



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

July 19, 2019

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

RE: Notice of Exempt Modification
88 Parsonage Hill Road, North Branford CT 06472
Latitude: 41.369440000
Longitude: -72.810280000
T-Mobile Site#: CT11230A-L600

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 180-foot level of the existing 195-foot self-support tower located at 88 Parsonage Hill Road, North Branford CT 06472. The 195-foot tower is owned by Ochenkowski Towers LLC and property is owned by Jean Szwabowski. T-Mobile now intends to replace three (3) of its existing antennas with three (3) new 600/700 MHz antenna. The new antennas would be installed at the 180-foot level of the tower. T-Mobile is also proposing tower mount modifications. As shown on the enclosed mount analysis.

Planned Modifications

Remove: (3) 1-5/8" Coax

Remove and Replace:

(3) LNX6515 Antenna (Remove) - (3) APXVAARR24_43U-NA20 Antenna 600/700 MHz (Replace)
(3)RRUS11 B12 (Remove) - (3) RRU 4449 B12/B71 (Replace)

Install New:

(3) Fiber Hybrid Line

Existing to Remain:

(9) 1-5/8" Coax
(3) Twin TMA
(1) Fiber Hybrid Line
(3) AIR21B2A B4P - 1900 MHZ Antenna
(3) AIR21B2P B4A - 2100 MHZ Antenna



Ground:

Upgrade Existing 6102 Cabinet (Internally)
Upgrade existing Breaker

This facility was approved by the Town of North Branford on December 5, 1997. 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 Town Manager Michael T. Paulhus, Elected Official and Carey Duques –Town Planner for the Town of North Branford, 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

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



NSS **NORTHEAST**
SITE SOLUTIONS
Turnkey Wireless Development

Attachments

cc: Town Manager Michael T. Paulhus - elected official
Town of North Branford
909 Foxon Road
North Branford CT 06422

Town of North Branford
909 Foxon Road
North Branford CT 06422
Carey Duques – Town Planner

Ochenkowski Towers LLC
88 Parsonage Hill Road
Northford CT 06472

Jean Szwabowski
84 Parsonage Hill Road
Northford CT 06472

Exhibit A

TOWN OF NORTH BRANFORD, CT
ZONING PERMIT

This permit is hereby submitted in accordance with the requirements of Sections 3.1 and 6.2 of the Town of North Branford's Zoning Regulations for:

Date of Application: 12/5/97

- new construction
- change of use
- sign
- other (specify): 300' TOWER
- swimming pool
- addition
- excavation/filling

Zoning District _____
Assessor's Map # 51 Lot frontage 608
Subdivision Name _____ Lot # 7 Lot Area 4.31
Property Location _____ Lot # _____

Property Owner S. Veronica Chybkowski
Owner's Address 88 Sawmills Hill Rd
Owner's Phone No. 484-9544

Property Use:

- single family residence
- two family residence
- commercial (Specify): _____
- industrial (Specify): _____
- other (Specify): 300' TOWER (PER ZDA VARIANCE)

Existing Structures:

Description SINGLE FAMILY DWELLING
Dimensions _____ x _____ x _____ (ht)
Bulk _____
Structures _____
Use _____
Setbacks: Front _____ Rear _____ Side _____
Required Setbacks: From Residence Zone _____ Other _____

Proposed Structures/Signs:
(2) 300 FT. TOWERS
34 x 34 x 300 (ht)
Sq. ft. _____
Front _____ Rear 50 Side 50

- Parking Spaces Required: _____
- East Shore Health District Approval: Permit # _____
 - Planning & Zoning Approval Required: Yes _____
 - Zoning Board of Appeals Approval: Yes _____
 - Inland Wetlands & Watercourses Approval: Yes _____
 - Flood Plain Encroachment Permit Required: Yes _____
 - Streambelt Protection District: (Sec 33) Yes _____
 - Temporary Special Use Permit: (Sec 43) Yes _____
 - Special Use Permit: (Sec 42) Yes _____

Proposed Date: _____

No	Date: _____	App. # _____
<input checked="" type="checkbox"/> No	Date: <u>5/25/98</u>	App. # <u>68-33</u>
No	Date: _____	App. # _____
No	Date: _____	App. # _____

Conditions of Approval: _____

Driveway Bond: Amount of Bond \$ N/A

Date Posted: _____

This permit is issued based upon the plot plan submitted. Falsification, by misrepresentation or omission, or failure to comply with the conditions of this permit shall constitute a violation of the north Branford Zoning Regulations.

Signature of Owner: [Signature] Date: 12/1/92
Signature of Agent: [Signature] Date: _____
Agent's Address: 288 Danvers Ave Hill RI
Agent's Telephone: 484-20750

This permit is hereby: _____ Approved _____ Denied

By _____ Zoning Enforcement Officer _____ Date _____

By _____ Inland Wetlands Enforcement Officer _____ Date _____

By [Signature] Planning and Zoning Administrator _____ Date 1/2/93 PER ZBA# 66-35 ATTACHED

By _____ Town Engineer _____ Date _____

Fee \$ _____
Date Paid _____
Permit # _____

LR:dfs
(8/88)

68-55
21 Laurel Street
Hartford, Conn.
May 22, 1960

Joseph Czekowski
Pineoage Hill Road
Hartford, Conn.

