



Northeast Site Solutions  
Denise Sabo  
4 Angela's Way  
Burlington, CT 06013  
860-209-4690  
[denise@northeastsitesolutions.com](mailto:denise@northeastsitesolutions.com)

June 5, 2019

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

RE: Notice of Exempt Modification  
6 Progress Ave, Seymour CT 06483  
Latitude: 41.39168  
Longitude: -73.05333  
T-Mobile Site#: CT11332C\_Anchor

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 247-foot level of the existing 280-foot self-support tower at 6 Progress Ave, Seymour CT. The 280-foot self-support tower and property are owned by EDMAC LLC. T-Mobile now intends to replace six (6) of the existing antenna with three (3) new 1900/2100 MHz antenna and three (3) 2500 MHz antenna. T-Mobile also intends to add three (3) new 600/700/1900 MHz antenna. The new antennas would be installed at the 247-foot level of the tower.

Planned Modifications:

Tower:  
Remove: (3) TMA  
(3) Diplexers  
(3) Coax

Remove and Replace:

(3) RR90 Antenna (Remove) – (3) AIR32 Antenna 1900/2100 MHz (Replace)  
(3) LNX6515 Antenna (Remove) – (3) AIR6488 Antenna 2500 MHz (Replace)

Install New:

(3) APXVAARR24 Antenna 600/700/1900 MHz  
(3) RRU 4415

- (3) RRU 4449
- (1) Hybrid Lines

Existing to Remain:

- (9) 1-5/8" Coax
- (2) Hybrid

Ground:

Install New:

- (1) 6160 Site Support Cabinet
- (1) B160 Battery Cabinet

This facility was approved by the CT Siting Council Tower Share No.TS-VOICESTREAM-124-001030 on November 15, 2000. This modification complies with this original approval. 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.S.A. § 16-SOj-73, a copy of this letter is being sent to First Selectman, W. Kurt Miller, elected official and Bob Looker, Land Use Official for the Town of Seymour, 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:

Town of Seymour

1 First Street, Seymour CT 06483

Attn: First Selectman's Office

First Selectman, W. Kurt Miller

Town of Seymour

1 First Street, Seymour CT 06483

Attn: Land Use Dept.

Bob Looker – Land Use Officer

EDMAC LLC - as property and tower owner

2702 Forest View Lane

Kissimmee, FL 34744

Attn: Edward H. MacConnie

# Exhibit A



STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

Ten Franklin Square  
New Britain, Connecticut 06051  
Phone: (860) 827-2935  
Fax: (860) 827-2950

November 15, 2000

J. Brendan Sharkey, Esq.  
VoiceStream Wireless Corporation  
100 Filley Street  
Bloomfield, CT 06002

RE: **TS-VOICESTREAM-124-001030** - VoiceStream Wireless Corporation request for an order to approve tower sharing at an existing telecommunications facility located at Progress Avenue, Seymour, Connecticut.

Dear Attorney Sharkey:

At a public meeting held November 14, 2000, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

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

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated October 30, 2000.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston  
Chairman

MAG/RKE/laf

c: Honorable Scott A. Barton, First Selectman, Town of Seymour  
Edward H. MacConnie  
Julie M. Cashin, Esq., Hurwitz & Sagarin LLC

# Exhibit B



# Town of Seymour, CT

## Property Listing Report

Map Block Lot

1-05-12N-0

Account

015124

### Property Information

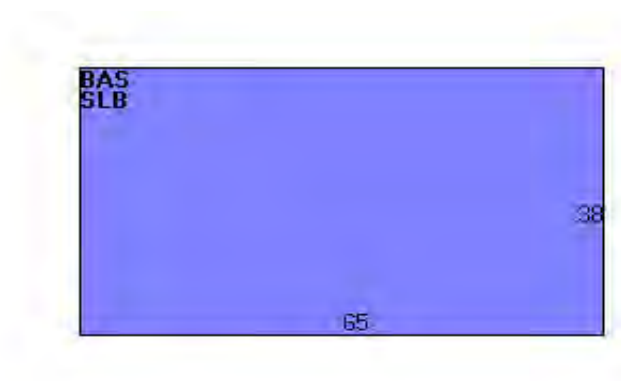
Property Location	<b>6 PROGRESS AVE</b>
Owner	<b>EDMAC LLC</b>
Co-Owner	
Mailing Address	<b>2702 FOREST VIEW LANE</b> <b>KISSIMMEE FL 34744</b>
Land Use	<b>4330 RAD/TV TR</b>
Land Class	<b>I</b>
Zoning Code	<b>GI-2</b>
Census Tract	

Neighborhood	<b>D</b>
Acreage	<b>2.15</b>
Utilities	
Lot Setting/Desc	<b>Level</b>
Additional Info	

### Photo



### Sketch



### Primary Construction Details

Year Built	<b>2001</b>
Stories	<b>1</b>
Building Style	<b>Com Garage</b>
Building Use	<b>Comm/Ind</b>
Building Condition	<b>A</b>
Floors	<b>Precast Concr</b>
Total Rooms	<b>0</b>

Bedrooms	<b>0</b>
Full Bathrooms	<b>0</b>
Half Bathrooms	<b>0</b>
Bath Style	<b>NA</b>
Kitchen Style	<b>NA</b>
Roof Style	<b>Flat</b>
Roof Cover	<b>Rolled Compos</b>

Exterior Walls	<b>Concr/Cinder</b>
Interior Walls	<b>Minim/Masonry</b>
Heating Type	<b>Hot Air-no Duc</b>
Heating Fuel	<b>Gas</b>
AC Type	<b>None</b>
Gross Bldg Area	<b>4940</b>
Total Living Area	<b>2470</b>



# Town of Seymour, CT

Property Listing Report

Map Block Lot

1-05-12N-0

Account

015124

## Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
<b>Buildings</b>	<b>52000</b>	<b>36400</b>
<b>Extras</b>	<b>0</b>	<b>0</b>
<b>Outbuildings</b>	<b>7000</b>	<b>4900</b>
<b>Land</b>	<b>157900</b>	<b>110530</b>
<b>Total</b>	<b>216900</b>	<b>151830</b>

## Outbuilding and Extra Items

Type	Description
Paving Asph.	7000 S.F.
Fence 8 Ft	215 L.F.

## Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
<b>First Floor</b>	<b>2470</b>	<b>2470</b>
<b>Slab</b>	<b>2470</b>	<b>0</b>
<b>Total Area</b>	<b>4940</b>	<b>2470</b>

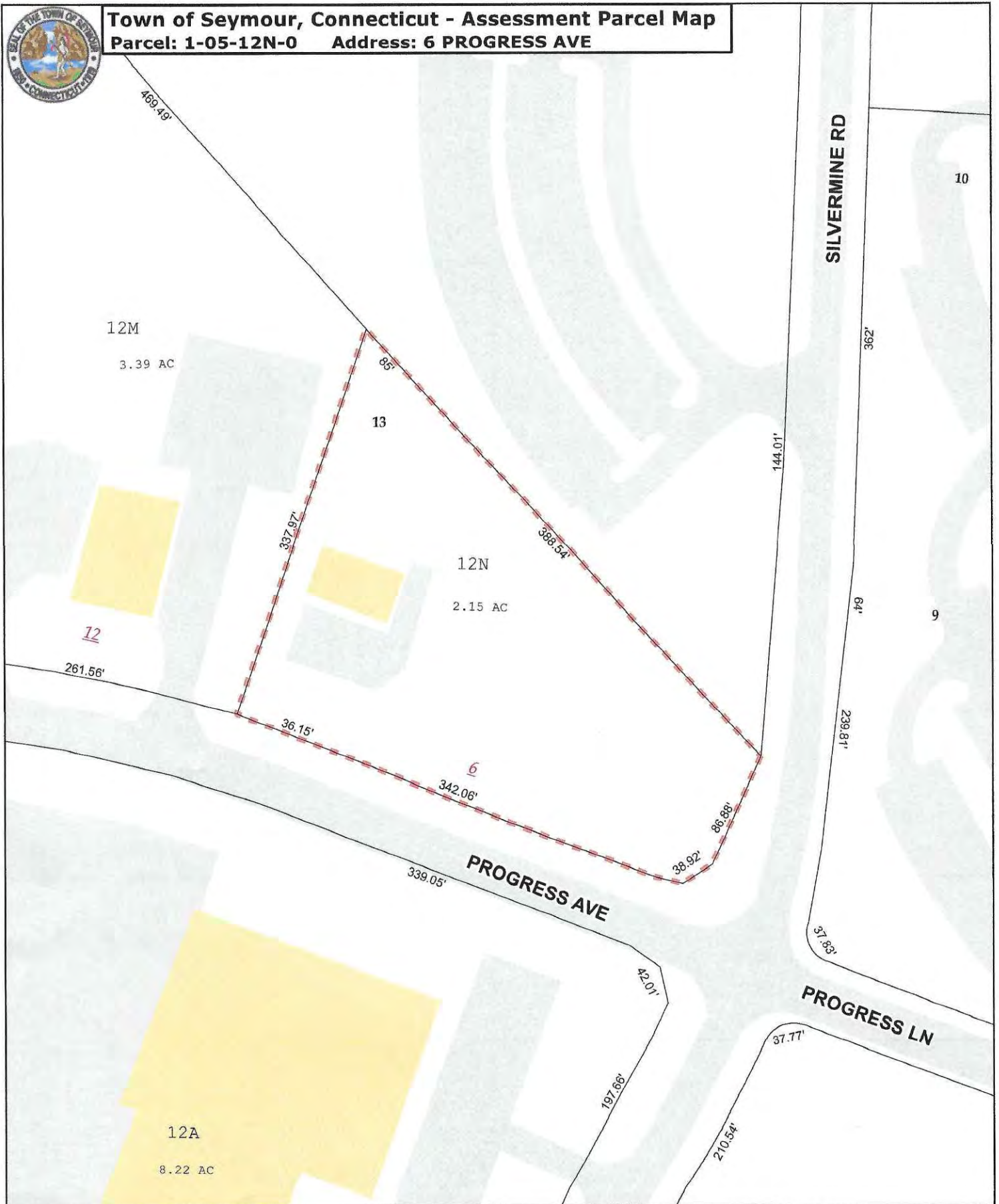
## Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
EDMAC LLC	00285/0679	2001-09-25	0
MACCONNIE EDWARD H	00269/0272	2000-06-28	0
EMAC COMMUNICATIONS CO INC	00266/0050	2000-02-11	110000
HUBBELL REALTY DEVELOPMENT	00150/0777		0





**Town of Seymour, Connecticut - Assessment Parcel Map**  
**Parcel: 1-05-12N-0 Address: 6 PROGRESS AVE**



**Approximate Scale: 1 inch = 100 feet**



**Map Produced:  
 March 2018**

**Disclaimer:**  
 This map is for informational purposes only. All information is subject to verification by any user. The Town of Seymour and its mapping contractors assume no legal responsibility for the information contained herein.

# Exhibit C



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ANTENNA UPGRADES BY

# T-Mobile

## T-MOBILE NORTHEAST LLC

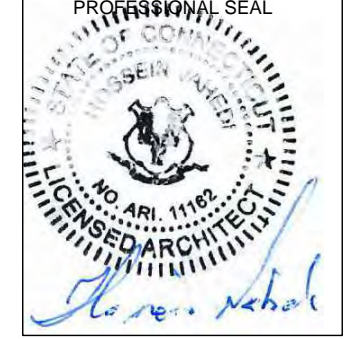
### ANCHOR PROJECT

SITE NUMBER: CT11332C  
 SITE NAME: DERBY / RT 34  
 SITE ADDRESS: 6 PROGRESS AVE  
 SEYMOUR, CT 06483  
 (RF CONFIGURATION 67D5994DB\_2XAIR+1QP+1OP)

**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

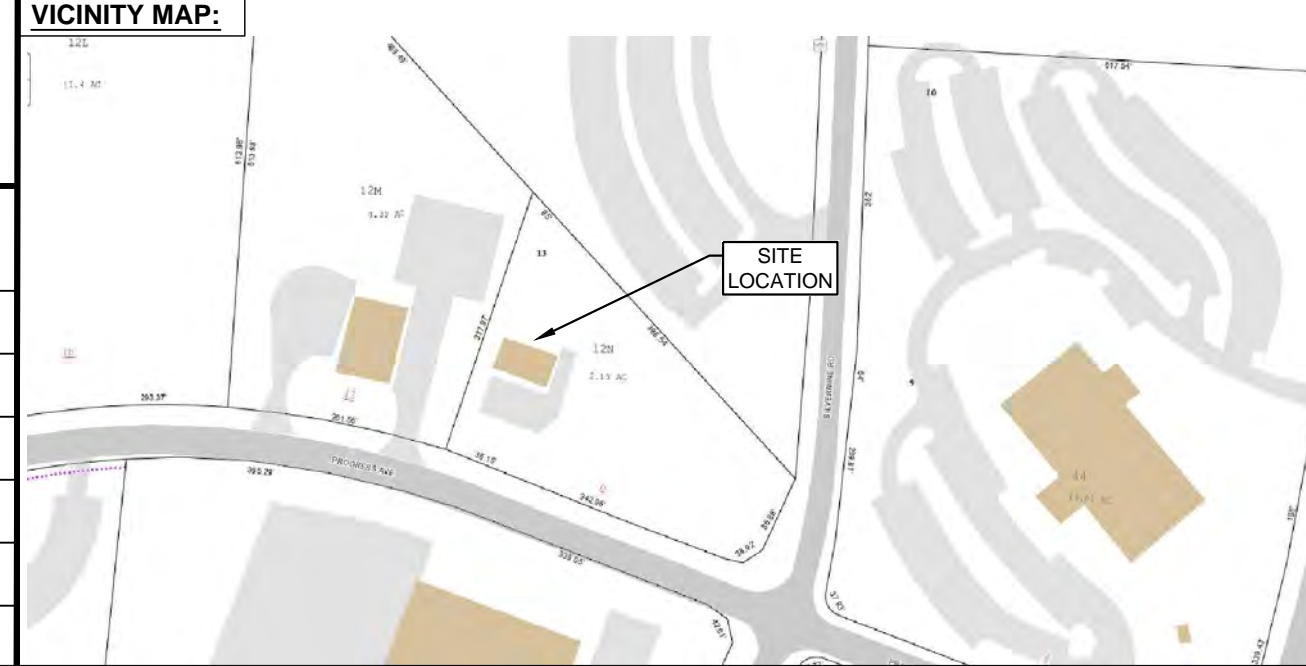


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REV	DESCRIPTION	DATE
A	PRELIMINARY	04/03/19
0	SIGNED AND SEALED	04/19/19
1	REVISED CABLE COUNT	05/22/19
2	UPDATED STRUCTURAL REF.	05/28/19

SITE NUMBER: CT11332C  
 SITE NAME: DERBY / RT 34  
 SITE ADDRESS: 6 PROGRESS AVE  
 SEYMOUR, CT 06483

SHEET TITLE:  
 T-1: TITLE SHEET



**PROJECT NOTES:**

- 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.
- 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.
- DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES, ORDINANCES AND SPECIFICATIONS.
- REFER TO STRUCTURAL ANALYSIS REPORT REVISION 2 DATED MAY 28, 2019 AND THE MOUNT ANALYSIS REPORT, REVISION 1, DATED MAY 28, 2019, BOTH PREPARED BY DESTEK ENGINEERING, LLC.

**APPLICABLE STATE ADOPTION CODES:**  
 LATEST EDITION OF:  
 CONNECTICUT STATE BUILDING CODE (CSBC).  
 ANSITIA-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

**PROJECT SCOPE:**  
 UPGRADE OF EXISTING WIRELESS FACILITY AS FOLLOWS:  
 UPGRADE EXISTING RBS 6201 CABINET INTERNALLY.  
 REPLACE (6) OF (6) EXISTING ANTENNAS, ADD (3) NEW ANTENNAS FOR TOTAL OF (9).  
 ADD (1) 6160 AND (1) B160 CABINETS ON EXISTING PAD.  
 ADD (6) REMOTE RADIO UNITS AT ANTENNAS.  
 REMOVE (6) TMAs AT ANTENNAS.  
 REMOVE (3) DIPLEXERS AT ANTENNAS.  
 REMOVE (3) OF (12) EXISTING 1-5/8" COAX, ADD (1) 6X12 HCS HYBRID CABLE, FOR FINAL COUNT OF (9) 1-5/8" COAX AND (3) 6X12 HCS HYBRID CABLES.

**PROJECT INFORMATION:**

ADDRESS: 6 PROGRESS AVE  
 SEYMOUR, CT 06483

PARCEL ID: 1-05-12N-0

ZONING: G1-2

OWNER: EDMAC LLC

STRUCTURE TYPE: LATTICE TOWER

COORDINATES: 41°23'30.36"N, 73°03'10.13"W

**PROJECT TEAM:**

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

LANDLORD: EDMAC LLC  
 2702 FOREST VIEW LANE  
 KISSIMMEE, FL 34744

PROJECT MANAGER: NORTHEAST SITE SOLUTIONS  
 420 MAIN STREET, BLDG 4  
 STURBRIDGE, MA 01566  
 SHELDON FREINCLE  
 SHELDON@NORTHEASTSITE SOLUTIONS.COM  
 201-776-8521

CONSULTANTS: FORESITE LLC  
 462 WALNUT ST  
 NEWTON, MA 02460  
 SAEED MOSSAVAT  
 SMOSSAVAT@FORESITELLC.COM  
 617-212-3123

**SHEET INDEX:**

T-1: TITLE SHEET  
 N-1: GENERAL NOTES  
 A-1: PLAN AND ELEVATION  
 A-3: ANTENNA PLAN  
 A-3: ANTENNA AND EQUIPMENT DETAILS  
 E-1: GROUNDING DETAILS  
 END: STRUCTURAL MODIFICATION DESIGNS (BY OTHERS)



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**GENERAL NOTES:**

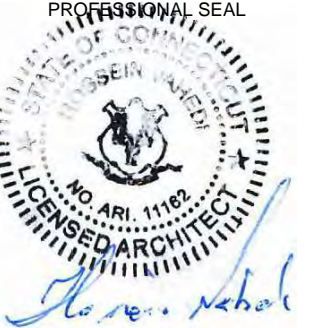
1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT 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 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:**  
  
**Architects . Engineers . Surveyors**  
 462 WALNUT STREET  
 NEWTON, MA 02460  
 617-212-3123



PROFESSIONAL SEAL  
 STATE OF CONNECTICUT  
 ANAND NEHAL  
 LICENSED ARCHITECT  
 NO. ARI. 11182

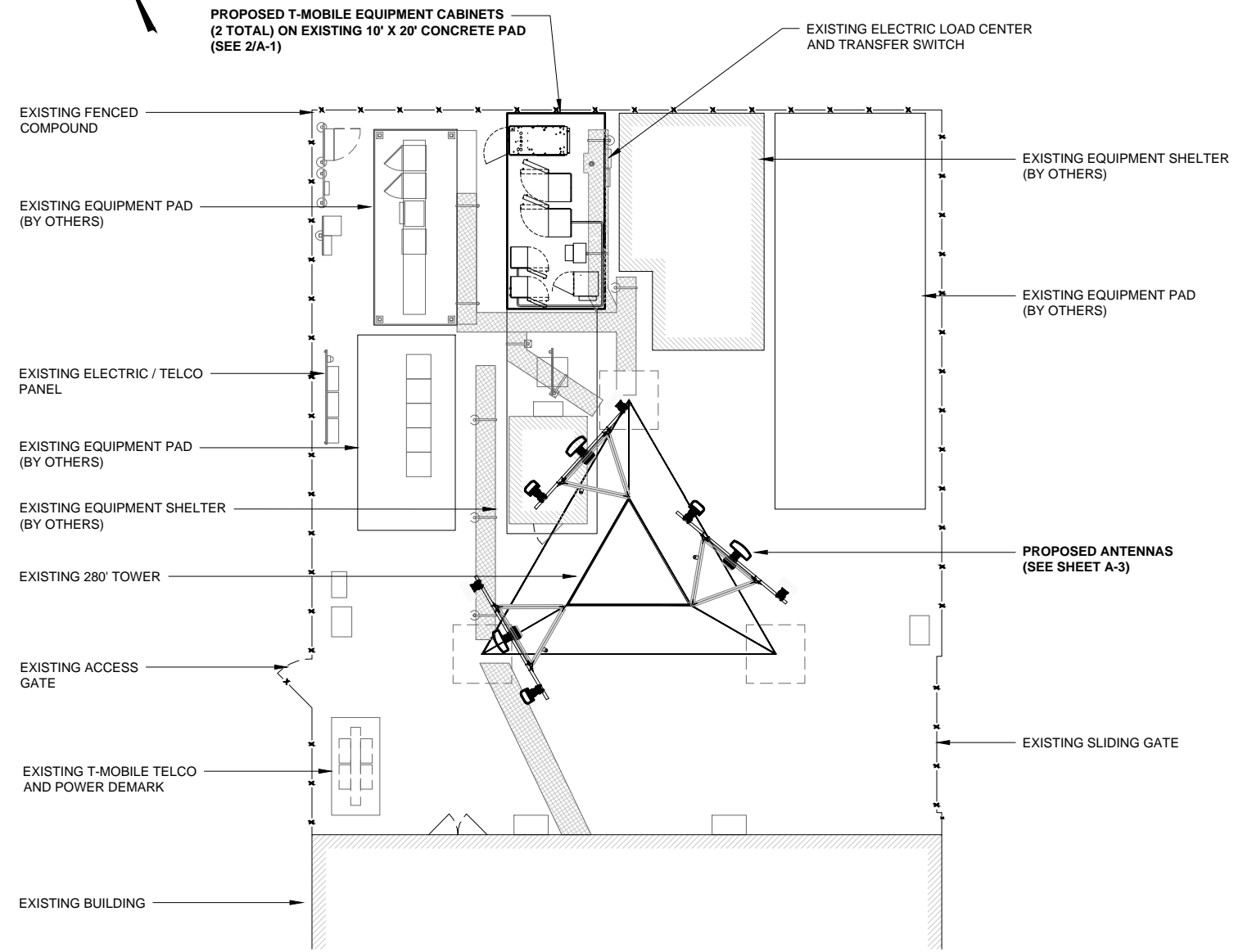
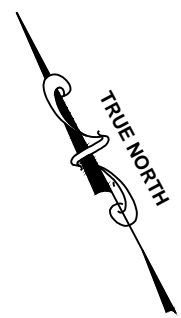
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REV	DESCRIPTION	DATE
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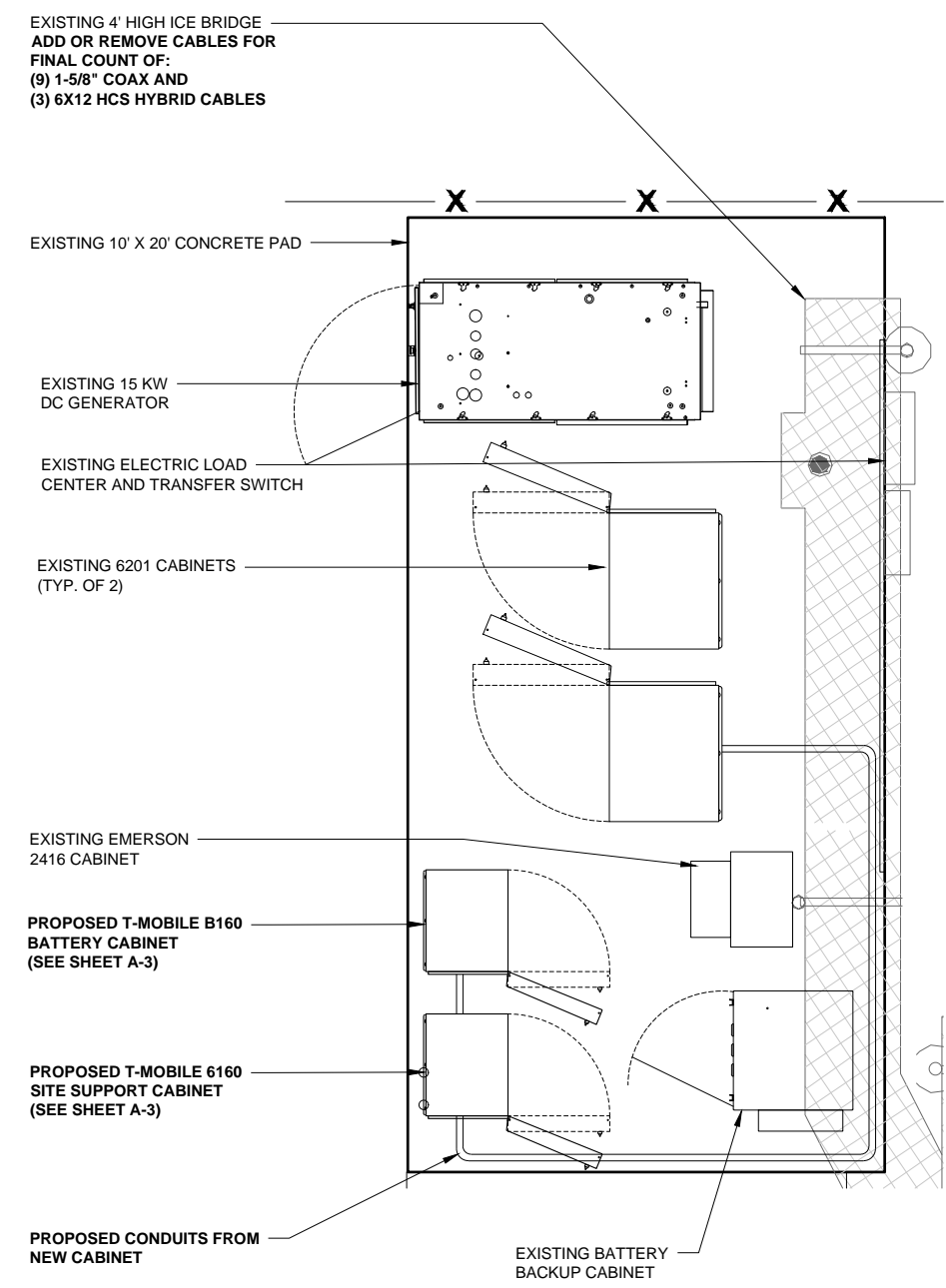
SITE NUMBER: CT11332C  
 SITE NAME: DERBY / RT 34  
 SITE ADDRESS: 6 PROGRESS AVE  
 SEYMOUR, CT 06483

SHEET TITLE:  
 N-1: NOTES AND DISCLAIMERS

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**COMPOUND PLAN**  
SCALE: 1/16" = 1'-0" 1  
A-1



**EQUIPMENT LAYOUT PLAN**  
SCALE: 1/4" = 1'-0" 1  
A-1

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

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

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

PROFESSIONAL SEAL  
STATE OF CONNECTICUT  
REGISTERED ARCHITECT  
NO. ARI. 11182  
*Harish Nehal*

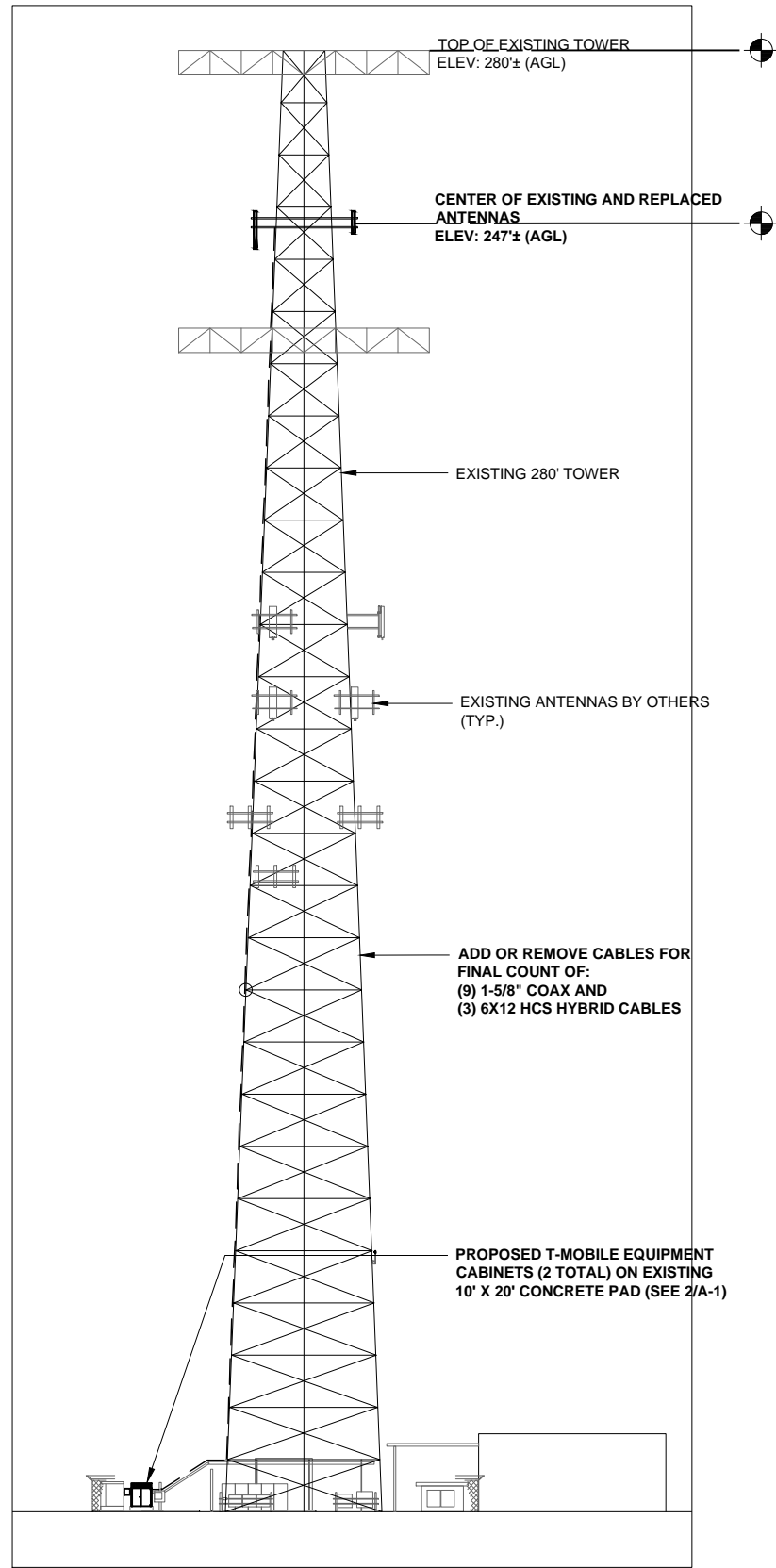
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2	UPDATED STRUCTURAL REF.	05/28/19

SITE NUMBER: CT11332C  
SITE NAME: DERBY / RT 34  
SITE ADDRESS: 6 PROGRESS AVE  
SEYMOUR, CT 06483

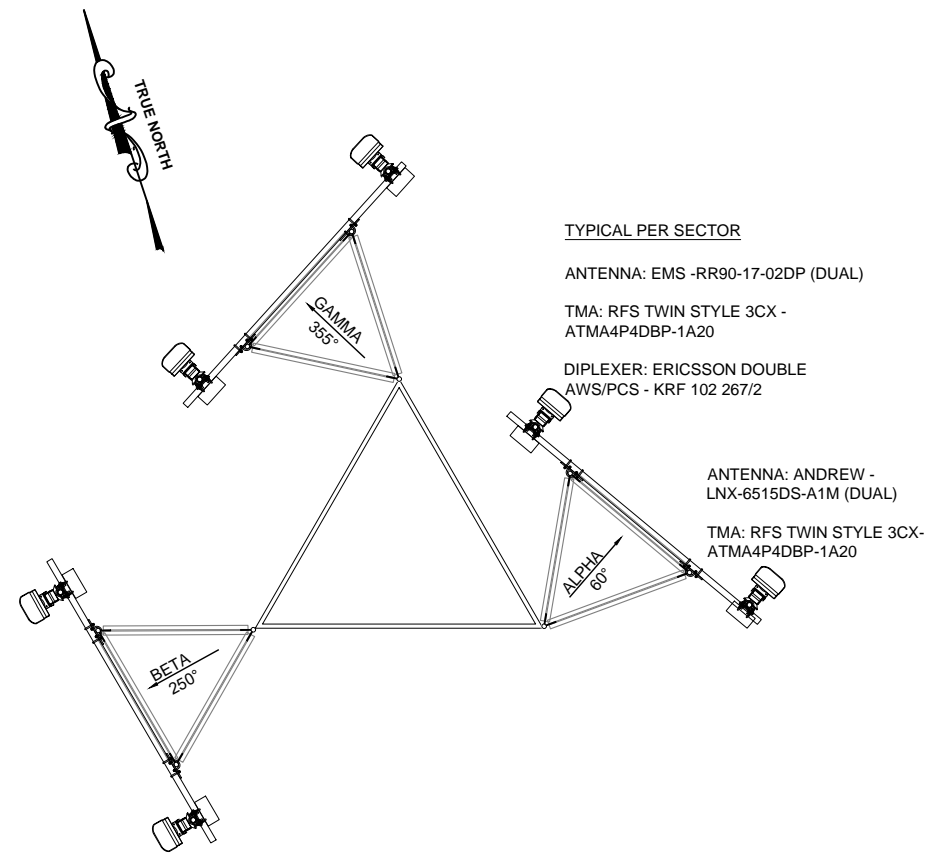
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A-1: PLAN AND ELEVATION

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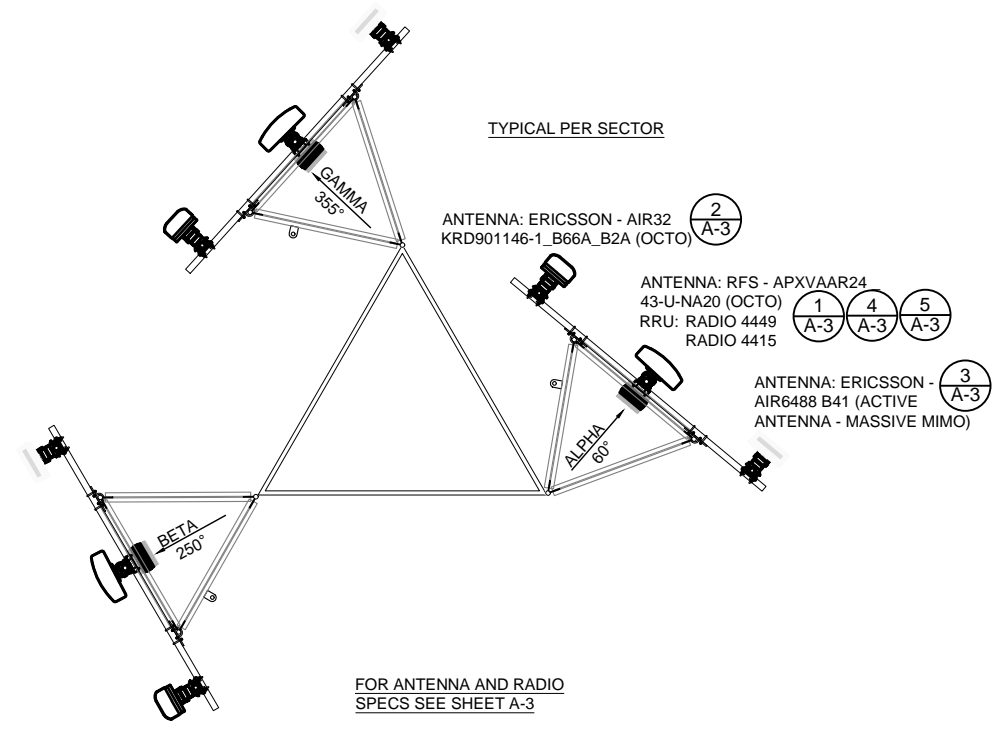
**ELEVATION**  
N.T.S.

1  
A-2



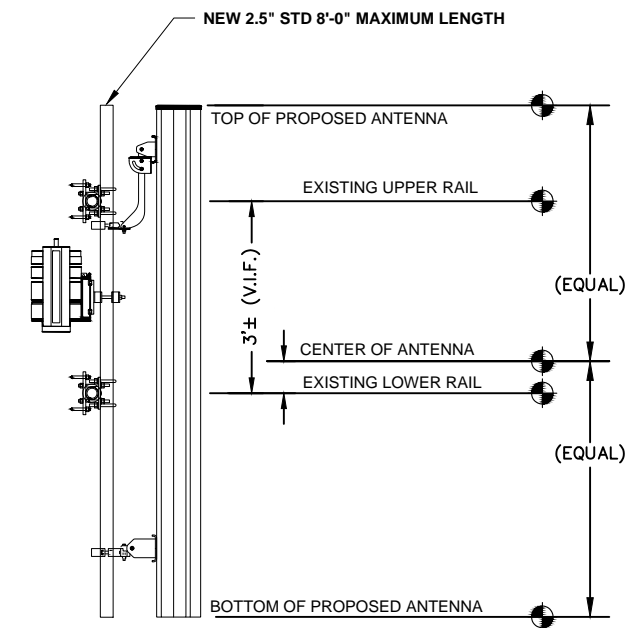
**EXISTING ANTENNA PLAN**  
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A-2



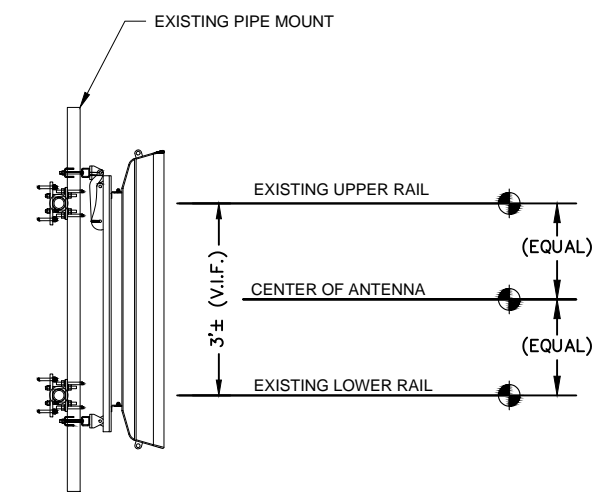
**FINAL ANTENNA PLAN**  
N.T.S.

3  
A-2



**APXVAAR24\_43-U-NA20 ANTENNA MOUNTING**  
N.T.S.

4  
A-2



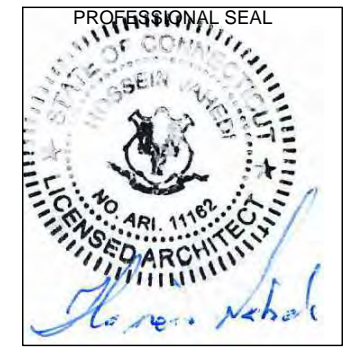
**AIR32 KRD901146-1\_B66A\_B2A ANTENNA MOUNTING**  
N.T.S.

