.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 120.00-115.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T9 115.00-110.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T10 110.00-105.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T11 105.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T12 100.00-93.33	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T13 93.33-86.66	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T14 86.66-79.99	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T15 79.99-73.32	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T16 73.32-66.65	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T17 66.65-59.98	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T18 59.98-39.98	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T19 39.98-19.98	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T20 19.98-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 168.00-160.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 160.00-140.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 140.00-136.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T4	Yes	Yes	1	1	1	1	1	1	1	1
136.00-132.00				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
132.00-128.00				1	1	1	1	1	1	1
T6	Yes	Yes	1.211	1	1	1	1	1	1	1
128.00-124.00				1	1	1	1	1	1	1
T7	Yes	Yes	1.211	1	1	1	1	1	1	1
124.00-120.00				1	1	1	1	1	1	1
T8	Yes	Yes	1.1603	1	1	1	1	1	1	1
120.00-115.00				1	1	1	1	1	1	1
T9	Yes	Yes	1.1603	1	1	1	1	1	1	1
115.00-110.00				1	1	1	1	1	1	1
T10	Yes	Yes	1.1603	1	1	1	1	1	1	1
110.00-105.00				1	1	1	1	1	1	1
T11	Yes	Yes	1.9653	1	1	1	1	1	1	1
105.00-100.00				1	1	1	1	1	0.5	1
T12	Yes	Yes	1	1	1	1	1	1	1	1
100.00-93.33				1	1	1	1	1	1	1
T13	Yes	Yes	1	1	1	1	1	1	1	1
93.33-86.66				1	1	1	1	1	0.5	1
T14	Yes	Yes	1	1	1	1	1	1	1	1
86.66-79.99				1	1	1	1	1	0.5	1
T15	Yes	Yes	1	1	1	1	1	1	1	1
79.99-73.32				1	1	1	1	1	1	1
T16	Yes	Yes	1	1	1	1	1	1	1	1
73.32-66.65				1	1	1	1	1	0.5	1
T17	Yes	Yes	1	1	1	1	1	1	1	1
66.65-59.98				1	1	1	1	1	0.5	1
T18	Yes	Yes	1	1	1	1	1	1	1	1
59.98-39.98				1	1	1	1	1	1	1
T19	Yes	Yes	1	1	1	1	1	1	1	1
39.98-19.98				1	1	1	1	1	1	1
T20	Yes	Yes	1	1	1	1	1	1	1	1
19.98-0.00				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
168.00-160.00														
T2	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
160.00-140.00														
T3	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
140.00-136.00														
T4	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
136.00-132.00														

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T5 132.00-128.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 128.00-124.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 124.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 120.00-115.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 115.00-110.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 110.00-105.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 105.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 100.00-93.33	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 93.33-86.66	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 86.66-79.99	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 79.99-73.32	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 73.32-66.65	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T17 66.65-59.98	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T18 59.98-39.98	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T19 39.98-19.98	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T20 19.98-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 168.00-160.00	Flange	0.6250 A325N	4	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 160.00-140.00	Flange	0.6250 A325N	4	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 140.00-136.00	Flange	1.0000 A325N	0	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 136.00-132.00	Flange	1.0000 A325N	0	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 132.00-128.00	Flange	1.0000 A325N	0	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 128.00-124.00	Flange	1.0000 A325N	0	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 124.00-120.00	Flange	0.7500 A325N	4	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T8 120.00-115.00	Flange	1.2500 A325N	0	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 115.00-110.00	Flange	1.2500 A325N	0	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 110.00-105.00	Flange	1.2500 A325N	0	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 105.00-100.00	Flange	0.8750 A325N	4	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	1
T12 100.00-93.33	Flange	1.2500 A325N	0	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T13 93.33-86.66	Flange	1.2500 A325N	0	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	1
T14 86.66-79.99	Flange	0.8750 A325N	4	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	1
T15 79.99-73.32	Flange	1.2500 A325N	0	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T16 73.32-66.65	Flange	1.2500 A325N	0	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	1
T17 66.65-59.98	Flange	1.0000 A325N	4	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	2
T18 59.98-39.98	Flange	1.0000 A325N	6	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T19 39.98-19.98	Flange	1.0000 A325N	6	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T20 19.98-0.00	Flange	1.2500 A325N	0	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
********** ******** ********** ********													
Feedline Ladder (Af)	A	No	No	Af (CaAa)	168.00 - 0.00	0.0000	0.4	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	C	No	No	Af (CaAa)	168.00 - 0.00	0.0000	0.4	1	1	3.0000	3.0000		8.40
Safety Line 3/8	A	No	No	Ar (CaAa)	168.00 - 0.00	0.0000	0.5	1	1	0.3750	0.3750		0.22
********** ******** **168ft**													
LDF7-50A(1-5/8")	C	No	No	Ar (CaAa)	168.00 - 0.00	0.0000	0.3	1	1	1.9800	1.9800		0.82
LDF6-50A(1-1/4")	A	No	No	Ar (CaAa)	168.00 - 0.00	0.0000	0.41	1	1	1.5500	1.5500		0.66
LDF5-50A(7/8")	A	No	No	Ar (CaAa)	168.00 - 0.00	0.0000	0.43	1	1	1.0900	1.0900		0.33
LDF5-50A(7/8")	A	No	No	Ar (CaAa)	168.00 - 0.00	0.0000	0.42	1	1	1.0900	1.0900		0.33

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
********** ******** **150ft**													
LDF7-50A(1-5/8")	B	No	No	Ar (CaAa)	150.00 - 0.00	0.0000	0.42	12	6	0.5000	1.9800		0.82
LDF6-50A(1-1/4")	B	No	No	Ar (CaAa)	150.00 - 0.00	0.0000	0.4	2	2	0.5000	1.5500		0.66
********** ******** **140ft**													
LDF7-50A(1-5/8")	B	No	No	Ar (CaAa)	140.00 - 0.00	0.0000	0.44	9	9	0.5000	1.9800		0.82
********** ********													
LDF6-50A(1-1/4")	C	No	No	Ar (CaAa)	131.00 - 0.00	0.0000	0.37	4	4	0.5000	1.5500		0.66
********** ******** ********** ********													
LDF6-50A(1-1/4")	B	No	No	Ar (CaAa)	120.00 - 0.00	0.0000	0.42	6	6	0.5000	1.5500		0.66
8188(3/4")	B	No	No	Ar (CaAa)	120.00 - 0.00	0.0000	0.4	2	2	0.7500	0.7500		0.35
ATCB-B01-100K(5/16")	B	No	No	Ar (CaAa)	120.00 - 0.00	0.0000	0.39	1	1	0.3150	0.3150		0.07
LDF1-50A(1/4")	B	No	No	Ar (CaAa)	120.00 - 0.00	0.0000	0.38	1	1	0.3450	0.3450		0.06
********** ******** ********** ********													
LDF4-50A(1/2")	C	No	No	Ar (CaAa)	91.00 - 0.00	0.0000	0.3	1	1	0.6300	0.6300		0.15
LDF4-50A(1/2")	C	No	No	Ar (CaAa)	82.00 - 0.00	0.0000	0.3	1	1	0.6300	0.6300		0.15
LDF2-50(3/8)	C	No	No	Ar (CaAa)	71.00 - 0.00	0.0000	0.3	1	1	0.4400	0.4400		0.08
LDF4-50A(1/2")	C	No	No	Ar (CaAa)	68.00 - 0.00	0.0000	0.45	1	1	0.6300	0.6300		0.15
LDF4-50A(1/2")	C	No	No	Ar (CaAa)	62.00 - 0.00	0.0000	0.45	1	1	0.6300	0.6300		0.15
LDF1-50A(1/4")	C	No	No	Ar (CaAa)	23.00 - 0.00	0.0000	0.3	1	1	0.3450	0.3450		0.06

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
********** *** ********** *** ********** ***								

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight plf
**********								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	168.00-160.00	A	0.000	0.000	7.284	0.000	0.08
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	5.584	0.000	0.07
T2	160.00-140.00	A	0.000	0.000	18.210	0.000	0.20
		B	0.000	0.000	26.860	0.000	0.11
		C	0.000	0.000	13.960	0.000	0.18
T3	140.00-136.00	A	0.000	0.000	3.642	0.000	0.04
		B	0.000	0.000	17.872	0.000	0.07
		C	0.000	0.000	2.792	0.000	0.04
T4	136.00-132.00	A	0.000	0.000	3.642	0.000	0.04
		B	0.000	0.000	17.872	0.000	0.07
		C	0.000	0.000	2.792	0.000	0.04
T5	132.00-128.00	A	0.000	0.000	3.642	0.000	0.04
		B	0.000	0.000	17.872	0.000	0.07
		C	0.000	0.000	4.652	0.000	0.04
T6	128.00-124.00	A	0.000	0.000	3.642	0.000	0.04
		B	0.000	0.000	17.872	0.000	0.07
		C	0.000	0.000	5.272	0.000	0.05
T7	124.00-120.00	A	0.000	0.000	3.642	0.000	0.04
		B	0.000	0.000	17.872	0.000	0.07
		C	0.000	0.000	5.272	0.000	0.05
T8	120.00-115.00	A	0.000	0.000	4.553	0.000	0.05
		B	0.000	0.000	28.070	0.000	0.12
		C	0.000	0.000	6.590	0.000	0.06
T9	115.00-110.00	A	0.000	0.000	4.553	0.000	0.05
		B	0.000	0.000	28.070	0.000	0.12
		C	0.000	0.000	6.590	0.000	0.06
T10	110.00-105.00	A	0.000	0.000	4.553	0.000	0.05
		B	0.000	0.000	28.070	0.000	0.12
		C	0.000	0.000	6.590	0.000	0.06
T11	105.00-100.00	A	0.000	0.000	4.553	0.000	0.05
		B	0.000	0.000	28.070	0.000	0.12
		C	0.000	0.000	6.590	0.000	0.06
T12	100.00-93.33	A	0.000	0.000	6.073	0.000	0.07
		B	0.000	0.000	37.445	0.000	0.16
		C	0.000	0.000	8.791	0.000	0.08
T13	93.33-86.66	A	0.000	0.000	6.073	0.000	0.07
		B	0.000	0.000	37.445	0.000	0.16
		C	0.000	0.000	9.064	0.000	0.08
T14	86.66-79.99	A	0.000	0.000	6.073	0.000	0.07
		B	0.000	0.000	37.445	0.000	0.16
		C	0.000	0.000	9.338	0.000	0.08

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T15	79.99-73.32	A	0.000	0.000	6.073	0.000	0.07
		B	0.000	0.000	37.445	0.000	0.16
		C	0.000	0.000	9.631	0.000	0.08
T16	73.32-66.65	A	0.000	0.000	6.073	0.000	0.07
		B	0.000	0.000	37.445	0.000	0.16
		C	0.000	0.000	9.908	0.000	0.08
T17	66.65-59.98	A	0.000	0.000	6.073	0.000	0.07
		B	0.000	0.000	37.445	0.000	0.16
		C	0.000	0.000	10.472	0.000	0.08
T18	59.98-39.98	A	0.000	0.000	18.210	0.000	0.20
		B	0.000	0.000	112.280	0.000	0.47
		C	0.000	0.000	32.280	0.000	0.25
T19	39.98-19.98	A	0.000	0.000	18.210	0.000	0.20
		B	0.000	0.000	112.280	0.000	0.47
		C	0.000	0.000	32.384	0.000	0.25
T20	19.98-0.00	A	0.000	0.000	18.192	0.000	0.20
		B	0.000	0.000	112.168	0.000	0.47
		C	0.000	0.000	32.937	0.000	0.25

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	168.00-160.00	A	1.996	0.000	0.000	23.249	0.000	0.44
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	11.970	0.000	0.27
T2	160.00-140.00	A	1.978	0.000	0.000	57.768	0.000	1.08
		B		0.000	0.000	36.905	0.000	0.66
		C		0.000	0.000	29.783	0.000	0.68
T3	140.00-136.00	A	1.961	0.000	0.000	11.488	0.000	0.21
		B		0.000	0.000	27.923	0.000	0.47
		C		0.000	0.000	5.930	0.000	0.13
T4	136.00-132.00	A	1.956	0.000	0.000	11.465	0.000	0.21
		B		0.000	0.000	27.900	0.000	0.47
		C		0.000	0.000	5.921	0.000	0.13
T5	132.00-128.00	A	1.950	0.000	0.000	11.441	0.000	0.21
		B		0.000	0.000	27.877	0.000	0.47
		C		0.000	0.000	10.718	0.000	0.20
T6	128.00-124.00	A	1.944	0.000	0.000	11.417	0.000	0.21
		B		0.000	0.000	27.853	0.000	0.47
		C		0.000	0.000	12.302	0.000	0.22
T7	124.00-120.00	A	1.937	0.000	0.000	11.392	0.000	0.21
		B		0.000	0.000	27.829	0.000	0.47
		C		0.000	0.000	12.284	0.000	0.22
T8	120.00-115.00	A	1.930	0.000	0.000	14.203	0.000	0.26
		B		0.000	0.000	54.080	0.000	0.84
		C		0.000	0.000	15.328	0.000	0.27
T9	115.00-110.00	A	1.922	0.000	0.000	14.162	0.000	0.26
		B		0.000	0.000	53.994	0.000	0.83
		C		0.000	0.000	15.297	0.000	0.27
T10	110.00-105.00	A	1.913	0.000	0.000	14.118	0.000	0.26
		B		0.000	0.000	53.905	0.000	0.83
		C		0.000	0.000	15.265	0.000	0.27
T11	105.00-100.00	A	1.904	0.000	0.000	14.073	0.000	0.26
		B		0.000	0.000	53.812	0.000	0.83
		C		0.000	0.000	15.232	0.000	0.27
T12	100.00-93.33	A	1.893	0.000	0.000	18.699	0.000	0.34

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	71.633	0.000	1.10
		C		0.000	0.000	20.265	0.000	0.36
T13	93.33-86.66	A	1.879	0.000	0.000	18.609	0.000	0.34
		B		0.000	0.000	71.449	0.000	1.09
		C		0.000	0.000	22.104	0.000	0.38
T14	86.66-79.99	A	1.865	0.000	0.000	18.512	0.000	0.33
		B		0.000	0.000	71.253	0.000	1.08
		C		0.000	0.000	23.913	0.000	0.40
T15	79.99-73.32	A	1.849	0.000	0.000	18.409	0.000	0.33
		B		0.000	0.000	71.041	0.000	1.07
		C		0.000	0.000	25.828	0.000	0.43
T16	73.32-66.65	A	1.833	0.000	0.000	18.297	0.000	0.33
		B		0.000	0.000	70.813	0.000	1.06
		C		0.000	0.000	28.067	0.000	0.45
T17	66.65-59.98	A	1.814	0.000	0.000	18.176	0.000	0.32
		B		0.000	0.000	70.564	0.000	1.05
		C		0.000	0.000	31.979	0.000	0.50
T18	59.98-39.98	A	1.772	0.000	0.000	53.651	0.000	0.94
		B		0.000	0.000	209.853	0.000	3.09
		C		0.000	0.000	100.358	0.000	1.53
T19	39.98-19.98	A	1.684	0.000	0.000	51.885	0.000	0.89
		B		0.000	0.000	206.250	0.000	2.96
		C		0.000	0.000	98.424	0.000	1.45
T20	19.98-0.00	A	1.509	0.000	0.000	48.332	0.000	0.78
		B		0.000	0.000	198.917	0.000	2.69
		C		0.000	0.000	97.869	0.000	1.33