Dear Mr. Czekowski:

This is to advise that May 25 the Board of Health of the City of Hartford, Connecticut, Charles Johnson, Charles Gunn, Robert Smith and Charles Seeger, alternate) rendered the following decision:

Appeal #63-75 heard pursuant to due notice on May 19, 1960. Joseph Czekowski for use of a radio signal tower, located on the west side of Pineoage Hill Road, 1,000 feet north of the intersection with Jockey Road.

It was RESOLVED by unanimous vote that said appeal be approved, subject to the following limitations. Such approval is effective May 25, 1960.

1. A front buffer zone of 175' shall be maintained along Jockey Road.
2. A buffer zone of 50' shall be maintained along the rear and sides property lines.
3. The tower is to left in its present natural state, with the exception of any access road or utility right-of-way. Construction necessitates removal of natural trees, etc. shall be prohibited.
4. All signs related to, or towers, to be located within the buffer zone.
5. No tower or building shall be built within 100' of Pineoage Hill Road front line.
6. No more than four towers shall be constructed on this parcel of land.
7. The maximum height shall be 300' from ground level.

Such approval is effective May 25, 1960.

Very truly yours,

Mr. Edward D. Amatruda

TOWN OF NORTH BRANFORD, CT
ZONING PERMIT

Date of Application: _____

This permit is hereby submitted in accordance with the requirements of sections 3.1 and 62 of the Town of North Branford's Zoning Regulations for:

- new construction
 change of use
 sign
 other (specify): _____
 swimming pool
 addition
 excavation/filling

Zoning District R-40 Lot Frontage _____
 Assessor's Map # 51 Lot # 7 Lot Area _____
 Subdivision Name _____ Lot # _____
 Property Location 88 Parsonage Hill Rd.
 Property Owner Swabowski Jean & Czekanski Joseph Jr.
 Owner's Address 84 Parsonage Hill Rd. Northford, CT 06457
 Owner's Phone No. _____

Property Use:

- single family residence
 two family residence
 commercial (Specify): Wireless Communication Facility
 industrial (Specify): _____
 other (Specify): _____

Existing Structures:

Description Wireless Communication
 Dimensions 7' x 16' x 120' (ht)
 Bulk _____
 # Structures _____
 Use Wireless Communication
 Setbacks: Front _____ Rear _____ Side _____
 Required Setbacks: From Residence Zone _____ Other _____

Proposed Structures/Signs:

Wireless Communication Tower
7' x 16' x 120' (ht)
 _____ sq. ft.
 Front _____ Rear _____ Side _____

Parking Spaces Required: 0
 East Shore Health District Approval: Permit # _____
 Planning & Zoning Approved Required: Yes _____
 Zoning Board of Appeals Approval: Yes _____
 Inland Wetlands & Watercourses Approval: Yes _____
 Flood Plain Encroachment Permit Required: Yes _____
 Streambelt Protection District: (Sec 33) Yes _____ No _____
 Temporary Special Use Permit: (Sec 43) Yes _____ No _____
 Special Use Permit: (Sec 42) Yes _____ No _____

Proposed Date: 0
 No Date: _____ App. # _____
 No Date: _____ App. # _____
 No Date: _____ App. # _____
 No _____ Date: _____ App. # _____

CT. Siting Council Approval letter dated 7-18-02

Conditions of Approval: _____

Driveway Bond: Amount of Bond \$ _____ Date Posted: _____

This permit is issued based upon the plot plan submitted. Falsification, by misrepresentation or omission, or failure to comply with the conditions of this permit shall constitute a violation of the north Branford Zoning Regulations.

Signature of Owner _____ Date _____
Signature of Agent _____ Date _____
Agent's Address _____
Agent's Telephone _____

This permit is hereby: Approved Denied
By R. J. L. G. _____ Date 10-17-02
 Soil Enforcement Officer
By CAZ _____ Date 10-25-02
 Inland Wetlands Enforcement Officer
By CAZ N/A _____ Date 10-25-02
 Planning and Zoning Administrator
By _____ Date _____
 Town Engineer

Fee \$ _____
Date Paid _____
Permit # _____

LR:dfs
(8/88)

TOWN OF NORTH BRANFORD
BUILDING DEPARTMENT
1599 FOXON ROAD
PO BOX 287
NORTH BRANFORD, CT 06471
TELEPHONE: (203) 315-6008
FAX: (203) 315-6025

CERTIFICATE OF CODE COMPLIANCE

NO. 1853

DATE: January 9, 2003

THIS IS TO CERTIFY THAT WORK SPECIFIED BY BUILDING PERMIT # 7043 ISSUED ON 10/30/2002
LOCATED AT 88 Parsonage Hill Road FOR Wireless Communication Facility IS FOUND
TO SUBSTANTIALLY COMPLY WITH THE PROVISIONS OF THE BUILDING AND/OR ZONING ORDINANCES OF
THE TOWN OF NORTH BRANFORD AND HAS BEEN COMPLETED TO THE SATISFACTION OF THE NORTH
BRANFORD BUILDING DEPARTMENT.