4  
A-2

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

PROJECT MANAGER  
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SITE SOLUTIONS  
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CONSULTANT:  
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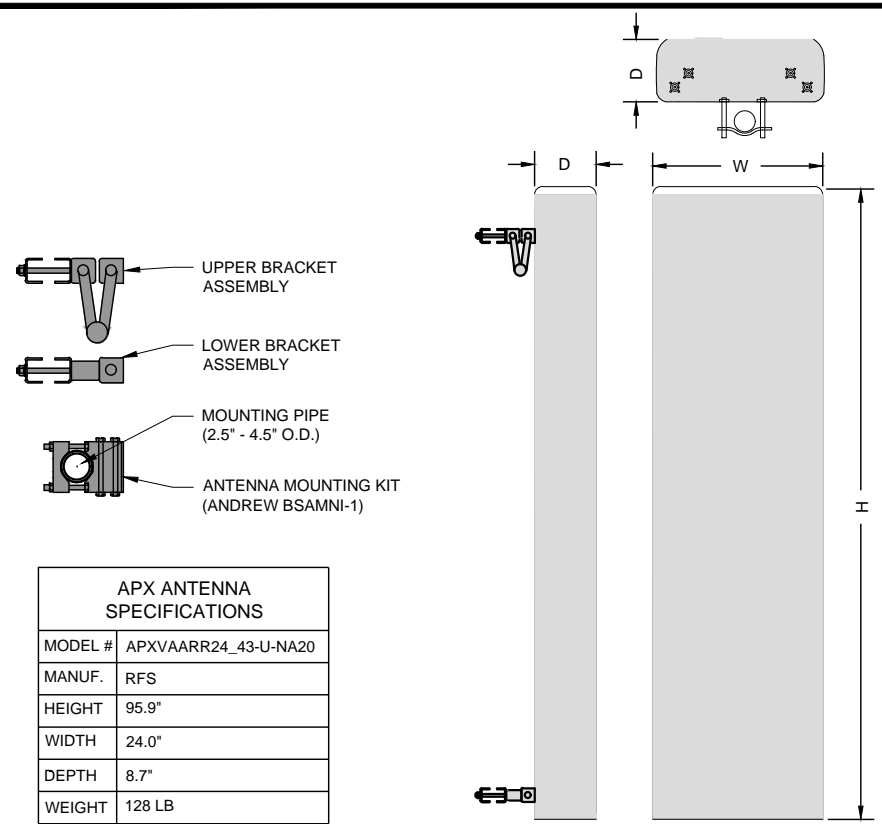
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SEYMOUR, CT 06483

SHEET TITLE:  
A-2: ANTENNA PLAN

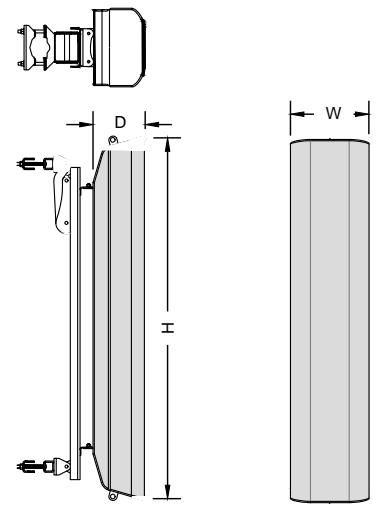


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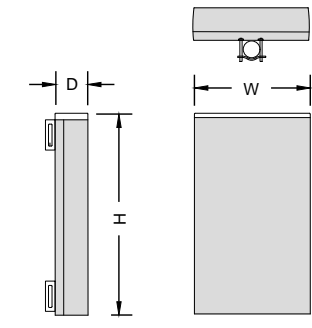
APX ANTENNA SPECIFICATIONS	
MODEL #	APXVAARR24_43-U-NA20
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24.0"
DEPTH	8.7"
WEIGHT	128 LB

APX ANTENNA  
N.T.S 1  
A-3



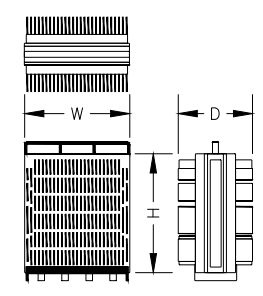
ERICSSON ANTENNA SPECIFICATIONS	
MODEL #	AIR32 KRD901146-1 B66A_B2A
MANUF.	ERICSSON
HEIGHT	56.6"
WIDTH	12.9"
DEPTH	8.7"
WEIGHT	132.2 LB

ERICSSON ANTENNA  
N.T.S 2  
A-3

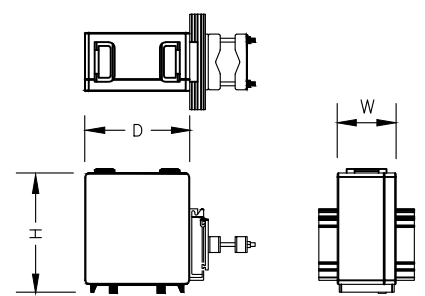


ERICSSON ANTENNA SPECIFICATIONS	
MODEL #	AIR6488 B41
MANUF.	ERICSSON
HEIGHT	34.8"
WIDTH	20.5"
DEPTH	7.2"
WEIGHT	128 LB

ERICSSON ANTENNA  
N.T.S 3  
A-3



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



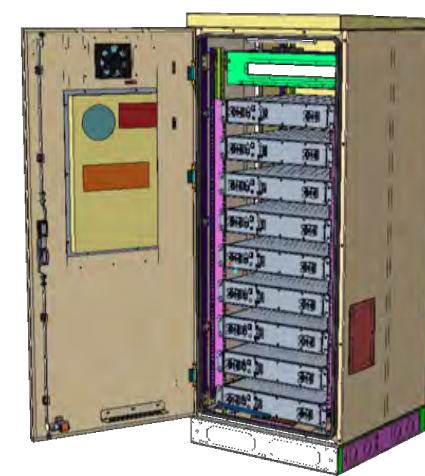
REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4415 B25
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	5.4"
WEIGHT	46.3 LB

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



SITE SUPPORT CABINET SPECIFICATIONS	
MODEL #	6160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	25.6"
DEPTH	25.6"
WEIGHT	

REMOTE RADIO UNIT  
N.T.S 5  
A-3



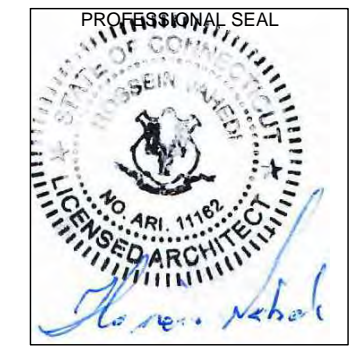
BATTERY CABINET SPECIFICATIONS	
MODEL #	B160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	26"
DEPTH	26"
WEIGHT	

BATTERY CABINET  
N.T.S 6  
A-3

**APPLICANT:**  
**T-Mobile**  
**T-MOBILE NORTHEAST LLC**  
35 GRIFFIN ROAD SOUTH  
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860-692-7100

**PROJECT MANAGER**  
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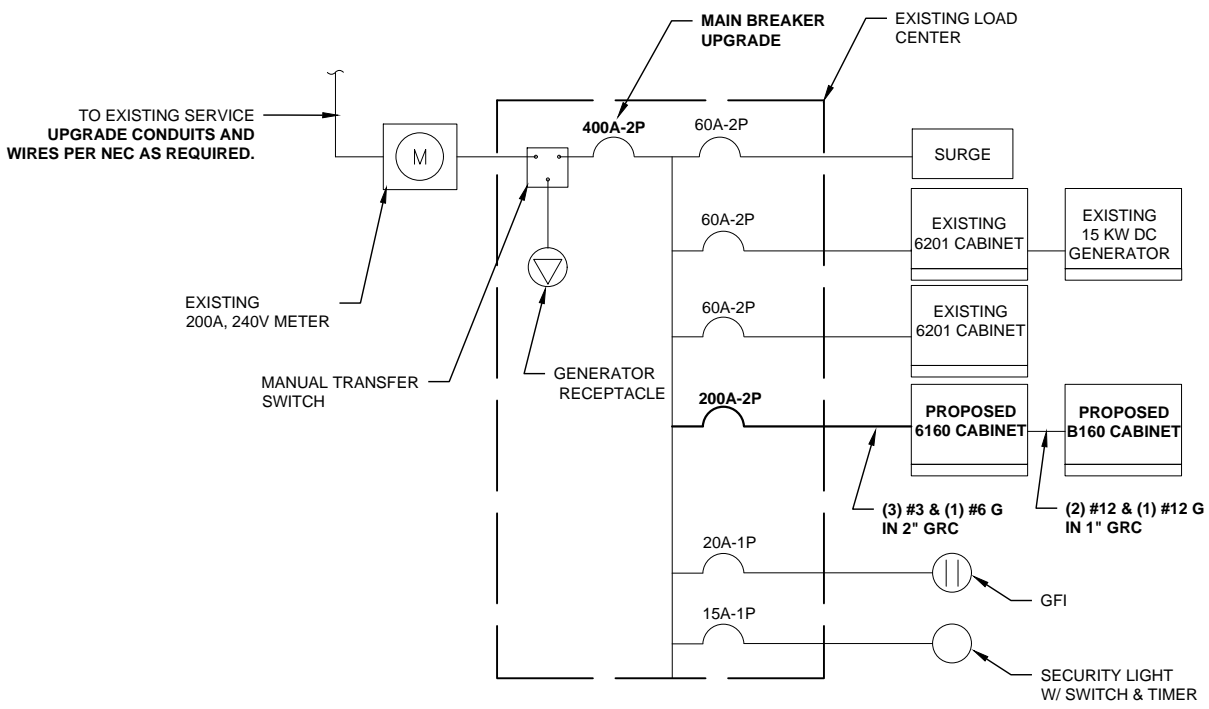
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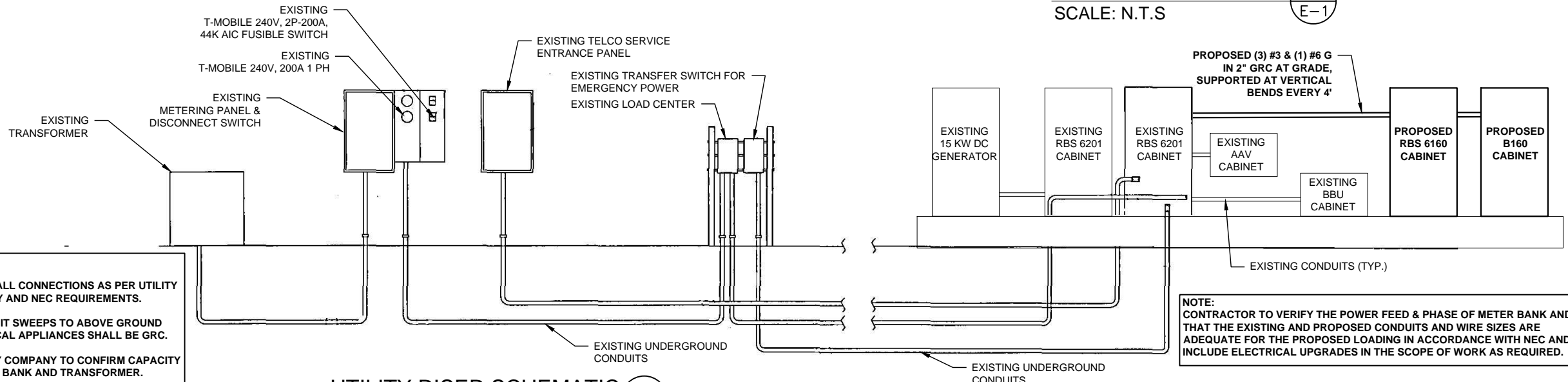
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SITE NAME: DERBY / RT 34  
SITE ADDRESS: 6 PROGRESS AVE  
SEYMOUR, CT 06483

SHEET TITLE:  
A-3: ANTENNA AND  
EQUIPMENT DETAILS

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**ONE LINE DIAGRAM**  
SCALE: N.T.S



**UTILITY RISER SCHEMATIC**  
SCALE: 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.

**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) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR 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.

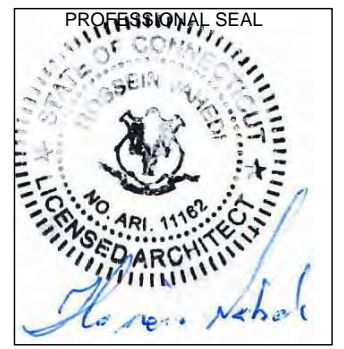
12. GROUNDING COAX CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURES COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
13. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSTALLATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING 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.

**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.

**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:**  
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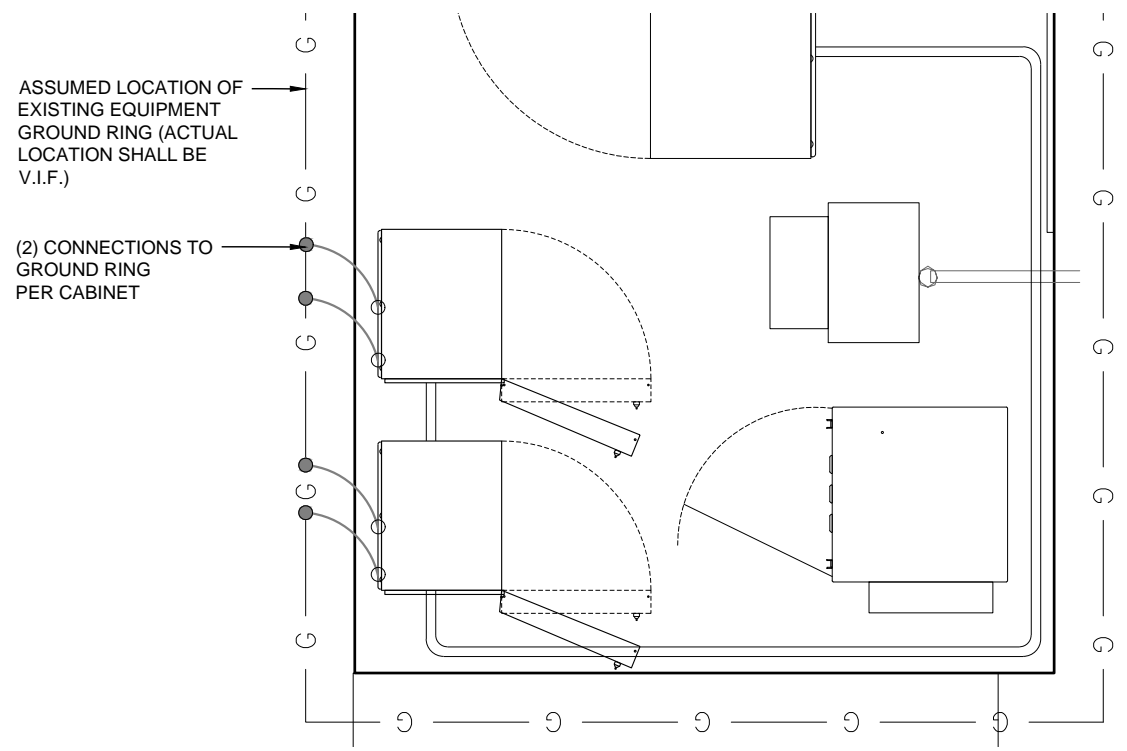
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SITE NUMBER: CT11332C  
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SITE ADDRESS: 6 PROGRESS AVE  
SEYMOUR, CT 06483

SHEET TITLE:  
E-1: GROUNDING AND ELECTRICAL DETAILS



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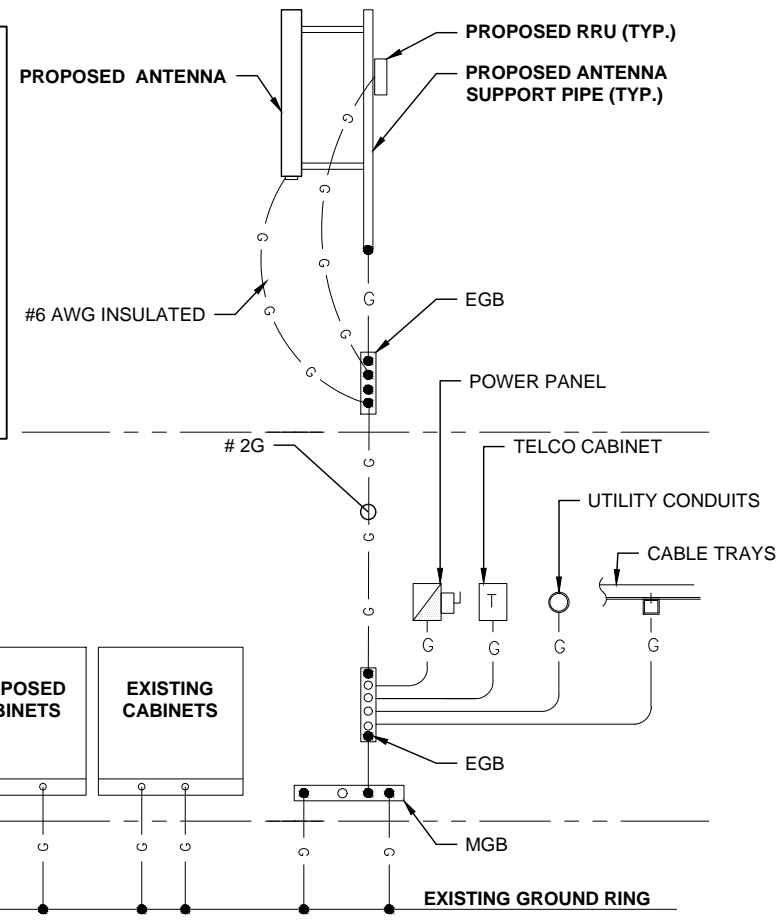
**GROUNDING SCHEMATIC**  
SCALE: N.T.S

1  
E-2

**LEGEND**

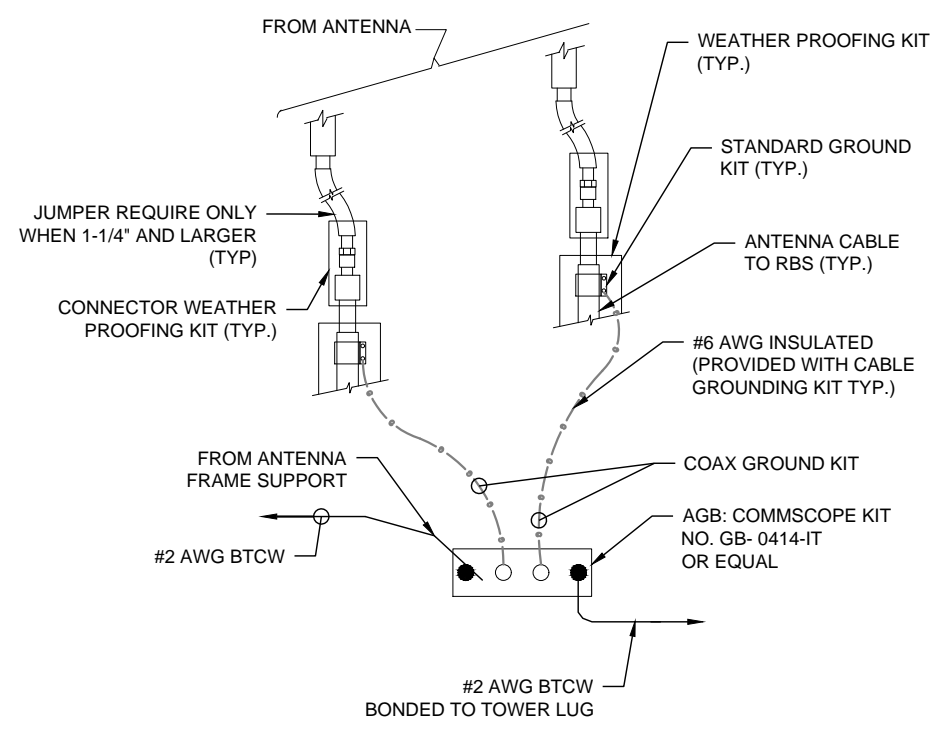
- -- EXOTHERMIC WELD
- -- MECHANICAL LUG
- G -- #2 BCW CONDUCTOR WITH 2"x4" BED OF SOIL ENHANCEMENT OR #2/0 STRANDED TINNED

**NOTE:**  
SITE GROUNDING SYSTEM IS A BASIC DESIGN. THE ACTUAL RESISTANCE TO GROUND CANNOT BE CONFIRMED WITHOUT A FIELD TEST. CONTRACTOR TO INSTALL AND PROVIDE DOCUMENTATION AT CLOSEOUT.



**GROUNDING RISER DIAGRAM**  
SCALE: N.T.S

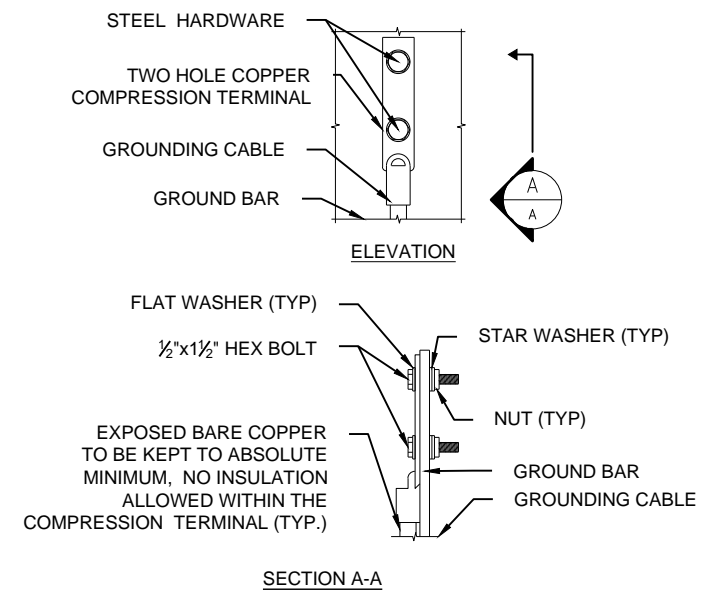
2  
E-2



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

**TOWER TOP CABLE GROUNDING DETAIL**  
SCALE: N.T.S

3  
E-2



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

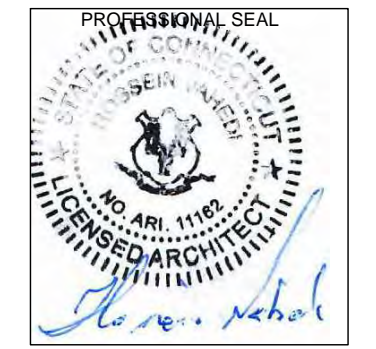
**TYPICAL GROUND BAR CONNECTIONS DETAIL**  
SCALE: N.T.S

4  
E-2

**APPLICANT:**  
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**T-MOBILE NORTHEAST LLC**  
35 GRIFFIN ROAD SOUTH  
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SEYMOUR, CT 06483

SHEET TITLE:  
E-2: GROUNDING AND ELECTRICAL DETAILS

# Exhibit D

**STRUCTURAL ANALYSIS REPORT – REVISION 2  
SELF-SUPPORT**



Prepared For:



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



**Structure Rating**

<b>Tower:</b>	<b>Pass (78.6%)</b>
<b>Anchor rods:</b>	<b>Pass (40.0%)</b>
<b>Foundation:</b>	<b>Pass (64.7%)</b>

Sincerely,  
Destek Engineering, LLC  
License No: PEC0001429



Ahmet Colakoglu, PE  
Connecticut Professional Engineer  
License No: 27057

**Site ID: CT11332C  
Site Name: Derby / RT34  
6 Progress Avenue,  
Seymour, CT 06483**

## **CONTENTS**

1.0 – SUBJECT AND REFERENCES

1.1 – STRUCTURE

2.0 – EXISTING AND PROPOSED APPURTENANCES

3.0 - CODES AND LOADING

4.0 - STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING  
STRUCTURES

5.0 - ANALYSIS AND ASSUMPTIONS

6.0 – RESULTS AND CONCLUSION

APPENDIX

A –SOFTWARE OUTPUT

**1.0 SUBJECT AND REFERENCES**

The purpose of this analysis is to evaluate the structural capacity of the existing 280 feet tall self-support tower, located at 6 Progress Avenue, Seymour, CT 06483 for the additions and alterations proposed by T-Mobile.

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

- Structural Analysis Report prepared by Centek Engineering, Inc., dated 07/03/2018
- Construction Drawings prepared by Centek Engineering, Inc., dated 07/12/2018
- Structural Analysis Report prepared by Maser Consulting, dated 11/02/2018
- Construction Drawings prepared by Cen Maser Consulting, dated 03/21/2019
- RFDS prepared by T-Mobile, dated 03/13/2019.
- Site Audit pictures, dated 03/01/2019.

**1.1 STRUCTURE**

The subject structure is a 280 ft. tall self-support tower. Pipe and Truss Legs are X-Braced with single and double angle members throughout the length of the tower. The tower is 28.0 ft wide at the base and 5.0 ft at the top. Please refer to the software output in Appendix A for tower geometry, member sizes, and other details.

**2.0 EXISTING AND PROPOSED APPURTENANCES**

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

**Existing Configuration of T-MOBILE Appurtenances:**

Rad Center (Ft)	Antenna & TMA	Coax	Mount
247	(3) RR90-17-02DP (3) LNX-6515DS-A1M (3) ATMA4P4DBP-1A20 TMAs (3) KRF 102 267/2 Diplexers	(12) 1-5/8" (2) 6X12 HCS	(3) 15' T-Frame Sector Mounts

**Proposed and Final Configuration of T-MOBILE Appurtenances:**

Rad Center (Ft)	Antenna & TMA	Coax	Mount
247	(3) AIR32 KRD901146-1_B66A_B2A (3) APXVAARR24_43-U-NA20 (3) AIR 6488 B41 (3) Radio 4449 B71+B12 (3) Radio 4415 B25	(9) 1-5/8" (3) 6X12 HCS	(3) 15' T-Frame Sector Mounts

**Existing and Remaining Appurtenances by Others:**

<b>Rad Center (Ft)</b>	<b>Antenna &amp; TMA</b>	<b>Coax</b>	<b>Mount</b>
280	(1) DB420-A (1) DB586-XC	(4) 1-5/8"	Halo Mount
235	(1) DB420-A (1) DB225-2-F	-	Halo Mount
200	(9) DB980H120E-M	(9) 1-5/8"	(3) 10' T-Frame Sector Mounts
190	(9) DB980H120E-M	(9) 1-5/8"	(3) 10' T-Frame Sector Mounts
180	(9) DB980H120E-M	(9) 1-5/8"	(3) 10' T-Frame Sector Mounts
170	(3) APXVSP18-C-A20 (3) APXVTM14-C-120 (3) FD-RRH-2x50-800 (3) FD-RRH-4x40-1900 (3) TD-RRH8x20-25	(3) 1-5/8" (1) HYBRIFLEX 1-1/4"	(3) 15' T-Frame Sector Mounts
160	(3) 800 10121 (3) HPA65R-BU6A (3) QS66512-3 (3) RRUS 11 (3) RRUS 32 (3) RRUS 32 B2 (3) RRUS 4478 B5 (3) RRUS 4478 B14 (3) RRUS 4426 B66 (6) LGP21401 (3) DC6-48-60-18-8F	(6) 1-5/8" (1) Fiber Trunk (2) DC Trunk	(3) 15' T-Frame Sector Mounts
150	(3) APXV18-206517S-C	(6) 1-5/8"	-
140	(6) LNX-6514DS-VTM (6) HBXX-6517DS-VTM (6) FD9R6004/2C-3L (3) RRH2x60-AWS (3) RRH2x60-PCS (1) DB-T1-6Z-8AB-OZ	(12) 1-5/8" (1) HYBRIFLEX Cable	(3) 12' T-Frame Sector Mounts

### 3.0 CODES AND LOADING

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

- Basic wind speed 97 mph without ice ( $W_0$ )
- Basic wind speed 50 mph with 0.75" escalating ice ( $W_i$ )
- Exposure Category B
- Topographic Category 1
- Structure Class II

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

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

D: Dead Load of structure and appurtenances

$W_0$ : Wind Load, without ice

$W_i$ : Wind Load, with ice

$D_i$ : Weight of Ice

### 4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided to 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.

## 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.

## 6.0 **RESULTS AND CONCLUSION**

Based on a structural analysis per ANSI/TIA-222-G, the existing self-support tower **has adequate** structural capacity for the proposed changes by T-Mobile. For the code specified load combinations and as a maximum, the tower legs and diagonals are stressed to **65.1%** and **78.6%** of their structural capacity, respectively. The anchor bolts are stressed to **40.0%** of the capacity. The existing foundation is found to have **adequate** capacity to support the proposed installation by T-Mobile. As a maximum, the foundation is stressed to **64.7%** of its structural capacity.

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

Should you need any clarifications or have any questions about this report, please contact Ahmet Colakoglu at (770) 693-0835 or [acolakoglu@destekengineering.com](mailto:acolakoglu@destekengineering.com).



**APPENDIX A**  
**SOFTWARE OUTPUT**

**DESIGNED APPURTENANCE LOADING**

TYPE	ELEVATION	TYPE	ELEVATION
Flash Beacon Lighting	280	CCI Antennas - HPA65R-BU6A / w Mount Pipe	160
Lightning Rod	280	CCI Antennas - HPA65R-BU6A / w Mount Pipe	160
DB420-A	280	CCI Antennas - HPA65R-BU6A / w Mount Pipe	160
DB586-XC	280	CCI Antennas - HPA65R-BU6A / w Mount Pipe	160
Sector Mount [SM 412-1]	280	CCI Antennas - HPA65R-BU6A / w Mount Pipe	160
APXVAA24_43-U-A20 w/ Mount Pipe	250	QS66512-2 w/ Mount Pipe	160
APXVAA24_43-U-A20 w/ Mount Pipe	250	QS66512-2 w/ Mount Pipe	160
APXVAA24_43-U-A20 w/ Mount Pipe	250	QS66512-2 w/ Mount Pipe	160
AIR 32 B2a/B66Aa w/ Mount Pipe	250	RRUS 11	160
AIR 32 B2a/B66Aa w/ Mount Pipe	250	RRUS 11	160
AIR 32 B2a/B66Aa w/ Mount Pipe	250	RRUS 11	160
AIR 6468 B41 w/ Mount Pipe	250	RRUS 32	160
AIR 6468 B41 w/ Mount Pipe	250	RRUS 32	160
AIR 6468 B41 w/ Mount Pipe	250	RRUS 32	160
RADIO 4449 B12/B71	250	RRUS 32 B2	160
RADIO 4449 B12/B71	250	RRUS 32 B2	160
RADIO 4449 B12/B71	250	RRUS 32 B2	160
RRUS 4415 B25	250	RRUS 4478 B5	160
RRUS 4415 B25	250	RRUS 4478 B5	160
RRUS 4415 B25	250	RRUS 4478 B5	160
Pirot 15' T-Frame Sector Mount (1)	250	RRUS 4478 B14	160
Pirot 15' T-Frame Sector Mount (1)	250	RRUS 4478 B14	160
Pirot 15' T-Frame Sector Mount (1)	250	RRUS 4478 B14	160
DB420-A	245	RRUS 4426 B66	160
DB225-2-F	235	RRUS 4426 B66	160
Sector Mount [SM 412-1]	235	RRUS 4426 B66	160
(3) DB980H120E-M w/Mount Pipe	200	LGP21401	160
(3) DB980H120E-M w/Mount Pipe	200	LGP21401	160
(3) DB980H120E-M w/Mount Pipe	200	LGP21401	160
10-ft T-Frame	200	DC6-48-60-18-8F	160
10-ft T-Frame	200	DC6-48-60-18-8F	160
10-ft T-Frame	200	DC6-48-60-18-8F	160
(3) DB980H120E-M w/Mount Pipe	190	Pirot 15' T-Frame Sector Mount (1)	160
(3) DB980H120E-M w/Mount Pipe	190	Pirot 15' T-Frame Sector Mount (1)	160
(3) DB980H120E-M w/Mount Pipe	190	Pirot 15' T-Frame Sector Mount (1)	160
10-ft T-Frame	190	APXV18-206517S-C w/ Mount Pipe	150
10-ft T-Frame	190	APXV18-206517S-C w/ Mount Pipe	150
10-ft T-Frame	190	APXV18-206517S-C w/ Mount Pipe	150
(3) DB980H120E-M w/Mount Pipe	180	LNx-6514DS-VTM w/ Mount Pipe	140
(3) DB980H120E-M w/Mount Pipe	180	LNx-6514DS-VTM w/ Mount Pipe	140
(3) DB980H120E-M w/Mount Pipe	180	LNx-6514DS-VTM w/ Mount Pipe	140
10-ft T-Frame	180	LNx-6514DS-VTM w/ Mount Pipe	140
10-ft T-Frame	180	LNx-6514DS-VTM w/ Mount Pipe	140
10-ft T-Frame	180	LNx-6514DS-VTM w/ Mount Pipe	140
APXVSP18-C-A20 w/ Mount Pipe	170	HBXX-6517DS-VTM w/ Mount Pipe	140
APXVSP18-C-A20 w/ Mount Pipe	170	HBXX-6517DS-VTM w/ Mount Pipe	140
APXVSP18-C-A20 w/ Mount Pipe	170	HBXX-6517DS-VTM w/ Mount Pipe	140
APXVTM14-C-120 w/ Mount Pipe	170	HBXX-6517DS-VTM w/ Mount Pipe	140
APXVTM14-C-120 w/ Mount Pipe	170	HBXX-6517DS-VTM w/ Mount Pipe	140
APXVTM14-C-120 w/ Mount Pipe	170	HBXX-6517DS-VTM w/ Mount Pipe	140
FD-RRH-2x50-800	170	(2) FD9R6004/2C-3L	140
FD-RRH-2x50-800	170	(2) FD9R6004/2C-3L	140
FD-RRH-2x50-800	170	(2) FD9R6004/2C-3L	140
FD-RRH-4x40-1900	170	RRH2x60-AWS	140
FD-RRH-4x40-1900	170	RRH2x60-AWS	140
FD-RRH-4x40-1900	170	RRH2x60-AWS	140
TD-RRH8x20-25	170	RRH2x60-PCS	140
TD-RRH8x20-25	170	RRH2x60-PCS	140
TD-RRH8x20-25	170	RRH2x60-PCS	140
Pirot 15' T-Frame Sector Mount (1)	170	DB-T1-6Z-8AB-0Z	140
Pirot 15' T-Frame Sector Mount (1)	170	Pirot 12' T-Frame Sector Mount (1)	140
Pirot 15' T-Frame Sector Mount (1)	170	Pirot 12' T-Frame Sector Mount (1)	140
800 10121 w/ Mount Pipe	160	Pirot 12' T-Frame Sector Mount (1)	140
800 10121 w/ Mount Pipe	160		
800 10121 w/ Mount Pipe	160		

**SYMBOL LIST**


MARK	SIZE	MARK	SIZE
A	Pirot 105245	C	L3 1/2x3 1/2x5/16
B	L2 1/2x2 1/2x3/16		

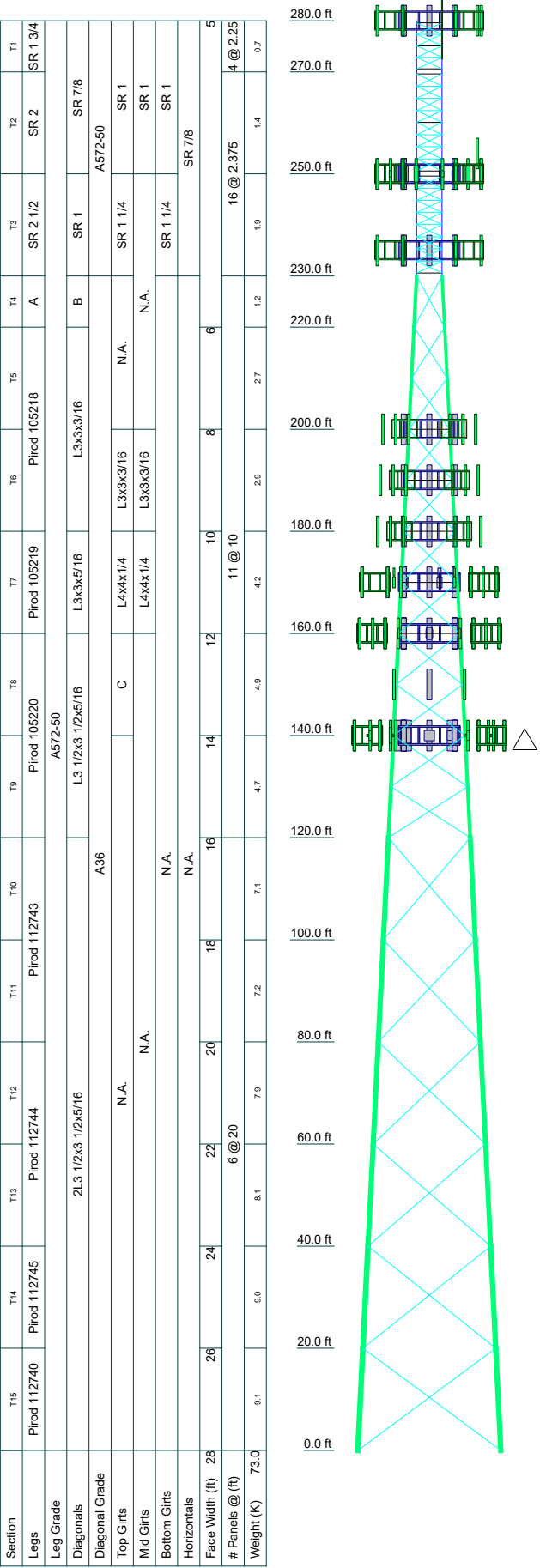
**MATERIAL STRENGTH**

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

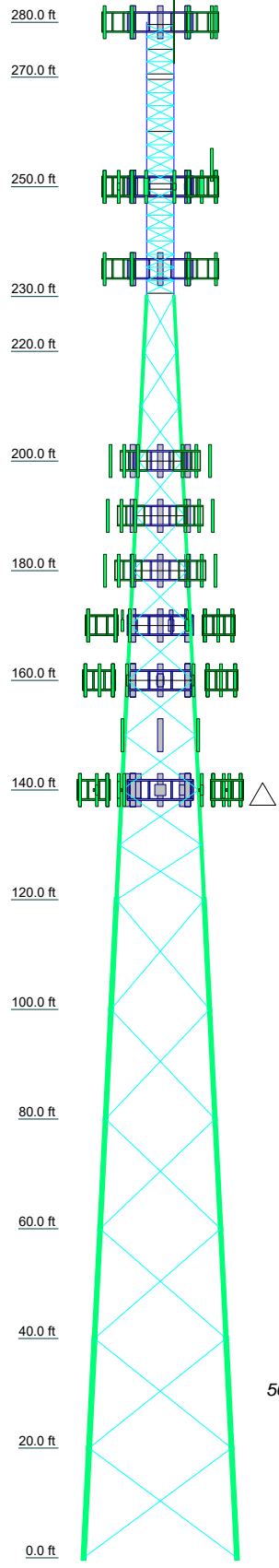
**TOWER DESIGN NOTES**

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.

 <b>Destek Engineering, LLC</b> 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job: <b>CT11332C</b> Project: <b>1975056</b>
	Client: <b>Foresite LLC</b>   Drawn by: <b>Ahmet Colakoglu</b>   App'd:
	Code: <b>TIA-222-G</b>   Date: <b>05/28/19</b>   Scale: <b>NTS</b>
	Path: <small>S:\Projects\201975 - Foresite LLC\056 - CT11332C\Tower Structural Analysis\TOWER\CT11332C Rev 2.dwg</small>   Dwg No. <b>E-1</b>



Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15
Legs	SR 1 3/4	SR 2	SR 2 1/2	A	Pirod 105218	Pirod 105219	Pirod 105220	Pirod 112743	Pirod 112744	Pirod 112745	Pirod 112745	Pirod 112744	Pirod 112745	Pirod 112745	Pirod 112740
Leg Grade								A572-50							
Diagonals				B	L3x3x3/16	L3x3x5/16	L3 1/2x3 1/2x5/16	A36							
Diagonal Grade															
Top Girts															
Mid Girts				N.A.											
Bottom Girts															
Horizontals															
Face Width (ft)	28			6											
# Panels @ (ft)															
Weight (K)	73.0														



**SYMBOL LIST**

MARK	SIZE	MARK	SIZE
A	Pirod 105245	C	L3 1/2x3 1/2x5/16
B	L2 1/2x2 1/2x3/16		

**MATERIAL STRENGTH**

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

**TOWER DESIGN NOTES**

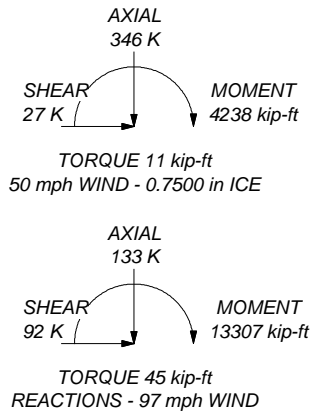
1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.0000 ft
8. TOWER RATING: 78.6%

ALL REACTIONS  
ARE FACTORED

MAX. CORNER REACTIONS AT BASE:

DOWN: 593 K  
SHEAR: 62 K

UPLIFT: -502 K  
SHEAR: 54 K



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

Job:	<b>CT11332C</b>		
Project:	<b>1975056</b>		
Client:	Foresite LLC	Drawn by:	Ahmet Colakoglu
Code:	TIA-222-G	Date:	05/28/19
Path:			App'd:
			Scale: NTS
			Dwg No. E-1

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<p><b>tnxTower</b></p> <p><b>Destek Engineering, LLC</b> 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:</p>	<b>Job</b> CT11332C	<b>Page</b> 1 of 42
	<b>Project</b> 1975056	<b>Date</b> 14:16:51 05/28/19
	<b>Client</b> Foresite LLC	<b>Designed by</b> Ahmet Colakoglu

## Tower Input Data

The main tower is a 3x free standing tower with an overall height of 280.0000 ft above the ground line.

The base of the tower is set at an elevation of 0.0000 ft above the ground line.

The face width of the tower is 5.0000 ft at the top and 28.0000 ft at the base.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Basic wind speed of 97 mph.

Structure Class II.

Exposure Category B.

Topographic Category 1.

Crest Height 0.0000 ft.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56.0000 pcf.