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	168.00-160.00	-3.6086	-3.5037	-4.0356	-6.5587
T2	160.00-140.00	0.2306	-0.5703	-0.9500	-4.5473
T3	140.00-136.00	6.9239	4.8233	4.3097	0.5881
T4	136.00-132.00	7.8969	5.3117	5.4151	0.7242
T5	132.00-128.00	5.6000	5.6304	3.0111	1.4310
T6	128.00-124.00	4.7912	5.6173	2.2394	1.6330
T7	124.00-120.00	4.7955	5.6211	2.2463	1.6440
T8	120.00-115.00	7.6521	7.1131	7.0411	4.1352
T9	115.00-110.00	8.0437	7.5452	7.4341	4.4043
T10	110.00-105.00	8.4148	7.9610	7.8092	4.6654
T11	105.00-100.00	7.5343	7.4484	7.1105	4.3640
T12	100.00-93.33	9.1252	8.7896	8.7335	5.3044
T13	93.33-86.66	8.5787	8.7714	7.9888	5.6758
T14	86.66-79.99	8.7505	9.2961	7.7641	6.3582
T15	79.99-73.32	9.7380	10.5273	7.9880	7.5158
T16	73.32-66.65	8.5222	9.8995	6.7371	7.7496
T17	66.65-59.98	8.6894	10.8675	5.3869	9.0330
T18	59.98-39.98	9.2326	12.0695	5.0811	10.6059
T19	39.98-19.98	10.4691	13.7807	5.6954	12.3171
T20	19.98-0.00	11.0188	15.0128	5.4892	14.1870

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	3	Feedline Ladder (Af)	160.00 - 168.00	0.6000	0.5417
T1	4	Feedline Ladder (Af)	160.00 - 168.00	0.6000	0.5417
T1	5	Safety Line 3/8	160.00 - 168.00	0.6000	0.5417
T1	8	LDF7-50A(1-5/8")	160.00 - 168.00	0.6000	0.5417
T1	9	LDF6-50A(1-1/4")	160.00 - 168.00	0.6000	0.5417
T1	10	LDF5-50A(7/8")	160.00 - 168.00	0.6000	0.5417
T1	11	LDF5-50A(7/8")	160.00 - 168.00	0.6000	0.5417
T2	3	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.5750
T2	4	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.5750
T2	5	Safety Line 3/8	140.00 - 160.00	0.6000	0.5750
T2	8	LDF7-50A(1-5/8")	140.00 - 160.00	0.6000	0.5750
T2	9	LDF6-50A(1-1/4")	140.00 - 160.00	0.6000	0.5750
T2	10	LDF5-50A(7/8")	140.00 - 160.00	0.6000	0.5750
T2	11	LDF5-50A(7/8")	140.00 - 160.00	0.6000	0.5750
T2	14	LDF7-50A(1-5/8")	140.00 - 150.00	0.6000	0.5750
T2	15	LDF6-50A(1-1/4")	140.00 - 150.00	0.6000	0.5750
T3	3	Feedline Ladder (Af)	136.00 - 140.00	0.6000	0.4894
T3	4	Feedline Ladder (Af)	136.00 - 140.00	0.6000	0.4894
T3	5	Safety Line 3/8	136.00 - 140.00	0.6000	0.4894
T3	8	LDF7-50A(1-5/8")	136.00 - 140.00	0.6000	0.4894
T3	9	LDF6-50A(1-1/4")	136.00 - 140.00	0.6000	0.4894
T3	10	LDF5-50A(7/8")	136.00 - 140.00	0.6000	0.4894
T3	11	LDF5-50A(7/8")	136.00 - 140.00	0.6000	0.4894
T3	14	LDF7-50A(1-5/8")	136.00 - 140.00	0.6000	0.4894
T3	15	LDF6-50A(1-1/4")	136.00 - 140.00	0.6000	0.4894
T3	18	LDF7-50A(1-5/8")	136.00 - 140.00	0.6000	0.4894
T4	3	Feedline Ladder (Af)	132.00 - 136.00	0.6000	0.5998
T4	4	Feedline Ladder (Af)	132.00 - 136.00	0.6000	0.5998
T4	5	Safety Line 3/8	132.00 -	0.6000	0.5998

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	8	LDF7-50A(1-5/8")	136.00 132.00 - 136.00	0.6000	0.5998
T4	9	LDF6-50A(1-1/4")	132.00 - 136.00	0.6000	0.5998
T4	10	LDF5-50A(7/8")	132.00 - 136.00	0.6000	0.5998
T4	11	LDF5-50A(7/8")	132.00 - 136.00	0.6000	0.5998
T4	14	LDF7-50A(1-5/8")	132.00 - 136.00	0.6000	0.5998
T4	15	LDF6-50A(1-1/4")	132.00 - 136.00	0.6000	0.5998
T4	18	LDF7-50A(1-5/8")	132.00 - 136.00	0.6000	0.5998
T5	3	Feedline Ladder (Af)	128.00 - 132.00	0.6000	0.6000
T5	4	Feedline Ladder (Af)	128.00 - 132.00	0.6000	0.6000
T5	5	Safety Line 3/8	128.00 - 132.00	0.6000	0.6000
T5	8	LDF7-50A(1-5/8")	128.00 - 132.00	0.6000	0.6000
T5	9	LDF6-50A(1-1/4")	128.00 - 132.00	0.6000	0.6000
T5	10	LDF5-50A(7/8")	128.00 - 132.00	0.6000	0.6000
T5	11	LDF5-50A(7/8")	128.00 - 132.00	0.6000	0.6000
T5	14	LDF7-50A(1-5/8")	128.00 - 132.00	0.6000	0.6000
T5	15	LDF6-50A(1-1/4")	128.00 - 132.00	0.6000	0.6000
T5	18	LDF7-50A(1-5/8")	128.00 - 132.00	0.6000	0.6000
T5	21	LDF6-50A(1-1/4")	128.00 - 131.00	0.6000	0.6000
T6	3	Feedline Ladder (Af)	124.00 - 128.00	0.6000	0.5889
T6	4	Feedline Ladder (Af)	124.00 - 128.00	0.6000	0.5889
T6	5	Safety Line 3/8	124.00 - 128.00	0.6000	0.5889
T6	8	LDF7-50A(1-5/8")	124.00 - 128.00	0.6000	0.5889
T6	9	LDF6-50A(1-1/4")	124.00 - 128.00	0.6000	0.5889
T6	10	LDF5-50A(7/8")	124.00 - 128.00	0.6000	0.5889
T6	11	LDF5-50A(7/8")	124.00 - 128.00	0.6000	0.5889
T6	14	LDF7-50A(1-5/8")	124.00 - 128.00	0.6000	0.5889
T6	15	LDF6-50A(1-1/4")	124.00 - 128.00	0.6000	0.5889
T6	18	LDF7-50A(1-5/8")	124.00 - 128.00	0.6000	0.5889
T6	21	LDF6-50A(1-1/4")	124.00 - 128.00	0.6000	0.5889
T7	3	Feedline Ladder (Af)	120.00 - 124.00	0.6000	0.5906
T7	4	Feedline Ladder (Af)	120.00 -	0.6000	0.5906

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	5	Safety Line 3/8	120.00 - 124.00	0.6000	0.5906
T7	8	LDF7-50A(1-5/8")	120.00 - 124.00	0.6000	0.5906
T7	9	LDF6-50A(1-1/4")	120.00 - 124.00	0.6000	0.5906
T7	10	LDF5-50A(7/8")	120.00 - 124.00	0.6000	0.5906
T7	11	LDF5-50A(7/8")	120.00 - 124.00	0.6000	0.5906
T7	14	LDF7-50A(1-5/8")	120.00 - 124.00	0.6000	0.5906
T7	15	LDF6-50A(1-1/4")	120.00 - 124.00	0.6000	0.5906
T7	18	LDF7-50A(1-5/8")	120.00 - 124.00	0.6000	0.5906
T7	21	LDF6-50A(1-1/4")	120.00 - 124.00	0.6000	0.5906
T8	3	Feedline Ladder (Af)	115.00 - 120.00	0.6000	0.6000
T8	4	Feedline Ladder (Af)	115.00 - 120.00	0.6000	0.6000
T8	5	Safety Line 3/8	115.00 - 120.00	0.6000	0.6000
T8	8	LDF7-50A(1-5/8")	115.00 - 120.00	0.6000	0.6000
T8	9	LDF6-50A(1-1/4")	115.00 - 120.00	0.6000	0.6000
T8	10	LDF5-50A(7/8")	115.00 - 120.00	0.6000	0.6000
T8	11	LDF5-50A(7/8")	115.00 - 120.00	0.6000	0.6000
T8	14	LDF7-50A(1-5/8")	115.00 - 120.00	0.6000	0.6000
T8	15	LDF6-50A(1-1/4")	115.00 - 120.00	0.6000	0.6000
T8	18	LDF7-50A(1-5/8")	115.00 - 120.00	0.6000	0.6000
T8	21	LDF6-50A(1-1/4")	115.00 - 120.00	0.6000	0.6000
T8	24	LDF6-50A(1-1/4")	115.00 - 120.00	0.6000	0.6000
T8	25	8188(3/4")	115.00 - 120.00	0.6000	0.6000
T8	26	ATCB-B01-100K(5/16")	115.00 - 120.00	0.6000	0.6000
T8	27	LDF1-50A(1/4")	115.00 - 120.00	0.6000	0.6000
T9	3	Feedline Ladder (Af)	110.00 - 115.00	0.6000	0.6000
T9	4	Feedline Ladder (Af)	110.00 - 115.00	0.6000	0.6000
T9	5	Safety Line 3/8	110.00 - 115.00	0.6000	0.6000
T9	8	LDF7-50A(1-5/8")	110.00 - 115.00	0.6000	0.6000
T9	9	LDF6-50A(1-1/4")	110.00 - 115.00	0.6000	0.6000
T9	10	LDF5-50A(7/8")	110.00 - 115.00	0.6000	0.6000
T9	11	LDF5-50A(7/8")	110.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	14	LDF7-50A(1-5/8")	110.00 - 115.00	0.6000	0.6000
T9	15	LDF6-50A(1-1/4")	110.00 - 115.00	0.6000	0.6000
T9	18	LDF7-50A(1-5/8")	110.00 - 115.00	0.6000	0.6000
T9	21	LDF6-50A(1-1/4")	110.00 - 115.00	0.6000	0.6000
T9	24	LDF6-50A(1-1/4")	110.00 - 115.00	0.6000	0.6000
T9	25	8188(3/4")	110.00 - 115.00	0.6000	0.6000
T9	26	ATCB-B01-100K(5/16")	110.00 - 115.00	0.6000	0.6000
T9	27	LDF1-50A(1/4")	110.00 - 115.00	0.6000	0.6000
T10	3	Feedline Ladder (Af)	105.00 - 110.00	0.6000	0.6000
T10	4	Feedline Ladder (Af)	105.00 - 110.00	0.6000	0.6000
T10	5	Safety Line 3/8	105.00 - 110.00	0.6000	0.6000
T10	8	LDF7-50A(1-5/8")	105.00 - 110.00	0.6000	0.6000
T10	9	LDF6-50A(1-1/4")	105.00 - 110.00	0.6000	0.6000
T10	10	LDF5-50A(7/8")	105.00 - 110.00	0.6000	0.6000
T10	11	LDF5-50A(7/8")	105.00 - 110.00	0.6000	0.6000
T10	14	LDF7-50A(1-5/8")	105.00 - 110.00	0.6000	0.6000
T10	15	LDF6-50A(1-1/4")	105.00 - 110.00	0.6000	0.6000
T10	18	LDF7-50A(1-5/8")	105.00 - 110.00	0.6000	0.6000
T10	21	LDF6-50A(1-1/4")	105.00 - 110.00	0.6000	0.6000
T10	24	LDF6-50A(1-1/4")	105.00 - 110.00	0.6000	0.6000
T10	25	8188(3/4")	105.00 - 110.00	0.6000	0.6000
T10	26	ATCB-B01-100K(5/16")	105.00 - 110.00	0.6000	0.6000
T10	27	LDF1-50A(1/4")	105.00 - 110.00	0.6000	0.6000
T11	3	Feedline Ladder (Af)	100.00 - 105.00	0.6000	0.5542
T11	4	Feedline Ladder (Af)	100.00 - 105.00	0.6000	0.5542
T11	5	Safety Line 3/8	100.00 - 105.00	0.6000	0.5542
T11	8	LDF7-50A(1-5/8")	100.00 - 105.00	0.6000	0.5542
T11	9	LDF6-50A(1-1/4")	100.00 - 105.00	0.6000	0.5542
T11	10	LDF5-50A(7/8")	100.00 - 105.00	0.6000	0.5542
T11	11	LDF5-50A(7/8")	100.00 - 105.00	0.6000	0.5542
T11	14	LDF7-50A(1-5/8")	100.00 -	0.6000	0.5542