- A) USE GROUP B IN ACCORDANCE WITH PROVISIONS OF ARTICLE 3
D) FIRE GRADING 2C AS DEFINED IN ARTICLE 4 AND TABLE 401

SPECIAL STIPULATIONS OR CONDITIONS: Per 1999 Connecticut State Building Code.

Joseph Di Matala
INSPECTED BY

Robert J. ...
BUILDING OFFICIAL

DFS

CC: ASSESSOR'S OFFICE
FILES

North Branford Planning & Zoning Commission
North Branford, Connecticut

4429

ZONING PERMIT

This is to certify that the _____ wireless communication facility
located at _____ 83 Parsonage Hill Road
owned by _____ Jean Szwabowski

has been examined by me as required by the ZONING REGULATION OF THE TOWN OF
NORTH BRANFORD, CONNECTICUT and I am satisfied that the same complies with the
requirements of said ZONING REGULATIONS and authorize commencement of building
construction and site development.

Signed _____
Zoning Enforcement Officer

Date _____ 1-7-03

Signed _____
Planning and Zoning Administrator

Date _____

NOTES:

1. This is not a Building Permit
2. Any Zoning Permit that involves approval of a SITE DEVELOPMENT PLAN or SPECIAL USE PERMIT by the Commission, or other action of the commission, shall be countersigned by the Planning and Zoning Administrator.

4429

CERTIFICATE OF ZONING COMPLIANCE/NONCONFORMITY

This is to certify that the wireless communication facility

located at 88 Parsonage Hill Road

owned by Jean Szwabowski

has been examined by me as required by the ZONING REGULATIONS OF THE TOWN OF NORTH BRANFORD, CONNECTICUT and I am satisfied that the same complies with the requirements of said ZONING REGULATIONS and may be used and/or occupied because -

It conforms to the Zoning Regulations

It is a lawfully existing nonconforming parcel, use, building or other structure which may be continued in accordance with the provisions of Paragraphs 5.6.1 - 5.6.5 and Section 5 of the ZONING REGULATIONS; or

It is in the process of improvement and completion in accordance with an approved APPLICATION FOR A ZONING PERMIT and is entitled to a temporary PERMIT in accordance with Paragraph 62.7.5 PERMIT terminating on _____

Other _____

Signed *Robert J. ...*
Zoning Enforcement Officer

Date 1-9-03

Signed _____
Planning and Zoning Administrator

Date _____

Notes:

1. This is not a Certificate of Occupancy
2. Any Certificate that pertains to a use, building structure or site development for which a SITE DEVELOPMENT PLAN or SPECIAL USE PERMIT has been approved by the Commission shall be countersigned by the Planning and Zoning Administrator

6068

North Branford Planning & Zoning Commission

ZONING PERMIT

This is to certify that the installation of three (3) antennae to existing antenna array, add six (6) remote radio units to array along with a surge arrester all on existing tower, add one ground cabinet on new 3'x3' concrete pad, as allowed by variance, which must comply with the 2005 CT State Building Code

located at 88 Parsonage Hill Rd.

owned by Jean Szwabowski

has been examined by me as required by the ZONING REGULATIONS OF THE TOWN OF NORTH BRANFORD, CONNECTICUT and I am satisfied that the same complies with the requirements of said ZONING REGULATIONS and authorize commencement of building construction and site development.

Signed *J. J. Bucius*

Zoning Enforcement Officer

Date 6/5/2012

Signed _____

Planning and Zoning Administrator

Date _____

Notes:

1. This is not a Building Permit.
2. Any Zoning Permit that involves approval of a SITE DEVELOPMENT PLAN or SPECIAL USE PERMIT by Commission, or other action of the commission, shall be countersigned by the Planning and Zoning Administrator.