A wind speed of 50 mph is used in combination with ice.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

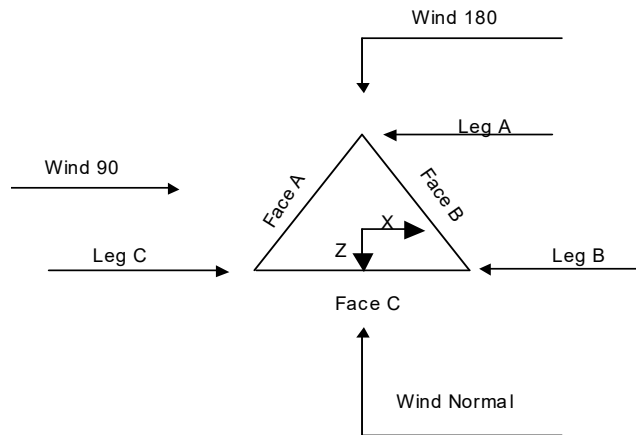
Stress ratio used in tower member design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

<ul style="list-style-type: none"> <li>Consider Moments - Legs</li> <li>Consider Moments - Horizontals</li> <li>Consider Moments - Diagonals</li> <li>Use Moment Magnification</li> <li>√ Use Code Stress Ratios</li> <li>√ Use Code Safety Factors - Guys</li> <li>Escalate Ice</li> <li>Always Use Max Kz</li> <li>Use Special Wind Profile</li> <li>√ Include Bolts In Member Capacity</li> <li>Leg Bolts Are At Top Of Section</li> <li>√ Secondary Horizontal Braces Leg</li> <li>Use Diamond Inner Bracing (4 Sided)</li> <li>√ SR Members Have Cut Ends</li> <li>SR Members Are Concentric</li> </ul>	<ul style="list-style-type: none"> <li>Distribute Leg Loads As Uniform</li> <li>Assume Legs Pinned</li> <li>√ Assume Rigid Index Plate</li> <li>√ Use Clear Spans For Wind Area</li> <li>√ Use Clear Spans For KL/r</li> <li>Retention Guys To Initial Tension</li> <li>√ Bypass Mast Stability Checks</li> <li>√ Use Azimuth Dish Coefficients</li> <li>√ Project Wind Area of Appurt.</li> <li>Autocalc Torque Arm Areas</li> <li>Add IBC .6D+W Combination</li> <li>√ Sort Capacity Reports By Component</li> <li>Triangulate Diamond Inner Bracing</li> <li>Treat Feed Line Bundles As Cylinder</li> <li>Ignore KL/ry For 60 Deg. Angle Legs</li> </ul>	<ul style="list-style-type: none"> <li>Use ASCE 10 X-Brace Ly Rules</li> <li>√ Calculate Redundant Bracing Forces</li> <li>Ignore Redundant Members in FEA</li> <li>√ SR Leg Bolts Resist Compression</li> <li>All Leg Panels Have Same Allowable</li> <li>Offset Girt At Foundation</li> <li>√ Consider Feed Line Torque</li> <li>√ Include Angle Block Shear Check</li> <li>Use TIA-222-G Bracing Resist. Exemption</li> <li>Use TIA-222-G Tension Splice Exemption</li> <li style="text-align: center;">Poles</li> <li>Include Shear-Torsion Interaction</li> <li>Always Use Sub-Critical Flow</li> <li>Use Top Mounted Sockets</li> <li>Pole Without Linear Attachments</li> <li>Pole With Shroud Or No Appurtenances</li> <li>Outside and Inside Corner Radii Are Known</li> </ul>
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<b>tnxTower</b>  <b>Destek Engineering, LLC</b> 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	<b>Job</b> CT11332C	<b>Page</b> 2 of 42
	<b>Project</b> 1975056	<b>Date</b> 14:16:51 05/28/19
	<b>Client</b> Foresite LLC	<b>Designed by</b> Ahmet Colakoglu



**Triangular Tower**

**Tower Section Geometry**

<i>Tower Section</i>	<i>Tower Elevation</i>	<i>Assembly Database</i>	<i>Description</i>	<i>Section Width</i>	<i>Number of Sections</i>	<i>Section Length</i>
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	280.0000-270.0000			5.0000	1	10.0000
T2	270.0000-250.0000			5.0000	1	20.0000
T3	250.0000-230.0000			5.0000	1	20.0000
T4	230.0000-220.0000			5.0000	1	10.0000
T5	220.0000-200.0000			6.0000	1	20.0000
T6	200.0000-180.0000			8.0000	1	20.0000
T7	180.0000-160.0000			10.0000	1	20.0000
T8	160.0000-140.0000			12.0000	1	20.0000
T9	140.0000-120.0000			14.0000	1	20.0000
T10	120.0000-100.0000			16.0000	1	20.0000
T11	100.0000-80.0000			18.0000	1	20.0000
T12	80.0000-60.0000			20.0000	1	20.0000
T13	60.0000-40.0000			22.0000	1	20.0000
T14	40.0000-20.0000			24.0000	1	20.0000
T15	20.0000-0.0000			26.0000	1	20.0000

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	<b>Project</b>	1975056	<b>Date</b>	14:16:51 05/28/19
	<b>Client</b>	Foresite LLC	<b>Designed by</b>	Ahmet Colakoglu

### Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	280.0000-270.0000	2.2500	X Brace	No	Steps	5.5000	6.5000
T2	270.0000-250.0000	2.3750	X Brace	No	Steps	5.5000	6.5000
T3	250.0000-230.0000	2.3750	X Brace	No	Steps	5.5000	6.5000
T4	230.0000-220.0000	10.0000	X Brace	No	No	0.0000	0.0000
T5	220.0000-200.0000	10.0000	X Brace	No	No	0.0000	0.0000
T6	200.0000-180.0000	10.0000	X Brace	No	No	0.0000	0.0000
T7	180.0000-160.0000	10.0000	X Brace	No	No	0.0000	0.0000
T8	160.0000-140.0000	10.0000	X Brace	No	No	0.0000	0.0000
T9	140.0000-120.0000	10.0000	X Brace	No	No	0.0000	0.0000
T10	120.0000-100.0000	20.0000	X Brace	No	No	0.0000	0.0000
T11	100.0000-80.0000	20.0000	X Brace	No	No	0.0000	0.0000
T12	80.0000-60.0000	20.0000	X Brace	No	No	0.0000	0.0000
T13	60.0000-40.0000	20.0000	X Brace	No	No	0.0000	0.0000
T14	40.0000-20.0000	20.0000	X Brace	No	No	0.0000	0.0000
T15	20.0000-0.0000	20.0000	X Brace	No	No	0.0000	0.0000

### Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
280.0000-270.0000	T1 Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
270.0000-250.0000	T2 Solid Round	2	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
250.0000-230.0000	T3 Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
230.0000-220.0000	T4 Truss Leg	Pirol 105245	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
220.0000-200.0000	T5 Truss Leg	Pirol 105218	A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
200.0000-180.0000	T6 Truss Leg	Pirol 105218	A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)

<p style="text-align: center;"><b>tnxTower</b></p> <p style="text-align: center;"><b>Destek Engineering, LLC</b> 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:</p>	<b>Job</b>	CT11332C	<b>Page</b>	4 of 42
	<b>Project</b>	1975056	<b>Date</b>	14:16:51 05/28/19
	<b>Client</b>	Foresite LLC	<b>Designed by</b>	Ahmet Colakoglu

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
180.0000-160.0000	T7 Truss Leg	Pirod 105219	A572-50 (50 ksi)	Single Angle	L3x3x5/16	A36 (36 ksi)
160.0000-140.0000	T8 Truss Leg	Pirod 105220	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
140.0000-120.0000	T9 Truss Leg	Pirod 105220	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
120.0000-100.0000	T10 Truss Leg	Pirod 112743	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16	A36 (36 ksi)
100.0000-80.0000	T11 Truss Leg	Pirod 112743	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16	A36 (36 ksi)
80.0000-60.0000	T12 Truss Leg	Pirod 112744	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16	A36 (36 ksi)
60.0000-40.0000	T13 Truss Leg	Pirod 112744	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16	A36 (36 ksi)
40.0000-20.0000	T14 Truss Leg	Pirod 112745	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16	A36 (36 ksi)
20.0000-0.0000	T15 Truss Leg	Pirod 112740	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16	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
280.0000-270.0000	T1 Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
270.0000-250.0000	T2 Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
250.0000-230.0000	T3 Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
200.0000-180.0000	T6 Single Angle	L3x3x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
180.0000-160.0000	T7 Single Angle	L4x4x1/4	A36 (36 ksi)	Single Angle		A36 (36 ksi)
160.0000-140.0000	T8 Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)

### Tower Section Geometry (cont'd)

<p style="text-align: center;"><b><i>tnxTower</i></b></p> <p style="text-align: center;"><b>Destek Engineering, LLC</b> 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:</p>	<b>Job</b>	CT11332C	<b>Page</b>	5 of 42
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	<b>Client</b>	Foresite LLC	<b>Designed by</b>	Ahmet Colakoglu

<i>Tower Elevation</i>	<i>No. of Mid Girts</i>	<i>Mid Girt Type</i>	<i>Mid Girt Size</i>	<i>Mid Girt Grade</i>	<i>Horizontal Type</i>	<i>Horizontal Size</i>	<i>Horizontal Grade</i>
280.0000-270.0000 00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
270.0000-250.0000 00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
250.0000-230.0000 00	None	Solid Round		A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
200.0000-180.0000 00	1	Single Angle	L3x3x3/16	A36 (36 ksi)	Equal Angle		A36 (36 ksi)
180.0000-160.0000 00	1	Single Angle	L4x4x1/4	A36 (36 ksi)	Equal Angle		A36 (36 ksi)

### Tower Section Geometry (cont'd)

<i>Tower Elevation</i>	<i>Gusset Area (per face)</i>	<i>Gusset Thickness</i>	<i>Gusset Grade</i>	<i>Adjust. Factor A<sub>f</sub></i>	<i>Adjust. Factor A<sub>r</sub></i>	<i>Weight Mult.</i>	<i>Double Angle Stitch Bolt Spacing Diagonals</i>	<i>Double Angle Stitch Bolt Spacing Horizontals</i>	<i>Double Angle Stitch Bolt Spacing Redundants</i>
<i>ft</i>	<i>ft<sup>2</sup></i>	<i>in</i>					<i>in</i>	<i>in</i>	<i>in</i>
280.0000-270.0000 0000	0.0000	0.0000	A36 (36 ksi)	1	1	1	30.0000	30.0000	36.0000
270.0000-250.0000 0000	0.0000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
250.0000-230.0000 0000	0.0000	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
230.0000-220.0000 0000	0.0000	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
220.0000-200.0000 0000	0.0000	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
200.0000-180.0000 0000	0.0000	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
180.0000-160.0000 0000	0.0000	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
160.0000-140.0000 0000	0.0000	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
140.0000-120.0000 0000	0.0000	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
120.0000-100.0000 0000	0.0000	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
100.0000-80.0000	0.0000	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000





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Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors <sup>1</sup>							
			Legs	X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T12 80.0000-60.0000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T13 60.0000-40.0000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T14 40.0000-20.0000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T15 20.0000-0.0000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

<sup>1</sup>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	Truss-Leg K Factors					
	Truss-Legs Used As Leg Members			Truss-Legs Used As Inner Members		
	Leg Panels	X Brace Diagonals	Z Brace Diagonals	Leg Panels	X Brace Diagonals	Z Brace Diagonals
T4 230.0000-220.0000	1	0.5	0.85	1	0.5	0.85
T5 220.0000-200.0000	1	0.5	0.85	1	0.5	0.85
T6 200.0000-180.0000	1	0.5	0.85	1	0.5	0.85
T7 180.0000-160.0000	1	0.5	0.85	1	0.5	0.85
T8 160.0000-140.0000	1	0.5	0.85	1	0.5	0.85
T9 140.0000-120.0000	1	0.5	0.85	1	0.5	0.85
T10 120.0000-100.0000	1	0.5	0.85	1	0.5	0.85
T11 100.0000-80.0000	1	0.5	0.85	1	0.5	0.85
T12 80.0000-60.0000	1	0.5	0.85	1	0.5	0.85
T13 60.0000-40.0000	1	0.5	0.85	1	0.5	0.85

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T14	1	0.5	0.85	1	0.5	0.85
40.0000-20.0000						
T15	1	0.5	0.85	1	0.5	0.85
20.0000-0.0000						

**Tower Section Geometry (cont'd)**

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 280.0000-270.0000	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T2 270.0000-250.0000	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T3 250.0000-230.0000	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T4 230.0000-220.0000	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 220.0000-200.0000	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 200.0000-180.0000	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 180.0000-160.0000	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 160.0000-140.0000	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 140.0000-120.0000	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 120.0000-100.0000	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 100.0000-80.0000	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 80.0000-60.0000	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 60.0000-40.0000	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 40.0000-20.0000	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75

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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
T15 20.0000-0.000 0	0.0000	1	0.0000	1	0.0000	1	0.0000	1	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 280.0000-270. 0000	Sleeve DS	0.6250 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325N	0
T2 270.0000-250. 0000	Sleeve DS	0.7500 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325N	0
T3 250.0000-230. 0000	Flange	1.0000 A325N	6	0.6250 A325N	0	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325N	0
T4 230.0000-220. 0000	Flange	1.0000 A325N	6	1.0000 A325N	1	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325N	0
T5 220.0000-200. 0000	Flange	1.0000 A325N	6	1.0000 A325N	1	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325N	0
T6 200.0000-180. 0000	Flange	1.0000 A325N	6	1.0000 A325N	1	1.0000 A325N	1	0.0000 A325N	0	1.0000 A325N	1	0.6250 A325N	0	1.0000 A325N	0
T7 180.0000-160. 0000	Flange	1.2500 A325N	6	1.2500 A325N	1	1.2500 A325N	1	0.0000 A325N	0	1.2500 A325N	1	0.6250 A325N	0	1.0000 A325N	0
T8 160.0000-140. 0000	Flange	1.2500 A325N	6	1.2500 A325N	1	1.2500 A325N	1	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325N	0
T9 140.0000-120. 0000	Flange	1.2500 A325N	6	1.2500 A325N	1	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325N	0
T10 120.0000-100. 0000	Flange	1.2500 A325N	12	1.0000 A325N	2	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325N	0
T11 100.0000-80.0 000	Flange	1.2500 A325N	12	1.0000 A325N	2	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325N	0
T12 80.0000-60.00 00	Flange	1.2500 A325N	12	1.0000 A325N	2	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325N	0
T13 60.0000-40.00 00	Flange	1.2500 A325N	12	1.0000 A325N	2	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	1.0000 A325N	0



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**Feed Line/Linear Appurtenances - Entered As Area**

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C <sub>AA</sub> ft <sup>2</sup> /ft	Weight plf
***	**	*	*					

**Feed Line/Linear Appurtenances Section Areas**

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
T1	280.0000-270.0000 0	A	0.000	0.000	0.000	0.000	0.0000
		B	0.000	0.000	0.000	0.000	0.0000
		C	0.000	0.000	7.920	0.000	0.0416
T2	270.0000-250.0000 0	A	0.000	0.000	0.000	0.000	0.0000
		B	0.000	0.000	0.000	0.000	0.0000
		C	0.000	0.000	15.840	0.000	0.0832
T3	250.0000-230.0000 0	A	0.000	0.000	45.600	0.000	0.3312
		B	0.000	0.000	0.000	0.000	0.0000
		C	0.000	0.000	15.840	0.000	0.0832
T4	230.0000-220.0000 0	A	0.000	0.000	22.800	0.000	0.1656
		B	0.000	0.000	0.000	0.000	0.0000
		C	0.000	0.000	7.920	0.000	0.0416
T5	220.0000-200.0000 0	A	0.000	0.000	45.600	0.000	0.3312
		B	0.000	0.000	0.000	0.000	0.0000
		C	0.000	0.000	15.840	0.000	0.0832
T6	200.0000-180.0000 0	A	0.000	0.000	45.600	0.000	0.3312
		B	0.000	0.000	35.640	0.000	0.1872
		C	0.000	0.000	33.660	0.000	0.1768
T7	180.0000-160.0000 0	A	0.000	0.000	53.090	0.000	0.3754
		B	0.000	0.000	35.640	0.000	0.1872
		C	0.000	0.000	87.120	0.000	0.4576
T8	160.0000-140.0000 0	A	0.000	0.000	96.220	0.000	0.6068
		B	0.000	0.000	35.640	0.000	0.1872
		C	0.000	0.000	89.520	0.000	0.4820
T9	140.0000-120.0000 0	A	0.000	0.000	108.100	0.000	0.6692
		B	0.000	0.000	87.120	0.000	0.4748
		C	0.000	0.000	89.520	0.000	0.4820
T10	120.0000-100.0000 0	A	0.000	0.000	108.100	0.000	0.6692
		B	0.000	0.000	87.120	0.000	0.4748
		C	0.000	0.000	89.520	0.000	0.4820
T11	100.0000-80.0000	A	0.000	0.000	108.100	0.000	0.6692
		B	0.000	0.000	87.120	0.000	0.4748
		C	0.000	0.000	89.520	0.000	0.4820
T12	80.0000-60.0000	A	0.000	0.000	108.100	0.000	0.6692
		B	0.000	0.000	87.120	0.000	0.4748
		C	0.000	0.000	89.520	0.000	0.4820
T13	60.0000-40.0000	A	0.000	0.000	108.100	0.000	0.6692

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Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
T14	40.0000-20.0000	B	0.000	0.000	87.120	0.000	0.4748
		C	0.000	0.000	89.520	0.000	0.4820
		A	0.000	0.000	108.100	0.000	0.6692
T15	20.0000-0.0000	B	0.000	0.000	87.120	0.000	0.4748
		C	0.000	0.000	89.520	0.000	0.4820
		A	0.000	0.000	108.100	0.000	0.6692
		B	0.000	0.000	87.120	0.000	0.4748
		C	0.000	0.000	89.520	0.000	0.4820

### Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
T1	280.0000-270.0000 0	A	1.854	0.000	0.000	0.000	0.000	0.0000
		B		0.000	0.000	0.000	0.000	0.0000
		C		0.000	0.000	17.056	0.000	0.3287
T2	270.0000-250.0000 0	A	1.844	0.000	0.000	0.000	0.000	0.0000
		B		0.000	0.000	0.000	0.000	0.0000
		C		0.000	0.000	34.039	0.000	0.6547
T3	250.0000-230.0000 0	A	1.829	0.000	0.000	119.499	0.000	2.0829
		B		0.000	0.000	0.000	0.000	0.0000
		C		0.000	0.000	33.935	0.000	0.6509
T4	230.0000-220.0000 0	A	1.817	0.000	0.000	59.674	0.000	1.0364
		B		0.000	0.000	0.000	0.000	0.0000
		C		0.000	0.000	16.926	0.000	0.3239
T5	220.0000-200.0000 0	A	1.805	0.000	0.000	119.189	0.000	2.0622
		B		0.000	0.000	0.000	0.000	0.0000
		C		0.000	0.000	33.764	0.000	0.6446
T6	200.0000-180.0000 0	A	1.787	0.000	0.000	118.959	0.000	2.0469
		B		0.000	0.000	47.638	0.000	1.3322
		C		0.000	0.000	62.904	0.000	1.3241
T7	180.0000-160.0000 0	A	1.767	0.000	0.000	123.791	0.000	2.2929
		B		0.000	0.000	47.498	0.000	1.3247
		C		0.000	0.000	102.353	0.000	3.1598
T8	160.0000-140.0000 0	A	1.745	0.000	0.000	143.098	0.000	3.7040
		B		0.000	0.000	47.342	0.000	1.3163
		C		0.000	0.000	125.058	0.000	3.3725
T9	140.0000-120.0000 0	A	1.720	0.000	0.000	162.971	0.000	4.1288
		B		0.000	0.000	125.281	0.000	3.2538
		C		0.000	0.000	124.435	0.000	3.3474
T10	120.0000-100.0000 0	A	1.692	0.000	0.000	162.282	0.000	4.0923
		B		0.000	0.000	124.782	0.000	3.2250
		C		0.000	0.000	123.718	0.000	3.3187
T11	100.0000-80.0000	A	1.658	0.000	0.000	161.470	0.000	4.0494
		B		0.000	0.000	124.194	0.000	3.1911
		C		0.000	0.000	122.873	0.000	3.2850
T12	80.0000-60.0000	A	1.617	0.000	0.000	160.476	0.000	3.9973
		B		0.000	0.000	123.474	0.000	3.1499
		C		0.000	0.000	121.838	0.000	3.2441
T13	60.0000-40.0000	A	1.564	0.000	0.000	159.185	0.000	3.9299
		B		0.000	0.000	122.539	0.000	3.0967
		C		0.000	0.000	120.493	0.000	3.1913
T14	40.0000-20.0000	A	1.486	0.000	0.000	157.308	0.000	3.8329
		B		0.000	0.000	121.178	0.000	3.0200
		C		0.000	0.000	118.536	0.000	3.1156
T15	20.0000-0.0000	A	1.331	0.000	0.000	153.589	0.000	3.6438
		B		0.000	0.000	118.479	0.000	2.8705

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	<b>Client</b> Foresite LLC	<b>Designed by</b> Ahmet Colakoglu

Tower Section	Tower Elevation ft	Face or Leg C	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
				0.000	0.000	114.651	0.000	2.9687

### Feed Line Center of Pressure

Section	Elevation ft	CP <sub>X</sub> in	CP <sub>Z</sub> in	CP <sub>X</sub> Ice in	CP <sub>Z</sub> Ice in
T1	280.0000-270.0000	-7.4395	1.6648	-2.7664	0.6191
T2	270.0000-250.0000	-7.3388	1.6423	-3.1125	0.6965
T3	250.0000-230.0000	-1.2585	-10.4646	-0.8989	-7.5126
T4	230.0000-220.0000	-1.1840	-8.3900	-0.6163	-4.7276
T5	220.0000-200.0000	-1.9697	-10.0118	-1.2935	-7.5069
T6	200.0000-180.0000	-1.6121	-5.2738	-1.6493	-6.3785
T7	180.0000-160.0000	-6.9160	-3.9518	-4.9599	-6.3048
T8	160.0000-140.0000	-8.2380	-9.8343	-8.8815	-8.2427
T9	140.0000-120.0000	-2.0174	-5.2969	-3.0700	-5.0120
T10	120.0000-100.0000	-2.2793	-5.9546	-3.3176	-5.4473
T11	100.0000-80.0000	-2.5204	-6.6229	-3.6347	-6.0356
T12	80.0000-60.0000	-2.7232	-7.1971	-3.9144	-6.5857
T13	60.0000-40.0000	-2.9420	-7.8139	-4.1787	-7.1433
T14	40.0000-20.0000	-3.1138	-8.3095	-4.3967	-7.6840
T15	20.0000-0.0000	-3.3168	-8.8878	-4.5407	-8.2815

### Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T1	2		1 5/8 270.00 - 280.00	0.6000	0.4303
T2	2		1 5/8 250.00 - 270.00	0.6000	0.4777
T3	2		1 5/8 230.00 - 250.00	0.6000	0.4795
T3	4		1 5/8 230.00 - 250.00	0.6000	0.4795
T3	5	HCS 6X12 4AWG(1-5/8)	230.00 - 250.00	0.6000	0.4795
T4	2		1 5/8 220.00 - 230.00	0.6000	0.3100
T4	4		1 5/8 220.00 - 230.00	0.6000	0.3100
T4	5	HCS 6X12 4AWG(1-5/8)	220.00 - 230.00	0.6000	0.3100
T5	2		1 5/8 200.00 - 220.00	0.6000	0.4038
T5	4		1 5/8 200.00 - 220.00	0.6000	0.4038
T5	5	HCS 6X12 4AWG(1-5/8)	200.00 - 220.00	0.6000	0.4038
T6	2		1 5/8 180.00 - 200.00	0.6000	0.4642



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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
T6	4	1 5/8	180.00 - 200.00	0.6000	0.4642
T6	5	HCS 6X12 4AWG(1-5/8)	180.00 - 200.00	0.6000	0.4642
T6	7	1 5/8	180.00 - 200.00	0.6000	0.4642
T6	9	1 5/8	180.00 - 190.00	0.6000	0.4642
T7	2	1 5/8	160.00 - 180.00	0.6000	0.5206
T7	4	1 5/8	170.00 - 180.00	0.6000	0.5206
T7	5	HCS 6X12 4AWG(1-5/8)	160.00 - 180.00	0.6000	0.5206
T7	7	1 5/8	160.00 - 180.00	0.6000	0.5206
T7	11	1 5/8	160.00 - 180.00	0.6000	0.5206
T7	13	1 5/8	160.00 - 170.00	0.6000	0.5206
T7	14	HYBRFLEX 1 1/4	160.00 - 170.00	0.6000	0.5206
T8	2	1 5/8	140.00 - 160.00	0.6000	0.5841
T8	5	HCS 6X12 4AWG(1-5/8)	140.00 - 160.00	0.6000	0.5841
T8	7	1 5/8	140.00 - 160.00	0.6000	0.5841
T8	11	1 5/8	140.00 - 160.00	0.6000	0.5841
T8	14	HYBRFLEX 1 1/4	140.00 - 160.00	0.6000	0.5841
T8	16	1 5/8	140.00 - 160.00	0.6000	0.5841
T8	17	Fiber Trunk	140.00 - 160.00	0.6000	0.5841
T8	18	DC Trunk	140.00 - 160.00	0.6000	0.5841
T8	20	1 5/8	140.00 - 150.00	0.6000	0.5841
T9	2	1 5/8	120.00 - 140.00	0.6000	0.6000
T9	5	HCS 6X12 4AWG(1-5/8)	120.00 - 140.00	0.6000	0.6000
T9	7	1 5/8	120.00 - 140.00	0.6000	0.6000
T9	11	1 5/8	120.00 - 140.00	0.6000	0.6000
T9	14	HYBRFLEX 1 1/4	120.00 - 140.00	0.6000	0.6000
T9	16	1 5/8	120.00 - 140.00	0.6000	0.6000
T9	17	Fiber Trunk	120.00 - 140.00	0.6000	0.6000
T9	18	DC Trunk	120.00 - 140.00	0.6000	0.6000
T9	20	1 5/8	120.00 - 140.00	0.6000	0.6000
T9	22	1 5/8	120.00 - 140.00	0.6000	0.6000
T9	23	HYBRFLEX 1 5/8	120.00 - 140.00	0.6000	0.6000

# tnxTower

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

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
T10	2	1 5/8	100.00 - 120.00	0.6000	0.6000
T10	5	HCS 6X12 4AWG(1-5/8)	100.00 - 120.00	0.6000	0.6000
T10	7	1 5/8	100.00 - 120.00	0.6000	0.6000
T10	11	1 5/8	100.00 - 120.00	0.6000	0.6000
T10	14	HYBRFLEX 1 1/4	100.00 - 120.00	0.6000	0.6000
T10	16	1 5/8	100.00 - 120.00	0.6000	0.6000
T10	17	Fiber Trunk	100.00 - 120.00	0.6000	0.6000
T10	18	DC Trunk	100.00 - 120.00	0.6000	0.6000
T10	20	1 5/8	100.00 - 120.00	0.6000	0.6000
T10	22	1 5/8	100.00 - 120.00	0.6000	0.6000
T10	23	HYBRFLEX 1 5/8	100.00 - 120.00	0.6000	0.6000
T11	2	1 5/8	80.00 - 100.00	0.6000	0.6000
T11	5	HCS 6X12 4AWG(1-5/8)	80.00 - 100.00	0.6000	0.6000
T11	7	1 5/8	80.00 - 100.00	0.6000	0.6000
T11	11	1 5/8	80.00 - 100.00	0.6000	0.6000
T11	14	HYBRFLEX 1 1/4	80.00 - 100.00	0.6000	0.6000
T11	16	1 5/8	80.00 - 100.00	0.6000	0.6000
T11	17	Fiber Trunk	80.00 - 100.00	0.6000	0.6000
T11	18	DC Trunk	80.00 - 100.00	0.6000	0.6000
T11	20	1 5/8	80.00 - 100.00	0.6000	0.6000
T11	22	1 5/8	80.00 - 100.00	0.6000	0.6000
T11	23	HYBRFLEX 1 5/8	80.00 - 100.00	0.6000	0.6000
T12	2	1 5/8	60.00 - 80.00	0.6000	0.6000
T12	5	HCS 6X12 4AWG(1-5/8)	60.00 - 80.00	0.6000	0.6000
T12	7	1 5/8	60.00 - 80.00	0.6000	0.6000
T12	11	1 5/8	60.00 - 80.00	0.6000	0.6000
T12	14	HYBRFLEX 1 1/4	60.00 - 80.00	0.6000	0.6000
T12	16	1 5/8	60.00 - 80.00	0.6000	0.6000
T12	17	Fiber Trunk	60.00 - 80.00	0.6000	0.6000
T12	18	DC Trunk	60.00 - 80.00	0.6000	0.6000
T12	20	1 5/8	60.00 - 80.00	0.6000	0.6000
T12	22	1 5/8	60.00 - 80.00	0.6000	0.6000
T12	23	HYBRFLEX 1 5/8	60.00 - 80.00	0.6000	0.6000
T13	2	1 5/8	40.00 - 60.00	0.6000	0.6000
T13	5	HCS 6X12 4AWG(1-5/8)	40.00 - 60.00	0.6000	0.6000
T13	7	1 5/8	40.00 - 60.00	0.6000	0.6000
T13	11	1 5/8	40.00 - 60.00	0.6000	0.6000
T13	14	HYBRFLEX 1 1/4	40.00 - 60.00	0.6000	0.6000
T13	16	1 5/8	40.00 - 60.00	0.6000	0.6000
T13	17	Fiber Trunk	40.00 - 60.00	0.6000	0.6000
T13	18	DC Trunk	40.00 - 60.00	0.6000	0.6000
T13	20	1 5/8	40.00 - 60.00	0.6000	0.6000
T13	22	1 5/8	40.00 - 60.00	0.6000	0.6000
T13	23	HYBRFLEX 1 5/8	40.00 - 60.00	0.6000	0.6000
T14	2	1 5/8	20.00 - 40.00	0.6000	0.6000
T14	5	HCS 6X12 4AWG(1-5/8)	20.00 - 40.00	0.6000	0.6000
T14	7	1 5/8	20.00 - 40.00	0.6000	0.6000
T14	11	1 5/8	20.00 - 40.00	0.6000	0.6000
T14	14	HYBRFLEX 1 1/4	20.00 - 40.00	0.6000	0.6000
T14	16	1 5/8	20.00 - 40.00	0.6000	0.6000
T14	17	Fiber Trunk	20.00 - 40.00	0.6000	0.6000

<b>tnxTower</b>  <b>Destek Engineering, LLC</b> 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	<b>Job</b> CT11332C	<b>Page</b> 16 of 42
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	<b>Client</b> Foresite LLC	<b>Designed by</b> Ahmet Colakoglu

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T14	18	DC Trunk	20.00 - 40.00	0.6000	0.6000
T14	20	1 5/8	20.00 - 40.00	0.6000	0.6000
T14	22	1 5/8	20.00 - 40.00	0.6000	0.6000
T14	23	HYBRFLEX 1 5/8	20.00 - 40.00	0.6000	0.6000
T15	2	1 5/8	0.00 - 20.00	0.6000	0.6000
T15	5	HCS 6X12 4AWG(1-5/8)	0.00 - 20.00	0.6000	0.6000
T15	7	1 5/8	0.00 - 20.00	0.6000	0.6000
T15	11	1 5/8	0.00 - 20.00	0.6000	0.6000
T15	14	HYBRFLEX 1 1/4	0.00 - 20.00	0.6000	0.6000
T15	16	1 5/8	0.00 - 20.00	0.6000	0.6000
T15	17	Fiber Trunk	0.00 - 20.00	0.6000	0.6000
T15	18	DC Trunk	0.00 - 20.00	0.6000	0.6000
T15	20	1 5/8	0.00 - 20.00	0.6000	0.6000
T15	22	1 5/8	0.00 - 20.00	0.6000	0.6000
T15	23	HYBRFLEX 1 5/8	0.00 - 20.00	0.6000	0.6000

## Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			ft ft ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
***								
Flash Beacon Lighting	B	None		0.0000	280.0000	No Ice 2.7000 1/2" Ice 3.1000 1" Ice 3.5000	2.7000 3.1000 3.5000	0.0500 0.0700 0.0900
Lightning Rod	B	From Leg		0.0000	280.0000	No Ice 4.5000 1/2" Ice 6.0300 1" Ice 7.5800	4.5000 6.0300 7.5800	0.0500 0.0800 0.1200
**280** DB420-A	B	From Leg		8.0000	280.0000	No Ice 3.3300 1/2" Ice 5.9900 1" Ice 8.6600	3.3300 5.9900 8.6600	0.0300 0.0400 0.0500
DB586-XC	A	From Leg		8.0000	280.0000	No Ice 1.0100 1/2" Ice 1.2800 1" Ice 1.5600	1.0100 1.2800 1.5600	0.0100 0.0200 0.0300
Sector Mount [SM 412-1]	C	None		0.0000	280.0000	No Ice 70.4700 1/2" Ice 100.1400 1" Ice 129.8100	70.4700 100.1400 129.8100	3.0800 4.4980 5.9160
**250**								
APXVAA24_43-U-A20 w/ Mount Pipe	A	From Leg		3.0000	250.0000	No Ice 20.5042 1/2" Ice 21.2552 1" Ice 22.0151	10.8819 12.4078 13.9578	0.1343 0.2699 0.4163
APXVAA24_43-U-A20 w/ Mount Pipe	B	From Leg		3.0000	250.0000	No Ice 20.5042 1/2" Ice 21.2552 1" Ice 22.0151	10.8819 12.4078 13.9578	0.1343 0.2699 0.4163
APXVAA24_43-U-A20 w/ Mount Pipe	C	From Leg		3.0000	250.0000	No Ice 20.5042 1/2" Ice 21.2552 1" Ice 22.0151	10.8819 12.4078 13.9578	0.1343 0.2699 0.4163
AIR 32 B2a/B66Aa w/ Mount Pipe	A	From Leg		3.0000 -5.0000 0.0000	250.0000	No Ice 6.7474 1/2" Ice 7.2017 1" Ice 7.6475	6.0700 6.8671 7.5828	0.1531 0.2140 0.2819

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Vert					
AIR 32 B2a/B66Aa w/ Mount Pipe	B	From Leg	3.0000	0.0000	250.0000	No Ice	6.7474	6.0700	0.1531
			-5.0000			1/2" Ice	7.2017	6.8671	0.2140
			0.0000			1" Ice	7.6475	7.5828	0.2819
AIR 32 B2a/B66Aa w/ Mount Pipe	C	From Leg	3.0000	0.0000	250.0000	No Ice	6.7474	6.0700	0.1531
			-5.0000			1/2" Ice	7.2017	6.8671	0.2140
			0.0000			1" Ice	7.6475	7.5828	0.2819
AIR 6468 B41 w/ Mount Pipe	A	From Leg	3.0000	0.0000	250.0000	No Ice	6.7636	3.4630	0.1485
			-5.0000			1/2" Ice	7.1550	3.9676	0.2010
			0.0000			1" Ice	7.5561	4.4883	0.2593
AIR 6468 B41 w/ Mount Pipe	B	From Leg	3.0000	0.0000	250.0000	No Ice	6.7636	3.4630	0.1485
			-5.0000			1/2" Ice	7.1550	3.9676	0.2010
			0.0000			1" Ice	7.5561	4.4883	0.2593
AIR 6468 B41 w/ Mount Pipe	C	From Leg	3.0000	0.0000	250.0000	No Ice	6.7636	3.4630	0.1485
			-5.0000			1/2" Ice	7.1550	3.9676	0.2010
			0.0000			1" Ice	7.5561	4.4883	0.2593
RADIO 4449 B12/B71	A	From Leg	3.0000	0.0000	250.0000	No Ice	1.6500	1.3000	0.0750
			5.0000			1/2" Ice	1.8104	1.4448	0.0922
			0.0000			1" Ice	1.9781	1.5970	0.1121
RADIO 4449 B12/B71	B	From Leg	3.0000	0.0000	250.0000	No Ice	1.6500	1.3000	0.0750
			5.0000			1/2" Ice	1.8104	1.4448	0.0922
			0.0000			1" Ice	1.9781	1.5970	0.1121
RADIO 4449 B12/B71	C	From Leg	3.0000	0.0000	250.0000	No Ice	1.6500	1.3000	0.0750
			5.0000			1/2" Ice	1.8104	1.4448	0.0922
			0.0000			1" Ice	1.9781	1.5970	0.1121
RRUS 4415 B25	A	From Leg	3.0000	0.0000	250.0000	No Ice	1.6444	0.6788	0.0440
			5.0000			1/2" Ice	1.8044	0.7911	0.0564
			0.0000			1" Ice	1.9719	0.9129	0.0712
RRUS 4415 B25	B	From Leg	3.0000	0.0000	250.0000	No Ice	1.6444	0.6788	0.0440
			5.0000			1/2" Ice	1.8044	0.7911	0.0564
			0.0000			1" Ice	1.9719	0.9129	0.0712
RRUS 4415 B25	C	From Leg	3.0000	0.0000	250.0000	No Ice	1.6444	0.6788	0.0440
			5.0000			1/2" Ice	1.8044	0.7911	0.0564
			0.0000			1" Ice	1.9719	0.9129	0.0712
Pirod 15' T-Frame Sector Mount (1)	A	From Leg	1.0000	0.0000	250.0000	No Ice	15.0000	15.0000	0.5000
			0.0000			1/2" Ice	20.6000	20.6000	0.6500
			0.0000			1" Ice	26.2000	26.2000	0.8000
Pirod 15' T-Frame Sector Mount (1)	B	From Leg	1.0000	0.0000	250.0000	No Ice	15.0000	15.0000	0.5000
			0.0000			1/2" Ice	20.6000	20.6000	0.6500
			0.0000			1" Ice	26.2000	26.2000	0.8000
Pirod 15' T-Frame Sector Mount (1)	C	From Leg	1.0000	0.0000	250.0000	No Ice	15.0000	15.0000	0.5000
			0.0000			1/2" Ice	20.6000	20.6000	0.6500
			0.0000			1" Ice	26.2000	26.2000	0.8000
**235**									
DB420-A	B	From Leg	8.0000	0.0000	245.0000	No Ice	3.3300	3.3300	0.0300
			0.0000			1/2" Ice	5.9900	5.9900	0.0400
			9.0000			1" Ice	8.6600	8.6600	0.0500
DB225-2-F	A	From Leg	8.0000	0.0000	235.0000	No Ice	1.3600	1.3600	0.0500
			0.0000			1/2" Ice	2.4500	2.4500	0.0700
			0.0000			1" Ice	3.5400	3.5400	0.0900
Sector Mount [SM 412-1]	A	None		0.0000	235.0000	No Ice	70.4700	70.4700	3.0800
						1/2" Ice	100.1400	100.1400	4.4980
						1" Ice	129.8100	129.8100	5.9160
**200**									
(3) DB980H120E-M w/ Mount Pipe	A	From Leg	3.0000	0.0000	200.0000	No Ice	4.2250	3.8326	0.0341
			0.0000			1/2" Ice	4.8117	4.9219	0.0724
			0.0000			1" Ice	5.3220	5.7250	0.1172
(3) DB980H120E-M	B	From Leg	3.0000	0.0000	200.0000	No Ice	4.2250	3.8326	0.0341

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Lateral					
w/Mount Pipe			0.0000			1/2" Ice	4.8117	4.9219	0.0724
			0.0000			1" Ice	5.3220	5.7250	0.1172
(3) DB980H120E-M w/Mount Pipe	C	From Leg	3.0000	0.0000	200.0000	No Ice	4.2250	3.8326	0.0341
			0.0000			1/2" Ice	4.8117	4.9219	0.0724
			0.0000			1" Ice	5.3220	5.7250	0.1172
10-ft T-Frame	A	From Leg	1.0000	0.0000	200.0000	No Ice	13.6000	13.6000	0.3800
			0.0000			1/2" Ice	17.5000	17.5000	0.5300
			0.0000			1" Ice	21.4000	21.4000	0.6800
10-ft T-Frame	B	From Leg	1.0000	0.0000	200.0000	No Ice	13.6000	13.6000	0.3800
			0.0000			1/2" Ice	17.5000	17.5000	0.5300
			0.0000			1" Ice	21.4000	21.4000	0.6800
10-ft T-Frame	C	From Leg	1.0000	0.0000	200.0000	No Ice	13.6000	13.6000	0.3800
			0.0000			1/2" Ice	17.5000	17.5000	0.5300
			0.0000			1" Ice	21.4000	21.4000	0.6800
**190**									
(3) DB980H120E-M w/Mount Pipe	A	From Leg	3.0000	0.0000	190.0000	No Ice	4.2250	3.8326	0.0341
			0.0000			1/2" Ice	4.8117	4.9219	0.0724
			0.0000			1" Ice	5.3220	5.7250	0.1172
(3) DB980H120E-M w/Mount Pipe	B	From Leg	3.0000	0.0000	190.0000	No Ice	4.2250	3.8326	0.0341
			0.0000			1/2" Ice	4.8117	4.9219	0.0724
			0.0000			1" Ice	5.3220	5.7250	0.1172
(3) DB980H120E-M w/Mount Pipe	C	From Leg	3.0000	0.0000	190.0000	No Ice	4.2250	3.8326	0.0341
			0.0000			1/2" Ice	4.8117	4.9219	0.0724
			0.0000			1" Ice	5.3220	5.7250	0.1172
10-ft T-Frame	A	From Leg	1.0000	0.0000	190.0000	No Ice	13.6000	13.6000	0.3800
			0.0000			1/2" Ice	17.5000	17.5000	0.5300
			0.0000			1" Ice	21.4000	21.4000	0.6800
10-ft T-Frame	B	From Leg	1.0000	0.0000	190.0000	No Ice	13.6000	13.6000	0.3800
			0.0000			1/2" Ice	17.5000	17.5000	0.5300
			0.0000			1" Ice	21.4000	21.4000	0.6800
10-ft T-Frame	C	From Leg	1.0000	0.0000	190.0000	No Ice	13.6000	13.6000	0.3800
			0.0000			1/2" Ice	17.5000	17.5000	0.5300
			0.0000			1" Ice	21.4000	21.4000	0.6800
**180**									
(3) DB980H120E-M w/Mount Pipe	A	From Leg	3.0000	0.0000	180.0000	No Ice	4.2250	3.8326	0.0341
			0.0000			1/2" Ice	4.8117	4.9219	0.0724
			0.0000			1" Ice	5.3220	5.7250	0.1172
(3) DB980H120E-M w/Mount Pipe	B	From Leg	3.0000	0.0000	180.0000	No Ice	4.2250	3.8326	0.0341
			0.0000			1/2" Ice	4.8117	4.9219	0.0724
			0.0000			1" Ice	5.3220	5.7250	0.1172
(3) DB980H120E-M w/Mount Pipe	C	From Leg	3.0000	0.0000	180.0000	No Ice	4.2250	3.8326	0.0341
			0.0000			1/2" Ice	4.8117	4.9219	0.0724
			0.0000			1" Ice	5.3220	5.7250	0.1172
10-ft T-Frame	A	From Leg	1.0000	0.0000	180.0000	No Ice	13.6000	13.6000	0.3800
			0.0000			1/2" Ice	17.5000	17.5000	0.5300
			0.0000			1" Ice	21.4000	21.4000	0.6800
10-ft T-Frame	B	From Leg	1.0000	0.0000	180.0000	No Ice	13.6000	13.6000	0.3800
			0.0000			1/2" Ice	17.5000	17.5000	0.5300
			0.0000			1" Ice	21.4000	21.4000	0.6800
10-ft T-Frame	C	From Leg	1.0000	0.0000	180.0000	No Ice	13.6000	13.6000	0.3800
			0.0000			1/2" Ice	17.5000	17.5000	0.5300
			0.0000			1" Ice	21.4000	21.4000	0.6800
**170**									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	3.0000	0.0000	170.0000	No Ice	4.6000	4.0100	0.0876
			0.0000			1/2" Ice	5.0500	4.4500	0.1520
			0.0000			1" Ice	5.5000	4.8900	0.2273
APXVSPP18-C-A20 w/	B	From Leg	3.0000	0.0000	170.0000	No Ice	4.6000	4.0100	0.0876