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			105.00		
T11	15	LDF6-50A(1-1/4")	100.00 - 105.00	0.6000	0.5542
T11	18	LDF7-50A(1-5/8")	100.00 - 105.00	0.6000	0.5542
T11	21	LDF6-50A(1-1/4")	100.00 - 105.00	0.6000	0.5542
T11	24	LDF6-50A(1-1/4")	100.00 - 105.00	0.6000	0.5542
T11	25	8188(3/4")	100.00 - 105.00	0.6000	0.5542
T11	26	ATCB-B01-100K(5/16")	100.00 - 105.00	0.6000	0.5542
T11	27	LDF1-50A(1/4")	100.00 - 105.00	0.6000	0.5542
T12	3	Feedline Ladder (Af)	93.33 - 100.00	0.6000	0.6000
T12	4	Feedline Ladder (Af)	93.33 - 100.00	0.6000	0.6000
T12	5	Safety Line 3/8	93.33 - 100.00	0.6000	0.6000
T12	8	LDF7-50A(1-5/8")	93.33 - 100.00	0.6000	0.6000
T12	9	LDF6-50A(1-1/4")	93.33 - 100.00	0.6000	0.6000
T12	10	LDF5-50A(7/8")	93.33 - 100.00	0.6000	0.6000
T12	11	LDF5-50A(7/8")	93.33 - 100.00	0.6000	0.6000
T12	14	LDF7-50A(1-5/8")	93.33 - 100.00	0.6000	0.6000
T12	15	LDF6-50A(1-1/4")	93.33 - 100.00	0.6000	0.6000
T12	18	LDF7-50A(1-5/8")	93.33 - 100.00	0.6000	0.6000
T12	21	LDF6-50A(1-1/4")	93.33 - 100.00	0.6000	0.6000
T12	24	LDF6-50A(1-1/4")	93.33 - 100.00	0.6000	0.6000
T12	25	8188(3/4")	93.33 - 100.00	0.6000	0.6000
T12	26	ATCB-B01-100K(5/16")	93.33 - 100.00	0.6000	0.6000
T12	27	LDF1-50A(1/4")	93.33 - 100.00	0.6000	0.6000
T13	3	Feedline Ladder (Af)	86.66 - 93.33	0.6000	0.6000
T13	4	Feedline Ladder (Af)	86.66 - 93.33	0.6000	0.6000
T13	5	Safety Line 3/8	86.66 - 93.33	0.6000	0.6000
T13	8	LDF7-50A(1-5/8")	86.66 - 93.33	0.6000	0.6000
T13	9	LDF6-50A(1-1/4")	86.66 - 93.33	0.6000	0.6000
T13	10	LDF5-50A(7/8")	86.66 - 93.33	0.6000	0.6000
T13	11	LDF5-50A(7/8")	86.66 - 93.33	0.6000	0.6000
T13	14	LDF7-50A(1-5/8")	86.66 - 93.33	0.6000	0.6000
T13	15	LDF6-50A(1-1/4")	86.66 - 93.33	0.6000	0.6000
T13	18	LDF7-50A(1-5/8")	86.66 - 93.33	0.6000	0.6000
T13	21	LDF6-50A(1-1/4")	86.66 - 93.33	0.6000	0.6000
T13	24	LDF6-50A(1-1/4")	86.66 - 93.33	0.6000	0.6000
T13	25	8188(3/4")	86.66 - 93.33	0.6000	0.6000
T13	26	ATCB-B01-100K(5/16")	86.66 - 93.33	0.6000	0.6000
T13	27	LDF1-50A(1/4")	86.66 - 93.33	0.6000	0.6000
T13	30	LDF4-50A(1/2")	86.66 - 91.00	0.6000	0.6000
T14	3	Feedline Ladder (Af)	79.99 - 86.66	0.6000	0.6000
T14	4	Feedline Ladder (Af)	79.99 - 86.66	0.6000	0.6000
T14	5	Safety Line 3/8	79.99 - 86.66	0.6000	0.6000
T14	8	LDF7-50A(1-5/8")	79.99 - 86.66	0.6000	0.6000
T14	9	LDF6-50A(1-1/4")	79.99 - 86.66	0.6000	0.6000
T14	10	LDF5-50A(7/8")	79.99 - 86.66	0.6000	0.6000
T14	11	LDF5-50A(7/8")	79.99 - 86.66	0.6000	0.6000
T14	14	LDF7-50A(1-5/8")	79.99 - 86.66	0.6000	0.6000
T14	15	LDF6-50A(1-1/4")	79.99 - 86.66	0.6000	0.6000
T14	18	LDF7-50A(1-5/8")	79.99 - 86.66	0.6000	0.6000
T14	21	LDF6-50A(1-1/4")	79.99 - 86.66	0.6000	0.6000
T14	24	LDF6-50A(1-1/4")	79.99 - 86.66	0.6000	0.6000
T14	25	8188(3/4")	79.99 - 86.66	0.6000	0.6000
T14	26	ATCB-B01-100K(5/16")	79.99 - 86.66	0.6000	0.6000
T14	27	LDF1-50A(1/4")	79.99 - 86.66	0.6000	0.6000
T14	30	LDF4-50A(1/2")	79.99 - 86.66	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T14	31	LDF4-50A(1/2")	79.99 - 82.00	0.6000	0.6000
T15	3	Feedline Ladder (Af)	73.32 - 79.99	0.6000	0.6000
T15	4	Feedline Ladder (Af)	73.32 - 79.99	0.6000	0.6000
T15	5	Safety Line 3/8	73.32 - 79.99	0.6000	0.6000
T15	8	LDF7-50A(1-5/8")	73.32 - 79.99	0.6000	0.6000
T15	9	LDF6-50A(1-1/4")	73.32 - 79.99	0.6000	0.6000
T15	10	LDF5-50A(7/8")	73.32 - 79.99	0.6000	0.6000
T15	11	LDF5-50A(7/8")	73.32 - 79.99	0.6000	0.6000
T15	14	LDF7-50A(1-5/8")	73.32 - 79.99	0.6000	0.6000
T15	15	LDF6-50A(1-1/4")	73.32 - 79.99	0.6000	0.6000
T15	18	LDF7-50A(1-5/8")	73.32 - 79.99	0.6000	0.6000
T15	21	LDF6-50A(1-1/4")	73.32 - 79.99	0.6000	0.6000
T15	24	LDF6-50A(1-1/4")	73.32 - 79.99	0.6000	0.6000
T15	25	8188(3/4")	73.32 - 79.99	0.6000	0.6000
T15	26	ATCB-B01-100K(5/16")	73.32 - 79.99	0.6000	0.6000
T15	27	LDF1-50A(1/4")	73.32 - 79.99	0.6000	0.6000
T15	30	LDF4-50A(1/2")	73.32 - 79.99	0.6000	0.6000
T15	31	LDF4-50A(1/2")	73.32 - 79.99	0.6000	0.6000
T16	3	Feedline Ladder (Af)	66.65 - 73.32	0.6000	0.6000
T16	4	Feedline Ladder (Af)	66.65 - 73.32	0.6000	0.6000
T16	5	Safety Line 3/8	66.65 - 73.32	0.6000	0.6000
T16	8	LDF7-50A(1-5/8")	66.65 - 73.32	0.6000	0.6000
T16	9	LDF6-50A(1-1/4")	66.65 - 73.32	0.6000	0.6000
T16	10	LDF5-50A(7/8")	66.65 - 73.32	0.6000	0.6000
T16	11	LDF5-50A(7/8")	66.65 - 73.32	0.6000	0.6000
T16	14	LDF7-50A(1-5/8")	66.65 - 73.32	0.6000	0.6000
T16	15	LDF6-50A(1-1/4")	66.65 - 73.32	0.6000	0.6000
T16	18	LDF7-50A(1-5/8")	66.65 - 73.32	0.6000	0.6000
T16	21	LDF6-50A(1-1/4")	66.65 - 73.32	0.6000	0.6000
T16	24	LDF6-50A(1-1/4")	66.65 - 73.32	0.6000	0.6000
T16	25	8188(3/4")	66.65 - 73.32	0.6000	0.6000
T16	26	ATCB-B01-100K(5/16")	66.65 - 73.32	0.6000	0.6000
T16	27	LDF1-50A(1/4")	66.65 - 73.32	0.6000	0.6000
T16	30	LDF4-50A(1/2")	66.65 - 73.32	0.6000	0.6000
T16	31	LDF4-50A(1/2")	66.65 - 73.32	0.6000	0.6000
T16	32	LDF2-50(3/8)	66.65 - 71.00	0.6000	0.6000
T16	33	LDF4-50A(1/2")	66.65 - 68.00	0.6000	0.6000
T17	3	Feedline Ladder (Af)	59.98 - 66.65	0.6000	0.6000
T17	4	Feedline Ladder (Af)	59.98 - 66.65	0.6000	0.6000
T17	5	Safety Line 3/8	59.98 - 66.65	0.6000	0.6000
T17	8	LDF7-50A(1-5/8")	59.98 - 66.65	0.6000	0.6000
T17	9	LDF6-50A(1-1/4")	59.98 - 66.65	0.6000	0.6000
T17	10	LDF5-50A(7/8")	59.98 - 66.65	0.6000	0.6000
T17	11	LDF5-50A(7/8")	59.98 - 66.65	0.6000	0.6000
T17	14	LDF7-50A(1-5/8")	59.98 - 66.65	0.6000	0.6000
T17	15	LDF6-50A(1-1/4")	59.98 - 66.65	0.6000	0.6000
T17	18	LDF7-50A(1-5/8")	59.98 - 66.65	0.6000	0.6000
T17	21	LDF6-50A(1-1/4")	59.98 - 66.65	0.6000	0.6000
T17	24	LDF6-50A(1-1/4")	59.98 - 66.65	0.6000	0.6000
T17	25	8188(3/4")	59.98 - 66.65	0.6000	0.6000
T17	26	ATCB-B01-100K(5/16")	59.98 - 66.65	0.6000	0.6000
T17	27	LDF1-50A(1/4")	59.98 - 66.65	0.6000	0.6000
T17	30	LDF4-50A(1/2")	59.98 - 66.65	0.6000	0.6000
T17	31	LDF4-50A(1/2")	59.98 - 66.65	0.6000	0.6000
T17	32	LDF2-50(3/8)	59.98 - 66.65	0.6000	0.6000
T17	33	LDF4-50A(1/2")	59.98 - 66.65	0.6000	0.6000
T17	34	LDF4-50A(1/2")	59.98 - 62.00	0.6000	0.6000
T18	3	Feedline Ladder (Af)	39.98 - 59.98	0.6000	0.6000
T18	4	Feedline Ladder (Af)	39.98 - 59.98	0.6000	0.6000
T18	5	Safety Line 3/8	39.98 - 59.98	0.6000	0.6000
T18	8	LDF7-50A(1-5/8")	39.98 - 59.98	0.6000	0.6000
T18	9	LDF6-50A(1-1/4")	39.98 - 59.98	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T18	10	LDF5-50A(7/8")	39.98 - 59.98	0.6000	0.6000
T18	11	LDF5-50A(7/8")	39.98 - 59.98	0.6000	0.6000
T18	14	LDF7-50A(1-5/8")	39.98 - 59.98	0.6000	0.6000
T18	15	LDF6-50A(1-1/4")	39.98 - 59.98	0.6000	0.6000
T18	18	LDF7-50A(1-5/8")	39.98 - 59.98	0.6000	0.6000
T18	21	LDF6-50A(1-1/4")	39.98 - 59.98	0.6000	0.6000
T18	24	LDF6-50A(1-1/4")	39.98 - 59.98	0.6000	0.6000
T18	25	8188(3/4")	39.98 - 59.98	0.6000	0.6000
T18	26	ATCB-B01-100K(5/16")	39.98 - 59.98	0.6000	0.6000
T18	27	LDF1-50A(1/4")	39.98 - 59.98	0.6000	0.6000
T18	30	LDF4-50A(1/2")	39.98 - 59.98	0.6000	0.6000
T18	31	LDF4-50A(1/2")	39.98 - 59.98	0.6000	0.6000
T18	32	LDF2-50(3/8)	39.98 - 59.98	0.6000	0.6000
T18	33	LDF4-50A(1/2")	39.98 - 59.98	0.6000	0.6000
T18	34	LDF4-50A(1/2")	39.98 - 59.98	0.6000	0.6000
T19	3	Feedline Ladder (Af)	19.98 - 39.98	0.6000	0.6000
T19	4	Feedline Ladder (Af)	19.98 - 39.98	0.6000	0.6000
T19	5	Safety Line 3/8	19.98 - 39.98	0.6000	0.6000
T19	8	LDF7-50A(1-5/8")	19.98 - 39.98	0.6000	0.6000
T19	9	LDF6-50A(1-1/4")	19.98 - 39.98	0.6000	0.6000
T19	10	LDF5-50A(7/8")	19.98 - 39.98	0.6000	0.6000
T19	11	LDF5-50A(7/8")	19.98 - 39.98	0.6000	0.6000
T19	14	LDF7-50A(1-5/8")	19.98 - 39.98	0.6000	0.6000
T19	15	LDF6-50A(1-1/4")	19.98 - 39.98	0.6000	0.6000
T19	18	LDF7-50A(1-5/8")	19.98 - 39.98	0.6000	0.6000
T19	21	LDF6-50A(1-1/4")	19.98 - 39.98	0.6000	0.6000
T19	24	LDF6-50A(1-1/4")	19.98 - 39.98	0.6000	0.6000
T19	25	8188(3/4")	19.98 - 39.98	0.6000	0.6000
T19	26	ATCB-B01-100K(5/16")	19.98 - 39.98	0.6000	0.6000
T19	27	LDF1-50A(1/4")	19.98 - 39.98	0.6000	0.6000
T19	30	LDF4-50A(1/2")	19.98 - 39.98	0.6000	0.6000
T19	31	LDF4-50A(1/2")	19.98 - 39.98	0.6000	0.6000
T19	32	LDF2-50(3/8)	19.98 - 39.98	0.6000	0.6000
T19	33	LDF4-50A(1/2")	19.98 - 39.98	0.6000	0.6000
T19	34	LDF4-50A(1/2")	19.98 - 39.98	0.6000	0.6000
T19	35	LDF1-50A(1/4")	19.98 - 23.00	0.6000	0.6000
T20	3	Feedline Ladder (Af)	0.00 - 19.98	0.6000	0.6000
T20	4	Feedline Ladder (Af)	0.00 - 19.98	0.6000	0.6000
T20	5	Safety Line 3/8	0.00 - 19.98	0.6000	0.6000
T20	8	LDF7-50A(1-5/8")	0.00 - 19.98	0.6000	0.6000
T20	9	LDF6-50A(1-1/4")	0.00 - 19.98	0.6000	0.6000
T20	10	LDF5-50A(7/8")	0.00 - 19.98	0.6000	0.6000
T20	11	LDF5-50A(7/8")	0.00 - 19.98	0.6000	0.6000
T20	14	LDF7-50A(1-5/8")	0.00 - 19.98	0.6000	0.6000
T20	15	LDF6-50A(1-1/4")	0.00 - 19.98	0.6000	0.6000
T20	18	LDF7-50A(1-5/8")	0.00 - 19.98	0.6000	0.6000
T20	21	LDF6-50A(1-1/4")	0.00 - 19.98	0.6000	0.6000
T20	24	LDF6-50A(1-1/4")	0.00 - 19.98	0.6000	0.6000
T20	25	8188(3/4")	0.00 - 19.98	0.6000	0.6000
T20	26	ATCB-B01-100K(5/16")	0.00 - 19.98	0.6000	0.6000
T20	27	LDF1-50A(1/4")	0.00 - 19.98	0.6000	0.6000
T20	30	LDF4-50A(1/2")	0.00 - 19.98	0.6000	0.6000
T20	31	LDF4-50A(1/2")	0.00 - 19.98	0.6000	0.6000
T20	32	LDF2-50(3/8)	0.00 - 19.98	0.6000	0.6000
T20	33	LDF4-50A(1/2")	0.00 - 19.98	0.6000	0.6000
T20	34	LDF4-50A(1/2")	0.00 - 19.98	0.6000	0.6000
T20	35	LDF1-50A(1/4")	0.00 - 19.98	0.6000	0.6000

Discrete Tower Loads

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 K
**********									
**********									
20' 4-Bay Dipole	C	From Leg	0.00 0.00 10.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.00 6.00 8.00 12.00	4.00 6.00 8.00 12.00	0.06 0.10 0.14 0.23
6' Dipole	A	From Leg	0.00 0.00 5.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.25 3.00 3.75 5.25	2.25 3.00 3.75 5.25	0.03 0.04 0.05 0.07
2" Dia 8' Omni	B	From Leg	0.00 0.00 6.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.00 3.03 4.06 6.12	2.00 3.03 4.06 6.12	0.01 0.02 0.03 0.06
6' Yagi	B	From Leg	0.00 0.00 2.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.00 4.00 5.00 7.00	3.00 4.00 5.00 7.00	0.01 0.02 0.03 0.05
2'x2" Pipe Mount	A	From Leg	0.00 0.00 1.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.34 0.47 0.60 0.86	0.34 0.47 0.60 0.86	0.01 0.01 0.01 0.02
2'x2" Pipe Mount	B	From Leg	0.00 0.00 1.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.34 0.47 0.60 0.86	0.34 0.47 0.60 0.86	0.01 0.01 0.01 0.02
10'x2" Pipe Mount	B	None		0.0000	165.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.38 3.41 4.47 6.59	2.38 3.41 4.44 6.50	0.04 0.06 0.09 0.14
**********									
152ft									
Side Arm Mount [SO 311-1]	A	From Leg	1.50 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.97 4.39 5.81 8.65	3.51 5.33 7.15 10.79	0.06 0.09 0.13 0.19
Side Arm Mount [SO 311-1]	B	From Leg	1.50 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.97 4.39 5.81 8.65	3.51 5.33 7.15 10.79	0.06 0.09 0.13 0.19
Side Arm Mount [SO 311-1]	C	From Leg	1.50 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.97 4.39 5.81 8.65	3.51 5.33 7.15 10.79	0.06 0.09 0.13 0.19
**********									
150ft Verizon									
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	4.09 4.49	3.30 3.68	0.07 0.13