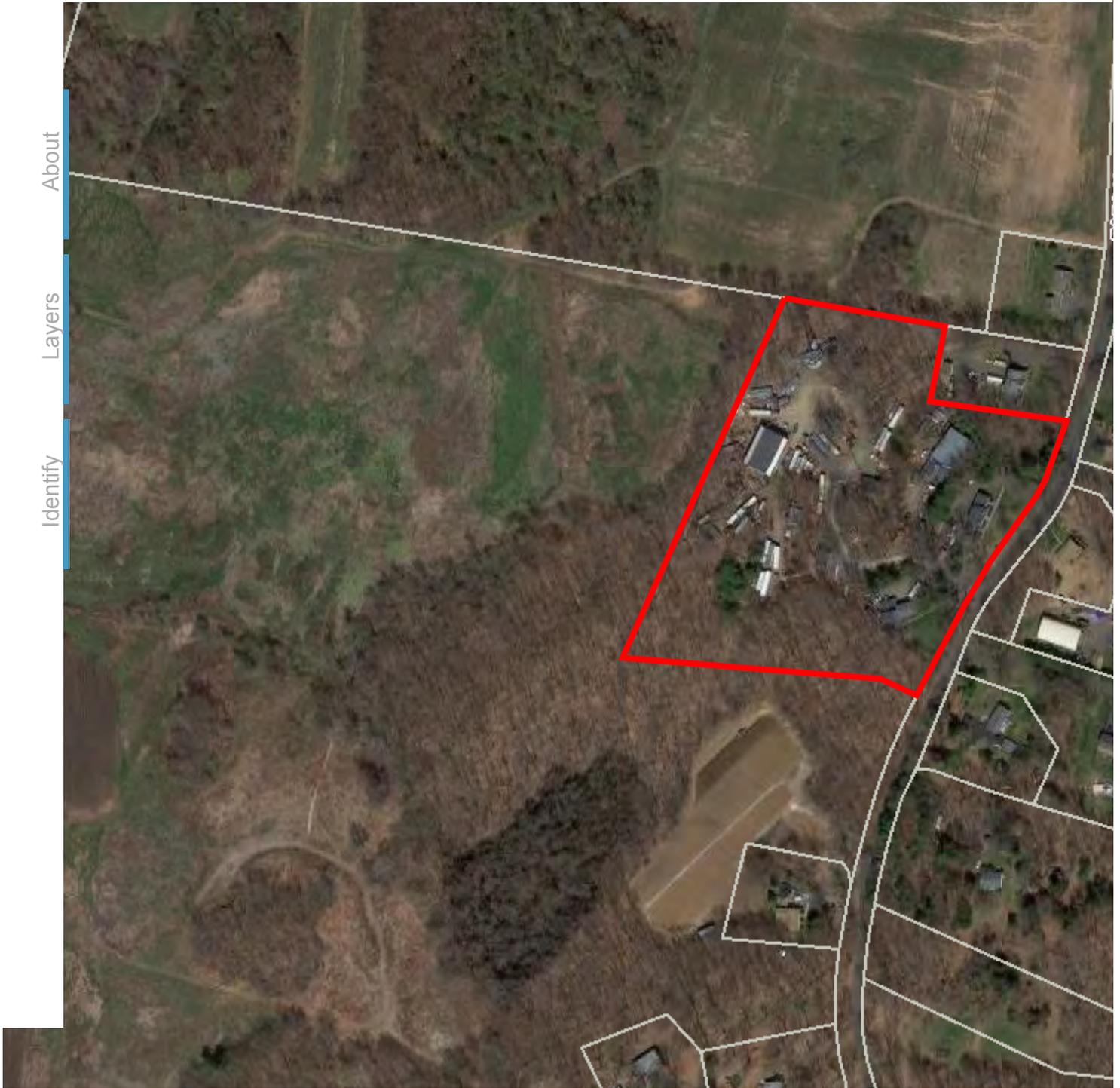
Exhibit B

Szwabowski

About

Layers

Identify



Email Map Link

Copy and paste the following string into an email to link to the current map view:



lat:41.3682, long:-72.8070



88 PARSONAGE HILL RD

Location 88 PARSONAGE HILL RD

Mblu 51/A 7/ / /

Acct# 002953

Owner SZWABOWSKI JEAN 1/3

Assessment \$864,000

Appraisal \$1,248,800

PID 3060

Building Count 3

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$691,400	\$557,400	\$1,248,800

Assessment			
Valuation Year	Improvements	Land	Total
2015	\$473,900	\$390,100	\$864,000

Owner of Record

Owner	SZWABOWSKI JEAN 1/3	Sale Price	\$90,000
Co-Owner	OCHENKOWSKI J J JR 1/3 & K W 1/3 EACH	Certificate	
Address	84 PARSONAGE HL RD	Book & Page	429/1132
	NORTHFORD, CT 06472-1445	Sale Date	12/23/2009

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
SZWABOWSKI JEAN 1/3	\$90,000		429/1132	12/23/2009
SZWABOWSKI JEAN &	\$90,000		429/1128	12/23/2009
SZWABOWSKI JEAN &	\$0		276/ 749	12/15/1998
OCHENKOWSKI VERONICA TIC +	\$400,000		269/ 844	05/11/1998
OCHENKOWSKI VERONICA	\$0		040/ 206	11/14/1960

Building Information

Building 1 : Section 1

Year Built : 1949
 Living Area: 1,996
 Replacement Cost: \$197,304
 Building Percent Good: 55

Replacement Cost
 Less Depreciation: \$108,500

Building Attributes	
Field	Description
Style	RES TYPE COMM
Model	Res Type Com
Grade:	Above Avg
Stories:	1 1/2 Stories
Occupancy	2
Exterior Wall 1	Aluminum Sidng
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt Shingl
Interior Wall 1	Plastered
Interior Wall 2	Plywood Panel
Interior Flr 1	Carpet
Interior Flr 2	Hardwood
Heat Fuel	Oil
Heat Type:	Forced Air-Duc
AC Type:	Central
Total Bedrooms:	2 Bedrooms
Total Bthrms:	2
Total Half Baths:	1
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	Average
Kitchen Style:	Average

Building Photo



(http://images.vgsi.com/photos/NorthBranfordCTPhotos//\00\00)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,008	1,008
FHS	Half Story, Finished	1,008	504
AOF	Office, (Average)	484	484
FBM	Basement, Finished	504	0
FEP	Porch, Enclosed, Finished	192	0
UBM	Basement, Unfinished	504	0
UGR	Garage, Unfinished	676	0
		4,376	1,996