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	<b>Client</b>	Foresite LLC	<b>Designed by</b>	Ahmet Colakoglu

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Lateral					
Mount Pipe			0.0000			1/2" Ice	5.0500	4.4500	0.1520
			0.0000			1" Ice	5.5000	4.8900	0.2273
APXVSP18-C-A20 w/ Mount Pipe	C	From Leg	3.0000	0.0000	170.0000	No Ice	4.6000	4.0100	0.0876
			0.0000			1/2" Ice	5.0500	4.4500	0.1520
			0.0000			1" Ice	5.5000	4.8900	0.2273
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	3.0000	0.0000	170.0000	No Ice	6.5799	4.9591	0.0770
			-5.0000			1/2" Ice	7.0306	5.7544	0.1316
			0.0000			1" Ice	7.4733	6.4723	0.1929
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	3.0000	0.0000	170.0000	No Ice	6.5799	4.9591	0.0770
			-5.0000			1/2" Ice	7.0306	5.7544	0.1316
			0.0000			1" Ice	7.4733	6.4723	0.1929
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	3.0000	0.0000	170.0000	No Ice	6.5799	4.9591	0.0770
			-5.0000			1/2" Ice	7.0306	5.7544	0.1316
			0.0000			1" Ice	7.4733	6.4723	0.1929
FD-RRH-2x50-800	A	From Leg	0.5000	0.0000	170.0000	No Ice	1.3617	3.0083	0.0530
			2.0000			1/2" Ice	1.5187	3.2231	0.0768
			2.0000			1" Ice	1.6831	3.4454	0.1039
FD-RRH-2x50-800	B	From Leg	0.5000	0.0000	170.0000	No Ice	1.3617	3.0083	0.0530
			2.0000			1/2" Ice	1.5187	3.2231	0.0768
			2.0000			1" Ice	1.6831	3.4454	0.1039
FD-RRH-2x50-800	C	From Leg	0.5000	0.0000	170.0000	No Ice	1.3617	3.0083	0.0530
			2.0000			1/2" Ice	1.5187	3.2231	0.0768
			2.0000			1" Ice	1.6831	3.4454	0.1039
FD-RRH-4x40-1900	A	From Leg	0.5000	0.0000	170.0000	No Ice	2.3218	2.2360	0.0595
			2.0000			1/2" Ice	2.5266	2.4385	0.0826
			0.0000			1" Ice	2.7388	2.6485	0.1090
FD-RRH-4x40-1900	B	From Leg	0.5000	0.0000	170.0000	No Ice	2.3218	2.2360	0.0595
			2.0000			1/2" Ice	2.5266	2.4385	0.0826
			0.0000			1" Ice	2.7388	2.6485	0.1090
FD-RRH-4x40-1900	C	From Leg	0.5000	0.0000	170.0000	No Ice	2.3218	2.2360	0.0595
			2.0000			1/2" Ice	2.5266	2.4385	0.0826
			0.0000			1" Ice	2.7388	2.6485	0.1090
TD-RRH8x20-25	A	From Leg	3.0000	0.0000	170.0000	No Ice	4.0455	1.5345	0.0700
			-5.0000			1/2" Ice	4.2975	1.7142	0.0972
			0.0000			1" Ice	4.5570	1.9008	0.1278
TD-RRH8x20-25	A	From Leg	3.0000	0.0000	170.0000	No Ice	4.0455	1.5345	0.0700
			-5.0000			1/2" Ice	4.2975	1.7142	0.0972
			0.0000			1" Ice	4.5570	1.9008	0.1278
TD-RRH8x20-25	A	From Leg	3.0000	0.0000	170.0000	No Ice	4.0455	1.5345	0.0700
			-5.0000			1/2" Ice	4.2975	1.7142	0.0972
			0.0000			1" Ice	4.5570	1.9008	0.1278
Pirod 15' T-Frame Sector Mount (1)	A	From Leg	1.0000	0.0000	170.0000	No Ice	15.0000	15.0000	0.5000
			0.0000			1/2" Ice	20.6000	20.6000	0.6500
			0.0000			1" Ice	26.2000	26.2000	0.8000
Pirod 15' T-Frame Sector Mount (1)	B	From Leg	1.0000	0.0000	170.0000	No Ice	15.0000	15.0000	0.5000
			0.0000			1/2" Ice	20.6000	20.6000	0.6500
			0.0000			1" Ice	26.2000	26.2000	0.8000
Pirod 15' T-Frame Sector Mount (1)	C	From Leg	1.0000	0.0000	170.0000	No Ice	15.0000	15.0000	0.5000
			0.0000			1/2" Ice	20.6000	20.6000	0.6500
			0.0000			1" Ice	26.2000	26.2000	0.8000
**160**									
800 10121 w/ Mount Pipe	A	From Leg	3.0000	0.0000	160.0000	No Ice	5.3879	4.5996	0.0665
			-5.0000			1/2" Ice	5.8131	5.3507	0.1140
			0.0000			1" Ice	6.2340	6.0464	0.1679
800 10121 w/ Mount Pipe	B	From Leg	3.0000	0.0000	160.0000	No Ice	5.3879	4.5996	0.0665
			-5.0000			1/2" Ice	5.8131	5.3507	0.1140
			0.0000			1" Ice	6.2340	6.0464	0.1679

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub>		Weight	
			Horz	Lateral			Front	Side		
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
800 10121 w/ Mount Pipe	C	From Leg	3.0000		0.0000	160.0000	No Ice	5.3879	4.5996	0.0665
			-5.0000				1/2" Ice	5.8131	5.3507	0.1140
			0.0000				1" Ice	6.2340	6.0464	0.1679
CCI Antennas - HPA65R-BU6A / w Mount Pipe	A	From Leg	3.0000		0.0000	160.0000	No Ice	7.8696	6.9740	0.0638
			0.0000				1/2" Ice	8.3260	7.9248	0.1300
			0.0000				1" Ice	8.7877	8.7520	0.2039
CCI Antennas - HPA65R-BU6A / w Mount Pipe	B	From Leg	3.0000		0.0000	160.0000	No Ice	7.8696	6.9740	0.0638
			0.0000				1/2" Ice	8.3260	7.9248	0.1300
			0.0000				1" Ice	8.7877	8.7520	0.2039
CCI Antennas - HPA65R-BU6A / w Mount Pipe	C	From Leg	3.0000		0.0000	160.0000	No Ice	7.8696	6.9740	0.0638
			0.0000				1/2" Ice	8.3260	7.9248	0.1300
			0.0000				1" Ice	8.7877	8.7520	0.2039
QS66512-2 w/ Mount Pipe	A	From Leg	3.0000		0.0000	160.0000	No Ice	8.3708	8.4625	0.1366
			5.0000				1/2" Ice	8.9314	9.6573	0.2122
			0.0000				1" Ice	9.4571	10.5478	0.2961
QS66512-2 w/ Mount Pipe	B	From Leg	3.0000		0.0000	160.0000	No Ice	8.3708	8.4625	0.1366
			5.0000				1/2" Ice	8.9314	9.6573	0.2122
			0.0000				1" Ice	9.4571	10.5478	0.2961
QS66512-2 w/ Mount Pipe	C	From Leg	3.0000		0.0000	160.0000	No Ice	8.3708	8.4625	0.1366
			5.0000				1/2" Ice	8.9314	9.6573	0.2122
			0.0000				1" Ice	9.4571	10.5478	0.2961
RRUS 11	A	From Leg	3.0000		0.0000	160.0000	No Ice	2.7845	1.1872	0.0507
			0.0000				1/2" Ice	2.9919	1.3342	0.0715
			0.0000				1" Ice	3.2066	1.4897	0.0953
RRUS 11	B	From Leg	3.0000		0.0000	160.0000	No Ice	2.7845	1.1872	0.0507
			0.0000				1/2" Ice	2.9919	1.3342	0.0715
			0.0000				1" Ice	3.2066	1.4897	0.0953
RRUS 11	C	From Leg	3.0000		0.0000	160.0000	No Ice	2.7845	1.1872	0.0507
			0.0000				1/2" Ice	2.9919	1.3342	0.0715
			0.0000				1" Ice	3.2066	1.4897	0.0953
RRUS 32	A	From Leg	3.0000		0.0000	160.0000	No Ice	2.8571	1.7766	0.0551
			0.0000				1/2" Ice	3.0830	1.9677	0.0774
			0.0000				1" Ice	3.3163	2.1658	0.1029
RRUS 32	B	From Leg	3.0000		0.0000	160.0000	No Ice	2.8571	1.7766	0.0551
			0.0000				1/2" Ice	3.0830	1.9677	0.0774
			0.0000				1" Ice	3.3163	2.1658	0.1029
RRUS 32	C	From Leg	3.0000		0.0000	160.0000	No Ice	2.8571	1.7766	0.0551
			0.0000				1/2" Ice	3.0830	1.9677	0.0774
			0.0000				1" Ice	3.3163	2.1658	0.1029
RRUS 32 B2	A	From Leg	3.0000		0.0000	160.0000	No Ice	2.7313	1.6681	0.0529
			0.0000				1/2" Ice	2.9531	1.8552	0.0740
			0.0000				1" Ice	3.1823	2.0493	0.0982
RRUS 32 B2	B	From Leg	3.0000		0.0000	160.0000	No Ice	2.7313	1.6681	0.0529
			0.0000				1/2" Ice	2.9531	1.8552	0.0740
			0.0000				1" Ice	3.1823	2.0493	0.0982
RRUS 32 B2	C	From Leg	3.0000		0.0000	160.0000	No Ice	2.7313	1.6681	0.0529
			0.0000				1/2" Ice	2.9531	1.8552	0.0740
			0.0000				1" Ice	3.1823	2.0493	0.0982
RRUS 4478 B5	A	From Leg	3.0000		0.0000	160.0000	No Ice	1.8425	1.0588	0.0599
			0.0000				1/2" Ice	2.0123	1.1969	0.0758
			0.0000				1" Ice	2.1895	1.3425	0.0943
RRUS 4478 B5	B	From Leg	3.0000		0.0000	160.0000	No Ice	1.8425	1.0588	0.0599
			0.0000				1/2" Ice	2.0123	1.1969	0.0758
			0.0000				1" Ice	2.1895	1.3425	0.0943
RRUS 4478 B5	C	From Leg	3.0000		0.0000	160.0000	No Ice	1.8425	1.0588	0.0599
			0.0000				1/2" Ice	2.0123	1.1969	0.0758
			0.0000				1" Ice	2.1895	1.3425	0.0943

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz	Lateral						°
RRUS 4478 B14	A	From Leg	3.0000	0.0000	0.0000	160.0000	No Ice	1.8425	1.0588	0.0599
			0.0000	0.0000			1/2" Ice	2.0123	1.1969	0.0758
			0.0000	0.0000			1" Ice	2.1895	1.3425	0.0943
RRUS 4478 B14	B	From Leg	3.0000	0.0000	0.0000	160.0000	No Ice	1.8425	1.0588	0.0599
			0.0000	0.0000			1/2" Ice	2.0123	1.1969	0.0758
			0.0000	0.0000			1" Ice	2.1895	1.3425	0.0943
RRUS 4478 B14	C	From Leg	3.0000	0.0000	0.0000	160.0000	No Ice	1.8425	1.0588	0.0599
			0.0000	0.0000			1/2" Ice	2.0123	1.1969	0.0758
			0.0000	0.0000			1" Ice	2.1895	1.3425	0.0943
RRUS 4426 B66	A	From Leg	3.0000	0.0000	0.0000	160.0000	No Ice	1.6444	0.7252	0.0484
			0.0000	0.0000			1/2" Ice	1.8044	0.8421	0.0612
			0.0000	0.0000			1" Ice	1.9719	0.9685	0.0764
RRUS 4426 B66	B	From Leg	3.0000	0.0000	0.0000	160.0000	No Ice	1.6444	0.7252	0.0484
			0.0000	0.0000			1/2" Ice	1.8044	0.8421	0.0612
			0.0000	0.0000			1" Ice	1.9719	0.9685	0.0764
RRUS 4426 B66	C	From Leg	3.0000	0.0000	0.0000	160.0000	No Ice	1.6444	0.7252	0.0484
			0.0000	0.0000			1/2" Ice	1.8044	0.8421	0.0612
			0.0000	0.0000			1" Ice	1.9719	0.9685	0.0764
LGP21401	A	From Leg	3.0000	0.0000	0.0000	160.0000	No Ice	1.1040	0.2070	0.0141
			0.0000	0.0000			1/2" Ice	1.2388	0.2738	0.0213
			0.0000	0.0000			1" Ice	1.3810	0.3475	0.0303
LGP21401	B	From Leg	3.0000	0.0000	0.0000	160.0000	No Ice	1.1040	0.2070	0.0141
			0.0000	0.0000			1/2" Ice	1.2388	0.2738	0.0213
			0.0000	0.0000			1" Ice	1.3810	0.3475	0.0303
LGP21401	C	From Leg	3.0000	0.0000	0.0000	160.0000	No Ice	1.1040	0.2070	0.0141
			0.0000	0.0000			1/2" Ice	1.2388	0.2738	0.0213
			0.0000	0.0000			1" Ice	1.3810	0.3475	0.0303
DC6-48-60-18-8F	A	From Leg	0.0000	0.0000	0.0000	160.0000	No Ice	0.7915	0.7915	0.0189
			0.0000	0.0000			1/2" Ice	1.2743	1.2743	0.0340
			0.0000	0.0000			1" Ice	1.4503	1.4503	0.0515
DC6-48-60-18-8F	B	From Leg	0.0000	0.0000	0.0000	160.0000	No Ice	0.7915	0.7915	0.0189
			0.0000	0.0000			1/2" Ice	1.2743	1.2743	0.0340
			0.0000	0.0000			1" Ice	1.4503	1.4503	0.0515
DC6-48-60-18-8F	C	From Leg	0.0000	0.0000	0.0000	160.0000	No Ice	0.7915	0.7915	0.0189
			0.0000	0.0000			1/2" Ice	1.2743	1.2743	0.0340
			0.0000	0.0000			1" Ice	1.4503	1.4503	0.0515
Pirod 15' T-Frame Sector Mount (1)	A	From Leg	1.0000	0.0000	0.0000	160.0000	No Ice	15.0000	15.0000	0.5000
			0.0000	0.0000			1/2" Ice	20.6000	20.6000	0.6500
			0.0000	0.0000			1" Ice	26.2000	26.2000	0.8000
Pirod 15' T-Frame Sector Mount (1)	B	From Leg	1.0000	0.0000	0.0000	160.0000	No Ice	15.0000	15.0000	0.5000
			0.0000	0.0000			1/2" Ice	20.6000	20.6000	0.6500
			0.0000	0.0000			1" Ice	26.2000	26.2000	0.8000
Pirod 15' T-Frame Sector Mount (1)	C	From Leg	1.0000	0.0000	0.0000	160.0000	No Ice	15.0000	15.0000	0.5000
			0.0000	0.0000			1/2" Ice	20.6000	20.6000	0.6500
			0.0000	0.0000			1" Ice	26.2000	26.2000	0.8000
**150**										
APXV18-206517S-C w/ Mount Pipe	A	From Leg	0.5000	0.0000	0.0000	150.0000	No Ice	3.7900	3.1600	0.0532
			0.0000	0.0000			1/2" Ice	4.3800	3.7500	0.0938
			0.0000	0.0000			1" Ice	4.9900	4.3500	0.1451
APXV18-206517S-C w/ Mount Pipe	B	From Leg	0.5000	0.0000	0.0000	150.0000	No Ice	3.7900	3.1600	0.0532
			0.0000	0.0000			1/2" Ice	4.3800	3.7500	0.0938
			0.0000	0.0000			1" Ice	4.9900	4.3500	0.1451
APXV18-206517S-C w/ Mount Pipe	C	From Leg	0.5000	0.0000	0.0000	150.0000	No Ice	3.7900	3.1600	0.0532
			0.0000	0.0000			1/2" Ice	4.3800	3.7500	0.0938
			0.0000	0.0000			1" Ice	4.9900	4.3500	0.1451
**140**										
LNX-6514DS-VTM w/	A	From Leg	3.0000	0.0000	0.0000	140.0000	No Ice	8.4106	7.0817	0.0646



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	<b>Client</b>		Foresite LLC		<b>Designed by</b>		Ahmet Colakoglu	

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
Mount Pipe			-6.0000			1/2" Ice 8.9745	8.2729	0.1337
			0.0000			1" Ice 9.5048	9.1847	0.2109
LNx-6514DS-VTM w/ Mount Pipe	B	From Leg	3.0000	0.0000	140.0000	No Ice 8.4106	7.0817	0.0646
			-6.0000			1/2" Ice 8.9745	8.2729	0.1337
			0.0000			1" Ice 9.5048	9.1847	0.2109
LNx-6514DS-VTM w/ Mount Pipe	C	From Leg	3.0000	0.0000	140.0000	No Ice 8.4106	7.0817	0.0646
			-6.0000			1/2" Ice 8.9745	8.2729	0.1337
			0.0000			1" Ice 9.5048	9.1847	0.2109
LNx-6514DS-VTM w/ Mount Pipe	A	From Leg	3.0000	0.0000	140.0000	No Ice 8.4106	7.0817	0.0646
			0.0000			1/2" Ice 8.9745	8.2729	0.1337
			0.0000			1" Ice 9.5048	9.1847	0.2109
LNx-6514DS-VTM w/ Mount Pipe	B	From Leg	3.0000	0.0000	140.0000	No Ice 8.4106	7.0817	0.0646
			0.0000			1/2" Ice 8.9745	8.2729	0.1337
			0.0000			1" Ice 9.5048	9.1847	0.2109
LNx-6514DS-VTM w/ Mount Pipe	C	From Leg	3.0000	0.0000	140.0000	No Ice 8.4106	7.0817	0.0646
			0.0000			1/2" Ice 8.9745	8.2729	0.1337
			0.0000			1" Ice 9.5048	9.1847	0.2109
HBXX-6517DS-VTM w/ Mount Pipe	A	From Leg	3.0000	0.0000	140.0000	No Ice 7.9700	5.9900	0.0758
			-4.0000			1/2" Ice 8.7300	6.7200	0.1392
			0.0000			1" Ice 9.5100	7.4700	0.2138
HBXX-6517DS-VTM w/ Mount Pipe	B	From Leg	3.0000	0.0000	140.0000	No Ice 7.9700	5.9900	0.0758
			-4.0000			1/2" Ice 8.7300	6.7200	0.1392
			0.0000			1" Ice 9.5100	7.4700	0.2138
HBXX-6517DS-VTM w/ Mount Pipe	C	From Leg	3.0000	0.0000	140.0000	No Ice 7.9700	5.9900	0.0758
			-4.0000			1/2" Ice 8.7300	6.7200	0.1392
			0.0000			1" Ice 9.5100	7.4700	0.2138
HBXX-6517DS-VTM w/ Mount Pipe	A	From Leg	3.0000	0.0000	140.0000	No Ice 7.9700	5.9900	0.0758
			4.0000			1/2" Ice 8.7300	6.7200	0.1392
			0.0000			1" Ice 9.5100	7.4700	0.2138
HBXX-6517DS-VTM w/ Mount Pipe	B	From Leg	3.0000	0.0000	140.0000	No Ice 7.9700	5.9900	0.0758
			4.0000			1/2" Ice 8.7300	6.7200	0.1392
			0.0000			1" Ice 9.5100	7.4700	0.2138
HBXX-6517DS-VTM w/ Mount Pipe	C	From Leg	3.0000	0.0000	140.0000	No Ice 7.9700	5.9900	0.0758
			4.0000			1/2" Ice 8.7300	6.7200	0.1392
			0.0000			1" Ice 9.5100	7.4700	0.2138
(2) FD9R6004/2C-3L	A	From Leg	3.0000	0.0000	140.0000	No Ice 0.3142	0.0762	0.0031
			0.0000			1/2" Ice 0.3862	0.1189	0.0054
			0.0000			1" Ice 0.4656	0.1685	0.0088
(2) FD9R6004/2C-3L	B	From Leg	3.0000	0.0000	140.0000	No Ice 0.3142	0.0762	0.0031
			0.0000			1/2" Ice 0.3862	0.1189	0.0054
			0.0000			1" Ice 0.4656	0.1685	0.0088
(2) FD9R6004/2C-3L	C	From Leg	3.0000	0.0000	140.0000	No Ice 0.3142	0.0762	0.0031
			0.0000			1/2" Ice 0.3862	0.1189	0.0054
			0.0000			1" Ice 0.4656	0.1685	0.0088
RRH2x60-AWS	A	From Leg	3.0000	0.0000	140.0000	No Ice 3.5002	2.1012	0.0600
			-4.0000			1/2" Ice 3.7609	2.3367	0.0843
			0.0000			1" Ice 4.0285	2.5792	0.1123
RRH2x60-AWS	B	From Leg	3.0000	0.0000	140.0000	No Ice 3.5002	2.1012	0.0600
			-4.0000			1/2" Ice 3.7609	2.3367	0.0843
			0.0000			1" Ice 4.0285	2.5792	0.1123
RRH2x60-AWS	C	From Leg	3.0000	0.0000	140.0000	No Ice 3.5002	2.1012	0.0600
			-4.0000			1/2" Ice 3.7609	2.3367	0.0843
			0.0000			1" Ice 4.0285	2.5792	0.1123
RRH2X60-PCS	A	From Leg	3.0000	0.0000	140.0000	No Ice 2.2000	1.7233	0.0550
			4.0000			1/2" Ice 2.3926	1.9015	0.0754
			0.0000			1" Ice 2.5926	2.0870	0.0987
RRH2X60-PCS	B	From Leg	3.0000	0.0000	140.0000	No Ice 2.2000	1.7233	0.0550

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	<b>Client</b>	Foresite LLC	<b>Designed by</b>	Ahmet Colakoglu

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K				
RRH2X60-PCS	C	From Leg	4.0000	0.0000	140.0000	No Ice	2.2000	1.7233	0.0754			
			0.0000						1" Ice	2.5926	2.0870	0.0987
			3.0000						1/2" Ice	2.3926	1.9015	0.0754
			0.0000						1" Ice	2.5926	2.0870	0.0987
DB-T1-6Z-8AB-0Z	A	From Leg	1.0000	0.0000	140.0000	No Ice	5.0704	2.1926	0.0440			
			0.0000						1/2" Ice	5.0704	2.1926	0.0801
			0.0000						1" Ice	5.3481	2.3926	0.1202
			0.0000						No Ice	4.8000	2.0000	0.0440
Pirod 12' T-Frame Sector Mount (1)	A	From Leg	1.0000	0.0000	140.0000	No Ice	13.6000	13.6000	0.4650			
			0.0000						1/2" Ice	18.4000	18.4000	0.6000
			0.0000						1" Ice	23.2000	23.2000	0.7350
			0.0000						No Ice	13.6000	13.6000	0.4650
Pirod 12' T-Frame Sector Mount (1)	B	From Leg	1.0000	0.0000	140.0000	No Ice	18.4000	18.4000	0.4650			
			0.0000						1/2" Ice	18.4000	18.4000	0.6000
			0.0000						1" Ice	23.2000	23.2000	0.7350
			0.0000						No Ice	13.6000	13.6000	0.4650
Pirod 12' T-Frame Sector Mount (1)	C	From Leg	1.0000	0.0000	140.0000	No Ice	18.4000	18.4000	0.4650			
			0.0000						1/2" Ice	18.4000	18.4000	0.6000
			0.0000						1" Ice	23.2000	23.2000	0.7350
			0.0000						No Ice	13.6000	13.6000	0.4650
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### Truss-Leg Properties

Section Designation	Area in <sup>2</sup>	Area Ice in <sup>2</sup>	Self Weight K	Ice Weight K	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in <sup>2</sup>
Pirod 105245	1090.3344	3227.9386	0.6446	0.6625	7.5718	22.4162	5.3014
Pirod 105218	2263.4687	6700.6084	0.7186	1.2798	7.8593	23.2660	7.2158
Pirod 105218	2263.4687	6684.7191	0.7186	1.2596	7.8593	23.2108	7.2158
Pirod 105219	2441.8688	6739.2465	0.8993	1.2842	8.4787	23.4002	9.4248
Pirod 105220	2578.8005	6791.8153	1.0678	1.2814	8.9542	23.5827	11.9282
Pirod 105220	2578.8005	6769.8954	1.0678	1.2535	8.9542	23.5066	11.9282
Pirod 112743	3466.5160	8923.4288	1.6089	1.6904	12.0365	30.9841	14.7262
Pirod 112743	3466.5160	8898.2322	1.6089	1.6392	12.0365	30.8966	14.7262
Pirod 112744	3599.5585	8939.3815	1.8137	1.5963	12.4985	31.0395	17.8187
Pirod 112744	3599.5585	8899.2724	1.8137	1.5172	12.4985	30.9003	17.8187
Pirod 112745	3789.3331	8912.9018	2.0895	1.4474	13.1574	30.9476	21.2058
Pirod 112740	3789.3331	8797.0272	2.0895	1.2326	13.1574	30.5452	21.2058

### Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice

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Comb. No.	Description
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

### Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	280 - 270	Leg	Max Tension	7	6.6708	0.4887	-0.2244
			Max. Compression	10	-9.4215	-0.1633	-0.1004
			Max. Mx	8	-7.3467	0.5411	0.0052
			Max. My	2	-1.3729	-0.0414	0.5533
			Max. Vy	8	1.3506	-0.1896	-0.0111

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T2	270 - 250	Diagonal	Max. Vx	2	-1.3635	0.0188	0.1962	
			Max Tension	24	1.7744	0.0000	0.0000	
			Max. Compression	8	-1.7784	0.0000	0.0000	
			Max. Mx	33	0.7995	-0.0078	0.0001	
			Max. My	6	-1.4277	-0.0023	0.0006	
			Max. Vy	32	0.0137	-0.0078	-0.0001	
			Max. Vx	4	0.0002	0.0000	0.0000	
			Horizontal	Max Tension	14	0.2739	0.0000	0.0000
				Max. Compression	3	-0.1851	0.0000	0.0000
				Max. Mx	26	0.1323	0.0270	0.0000
				Max. My	22	-0.0623	0.0000	-0.0000
				Max. Vy	26	-0.0216	0.0000	0.0000
		Max. Vx		22	0.0000	0.0000	0.0000	
		Top Girt	Max Tension	18	0.7391	0.0000	0.0000	
			Max. Compression	6	-0.7529	0.0000	0.0000	
			Max. Mx	26	0.0350	0.0302	0.0000	
			Max. My	10	-0.3777	0.0000	0.0000	
			Max. Vy	26	-0.0242	0.0000	0.0000	
			Max. Vx	10	0.0000	0.0000	0.0000	
		Bottom Girt	Max Tension	14	0.7425	0.0000	0.0000	
			Max. Compression	10	-0.7226	0.0000	0.0000	
			Max. Mx	26	0.0984	0.0302	0.0000	
			Max. My	22	-0.3067	0.0000	-0.0000	
			Max. Vy	26	-0.0242	0.0000	0.0000	
			Max. Vx	22	0.0000	0.0000	0.0000	
		Mid Girt	Max Tension	33	0.1292	0.0000	0.0000	
			Max. Compression	3	-0.0119	0.0000	0.0000	
			Max. Mx	26	0.1095	0.0302	0.0000	
			Max. My	10	0.0046	0.0000	0.0000	
			Max. Vy	26	-0.0242	0.0000	0.0000	
			Max. Vx	10	0.0000	0.0000	0.0000	
		Leg	Max Tension	7	26.3371	0.6908	-0.3623	
			Max. Compression	2	-30.1391	0.0101	0.2805	
			Max. Mx	8	-9.6390	-0.8078	-0.0245	
			Max. My	2	-9.3176	0.0832	0.8199	
			Max. Vy	8	1.8900	-0.2476	-0.0552	
			Max. Vx	2	-1.9892	0.0101	0.2805	
			Diagonal	Max Tension	8	2.3553	0.0000	0.0000
				Max. Compression	8	-2.3949	0.0000	0.0000
				Max. Mx	34	0.8649	-0.0080	-0.0000
				Max. My	6	-1.7248	-0.0022	0.0008
				Max. Vy	34	0.0137	-0.0080	-0.0000
Max. Vx	6			0.0003	0.0000	0.0000		
Horizontal	Max Tension		14	0.4359	0.0000	0.0000		
	Max. Compression		3	-0.3482	0.0000	0.0000		
	Max. Mx		26	0.1589	0.0268	0.0000		
	Max. My		22	-0.1429	0.0000	-0.0000		
	Max. Vy		26	-0.0215	0.0000	0.0000		
	Max. Vx		22	0.0000	0.0000	0.0000		
Top Girt	Max Tension	18	0.8386	0.0000	0.0000			
	Max. Compression	6	-0.8413	0.0000	0.0000			
	Max. Mx	26	0.0425	0.0300	0.0000			
	Max. My	10	-0.4213	0.0000	0.0000			
	Max. Vy	26	-0.0240	0.0000	0.0000			
	Max. Vx	10	0.0000	0.0000	0.0000			
Bottom Girt	Max Tension	14	0.9677	0.0000	0.0000			
	Max. Compression	3	-0.9449	0.0000	0.0000			
	Max. Mx	26	0.1103	0.0300	0.0000			
	Max. My	8	0.1054	0.0000	-0.0000			
	Max. Vy	26	-0.0240	0.0000	0.0000			
	Max. Vx	8	0.0000	0.0000	0.0000			

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T3	250 - 230	Mid Girt	Max Tension	14	0.2840	0.0000	0.0000
			Max. Compression	3	-0.1971	0.0000	0.0000
			Max. Mx	26	0.1298	0.0300	0.0000
			Max. My	10	0.0686	0.0000	0.0000
			Max. Vy	26	-0.0240	0.0000	0.0000
			Max. Vx	10	0.0000	0.0000	0.0000
		Leg	Max Tension	7	73.8453	0.4447	-0.2313
			Max. Compression	2	-84.0254	0.0577	3.1027
			Max. Mx	8	-73.6023	-2.6440	-0.8400
			Max. My	2	-84.0254	0.0577	3.1027
			Max. Vy	8	5.7203	-2.6440	-0.8400
			Max. Vx	2	-6.6283	0.0577	3.1027
		Diagonal	Max Tension	24	5.6667	0.0000	0.0000
			Max. Compression	12	-5.7500	0.0000	0.0000
			Max. Mx	27	1.6415	-0.0103	-0.0000
			Max. My	8	-4.5748	-0.0016	0.0018
			Max. Vy	27	0.0157	-0.0103	0.0002
			Max. Vx	8	0.0006	0.0000	0.0000
		Horizontal	Max Tension	14	0.8205	0.0000	0.0000
			Max. Compression	3	-0.6873	0.0000	0.0000
			Max. Mx	26	0.2889	0.0266	0.0000
			Max. My	8	0.0740	0.0000	-0.0000
			Max. Vy	26	-0.0212	0.0000	0.0000
			Max. Vx	8	0.0000	0.0000	0.0000
Top Girt	Max Tension	10	1.7651	0.0000	0.0000		
	Max. Compression	6	-1.7501	0.0000	0.0000		
	Max. Mx	26	0.0910	0.0372	0.0000		
	Max. My	10	-0.8777	0.0000	0.0000		
	Max. Vy	26	-0.0297	0.0000	0.0000		
	Max. Vx	10	-0.0000	0.0000	0.0000		
Bottom Girt	Max Tension	14	1.1757	0.0000	0.0000		
	Max. Compression	3	-1.0608	0.0000	0.0000		
	Max. Mx	26	0.1590	0.0372	0.0000		
	Max. My	8	0.0162	0.0000	-0.0000		
	Max. Vy	26	-0.0297	0.0000	0.0000		
	Max. Vx	8	0.0000	0.0000	0.0000		
T4	230 - 220	Leg	Max Tension	7	78.3687	-2.9395	0.0183
			Max. Compression	2	-88.0466	4.2247	-0.0395
			Max. Mx	6	77.3336	-4.6839	0.0302
			Max. My	8	-5.8176	-0.2247	7.2324
			Max. Vy	14	0.2996	-4.5903	0.0519
			Max. Vx	8	-0.7606	-0.2247	7.2324
		Diagonal	Max Tension	23	5.6076	0.0575	-0.0068
			Max. Compression	10	-6.3513	0.0000	0.0000
			Max. Mx	6	4.9970	0.0601	-0.0040
			Max. My	24	-5.3562	-0.0412	-0.0237
			Max. Vy	29	0.0316	0.0498	-0.0059
			Max. Vx	24	0.0048	0.0000	0.0000
T5	220 - 200	Leg	Max Tension	7	106.4577	-4.1071	0.0297
			Max. Compression	2	-119.3455	5.1245	0.0006
			Max. Mx	2	-119.3455	5.1245	0.0006
			Max. My	8	-6.8678	-0.2248	7.2324
			Max. Vy	10	-0.2372	5.0887	0.0314
			Max. Vx	8	0.5546	-0.0666	5.8505
		Diagonal	Max Tension	12	5.4708	0.0000	0.0000
			Max. Compression	10	-5.8974	0.0000	0.0000
			Max. Mx	27	0.5143	0.0906	-0.0147
			Max. My	9	-4.5607	-0.0443	0.0198
			Max. Vy	28	0.0477	0.0790	-0.0160
			Max. Vx	37	0.0044	0.0000	0.0000
T6	200 - 180	Leg	Max Tension	7	133.4805	-3.5534	0.0121

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T7	180 - 160	Diagonal	Max. Compression	2	-150.7243	5.6316	0.0218	
			Max. Mx	10	-150.1176	5.6331	0.1524	
			Max. My	8	-9.6055	0.0519	4.9193	
			Max. Vy	6	-1.0774	-4.8051	0.0287	
			Max. Vx	8	0.9240	-0.1019	4.7918	
			Max Tension	23	7.9844	0.0000	0.0000	
			Max. Compression	10	-9.1077	0.0000	0.0000	
			Max. Mx	29	1.1698	0.0945	-0.0141	
			Max. My	37	-2.6991	0.0506	-0.0156	
			Max. Vy	29	0.0572	0.0945	-0.0141	
			Max. Vx	31	-0.0041	0.0000	0.0000	
			Max Tension	6	3.7671	0.0000	0.0000	
		Top Girt	Max. Compression	3	-3.0366	0.0000	0.0000	
			Max. Mx	26	1.0184	-0.1409	0.0000	
			Max. My	37	0.3332	0.0000	0.0041	
			Max. Vy	26	0.0704	0.0000	0.0000	
			Max. Vx	37	0.0020	0.0000	0.0000	
			Max Tension	6	4.6411	0.0000	0.0000	
			Mid Girt	Max. Compression	3	-3.5948	0.0000	0.0000
				Max. Mx	26	1.5784	-0.1783	0.0000
				Max. My	37	0.6614	0.0000	0.0051
				Max. Vy	26	0.0792	0.0000	0.0000
				Max. Vx	37	-0.0023	0.0000	0.0000
				Max Tension	23	169.6782	-3.7564	0.0304
		Leg		Max. Compression	2	-193.5104	5.8591	0.0616
				Max. Mx	2	-193.5104	5.8591	0.0616
				Max. My	8	-9.9092	0.0518	4.9193
				Max. Vy	14	-1.1134	-5.3902	-0.0188
				Max. Vx	24	1.3768	-0.1264	4.9069
				Max Tension	23	10.4272	0.0000	0.0000
			Diagonal	Max. Compression	10	-11.9460	0.0000	0.0000
				Max. Mx	27	-0.1511	0.1366	0.0196
				Max. My	31	-5.7136	0.0901	0.0210
				Max. Vy	37	0.0779	0.1356	0.0188
				Max. Vx	31	-0.0051	0.0000	0.0000
				Max Tension	6	5.9830	0.0000	0.0000
		Top Girt		Max. Compression	3	-4.6994	0.0000	0.0000
				Max. Mx	26	2.0202	-0.2993	0.0000
				Max. My	37	0.8588	0.0000	0.0086
				Max. Vy	26	0.1197	0.0000	0.0000
				Max. Vx	37	0.0035	0.0000	0.0000
				Max Tension	22	6.3757	0.0000	0.0000
Mid Girt	Max. Compression		11	-4.9480	0.0000	0.0000		
	Max. Mx		26	2.2985	-0.3621	0.0000		
	Max. My		37	1.1077	0.0000	0.0105		
	Max. Vy		26	0.1317	0.0000	0.0000		
	Max. Vx		37	0.0038	0.0000	0.0000		
	Max Tension		23	214.7361	-4.1661	-0.0412		
	Leg	Max. Compression	2	-248.1909	4.8751	0.0140		
		Max. Mx	2	-219.3422	5.8591	0.0616		
		Max. My	8	-16.4248	-0.2726	7.3464		
		Max. Vy	14	-1.6582	-5.2803	-0.0674		
		Max. Vx	20	-1.0564	0.2257	-2.7371		
		Max Tension	12	11.6057	0.0000	0.0000		
Diagonal		Max. Compression	12	-11.6211	0.0000	0.0000		
		Max. Mx	27	3.2603	0.2040	0.0220		
		Max. My	37	-3.2969	0.1112	-0.0291		
		Max. Vy	37	0.1015	0.1877	0.0239		
		Max. Vx	37	0.0064	0.0000	0.0000		
		Max Tension	22	4.9327	0.0000	0.0000		
	Top Girt	Max. Compression	3	-3.8732	0.0000	0.0000		