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	4.89	4.07	0.20
						2" Ice	5.72	4.87	0.39
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
WPA-80063/4CF w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.41 5.90 6.36 7.30	3.44 4.24 4.91 6.30	0.03 0.08 0.13 0.25
WPA-80063/4CF w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.41 5.90 6.36 7.30	3.44 4.24 4.91 6.30	0.03 0.08 0.13 0.25
WPA-80063/4CF w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.41 5.90 6.36 7.30	3.44 4.24 4.91 6.30	0.03 0.08 0.13 0.25
WPA-80080/4CF w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.95 5.32 5.71 6.51	3.42 4.02 4.64 5.92	0.03 0.07 0.12 0.23
WPA-80080/4CF w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.95 5.32 5.71 6.51	3.42 4.02 4.64 5.92	0.03 0.07 0.12 0.23
WPA-80063/4CF w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.41 5.90 6.36 7.30	3.44 4.24 4.91 6.30	0.03 0.08 0.13 0.25
B13 RRH4X30-4R	A	From Leg	4.00 0.00 -1.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.16 2.35 2.55 2.97	1.62 1.79 1.97 2.36	0.06 0.08 0.10 0.15
B13 RRH4X30-4R	B	From Leg	4.00 0.00 -1.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.16 2.35 2.55 2.97	1.62 1.79 1.97 2.36	0.06 0.08 0.10 0.15
B13 RRH4X30-4R	C	From Leg	4.00 0.00 -1.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.16 2.35 2.55 2.97	1.62 1.79 1.97 2.36	0.06 0.08 0.10 0.15
B66A RRH4X45-4R	A	From Leg	4.00 0.00 -1.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.54 2.75 2.97 3.43	1.61 1.79 1.98 2.37	0.06 0.08 0.10 0.16
B66A RRH4X45-4R	B	From Leg	4.00 0.00 -1.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.54 2.75 2.97 3.43	1.61 1.79 1.98 2.37	0.06 0.08 0.10 0.16
B66A RRH4X45-4R	C	From Leg	4.00 0.00 -1.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.54 2.75 2.97 3.43	1.61 1.79 1.98 2.37	0.06 0.08 0.10 0.16
(2) RCMDC-3315-PF-48	A	From Leg	4.00 0.00 -1.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	3.71 3.95 4.20	2.19 2.39 2.61	0.03 0.06 0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	4.72	3.05	0.18
Sector Mount [SM 506-3]	A	None		0.0000	148.00	No Ice	35.47	35.47	1.74
						1/2" Ice	50.60	50.60	2.35
						1" Ice	65.73	65.73	2.95
						2" Ice	95.99	95.99	4.16
**********									
140ft T-Mobile									
APX16DWV-16DWV-S-E-A	A	From Leg	4.00	0.0000	140.00	No Ice	6.29	2.76	0.06
20 w/ Mount Pipe			0.00			1/2" Ice	6.86	3.27	0.11
			0.00			1" Ice	7.45	3.79	0.16
						2" Ice	8.68	4.90	0.29
APX16DWV-16DWV-S-E-A	B	From Leg	4.00	0.0000	140.00	No Ice	6.29	2.76	0.06
20 w/ Mount Pipe			0.00			1/2" Ice	6.86	3.27	0.11
			0.00			1" Ice	7.45	3.79	0.16
						2" Ice	8.68	4.90	0.29
APX16DWV-16DWV-S-E-A	C	From Leg	4.00	0.0000	140.00	No Ice	6.29	2.76	0.06
20 w/ Mount Pipe			0.00			1/2" Ice	6.86	3.27	0.11
			0.00			1" Ice	7.45	3.79	0.16
						2" Ice	8.68	4.90	0.29
APXVAARR24_43-U-NA20	A	From Leg	4.00	0.0000	140.00	No Ice	14.69	6.87	0.19
w/ Mount Pipe			0.00			1/2" Ice	15.46	7.55	0.31
			0.00			1" Ice	16.23	8.25	0.46
						2" Ice	17.82	9.67	0.79
APXVAARR24_43-U-NA20	B	From Leg	4.00	0.0000	140.00	No Ice	14.69	6.87	0.19
w/ Mount Pipe			0.00			1/2" Ice	15.46	7.55	0.31
			0.00			1" Ice	16.23	8.25	0.46
						2" Ice	17.82	9.67	0.79
APXVAARR24_43-U-NA20	C	From Leg	4.00	0.0000	140.00	No Ice	14.69	6.87	0.19
w/ Mount Pipe			0.00			1/2" Ice	15.46	7.55	0.31
			0.00			1" Ice	16.23	8.25	0.46
						2" Ice	17.82	9.67	0.79
RADIO 4449 B12/B71	A	From Leg	4.00	0.0000	140.00	No Ice	1.65	1.30	0.08
			0.00			1/2" Ice	1.81	1.44	0.09
			0.00			1" Ice	1.98	1.60	0.11
						2" Ice	2.34	1.92	0.16
RADIO 4449 B12/B71	B	From Leg	4.00	0.0000	140.00	No Ice	1.65	1.30	0.08
			0.00			1/2" Ice	1.81	1.44	0.09
			0.00			1" Ice	1.98	1.60	0.11
						2" Ice	2.34	1.92	0.16
RADIO 4449 B12/B71	C	From Leg	4.00	0.0000	140.00	No Ice	1.65	1.30	0.08
			0.00			1/2" Ice	1.81	1.44	0.09
			0.00			1" Ice	1.98	1.60	0.11
						2" Ice	2.34	1.92	0.16
RADIO 4415 B66A	A	From Leg	4.00	0.0000	140.00	No Ice	0.00	0.87	0.05
			0.00			1/2" Ice	0.00	1.00	0.06
			0.00			1" Ice	0.00	1.13	0.08
						2" Ice	0.00	1.43	0.12
RADIO 4415 B66A	B	From Leg	4.00	0.0000	140.00	No Ice	0.00	0.87	0.05
			0.00			1/2" Ice	0.00	1.00	0.06
			0.00			1" Ice	0.00	1.13	0.08
						2" Ice	0.00	1.43	0.12
RADIO 4415 B66A	C	From Leg	4.00	0.0000	140.00	No Ice	0.00	0.87	0.05
			0.00			1/2" Ice	0.00	1.00	0.06
			0.00			1" Ice	0.00	1.13	0.08
						2" Ice	0.00	1.43	0.12
LGP214nn	A	From Leg	4.00	0.0000	140.00	No Ice	1.11	0.21	0.01
			0.00			1/2" Ice	1.25	0.28	0.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	1.39	0.35	0.03
						2" Ice	1.67	0.49	0.04
LGP214nn	B	From Leg	4.00	0.0000	140.00	No Ice	1.11	0.21	0.01
			0.00			1/2" Ice	1.25	0.28	0.02
			0.00			1" Ice	1.39	0.35	0.03
						2" Ice	1.67	0.49	0.04
LGP214nn	C	From Leg	4.00	0.0000	140.00	No Ice	1.11	0.21	0.01
			0.00			1/2" Ice	1.25	0.28	0.02
			0.00			1" Ice	1.39	0.35	0.03
						2" Ice	1.67	0.49	0.04
Side Arm Mount [SO 203-3]	A	None		0.0000	140.00	No Ice	7.12	7.12	0.38
						1/2" Ice	9.88	9.88	0.46
						1" Ice	12.64	12.64	0.55
						2" Ice	18.16	18.16	0.72
**********									
130.3ft									
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	3.00	0.0000	130.30	No Ice	12.51	7.41	0.10
			0.00			1/2" Ice	13.11	8.60	0.19
			0.00			1" Ice	13.67	9.50	0.29
						2" Ice	14.82	11.33	0.52
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	3.00	0.0000	130.30	No Ice	12.51	7.41	0.10
			0.00			1/2" Ice	13.11	8.60	0.19
			0.00			1" Ice	13.67	9.50	0.29
						2" Ice	14.82	11.33	0.52
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	3.00	0.0000	130.30	No Ice	12.51	7.41	0.10
			0.00			1/2" Ice	13.11	8.60	0.19
			0.00			1" Ice	13.67	9.50	0.29
						2" Ice	14.82	11.33	0.52
APXV9TM14-ALU-I20 w/ Mount Pipe	A	From Leg	3.00	0.0000	130.30	No Ice	6.58	4.96	0.08
			0.00			1/2" Ice	7.03	5.75	0.13
			0.00			1" Ice	7.47	6.47	0.19
						2" Ice	8.38	7.94	0.34
APXV9TM14-ALU-I20 w/ Mount Pipe	B	From Leg	3.00	0.0000	130.30	No Ice	6.58	4.96	0.08
			0.00			1/2" Ice	7.03	5.75	0.13
			0.00			1" Ice	7.47	6.47	0.19
						2" Ice	8.38	7.94	0.34
APXV9TM14-ALU-I20 w/ Mount Pipe	C	From Leg	3.00	0.0000	130.30	No Ice	6.58	4.96	0.08
			0.00			1/2" Ice	7.03	5.75	0.13
			0.00			1" Ice	7.47	6.47	0.19
						2" Ice	8.38	7.94	0.34
TD-RRH8x20-25	A	From Leg	3.00	0.0000	130.30	No Ice	4.05	1.53	0.07
			0.00			1/2" Ice	4.30	1.71	0.10
			-1.50			1" Ice	4.56	1.90	0.13
						2" Ice	5.10	2.30	0.20
TD-RRH8x20-25	B	From Leg	3.00	0.0000	130.30	No Ice	4.05	1.53	0.07
			0.00			1/2" Ice	4.30	1.71	0.10
			-1.50			1" Ice	4.56	1.90	0.13
						2" Ice	5.10	2.30	0.20
TD-RRH8x20-25	C	From Leg	3.00	0.0000	130.30	No Ice	4.05	1.53	0.07
			0.00			1/2" Ice	4.30	1.71	0.10
			-1.50			1" Ice	4.56	1.90	0.13
						2" Ice	5.10	2.30	0.20
Alcatel TME-FD-RRH-4x45-1900	A	From Leg	3.00	0.0000	130.30	No Ice	2.32	2.24	0.06
			0.00			1/2" Ice	2.52	2.44	0.08
			-1.50			1" Ice	2.74	2.65	0.11
						2" Ice	3.18	3.09	0.17
Alcatel	B	From Leg	3.00	0.0000	130.30	No Ice	2.32	2.24	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
TME-FD-RRH-4x45-1900			0.00				1/2" Ice	2.52	2.44	0.08
			-1.50				1" Ice	2.74	2.65	0.11
							2" Ice	3.18	3.09	0.17
Alcatel	C	From Leg	3.00		0.0000	130.30	No Ice	2.32	2.24	0.06
TME-FD-RRH-4x45-1900			0.00				1/2" Ice	2.52	2.44	0.08
			-1.50				1" Ice	2.74	2.65	0.11
							2" Ice	3.18	3.09	0.17
(2) RRH2X50-800	A	From Leg	3.00		0.0000	130.30	No Ice	1.70	1.28	0.05
			0.00				1/2" Ice	1.86	1.43	0.07
			1.50				1" Ice	2.03	1.58	0.09
							2" Ice	2.40	1.91	0.14
(2) RRH2X50-800	B	From Leg	3.00		0.0000	130.30	No Ice	1.70	1.28	0.05
			0.00				1/2" Ice	1.86	1.43	0.07
			1.50				1" Ice	2.03	1.58	0.09
							2" Ice	2.40	1.91	0.14
(2) RRH2X50-800	C	From Leg	3.00		0.0000	130.30	No Ice	1.70	1.28	0.05
			0.00				1/2" Ice	1.86	1.43	0.07
			1.50				1" Ice	2.03	1.58	0.09
							2" Ice	2.40	1.91	0.14
Sector Mount [SM 701-3]	A	None			0.0000	130.30	No Ice	19.73	19.73	0.82
							1/2" Ice	27.41	27.41	1.17
							1" Ice	35.09	35.09	1.51
							2" Ice	50.45	50.45	2.19
**********										
120ft AT&T										
7770.00 w/ Mount Pipe	A	From Leg	3.00		0.0000	120.00	No Ice	5.75	4.25	0.06
			0.00				1/2" Ice	6.18	5.01	0.10
			0.00				1" Ice	6.61	5.71	0.16
							2" Ice	7.49	7.16	0.29
7770.00 w/ Mount Pipe	B	From Leg	3.00		0.0000	120.00	No Ice	5.75	4.25	0.06
			0.00				1/2" Ice	6.18	5.01	0.10
			0.00				1" Ice	6.61	5.71	0.16
							2" Ice	7.49	7.16	0.29
7770.00 w/ Mount Pipe	C	From Leg	3.00		0.0000	120.00	No Ice	5.75	4.25	0.06
			0.00				1/2" Ice	6.18	5.01	0.10
			0.00				1" Ice	6.61	5.71	0.16
							2" Ice	7.49	7.16	0.29
P65-17-XL-R w/ Mount Pipe	A	From Leg	3.00		0.0000	120.00	No Ice	11.70	8.94	0.08
			0.00				1/2" Ice	12.42	10.45	0.17
			0.00				1" Ice	13.15	11.99	0.26
							2" Ice	14.52	14.31	0.49
P65-17-XL-R w/ Mount Pipe	B	From Leg	3.00		0.0000	120.00	No Ice	11.70	8.94	0.08
			0.00				1/2" Ice	12.42	10.45	0.17
			0.00				1" Ice	13.15	11.99	0.26
							2" Ice	14.52	14.31	0.49
AM-X-CD-16-65-00T-RET	C	From Leg	3.00		0.0000	120.00	No Ice	4.63	3.27	0.07
w/ Mount Pipe			0.00				1/2" Ice	5.06	3.69	0.13
			0.00				1" Ice	5.51	4.12	0.20
							2" Ice	6.43	5.00	0.38
(2) LGP214nn	A	From Leg	3.00		0.0000	120.00	No Ice	1.11	0.21	0.01
			0.00				1/2" Ice	1.25	0.28	0.02
			0.00				1" Ice	1.39	0.35	0.03
							2" Ice	1.67	0.49	0.04
(2) LGP214nn	B	From Leg	3.00		0.0000	120.00	No Ice	1.11	0.21	0.01
			0.00				1/2" Ice	1.25	0.28	0.02
			0.00				1" Ice	1.39	0.35	0.03
							2" Ice	1.67	0.49	0.04

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 K
(2) LGP214nn	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.11 1.25 1.39 1.67	0.21 0.28 0.35 0.49	0.01 0.02 0.03 0.04
RET Module	A	From Leg	3.00 0.00 -4.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.34 0.42 0.50 0.66	0.18 0.24 0.30 0.42	0.00 0.01 0.01 0.01
RET Module	B	From Leg	3.00 0.00 -4.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.34 0.42 0.50 0.66	0.18 0.24 0.30 0.42	0.00 0.01 0.01 0.01
RET Module	C	From Leg	3.00 0.00 -4.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.34 0.42 0.50 0.66	0.18 0.24 0.30 0.42	0.00 0.01 0.01 0.01
RRUS 11	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.78 2.99 3.21 3.66	1.19 1.33 1.49 1.83	0.05 0.07 0.10 0.15
RRUS 11	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.78 2.99 3.21 3.66	1.19 1.33 1.49 1.83	0.05 0.07 0.10 0.15
RRUS 11	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.78 2.99 3.21 3.66	1.19 1.33 1.49 1.83	0.05 0.07 0.10 0.15
DC6-48-60-18-8F	C	From Leg	0.50 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.79 1.27 1.45 1.83	0.79 1.27 1.45 1.83	0.02 0.03 0.05 0.09
Sector Mount [SM 401-3]	A	None		0.0000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	17.87 25.31 32.75 47.63	17.87 25.31 32.75 47.63	0.80 1.16 1.52 2.24
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2' Omni	C	From Leg	3.00 0.00 0.00	0.0000	91.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.36 0.49 0.63 0.91	0.36 0.49 0.63 0.91	0.01 0.01 0.02 0.03
Side Arm Mount [SO 305-1]	C	From Leg	1.50 0.00 0.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.94 1.48 2.02 3.10	1.41 2.17 2.93 4.45	0.03 0.04 0.06 0.08
GPS	C	From Leg	3.00 0.00 0.00	0.0000	82.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.00 1.50 2.00 3.00	1.00 1.50 2.00 3.00	0.01 0.01 0.02 0.03
12' Dipole	C	From Leg	6.00 0.00 6.00	0.0000	71.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.25 4.75 6.25 9.25	3.25 4.75 6.25 9.25	0.04 0.06 0.09 0.15
6'x2" PIpe MOunt	C	From Leg	3.00 0.00	0.0000	71.00	No Ice 1/2" Ice	1.43 1.92	1.43 1.92	0.02 0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	2.29	2.29	0.05
						2" Ice	3.03	3.03	0.08
Flood Light	C	From Leg	0.00	0.0000	68.00	No Ice	0.18	0.18	0.01
			0.00			1/2" Ice	0.25	0.25	0.01
			0.00			1" Ice	0.33	0.33	0.01
						2" Ice	0.49	0.49	0.02
Flood Light	B	From Leg	0.00	0.0000	62.00	No Ice	0.18	0.18	0.01
			0.00			1/2" Ice	0.25	0.25	0.01
			0.00			1" Ice	0.33	0.33	0.01
						2" Ice	0.49	0.49	0.02
Camera2	B	From Leg	0.00	0.0000	23.00	No Ice	0.93	0.62	0.07
			0.00			1/2" Ice	1.07	0.73	0.08
			0.00			1" Ice	1.21	0.85	0.09
						2" Ice	1.49	1.09	0.10