Building 1 : Section 1

Year Built : 1949
 Living Area: 0
 Replacement Cost: \$197,304
 Building Percent Good: 55
 Replacement Cost Less Depreciation: \$108,500

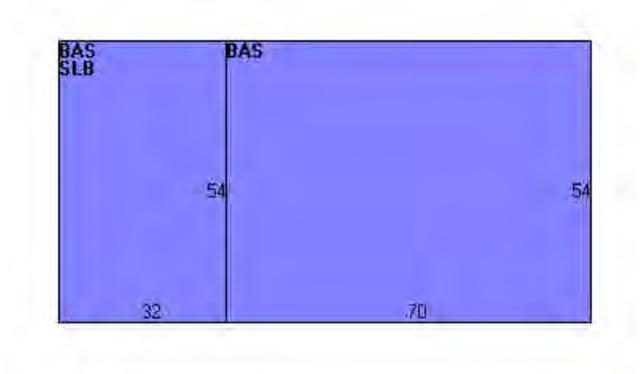
Building Attributes	
Field	Description
Style	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths: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

Building Photo



(<http://images.vgsi.com/photos/NorthBranfordCTPhotos//default>).

Building Layout



Building Sub-Areas (sq ft)	<u>Legend</u>
No Data for Building Sub-Areas	

Building 2 : Section 1

Year Built : 1958
 Living Area: 2,286
 Replacement Cost: \$183,022
 Building Percent Good: 64
 Replacement Cost Less Depreciation: \$117,100

Building Attributes : Bldg 2 of 3	
Field	Description
Style	Ranch
Model	Residential
Grade:	Average
Stories:	1 Story
Occupancy	1

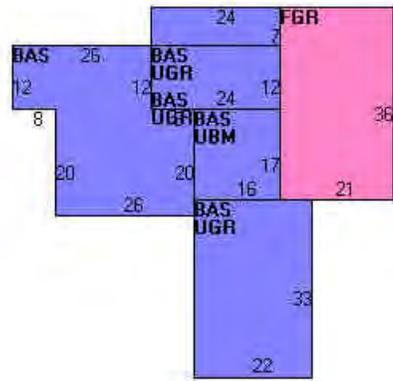
Building Photo



(<http://images.vgsi.com/photos/NorthBranfordCTPhotos//default>).

Building Layout

Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt Shingl
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	3 Bedrooms
Total Bthrms:	2
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	5 Rooms
Bath Style:	Average
Kitchen Style:	Average



Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	2,286	2,286
FGR	Garage, Framed	756	0
UBM	Basement, Unfinished	272	0
UGR	Garage, Unfinished	1,182	0
		4,496	2,286

Building 3 : Section 1

Year Built : 1973
 Living Area: 600
 Replacement Cost: \$38,964
 Building Percent Good: 49
 Replacement Cost Less Depreciation: \$19,100

Building Attributes : Bldg 3 of 3	
Field	Description
STYLE	Industrial
MODEL	Ind or Comm
Grade	Average
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall 1	Drywall/Sheet
Interior Wall 2	Minim/Masonry
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	

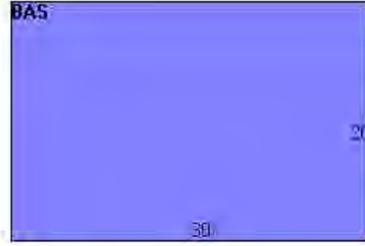
Building Photo



(<http://images.vgsi.com/photos/NorthBranfordCTPhotos//default>).

Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Heat Pump
Bldg Use	COMM WHSE MDL-96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	031I
Heat/AC	HEAT/AC PKGS
Frame Type	MASONRY
Baths/Plumbing	LIGHT
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	0
% Comn Wall	12

Building Layout



Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	600	600
		600	600

Extra Features

Extra Features				<u>Legend</u>
Code	Description	Size	Value	Bldg #
FPL2	FIREPLACE 1.5 STY	1 UNITS	\$2,800	1

Land

Land Use

Use Code 010M
 Description SINGLE FAM MDL-03
 Zone R40
 Neighborhood
 Alt Land Appr No
 Category

Land Line Valuation

Size (Acres) 9.31
 Frontage 0
 Depth 0
 Assessed Value \$390,100
 Appraised Value \$557,400

Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
ELCB	ELECTRONIC COMM BLDG			576 S.F.	\$64,800	1
PAV1	PAVING-ASPHALT			4000 S.F.	\$3,400	3
SHD1	SHED FRAME			220 S.F.	\$800	2
ELCB	ELECTRONIC COMM BLDG			576 S.F.	\$64,800	1
FN5	FENCE-10'CHAIN			300 L.F.	\$3,200	3
BRN1	BARN - 1 STORY			5058 S.F.	\$13,000	1

SHD8	SHED UNDER 144 SF			128 S.F.	\$15,000	3
FGR2	GARAGE-GOOD			1200 S.F.	\$27,000	3
SHD1	SHED FRAME			288 S.F.	\$1,700	1
	RADIO TOWER			175	\$17,500	3
	RADIO TOWER			175 HEIGHT	\$87,500	3
TW1	CELL TOWER			125 HEIGHT	\$50,600	3
ELCB	ELECTRONIC COMM BLDG			360 S.F.	\$60,800	3
ELCB	ELECTRONIC COMM BLDG			200 S.F.	\$33,800	3

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$691,400	\$557,400	\$1,248,800
2015	\$691,400	\$557,400	\$1,248,800
2014	\$548,500	\$361,400	\$909,900

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$473,900	\$390,100	\$864,000
2015	\$473,900	\$390,100	\$864,000
2014	\$373,700	\$252,900	\$626,600

(c) 2016 Vision Government Solutions, Inc. All rights reserved.