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft		
T9	140 - 120	Leg	Max. Mx	26	1.7864	-0.4104	0.0000		
			Max. My	37	0.8296	0.0000	0.0118		
			Max. Vy	26	-0.1368	0.0000	0.0000		
			Max. Vx	37	-0.0039	0.0000	0.0000		
			Max Tension	23	261.6539	-4.8524	0.0002		
			Max. Compression	2	-302.1840	10.7922	0.1352		
			Max. Mx	10	-302.1528	10.8480	0.2768		
		Diagonal	Max. My	8	-21.8242	0.1073	10.2860		
			Max. Vy	14	-1.5252	-4.8124	-0.0303		
			Max. Vx	8	1.7437	-0.0387	4.6213		
			Max Tension	12	13.0203	0.0000	0.0000		
			Max. Compression	12	-13.5917	0.0000	0.0000		
			Max. Mx	27	3.7861	0.2232	0.0214		
			Max. My	22	-11.9581	0.0442	-0.0381		
T10	120 - 100	Leg	Max. Vy	37	0.1135	0.2209	-0.0265		
			Max. Vx	37	0.0069	0.0000	0.0000		
			Max Tension	23	291.7616	-10.4460	-0.2894		
			Max. Compression	10	-336.0014	10.7520	0.1968		
			Max. Mx	22	285.7558	-12.6399	-0.2702		
			Max. My	8	-24.3518	-1.0848	19.5726		
			Max. Vy	14	0.5056	-12.4678	-0.0605		
		Diagonal	Max. Vx	8	-0.8628	-1.0848	19.5726		
			Max Tension	23	17.3126	0.0000	0.0000		
			Max. Compression	10	-18.9411	0.0000	0.0000		
			Max. Mx	37	3.5634	-0.5694	0.0832		
			Max. My	22	-14.7920	-0.1639	0.1152		
			Max. Vy	37	-0.1989	-0.5694	0.0832		
			Max. Vx	37	-0.0153	0.0000	0.0000		
T11	100 - 80	Leg	Max Tension	23	336.7600	-12.3346	-0.2626		
			Max. Compression	10	-389.4564	15.5387	0.2033		
			Max. Mx	10	-389.4564	15.5387	0.2033		
			Max. My	8	-26.3535	-1.0849	19.5726		
			Max. Vy	10	-0.5364	15.5387	0.2033		
			Max. Vx	8	0.9217	-1.0849	19.5726		
			Diagonal	Max Tension	12	17.8711	0.0000	0.0000	
		Max. Compression		12	-18.6643	0.0000	0.0000		
		Max. Mx		37	4.3686	-0.6636	-0.1031		
		Max. My		37	4.2445	-0.5888	0.1073		
		Max. Vy		37	-0.2189	-0.6636	-0.1031		
		Max. Vx		37	0.0148	0.0000	0.0000		
		T12		80 - 60	Leg	Max Tension	23	376.9760	-13.9693
			Max. Compression			10	-437.7940	11.2144	0.1754
Max. Mx	10		-435.6466			15.5387	0.2033		
Max. My	8		-32.2137			-1.2605	17.3662		
Max. Vy	10		0.4973			15.5387	0.2033		
Max. Vx	8		-0.7999			-1.2605	17.3662		
Diagonal	Max Tension		12			17.4020	0.0000	0.0000	
	Max. Compression		12		-18.0962	0.0000	0.0000		
	Max. Mx		37		3.7140	-0.7273	0.1076		
	Max. My		31		-0.3942	-0.6998	-0.1108		
	Max. Vy		37		-0.2355	-0.7273	-0.1039		
	Max. Vx		31		-0.0150	0.0000	0.0000		
	T13		60 - 40		Leg	Max Tension	23	414.3000	-12.9353
Max. Compression						10	-482.7076	16.0250	0.1446
Max. Mx		10		-482.7076		16.0250	0.1446		
Max. My		8		-33.4344		-1.2605	17.3662		
Max. Vy		10		-0.4949		16.0250	0.1446		
Max. Vx		8		0.8715		-1.2605	17.3662		
Diagonal		Max Tension		13		17.6475	0.0000	0.0000	
		Max. Compression		10	-19.1310	0.0000	0.0000		
		Max. Mx		37	3.8001	-0.8233	-0.1173		

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T14	40 - 20	Leg	Max. My	37	3.3189	-0.8232	0.1205
			Max. Vy	37	-0.2524	-0.8233	-0.1173
			Max. Vx	37	0.0154	0.0000	0.0000
			Max Tension	23	452.6513	-13.8549	-0.1640
			Max. Compression	10	-530.9228	11.3965	0.1538
			Max. Mx	10	-528.4501	16.0250	0.1446
			Max. My	8	-40.8214	-1.8384	26.1357
		Diagonal	Max. Vy	33	0.5560	-8.3949	-0.0775
			Max. Vx	8	-1.2774	-1.8384	26.1357
			Max Tension	10	18.0762	0.0000	0.0000
			Max. Compression	12	-17.5087	0.0000	0.0000
			Max. Mx	37	3.8108	-0.8838	0.1173
			Max. My	30	-2.7968	-0.8461	-0.1265
			Max. Vy	37	-0.2641	-0.8838	0.1173
T15	20 - 0	Leg	Max. Vx	30	-0.0155	0.0000	0.0000
			Max Tension	23	483.2994	-14.0592	-0.2243
			Max. Compression	10	-568.7867	-0.0000	-0.0005
			Max. Mx	22	474.3703	-14.5365	-0.2338
			Max. My	8	-41.4736	-1.8385	26.1357
			Max. Vy	22	-1.0619	-14.5365	-0.2338
			Max. Vx	8	1.6147	-1.8385	26.1357
		Diagonal	Max Tension	23	19.7080	0.0000	0.0000
			Max. Compression	10	-22.0405	0.0000	0.0000
			Max. Mx	38	3.2393	-0.9597	-0.1464
			Max. My	38	-0.1100	-0.8864	0.1568
			Max. Vy	38	-0.2693	-0.9597	-0.1464
			Max. Vx	38	0.0168	0.0000	0.0000

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	583.2285	52.5891	-30.4456
	Max. H <sub>x</sub>	18	583.2285	52.5891	-30.4456
	Max. H <sub>z</sub>	7	-493.8552	-45.8734	26.5244
	Min. Vert	7	-493.8552	-45.8734	26.5244
	Min. H <sub>x</sub>	7	-493.8552	-45.8734	26.5244
	Min. H <sub>z</sub>	18	583.2285	52.5891	-30.4456
Leg B	Max. Vert	10	593.2119	-52.9675	-31.6569
	Max. H <sub>x</sub>	23	-501.8104	46.0998	27.6883
	Max. H <sub>z</sub>	23	-501.8104	46.0998	27.6883
	Min. Vert	23	-501.8104	46.0998	27.6883
	Min. H <sub>x</sub>	10	593.2119	-52.9675	-31.6569
	Min. H <sub>z</sub>	10	593.2119	-52.9675	-31.6569
Leg A	Max. Vert	2	586.5139	-0.3495	60.4917
	Max. H <sub>x</sub>	21	34.1270	4.0908	2.6921
	Max. H <sub>z</sub>	2	586.5139	-0.3495	60.4917
	Min. Vert	15	-489.5477	0.3532	-52.2975
	Min. H <sub>x</sub>	9	34.1272	-4.0807	2.6908
	Min. H <sub>z</sub>	15	-489.5477	0.3532	-52.2975

### Tower Mast Reaction Summary



<p style="text-align: center;"><b>tnxTower</b></p> <p style="text-align: center;"><b>Destek Engineering, LLC</b> 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:</p>	<b>Job</b>	CT11332C	<b>Page</b>	30 of 42
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<i>Load Combination</i>	<i>Vertical</i>	<i>Shear<sub>x</sub></i>	<i>Shear<sub>z</sub></i>	<i>Overturning Moment, M<sub>x</sub></i>	<i>Overturning Moment, M<sub>z</sub></i>	<i>Torque</i>
	<i>K</i>	<i>K</i>	<i>K</i>	<i>kip-ft</i>	<i>kip-ft</i>	<i>kip-ft</i>
Dead Only	111.1191	0.0000	0.0000	-20.9753	3.6107	0.0001
1.2 Dead+1.6 Wind 0 deg - No Ice	133.3429	-0.0000	-90.0405	-13144.4094	4.4375	-17.0186
0.9 Dead+1.6 Wind 0 deg - No Ice	100.0072	-0.0000	-90.0405	-13113.9857	3.3341	-17.0072
1.2 Dead+1.6 Wind 30 deg - No Ice	133.3429	43.0439	-74.7801	-10844.9124	-6221.0769	9.3856
0.9 Dead+1.6 Wind 30 deg - No Ice	100.0072	43.0439	-74.7801	-10818.7221	-6210.7517	9.4004
1.2 Dead+1.6 Wind 60 deg - No Ice	133.3429	76.3109	-44.1886	-6441.6606	-11071.9894	-2.3735
0.9 Dead+1.6 Wind 60 deg - No Ice	100.0072	76.3110	-44.1886	-6423.4934	-11052.7396	-2.3308
1.2 Dead+1.6 Wind 90 deg - No Ice	133.3429	90.8858	-0.0000	-25.6001	-13137.9071	-37.9920
0.9 Dead+1.6 Wind 90 deg - No Ice	100.0072	90.8858	-0.0000	-19.1923	-13114.9579	-37.9308
1.2 Dead+1.6 Wind 120 deg - No Ice	133.3429	79.7827	46.1930	6652.1143	-11524.8008	-44.9654
0.9 Dead+1.6 Wind 120 deg - No Ice	100.0072	79.7827	46.1930	6646.3370	-11504.9005	-44.9298
1.2 Dead+1.6 Wind 150 deg - No Ice	133.3429	44.4579	77.2293	11266.8515	-6493.8301	-4.5431
0.9 Dead+1.6 Wind 150 deg - No Ice	100.0072	44.4579	77.2293	11252.4882	-6483.0205	-4.5451
1.2 Dead+1.6 Wind 180 deg - No Ice	133.3429	0.0000	86.9842	12696.2772	4.4408	17.0147
0.9 Dead+1.6 Wind 180 deg - No Ice	100.0075	-0.0002	86.9848	12679.2517	3.3321	16.9957
1.2 Dead+1.6 Wind 210 deg - No Ice	133.3429	-42.9225	74.5698	10740.4081	6198.6377	-9.3838
0.9 Dead+1.6 Wind 210 deg - No Ice	100.0072	-42.9225	74.5698	10727.1045	6186.2292	-9.3986
1.2 Dead+1.6 Wind 240 deg - No Ice	133.3429	-78.5371	45.4738	6527.3713	11317.2851	2.3769
0.9 Dead+1.6 Wind 240 deg - No Ice	100.0072	-78.5371	45.4738	6521.8197	11295.5721	2.3334
1.2 Dead+1.6 Wind 270 deg - No Ice	133.3429	-90.6429	-0.0000	-25.5924	13084.5048	37.9893
0.9 Dead+1.6 Wind 270 deg - No Ice	100.0072	-90.6429	-0.0000	-19.1862	13059.5184	37.9285
1.2 Dead+1.6 Wind 300 deg - No Ice	133.3429	-77.3462	-44.7863	-6535.4921	11243.1001	44.9542
0.9 Dead+1.6 Wind 300 deg - No Ice	100.0075	-77.3466	-44.7868	-6517.1822	11221.3983	44.9107
1.2 Dead+1.6 Wind 330 deg - No Ice	133.3429	-44.4580	-77.2293	-11317.5295	6502.6914	4.5415
0.9 Dead+1.6 Wind 330 deg - No Ice	100.0072	-44.4579	-77.2293	-11290.4298	6489.6308	4.5437
1.2 Dead+1.0 Ice	345.5400	-0.0000	-0.0000	-91.5301	30.8965	0.0034
1.2 Dead+1.0 Wind 0 deg+1.0 Ice	345.5400	-0.0000	-26.2928	-4202.8410	31.2954	-4.2614
1.2 Dead+1.0 Wind 30 deg+1.0 Ice	345.5400	12.8915	-22.3701	-3582.6153	-1979.9712	-0.1647
1.2 Dead+1.0 Wind 60 deg+1.0 Ice	345.5400	22.6547	-13.1035	-2133.2666	-3497.0673	-0.6464
1.2 Dead+1.0 Wind 90 deg+1.0 Ice	345.5400	26.9066	-0.0000	-92.2641	-4164.1818	-9.5856
1.2 Dead+1.0 Wind 120 deg+1.0 Ice	345.5400	23.4666	13.5723	2014.1086	-3610.1968	-11.3298

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Load Combination	Vertical	Shear <sub>x</sub>	Shear <sub>z</sub>	Overturning Moment, M <sub>x</sub>	Overturning Moment, M <sub>z</sub>	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 150 deg+1.0 Ice	345.5400	13.1782	22.8667	3474.4003	-2023.9347	-1.4137
1.2 Dead+1.0 Wind 180 deg+1.0 Ice	345.5400	-0.0000	25.6569	3904.8824	31.3090	4.2632
1.2 Dead+1.0 Wind 210 deg+1.0 Ice	345.5400	-12.7556	22.1347	3336.7962	2007.0678	0.1597
1.2 Dead+1.0 Wind 240 deg+1.0 Ice	345.5400	-22.7346	13.1497	1934.6804	3535.1624	0.6421
1.2 Dead+1.0 Wind 270 deg+1.0 Ice	345.5400	-26.6349	-0.0000	-92.2514	4155.8680	9.5793
1.2 Dead+1.0 Wind 300 deg+1.0 Ice	345.5400	-23.1512	-13.3902	-2177.2666	3635.8653	11.3284
1.2 Dead+1.0 Wind 330 deg+1.0 Ice	345.5400	-13.1782	-22.8667	-3658.8188	2086.5584	1.4132
Dead+Wind 0 deg - Service	111.1191	-0.0000	-21.5316	-3154.5896	3.6454	-4.0655
Dead+Wind 30 deg - Service	111.1191	10.2932	-17.8824	-2605.3388	-1483.2769	2.2337
Dead+Wind 60 deg - Service	111.1191	18.2484	-10.5669	-1553.6124	-2641.9031	-0.5654
Dead+Wind 90 deg - Service	111.1191	21.7338	-0.0000	-21.1268	-3135.3673	-9.0603
Dead+Wind 120 deg - Service	111.1191	19.0787	11.0463	1573.8355	-2750.1014	-10.7461
Dead+Wind 150 deg - Service	111.1191	10.6314	18.4681	2675.9939	-1548.4453	-1.1014
Dead+Wind 180 deg - Service	111.1191	0.0000	20.8008	3017.3893	3.6480	4.0728
Dead+Wind 210 deg - Service	111.1191	-10.2642	17.8321	2550.2602	1483.1388	-2.2338
Dead+Wind 240 deg - Service	111.1191	-18.7808	10.8743	1544.0222	2705.7365	0.5601
Dead+Wind 270 deg - Service	111.1191	-21.6757	-0.0000	-21.1256	3127.8137	9.0600
Dead+Wind 300 deg - Service	111.1191	-18.4960	-10.7099	-1576.0136	2687.9846	10.7452
Dead+Wind 330 deg - Service	111.1191	-10.6314	-18.4681	-2718.2211	1555.7354	1.1013

## Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.0000	-111.1191	0.0000	0.0000	111.1191	0.0000	0.000%
2	0.0000	-133.3429	-90.0406	0.0000	133.3429	90.0405	0.000%
3	0.0000	-100.0072	-90.0406	0.0000	100.0072	90.0405	0.000%
4	43.0439	-133.3429	-74.7801	-43.0439	133.3429	74.7801	0.000%
5	43.0439	-100.0072	-74.7801	-43.0439	100.0072	74.7801	0.000%
6	76.3109	-133.3429	-44.1886	-76.3109	133.3429	44.1886	0.000%
7	76.3109	-100.0072	-44.1886	-76.3110	100.0072	44.1886	0.000%
8	90.8858	-133.3429	-0.0000	-90.8858	133.3429	0.0000	0.000%
9	90.8858	-100.0072	-0.0000	-90.8858	100.0072	0.0000	0.000%
10	79.7827	-133.3429	46.1930	-79.7827	133.3429	-46.1930	0.000%
11	79.7827	-100.0072	46.1930	-79.7827	100.0072	-46.1930	0.000%
12	44.4579	-133.3429	77.2293	-44.4579	133.3429	-77.2293	0.000%
13	44.4579	-100.0072	77.2293	-44.4579	100.0072	-77.2293	0.000%
14	-0.0000	-133.3429	86.9842	-0.0000	133.3429	-86.9842	0.000%
15	-0.0000	-100.0072	86.9842	0.0002	100.0075	-86.9848	0.000%
16	-42.9225	-133.3429	74.5698	42.9225	133.3429	-74.5698	0.000%
17	-42.9225	-100.0072	74.5698	42.9225	100.0072	-74.5698	0.000%
18	-78.5371	-133.3429	45.4738	78.5371	133.3429	-45.4738	0.000%
19	-78.5371	-100.0072	45.4738	78.5371	100.0072	-45.4738	0.000%
20	-90.6429	-133.3429	-0.0000	90.6429	133.3429	0.0000	0.000%
21	-90.6429	-100.0072	-0.0000	90.6429	100.0072	0.0000	0.000%
22	-77.3462	-133.3429	-44.7863	77.3462	133.3429	44.7863	0.000%
23	-77.3462	-100.0072	-44.7863	77.3466	100.0075	44.7868	0.001%
24	-44.4579	-133.3429	-77.2293	44.4580	133.3429	77.2293	0.000%
25	-44.4579	-100.0072	-77.2293	44.4579	100.0072	77.2293	0.000%
26	0.0000	-345.5400	0.0000	0.0000	345.5400	0.0000	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
27	0.0000	-345.5400	-26.2928	0.0000	345.5400	26.2928	0.000%
28	12.8915	-345.5400	-22.3701	-12.8915	345.5400	22.3701	0.000%
29	22.6547	-345.5400	-13.1035	-22.6547	345.5400	13.1035	0.000%
30	26.9066	-345.5400	0.0000	-26.9066	345.5400	0.0000	0.000%
31	23.4666	-345.5400	13.5723	-23.4666	345.5400	-13.5723	0.000%
32	13.1782	-345.5400	22.8666	-13.1782	345.5400	-22.8667	0.000%
33	0.0000	-345.5400	25.6569	0.0000	345.5400	-25.6569	0.000%
34	-12.7556	-345.5400	22.1347	12.7556	345.5400	-22.1347	0.000%
35	-22.7346	-345.5400	13.1497	22.7346	345.5400	-13.1497	0.000%
36	-26.6348	-345.5400	0.0000	26.6349	345.5400	0.0000	0.000%
37	-23.1512	-345.5400	-13.3902	23.1512	345.5400	13.3902	0.000%
38	-13.1782	-345.5400	-22.8666	13.1782	345.5400	22.8667	0.000%
39	0.0000	-111.1191	-21.5316	0.0000	111.1191	21.5316	0.000%
40	10.2932	-111.1191	-17.8824	-10.2932	111.1191	17.8824	0.000%
41	18.2484	-111.1191	-10.5669	-18.2484	111.1191	10.5669	0.000%
42	21.7338	-111.1191	0.0000	-21.7338	111.1191	0.0000	0.000%
43	19.0787	-111.1191	11.0463	-19.0787	111.1191	-11.0463	0.000%
44	10.6314	-111.1191	18.4681	-10.6314	111.1191	-18.4681	0.000%
45	0.0000	-111.1191	20.8008	0.0000	111.1191	-20.8008	0.000%
46	-10.2642	-111.1191	17.8321	10.2642	111.1191	-17.8321	0.000%
47	-18.7808	-111.1191	10.8743	18.7808	111.1191	-10.8743	0.000%
48	-21.6757	-111.1191	0.0000	21.6757	111.1191	0.0000	0.000%
49	-18.4960	-111.1191	-10.7099	18.4960	111.1191	10.7099	0.000%
50	-10.6314	-111.1191	-18.4681	10.6314	111.1191	18.4681	0.000%

## Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000185
3	Yes	4	0.00000001	0.00000067
4	Yes	4	0.00000001	0.00000248
5	Yes	4	0.00000001	0.00000138
6	Yes	4	0.00000001	0.00000258
7	Yes	4	0.00000001	0.00000107
8	Yes	4	0.00000001	0.00000265
9	Yes	4	0.00000001	0.00000168
10	Yes	4	0.00000001	0.00000188
11	Yes	4	0.00000001	0.00000074
12	Yes	4	0.00000001	0.00000251
13	Yes	4	0.00000001	0.00000145
14	Yes	4	0.00000001	0.00000258
15	Yes	4	0.00000001	0.00000107
16	Yes	4	0.00000001	0.00000248
17	Yes	4	0.00000001	0.00000137
18	Yes	4	0.00000001	0.00000188
19	Yes	4	0.00000001	0.00000069
20	Yes	4	0.00000001	0.00000264
21	Yes	4	0.00000001	0.00000166
22	Yes	4	0.00000001	0.00000259
23	Yes	4	0.00000001	0.00000109
24	Yes	4	0.00000001	0.00000251
25	Yes	4	0.00000001	0.00000145
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00003863

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28	Yes	4	0.00000001	0.00003893
29	Yes	4	0.00000001	0.00003959
30	Yes	4	0.00000001	0.00003906
31	Yes	4	0.00000001	0.00003774
32	Yes	4	0.00000001	0.00003809
33	Yes	4	0.00000001	0.00003837
34	Yes	4	0.00000001	0.00003767
35	Yes	4	0.00000001	0.00003756
36	Yes	4	0.00000001	0.00003889
37	Yes	4	0.00000001	0.00003992
38	Yes	4	0.00000001	0.00003914
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00000001
41	Yes	4	0.00000001	0.00000001
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000001
44	Yes	4	0.00000001	0.00000001
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00000001
47	Yes	4	0.00000001	0.00000001
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00000001
50	Yes	4	0.00000001	0.00000001

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	280 - 270	8.7747	39	0.3220	0.0219
T2	270 - 250	8.0832	39	0.3195	0.0210
T3	250 - 230	6.7489	39	0.3015	0.0218
T4	230 - 220	5.5131	39	0.2670	0.0209
T5	220 - 200	4.9644	39	0.2442	0.0181
T6	200 - 180	3.9976	39	0.2109	0.0135
T7	180 - 160	3.1612	39	0.1782	0.0098
T8	160 - 140	2.4509	39	0.1519	0.0078
T9	140 - 120	1.8410	43	0.1294	0.0061
T10	120 - 100	1.3224	43	0.1055	0.0046
T11	100 - 80	0.9039	43	0.0852	0.0037
T12	80 - 60	0.5776	43	0.0644	0.0029
T13	60 - 40	0.3282	43	0.0470	0.0021
T14	40 - 20	0.1528	43	0.0295	0.0014
T15	20 - 0	0.0420	43	0.0146	0.0007

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
280.0000	Flash Beacon Lighting	39	8.7747	0.3220	0.0219	126272
250.0000	APXVAA24_43-U-A20 w/ Mount Pipe	39	6.7489	0.3015	0.0218	58584
245.0000	DB420-A	39	6.4272	0.2945	0.0221	42816
235.0000	DB225-2-F	39	5.8070	0.2774	0.0217	25983
200.0000	(3) DB980H120E-M w/Mount Pipe	39	3.9976	0.2109	0.0135	40337

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Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.0000	(3) DB980H120E-M w/Mount Pipe	39	3.5636	0.1944	0.0115	37972
180.0000	(3) DB980H120E-M w/Mount Pipe	39	3.1612	0.1782	0.0098	35609
170.0000	APXVSP18-C-A20 w/ Mount Pipe	39	2.7918	0.1641	0.0086	42009
160.0000	800 10121 w/ Mount Pipe	39	2.4509	0.1519	0.0078	51638
150.0000	APXV18-206517S-C w/ Mount Pipe	43	2.1344	0.1407	0.0069	53409
140.0000	LNx-6514DS-VTM w/ Mount Pipe	43	1.8410	0.1294	0.0061	53670

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	280 - 270	36.6174	10	1.3451	0.0917
T2	270 - 250	33.7397	10	1.3339	0.0878
T3	250 - 230	28.1933	10	1.2570	0.0913
T4	230 - 220	23.0591	10	1.1115	0.0878
T5	220 - 200	20.7767	10	1.0165	0.0760
T6	200 - 180	16.7476	10	0.8789	0.0567
T7	180 - 160	13.2573	10	0.7435	0.0409
T8	160 - 140	10.2904	10	0.6345	0.0325
T9	140 - 120	7.7308	10	0.5414	0.0255
T10	120 - 100	5.5515	10	0.4418	0.0191
T11	100 - 80	3.7940	10	0.3573	0.0156
T12	80 - 60	2.4237	10	0.2704	0.0122
T13	60 - 40	1.3769	10	0.1972	0.0090
T14	40 - 20	0.6407	10	0.1237	0.0059
T15	20 - 0	0.1763	10	0.0612	0.0029

### Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
280.0000	Flash Beacon Lighting	10	36.6174	1.3451	0.0917	30633
250.0000	APXVAA24_43-U-A20 w/ Mount Pipe	10	28.1933	1.2570	0.0913	13967
245.0000	DB420-A	10	26.8572	1.2274	0.0925	10232
235.0000	DB225-2-F	10	24.2808	1.1552	0.0908	6223
200.0000	(3) DB980H120E-M w/Mount Pipe	10	16.7476	0.8789	0.0567	9627
190.0000	(3) DB980H120E-M w/Mount Pipe	10	14.9371	0.8109	0.0482	9060
180.0000	(3) DB980H120E-M w/Mount Pipe	10	13.2573	0.7435	0.0409	8492
170.0000	APXVSP18-C-A20 w/ Mount Pipe	10	11.7146	0.6851	0.0360	10047
160.0000	800 10121 w/ Mount Pipe	10	10.2904	0.6345	0.0325	12421
150.0000	APXV18-206517S-C w/ Mount Pipe	10	8.9642	0.5882	0.0291	12851
140.0000	LNx-6514DS-VTM w/ Mount Pipe	10	7.7308	0.5414	0.0255	12914

### Bolt Design Data

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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	280	Leg	A325N	0.6250	5	1.8843	24.8505	0.076	1	Bolt DS
T2	270	Leg	A325N	0.7500	5	6.0278	35.7847	0.168	1	Bolt DS
T3	250	Leg	A325N	1.0000	6	12.3075	53.0144	0.232	1	Bolt Tension
T4	230	Leg	A325N	1.0000	6	13.0615	53.0144	0.246	1	Bolt Tension
		Diagonal	A325N	1.0000	1	5.6075	9.1441	0.613	1	Member Block Shear
T5	220	Leg	A325N	1.0000	6	17.7430	53.0144	0.335	1	Bolt Tension
		Diagonal	A325N	1.0000	1	5.4708	10.1637	0.538	1	Member Block Shear
T6	200	Leg	A325N	1.0000	6	22.1837	53.0144	0.418	1	Bolt Tension
		Diagonal	A325N	1.0000	1	7.9844	10.1637	0.786	1	Member Block Shear
		Top Girt	A325N	1.0000	1	3.7671	10.1637	0.371	1	Member Block Shear
		Mid Girt	A325N	1.0000	1	4.6410	10.1637	0.457	1	Member Block Shear
T7	180	Leg	A325N	1.2500	6	28.1990	82.8350	0.340	1	Bolt Tension
		Diagonal	A325N	1.2500	1	10.4272	17.1387	0.608	1	Member Block Shear
		Top Girt	A325N	1.2500	1	5.9830	16.4297	0.364	1	Member Block Shear
		Mid Girt	A325N	1.2500	1	6.3757	16.4297	0.388	1	Member Block Shear
T8	160	Leg	A325N	1.2500	6	35.7824	82.8350	0.432	1	Bolt Tension
		Diagonal	A325N	1.2500	1	11.6057	20.5371	0.565	1	Member Block Shear
		Top Girt	A325N	1.2500	1	4.9327	20.5371	0.240	1	Member Block Shear
T9	140	Leg	A325N	1.2500	6	43.6090	82.8350	0.526	1	Bolt Tension
		Diagonal	A325N	1.2500	1	13.0203	20.5371	0.634	1	Member Block Shear
T10	120	Leg	A325N	1.2500	12	24.3135	82.8350	0.294	1	Bolt Tension
		Diagonal	A325N	1.0000	2	8.6563	35.5254	0.244	1	Member Block Shear
T11	100	Leg	A325N	1.2500	12	28.0633	82.8350	0.339	1	Bolt Tension
		Diagonal	A325N	1.0000	2	8.9355	35.5254	0.252	1	Member Block Shear
T12	80	Leg	A325N	1.2500	12	31.4147	82.8350	0.379	1	Bolt Tension
		Diagonal	A325N	1.0000	2	8.7010	35.5254	0.245	1	Member Block Shear
T13	60	Leg	A325N	1.2500	12	34.5250	82.8350	0.417	1	Bolt Tension
		Diagonal	A325N	1.0000	2	8.8237	35.5254	0.248	1	Member Block Shear
T14	40	Leg	A325N	1.2500	12	37.7209	82.8350	0.455	1	Bolt Tension
		Diagonal	A325N	1.0000	2	9.0381	35.5254	0.254	1	Member Block Shear
T15	20	Leg	A687	2.0000	6	80.5499	247.4000	0.326	1	Bolt Tension
		Diagonal	A325N	1.0000	2	9.8540	35.5254	0.277	1	Member Block Shear

### Compression Checks

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### Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	1 3/4	10.0000	2.2500	61.7 K=1.00	2.4053	-8.2242	81.9289	0.100 <sup>1</sup>
T2	270 - 250	2	20.0000	2.3750	57.0 K=1.00	3.1416	-28.3666	111.4790	0.254 <sup>1</sup>
T3	250 - 230	2 1/2	20.0000	2.3750	45.6 K=1.00	4.9087	-79.8248	189.7380	0.421 <sup>1</sup>
T4	230 - 220	Pirod 105245	10.0167	10.0167	37.8 K=1.00	5.3014	-88.0466	214.8590	0.410 <sup>1</sup>
T5	220 - 200	Pirod 105218	20.0333	10.0167	32.4 K=1.00	7.2158	-119.3450	300.6810	0.397 <sup>1</sup>
T6	200 - 180	Pirod 105218	20.0333	10.0167	32.4 K=1.00	7.2158	-150.7240	300.6810	0.501 <sup>1</sup>
T7	180 - 160	Pirod 105219	20.0333	10.0167	28.4 K=1.00	9.4248	-193.5100	399.8680	0.484 <sup>1</sup>
T8	160 - 140	Pirod 105220	20.0333	10.0167	25.2 K=1.00	11.9282	-248.1910	512.3750	0.484 <sup>1</sup>
T9	140 - 120	Pirod 105220	20.0333	10.0167	25.2 K=1.00	11.9282	-302.1840	512.3750	0.590 <sup>1</sup>
T10	120 - 100	Pirod 112743	20.0333	20.0333	32.6 K=1.00	14.7262	-336.0010	613.1450	0.548 <sup>1</sup>
T11	100 - 80	Pirod 112743	20.0333	20.0333	32.6 K=1.00	14.7262	-389.4560	613.1450	0.635 <sup>1</sup>
T12	80 - 60	Pirod 112744	20.0333	20.0333	32.6 K=1.00	17.8187	-437.7940	741.9930	0.590 <sup>1</sup>
T13	60 - 40	Pirod 112744	20.0333	20.0333	32.6 K=1.00	17.8187	-482.7080	741.9930	0.651 <sup>1</sup>
T14	40 - 20	Pirod 112745	20.0333	20.0333	32.5 K=1.00	21.2057	-530.9230	883.1450	0.601 <sup>1</sup>
T15	20 - 0	Pirod 112740	20.0333	20.0333	32.5 K=1.00	21.2057	-568.7870	883.1450	0.644 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L <sub>d</sub> ft	Kl/r	φP <sub>n</sub> K	A in <sup>2</sup>	V <sub>u</sub> K	φV <sub>n</sub> K	Stress Ratio
T4	230 - 220	0.5	1.4709	120.0	238.5650	0.1963	0.7616	3.4464	0.222
T5	220 - 200	0.5	1.4586	119.0	324.7130	0.1963	0.5560	3.3777	0.166
T6	200 - 180	0.5	1.4586	119.0	324.7130	0.1963	1.0776	3.3777	0.319
T7	180 - 160	0.625	1.4465	94.4	424.1150	0.3068	1.1143	6.9576	0.160
T8	160 - 140	0.625	1.4346	93.6	536.7710	0.3068	1.6589	7.0114	0.237
T9	140 - 120	0.625	1.4346	93.6	536.7710	0.3068	1.7471	7.0114	0.250
T10	120 - 100	0.75	1.7267	93.9	662.6800	0.4418	0.8710	14.3639	0.062
T11	100 - 80	0.75	1.7267	93.9	662.6800	0.4418	0.9345	14.3639	0.066
T12	80 - 60	0.75	1.7111	93.1	801.8420	0.4418	0.8178	14.5308	0.057
T13	60 - 40	0.75	1.7111	93.1	801.8420	0.4418	0.8917	14.5308	0.062
T14	40 - 20	0.875	1.6957	79.1	954.2590	0.6013	1.2974	23.5943	0.056
T15	20 - 0	0.875	1.6957	79.1	954.2590	0.6013	1.6234	23.5943	0.070

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### Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	7/8	5.4829	2.6615	131.4 K=0.90	0.6013	-1.7784	7.8676	0.226 <sup>1</sup>
T2	270 - 250	7/8	5.5354	2.6754	132.1 K=0.90	0.6013	-2.3949	7.7858	0.308 <sup>1</sup>
T3	250 - 230	1	5.5354	2.6524	114.6 K=0.90	0.7854	-5.7500	13.5142	0.425 <sup>1</sup>
T4	230 - 220	L2 1/2x2 1/2x3/16	11.4163	5.0240	121.8 K=1.00	0.9020	-6.3513	13.3845	0.475 <sup>1</sup>
T5	220 - 200	L3x3x3/16	12.5033	5.6688	115.6 K=1.01	1.0900	-5.8974	17.2907	0.341 <sup>1</sup>
T6	200 - 180	L3x3x3/16	13.7962	6.3687	128.2 K=1.00	1.0900	-9.1077	14.7847	0.616 <sup>1</sup>
T7	180 - 160	L3x3x5/16	15.2425	7.0922	144.5 K=1.00	1.7800	-11.9460	19.2606	0.620 <sup>1</sup>
T8	160 - 140	L3 1/2x3 1/2x5/16	16.8027	7.8924	137.3 K=1.00	2.0900	-11.6211	25.0610	0.464 <sup>1</sup>
T9	140 - 120	L3 1/2x3 1/2x5/16	18.4482	8.7287	151.8 K=1.00	2.0900	-12.4507	20.4891	0.608 <sup>1</sup>
T10	120 - 100	2L3 1/2x3 1/2x5/16	26.2552	12.4505	134.0 K=0.97	4.1800	-18.9411	52.5794	0.360 <sup>1</sup>
T11	100 - 80	2L3 1/2x3 1/2x5/16	27.5922	13.1419	139.9 K=0.96	4.1800	-18.6643	48.2701	0.387 <sup>1</sup>
T12	80 - 60	2L3 1/2x3 1/2x5/16	29.0058	13.8663	146.0 K=0.95	4.1800	-18.0962	44.2999	0.408 <sup>1</sup>
T13	60 - 40	2L3 1/2x3 1/2x5/16	30.4850	14.6197	152.4 K=0.94	4.1800	-19.1310	40.6683	0.470 <sup>1</sup>
T14	40 - 20	2L3 1/2x3 1/2x5/16	32.0208	15.3988	159.0 K=0.93	4.1800	-17.5087	37.3638	0.469 <sup>1</sup>
T15	20 - 0	2L3 1/2x3 1/2x5/16	33.6056	16.2002	165.8 K=0.92	4.1800	-22.0405	34.3676	0.641 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	7/8	5.0000	4.8542	186.4 K=0.70	0.6013	-0.1851	3.9098	0.047 <sup>1</sup>
T2	270 - 250	7/8	5.0000	4.8333	185.6 K=0.70	0.6013	-0.3482	3.9436	0.088 <sup>1</sup>
T3	250 - 230	7/8	5.0000	4.7917	184.0 K=0.70	0.6013	-0.6873	4.0125	0.171 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Top Girt Design Data (Compression)



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Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	1	5.0000	4.8542	163.1 K=0.70	0.7854	-0.7529	6.6699	0.113 <sup>1</sup>
T2	270 - 250	1	5.0000	4.8333	162.4 K=0.70	0.7854	-0.8413	6.7276	0.125 <sup>1</sup>
T3	250 - 230	1 1/4	5.0000	4.7917	128.8 K=0.70	1.2272	-1.7501	16.7116	0.105 <sup>1</sup>
T6	200 - 180	L3x3x3/16	8.0000	6.6667	134.2 K=1.00	1.0900	-3.0366	13.6467	0.223 <sup>1</sup>
T7	180 - 160	L4x4x1/4	10.0000	8.6042	129.9 K=1.00	1.9400	-4.6994	25.7516	0.182 <sup>1</sup>
T8	160 - 140	L3 1/2x3 1/2x5/16	12.0000	10.6042	184.4 K=1.00	2.0900	-3.8732	13.8825	0.279 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	1	5.0000	4.8542	163.1 K=0.70	0.7854	-0.7226	6.6699	0.108 <sup>1</sup>
T2	270 - 250	1	5.0000	4.8333	162.4 K=0.70	0.7854	-0.9449	6.7276	0.140 <sup>1</sup>
T3	250 - 230	1 1/4	5.0000	4.7917	128.8 K=0.70	1.2272	-1.0608	16.7116	0.063 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Mid Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	1	5.0000	4.8542	163.1 K=0.70	0.7854	-0.0119	6.6699	0.002 <sup>1</sup>
T2	270 - 250	1	5.0000	4.8333	162.4 K=0.70	0.7854	-0.1971	6.7276	0.029 <sup>1</sup>
T6	200 - 180	L3x3x3/16	9.0000	7.6667	154.4 K=1.00	1.0900	-3.5948	10.3344	0.348 <sup>1</sup>
T7	180 - 160	L4x4x1/4	11.0000	9.6042	145.0 K=1.00	1.9400	-4.9480	20.8542	0.237 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Tension Checks

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### Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	1 3/4	10.0000	0.5417	14.9	1.7942	6.6708	87.4660	0.076 <sup>1 #</sup>
T2	270 - 250	2	20.0000	0.5417	13.0	3.1416	26.3371	141.3720	0.186 <sup>1 #</sup>
T3	250 - 230	2 1/2	20.0000	0.5417	10.4	4.9087	73.8453	220.8930	0.334 <sup>1</sup>
T4	230 - 220	Pirod 105245	10.0167	10.0167	37.8	5.3014	78.3687	238.5650	0.329 <sup>1</sup>
T5	220 - 200	Pirod 105218	20.0333	10.0167	32.4	7.2158	106.4580	324.7130	0.328 <sup>1</sup>
T6	200 - 180	Pirod 105218	20.0333	10.0167	32.4	7.2158	133.1020	324.7130	0.410 <sup>1</sup>
T7	180 - 160	Pirod 105219	20.0333	10.0167	28.4	9.4248	169.1940	424.1150	0.399 <sup>1</sup>
T8	160 - 140	Pirod 105220	20.0333	10.0167	25.2	11.9282	214.6940	536.7710	0.400 <sup>1</sup>
T9	140 - 120	Pirod 105220	20.0333	10.0167	25.2	11.9282	261.6540	536.7710	0.487 <sup>1</sup>
T10	120 - 100	Pirod 112743	20.0333	20.0333	32.6	14.7262	291.7620	662.6800	0.440 <sup>1</sup>
T11	100 - 80	Pirod 112743	20.0333	20.0333	32.6	14.7262	336.7600	662.6800	0.508 <sup>1</sup>
T12	80 - 60	Pirod 112744	20.0333	20.0333	32.6	17.8187	376.9760	801.8420	0.470 <sup>1</sup>
T13	60 - 40	Pirod 112744	20.0333	20.0333	32.6	17.8187	414.3000	801.8420	0.517 <sup>1</sup>
T14	40 - 20	Pirod 112745	20.0333	20.0333	32.5	21.2057	452.6510	954.2590	0.474 <sup>1</sup>
T15	20 - 0	Pirod 112740	20.0333	20.0333	32.5	21.2057	483.2990	954.2590	0.506 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

# Based on net area of leg in section below

### Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L <sub>d</sub> ft	Kl/r	φP <sub>n</sub> K	A in <sup>2</sup>	V <sub>u</sub> K	φV <sub>n</sub> K	Stress Ratio
T4	230 - 220	0.5	1.4709	120.0	238.5650	0.1963	0.7616	3.4464	0.222
T5	220 - 200	0.5	1.4586	119.0	324.7130	0.1963	0.5560	3.3777	0.166
T6	200 - 180	0.5	1.4586	119.0	324.7130	0.1963	1.0776	3.3777	0.319
T7	180 - 160	0.625	1.4465	94.4	424.1150	0.3068	1.1143	6.9576	0.160
T8	160 - 140	0.625	1.4346	93.6	536.7710	0.3068	1.6589	7.0114	0.237
T9	140 - 120	0.625	1.4346	93.6	536.7710	0.3068	1.7471	7.0114	0.250
T10	120 - 100	0.75	1.7267	93.9	662.6800	0.4418	0.8710	14.3639	0.062
T11	100 - 80	0.75	1.7267	93.9	662.6800	0.4418	0.9345	14.3639	0.066
T12	80 - 60	0.75	1.7111	93.1	801.8420	0.4418	0.8178	14.5308	0.057
T13	60 - 40	0.75	1.7111	93.1	801.8420	0.4418	0.8917	14.5308	0.062
T14	40 - 20	0.875	1.6957	79.1	954.2590	0.6013	1.2974	23.5943	0.056
T15	20 - 0	0.875	1.6957	79.1	954.2590	0.6013	1.6234	23.5943	0.070

### Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	7/8	5.4829	2.6615	146.0	0.6013	1.7744	27.0594	0.066 <sup>1</sup>
T2	270 - 250	7/8	5.5354	2.6754	146.8	0.6013	2.3553	27.0594	0.087 <sup>1</sup>
T3	250 - 230	1	5.5354	2.6524	127.3	0.7854	5.6667	35.3429	0.160 <sup>1</sup>
T4	230 - 220	L2 1/2x2 1/2x3/16	11.4163	5.0240	80.1	0.9020	5.6075	29.2248	0.192 <sup>1</sup>
T5	220 - 200	L3x3x3/16	11.9303	5.4244	71.5	1.0900	5.4708	35.3160	0.155 <sup>1</sup>
T6	200 - 180	L3x3x3/16	13.7962	6.3687	83.5	1.0900	7.9844	35.3160	0.226 <sup>1</sup>