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 90 deg - No Ice
5	0.9 Dead+1.0 Wind 90 deg - No Ice
6	1.2 Dead+1.0 Wind 180 deg - No Ice
7	0.9 Dead+1.0 Wind 180 deg - No Ice
8	1.2 Dead+1.0 Ice+1.0 Temp
9	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
10	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
11	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
12	Dead+Wind 0 deg - Service
13	Dead+Wind 90 deg - Service
14	Dead+Wind 180 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	168 - 160	Leg	Max Tension	7	1.16	0.01	-0.03
			Max. Compression	9	-1.62	-0.00	0.01
			Max. Mx	5	-0.11	-0.03	-0.00
			Max. My	2	0.44	0.00	0.03
			Max. Vy	4	-0.19	-0.00	-0.00
			Max. Vx	2	0.19	0.00	-0.00
		Diagonal	Max Tension	4	0.50	0.00	0.00
			Max. Compression	4	-0.51	0.00	0.00
			Max. Mx	9	0.21	0.02	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	11	0.03	0.02	-0.00
			Max. Vy	10	-0.03	0.02	-0.00
			Max. Vx	11	-0.00	0.00	0.00
		Top Girt	Max Tension	3	0.07	0.00	0.00
			Max. Compression	6	-0.09	0.00	0.00
			Max. Mx	8	-0.06	-0.08	0.00
			Max. My	2	-0.05	0.00	-0.00
			Max. Vy	8	0.04	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T2	160 - 140	Leg	Max Tension	7	12.62	0.00	0.04
			Max. Compression	2	-16.95	0.01	0.09
			Max. Mx	4	-0.54	0.53	-0.00
			Max. My	2	2.33	0.02	-0.48
			Max. Vy	4	-0.52	-0.20	-0.06
			Max. Vx	2	0.55	0.00	0.25
		Diagonal	Max Tension	4	2.74	0.00	0.00
			Max. Compression	4	-2.77	0.00	0.00
			Max. Mx	9	0.89	0.03	0.00
			Max. My	6	-2.28	0.00	-0.00
			Max. Vy	9	-0.03	0.03	0.00
			Max. Vx	6	-0.00	0.00	0.00
		Top Girt	Max Tension	9	0.04	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	8	0.03	-0.08	0.00
			Max. My	2	0.01	0.00	-0.00
			Max. Vy	8	0.05	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T3	140 - 136	Leg	Max Tension	7	18.24	-0.01	-0.08
			Max. Compression	2	-23.57	0.01	-0.03
			Max. Mx	4	-19.35	-0.07	-0.04
			Max. My	2	-22.95	0.01	0.09
			Max. Vy	4	-0.66	-0.07	-0.04
			Max. Vx	2	0.67	0.01	0.09
		Diagonal	Max Tension	4	3.70	0.00	0.00
			Max. Compression	4	-3.82	0.00	0.00
			Max. Mx	9	0.94	0.02	0.00
			Max. My	6	-3.20	0.00	0.00
			Max. Vy	9	-0.03	0.02	0.00
			Max. Vx	6	0.00	0.00	0.00
		Top Girt	Max Tension	10	0.25	0.00	0.00
			Max. Compression	7	-0.12	0.00	0.00
			Max. Mx	8	0.23	-0.08	0.00
			Max. My	2	-0.01	0.00	-0.00
			Max. Vy	8	0.05	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T4	136 - 132	Leg	Max Tension	7	24.56	-0.01	0.03
			Max. Compression	2	-31.06	0.01	0.33
			Max. Mx	4	-2.94	-0.35	-0.00
			Max. My	2	11.31	-0.01	0.36
			Max. Vy	4	0.12	-0.34	0.02
			Max. Vx	2	-0.13	-0.01	0.36
		Diagonal	Max Tension	4	4.01	0.00	0.00
			Max. Compression	4	-3.93	0.00	0.00
			Max. Mx	9	1.43	0.03	0.00
			Max. My	10	-0.55	0.02	0.00
			Max. Vy	9	-0.03	0.03	0.00
			Max. Vx	10	-0.00	0.00	0.00
T5	132 - 128	Leg	Max Tension	7	31.79	-0.01	-0.33
			Max. Compression	2	-39.39	0.01	0.44
			Max. Mx	4	-2.91	0.58	-0.00
			Max. My	2	15.11	-0.01	-0.58

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	4	-0.55	-0.35	-0.00
			Max. Vx	2	0.57	-0.01	0.36
		Diagonal	Max Tension	4	4.93	0.00	0.00
			Max. Compression	4	-5.06	0.00	0.00
			Max. Mx	9	1.15	0.03	-0.00
			Max. My	2	-4.66	-0.00	-0.00
			Max. Vy	9	-0.03	0.03	0.00
			Max. Vx	2	0.00	0.00	0.00
T6	128 - 124	Leg	Max Tension	7	40.73	-0.42	0.01
			Max. Compression	2	-49.82	-0.11	-0.00
			Max. Mx	2	-49.79	0.44	-0.01
			Max. My	5	-2.95	0.01	0.29
			Max. Vy	2	0.17	0.44	-0.01
			Max. Vx	3	-0.06	-0.21	-0.28
		Diagonal	Max Tension	4	5.92	0.00	0.00
			Max. Compression	4	-5.82	0.00	0.00
			Max. Mx	10	2.08	0.03	-0.00
			Max. My	6	-5.11	0.00	0.00
			Max. Vy	10	-0.03	0.03	-0.00
			Max. Vx	6	0.00	0.00	0.00
T7	124 - 120	Leg	Max Tension	7	50.28	0.08	0.00
			Max. Compression	2	-59.74	0.39	-0.02
			Max. Mx	2	-59.74	0.39	-0.02
			Max. My	4	-3.94	-0.02	0.20
			Max. Vy	2	-0.15	0.39	-0.02
			Max. Vx	6	0.09	-0.07	0.18
		Diagonal	Max Tension	4	5.97	0.00	0.00
			Max. Compression	4	-6.17	0.00	0.00
			Max. Mx	10	0.63	0.03	0.00
			Max. My	4	-6.16	-0.00	0.01
			Max. Vy	9	-0.03	0.03	0.00
			Max. Vx	4	0.00	0.00	0.00
T8	120 - 115	Leg	Max Tension	7	60.04	-0.32	0.02
			Max. Compression	2	-70.68	0.03	-0.02
			Max. Mx	2	-70.04	0.39	-0.02
			Max. My	4	-4.67	-0.04	0.42
			Max. Vy	6	-0.81	-0.31	0.02
			Max. Vx	2	-0.65	-0.15	0.02
		Diagonal	Max Tension	5	5.11	0.00	0.00
			Max. Compression	4	-5.37	0.00	0.00
			Max. Mx	10	1.23	0.03	0.00
			Max. My	4	-5.34	-0.01	-0.01
			Max. Vy	10	0.03	0.03	-0.00
			Max. Vx	4	0.00	0.00	0.00
T9	115 - 110	Leg	Max Tension	7	69.89	-0.08	0.02
			Max. Compression	2	-81.93	0.34	-0.02
			Max. Mx	2	-81.93	0.34	-0.02
			Max. My	4	-5.01	-0.04	0.42
			Max. Vy	2	-0.10	0.34	-0.02
			Max. Vx	2	-0.12	-0.07	-0.39
		Diagonal	Max Tension	4	5.34	0.00	0.00
			Max. Compression	4	-5.30	0.00	0.00
			Max. Mx	9	1.82	0.04	0.00
			Max. My	9	0.09	0.03	-0.01
			Max. Vy	9	-0.04	0.04	-0.00
			Max. Vx	9	0.00	0.00	0.00
T10	110 - 105	Leg	Max Tension	7	78.41	-0.28	0.02
			Max. Compression	2	-90.86	-0.09	-0.01
			Max. Mx	2	-90.81	0.34	-0.02
			Max. My	4	-5.04	-0.04	0.33
			Max. Vy	2	0.13	0.34	-0.02

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	0.11	-0.01	-0.31
		Diagonal	Max Tension	4	5.19	0.00	0.00
			Max. Compression	4	-5.39	0.00	0.00
			Max. Mx	9	0.99	0.04	-0.00
			Max. My	9	-0.03	0.03	-0.01
			Max. Vy	11	0.04	0.04	-0.00
			Max. Vx	9	0.00	0.00	0.00
T11	105 - 100	Leg	Max Tension	7	86.93	0.03	0.01
			Max. Compression	2	-100.25	0.15	-0.03
			Max. Mx	2	-100.23	0.73	0.01
			Max. My	2	41.77	-0.10	-0.34
			Max. Vy	2	-0.36	0.73	0.01
			Max. Vx	2	0.21	-0.10	-0.34
		Diagonal	Max Tension	4	5.32	0.02	-0.00
			Max. Compression	4	-5.40	0.00	0.00
			Max. Mx	9	1.56	0.04	0.00
			Max. My	2	-4.71	-0.01	-0.01
			Max. Vy	10	0.04	0.04	-0.00
			Max. Vx	9	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	1.74	0.00	0.00
			Max. Compression	2	-1.74	0.00	-0.00
			Max. Mx	10	-0.04	0.04	0.01
			Max. My	10	-0.04	0.04	0.01
			Max. Vy	10	-0.05	0.04	0.01
			Max. Vx	10	-0.00	0.00	0.00
T12	100 - 93.33	Leg	Max Tension	7	96.21	-0.17	0.03
			Max. Compression	2	-110.20	-0.06	-0.02
			Max. Mx	6	95.14	-0.17	0.03
			Max. My	4	-5.55	-0.03	0.47
			Max. Vy	2	0.08	0.15	-0.03
			Max. Vx	2	0.10	-0.02	-0.46
		Diagonal	Max Tension	4	5.90	0.00	0.00
			Max. Compression	4	-6.11	0.00	0.00
			Max. Mx	9	1.30	0.07	-0.01
			Max. My	11	-1.49	0.04	0.01
			Max. Vy	11	0.05	0.06	0.01
			Max. Vx	11	-0.00	0.00	0.00
T13	93.33 - 86.66	Leg	Max Tension	7	106.34	0.00	0.03
			Max. Compression	2	-121.40	-0.73	-0.01
			Max. Mx	2	-121.39	1.16	0.00
			Max. My	4	-5.84	-0.07	0.58
			Max. Vy	2	0.57	1.16	0.00
			Max. Vx	2	0.24	0.24	-0.53
		Diagonal	Max Tension	5	6.16	0.04	-0.00
			Max. Compression	4	-6.33	0.00	0.00
			Max. Mx	9	1.55	0.08	0.01
			Max. My	11	1.39	0.07	0.01
			Max. Vy	11	0.05	0.07	-0.01
			Max. Vx	11	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	2.11	0.00	0.00
			Max. Compression	2	-2.11	0.01	-0.01
			Max. Mx	9	0.16	0.04	0.00
			Max. My	10	-0.08	0.04	0.01
			Max. Vy	9	0.04	0.04	0.00
			Max. Vx	10	-0.00	0.00	0.00
T14	86.66 - 79.99	Leg	Max Tension	7	115.99	0.53	0.01
			Max. Compression	2	-132.04	0.01	-0.03
			Max. Mx	2	-132.04	1.13	0.01
			Max. My	4	-6.04	-0.07	0.58

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	2	-0.60	1.13	0.01
			Max. Vx	2	-0.23	0.24	-0.53
		Diagonal	Max Tension	5	6.27	0.04	-0.00
			Max. Compression	4	-6.48	0.00	0.00
			Max. Mx	9	1.53	0.08	0.01
			Max. My	11	-1.72	0.05	0.01
			Max. Vy	11	0.05	0.07	0.01
			Max. Vx	11	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	2.29	0.00	0.00
			Max. Compression	2	-2.29	0.01	-0.00
			Max. Mx	10	0.06	0.05	0.01
			Max. My	10	-0.06	0.05	0.01
			Max. Vy	10	0.04	0.05	0.01
			Max. Vx	10	-0.00	0.00	0.00
T15	79.99 - 73.32	Leg	Max Tension	7	125.92	-0.07	0.03
			Max. Compression	2	-143.11	0.06	-0.01
			Max. Mx	9	-3.99	-0.20	-0.18
			Max. My	4	-6.42	-0.04	0.57
			Max. Vy	2	-0.06	0.06	-0.01
			Max. Vx	2	-0.10	-0.07	-0.54
		Diagonal	Max Tension	4	6.34	0.00	0.00
			Max. Compression	4	-6.52	0.00	0.00
			Max. Mx	10	0.88	0.10	-0.01
			Max. My	9	0.03	0.07	-0.01
			Max. Vy	11	0.06	0.09	-0.01
			Max. Vx	9	0.00	0.00	0.00
T16	73.32 - 66.65	Leg	Max Tension	7	134.79	-1.25	-0.01
			Max. Compression	2	-153.13	-0.98	-0.01
			Max. Mx	2	-153.08	1.49	0.00
			Max. My	4	-6.80	-0.11	0.88
			Max. Vy	2	0.75	1.49	0.00
			Max. Vx	4	-0.31	-0.11	0.88
		Diagonal	Max Tension	5	6.88	0.05	-0.00
			Max. Compression	4	-7.11	0.00	0.00
			Max. Mx	9	1.71	0.10	0.01
			Max. My	10	-2.32	0.07	-0.01
			Max. Vy	11	0.06	0.09	-0.01
			Max. Vx	10	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	2.66	0.00	0.00
			Max. Compression	2	-2.66	0.01	-0.00
			Max. Mx	10	0.01	0.07	0.02
			Max. My	10	-0.10	0.07	0.02
			Max. Vy	10	0.07	0.07	0.02
			Max. Vx	10	-0.00	0.00	0.00
T17	66.65 - 59.98	Leg	Max Tension	7	143.77	0.71	0.01
			Max. Compression	2	-163.31	1.47	0.01
			Max. Mx	2	-163.31	1.47	0.01
			Max. My	4	-7.12	-0.11	0.88
			Max. Vy	2	-0.78	1.47	0.01
			Max. Vx	4	0.30	-0.11	0.88
		Diagonal	Max Tension	5	6.90	0.05	0.00
			Max. Compression	4	-7.18	0.00	0.00
			Max. Mx	9	1.56	0.11	0.01
			Max. My	10	1.04	0.10	-0.01
			Max. Vy	11	0.07	0.11	-0.01
			Max. Vx	10	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	2.83	0.00	0.00
			Max. Compression	2	-2.83	0.01	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	9	0.18	0.07	0.01
			Max. My	10	-0.13	0.07	0.01
			Max. Vy	9	0.05	0.07	0.01
			Max. Vx	10	-0.00	0.00	0.00
T18	59.98 - 39.98	Leg	Max Tension	7	170.11	-0.46	0.02
			Max. Compression	2	-193.78	0.96	-0.05
			Max. Mx	2	-193.78	0.96	-0.05
			Max. My	4	-7.56	-0.04	0.64
			Max. Vy	9	0.21	-0.78	-0.17
			Max. Vx	3	0.11	-0.45	-0.56
		Diagonal	Max Tension	4	7.44	0.00	0.00
			Max. Compression	4	-7.58	0.00	0.00
			Max. Mx	10	0.53	0.15	-0.02
			Max. My	11	-1.08	0.11	0.02
			Max. Vy	11	0.09	0.13	0.02
			Max. Vx	11	0.00	0.00	0.00
T19	39.98 - 19.98	Leg	Max Tension	7	192.53	-0.69	0.05
			Max. Compression	2	-219.86	1.19	-0.05
			Max. Mx	11	32.44	-1.53	0.01
			Max. My	4	-9.68	-0.10	1.65
			Max. Vy	9	0.25	-1.38	0.01
			Max. Vx	2	-0.26	-0.44	-1.47
		Diagonal	Max Tension	4	8.69	0.00	0.00
			Max. Compression	4	-9.02	0.00	0.00
			Max. Mx	11	0.97	0.22	0.03
			Max. My	4	-8.52	-0.02	-0.03
			Max. Vy	10	0.11	0.20	0.03
			Max. Vx	10	0.01	0.00	0.00
T20	19.98 - 0	Leg	Max Tension	7	215.51	-0.78	0.05
			Max. Compression	2	-247.26	0.00	0.00
			Max. Mx	9	-105.56	1.60	0.03
			Max. My	4	-11.21	-0.11	1.97
			Max. Vy	9	-0.30	-1.38	0.01
			Max. Vx	2	-0.27	-0.49	-1.72
		Diagonal	Max Tension	5	9.05	0.00	0.00
			Max. Compression	4	-9.47	0.00	0.00
			Max. Mx	11	0.45	0.27	0.03
			Max. My	10	-3.77	0.22	-0.04
			Max. Vy	11	0.11	0.27	0.03
			Max. Vx	10	0.01	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	6	127.13	10.31	-7.68
	Max. H_x	6	127.13	10.31	-7.68
	Max. H_z	5	-208.61	-20.37	9.26
	Min. Vert	5	-208.61	-20.37	9.26
	Min. H_x	5	-208.61	-20.37	9.26
	Min. H_z	6	127.13	10.31	-7.68
Leg B	Max. Vert	4	231.18	-21.70	-10.02
	Max. H_x	3	-111.29	8.97	8.44
	Max. H_z	3	-111.29	8.97	8.44
	Min. Vert	3	-111.29	8.97	8.44
	Min. H_x	4	231.18	-21.70	-10.02