Exhibit C

MODIFICATION OF EXISTING WIRELESS FACILITY BY

T-Mobile

T-MOBILE NORTHEAST LLC

L600 PROJECT

SITE NUMBER: CT11230A

SITE NAME: NORTH HAVEN/RT 17

SITE ADDRESS: 88 PARSONAGE HILL ROAD

NORTH BRANDFORD, CT 06472

(RF CONFIG: 67D02C_2XAIR+1OP)

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

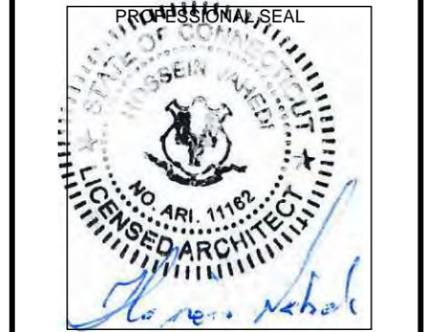
PROJECT MANAGER

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

CONSULTANT:

FORESITE LLC
 Architects . Engineers . Surveyors

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



THIS DOCUMENT IS THE DESIGN PROPERTY AND COPYRIGHT OF FORESITE, LLC. AND FOR THE EXCLUSIVE USE BY THE TITLE CLIENT. DUPLICATION OR USE WITHOUT THE EXPRESS WRITTEN CONSENT OF THE CREATOR IS STRICTLY PROHIBITED. DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

REV	DESCRIPTION	DATE
A	PRELIMINARY	05/23/19
B	UPDATED STRUCTURAL INFO	07/16/19
C	REVISED PER COMMENTS	07/19/19
0	FINAL ISSUED	07/19/19

SITE NUMBER: CT11230A
 SITE NAME: NORTH HAVEN/RT 17
 SITE ADDRESS: 88 PARSONAGE HILL ROAD
 NORTH BRANDFORD, CT 06472

SHEET TITLE:
 T-1: TITLE SHEET

SITE IMAGE:



SITE VICINITY :



PROJECT NOTES:

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

STRUCTURAL NOTES:

PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT CONTRACTOR SHOULD REVIEW THE STRUCTURAL EVALUATION REPORT AND MOUNT EVALUATION REPORT DATED JULY 16, 2019 PREPARED BY DESTEK ENGINEERING, LLC. AND ADHERE TO THE REPORT FULLY AND ALL THE RECOMMENDATIONS THEREIN, INCLUDING BUT NOT LIMITED TO ANTENNA PLACEMENT, COAX ROUTING, STRUCTURAL IMPROVEMENTS, ETC.

APPLICABLE CODES AND STANDARDS:

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

APPROVALS:

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

PROJECT SCOPE:

THE PROPOSED PROJECT SCOPE WILL CONSIST OF:
 UPGRADE EXISTING RBS 6131 INTERNALLY.
 REPLACE (3) OF (9) EXISTING ANTENNAS.
 REPLACE (3) OF (3) EXISTING REMOTE RADIO UNITS AT ANTENNAS.
 REMOVE (3) OF (12) EXISTING 1-5/8" COAX, ADD (3) 6X12 HCS FOR FINAL CONFIGURATION OF (3) 6X12 HCS, (1) 9X18 HCS HYBRID AND (9) 1-5/8" COAX.

PROJECT INFORMATION:

ADDRESS: 88 PARSONAGE HILL ROAD
 NORTH BRANDFORD, CT 06472
 COORDINATES: 41° 22' 09.09" N, 72° 48' 37.64" W
 STRUCTURE TYPE: SELF SUPPORT TOWER
 PARCEL ID: 51A 7

PROJECT TEAM:

APPLICANT: T-MOBILE NORTHEAST, LLC.
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 860-692-7100
 LANDLORD: OCHENKOWSKI TOWER LLC
 88 PARSONAGE HILL ROAD
 NORTHFORD, CT 06472
 PROJECT MANAGER: NORTHEAST SITE SOLUTIONS
 420 MAIN STREET, BLDG 4
 STURBRIDGE, MA 01566
 SHELDON FREINCLE
 SHELDON@NORTHEASTSITESOLUTIONS.COM
 201-776-8521
 CONSULTANTS: FORESITE LLC
 462 WALNUT ST
 NEWTON, MA 02460
 SAEED MOSSAVAT
 SMOSSAVAT@FORESITELLC.COM
 617-212-3123

SHEET INDEX:

- T-1: TITLE SHEET
- N-1: GENERAL NOTES
- A-1: SITE PLAN
- A-2: ELEVATION AND MOUNTING DETAILS
- A-3: ANTENNA SPECIFICATIONS AND ANTENNA PLANS
- E-1: GROUNDING DETAILS

Copyright © 2018 Foresite LLC. All rights reserved. The details, templates, drawing formats or any portion of this document generated by Foresite LLC may not be duplicated, traced or used otherwise for any profit-driven enterprise.