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Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T7	180 - 160	L3x3x5/16	15.2425	7.0922	94.9	1.7800	10.4272	57.6720	0.181 <sup>1</sup>
T8	160 - 140	L3 1/2x3 1/2x5/16	16.8027	7.8924	89.9	2.0900	11.6057	67.7160	0.171 <sup>1</sup>
T9	140 - 120	L3 1/2x3 1/2x5/16	17.6163	8.3190	94.6	2.0900	13.0203	67.7160	0.192 <sup>1</sup>
T10	120 - 100	2L3 1/2x3 1/2x5/16	26.2552	12.4505	141.6	4.1800	17.3126	135.4320	0.128 <sup>1</sup>
T11	100 - 80	2L3 1/2x3 1/2x5/16	27.5922	13.1419	149.3	4.1800	17.8711	135.4320	0.132 <sup>1</sup>
T12	80 - 60	2L3 1/2x3 1/2x5/16	29.0058	13.8663	157.3	4.1800	17.4020	135.4320	0.128 <sup>1</sup>
T13	60 - 40	2L3 1/2x3 1/2x5/16	30.4850	14.6197	165.7	4.1800	17.6475	135.4320	0.130 <sup>1</sup>
T14	40 - 20	2L3 1/2x3 1/2x5/16	32.0208	15.3988	174.3	4.1800	18.0762	135.4320	0.133 <sup>1</sup>
T15	20 - 0	2L3 1/2x3 1/2x5/16	33.6056	16.2002	183.2	4.1800	19.7080	135.4320	0.146 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	7/8	5.0000	4.8542	266.3	0.6013	0.2739	27.0594	0.010 <sup>1</sup>
T2	270 - 250	7/8	5.0000	4.8333	265.1	0.6013	0.4359	27.0594	0.016 <sup>1</sup>
T3	250 - 230	7/8	5.0000	4.7917	262.9	0.6013	0.8205	27.0594	0.030 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	1	5.0000	4.8542	233.0	0.7854	0.7391	35.3429	0.021 <sup>1</sup>
T2	270 - 250	1	5.0000	4.8333	232.0	0.7854	0.8386	35.3429	0.024 <sup>1</sup>
T3	250 - 230	1 1/4	5.0000	4.7917	184.0	1.2272	1.7651	55.2233	0.032 <sup>1</sup>
T6	200 - 180	L3x3x3/16	8.0000	6.6667	89.5	1.0900	3.7671	35.3160	0.107 <sup>1</sup>
T7	180 - 160	L4x4x1/4	10.0000	8.6042	86.4	1.9400	5.9830	62.8560	0.095 <sup>1</sup>
T8	160 - 140	L3 1/2x3 1/2x5/16	12.0000	10.6042	122.2	2.0900	4.9327	67.7160	0.073 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	1	5.0000	4.8542	233.0	0.7854	0.7425	35.3429	0.021 <sup>1</sup>
T2	270 - 250	1	5.0000	4.8333	232.0	0.7854	0.9677	35.3429	0.027 <sup>1</sup>
T3	250 - 230	1 1/4	5.0000	4.7917	184.0	1.2272	1.1757	55.2233	0.021 <sup>1</sup>

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<sup>1</sup>  $P_u / \phi P_n$  controls

### Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$Kl/r$	A in <sup>2</sup>	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
T1	280 - 270	1	5.0000	4.8542	233.0	0.7854	0.1292	35.3429	0.004 <sup>1</sup>
T2	270 - 250	1	5.0000	4.8333	232.0	0.7854	0.2840	35.3429	0.008 <sup>1</sup>
T6	200 - 180	L3x3x3/16	9.0000	7.6667	102.2	0.6593	4.6410	28.6794	0.162 <sup>1</sup>
T7	180 - 160	L4x4x1/4	11.0000	9.6042	96.0	1.1972	6.3757	52.0777	0.122 <sup>1</sup>

<sup>1</sup>  $P_u / \phi P_n$  controls

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
T1	280 - 270	Leg	1 3/4	2	-8.2242	81.9289	10.0	Pass
T2	270 - 250	Leg	2	41	-28.3666	111.4790	25.4	Pass
T3	250 - 230	Leg	2 1/2	107	-79.8248	189.7380	42.1	Pass
T4	230 - 220	Leg	Pirod 105245	171	-88.0466	214.8590	41.0	Pass
T5	220 - 200	Leg	Pirod 105218	180	-119.3450	300.6810	39.7	Pass
T6	200 - 180	Leg	Pirod 105218	195	-150.7240	300.6810	50.1	Pass
T7	180 - 160	Leg	Pirod 105219	216	-193.5100	399.8680	48.4	Pass
T8	160 - 140	Leg	Pirod 105220	237	-248.1910	512.3750	48.4	Pass
T9	140 - 120	Leg	Pirod 105220	255	-302.1840	512.3750	59.0	Pass
T10	120 - 100	Leg	Pirod 112743	269	-336.0010	613.1450	54.8	Pass
T11	100 - 80	Leg	Pirod 112743	278	-389.4560	613.1450	63.5	Pass
T12	80 - 60	Leg	Pirod 112744	287	-437.7940	741.9930	59.0	Pass
T13	60 - 40	Leg	Pirod 112744	296	-482.7080	741.9930	65.1	Pass
T14	40 - 20	Leg	Pirod 112745	305	-530.9230	883.1450	60.1	Pass
T15	20 - 0	Leg	Pirod 112740	314	-568.7870	883.1450	64.4	Pass
T1	280 - 270	Diagonal	7/8	14	-1.7784	7.8676	22.6	Pass
T2	270 - 250	Diagonal	7/8	52	-2.3949	7.7858	30.8	Pass
T3	250 - 230	Diagonal	1	116	-5.7500	13.5142	42.5	Pass
T4	230 - 220	Diagonal	L2 1/2x2 1/2x3/16	174	-6.3513	13.3845	47.5	Pass
T5	220 - 200	Diagonal	L3x3x3/16	183	-5.8974	17.2907	61.3 (b)	Pass
T6	200 - 180	Diagonal	L3x3x3/16	204	-9.1077	14.7847	53.8 (b)	Pass
T7	180 - 160	Diagonal	L3x3x5/16	225	-11.9460	19.2606	78.6 (b)	Pass
T8	160 - 140	Diagonal	L3 1/2x3 1/2x5/16	243	-11.6211	25.0610	62.0	Pass
T9	140 - 120	Diagonal	L3 1/2x3 1/2x5/16	258	-12.4507	20.4891	46.4	Pass
T10	120 - 100	Diagonal	2L3 1/2x3 1/2x5/16	273	-18.9411	52.5794	56.5 (b)	Pass
T11	100 - 80	Diagonal	2L3 1/2x3 1/2x5/16	282	-18.6643	48.2701	63.4 (b)	Pass
T12	80 - 60	Diagonal	2L3 1/2x3 1/2x5/16	291	-18.0962	44.2999	36.0	Pass
T13	60 - 40	Diagonal	2L3 1/2x3 1/2x5/16	300	-19.1310	40.6683	38.7	Pass
T14	40 - 20	Diagonal	2L3 1/2x3 1/2x5/16	309	-17.5087	37.3638	40.8	Pass
T15	20 - 0	Diagonal	2L3 1/2x3 1/2x5/16	318	-22.0405	34.3676	47.0	Pass
T1	280 - 270	Horizontal	7/8	32	-0.1851	3.9098	46.9	Pass
T2	270 - 250	Horizontal	7/8	98	-0.3482	3.9436	64.1	Pass

<p style="text-align: center;"><b>tnxTower</b></p> <p><b>Destek Engineering, LLC</b> 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:</p>	<b>Job</b>	CT11332C	<b>Page</b>	42 of 42
	<b>Project</b>	1975056	<b>Date</b>	14:16:51 05/28/19
	<b>Client</b>	Foresite LLC	<b>Designed by</b>	Ahmet Colakoglu

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
T3	250 - 230	Horizontal	7/8	162	-0.6873	4.0125	17.1	Pass
T1	280 - 270	Top Girt	1	5	-0.7529	6.6699	11.3	Pass
T2	270 - 250	Top Girt	1	43	-0.8413	6.7276	12.5	Pass
T3	250 - 230	Top Girt	1 1/4	109	-1.7501	16.7116	10.5	Pass
T6	200 - 180	Top Girt	L3x3x3/16	196	-3.0366	13.6467	22.3	Pass
							37.1 (b)	
T7	180 - 160	Top Girt	L4x4x1/4	217	-4.6994	25.7516	18.2	Pass
							36.4 (b)	
T8	160 - 140	Top Girt	L3 1/2x3 1/2x5/16	238	-3.8732	13.8825	27.9	Pass
T1	280 - 270	Bottom Girt	1	9	-0.7226	6.6699	10.8	Pass
T2	270 - 250	Bottom Girt	1	45	-0.9449	6.7276	14.0	Pass
T3	250 - 230	Bottom Girt	1 1/4	111	-1.0608	16.7116	6.3	Pass
T1	280 - 270	Mid Girt	1	10	0.1292	35.3429	0.4	Pass
T2	270 - 250	Mid Girt	1	48	-0.1971	6.7276	2.9	Pass
T6	200 - 180	Mid Girt	L3x3x3/16	199	-3.5948	10.3344	34.8	Pass
							45.7 (b)	
T7	180 - 160	Mid Girt	L4x4x1/4	222	-4.9480	20.8542	23.7	Pass
							38.8 (b)	
							Summary	
						Leg (T13)	65.1	Pass
						Diagonal (T6)	78.6	Pass
						Horizontal (T3)	17.1	Pass
						Top Girt (T6)	37.1	Pass
						Bottom Girt (T2)	14.0	Pass
						Mid Girt (T6)	45.7	Pass
						Bolt Checks	78.6	Pass
						<b>RATING =</b>	<b>78.6</b>	<b>Pass</b>

Project Information	
BU #	
Site Name	CT11332C
Order #	

Tower Information	
Tower Type	Self Support
TIA-222 Rev	G

Load Z Normalization

Applied Loads		
	Comp.	Uplift
Axial (k)	593.00	502.00
Shear (k)	62.00	54.00

Anchor Rod Data	
Quantity:	6
Diameter (in):	2
<u>Material Grade:</u>	A687
Grout Considered:	No
$l_{ar}$ (in):	3.5
Eta Factor, $\eta$ :	0.55
Thread Type:	N-Included
Configuration:	Symmetrical

Fy=105 ksi Fu=150 ksi  
 Grout Considered  
 Bending Interaction Not Considered

Anchor Rod Results	
Axial, $P_u$ (kips)	83.67
Shear, $V_u$ (kips)	9.00
Moment, $M_u$ (kip-in)	-
Axial Cap., $\phi P_n$ (kips)	250.00
Shear Cap., $\phi V_n$ (kips)	-
Moment Cap., $\phi M_n$ (kip-in)	-
Stress Rating	40.0%

Pass

# SST Unit Base Foundation

BU #:   
 Site Name: CT11332C  
 App. Number:

TIA-222 Revision:

Top & Bot. Pad Rein. Different?:	<input type="checkbox"/>
Tower Centroid Offset?:	<input type="checkbox"/>
Block Foundation?:	<input type="checkbox"/>

Superstructure Analysis Reactions		
Global Moment, <b>M</b> :	13307	ft-kips
Global Axial, <b>P</b> :	133	kips
Global Shear, <b>V</b> :	92	kips
Leg Compression, <b>P<sub>comp</sub></b> :	593	kips
Leg Comp. Shear, <b>V<sub>u,comp</sub></b> :	62	kips
Leg Uplift, <b>P<sub>uplift</sub></b> :	502	kips
Leg Uplift. Shear, <b>V<sub>u,uplift</sub></b> :	54	kips
Tower Height, <b>H</b> :	280	ft
Base Face Width, <b>BW</b> :	28	ft
BP Dist. Above Fdn, <b>bp<sub>dist</sub></b> :		in

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
<i>Lateral (Sliding) (kips)</i>	534.79	92.00	17.2%	Pass
<i>Bearing Pressure (ksf)</i>	8.04	2.36	29.3%	Pass
<i>Overturning (kip*ft)</i>	21489.99	13905.00	64.7%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	3376.65	201.50	6.0%	Pass
<i>Pier Flexure (Tension) (kip*ft)</i>	1677.12	175.50	10.5%	Pass
<i>Pier Compression (kip)</i>	9815.13	607.63	6.2%	Pass
<i>Pad Flexure (kip*ft)</i>	13519.41	2363.82	17.5%	Pass
<i>Pad Shear - 1-way (kips)</i>	1485.15	366.89	24.7%	Pass
<i>Pad Shear - Comp 2-way (ksi)</i>	0.190	0.061	32.4%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, <b>dpier</b> :	5.0	ft
Ext. Above Grade, <b>E</b> :	0.50	ft
Pier Rebar Size, <b>Sc</b> :	9	
Pier Rebar Quantity, <b>mc</b> :	23	
Pier Tie/Spiral Size, <b>St</b> :	4	
Pier Tie/Spiral Quantity, <b>mt</b> :		
Pier Reinforcement Type:	Tie	
Pier Clear Cover, <b>cc<sub>pier</sub></b> :	3	in

Soil Rating:	64.7%
Structural Rating:	32.4%

Pad Properties		
Depth, <b>D</b> :	6.00	ft
Pad Width, <b>W</b> :	38.50	ft
Pad Thickness, <b>T</b> :	3.25	ft
Pad Rebar Size (Bottom), <b>Sp</b> :	11	
Pad Rebar Quantity (Bottom), <b>mp</b> :	60	
Pad Clear Cover, <b>cc<sub>pad</sub></b> :	3	in

Material Properties		
Rebar Grade, <b>Fy</b> :	60	ksi
Concrete Compressive Strength, <b>F'c</b> :	4	ksi
Dry Concrete Density, <b>δc</b> :	150	pcf

Soil Properties		
Total Soil Unit Weight, <b>γ</b> :	120	pcf
Ultimate Net Bearing, <b>Qnet</b> :	10.000	ksf
Cohesion, <b>Cu</b> :	0.000	ksf
Friction Angle, <b>φ</b> :	30	degrees
SPT Blow Count, <b>N<sub>blows</sub></b> :		
Base Friction, <b>μ</b> :	0.45	
Neglected Depth, <b>N</b> :	3.3	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, <b>gw</b> :	N/A	ft

<-- Toggle between Gross and Net



# Exhibit E

Date: 5/28/2019

To: T-Mobile Northeast, LLC  
35 Griffin Road South  
Bloomfield, CT06002

**Subject:** Mount Structural Analysis Report – Revision 1

**T-Mobile Designation:** Site ID: CT11332C  
Site Name: Derby / Rt34

**Destek Designation:** Project Number: 1975056

**Site Data:** 6 Progress Avenue, Seymour, CT 06483  
Latitude 41.39166377°, Longitude -73.0528877°

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

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

Existing + Proposed Equipment **Adequate Capacity (92.1%)**  
Note: See Analysis Criteria for loading configuration

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

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

Sincerely,  
Destek Engineering, LLC  
License No: PEC0001429

Ahmet Colakoglu, PE  
Connecticut Professional Engineer  
License No: 27057



## 1) ANALYSIS CRITERIA

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

**Table 1 – Loading and Analysis Criteria**

<b>Rad Center</b>	247'
<b>Structure Type</b>	Self-Support Tower
<b>Exposure Category</b>	B
<b>Wind Speed</b>	125 mph* $\sqrt{0.6} = 97$ mph (ASD)
<b>Ice Loading</b>	0.75" with 50 mph Wind
<b>Risk Category</b>	II
<b>Topographic Factor</b>	$K_{zt} = 1.0$

**Table 1.1 – Existing Appurtenance Configuration**

Qty	Model
3	EMS RR90-17-02DP – Antennas
3	Andrew LNX-6515DS-A1M – Antennas
3	RFS ATMA4P4DBP-1A20 – RRUs
3	Ericsson KRF 102 267/2 - Diplexers

**Table 1.2 – Proposed and Final Appurtenance Configuration**

Qty	Model
3	Ericsson AIR 32 B66A/B2A – Antennas
3	RFS APXVAARR24_43-U-NA20 – Antennas
3	Ericsson Air 6488 B41 – Antennas
3	Radio 4449 B71+B12 – RRUs*
3	Radio 4415 B25 – RRUs*

\*To be mounted behind antennas.

**Table 1.3 – Assumed Material Properties**

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

## 2) ANALYSIS PROCEDURE

The analysis is based on the following information:

**Table 2 – Documents**

Document	Provided By	Date
RFDS	T-Mobile	03/11/2019
Construction Drawings	Centek Engineering, Inc.	07/12/2018
Mount Analysis Report	Centek Engineering, Inc.	06/01/2018

### 2.1) Analysis Method

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

### 2.2) Analysis Conditions and Assumptions

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

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

### 3) ANALYSIS RESULTS AND CONCLUSION

The analysis results are shown on the table below.

**Table 3.1 – Mount Component Stresses vs. Capacity**

Component	% Capacity	Pass / Fail
Horizontal Face Pipe	92.1	Pass
Vertical Face Pipe	64.7	Pass
Horizontal Standoff Pipe	48.9	Pass
Vertical Standoff Pipe	43.5	Pass
Antenna Mount Pipe	32.2	Pass
Pipe Kicker	<20.0	Pass

**T-Frame Sector Mounts:** The existing T-Frame sector mounts have **adequate** capacity for the proposed changes by T-Mobile. For the code specified load combinations and as a maximum, the mount members are stressed to **92.1%** of their structural capacity. ***The new pipe mount for the new antenna position should be a 2.5" STD pipe with maximum length of 8'-0". The new pipe mount must be placed at the center of the mount face, equally spaced between the existing pipe mounts.***

**APPENDIX**  
**INPUT LOADS**  
**ANALYSIS OUTPUT**

CLIENT: Foresite LLC  
 PROJECT: CT11332C  
 SUBJECT: Antenna Loads -TIA 222 G Stanadard (chapter 16 revisions)

Tower Height	280.00	ft	Type of Mount	Sector
Basic Wind Speed, V	97	mph (=Ultimate Speed* $\sqrt{0.6}$ )		
Basic Wind Speed with Ice, $V_i$	50	mph		
Maintenance Load Factor, $L_{FM}$	0.0957	Load Factor for Maint. Load Cases (Basic Wind Speed=30 mph)		
Design Ice Thickness, $t_i$	0.75	inches		

Table 2-3 Importance Factors

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

Table 2-4 Exposure Category Coefficients

Exposure Category	$Z_g$	$\alpha$	$K_{zmin}$	$K_e$	$m$
B	1200	7	0.7	0.9	0.55

Table 2-5 Topographic Categories  
 $K_{zt}$  1.000

Table 2-2 Wind Directionality Factor,  $K_d$

Structure Type	$K_d$	
Lattice Tower	1	0.95

DOES NOT CHANGE

Gust Effect Factor  $G_h$

Structure Type	$G_h$	
Lattice Tower	1	1.00

DOES NOT CHANGE

Shielding Factor,  $K_a$

Structure Type	$K_a$	
Lattice Tower	1	0.90

DOES NOT CHANGE

Seismic Factors

$S_s$	0.825	
$S_1$	0.281	
$F_a$	1.17	
$F_v$	1.838	
R	3	Truss or Pole



CLIENT: **Foresite LLC**  
 PROJECT: **CT11332C**  
 SUBJECT: **Antenna Loads -TIA 222 G Stanadard (chapter 16 revisions)**

Rad Center **247.00** ft

**Antenna AND Mount Without Ice**

Mounting Pole	Height (ft)	Model Number	#	Weight (lbs)	H (in)	*W (in)	D (in)	Ka	**A <sub>N</sub> (ft <sup>2</sup> )	***A <sub>T</sub> (ft <sup>2</sup> )	Aspect (FRONT)	Aspect (SIDE)	Ca (FRONT)	Ca (SIDE)	K <sub>z</sub>	q <sub>z</sub> (psf)	Pounds							
																	Wind Load (Front)	Wind Load (Side)	Dead Load	Total Wind Load (Front)	Total Wind Load (Side)	Total Dead Load	Lateral Load (Seismic)	Vertical Load (Seismic)
Pos. 1	247.00	Ericsson AIR32 B66A B2A	1	105.8	56.6	12.9	8.7	0.90	5.07	3.42	4.39	6.51	1.28	1.38	1.280	29.3	171.5	124.2	105.8	172	124	106	9	14
		Empty		0.0	-	N/A	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	N/A	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
Pos.2	247.00	RFS APXVAARR24_43-U-NA20	1	128.0	95.9	24.0	8.7	0.90	15.98	5.79	4.00	11.02	1.27	1.53	1.280	29.3	533.4	234.2	128	533	286	249	21	32
		Radio 4449 B12/B71	1	75.0	15.0	N/A	9.3	0.90	-	0.96	-	1.62	-	1.20	1.280	29.3	0.0	30.4	75					
		RRUS 4415 B25	1	46.0	16.5	N/A	5.9	0.90	-	0.68	-	2.80	-	1.21	1.280	29.3	0.0	21.6	46					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
Pos.3	247.00	Ericsson AIR6488 B41	1	133.2	38.3	20.5	7.2	0.90	5.45	1.92	1.87	5.32	1.20	1.33	1.280	29.3	172.4	66.9	133.16	172	67	133	11	17
		Empty		0.0	-	N/A	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
Pos.4	247.00	Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	N/A	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	N/A	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	N/A	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					

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

\*\* A<sub>N</sub> is the product of H and W

\*\*\* A<sub>T</sub> is the product of H and D

DL 488

Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	Weight (lb/ft)	*** Ca	K <sub>z</sub>	q <sub>z</sub> (psf)	Wind Load (PLF)	Lateral Load (Seismic)	Vertical Load (Seismic)
	247.00	2 STD Pipe	12.00	2.38	0.00		1.20	1.280	26.4	6	-	-
	247.00	2.5 STD Pipe	12.00	2.88	0.00		1.20	1.280	26.4	8	-	-
	247.00	3 STD Pipe	12.00	3.50	0.00		1.20	1.280	26.4	9	-	-
	247.00	(L3x3)	0.00	3.00	3.00		-	-	-	-	-	-
	247.00	(L2.5x2.5)	0.00	2.50	2.50		-	-	-	-	-	-
	247.00	Angle Diagonal	0.00	0.00	0.00		-	-	-	-	-	-
	247.00	Plate Horizontal (PL6x3/8)	0.00	6.00	0.38		-	-	-	-	-	-
	247.00	Plate Horizontal (PL7x0.4)	0.00	0.40	7.00		-	-	-	-	-	-
	247.00	Tube Radial (4x4)	0.00	4.00	4.00		-	-	-	-	-	-
	247.00	Double Angle (LL2x2x3x0)	0.00	2.00	2.00		-	-	-	-	-	-
	247.00	Double Angle (LL3x3x4x0)	0.00	3.00	3.00		-	-	-	-	-	-
	247.00	Channel (Weak Axis Bending)	0.00	0.00	0.00		-	-	-	-	-	-
	247.00	Invert U 5.375x3.625x.375	0.00	3.63	5.38		-	-	-	-	-	-

\* The dimension L is the longest dimension of the member

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

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

CLIENT: Foresite LLC  
 PROJECT: CT11332C  
 SUBJECT: Antenna Loads -TIA 222 G Stanadard (chapter 16 revisions)

ti (in) 1.834466 Kiz 1.222977 reduction 0.2657

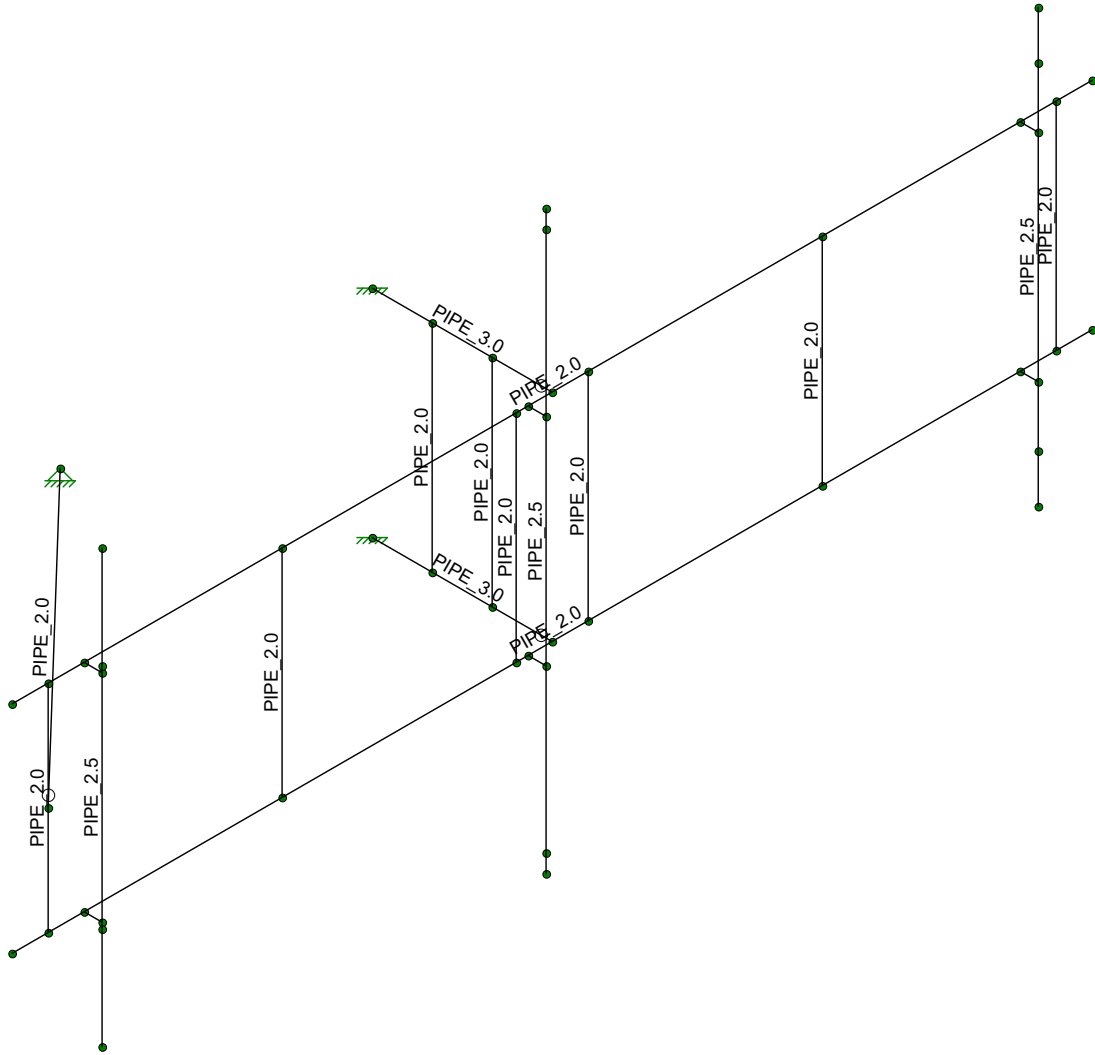
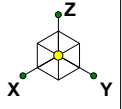
**Antenna AND Mount With Ice**

Mounting Pole	Height (ft)	Model Number	#	H (in)	W (in)	D (in)	Ka	*A <sub>N</sub> (ft <sup>2</sup> )	*A <sub>T</sub> (ft <sup>2</sup> )	*Volume Ice (ft <sup>3</sup> )	*Weight Ice (lbs)	**Ca (FRONT)	**Ca (SIDE)	Kz	q <sub>z</sub> (psf)	Pounds							
																Ice Wind Load (Front)	Ice Wind Load (Side)	Combined Wind Load (Front)	Combined Wind Load (Side)	Ice Dead Load	**Total Wind Load (Front)	**Total Wind Load (Side)	Total Ice Load
Pos. 1	247.00	Ericsson AIR32 B66A B2A	1	56.6	12.9	8.7	0.90	1.86	1.76	3.47	194.42	0.73	0.75	1.280	7.8	9.5	9.3	55.0	42.3	194	55	42	194
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
Pos.2	247.00	RFS APXVAARR24_43-U-NA20	1	95.9	24.0	8.7	0.90	3.15	2.76	8.13	455.39	0.72	0.82	1.280	7.8	16.0	15.9	157.7	78.1	455	158	99	592
		Radio 4449 B12/B71	1	15.0	13.2	9.3	0.90	-	0.71	1.29	72.31	0.70	0.70	1.280	7.8	0.0	3.5	0.0	11.5	72			
		RRUS 4415 B25	1	16.5	13.4	5.9	0.90	-	0.66	1.15	64.48	0.70	0.70	1.280	7.8	0.0	3.3	0.0	9.0	64			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
Pos.3	247.00	Ericsson AIR6488 B41	1	38.3	20.5	7.2	0.90	1.59	1.25	3.11	174.08	0.70	0.73	1.280	7.8	7.8	6.4	53.6	24.2	174	54	24	174
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
Pos.4	247.00	Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0	0	0	0
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																				0	0	0	

\* A<sub>N</sub>, A<sub>T</sub>, Volume Ice and Weight Ice are calculated per unit  
 \*\* Ca will equal 1.2 for all ice load calculations

Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	***A <sub>N</sub> (ft <sup>2</sup> )	Volume Ice (ft <sup>3</sup> )	Weight Ice (lbs)	****Ca (FRONT)	Kz	q <sub>z</sub> (psf)	PLF		
												Ice Wind Load (Front)	Combined Wind Load (Front)	Ice Dead Load
	247.00	2 STD Pipe	12.00	2.38	0.00	0.46	0.17	9.45	1.20	1.280	7.0	3.9	5.5	9
	247.00	2.5 STD Pipe	12.00	2.88	0.00	0.47	0.19	10.57	1.20	1.280	7.0	4.0	6.0	11
	247.00	3 STD Pipe	12.00	3.50	0.00	0.49	0.21	11.96	1.20	1.280	7.0	4.1	6.6	12
	247.00	(L3x3)	0.00	3.00	3.00	-	-	-	-	-	-	-	-	-
	247.00	(L2.5x2.5)	0.00	2.50	2.50	-	-	-	-	-	-	-	-	-
	247.00	Angle Diagonal	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	247.00	Plate Horizontal (PL6x3/8)	0.00	6.00	0.38	-	-	-	-	-	-	-	-	-
	247.00	Plate Horizontal (PL7x0.4)	0.00	0.40	7.00	-	-	-	-	-	-	-	-	-
	247.00	Tube Radial (4x4)	0.00	4.00	4.00	-	-	-	-	-	-	-	-	-
	247.00	Double Angle (LL2x2x3x0)	0.00	2.00	2.00	-	-	-	-	-	-	-	-	-
	247.00	Double Angle (LL3x3x4x0)	0.00	3.00	3.00	-	-	-	-	-	-	-	-	-
	247.00	Channel (Weak Axis Bending)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	247.00	Invert U 5.375x3.625x.375	0.00	3.63	5.38	-	-	-	-	-	-	-	-	-

\* The dimension L is the longest dimension of the member  
 \*\* The dimension W is the height or width of the member that resists wind load  
 \*\*\* A<sub>N</sub> is the area of ice built up on the LW plane  
 \*\*\*\* Ca will equal 1.2 for all ice load calculations



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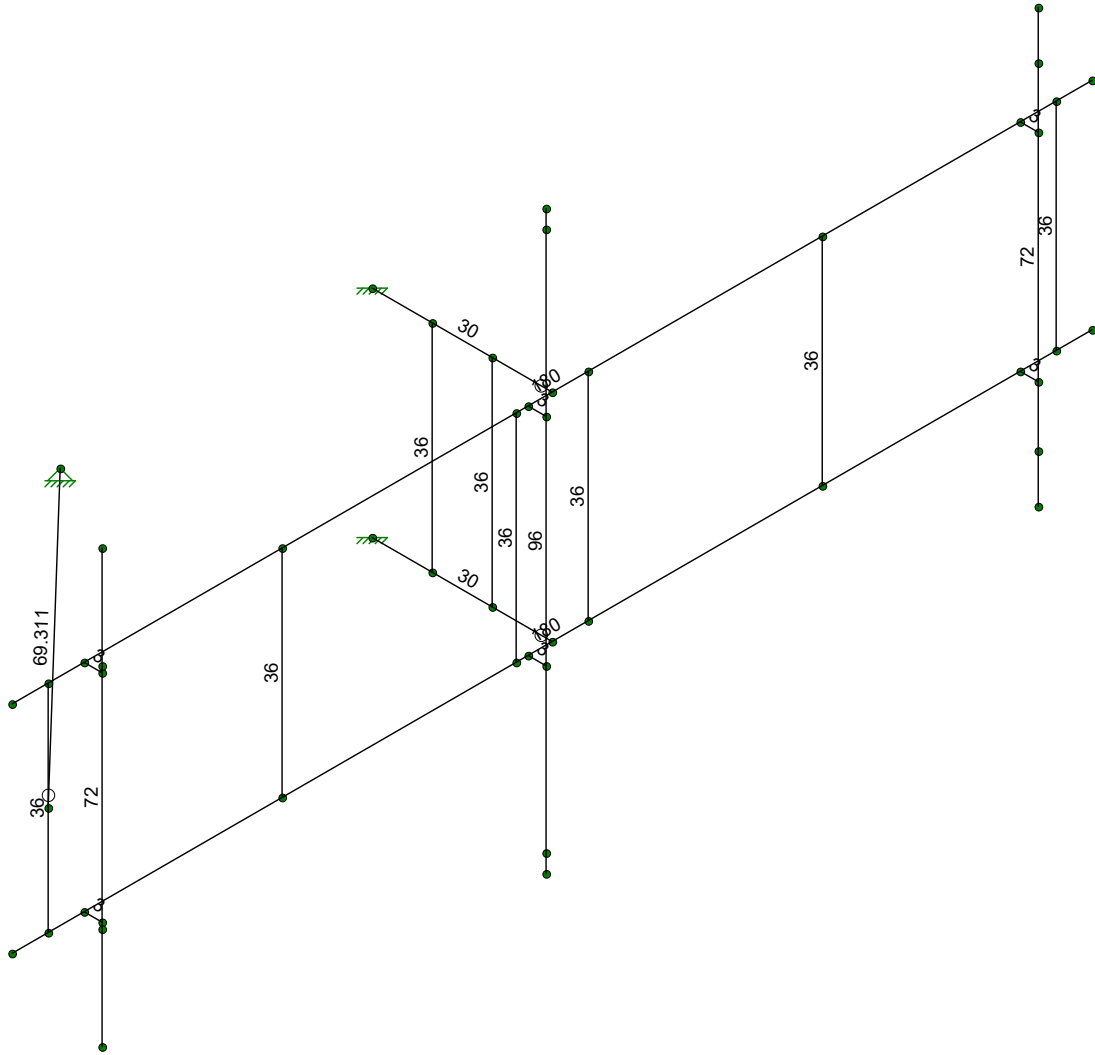
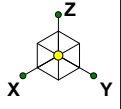
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SK - 1

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Member Length (in) Displayed  
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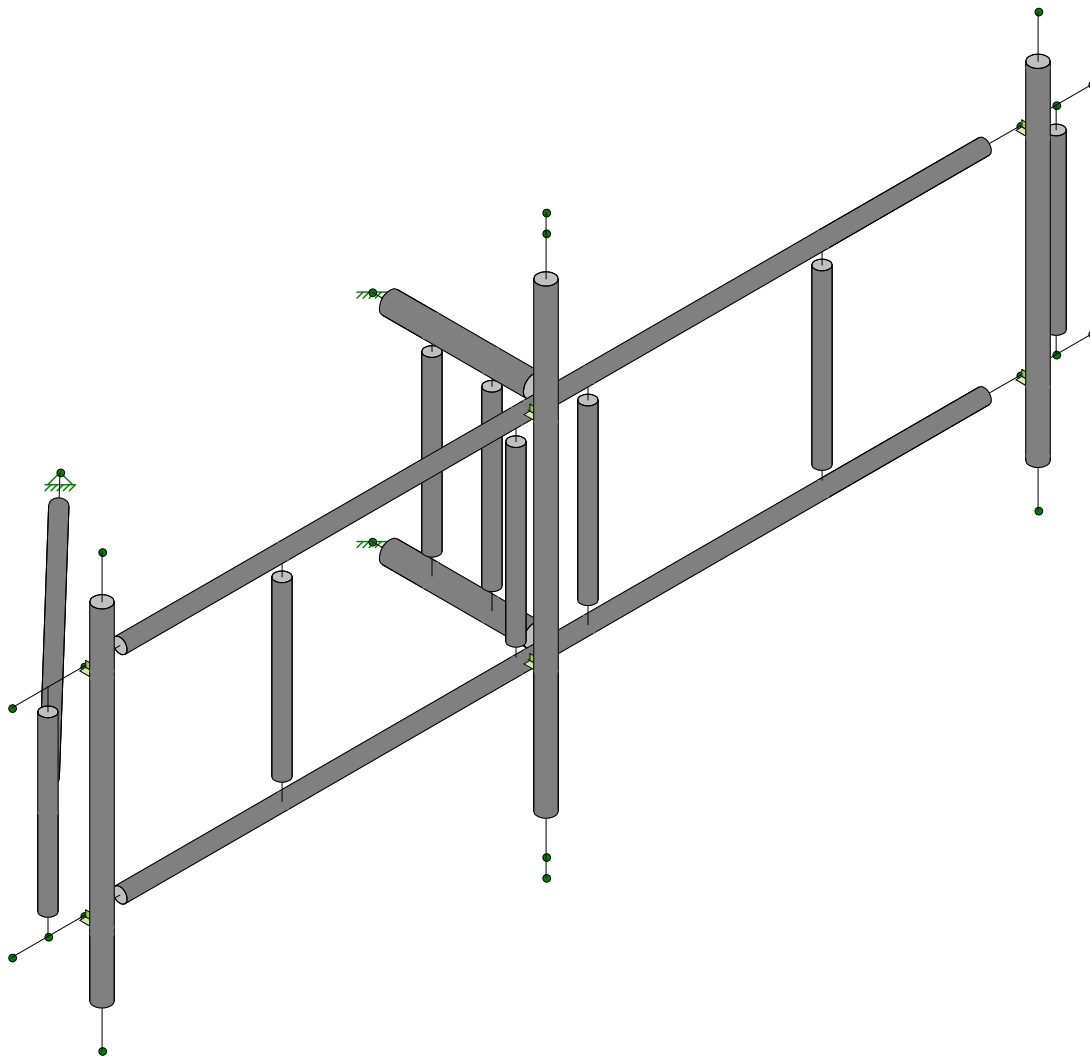
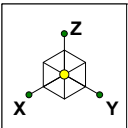
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CT11332C

SK - 2

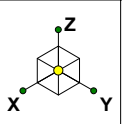
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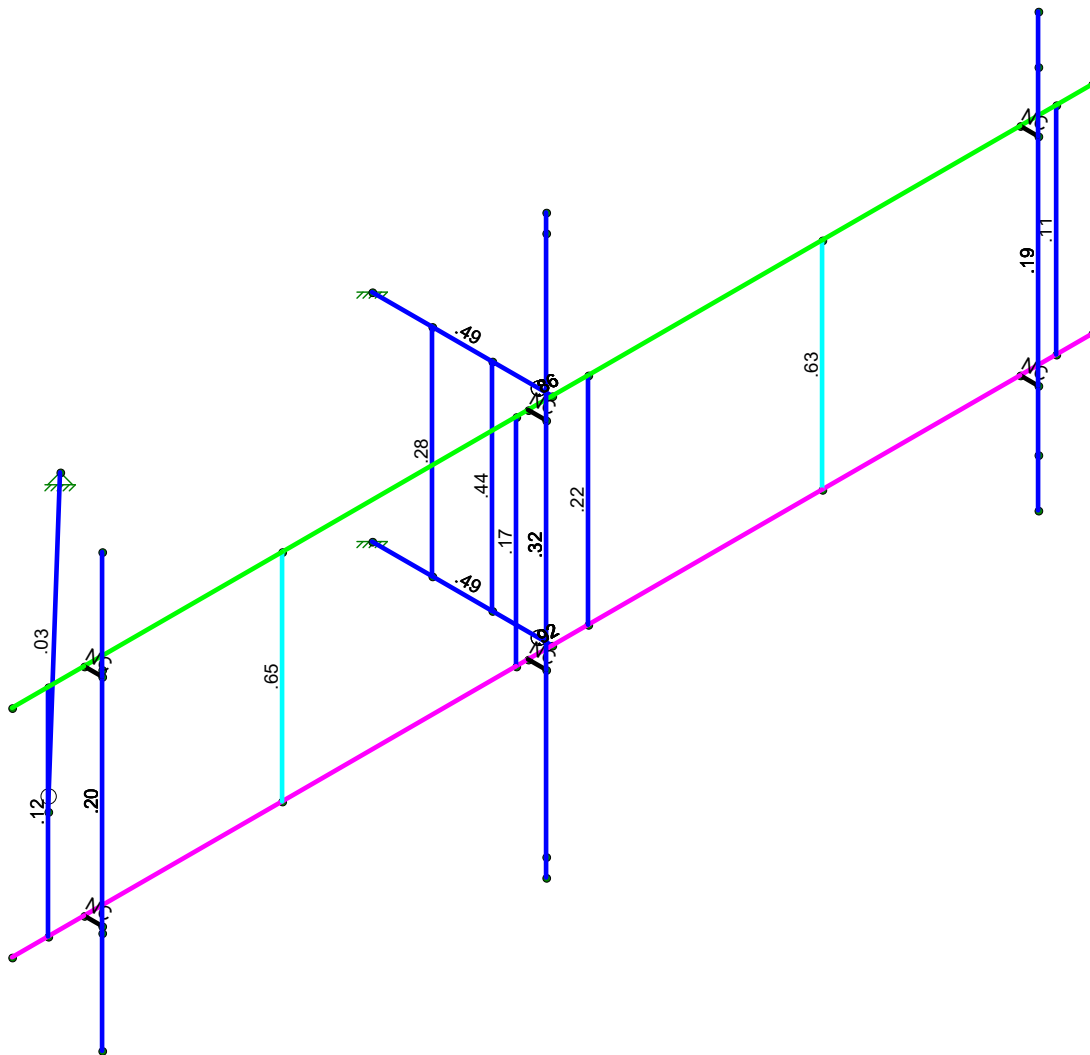