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg A	Min. H_z	4	231.18	-21.70	-10.02
	Max. Vert	2	254.27	0.59	26.13
	Max. H_x	2	254.27	0.59	26.13
	Max. H_z	2	254.27	0.59	26.13
	Min. Vert	7	-221.13	-0.59	-23.12
	Min. H_x	5	8.78	-1.99	0.62
	Min. H_z	7	-221.13	-0.59	-23.12

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	30.83	0.00	0.00	6.39	-8.35	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	37.00	-0.02	-41.75	-3949.61	-8.29	19.10
0.9 Dead+1.0 Wind 0 deg - No Ice	27.75	-0.02	-41.75	-3945.60	-5.77	19.08
1.2 Dead+1.0 Wind 90 deg - No Ice	37.00	43.84	0.02	9.62	-4119.66	25.51
0.9 Dead+1.0 Wind 90 deg - No Ice	27.75	43.84	0.02	7.69	-4111.03	25.50
1.2 Dead+1.0 Wind 180 deg - No Ice	37.00	0.02	39.26	3768.70	-11.98	-19.10
0.9 Dead+1.0 Wind 180 deg - No Ice	27.75	0.02	39.26	3760.91	-9.45	-19.08
1.2 Dead+1.0 Ice+1.0 Temp	121.47	-0.00	-0.00	45.81	-72.40	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	121.47	-0.00	-13.04	-1218.24	-72.60	3.68
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	121.47	13.56	0.00	45.70	-1376.10	6.03
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	121.47	0.00	12.71	1285.16	-72.34	-3.68
Dead+Wind 0 deg - Service	30.83	-0.01	-10.12	-952.43	-7.94	4.63
Dead+Wind 90 deg - Service	30.83	10.63	0.01	6.86	-1004.12	6.19
Dead+Wind 180 deg - Service	30.83	0.01	9.52	917.62	-8.83	-4.63

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-30.83	0.00	-0.00	30.83	-0.00	0.000%
2	-0.02	-37.00	-41.75	0.02	37.00	41.75	0.004%
3	-0.02	-27.75	-41.75	0.02	27.75	41.75	0.003%
4	43.85	-37.00	0.02	-43.84	37.00	-0.02	0.004%
5	43.85	-27.75	0.02	-43.84	27.75	-0.02	0.003%
6	0.02	-37.00	39.26	-0.02	37.00	-39.26	0.001%
7	0.02	-27.75	39.26	-0.02	27.75	-39.26	0.003%
8	0.00	-121.47	0.00	0.00	121.47	0.00	0.000%
9	-0.00	-121.47	-13.04	0.00	121.47	13.04	0.000%
10	13.56	-121.47	0.00	-13.56	121.47	-0.00	0.000%
11	0.00	-121.47	12.72	-0.00	121.47	-12.71	0.000%
12	-0.01	-30.83	-10.13	0.01	30.83	10.12	0.001%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
13	10.63	-30.83	0.01	-10.63	30.83	-0.01	0.001%
14	0.01	-30.83	9.52	-0.01	30.83	-9.52	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	11	0.00000001	0.00014312
3	Yes	11	0.00000001	0.00010444
4	Yes	11	0.00000001	0.00014985
5	Yes	11	0.00000001	0.00011120
6	Yes	12	0.00000001	0.00006088
7	Yes	11	0.00000001	0.00011828
8	Yes	10	0.00000001	0.00010279
9	Yes	13	0.00000001	0.00006952
10	Yes	13	0.00000001	0.00007176
11	Yes	13	0.00000001	0.00007043
12	Yes	11	0.00000001	0.00011975
13	Yes	11	0.00000001	0.00012100
14	Yes	11	0.00000001	0.00012263

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	168 - 160	5.730	13	0.2981	0.0172
T2	160 - 140	5.229	13	0.2976	0.0171
T3	140 - 136	3.984	13	0.2877	0.0174
T4	136 - 132	3.739	13	0.2819	0.0173
T5	132 - 128	3.500	13	0.2740	0.0172
T6	128 - 124	3.268	13	0.2639	0.0168
T7	124 - 120	3.040	13	0.2565	0.0164
T8	120 - 115	2.822	13	0.2475	0.0159
T9	115 - 110	2.559	13	0.2355	0.0149
T10	110 - 105	2.312	13	0.2225	0.0139
T11	105 - 100	2.079	13	0.2087	0.0131
T12	100 - 93.33	1.859	13	0.1943	0.0125
T13	93.33 - 86.66	1.591	13	0.1770	0.0118
T14	86.66 - 79.99	1.348	13	0.1592	0.0109
T15	79.99 - 73.32	1.128	13	0.1410	0.0099
T16	73.32 - 66.65	0.936	13	0.1254	0.0091
T17	66.65 - 59.98	0.763	13	0.1096	0.0081
T18	59.98 - 39.98	0.614	13	0.0937	0.0071
T19	39.98 - 19.98	0.271	13	0.0586	0.0044
T20	19.98 - 0	0.075	13	0.0260	0.0022

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
168.00	20' 4-Bay Dipole	13	5.730	0.2981	0.0172	Inf
165.00	10'x2" Pipe Mount	13	5.542	0.2980	0.0171	Inf
152.00	Side Arm Mount [SO 311-1]	13	4.729	0.2963	0.0172	272161
150.00	(2) SBNHH-1D65B w/ Mount Pipe	13	4.604	0.2956	0.0173	213861
148.00	Sector Mount [SM 506-3]	13	4.480	0.2946	0.0173	176132
140.00	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	13	3.984	0.2877	0.0174	63963
130.30	NNVV-65B-R4 w/ Mount Pipe	13	3.401	0.2696	0.0170	33746
120.00	7770.00 w/ Mount Pipe	13	2.822	0.2475	0.0159	24536
91.00	2' Omni	13	1.503	0.1710	0.0115	21884
86.00	Side Arm Mount [SO 305-1]	13	1.325	0.1574	0.0108	22830
82.00	GPS	13	1.192	0.1463	0.0102	19938
71.00	12' Dipole	13	0.873	0.1200	0.0088	26217
68.00	Flood Light	13	0.796	0.1129	0.0083	23770
62.00	Flood Light	13	0.657	0.0983	0.0074	26722
23.00	Camera2	13	0.095	0.0306	0.0026	32851

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	168 - 160	23.580	4	1.2297	0.0708
T2	160 - 140	21.517	4	1.2274	0.0708
T3	140 - 136	16.383	4	1.1852	0.0717
T4	136 - 132	15.374	4	1.1609	0.0716
T5	132 - 128	14.391	4	1.1280	0.0708
T6	128 - 124	13.435	4	1.0860	0.0695
T7	124 - 120	12.499	4	1.0556	0.0678
T8	120 - 115	11.600	4	1.0183	0.0657
T9	115 - 110	10.520	4	0.9686	0.0617
T10	110 - 105	9.505	4	0.9149	0.0574
T11	105 - 100	8.545	4	0.8581	0.0539
T12	100 - 93.33	7.642	4	0.7986	0.0515
T13	93.33 - 86.66	6.538	4	0.7275	0.0485
T14	86.66 - 79.99	5.539	4	0.6544	0.0449
T15	79.99 - 73.32	4.637	4	0.5793	0.0409
T16	73.32 - 66.65	3.844	4	0.5152	0.0375
T17	66.65 - 59.98	3.137	4	0.4503	0.0336
T18	59.98 - 39.98	2.521	4	0.3847	0.0294
T19	39.98 - 19.98	1.114	4	0.2404	0.0182
T20	19.98 - 0	0.307	4	0.1067	0.0092

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
168.00	20' 4-Bay Dipole	4	23.580	1.2297	0.0708	Inf

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
165.00	10'x2" Pipe Mount	4	22.807	1.2290	0.0707	Inf
152.00	Side Arm Mount [SO 311-1]	4	19.455	1.2214	0.0711	70100
150.00	(2) SBNHH-1D65B w/ Mount Pipe	4	18.940	1.2183	0.0712	54886
148.00	Sector Mount [SM 506-3]	4	18.426	1.2143	0.0714	45098
140.00	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	4	16.383	1.1852	0.0717	15947
130.30	NNVV-65B-R4 w/ Mount Pipe	4	13.982	1.1098	0.0703	8247
120.00	7770.00 w/ Mount Pipe	4	11.600	1.0183	0.0657	5925
91.00	2' Omni	4	6.178	0.7027	0.0473	5319
86.00	Side Arm Mount [SO 305-1]	4	5.445	0.6468	0.0445	5557
82.00	GPS	4	4.898	0.6011	0.0420	4843
71.00	12' Dipole	4	3.589	0.4932	0.0362	6378
68.00	Flood Light	4	3.273	0.4638	0.0344	5776
62.00	Flood Light	4	2.699	0.4038	0.0306	6496
23.00	Camera2	4	0.391	0.1257	0.0105	8007

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	168	Leg	A325N	0.6250	4	0.29	20.34	0.014	1.05	Bolt Tension
		Diagonal	A325N	0.6250	1	0.50	5.81	0.087	1.05	Member Block Shear
T2	160	Leg	A325N	0.6250	4	3.15	20.34	0.155	1.05	Bolt Tension
		Diagonal	A325N	0.6250	1	2.74	5.81	0.471	1.05	Member Block Shear
T3	140	Diagonal	A325N	0.6250	1	3.70	5.81	0.636	1.05	Member Block Shear
T4	136	Diagonal	A325N	0.6250	1	4.01	5.81	0.690	1.05	Member Block Shear
T5	132	Diagonal	A325N	0.6250	1	4.93	5.81	0.849	1.05	Member Block Shear
T6	128	Diagonal	A325N	0.6250	1	5.92	5.81	1.019	1.05	Member Block Shear
T7	124	Leg	A325N	0.7500	4	12.57	30.10	0.418	1.05	Bolt Tension
		Diagonal	A325N	0.6250	1	5.97	5.81	1.028	1.05	Member Block Shear
T8	120	Diagonal	A325N	0.6250	1	5.11	6.83	0.748	1.05	Member Block Shear
T9	115	Diagonal	A325N	0.6250	1	5.34	6.83	0.782	1.05	Member Block Shear
T10	110	Diagonal	A325N	0.6250	1	5.19	6.83	0.760	1.05	Member Block Shear
T11	105	Leg	A325N	0.8750	4	21.72	41.56	0.523	1.05	Bolt Tension
		Diagonal	A325N	0.6250	1	5.32	6.83	0.778	1.05	Member Block Shear
		Secondary Horizontal	A325N	0.7500	1	1.74	9.46	0.184	1.05	Member Bearing
T12	100	Diagonal	A325N	0.6250	1	5.90	7.83	0.754	1.05	Member Bearing
T13	93.33	Diagonal	A325N	0.6250	1	6.16	7.83	0.787	1.05	Member Bearing
		Secondary Horizontal	A325N	0.7500	1	2.11	6.93	0.304	1.05	Member Block Shear
T14	86.66	Leg	A325N	0.8750	4	28.98	41.56	0.697	1.05	Bolt Tension
		Diagonal	A325N	0.6250	1	6.27	7.83	0.800	1.05	Member Bearing

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Secondary Horizontal	A325N	0.7500	1	2.29	6.93	0.330	1.05	Member Block Shear
T15	79.99	Diagonal	A325N	0.6250	1	6.34	10.44	0.607	1.05	Member Bearing
T16	73.32	Diagonal	A325N	0.6250	1	6.88	10.44	0.659	1.05	Member Bearing
		Secondary Horizontal	A325N	0.7500	1	2.66	9.46	0.281	1.05	Member Bearing
T17	66.65	Leg	A325N	1.0000	4	35.92	54.52	0.659	1.05	Bolt Tension
		Diagonal	A325N	0.6250	1	6.90	10.44	0.661	1.05	Member Bearing
		Secondary Horizontal	A325N	0.7500	2	1.42	6.83	0.207	1.05	Member Block Shear
T18	59.98	Leg	A325N	1.0000	6	28.35	54.52	0.520	1.05	Bolt Tension
		Diagonal	A325N	0.6250	1	7.44	10.44	0.713	1.05	Member Bearing
T19	39.98	Leg	A325N	1.0000	6	32.09	54.52	0.589	1.05	Bolt Tension
		Diagonal	A325N	0.6250	1	8.69	10.44	0.833	1.05	Member Bearing
T20	19.98	Diagonal	A325N	0.7500	1	9.05	12.62	0.717	1.05	Member Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	168 - 160	ROHN 2.5 STD	8.00	4.00	50.7 K=1.00	1.7040	-1.62	63.56	0.026 [1]
T2	160 - 140	ROHN 2.5 STD	20.00	4.00	50.7 K=1.00	1.7040	-16.95	63.56	0.267 [1]
T3	140 - 136	ROHN 2.5 STD	4.00	4.00	50.7 K=1.00	1.7040	-23.57	63.56	0.371 [1]
T4	136 - 132	ROHN 2.5 STD	4.00	4.00	50.7 K=1.00	1.7040	-31.06	63.56	0.489 [1]
T5	132 - 128	ROHN 2.5 STD	4.00	4.00	50.7 K=1.00	1.7040	-39.39	63.56	0.620 [1]
T6	128 - 124	P2.5x0.276 with Half Pipe P3x0.216	4.00	4.00	61.7 K=1.21	3.0380	-49.82	103.46	0.482 [1]
T7	124 - 120	P2.5x0.276 with Half Pipe P3x0.216	4.00	4.00	61.7 K=1.21	3.0380	-59.74	103.46	0.577 [1]
T8	120 - 115	P3x0.216 with Half Pipe P3.5x0.226	5.01	5.01	59.9 K=1.16	3.1660	-70.68	109.64	0.645 [1]
T9	115 - 110	P3x0.216 with Half Pipe P3.5x0.226	5.01	5.01	59.9 K=1.16	3.1660	-81.93	109.64	0.747 [1]
T10	110 - 105	P3x0.216 with Half Pipe P3.5x0.226	5.01	5.01	59.9 K=1.16	3.1660	-90.86	109.64	0.829 [1]
T11	105 - 100	P3x0.216 with Half Pipe P3.5x0.226	5.01	2.58	52.2 K=1.97	3.1660	-100.25	116.72	0.859 [1]
T12	100 - 93.33	ROHN 3.5 EH	6.68	6.68	61.4 K=1.00	3.6784	-110.20	125.69	0.877 [1]
T13	93.33 - 86.66	ROHN 3.5 EH	6.68	3.46	31.8 K=1.00	3.6784	-121.40	153.76	0.790 [1]
T14	86.66 - 79.99	ROHN 3.5 EH	6.68	3.45	31.7 K=1.00	3.6784	-132.04	153.83	0.858 [1]
T15	79.99 - 73.32	ROHN 4 EH	6.68	6.68	54.3	4.4074	-143.11	159.88	0.895 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T16	73.32 - 66.65	ROHN 4 EH	6.68	3.44	K=1.00 27.9	4.4074	-153.13	187.35	0.817 [1]
T17	66.65 - 59.98	ROHN 4 EH	6.68	3.43	K=1.00 27.9	4.4074	-163.31	187.37	0.872 [1]
T18	59.98 - 39.98	ROHN 5 EH	20.03	6.68	K=1.00 43.6	6.1120	-193.78	239.38	0.810 [1]
T19	39.98 - 19.98	ROHN 6 EHS	20.03	10.02	K=1.00 54.0	6.7133	-219.86	244.06	0.901 [1]
T20	19.98 - 0	ROHN 6 EH	20.01	10.01	K=1.00 54.7	8.4049	-247.26	303.87	0.814 [1]
					K=1.00				