Copyright © 2018 Foresite LLC all rights reserved. The details, templates, drawing formats or any portion of this document generated by Foresite LLC may not be duplicated, traced or used otherwise for any profit-driven enterprise.

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 PROJECT.
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:

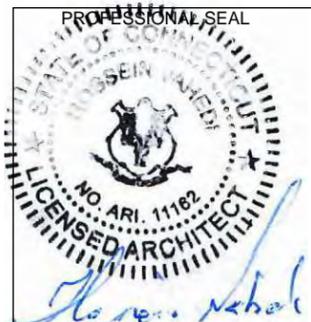
T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 860-692-7100

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



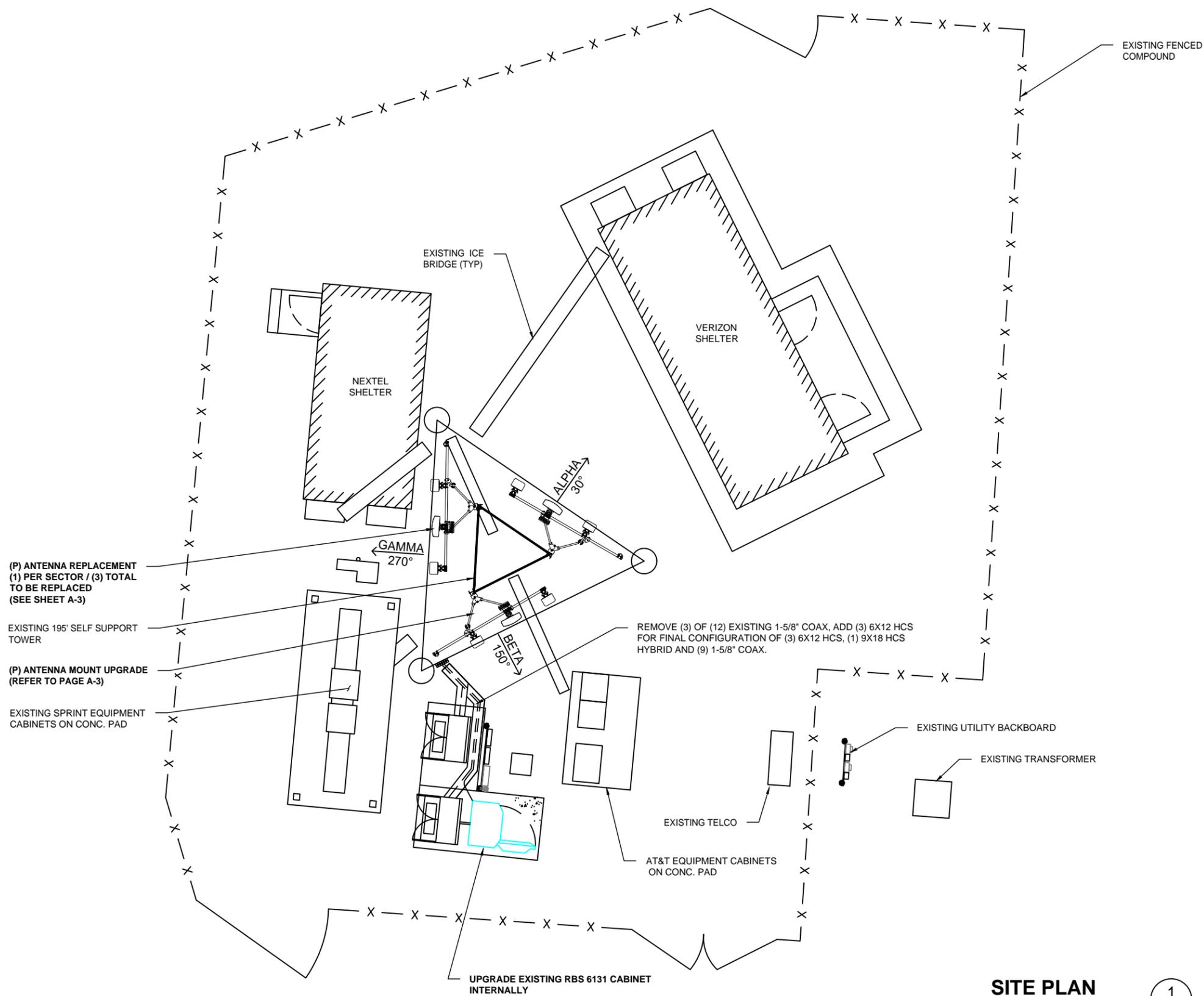
THIS DOCUMENT IS THE DESIGN PROPERTY AND COPYRIGHT OF FORESITE, LLC. AND FOR THE EXCLUSIVE USE BY THE TITLE CLIENT. DUPLICATION OR USE WITHOUT THE EXPRESS WRITTEN CONSENT OF THE CREATOR IS STRICTLY PROHIBITED. DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

REV	DESCRIPTION	DATE
A	PRELIMINARY	05/23/19
B	UPDATED STRUCTURAL INFO	07/16/19
C	REVISED PER COMMENTS	07/19/19
0	FINAL ISSUED	07/19/19

SITE NUMBER: CT11230A
 SITE NAME: NORTH HAVEN/RT 17
 SITE ADDRESS: 88 PARSONAGE HILL ROAD
 NORTH BRANDFORD, CT 06472

SHEET TITLE:
N-1: GENERAL NOTES

Copyright © 2018 Foresite LLC all rights reserved. The details, templates, drawing formats or any portion of this document generated by Foresite LLC may not be duplicated, traced or used otherwise for any profit-driven enterprise.