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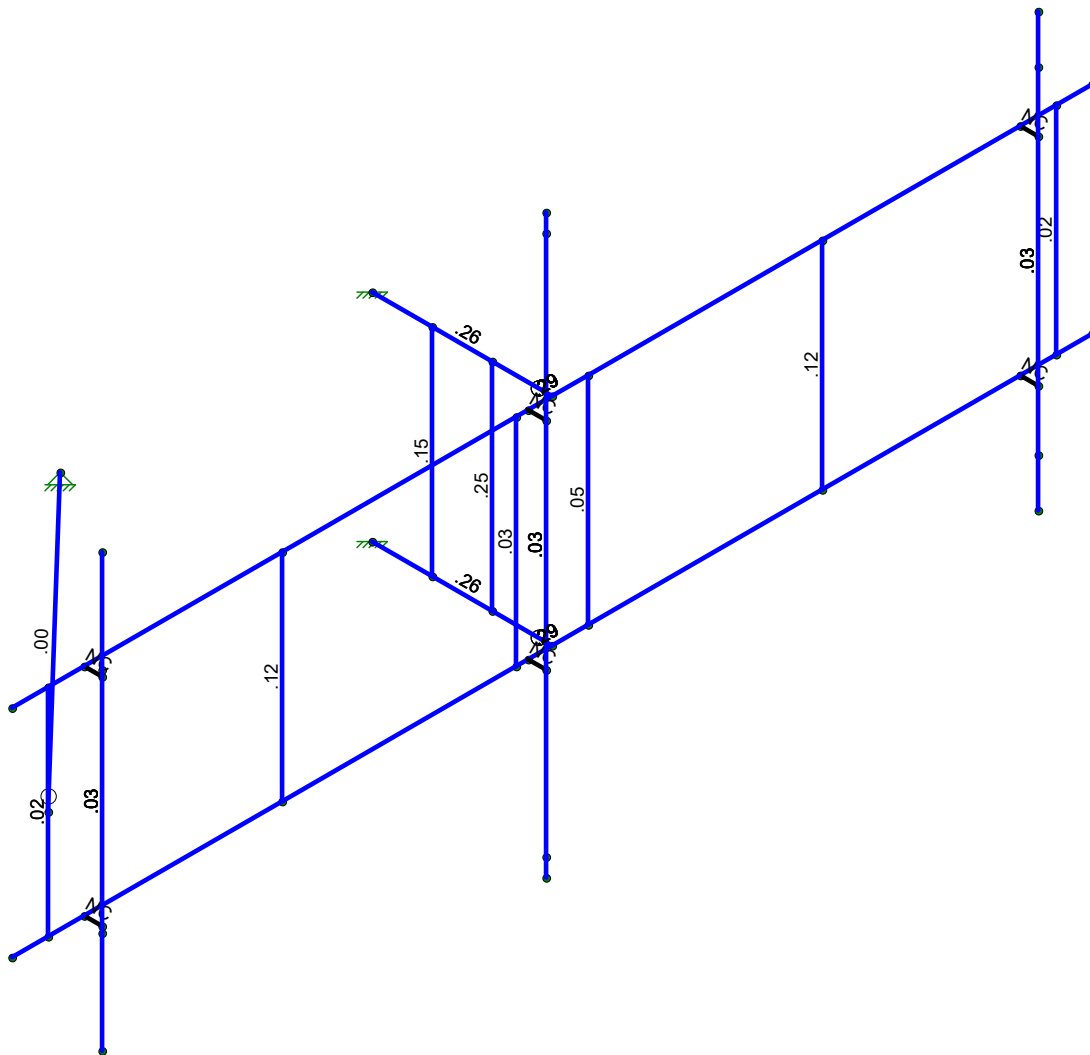
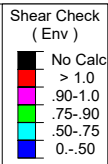
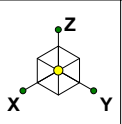


Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

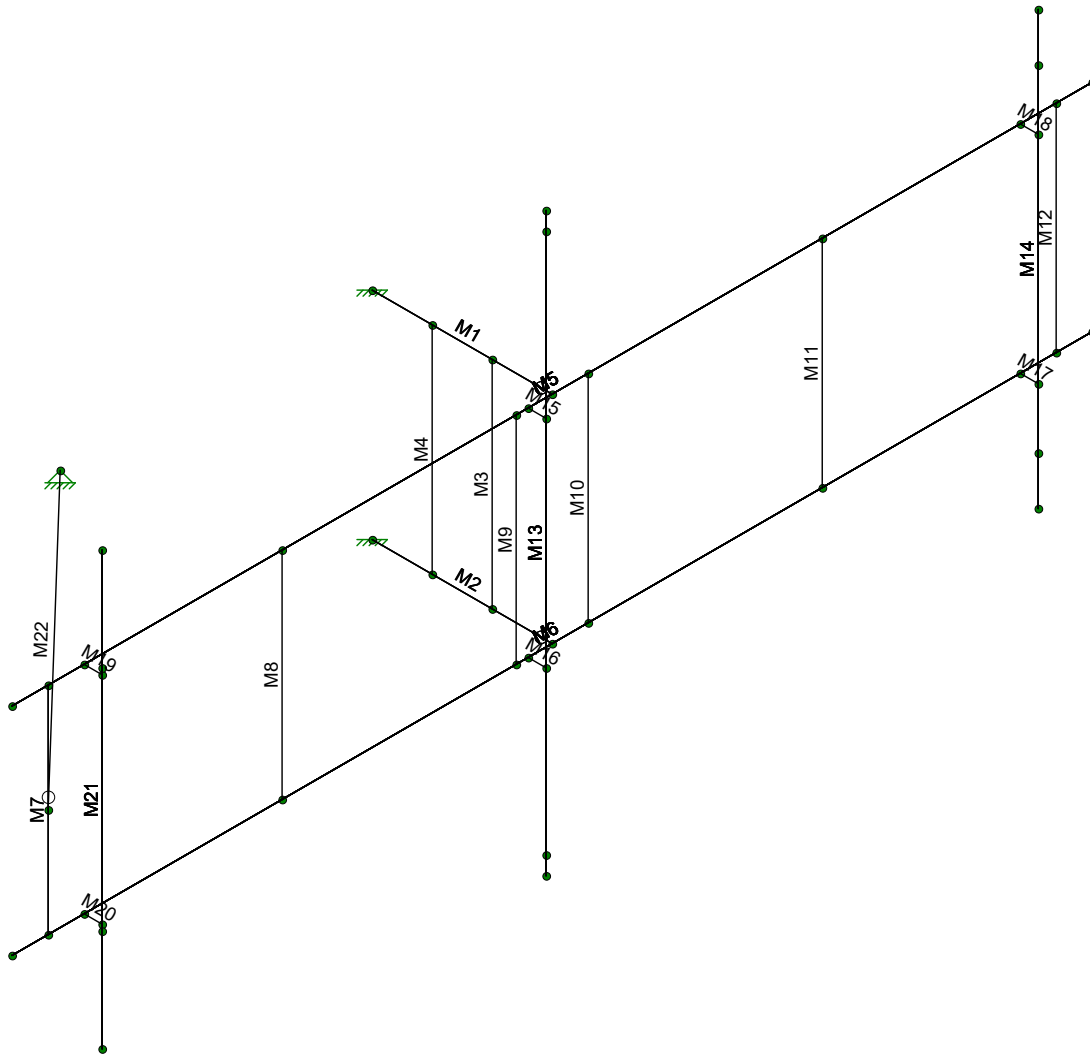
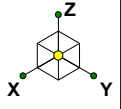
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Member Shear Checks Displayed (Enveloped)  
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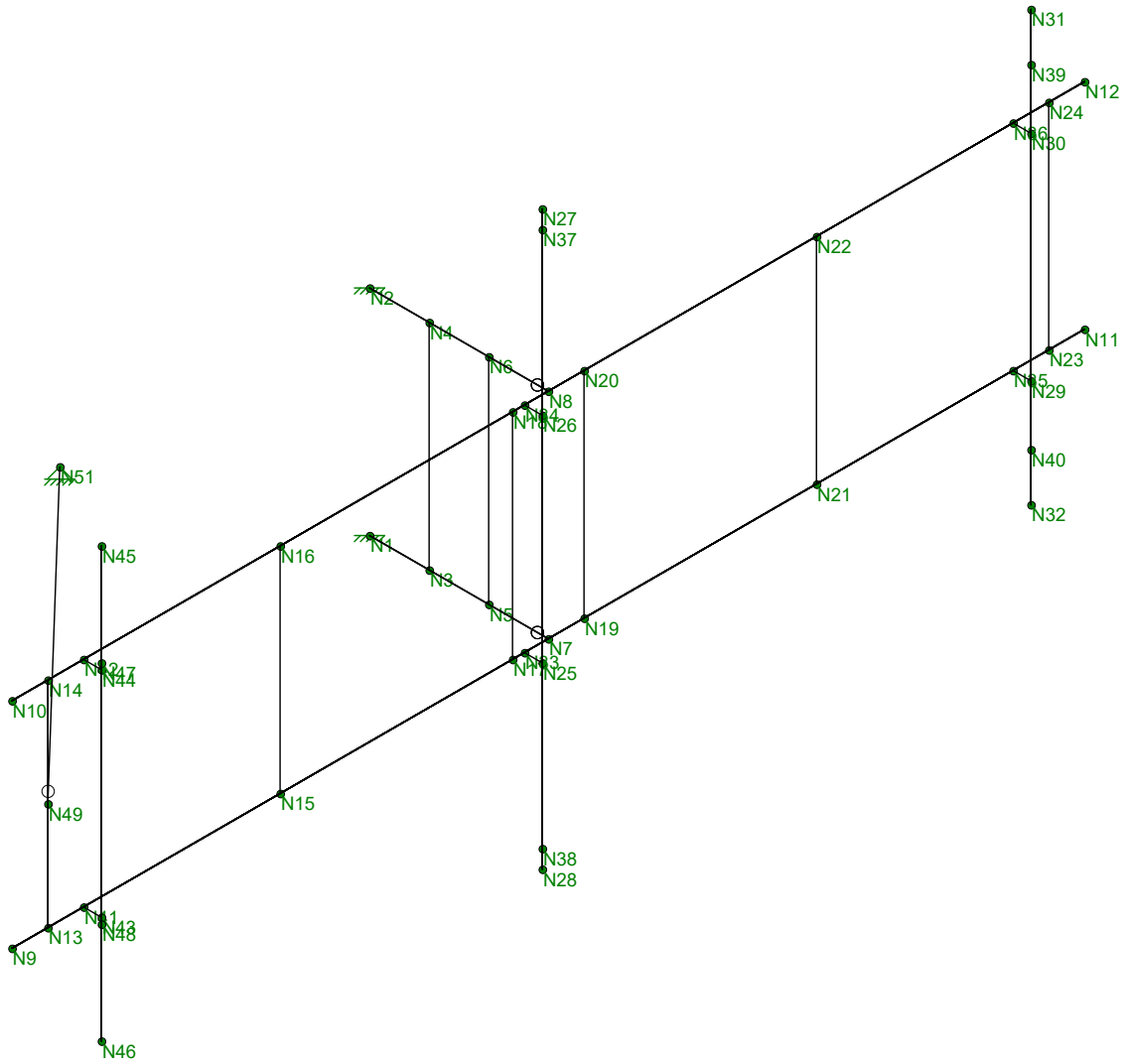
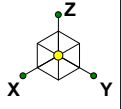
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**(Global) Model Settings**

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

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISACONNECTION CODE	AISC 13th(360-05): ASD
Cold Formed Steel Code	AISI NAS-01: ASD
Wood Code	AF&PA NDS-05/08: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-05
Masonry Code	ACI 530-05: ASD
Aluminum Code	AA ADM1-05: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parame Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR SET ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

**(Global) Model Settings, Continued**

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

**Hot Rolled Steel Properties**

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

**Member Primary Data**

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M15	N34	N26			RIGID	None	None	LINK	Typical
2	M16	N33	N25			RIGID	None	None	LINK	Typical
3	M17	N35	N29			RIGID	None	None	LINK	Typical
4	M18	N36	N30			RIGID	None	None	LINK	Typical
5	M19	N42	N44			RIGID	None	None	LINK	Typical
6	M20	N41	N43			RIGID	None	None	LINK	Typical
7	M1	N2	N8			PIPE 3.0	Beam	Wide Flange	A53 Gr.B	Typical
8	M2	N1	N7			PIPE 3.0	Beam	Wide Flange	A53 Gr.B	Typical
9	M13	N27	N28			PIPE 2.5	Beam	Wide Flange	A53 Gr.B	Typical
10	M14	N31	N32			PIPE 2.5	Beam	Wide Flange	A53 Gr.B	Typical
11	M21	N45	N46			PIPE 2.5	Beam	Wide Flange	A53 Gr.B	Typical
12	M3	N5	N6			PIPE 2.0	Beam	Wide Flange	A53 Gr.B	Typical
13	M4	N3	N4			PIPE 2.0	Beam	Wide Flange	A53 Gr.B	Typical
14	M5	N10	N12			PIPE 2.0	Beam	Wide Flange	A53 Gr.B	Typical
15	M6	N9	N11			PIPE 2.0	Beam	Wide Flange	A53 Gr.B	Typical
16	M7	N14	N13			PIPE 2.0	Beam	Wide Flange	A53 Gr.B	Typical
17	M8	N16	N15			PIPE 2.0	Beam	Wide Flange	A53 Gr.B	Typical
18	M9	N18	N17			PIPE 2.0	Beam	Wide Flange	A53 Gr.B	Typical
19	M10	N20	N19			PIPE 2.0	Beam	Wide Flange	A53 Gr.B	Typical



Company : Destek/Foresite LLC  
 Designer : MAZ  
 Job Number : 1975056  
 Model Name : CT11332C

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### Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
20	M11	N22	N21			PIPE_2.0	Beam	Wide Flange	A53 Gr.B	Typical
21	M12	N24	N23			PIPE_2.0	Beam	Wide Flange	A53 Gr.B	Typical
22	M22	N49	N51			PIPE_2.0	Beam	Wide Flange	A53 Gr.B	Typical

### Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M15						Yes	** NA **			None
2	M16						Yes	** NA **			None
3	M17						Yes	** NA **			None
4	M18						Yes	** NA **			None
5	M19						Yes	** NA **			None
6	M20						Yes	** NA **			None
7	M1		BenPIN				Yes				None
8	M2		BenPIN				Yes				None
9	M13						Yes				None
10	M14						Yes				None
11	M21						Yes				None
12	M3						Yes				None
13	M4						Yes				None
14	M5						Yes				None
15	M6						Yes				None
16	M7						Yes				None
17	M8						Yes				None
18	M9						Yes				None
19	M10						Yes				None
20	M11						Yes				None
21	M12						Yes				None
22	M22	BenPIN					Yes				None

### Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	PIPE_3.0	30			Lbyy						Lateral
2	M2	PIPE_3.0	30			Lbyy						Lateral
3	M13	PIPE_2.5	96			Lbyy						Lateral
4	M14	PIPE_2.5	72			Lbyy						Lateral
5	M21	PIPE_2.5	72			Lbyy						Lateral
6	M3	PIPE_2.0	36			Lbyy						Lateral
7	M4	PIPE_2.0	36			Lbyy						Lateral
8	M5	PIPE_2.0	180	39								Lateral
9	M6	PIPE_2.0	180	39								Lateral
10	M7	PIPE_2.0	36			Lbyy						Lateral
11	M8	PIPE_2.0	36			Lbyy						Lateral
12	M9	PIPE_2.0	36			Lbyy						Lateral
13	M10	PIPE_2.0	36			Lbyy						Lateral
14	M11	PIPE_2.0	36			Lbyy						Lateral
15	M12	PIPE_2.0	36			Lbyy						Lateral
16	M22	PIPE_2.0	69.311			Lbyy						Lateral

### Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	0	0	36	0	



**Joint Coordinates and Temperatures (Continued)**

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
3	N3	0	10	0	0	
4	N4	0	10	36	0	
5	N5	0	20	0	0	
6	N6	0	20	36	0	
7	N7	0	30	0	0	
8	N8	0	30	36	0	
9	N9	90	30	0	0	
10	N10	90	30	36	0	
11	N11	-90	30	0	0	
12	N12	-90	30	36	0	
13	N13	84	30	0	0	
14	N14	84	30	36	0	
15	N15	45	30	0	0	
16	N16	45	30	36	0	
17	N17	6	30	0	0	
18	N18	6	30	36	0	
19	N19	-6	30	0	0	
20	N20	-6	30	36	0	
21	N21	-45	30	0	0	
22	N22	-45	30	36	0	
23	N23	-84	30	0	0	
24	N24	-84	30	36	0	
25	N25	4	33	0	0	
26	N26	4	33	36	0	
27	N27	4	33	66	0	
28	N28	4	33	-30	0	
29	N29	-78	33	0	0	
30	N30	-78	33	36	0	
31	N31	-78	33	54	0	
32	N32	-78	33	-18	0	
33	N33	4	30	0	0	
34	N34	4	30	36	0	
35	N35	-78	30	0	0	
36	N36	-78	30	36	0	
37	N37	4	33	63	0	
38	N38	4	33	-27	0	
39	N39	-78	33	46	0	
40	N40	-78	33	-10	0	
41	N41	78	30	0	0	
42	N42	78	30	36	0	
43	N43	78	33	0	0	
44	N44	78	33	36	0	
45	N45	78	33	54	0	
46	N46	78	33	-18	0	
47	N47	78	33	37	0	
48	N48	78	33	-1	0	
49	N49	84	30	18	0	
50	N51	34	-18	18	0	

**Joint Boundary Conditions**

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N51	Reaction	Reaction	Reaction			
2	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N2	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction



**Basic Load Cases**

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	DEAD LOAD	None			-1	6				
2	DEAD LOAD ICE	None				6		16		
3	WIND LOAD (NO ICE) FRONT	None				6		16		
4	WIND LOAD (NO ICE) SIDE	None				6		16		
5	WIND LOAD (ICE) FRONT	None				6		16		
6	WIND LOAD (ICE) SIDE	None				6		16		
7	LIVE LOAD 1	None				1				
8	LIVE LOAD 2	None				1				
9	LIVE LOAD 3	None								
10	MAINTENANCE LOAD 1	None				1				
11	MAINTENANCE LOAD 2	None				1				
12	MAINTENANCE LOAD 3	None				1				
13	MAINTENANCE LOAD 4	None								

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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...]
1	N39	L	Z	-53
2	N40	L	Z	-53
3	N37	L	Z	-125
4	N38	L	Z	-125
5	N47	L	Z	-67
6	N48	L	Z	-67

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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...]
1	N39	L	Z	-98
2	N40	L	Z	-98
3	N37	L	Z	-297
4	N38	L	Z	-297
5	N47	L	Z	-88
6	N48	L	Z	-88

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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...]
1	N39	L	Y	86
2	N40	L	Y	86
3	N37	L	Y	267
4	N38	L	Y	267
5	N47	L	Y	87
6	N48	L	Y	87

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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...]
1	N39	L	X	63
2	N40	L	X	63
3	N37	L	X	144
4	N38	L	X	144
5	N47	L	X	34
6	N48	L	X	34

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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...]
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Company : Destek/Foresite LLC  
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 Model Name : CT11332C

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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...
1	N39	L	Y	28
2	N40	L	Y	28
3	N37	L	Y	79
4	N38	L	Y	79
5	N47	L	Y	27
6	N48	L	Y	27

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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...
1	N39	L	X	22
2	N40	L	X	22
3	N37	L	X	50
4	N38	L	X	50
5	N47	L	X	13
6	N48	L	X	13

**Joint Loads and Enforced Displacements (BLC 7 : LIVE LOAD 1)**

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...
1	N9	L	Z	-250

**Joint Loads and Enforced Displacements (BLC 8 : LIVE LOAD 2)**

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

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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...
1	N32	L	Z	-500

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

	Joint Label	L,D,M	Direction	Magnitude[(lb.k-ft), (in.rad), (lb*s^2...
1	N28	L	Z	-500

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

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

**Member Point Loads**

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

**Member Distributed Loads (BLC 2 : DEAD LOAD ICE)**

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M1	Z	-12	-12	0	0
2	M2	Z	-12	-12	0	0
3	M13	Z	-11	-11	0	0
4	M14	Z	-11	-11	0	0
5	M21	Z	-11	-11	0	0
6	M3	Z	-9	-9	0	0
7	M4	Z	-9	-9	0	0
8	M5	Z	-9	-9	0	0
9	M6	Z	-9	-9	0	0





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 Designer : MAZ  
 Job Number : 1975056  
 Model Name : CT11332C

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**Member Distributed Loads (BLC 2 : DEAD LOAD ICE) (Continued)**

	Member Label	Direction	Start Magnitude[lb/ft....]	End Magnitude[lb/ft....]	Start Location[in, %]	End Location[in, %]
10	M7	Z	-9	-9	0	0
11	M8	Z	-9	-9	0	0
12	M9	Z	-9	-9	0	0
13	M10	Z	-9	-9	0	0
14	M11	Z	-9	-9	0	0
15	M12	Z	-9	-9	0	0
16	M22	Z	-9	-9	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft....]	End Magnitude[lb/ft....]	Start Location[in, %]	End Location[in, %]
1	M1	PY	9	9	0	0
2	M2	PY	9	9	0	0
3	M13	PY	8	8	0	0
4	M14	PY	8	8	0	0
5	M21	PY	8	8	0	0
6	M3	PY	6	6	0	0
7	M4	PY	6	6	0	0
8	M5	PY	6	6	0	0
9	M6	PY	6	6	0	0
10	M7	PY	6	6	0	0
11	M8	PY	6	6	0	0
12	M9	PY	6	6	0	0
13	M10	PY	6	6	0	0
14	M11	PY	6	6	0	0
15	M12	PY	6	6	0	0
16	M22	PY	6	6	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft....]	End Magnitude[lb/ft....]	Start Location[in, %]	End Location[in, %]
1	M1	PX	9	9	0	0
2	M2	PX	9	9	0	0
3	M13	PX	8	8	0	0
4	M14	PX	8	8	0	0
5	M21	PX	8	8	0	0
6	M3	PX	6	6	0	0
7	M4	PX	6	6	0	0
8	M5	PX	6	6	0	0
9	M6	PX	6	6	0	0
10	M7	PX	6	6	0	0
11	M8	PX	6	6	0	0
12	M9	PX	6	6	0	0
13	M10	PX	6	6	0	0
14	M11	PX	6	6	0	0
15	M12	PX	6	6	0	0
16	M22	PX	6	6	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft....]	End Magnitude[lb/ft....]	Start Location[in, %]	End Location[in, %]
1	M1	PY	6.6	6.6	0	0
2	M2	PY	6.6	6.6	0	0
3	M13	PY	6	6	0	0
4	M14	PY	6	6	0	0
5	M21	PY	6	6	0	0
6	M3	PY	5.5	5.5	0	0
7	M4	PY	5.5	5.5	0	0



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

	Member Label	Direction	Start Magnitude[lb/ft....]	End Magnitude[lb/ft....]	Start Location[in, %]	End Location[in, %]
8	M5	PY	5.5	5.5	0	0
9	M6	PY	5.5	5.5	0	0
10	M7	PY	5.5	5.5	0	0
11	M8	PY	5.5	5.5	0	0
12	M9	PY	5.5	5.5	0	0
13	M10	PY	5.5	5.5	0	0
14	M11	PY	5.5	5.5	0	0
15	M12	PY	5.5	5.5	0	0
16	M22	PY	5.5	5.5	0	0

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

	Member Label	Direction	Start Magnitude[lb/ft....]	End Magnitude[lb/ft....]	Start Location[in, %]	End Location[in, %]
1	M1	PX	6.6	6.6	0	0
2	M2	PX	6.6	6.6	0	0
3	M13	PX	6	6	0	0
4	M14	PX	6	6	0	0
5	M21	PX	6	6	0	0
6	M3	PX	5.5	5.5	0	0
7	M4	PX	5.5	5.5	0	0
8	M5	PX	5.5	5.5	0	0
9	M6	PX	5.5	5.5	0	0
10	M7	PX	5.5	5.5	0	0
11	M8	PX	5.5	5.5	0	0
12	M9	PX	5.5	5.5	0	0
13	M10	PX	5.5	5.5	0	0
14	M11	PX	5.5	5.5	0	0
15	M12	PX	5.5	5.5	0	0
16	M22	PX	5.5	5.5	0	0

**Load Combinations**

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	
1	DL + WL (NO ICE) 0 Degree	Yes	Y			1	1.2			3	1.6												
2	DL + WL (NO ICE) 30 Degree	Yes	Y			1	1.2			3	1.3...	4	.8										
3	DL + WL (NO ICE) 60 Degree	Yes	Y			1	1.2			3	.8	4	1.3...										
4	DL + WL (NO ICE) 90 Degree	Yes	Y			1	1.2					4	1.6										
5	DL + WL (NO ICE) 120 Deg...	Yes	Y			1	1.2			3	-.8	4	1.3...										
6	DL + WL (NO ICE) 150 Deg...	Yes	Y			1	1.2			3	-1....	4	.8										
7	DL + WL (NO ICE) 180 Deg...	Yes	Y			1	1.2			3	-1.6												
8	DL + WL (NO ICE) 210 Deg...	Yes	Y			1	1.2			3	-1....	4	-.8										
9	DL + WL (NO ICE) 240 Deg...	Yes	Y			1	1.2			3	-.8	4	-1....										
10	DL + WL (NO ICE) 270 Deg...	Yes	Y			1	1.2					4	-1.6										
11	DL + WL (NO ICE) 300 Deg...	Yes	Y			1	1.2			3	.8	4	-1....										
12	DL + WL (NO ICE) 330 Deg...	Yes	Y			1	1.2			3	1.3...	4	-.8										
13	DL + DL ICE + WL (ICE) 0 ...	Yes	Y			1	1.2	2	1	5	1												
14	DL + DL ICE + WL (ICE) 30 ...	Yes	Y			1	1.2	2	1	5	.866	6	.5										
15	DL + DL ICE + WL (ICE) 60 ...	Yes	Y			1	1.2	2	1	5	.5	6	.866										
16	DL + DL ICE + WL (ICE) 90 ...	Yes	Y			1	1.2	2	1			6	1										
17	DL + DL ICE + WL (ICE) 12...	Yes	Y			1	1.2	2	1	5	-.5	6	.866										
18	DL + DL ICE + WL (ICE) 15...	Yes	Y			1	1.2	2	1	5	-.866	6	.5										
19	DL + DL ICE + WL (ICE) 18...	Yes	Y			1	1.2	2	1	5	-1												
20	DL + DL ICE + WL (ICE) 21...	Yes	Y			1	1.2	2	1	5	-.866	6	-.5										
21	DL + DL ICE + WL (ICE) 24...	Yes	Y			1	1.2	2	1	5	-.5	6	-.866										
22	DL + DL ICE + WL (ICE) 27...	Yes	Y			1	1.2	2	1			6	-1										
23	DL + DL ICE + WL (ICE) 30...	Yes	Y			1	1.2	2	1	5	.5	6	-.866										
24	DL + DL ICE + WL (ICE) 33...	Yes	Y			1	1.2	2	1	5	.866	6	-.5										



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**Load Combinations (Continued)**

Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
25 DEAD LOAD + LIVE LOAD1	Yes	Y		1	1.2						7	1.5											
26 DEAD LOAD + LIVE LOAD2	Yes	Y		1	1.2						8	1.5											
27 DEAD LOAD + LIVE LOAD3	Yes	Y		1	1.2						9	1.5											
28 DL + MAIN L1+30MPH WL ...	Yes	Y		1	1.2	10	1.5	3	.096														
29 DL + MAIN L2+30MPH WL ...	Yes	Y		1	1.2	11	1.5	3	.096														
30 DL + MAIN L3+30MPH WL ...	Yes	Y		1	1.2	12	1.5	3	.096														
31 DL + MAIN L4+30MPH WL ...	Yes	Y		1	1.2	13	1.5	3	.096														
32 DL + MAIN L1+30MPH WL ...	Yes	Y		1	1.2	10	1.5	4	.096														
33 DL + MAIN L2+30MPH WL ...	Yes	Y		1	1.2	11	1.5	4	.096														
34 DL + MAIN L3+30MPH WL ...	Yes	Y		1	1.2	12	1.5	4	.096														
35 DL + MAIN L4+30MPH WL ...	Yes	Y		1	1.2	13	1.5	4	.096														
36 DL + MAIN L1+30MPH WL ...	Yes	Y		1	1.2	10	1.5	3	-.096														
37 DL + MAIN L2+30MPH WL ...	Yes	Y		1	1.2	11	1.5	3	-.096														
38 DL + MAIN L3+30MPH WL ...	Yes	Y		1	1.2	12	1.5	3	-.096														
39 DL + MAIN L4+30MPH WL ...	Yes	Y		1	1.2	13	1.5	3	-.096														
40 DL + MAIN L1+30MPH WL ...	Yes	Y		1	1.2	10	1.5	4	-.096														
41 DL + MAIN L2+30MPH WL ...	Yes	Y		1	1.2	11	1.5	4	-.096														
42 DL + MAIN L3+30MPH WL ...	Yes	Y		1	1.2	12	1.5	4	-.096														
43 DL + MAIN L4+30MPH WL ...	Yes	Y		1	1.2	13	1.5	4	-.096														

**Envelope Joint Reactions**

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1 N51	max 69.636	7	86.83	7	38.289	24	0	43	0	43	0	43
2	min -79.954	12	-103.49	12	11.683	6	0	1	0	1	0	1
3 N1	max 1242.365	42	1446.784	7	1387.111	20	2.016	20	.733	36	2.014	32
4	min -1033.815	32	-687.132	1	455.619	2	.707	2	-.838	30	-2.46	42
5 N2	max 1035.071	40	688.701	7	1390.793	14	2.013	15	.733	28	2.456	34
6	min -1243.797	34	-1445.021	1	456.314	8	.71	8	-.838	38	-2.011	40
7 Totals:	max 1367.989	10	2222.315	7	2794.679	23						
8	min -1367.99	4	-2222.314	1	1010.706	7						

**Envelope Joint Displacements**

Joint	X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...]	LC
1 N1	max 0	43	0	43	0	43	0	43	0	43	0	43
2	min 0	1	0	1	0	1	0	1	0	1	0	1
3 N2	max 0	43	0	43	0	43	0	43	0	43	0	43
4	min 0	1	0	1	0	1	0	1	0	1	0	1
5 N3	max .017	32	0	1	-.006	2	-9.408e-04	2	1.584e-03	30	3.524e-03	42
6	min -.02	42	0	7	-.016	20	-2.613e-03	19	-1.385e-03	36	-2.872e-03	32
7 N4	max .02	34	0	1	-.006	8	-9.423e-04	12	1.585e-03	38	2.868e-03	40
8	min -.016	40	0	7	-.016	16	-2.614e-03	19	-1.385e-03	28	-3.519e-03	34
9 N5	max .056	32	0	1	-.019	8	-1.343e-03	8	3.358e-03	30	5.614e-03	42
10	min -.068	42	0	7	-.052	16	-4.137e-03	14	-2.962e-03	36	-4.55e-03	32
11 N6	max .068	34	0	1	-.019	2	-1.335e-03	2	3.36e-03	38	4.545e-03	40
12	min -.056	40	0	7	-.052	20	-4.144e-03	20	-2.962e-03	28	-5.606e-03	34
13 N7	max .107	32	0	1	-.034	8	1.021e-03	1	5.027e-03	30	3.021e-02	7
14	min -.132	42	0	7	-.101	14	-1.205e-03	7	-4.548e-03	36	-2.992e-02	1
15 N8	max .131	34	0	1	-.034	2	9.845e-04	7	5.03e-03	38	2.998e-02	7
16	min -.107	40	0	7	-.102	20	-1.168e-03	1	-4.548e-03	28	-2.976e-02	1
17 N9	max .106	32	.117	11	.272	32	-5.141e-04	40	7.972e-03	38	1.272e-02	1
18	min -.135	42	-.144	5	-1.278	38	-3.603e-03	34	-5.368e-03	28	-1.279e-02	7
19 N10	max .135	34	.144	11	.272	32	-4.442e-04	25	8.02e-03	42	1.266e-02	1
20	min -.106	40	-.119	5	-1.278	42	-3.612e-03	30	-5.366e-03	36	-1.282e-02	7
21 N11	max .11	32	5.78	1	.398	38	3.481e-04	1	6.792e-03	30	7.834e-02	7



Company : Destek/Foresite LLC  
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**Envelope Joint Displacements (Continued)**

Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...]	LC	
22		min	-.131	42	-5.85	7	-1.147	32	-3.966e-03	36	-6.548e-03	36	-7.766e-02	1
23	N12	max	.131	34	5.775	1	.398	38	-1.875e-04	2	6.795e-03	38	7.83e-02	7
24		min	-.11	40	-5.798	7	-1.147	32	-3.94e-03	36	-6.603e-03	28	-7.756e-02	1
25	N13	max	.106	32	.085	10	.24	32	-5.141e-04	40	7.971e-03	38	1.272e-02	1
26		min	-.135	42	-.112	4	-1.23	42	-3.603e-03	34	-5.368e-03	28	-1.279e-02	7
27	N14	max	.135	34	.111	10	.24	32	-4.442e-04	25	8.019e-03	42	1.266e-02	1
28		min	-.106	40	-.085	4	-1.23	42	-3.612e-03	30	-5.367e-03	36	-1.282e-02	7
29	N15	max	.106	32	.408	7	.084	32	-2.522e-04	28	1.328e-02	34	5.542e-03	1
30		min	-.134	42	-.421	1	-.711	42	-2.205e-03	34	-3.944e-03	36	-6.008e-03	7
31	N16	max	.134	34	.421	7	.084	32	-1.269e-04	7	1.327e-02	42	5.98e-03	1
32		min	-.106	40	-.4	1	-.711	42	-2.232e-03	30	-3.946e-03	32	-5.594e-03	7
33	N17	max	.107	32	.158	7	-.037	26	1.041e-03	1	8.595e-03	42	2.314e-02	7
34		min	-.132	42	-.157	1	-.111	24	-1.22e-03	7	-4.79e-03	32	-2.301e-02	1
35	N18	max	.132	34	.157	7	-.037	26	1.077e-03	7	8.596e-03	34	2.312e-02	7
36		min	-.106	40	-.156	1	-.111	19	-1.255e-03	1	-4.793e-03	40	-2.282e-02	1
37	N19	max	.107	32	.203	1	-.033	25	7.029e-04	1	5.445e-03	30	3.777e-02	7
38		min	-.131	42	-.205	7	-.103	32	-8.744e-04	7	-7.745e-03	36	-3.732e-02	1
39	N20	max	.131	34	.202	1	-.033	25	5.783e-04	7	5.45e-03	38	3.734e-02	7
40		min	-.107	40	-.203	7	-.103	36	-7.492e-04	1	-7.742e-03	28	-3.721e-02	1
41	N21	max	.109	32	2.375	1	.138	38	2.808e-04	1	5.512e-03	38	7.04e-02	7
42		min	-.131	42	-2.409	7	-.652	32	-2.534e-03	36	-1.169e-02	28	-6.953e-02	1
43	N22	max	.131	34	2.372	1	.138	38	-1.505e-04	1	5.509e-03	30	6.97e-02	7
44		min	-.109	40	-2.374	7	-.652	32	-2.51e-03	36	-1.168e-02	36	-6.954e-02	1
45	N23	max	.11	32	5.314	1	.358	38	3.481e-04	1	6.792e-03	30	7.834e-02	7
46		min	-.131	42	-5.38	7	-1.107	32	-3.966e-03	36	-6.548e-03	36	-7.766e-02	1
47	N24	max	.131	34	5.31	1	.358	38	-1.875e-04	2	6.796e-03	38	7.83e-02	7
48		min	-.11	40	-5.328	7	-1.107	32	-3.94e-03	36	-6.602e-03	28	-7.756e-02	1
49	N25	max	.113	3	.109	7	-.038	1	1.233e-03	1	7.407e-03	42	2.534e-02	7
50		min	-.132	42	-.109	1	-.107	19	-1.425e-03	7	-4.973e-03	32	-2.513e-02	1
51	N26	max	.134	3	.109	7	-.038	7	1.255e-03	7	7.41e-03	34	2.524e-02	7
52		min	-.109	9	-.108	1	-.107	24	-1.447e-03	1	-4.977e-03	40	-2.499e-02	1
53	N27	max	.357	34	.039	12	-.039	7	6.035e-03	7	7.581e-03	34	2.524e-02	7
54		min	-.26	40	-.03	7	-.108	24	-6.227e-03	1	-5.145e-03	40	-2.499e-02	1
55	N28	max	.259	32	.031	12	-.038	1	5.996e-03	1	7.553e-03	42	2.534e-02	7
56		min	-.357	42	-.035	7	-.108	19	-6.189e-03	7	-5.123e-03	32	-2.513e-02	1
57	N29	max	.247	2	4.848	1	.316	30	4.52e-04	1	6.637e-03	42	7.831e-02	7
58		min	-.257	8	-4.91	7	-1.078	36	-4.034e-03	36	-7.274e-03	32	-7.765e-02	1
59	N30	max	.266	2	4.845	1	.316	30	-3.182e-04	2	6.638e-03	38	7.827e-02	7
60		min	-.237	8	-4.858	7	-1.077	36	-3.994e-03	36	-7.319e-03	28	-7.751e-02	1
61	N31	max	.27	2	4.855	1	.316	30	-4.178e-04	26	6.649e-03	34	7.827e-02	7
62		min	-.251	36	-4.843	7	-1.077	36	-3.98e-03	36	-7.33e-03	40	-7.751e-02	1
63	N32	max	.248	28	4.859	1	.316	30	6.873e-04	1	6.647e-03	42	7.831e-02	7
64		min	-.262	8	-4.947	7	-1.078	36	-4.034e-03	36	-7.258e-03	32	-7.765e-02	1
65	N33	max	.107	32	.109	7	-.037	7	1.233e-03	1	7.407e-03	42	2.534e-02	7
66		min	-.132	42	-.109	1	-.107	13	-1.425e-03	7	-4.973e-03	32	-2.513e-02	1
67	N34	max	.132	34	.109	7	-.036	1	1.255e-03	7	7.41e-03	34	2.524e-02	7
68		min	-.107	40	-.108	1	-.107	19	-1.447e-03	1	-4.977e-03	40	-2.499e-02	1
69	N35	max	.11	32	4.848	1	.317	38	4.52e-04	1	6.637e-03	42	7.831e-02	7
70		min	-.131	42	-4.91	7	-1.066	32	-4.034e-03	36	-7.274e-03	32	-7.765e-02	1
71	N36	max	.131	34	4.845	1	.317	42	-3.182e-04	2	6.638e-03	38	7.827e-02	7
72		min	-.11	40	-4.858	7	-1.066	32	-3.994e-03	36	-7.319e-03	28	-7.751e-02	1
73	N37	max	.335	34	.023	12	-.039	7	6.034e-03	7	7.581e-03	34	2.524e-02	7
74		min	-.244	40	-.012	6	-.108	24	-6.226e-03	1	-5.145e-03	40	-2.499e-02	1
75	N38	max	.243	32	.016	12	-.038	1	5.996e-03	1	7.553e-03	42	2.534e-02	7
76		min	-.334	42	-.022	13	-.108	19	-6.189e-03	7	-5.123e-03	32	-2.513e-02	1
77	N39	max	.268	2	4.85	1	.316	30	-4.178e-04	26	6.649e-03	34	7.827e-02	7
78		min	-.235	8	-4.849	7	-1.077	36	-3.98e-03	36	-7.33e-03	40	-7.751e-02	1