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	168 - 160	L1 3/4x1 3/4x3/16	7.79	3.64	127.1 K=1.00	0.6211	-0.51	11.00	0.046 [1]
T2	160 - 140	L1 3/4x1 3/4x3/16	7.79	3.64	127.1 K=1.00	0.6211	-2.77	11.00	0.251 [1]
T3	140 - 136	L1 3/4x1 3/4x3/16	7.79	3.64	127.1 K=1.00	0.6211	-3.82	11.00	0.347 [1]
T4	136 - 132	L1 3/4x1 3/4x3/16	7.79	3.64	127.1 K=1.00	0.6211	-3.93	11.00	0.357 [1]
T5	132 - 128	L1 3/4x1 3/4x3/16	7.79	3.64	127.1 K=1.00	0.6211	-5.06	11.00	0.460 [1]
T6	128 - 124	L1 3/4x1 3/4x3/16	7.79	3.64	127.1 K=1.00	0.6211	-5.82	11.00	0.529 [1]
T7	124 - 120	L1 3/4x1 3/4x3/16	7.79	3.61	126.0 K=1.00	0.6211	-6.17	11.19	0.551 [1]
T8	120 - 115	L2x2x3/16	8.56	4.11	125.2 K=1.00	0.7150	-5.37	13.05	0.412 [1]
T9	115 - 110	L2x2x3/16	8.97	4.32	131.5 K=1.00	0.7150	-5.30	11.84	0.448 [1]
T10	110 - 105	L2x2x3/16	9.40	4.53	138.0 K=1.00	0.7150	-5.39	10.74	0.502 [1]
T11	105 - 100	L2x2x3/16	9.83	4.75	144.7 K=1.00	0.7150	-5.40	9.77	0.553 [1]
T12	100 - 93.33	L2 1/2x2 1/2x3/16	11.25	5.51	133.5 K=1.00	0.9020	-6.11	14.49	0.422 [1]
T13	93.33 - 86.66	L2 1/2x2 1/2x3/16	11.80	5.78	140.2 K=1.00	0.9020	-6.33	13.13	0.482 [1]
T14	86.66 - 79.99	L2 1/2x2 1/2x3/16	12.36	6.06	146.9 K=1.00	0.9020	-6.48	11.96	0.542 [1]
T15	79.99 - 73.32	L 2 1/2x 2 1/2x 1/4	12.93	6.33	154.6 K=1.00	1.1900	-6.52	14.24	0.458 [1]
T16	73.32 - 66.65	L 2 1/2x 2 1/2x 1/4	13.52	6.62	161.7 K=1.00	1.1900	-7.11	13.03	0.546 [1]
T17	66.65 - 59.98	L 2 1/2x 2 1/2x 1/4	14.11	6.91	169.0 K=1.00	1.1900	-7.18	11.93	0.602 [1]
T18	59.98 - 39.98	L3x3x1/4	15.93	7.77	157.6 K=1.00	1.4400	-7.58	16.60	0.457 [1]
T19	39.98 - 19.98	L3 1/2x3 1/2x1/4	19.14	9.42	162.9	1.6900	-9.02	18.23	0.495 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T20	19.98 - 0	L3 1/2x3 1/2x1/4	20.89	10.28	K=1.00 177.8 K=1.00	1.6900	-9.47	15.30	0.619 [1]

[1] $P_u / \phi P_n$ controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	105 - 100	L3x3x3/16	8.46	3.93	99.5 K=1.26	1.0900	-1.74	26.50	0.066 [1]
T13	93.33 - 86.66	L2x2x3/16	9.72	4.56	138.8 K=1.00	0.7150	-2.11	10.62	0.198 [1]
T14	86.66 - 79.99	L2x2x3/16	10.39	4.90	149.1 K=1.00	0.7150	-2.29	9.21	0.249 [1]
T16	73.32 - 66.65	L3x3x3/16	11.75	5.55	115.9 K=1.04	1.0900	-2.66	22.45	0.118 [1]
T17	66.65 - 59.98	L2x2x3/16	12.42	5.79	163.1 K=0.92	0.7150	-2.83	7.70	0.368 [1]

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	168 - 160	L1 3/4x1 3/4x3/16	6.69	6.45	184.8 K=0.82	0.6211	-0.09	5.21	0.018 [1]
T3	140 - 136	L2x2x1/8	6.69	6.45	165.9 K=0.85	0.4844	-0.12	5.03	0.024 [1]

[1] $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	168 - 160	ROHN 2.5 STD	8.00	4.00	50.7	1.7040	1.16	76.68	0.015 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	160 - 140	ROHN 2.5 STD	20.00	4.00	50.7	1.7040	12.62	76.68	0.165 [1]
T3	140 - 136	ROHN 2.5 STD	4.00	4.00	50.7	1.7040	18.24	76.68	0.238 [1]
T4	136 - 132	ROHN 2.5 STD	4.00	4.00	50.7	1.7040	24.56	76.68	0.320 [1]
T5	132 - 128	ROHN 2.5 STD	4.00	4.00	50.7	1.7040	31.79	76.68	0.415 [1]
T6	128 - 124	P2.5x0.276 with Half Pipe P3x0.216	4.00	4.00	51.0	3.0380	40.73	136.71	0.298 [1]
T7	124 - 120	P2.5x0.276 with Half Pipe P3x0.216	4.00	4.00	51.0	3.0380	50.28	136.71	0.368 [1]
T8	120 - 115	P3x0.216 with Half Pipe P3.5x0.226	5.01	5.01	51.6	3.1660	60.04	142.47	0.421 [1]
T9	115 - 110	P3x0.216 with Half Pipe P3.5x0.226	5.01	5.01	51.6	3.1660	69.89	142.47	0.491 [1]
T10	110 - 105	P3x0.216 with Half Pipe P3.5x0.226	5.01	5.01	51.6	3.1660	78.41	142.47	0.550 [1]
T11	105 - 100	P3x0.216 with Half Pipe P3.5x0.226	5.01	2.43	25.0	3.1660	86.93	142.47	0.610 [1]
T12	100 - 93.33	ROHN 3.5 EH	6.68	6.68	61.4	3.6784	96.21	165.53	0.581 [1]
T13	93.33 - 86.66	ROHN 3.5 EH	6.68	3.22	29.6	3.6784	106.34	165.53	0.642 [1]
T14	86.66 - 79.99	ROHN 3.5 EH	6.68	3.23	29.7	3.6784	115.99	165.53	0.701 [1]
T15	79.99 - 73.32	ROHN 4 EH	6.68	6.68	54.3	4.4074	125.92	198.34	0.635 [1]
T16	73.32 - 66.65	ROHN 4 EH	6.68	3.25	26.4	4.4074	134.79	198.34	0.680 [1]
T17	66.65 - 59.98	ROHN 4 EH	6.68	3.25	26.4	4.4074	143.78	198.34	0.725 [1]
T18	59.98 - 39.98	ROHN 5 EH	20.03	6.68	43.6	6.1120	170.11	275.04	0.619 [1]
T19	39.98 - 19.98	ROHN 6 EHS	20.03	10.02	54.0	6.7133	192.53	302.10	0.637 [1]
T20	19.98 - 0	ROHN 6 EH	20.01	10.01	54.7	8.4049	215.51	378.22	0.570 [1]

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	168 - 160	L1 3/4x1 3/4x3/16	7.79	3.64	84.0	0.3604	0.50	15.68	0.032 [1]
T2	160 - 140	L1 3/4x1 3/4x3/16	7.79	3.64	84.0	0.3604	2.74	15.68	0.175 [1]
T3	140 - 136	L1 3/4x1 3/4x3/16	7.79	3.64	84.0	0.3604	3.70	15.68	0.236 [1]
T4	136 - 132	L1 3/4x1 3/4x3/16	7.79	3.64	84.0	0.3604	4.01	15.68	0.256 [1]
T5	132 - 128	L1 3/4x1 3/4x3/16	7.79	3.64	84.0	0.3604	4.93	15.68	0.315 [1]
T6	128 - 124	L1 3/4x1 3/4x3/16	7.79	3.64	84.0	0.3604	5.92	15.68	0.378 [1]
T7	124 - 120	L1 3/4x1 3/4x3/16	7.79	3.61	83.3	0.3604	5.97	15.68	0.381 [1]
T8	120 - 115	L2x2x3/16	8.56	4.11	82.3	0.4308	5.11	18.74	0.273 [1]
T9	115 - 110	L2x2x3/16	8.97	4.32	86.3	0.4308	5.34	18.74	0.285 [1]
T10	110 - 105	L2x2x3/16	9.40	4.53	90.5	0.4308	5.19	18.74	0.277 [1]
T11	105 - 100	L2x2x3/16	9.83	4.75	94.7	0.4308	5.32	18.74	0.284 [1]
T12	100 - 93.33	L2 1/2x2 1/2x3/16	11.25	5.51	86.8	0.5710	5.90	24.84	0.238 [1]
T13	93.33 - 86.66	L2 1/2x2 1/2x3/16	11.80	5.78	91.1	0.5710	6.16	24.84	0.248 [1]
T14	86.66 - 79.99	L2 1/2x2 1/2x3/16	12.36	6.06	95.3	0.5710	6.27	24.84	0.252 [1]
T15	79.99 - 73.32	L 2 1/2x 2 1/2x 1/4	12.93	6.33	100.7	0.7519	6.34	32.71	0.194 [1]
T16	73.32 - 66.65	L 2 1/2x 2 1/2x 1/4	13.52	6.62	105.2	0.7519	6.88	32.71	0.210 [1]
T17	66.65 - 59.98	L 2 1/2x 2 1/2x 1/4	14.11	6.91	109.8	0.7519	6.90	32.71	0.211 [1]
T18	59.98 - 39.98	L3x3x1/4	15.93	7.77	101.9	0.9394	7.44	40.86	0.182 [1]
T19	39.98 - 19.98	L3 1/2x3 1/2x1/4	19.14	9.42	105.0	1.1269	8.69	49.02	0.177 [1]
T20	19.98 - 0	L3 1/2x3 1/2x1/4	20.89	10.28	114.7	1.1034	9.05	48.00	0.188 [1]

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	105 - 100	L3x3x3/16	8.46	3.93	103.8	0.6945	1.74	30.21	0.058 [1]
T13	93.33 - 86.66	L2x2x3/16	9.72	4.56	182.5	0.4132	2.11	17.97	0.117 [1]
T14	86.66 - 79.99	L2x2x3/16	10.39	4.90	195.7	0.4132	2.29	17.97	0.127 [1]
T16	73.32 - 66.65	L3x3x3/16	11.75	5.55	145.3	0.6945	2.66	30.21	0.088 [1]
T17	66.65 - 59.98	L2x2x3/16	12.42	5.79	234.3	0.4132	2.83	17.97	0.158 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	168 - 160	L1 3/4x1 3/4x3/16	6.69	6.45	144.2	0.6211	0.07	20.12	0.003 [1]
T2	160 - 140	L2x2x1/8	6.69	6.45	123.6	0.4844	0.04	15.69	0.003 [1]
T3	140 - 136	L2x2x1/8	6.69	6.45	123.6	0.4844	0.25	15.69	0.016 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	168 - 160	Leg	ROHN 2.5 STD	3	-1.62	66.74	2.4	Pass
T2	160 - 140	Leg	ROHN 2.5 STD	21	-16.95	66.74	25.4	Pass
T3	140 - 136	Leg	ROHN 2.5 STD	57	-23.57	66.74	35.3	Pass
T4	136 - 132	Leg	ROHN 2.5 STD	69	-31.06	66.74	46.5	Pass
T5	132 - 128	Leg	ROHN 2.5 STD	78	-39.39	66.74	59.0	Pass
T6	128 - 124	Leg	P2.5x0.276 with Half Pipe P3x0.216	87	-49.82	108.63	45.9	Pass
T7	124 - 120	Leg	P2.5x0.276 with Half Pipe P3x0.216	96	-59.74	108.63	55.0	Pass
T8	120 - 115	Leg	P3x0.216 with Half Pipe P3.5x0.226	105	-70.68	115.12	61.4	Pass
T9	115 - 110	Leg	P3x0.216 with Half Pipe P3.5x0.226	114	-81.93	115.12	71.2	Pass
T10	110 - 105	Leg	P3x0.216 with Half Pipe P3.5x0.226	123	-90.86	115.12	78.9	Pass
T11	105 - 100	Leg	P3x0.216 with Half Pipe P3.5x0.226	132	-100.25	122.55	81.8	Pass
T12	100 - 93.33	Leg	ROHN 3.5 EH	144	-110.20	131.98	83.5	Pass
T13	93.33 - 86.66	Leg	ROHN 3.5 EH	153	-121.40	161.45	75.2	Pass
T14	86.66 - 79.99	Leg	ROHN 3.5 EH	165	-132.04	161.52	81.8	Pass
T15	79.99 - 73.32	Leg	ROHN 4 EH	177	-143.11	167.87	85.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T16	73.32 - 66.65	Leg	ROHN 4 EH	186	-153.13	196.71	77.8	Pass
T17	66.65 - 59.98	Leg	ROHN 4 EH	198	-163.31	196.74	83.0	Pass
T18	59.98 - 39.98	Leg	ROHN 5 EH	210	-193.78	251.35	77.1	Pass
T19	39.98 - 19.98	Leg	ROHN 6 EHS	231	-219.86	256.26	85.8	Pass
T20	19.98 - 0	Leg	ROHN 6 EH	246	-247.26	319.07	77.5	Pass
T1	168 - 160	Diagonal	L1 3/4x1 3/4x3/16	8	-0.51	11.55	4.4 8.2 (b)	Pass
T2	160 - 140	Diagonal	L1 3/4x1 3/4x3/16	26	-2.77	11.55	24.0 44.8 (b)	Pass
T3	140 - 136	Diagonal	L1 3/4x1 3/4x3/16	62	-3.82	11.55	33.0 60.6 (b)	Pass
T4	136 - 132	Diagonal	L1 3/4x1 3/4x3/16	71	-3.93	11.55	34.0 65.7 (b)	Pass
T5	132 - 128	Diagonal	L1 3/4x1 3/4x3/16	80	-5.06	11.55	43.8 80.9 (b)	Pass
T6	128 - 124	Diagonal	L1 3/4x1 3/4x3/16	89	-5.82	11.55	50.4 97.1 (b)	Pass
T7	124 - 120	Diagonal	L1 3/4x1 3/4x3/16	98	-6.17	11.75	52.5 97.9 (b)	Pass
T8	120 - 115	Diagonal	L2x2x3/16	107	-5.37	13.70	39.2 71.3 (b)	Pass
T9	115 - 110	Diagonal	L2x2x3/16	116	-5.30	12.43	42.6 74.5 (b)	Pass
T10	110 - 105	Diagonal	L2x2x3/16	125	-5.39	11.28	47.8 72.4 (b)	Pass
T11	105 - 100	Diagonal	L2x2x3/16	134	-5.40	10.26	52.6 74.1 (b)	Pass
T12	100 - 93.33	Diagonal	L2 1/2x2 1/2x3/16	146	-6.11	15.22	40.2 71.8 (b)	Pass
T13	93.33 - 86.66	Diagonal	L2 1/2x2 1/2x3/16	155	-6.33	13.79	45.9 74.9 (b)	Pass
T14	86.66 - 79.99	Diagonal	L2 1/2x2 1/2x3/16	167	-6.48	12.55	51.6 76.2 (b)	Pass
T15	79.99 - 73.32	Diagonal	L 2 1/2x 2 1/2x 1/4	179	-6.52	14.96	43.6 57.8 (b)	Pass
T16	73.32 - 66.65	Diagonal	L 2 1/2x 2 1/2x 1/4	188	-7.11	13.68	52.0 62.7 (b)	Pass
T17	66.65 - 59.98	Diagonal	L 2 1/2x 2 1/2x 1/4	200	-7.18	12.52	57.3 63.0 (b)	Pass
T18	59.98 - 39.98	Diagonal	L3x3x1/4	212	-7.58	17.43	43.5 67.9 (b)	Pass
T19	39.98 - 19.98	Diagonal	L3 1/2x3 1/2x1/4	233	-9.02	19.14	47.1 79.3 (b)	Pass
T20	19.98 - 0	Diagonal	L3 1/2x3 1/2x1/4	248	-9.47	16.06	59.0 68.3 (b)	Pass
T11	105 - 100	Secondary Horizontal	L3x3x3/16	140	-1.74	27.83	6.2 17.5 (b)	Pass
T13	93.33 - 86.66	Secondary Horizontal	L2x2x3/16	161	-2.11	11.15	18.9 28.9 (b)	Pass
T14	86.66 - 79.99	Secondary Horizontal	L2x2x3/16	173	-2.29	9.67	23.7 31.5 (b)	Pass
T16	73.32 - 66.65	Secondary Horizontal	L3x3x3/16	195	-2.66	23.57	11.3 26.7 (b)	Pass
T17	66.65 - 59.98	Secondary Horizontal	L2x2x3/16	206	-2.83	8.08	35.0	Pass
T1	168 - 160	Top Girt	L1 3/4x1 3/4x3/16	4	-0.09	5.47	1.7	Pass
T2	160 - 140	Top Girt	L2x2x1/8	22	0.04	16.48	0.9	Pass
T3	140 - 136	Top Girt	L2x2x1/8	58	-0.12	5.29	2.3	Pass
							Summary	
						Leg (T19)	85.8	Pass
						Diagonal (T7)	97.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
						Secondary Horizontal (T17)	35.0	Pass
						Top Girt (T3)	2.3	Pass
						Bolt Checks	97.9	Pass
						RATING =	**97.9**	**Pass**

Project Information

Site #	CT11144C Rev.2

Tower Information

Tower Type	Self Support
TIA-222 Rev	H

☑ Apply TIA-222-H Section 15.5

Applied Loads

	Comp.	Uplift
Axial (k)	254.00	221.00
Shear (k)	26.00	23.00

Anchor Rod Data

Quantity:	6
Diameter (in):	1
Material Grade:	A354-BC
Grout Considered:	Yes
l_{ar} (in):	0
Eta Factor, η:	0.7
Thread Type:	N-Included
Configuration:	Symmetrical

Fy=109 ksi Fu=125 ksi

Not Considered, lar<=1(d)

Anchor Rod Results

Axial, Pu_c (kips)	42.33
Shear, Vu (kips)	4.33
Moment, Mu (kip-in)	-
Axial Cap., φPn_c (kips)	66.05
Shear Cap., ϕVn (kips)	19.82
Moment Cap., ϕMn (kip-in)	-
Stress Rating	65.6%

Pass

Exhibit E

June 04, 2019

Re: Mount Structural Evaluation

T-Mobile Site ID:	CT11144C
T-Mobile Site Name:	Union/I-84 X73-74/Cemet1
Site Address:	1050 Buckley Highway, Union, CT 06076
Destek Job Number:	1975066

In accordance with the request of T-Mobile, Destek Engineering, LLC (Destek) evaluated the structural capacity of the existing antenna mounting system located at the above referenced address for the additions and alterations proposed by T-Mobile. This evaluation is based on the following documents.

- RFDS provided by T-Mobile, dated 05/06/2019.
- Structural Analysis Report prepared by Ramaker & Associates, dated 04/23/2018.
- Structural Analysis Report prepared by EBI Consulting, dated 03/30/2015.
- Construction Drawings prepared by EBI Consulting, dated 04/07/2015.
- Construction Drawings prepared by Arcnet Arquitects, Inc., dated 11/07/1997.

Proposed Changes:

T-Mobile is proposing the following antenna and equipment configuration on the sector mounts:

- **(3) Proposed RFS APXVAARR24_43-U-NA20 – Antennas**
- **(3) Proposed RFS APX16DWV-16DWV-S-E-A20 – Antennas**
- **(3) Proposed Radio 4449 B71+B12 – RRUs**
- **(3) Proposed Radio 4415 B66A – RRUs**
- (3) Existing Generic Twin Style 1A PCS – TMAs

Evaluation Conditions: It is assumed that all prior additions and alterations by T-Mobile have been properly designed, constructed accordingly, and structural components, including the main structure itself, have been qualified for the changed conditions. Unless otherwise noted, the structure is assumed to be in good condition, free of defects and can achieve theoretical strength. Destek does not assume any liability which may arise due to invalidity of these assumptions or any existing design or construction deficiency. The evaluation results presented in this evaluation are only applicable for the previously mentioned proposed changes. It is assumed that all of the existing bolts and connections are properly secured to the host structure(s). Contractor should verify the connections and contact Destek immediately if any of these assumptions are discovered to be incorrect.

Codes and Loading:

This assessment is in accordance with the following codes and loading:

- *2018 Connecticut State Building Code*
- *ASCE 7-10, Minimum Design Loads for Buildings and Other Structures.*
- *TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures.*
- Basic Wind Speed, V_{ult}= 125 mph converted to V_{asd} = 97 mph.
- RAD Center: 140 ft
- Exposure Category C
- Risk Category II

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

Engineering Evaluation and Conclusion: T-Mobile currently has six (6) panel antennas supported by standoff mounts attached to the tower legs at a RAD center of 140 feet above grade level. The proposed configuration will replace the six (6) existing panel antennas and three (3) existing RRU's with six (6) new panel antennas and six (6) new RRU's of similar dimensions. Based on our experience with similar mount structures and with respect to the changes in applied loads, Destek opines that the mounts **will have adequate** capacity for the proposed T-Mobile loading referenced above ***once additional 2.0"' STD stabilizer arms are installed from the bottom standoff horizontals to the adjacent tower leg. The contractor must verify the mounts currently have stabilizer arms installed from the top standoff horizontal to the tower leg as shown in the original Construction Drawings prepared by Arcnet Architects, Inc., referenced above.***

The additions and alterations proposed by T-Mobile **can be implemented as intended once the mounts are modified** and with the conditions outlined in this letter. Should you need any clarifications about this letter, please contact me at (770) 693-0835 or acolakoglu@destekengineering.com.

Sincerely,
Destek Engineering, LLC
License No: PEC0001429

6/4/2019

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

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

Site Photographs & Redlined Original Construction Drawing

Existing T-Mobile Antenna Standoff Mount on Tower

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

Exhibit F

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11144C

Union/I-84 X73-74/Cemet1
1050 Buckley Highway
Union, Connecticut 06076

May 21, 2019

EBI Project Number: 6219001730

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**12.28%**

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

May 21, 2019

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

Emissions Analysis for Site: CT11144C - Union/I-84 X73-74/Cemet1

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **1050 Buckley Highway** in **Union, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 1050 Buckley Highway in Union, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

3) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

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

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

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

8) The antennas used in this modeling are the RFS APX16DWV-16DWVS-E-A20 for the 1900 MHz / 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz / 2100 MHz channel(s) in Sector A, the RFS APX16DWV-16DWVS-E-A20 for the 1900 MHz / 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz / 2100 MHz channel(s) in Sector B, the RFS APX16DWV-16DWVS-E-A20 for the 1900 MHz / 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz / 2100 MHz channel(s) in Sector C.

9) This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerline of the proposed antennas is 140 feet above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Frequency Bands:	1900 MHz / 1900 MHz	Frequency Bands:	1900 MHz / 1900 MHz	Frequency Bands:	1900 MHz / 1900 MHz
Gain:	15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08
Antenna A1 MPE %:	**1.71%**	Antenna B1 MPE %:	**1.71%**	Antenna C1 MPE %:	**1.71%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 700 MHz / 2100 MHz	Frequency Bands:	600 MHz / 700 MHz / 2100 MHz	Frequency Bands:	600 MHz / 700 MHz / 2100 MHz
Gain:	12.95 dBd / 13.35 dBd / 16.35 dBd	Gain:	12.95 dBd / 13.35 dBd / 16.35 dBd	Gain:	12.95 dBd / 13.35 dBd / 16.35 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	7,659.31	ERP (W):	7,659.31	ERP (W):	7,659.31
Antenna A2 MPE %:	**2.00%**	Antenna B2 MPE %:	**2.00%**	Antenna C2 MPE %:	**2.00%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	3.71%
AT&T	1.49%
Sprint	3.1%
Verizon	3.45%
Nextel	0.24%
Pagenet	0.29%
Site Total MPE % :	12.28%

T-Mobile Sector A Total:	3.71%
T-Mobile Sector B Total:	3.71%
T-Mobile Sector C Total:	3.71%
Site Total:	12.28%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 1900 MHz LTE	2	2334.27	140.0	8.56	1900 MHz LTE	1000	0.86%
T-Mobile 1900 MHz GSM	4	1167.14	140.0	8.56	1900 MHz GSM	1000	0.86%
T-Mobile 600 MHz LTE	2	591.73	140.0	2.17	600 MHz LTE	400	0.54%
T-Mobile 700 MHz LTE	2	648.82	140.0	2.38	700 MHz LTE	467	0.51%
T-Mobile 2100 MHz LTE	2	2589.11	140.0	9.50	2100 MHz LTE	1000	0.94%
						Total:	**3.71%**

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	3.71%
Sector B:	3.71%
Sector C:	3.71%
T-Mobile Maximum MPE % (Sector A):	3.71%
Site Total:	12.28%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **12.28%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

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9405 5036 9930 0086 7740 47 0073 5000 0010 6076

usps.com
$7.35
US POSTAGE
Flat Rate Env

08/19/2019 Mailed from 06002 062S0000001309

P

PRIORITY MAIL 1-DAY™

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

Expected Delivery Date: 08/20/19
Ref#: 1440ZAP

0024

R002

SHIP TO: DAVID D EATON
FIRST SELECTMAN-TOWN OF UNION
1043 BUCKLEY HWY
UNION CT 06076-4802

USPS TRACKING #

9405 5036 9930 0086 7740 47

Electronic Rate Approved #038555749

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 0086 7740 47

Trans. #:	470512051
Print Date:	08/16/2019
Ship Date:	08/19/2019
Expected Delivery Date:	08/20/2019

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

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

Ref#: 1440ZAP

To: DAVID D EATON
FIRST SELECTMAN-TOWN OF UNION
1043 BUCKLEY HWY
UNION CT 06076-4802

* 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®

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UNITED STATES POSTAL SERVICE®

Click-N-Ship®

9405 5036 9930 0086 7740 54 0073 5000 0010 6076

usps.com
$7.35
US POSTAGE
Flat Rate Env

08/19/2019 Mailed from 06002 062S0000000101

P

PRIORITY MAIL 1-DAY™

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

Expected Delivery Date: 08/20/19
Ref#: 144CZAP

0024

Carrier -- Leave if No Response

R002

SHIP TO: MATHIEU J SILBERMANN
ZONING DEPARTMENT- PLANNING & ZONING
1043 BUCKLEY HWY
UNION CT 06076-4802

USPS TRACKING #

9405 5036 9930 0086 7740 54

Electronic Rate Approved #038555749

Cut on dotted line.

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0086 7740 54

Trans. #: 470512051
Print Date: 08/16/2019
Ship Date: 08/19/2019
Expected Delivery Date: 08/20/2019

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

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

Ref#: 144CZAP

To: MATHIEU J SILBERMANN
ZONING DEPARTMENT- PLANNING & ZONING COMMISSIONER
1043 BUCKLEY HWY
UNION CT 06076-4802

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UNITED STATES POSTAL SERVICE®

Click-N-Ship®

9405 5036 9930 0086 7740 61 0073 5000 0010 6076

usps.com
$7.35
US POSTAGE
Flat Rate Env

08/19/2019 Mailed from 06002 062S0000000101

PRIORITY MAIL 1-DAY™

DEBORAH CHASE
NORTHEAST SITE SOLUTIONS, LLC/ T-MOBILE
35 GRIFFIN RD S
BLOOMFIELD CT 06002-1351

Expected Delivery Date: 08/20/19
Ref#: 144CZAP

0024

Carrier -- Leave if No Response

R002

SHIP TO: JOE PAJAK
BUILDING OFFICIAL-BUILDING DEPARTMENT
1043 BUCKLEY HWY
UNION CT 06076-4802

USPS TRACKING #

9405 5036 9930 0086 7740 61

Electronic Rate Approved #038555749

Cut on dotted line.

Instructions

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0086 7740 61

Trans. #:	470512051
Print Date:	08/16/2019
Ship Date:	08/19/2019
Expected Delivery Date:	08/20/2019

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

From: DEBORAH CHASE Ref#: 144CZAP
NORTHEAST SITE SOLUTIONS, LLC/ T-MOBILE
35 GRIFFIN RD S
BLOOMFIELD CT 06002-1351

To: JOE PAJAK
BUILDING OFFICIAL-BUILDING DEPARTMENT
1043 BUCKLEY HWY
UNION CT 06076-4802

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UNITED STATES POSTAL SERVICE®

Click-N-Ship®

9405 5036 9930 0086 7740 78 0073 5000 0010 6093

usps.com
$7.35
US POSTAGE
Flat Rate Env

08/19/2019 Mailed from 06002 062S0000001311

P

PRIORITY MAIL 1-DAY™

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

Expected Delivery Date: 08/20/19
Ref#: 144CZAP

0024

Carrier -- Leave if No Response

R011

SHIP TO: KENNETH LINDELAND
NEW ENGLAND SITE MANAGEMENT
1515 N STONE ST
WEST SUFFIELD CT 06093-2314

USPS TRACKING #

9405 5036 9930 0086 7740 78

Electronic Rate Approved #038555749

Cut on dotted line.

Instructions

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0086 7740 78

Trans. #:	470512051
Print Date:	08/16/2019
Ship Date:	08/19/2019
Expected Delivery Date:	08/20/2019

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

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

Ref#: 144CZAP

To: KENNETH LINDELAND
NEW ENGLAND SITE MANAGEMENT
1515 N STONE ST
WEST SUFFIELD CT 06093-2314

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UNITED STATES POSTAL SERVICE®

Click-N-Ship®

9405 5036 9930 0086 7740 85 0073 5000 0010 6076

usps.com
$7.35
US POSTAGE
Flat Rate Env

08/19/2019 Mailed from 06002 062S0000001309

P

PRIORITY MAIL 1-DAY™

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

Expected Delivery Date: 08/20/19
Ref#: 144CZAP

0024

Carrier -- Leave if No Response

R002

SHIP TO:
WAYNE KEMP
1050 BUCKLEY HWY
UNION CT 06076-4800

USPS TRACKING #

9405 5036 9930 0086 7740 85

Electronic Rate Approved #038555749

Cut on dotted line.

Instructions

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0086 7740 85

Trans. #:	470512051
Print Date:	08/16/2019
Ship Date:	08/19/2019
Expected Delivery Date:	08/20/2019

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

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

Ref#: 144CZAP

To: WAYNE KEMP
1050 BUCKLEY HWY
UNION CT 06076-4800

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UNITED STATES POSTAL SERVICE®

Click-N-Ship®

9405 5036 9930 0087 0493 04 0073 5000 0030 4046

usps.com
$7.35
US POSTAGE
Flat Rate Env

P

08/19/2019 Mailed from 06002 062S0000000313

PRIORITY MAIL 2-DAY™

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

Expected Delivery Date: 08/21/19
Ref#: 144CZAP

0004

Carrier -- Leave if No Response

B011

SHIP TO: NANCY AUMAN
NAVIGATOR PROPERTIES
PO BOX 2600
KENNEBUNKPORT ME 04046-2600

USPS TRACKING #

9405 5036 9930 0087 0493 04

Electronic Rate Approved #038555749

Cut on dotted line.

Instructions

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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 0087 0493 04

Trans. #:	470534944
Print Date:	08/16/2019
Ship Date:	08/19/2019
Expected Delivery Date:	08/21/2019

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

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

Ref#: 144CZAP

To: NANCY AUMAN
NAVIGATOR PROPERTIES
PO BOX 2600
KENNEBUNKPORT ME 04046-2600

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