**Envelope Joint Displacements (Continued)**

Joint	X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...]	LC		
79	N40	max	.245	2	4.854	1	.316	30	6.846e-04	1	6.647e-03	42	7.831e-02	7
80		min	-.26	8	-4.93	7	-1.078	36	-4.036e-03	36	-7.263e-03	32	-7.765e-02	1
81	N41	max	.106	32	.101	9	.209	32	-5.354e-04	40	8.721e-03	38	1.273e-02	1
82		min	-.135	42	-.134	3	-1.18	42	-3.666e-03	34	-5.178e-03	32	-1.278e-02	7
83	N42	max	.135	34	.126	9	.209	32	-4.608e-04	25	8.767e-03	30	1.265e-02	1
84		min	-.106	40	-.105	3	-1.18	38	-3.683e-03	30	-5.179e-03	36	-1.283e-02	7
85	N43	max	.106	32	.101	9	.207	36	-5.354e-04	40	8.721e-03	38	1.273e-02	1
86		min	-.135	42	-.134	3	-1.191	42	-3.666e-03	34	-5.178e-03	32	-1.278e-02	7
87	N44	max	.135	34	.126	9	.207	36	-4.608e-04	25	8.767e-03	30	1.265e-02	1
88		min	-.105	40	-.105	3	-1.19	42	-3.683e-03	30	-5.179e-03	36	-1.283e-02	7
89	N45	max	.293	34	.138	9	.207	36	-4.608e-04	25	8.767e-03	30	1.265e-02	1
90		min	-.199	40	-.089	3	-1.191	42	-3.685e-03	30	-5.179e-03	36	-1.283e-02	7
91	N46	max	.199	32	.088	9	.207	36	-5.354e-04	40	8.689e-03	38	1.273e-02	1
92		min	-.292	42	-.148	3	-1.191	42	-3.653e-03	34	-5.179e-03	32	-1.278e-02	7
93	N47	max	.144	34	.127	9	.207	36	-4.608e-04	25	8.767e-03	30	1.265e-02	1
94		min	-.111	40	-.104	3	-1.191	42	-3.684e-03	30	-5.179e-03	36	-1.283e-02	7
95	N48	max	.111	32	.101	9	.207	36	-5.354e-04	40	8.717e-03	38	1.273e-02	1
96		min	-.144	42	-.135	3	-1.191	42	-3.665e-03	34	-5.178e-03	32	-1.278e-02	7
97	N49	max	.093	4	.097	10	.24	32	-4.667e-04	25	6.827e-03	38	1.269e-02	1
98		min	-.093	10	-.097	4	-1.23	42	-3.506e-03	30	-5.672e-03	32	-1.281e-02	7
99	N51	max	0	43	0	43	0	43	-9.177e-04	36	1.458e-02	38	2.303e-03	10
100		min	0	1	0	1	0	1	-1.093e-02	30	-5.234e-03	28	-2.306e-03	4

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

Member	Shape	Code C...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M1	PIPE 3.0	.488	0	34	.260	10	34	63059.532	65205	5.749	5.749	1...	H1-1b
2	M2	PIPE 3.0	.489	0	42	.260	10	42	63059.532	65205	5.749	5.749	1...	H1-1b
3	M13	PIPE 2.5	.322	30	1	.034	30	1	30038.461	50715	3.596	3.596	1...	H1-1b
4	M14	PIPE 2.5	.193	54	32	.033	18	26	37773.818	50715	3.596	3.596	1...	H1-1b
5	M21	PIPE 2.5	.201	54	42	.035	18	25	37773.818	50715	3.596	3.596	1...	H1-1b
6	M3	PIPE 2.0	.435	0	19	.245	0	38	28843.414	32130	1.872	1.872	2...	H1-1b
7	M4	PIPE 2.0	.277	0	19	.155	0	38	28843.414	32130	1.872	1.872	2...	H1-1b
8	M5	PIPE 2.0	.862	90	1	.285	84.375	1	4371.821	32130	1.872	1.872	1...	H1-1b
9	M6	PIPE 2.0	.921	90	7	.290	84.375	7	4371.821	32130	1.872	1.872	1...	H1-1b
10	M7	PIPE 2.0	.117	36	25	.021	0	25	28843.414	32130	1.872	1.872	1...	H1-1b
11	M8	PIPE 2.0	.647	36	42	.121	0	34	28843.414	32130	1.872	1.872	2...	H1-1b
12	M9	PIPE 2.0	.167	36	38	.035	0	30	28843.414	32130	1.872	1.872	2...	H1-1b
13	M10	PIPE 2.0	.222	36	36	.052	36	36	28843.414	32130	1.872	1.872	2...	H1-1b
14	M11	PIPE 2.0	.625	36	32	.119	0	36	28843.414	32130	1.872	1.872	2...	H1-1b
15	M12	PIPE 2.0	.113	36	26	.020	0	26	28843.414	32130	1.872	1.872	1...	H1-1b
16	M22	PIPE 2.0	.031	34.655	18	.004	0	24	21537.509	32130	1.872	1.872	1...	H1-1b

**Envelope Maximum Member Section Forces**

Member	Axial[...]	Loc[...]	LC	y Shear...	Loc[...]	LC	z Shear...	Loc[...]	LC	Torque[...]	Loc[...]	LC	y-y Mome...	Loc[...]	LC	z-z Mome...	Loc[...]	LC	
1	M15	m...450.2...	0	7	352.075	0	4	2576.438	0	7	.55	0	10	.827	3	7	.091	0	4
2		min-502....	0	1	-211.719	0	10	-2224.8...	0	1	-.34	0	4	-.749	3	1	-.052	0	10
3	M16	m...506.5...	0	7	211.123	0	4	2577.289	0	1	.55	0	4	.817	3	1	.05	0	4
4		min-454....	0	1	-351.48	0	10	-2223.6...	0	7	-.339	0	10	-.739	3	7	-.089	0	10
5	M17	m...177.9...	0	7	448.559	0	32	470.613	0	28	-.077	0	3	.072	3	1	.101	0	32
6		min-165....	0	1	-43.448	0	10	-36.46	0	8	-.672	0	40	-.066	0	36	-.037	3	26
7	M18	m...173.8...	0	7	43.256	0	4	457.853	0	36	-.077	0	10	.06	3	7	.037	3	26
8		min-186....	0	1	-448.303	0	40	-36.662	0	2	-.671	0	32	-.064	0	40	-.102	0	40
9	M19	m...170.1...	0	7	465.641	0	34	470.496	0	30	.698	0	42	.053	3	42	.105	0	34
10		min-184....	0	1	24.929	0	10	-14.369	0	25	.167	0	5	-.065	0	34	-.038	3	25





Company : Destek/Foresite LLC  
 Designer : MAZ  
 Job Number : 1975056  
 Model Name : CT11332C

Mar 28, 2019  
 10:31 AM  
 Checked By: \_\_\_\_\_

**Envelope Maximum Member Section Forces (Continued)**

Member	Axial[...]	Loc[...]	LC	y Shear...	Loc[...]	LC	z Shear...	Loc[...]	LC	Torque[...]	Loc[...]	LC	y-y Mome...	Loc[...]	LC	z-z Mome...	Loc[...]	LC	
11	M20	m..185.0...	0	7	-24.505	0	4	481.322	0	38	.701	0	38	.057	3	34	.038	3	25
12		min-170...	0	1	-465.798	0	42	81.08	0	12	.166	0	12	-.064	0	42	-.105	0	42
13	M1	m..980.0...	20	7	1242.404	0	34	1388.669	0	14	.839	20	28	.04	19.6...	2	2.456	0	34
14		min-144...	0	1	-1033.9...	0	40	273.382	30	2	-.939	10	38	-2.013	0	15	-2.011	0	40
15	M2	m..1446...	0	7	1034.951	0	32	1389.238	0	20	.839	20	36	.039	19.6...	8	2.014	0	32
16		min-976...	20	1	-1243.7...	0	42	276.564	30	8	-.938	10	30	-2.016	0	20	-2.46	0	42
17	M13	m..2410...	66	1	459.946	30	1	262.922	30	4	.036	30	36	.56	30	4	1.003	30	7
18		min-241...	30	7	-459.915	30	7	-262.659	30	10	-.037	30	30	-.559	30	10	-1.003	30	1
19	M14	m..187.9...	18	24	156.836	18	1	443.482	54	32	.003	18	7	.662	54	32	.129	18	7
20		min-823...	54	28	-156.756	54	1	-120.003	18	10	-.037	18	26	-.669	18	40	-.129	18	1
21	M21	m..194.7...	18	24	158.493	18	1	72.894	17.25	4	.038	18	25	.699	18	34	.054	54	38
22		min-840...	54	30	-158.462	54	1	-464.05	54	42	0	0	1	-.691	54	42	-.054	18	30
23	M3	m..370.1...	0	8	547.755	0	19	38.204	36	42	.347	0	38	.056	36	30	.812	0	18
24		min-370...	36	2	179.97	0	1	-7.345	36	4	-.278	0	32	-.056	0	38	-.81	36	24
25	M4	m..136.1...	0	2	351.02	0	19	68.274	0	32	.218	0	38	.101	36	40	.518	0	19
26		min-136...	36	8	109.156	0	1	-67.584	0	42	-.176	0	32	-.102	0	32	-.517	36	13
27	M5	m..35.26	136...	4	799.227	90	1	2105.299	84.3...	12	.104	84.3...	7	.926	82.5	42	1.554	90	7
28		min-171...	86.25	34	-712.425	90	7	-1797.7...	84.3...	6	-.112	84.3...	1	-.798	13.1...	38	-1.58	90	1
29	M6	m..1717...	86.25	42	690.925	90	1	2106.496	84.3...	6	.111	84.3...	1	.925	82.5	34	1.606	90	7
30		min-35.5...	136...	10	-784.988	90	7	-1797.4...	84.3...	12	-.119	84.3...	7	-.806	13.1...	42	-1.565	90	1
31	M7	m..50.824	36	23	31.864	17.6...	12	31.035	0	11	.012	0	25	.174	0	25	.027	18	6
32		min-322...	0	25	-36.71	18	12	-127.788	0	25	.001	0	7	-.21	36	25	-.036	18	12
33	M8	m..37.76	36	3	16.371	36	1	-196.764	36	4	-.013	0	25	1.209	0	38	.026	36	7
34		min-38.3...	0	9	-15.752	36	7	-806.986	36	42	-.062	0	30	-1.21	36	42	-.027	36	1
35	M9	m..1961...	36	6	5.323	36	1	-54.228	36	4	.011	0	36	.307	0	34	.101	36	7
36		min-195...	0	12	-36.307	36	19	-204.242	36	42	-.023	0	30	-.307	36	42	-.098	0	1
37	M10	m..440.5...	36	8	9.65	36	1	274.652	36	32	.039	0	36	.412	36	36	.072	36	7
38		min-439...	0	2	-31.636	36	19	82.49	36	10	-.003	0	1	-.412	0	28	-.063	0	1
39	M11	m..28.229	36	4	18.221	0	7	780.064	36	32	.063	0	36	1.17	36	32	.027	0	7
40		min-28.92	0	10	-16.479	0	1	164.951	36	10	0	0	1	-1.168	0	36	-.025	0	1
41	M12	m..125.6...	36	8	14.391	0	7	122.424	0	26	.001	0	7	.202	36	26	.025	36	7
42		min-316...	0	26	-17.895	0	1	7.878	36	10	-.012	0	26	-.166	0	26	-.031	0	1
43	M22	m..110.3...	69.3...	7	19.146	69.3...	12	38.02	69.3...	24	0	0	43	0	0	43	.028	34.6...	12
44		min-129...	69.3...	12	-19.146	69.3...	6	-38.02	0	13	0	0	1	-.055	34.6...	13	-.028	34.6...	6

**Envelope Member Section Deflections Strength**

Member	Sec	x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y' Ra...	LC	(n) L/z' Ra...	LC		
1	M15	1	max	.109	7	.107	40	-.036	1	7.41e-03	34	NC	43	NC	43
2			min	-.108	1	-.132	34	-.107	19	-4.977e-03	40	NC	1	NC	1
3		2	max	.109	7	.107	40	-.037	1	7.41e-03	34	NC	43	NC	43
4			min	-.108	1	-.132	34	-.107	19	-4.977e-03	40	NC	1	NC	1
5		3	max	.109	7	.107	40	-.038	2	7.41e-03	34	NC	43	NC	43
6			min	-.108	1	-.132	34	-.107	20	-4.977e-03	40	NC	1	NC	1
7		4	max	.109	7	.107	40	-.039	4	7.41e-03	34	NC	43	NC	43
8			min	-.108	1	-.132	34	-.107	20	-4.977e-03	40	NC	1	NC	1
9		5	max	.109	7	.109	9	-.038	7	7.41e-03	34	NC	43	NC	43
10			min	-.108	1	-.134	3	-.107	24	-4.977e-03	40	NC	1	NC	1
11	M16	1	max	.109	7	.132	42	-.037	7	7.407e-03	42	NC	43	NC	43
12			min	-.109	1	-.107	32	-.107	13	-4.973e-03	32	NC	1	NC	1
13		2	max	.109	7	.132	42	-.038	7	7.407e-03	42	NC	43	NC	43
14			min	-.109	1	-.106	32	-.107	14	-4.973e-03	32	NC	1	NC	1
15		3	max	.109	7	.132	42	-.039	8	7.407e-03	42	NC	43	NC	43
16			min	-.109	1	-.106	32	-.107	14	-4.973e-03	32	NC	1	NC	1
17		4	max	.109	7	.132	42	-.039	12	7.407e-03	42	NC	43	NC	43
18			min	-.109	1	-.106	32	-.107	19	-4.973e-03	32	NC	1	NC	1



**Envelope Member Section Deflections Strength (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...]	LC	(n) L/y' Ra...	LC	(n) L/z' Ra...	LC	
19		5	max	.109	7	.132	42	-.038	1	7.407e-03	42	NC	43	NC	43
20			min	-.109	1	-.113	3	-.107	19	-4.973e-03	32	NC	1	NC	1
21	M17	1	max	4.848	1	.131	42	.317	38	6.637e-03	42	NC	43	NC	43
22			min	-4.91	7	-.11	32	-1.066	32	-7.274e-03	32	NC	1	NC	1
23		2	max	4.848	1	.131	42	.317	38	6.637e-03	42	NC	43	NC	43
24			min	-4.91	7	-.11	32	-1.069	32	-7.274e-03	32	NC	1	NC	1
25		3	max	4.848	1	.154	8	.316	38	6.637e-03	42	NC	43	NC	43
26			min	-4.91	7	-.139	2	-1.072	36	-7.274e-03	32	NC	1	NC	1
27		4	max	4.848	1	.206	8	.316	42	6.637e-03	42	NC	43	NC	43
28			min	-4.91	7	-.193	2	-1.075	36	-7.274e-03	32	NC	1	NC	1
29		5	max	4.848	1	.257	8	.316	30	6.637e-03	42	NC	43	NC	43
30			min	-4.91	7	-.247	2	-1.078	36	-7.274e-03	32	NC	1	NC	1
31	M18	1	max	4.845	1	.11	40	.317	42	6.638e-03	38	NC	43	NC	43
32			min	-4.858	7	-.131	34	-1.066	32	-7.319e-03	28	NC	1	NC	1
33		2	max	4.845	1	.11	40	.317	42	6.638e-03	38	NC	43	NC	43
34			min	-4.858	7	-.131	34	-1.068	32	-7.319e-03	28	NC	1	NC	1
35		3	max	4.845	1	.134	8	.316	42	6.638e-03	38	NC	43	NC	43
36			min	-4.858	7	-.158	2	-1.071	36	-7.319e-03	28	NC	1	NC	1
37		4	max	4.845	1	.186	8	.316	30	6.638e-03	38	NC	43	NC	43
38			min	-4.858	7	-.212	2	-1.074	36	-7.319e-03	28	NC	1	NC	1
39		5	max	4.845	1	.237	8	.316	30	6.638e-03	38	NC	43	NC	43
40			min	-4.858	7	-.266	2	-1.077	36	-7.319e-03	28	NC	1	NC	1
41	M19	1	max	.126	9	.106	40	.209	32	8.767e-03	30	NC	43	NC	43
42			min	-.105	3	-.135	34	-1.18	38	-5.179e-03	36	NC	1	NC	1
43		2	max	.126	9	.106	40	.208	32	8.767e-03	30	NC	43	NC	43
44			min	-.105	3	-.135	34	-1.182	42	-5.179e-03	36	NC	1	NC	1
45		3	max	.126	9	.106	40	.208	32	8.767e-03	30	NC	43	NC	43
46			min	-.105	3	-.135	34	-1.185	42	-5.179e-03	36	NC	1	NC	1
47		4	max	.126	9	.106	40	.207	32	8.767e-03	30	NC	43	NC	43
48			min	-.105	3	-.135	34	-1.188	42	-5.179e-03	36	NC	1	NC	1
49		5	max	.126	9	.105	40	.207	36	8.767e-03	30	NC	43	NC	43
50			min	-.105	3	-.135	34	-1.19	42	-5.179e-03	36	NC	1	NC	1
51	M20	1	max	.101	9	.135	42	.209	32	8.721e-03	38	NC	43	NC	43
52			min	-.134	3	-.106	32	-1.18	42	-5.178e-03	32	NC	1	NC	1
53		2	max	.101	9	.135	42	.208	32	8.721e-03	38	NC	43	NC	43
54			min	-.134	3	-.106	32	-1.183	42	-5.178e-03	32	NC	1	NC	1
55		3	max	.101	9	.135	42	.208	32	8.721e-03	38	NC	43	NC	43
56			min	-.134	3	-.106	32	-1.185	42	-5.178e-03	32	NC	1	NC	1
57		4	max	.101	9	.135	42	.207	36	8.721e-03	38	NC	43	NC	43
58			min	-.134	3	-.106	32	-1.188	42	-5.178e-03	32	NC	1	NC	1
59		5	max	.101	9	.135	42	.207	36	8.721e-03	38	NC	43	NC	43
60			min	-.134	3	-.106	32	-1.191	42	-5.178e-03	32	NC	1	NC	1
61	M1	1	max	0	43	0	43	0	43	0	43	NC	43	NC	43
62			min	0	1	0	1	0	1	0	1	NC	1	NC	1
63		2	max	0	1	.01	40	-.003	8	1.189e-03	38	NC	43	8777.735	8
64			min	0	7	-.012	34	-.01	15	-1.039e-03	28	2505.608	34	3110.468	15
65		3	max	0	1	.034	40	-.012	9	2.473e-03	38	NC	43	2589.245	9
66			min	0	7	-.042	34	-.032	18	-2.173e-03	28	721.411	34	931.099	18
67		4	max	0	1	.068	40	-.022	2	3.778e-03	38	NC	24	1357.464	2
68			min	0	7	-.083	34	-.064	20	-3.358e-03	28	361.411	34	471.951	20
69		5	max	0	1	.107	40	-.034	2	5.03e-03	38	NC	24	894.219	2
70			min	0	7	-.131	34	-.102	20	-4.548e-03	28	228.365	34	295.282	20
71	M2	1	max	0	43	0	43	0	43	0	43	NC	43	NC	43
72			min	0	1	0	1	0	1	0	1	NC	1	NC	1
73		2	max	0	1	.012	42	-.003	2	1.188e-03	30	NC	43	8819.679	2
74			min	0	7	-.01	32	-.01	20	-1.039e-03	36	2501.95	42	3106.524	20
75		3	max	0	1	.042	42	-.012	2	2.471e-03	30	NC	35	2602.535	2



**Envelope Member Section Deflections Strength (Continued)**

Member	Sec		x [in]	LC	v [in]	LC	z [in]	LC	x Rotate [r...]	LC	(n) L/y' Ra...	LC	(n) L/z' Ra...	LC	
76		min	0	7	-.034	32	-.032	19	-2.173e-03	36	720.321	42	930.281	19	
77	4	max	0	1	.083	42	-.022	8	3.776e-03	30	NC	18	1349.69	8	
78		min	0	7	-.068	32	-.063	15	-3.358e-03	36	360.887	42	472.664	15	
79	5	max	0	1	.132	42	-.034	8	5.027e-03	30	NC	18	888.653	8	
80		min	0	7	-.107	32	-.101	14	-4.548e-03	36	228.057	42	295.797	14	
81	M13	1	max	.108	24	.039	12	.357	34	2.499e-02	1	NC	43	NC	43
82		min	.039	7	-.03	7	-.26	40	-2.524e-02	7	NC	1	NC	1	
83	2	max	.107	24	.095	7	.176	34	2.499e-02	1	NC	43	NC	43	
84		min	.039	7	-.093	1	-.137	40	-2.524e-02	7	747.707	1	1350.224	4	
85	3	max	.107	19	.121	7	.117	3	2.506e-02	1	NC	43	NC	43	
86		min	.039	1	-.12	1	-.113	9	-2.529e-02	7	624.201	7	1166.312	4	
87	4	max	.107	19	.095	7	.136	32	2.513e-02	1	NC	43	NC	43	
88		min	.038	1	-.095	1	-.176	42	-2.534e-02	7	747.795	7	1353.638	10	
89	5	max	.108	19	.031	12	.259	32	2.513e-02	1	NC	43	NC	43	
90		min	.038	1	-.035	7	-.357	42	-2.534e-02	7	NC	1	NC	1	
91	M14	1	max	1.077	36	4.855	1	.27	2	7.751e-02	1	NC	43	NC	43
92		min	-.316	30	-4.843	7	-.251	36	-7.827e-02	7	NC	1	NC	1	
93	2	max	1.077	36	4.845	1	.266	2	7.751e-02	1	NC	43	NC	43	
94		min	-.316	30	-4.858	7	-.237	8	-7.827e-02	7	6491.451	1	5128.702	40	
95	3	max	1.078	36	4.843	1	.257	2	7.758e-02	1	NC	43	NC	43	
96		min	-.316	30	-4.881	7	-.248	8	-7.829e-02	7	5049.838	1	NC	1	
97	4	max	1.078	36	4.848	1	.247	2	7.765e-02	1	NC	43	NC	43	
98		min	-.316	30	-4.91	7	-.257	8	-7.831e-02	7	6641.269	7	5615.449	32	
99	5	max	1.078	36	4.859	1	.248	28	7.765e-02	1	NC	43	NC	43	
100		min	-.316	30	-4.947	7	-.262	8	-7.831e-02	7	NC	1	NC	1	
101	M21	1	max	1.191	42	.138	9	.293	34	1.283e-02	7	NC	43	NC	43
102		min	-.207	36	-.089	3	-.199	40	-1.265e-02	1	NC	1	NC	1	
103	2	max	1.19	42	.126	9	.135	34	1.283e-02	7	NC	43	NC	43	
104		min	-.207	36	-.105	3	-.105	40	-1.265e-02	1	NC	1	5001.346	30	
105	3	max	1.191	42	.114	9	.102	5	1.28e-02	7	NC	43	NC	43	
106		min	-.207	36	-.119	3	-.101	11	-1.269e-02	1	NC	1	NC	1	
107	4	max	1.191	42	.101	9	.106	32	1.278e-02	7	NC	43	NC	43	
108		min	-.207	36	-.134	3	-.135	42	-1.273e-02	1	NC	1	5487.31	38	
109	5	max	1.191	42	.088	9	.199	32	1.278e-02	7	NC	43	NC	43	
110		min	-.207	36	-.148	3	-.292	42	-1.273e-02	1	NC	1	NC	1	
111	M3	1	max	-.019	8	0	.068	42	5.614e-03	42	NC	43	NC	43	
112		min	-.052	16	0	7	-.056	32	-4.55e-03	32	NC	1	NC	1	
113	2	max	-.019	9	.014	14	.05	10	4.164e-03	10	9521.142	8	NC	43	
114		min	-.052	18	.003	8	-.045	4	-3.716e-03	4	2615.259	14	NC	1	
115	3	max	-.019	1	.002	2	.047	10	3.934e-03	10	NC	43	NC	43	
116		min	-.052	19	-.002	8	-.048	4	-3.939e-03	4	NC	1	NC	1	
117	4	max	-.019	2	-.003	2	.044	10	3.705e-03	10	9594.514	2	NC	43	
118		min	-.052	19	-.014	20	-.05	4	-4.163e-03	4	2610.765	20	NC	1	
119	5	max	-.019	2	0	1	.056	40	4.545e-03	40	NC	43	NC	43	
120		min	-.052	20	0	7	-.068	34	-5.606e-03	34	NC	1	NC	1	
121	M4	1	max	-.006	2	0	.02	42	3.524e-03	42	NC	43	NC	43	
122		min	-.016	20	0	7	-.017	32	-2.872e-03	32	NC	1	NC	1	
123	2	max	-.006	2	.009	13	.015	10	2.62e-03	10	NC	43	NC	43	
124		min	-.016	19	.003	7	-.013	4	-2.341e-03	4	4159.648	13	NC	1	
125	3	max	-.006	1	0	1	.014	10	2.477e-03	10	NC	43	NC	43	
126		min	-.016	19	0	7	-.014	4	-2.48e-03	4	NC	1	NC	1	
127	4	max	-.006	8	-.003	1	.013	10	2.334e-03	10	NC	43	NC	43	
128		min	-.016	17	-.009	19	-.015	4	-2.619e-03	4	4152.04	19	NC	1	
129	5	max	-.006	8	0	1	.016	40	2.868e-03	40	NC	43	NC	43	
130		min	-.016	16	0	7	-.02	34	-3.519e-03	34	NC	1	NC	1	
131	M5	1	max	.106	40	.144	11	1.278	42	3.612e-03	30	NC	43	NC	43
132		min	-.135	34	-.119	5	-.272	32	4.442e-04	25	NC	1	NC	1	





**Envelope Member Section Deflections Strength (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...]	LC	(n) L/y' Ra...	LC	(n) L/z' Ra...	LC	
133	2	max	.106	40	.421	7	.711	42	2.232e-03	30	NC	43	3062.699	6	
134		min	-.134	34	-.4	1	-.084	32	1.269e-04	7	93.432	7	1080.942	28	
135	3	max	.107	40	0	1	.102	20	1.168e-03	1	NC	43	1248.299	8	
136		min	-.131	34	0	7	.034	2	-9.845e-04	7	61.277	1	473.336	14	
137	4	max	.109	40	2.372	1	.652	32	2.51e-03	36	NC	43	3185.465	7	
138		min	-.131	34	-2.374	7	-.138	38	1.505e-04	1	90.312	7	1132.361	30	
139	5	max	.11	40	5.775	1	1.147	32	3.94e-03	36	NC	43	NC	43	
140		min	-.131	34	-5.798	7	-.398	38	1.875e-04	2	NC	1	NC	1	
141	M6	1	max	.135	42	.117	11	1.278	38	3.603e-03	34	NC	43	NC	43
142		min	-.106	32	-.144	5	-.272	32	5.141e-04	40	NC	1	NC	1	
143	2	max	.134	42	.408	7	.711	42	2.205e-03	34	NC	43	3062.707	12	
144		min	-.106	32	-.421	1	-.084	32	2.522e-04	28	92.591	7	1081.583	32	
145	3	max	.132	42	0	1	.101	14	1.205e-03	7	NC	35	1248.166	2	
146		min	-.107	32	0	7	.034	8	-1.021e-03	1	60.538	7	473.331	20	
147	4	max	.131	42	2.375	1	.652	32	2.534e-03	36	NC	43	3179.554	1	
148		min	-.109	32	-2.409	7	-.138	38	-2.808e-04	1	89.855	7	1132.839	38	
149	5	max	.131	42	5.78	1	1.147	32	3.966e-03	36	NC	43	NC	43	
150		min	-.11	32	-5.85	7	-.398	38	-3.481e-04	1	NC	1	NC	1	
151	M7	1	max	1.23	42	.111	10	.135	34	1.282e-02	7	NC	43	NC	43
152		min	-.24	32	-.085	4	-.106	40	-1.266e-02	1	NC	1	NC	1	
153	2	max	1.23	42	.104	10	.097	4	1.281e-02	7	NC	43	NC	43	
154		min	-.24	32	-.091	4	-.087	10	-1.267e-02	1	NC	1	NC	1	
155	3	max	1.23	42	.097	10	.093	4	1.281e-02	7	NC	43	NC	43	
156		min	-.24	32	-.097	4	-.093	10	-1.269e-02	1	NC	1	NC	1	
157	4	max	1.23	42	.091	10	.087	4	1.28e-02	7	NC	43	NC	43	
158		min	-.24	32	-.104	4	-.097	10	-1.27e-02	1	NC	1	7187.547	25	
159	5	max	1.23	42	.085	10	.106	32	1.279e-02	7	NC	43	NC	43	
160		min	-.24	32	-.112	4	-.135	42	-1.272e-02	1	NC	1	NC	1	
161	M8	1	max	.711	42	.421	7	.134	34	5.594e-03	7	NC	43	NC	43
162		min	-.084	32	-.4	1	-.106	40	-5.98e-03	1	NC	1	NC	1	
163	2	max	.711	42	.419	7	.092	4	5.698e-03	7	NC	43	8352.461	3	
164		min	-.084	32	-.407	1	-.091	10	-5.871e-03	1	NC	1	1783.091	42	
165	3	max	.711	42	.416	7	.092	4	5.801e-03	7	NC	43	NC	43	
166		min	-.084	32	-.412	1	-.092	10	-5.761e-03	1	NC	1	NC	1	
167	4	max	.711	42	.413	7	.091	4	5.905e-03	7	NC	43	8339.547	9	
168		min	-.084	32	-.417	1	-.092	10	-5.651e-03	1	NC	1	1772.957	34	
169	5	max	.711	42	.408	7	.106	32	6.008e-03	7	NC	43	NC	43	
170		min	-.084	32	-.421	1	-.134	42	-5.542e-03	1	NC	1	NC	1	
171	M9	1	max	.111	19	.157	7	.132	34	2.282e-02	1	NC	43	NC	43
172		min	.037	26	-.156	1	-.106	40	-2.312e-02	7	NC	1	NC	1	
173	2	max	.111	19	.165	7	.091	4	2.287e-02	1	NC	43	NC	43	
174		min	.037	26	-.164	1	-.084	10	-2.312e-02	7	4591.201	1	6442.028	3	
175	3	max	.111	20	.168	7	.087	4	2.292e-02	1	NC	43	NC	43	
176		min	.037	26	-.166	1	-.087	10	-2.313e-02	7	3566.201	7	7036.68	9	
177	4	max	.111	22	.166	7	.084	4	2.297e-02	1	NC	43	NC	43	
178		min	.037	26	-.164	1	-.091	10	-2.314e-02	7	4561.755	7	6421.818	9	
179	5	max	.111	24	.158	7	.107	32	2.301e-02	1	NC	43	NC	43	
180		min	.037	26	-.157	1	-.132	42	-2.314e-02	7	NC	1	NC	1	
181	M10	1	max	.103	36	.202	1	.131	34	3.721e-02	1	NC	43	NC	43
182		min	.033	25	-.203	7	-.107	40	-3.734e-02	7	NC	1	NC	1	
183	2	max	.103	36	.198	1	.1	4	3.724e-02	1	NC	43	NC	43	
184		min	.033	25	-.199	7	-.084	10	-3.745e-02	7	7369.895	1	5155.23	28	
185	3	max	.103	36	.196	1	.092	4	3.726e-02	1	NC	43	NC	43	
186		min	.033	25	-.198	7	-.092	10	-3.755e-02	7	5717.366	7	NC	1	
187	4	max	.103	32	.198	1	.084	4	3.729e-02	1	NC	43	NC	43	
188		min	.033	25	-.2	7	-.1	10	-3.766e-02	7	7144.529	7	5149.134	36	
189	5	max	.103	32	.203	1	.107	32	3.732e-02	1	NC	43	NC	43	



Company : Destek/Foresite LLC  
 Designer : MAZ  
 Job Number : 1975056  
 Model Name : CT11332C

Mar 28, 2019  
 10:31 AM  
 Checked By: \_\_\_\_\_

**Envelope Member Section Deflections Strength (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y' Ra...	LC	(n) L/z' Ra...	LC
190		min	.033	25	-.205	7	-.131	42	-3.777e-02	7	NC	1	NC	1
191	M11	max	.652	32	2.372	1	.131	34	6.954e-02	1	NC	43	NC	43
192		min	-.138	38	-2.374	7	-.109	40	-6.97e-02	7	NC	1	NC	1
193		max	.652	32	2.372	1	.1	4	6.953e-02	1	NC	43	9570.787	12
194		min	-.138	38	-2.381	7	-.081	10	-6.987e-02	7	NC	1	1846.094	36
195		max	.652	32	2.372	1	.091	4	6.953e-02	1	NC	43	NC	43
196		min	-.138	38	-2.39	7	-.091	10	-7.005e-02	7	NC	1	NC	1
197		max	.652	32	2.373	1	.082	4	6.953e-02	1	NC	43	9563.108	6
198		min	-.138	38	-2.399	7	-.1	10	-7.023e-02	7	NC	1	1834.87	28
199		max	.652	32	2.375	1	.109	32	6.953e-02	1	NC	43	NC	43
200		min	-.138	38	-2.409	7	-.131	42	-7.04e-02	7	NC	1	NC	1
201	M12	max	1.107	32	5.31	1	.131	34	7.756e-02	1	NC	43	NC	43
202		min	-.358	38	-5.328	7	-.11	40	-7.83e-02	7	NC	1	NC	1
203		max	1.107	32	5.309	1	.096	4	7.758e-02	1	NC	43	NC	43
204		min	-.358	38	-5.339	7	-.085	10	-7.831e-02	7	NC	1	NC	1
205		max	1.107	32	5.31	1	.091	4	7.761e-02	1	NC	43	NC	43
206		min	-.358	38	-5.352	7	-.091	10	-7.832e-02	7	NC	1	NC	1
207		max	1.107	32	5.311	1	.086	4	7.764e-02	1	NC	43	NC	43
208		min	-.358	38	-5.365	7	-.096	10	-7.833e-02	7	NC	1	7384.41	26
209		max	1.107	32	5.314	1	.11	32	7.766e-02	1	NC	43	NC	43
210		min	-.358	38	-5.38	7	-.131	42	-7.834e-02	7	NC	1	NC	1
211	M22	max	0	6	.134	10	1.23	42	4.297e-03	28	NC	39	1657.238	26
212		min	0	12	-.134	4	-.24	32	-2.44e-03	25	515.485	4	56.353	42
213		max	0	6	.106	10	.928	42	4.297e-03	28	NC	43	2639.541	26
214		min	0	12	-.106	4	-.175	32	-2.44e-03	25	650.864	4	74.723	42
215		max	0	6	.075	10	.622	42	4.297e-03	28	NC	43	5043.907	26
216		min	0	12	-.075	4	-.113	32	-2.44e-03	25	922.24	4	111.407	42
217		max	0	6	.039	10	.313	42	4.297e-03	28	NC	43	NC	26
218		min	0	12	-.039	4	-.055	32	-2.44e-03	25	1765.353	4	221.727	42
219		max	0	43	0	43	0	43	4.297e-03	28	NC	43	NC	43
220		min	0	1	0	1	0	1	-2.44e-03	25	NC	1	NC	1

# Exhibit F



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

T-Mobile Existing Facility

Site ID: CT11332C

Derby / RT 34  
6 Progress Avenue  
Seymour, CT 06483

**May 7, 2019**

**EBI Project Number: 6219001442**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>7.58 %</b>



May 7, 2019

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

## Emissions Analysis for Site: **CT11332C – Derby / RT 34**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **6 Progress Avenue, Seymour, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  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 ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately  $400 \mu\text{W}/\text{cm}^2$  and  $467 \mu\text{W}/\text{cm}^2$  respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) frequency bands is  $1000 \mu\text{W}/\text{cm}^2$ . 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 **6 Progress Avenue, Seymour, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 1 GSM channels (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 15 Watts per Channel.
- 2) 4 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 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.
- 4) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.
- 6) 4 LTE channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.



- 7) 4 NR (5G) channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 8) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 9) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 10) The antennas used in this modeling are the **Ericsson AIR32 B66A/B2A** for 1900 MHz (PCS) and 2100 MHz (AWS) channels, the **Ericsson AIR6488 B41** for 2500 MHz (BRS) and the **RFS APXVAARR24\_43-U-NA20** for 600 MHz, 700 MHz and 1900 MHz (PCS) channels. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 11) The antenna mounting height centerline of the proposed antennas is **247 feet** above ground level (AGL).
- 12) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 13) All calculations were done with respect to uncontrolled / general population threshold limits.



## T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR32 B66A/B2A	Make / Model:	Ericsson AIR32 B66A/B2A	Make / Model:	Ericsson AIR32 B66A/B2A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	247 feet	Height (AGL):	247 feet	Height (AGL):	247 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	5	Channel Count	5	Channel Count	5
Total TX Power(W):	215	Total TX Power(W):	215	Total TX Power(W):	215
ERP (W):	8,364.47	ERP (W):	8,364.47	ERP (W):	8,364.47
Antenna A1 MPE%	0.52	Antenna B1 MPE%	0.52	Antenna C1 MPE%	0.52
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR6488 B41	Make / Model:	Ericsson AIR6488 B41	Make / Model:	Ericsson AIR6488 B41
Gain:	18 dBd	Gain:	18 dBd	Gain:	18 dBd
Height (AGL):	247 feet	Height (AGL):	247 feet	Height (AGL):	247 feet
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	160	Total TX Power(W):	160	Total TX Power(W):	160
ERP (W):	10,095.32	ERP (W):	10,095.32	ERP (W):	10,095.32
Antenna A2 MPE%	0.62	Antenna B2 MPE%	0.62	Antenna C2 MPE%	0.62
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	12.95 / 13.35 / 15.65 dBd	Gain:	12.95 / 13.35 / 15.65 dBd	Gain:	12.95 / 13.35 / 15.65 dBd
Height (AGL):	247 feet	Height (AGL):	247 feet	Height (AGL):	247 feet
Frequency Bands	600 MHz / 700 MHz / 1900 MHz (PCS)	Frequency Bands	600 MHz / 700 MHz / 1900 MHz (PCS)	Frequency Bands	600 MHz / 700 MHz / 1900 MHz (PCS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	200	Total TX Power(W):	200	Total TX Power(W):	200
ERP (W):	5,381.28	ERP (W):	5,381.28	ERP (W):	5,381.28
Antenna A3 MPE%	0.54	Antenna B3 MPE%	0.54	Antenna C3 MPE%	0.54

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	1.68 %
Verizon Wireless	2.41 %
AT&T	2.54 %
Sprint	0.56 %
Mike Gardella	0.06 %
Town	0.33 %
<b>Site Total MPE %:</b>	<b>7.58 %</b>

T-Mobile Sector A Total:	1.68 %
T-Mobile Sector B Total:	1.68 %
T-Mobile Sector C Total:	1.68 %
<b>Site Total:</b>	<b>7.58 %</b>





## T-Mobile Maximum MPE Power Values (Per Sector)

T-Mobile _Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
T-Mobile PCS - 1900 MHz GSM	1	583.57	247	0.36	PCS - 1900 MHz	1000.00	0.04%
T-Mobile PCS - 1900 MHz LTE	2	1,556.18	247	1.93	PCS - 1900 MHz	1000.00	0.19%
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	247	2.89	AWS - 2100 MHz	1000.00	0.29%
T-Mobile BRS - 2.5 GHz LTE	2	2,523.83	247	3.12	BRS - 2.5 GHz	1000.00	0.31%
T-Mobile BRS - 2.5 GHz 5G - NR	2	2,523.83	247	3.12	BRS - 2.5 GHz	1000.00	0.31%
T-Mobile 600 MHz LTE	2	788.97	247	0.98	600 MHz	400.00	0.24%
T-Mobile 700 MHz LTE	2	432.54	247	0.54	700 MHz	467.00	0.12%
T-Mobile PCS - 1900 MHz LTE	2	1,469.13	247	1.82	PCS - 1900 MHz	1000.00	0.18%
						<b>Total:</b>	<b>1.68%</b>



## 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:	1.68 %
Sector B:	1.68 %
Sector C:	1.68 %
T-Mobile Maximum MPE % (Per Sector):	1.68 %
Site Total:	7.58 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **7.58%** 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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**0024**


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BLOOMFIELD CT 06002-1351

**Carrier -- Leave if No Response**

**C013**

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FIRST SELECTMAN- TOWN OF SEYMOUR  
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SEYMOUR CT 06483-2860

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Trans. #: 465517738	Priority Mail® Postage: <b>\$7.35</b>
Print Date: 06/05/2019	Total: <b>\$7.35</b>
Ship Date: 06/06/2019	
Expected Delivery Date: 06/07/2019	

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

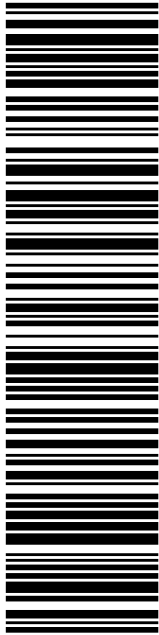
Ref#: 332-ANCHR

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**C013**


**PRIORITY MAIL 1-DAY™**

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T-MOBILE USA- NSS  
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BLOOMFIELD CT 06002-1351

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Ref#: 332ANCHR  
**0024**

06/06/2019 Mailed from 06002 062S0000000312

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Flat Rate Env  
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Ship Date: 06/06/2019	
Expected Delivery Date: 06/07/2019	

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


Ref#: 332ANCHR

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06/06/2019

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**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 06/08/19

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

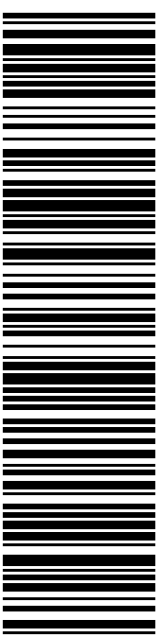
**0004**

**Carrier -- Leave if No Response**

**C004**

SHIP TO: EDWARD H MACCONNIE  
 EDMAC LLC  
 2702 FOREST VIEW LN  
 KISSIMMEE FL 34744-4070

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

**To:** EDWARD H MACCONNIE  
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