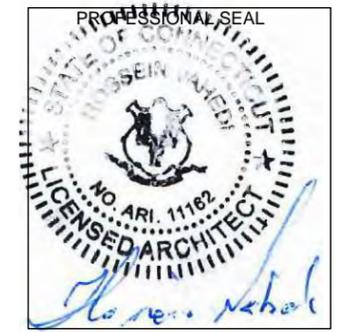
SITE PLAN
 SCALE: 3/32" = 1'-0"
 1
 A-1

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

PROJECT MANAGER

NSS NORTHEAST
 SITE SOLUTIONS
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



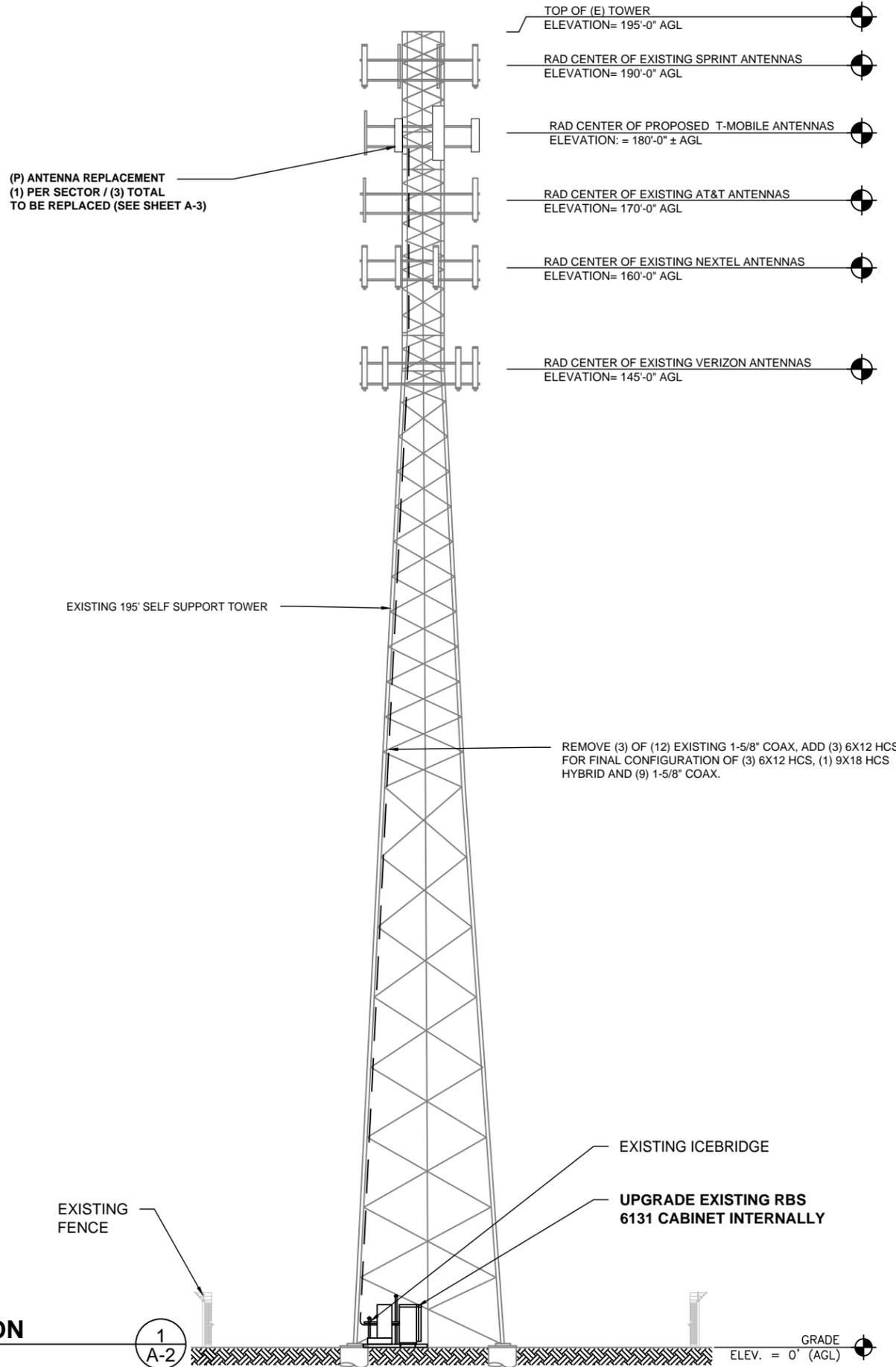
THIS DOCUMENT IS THE DESIGN PROPERTY AND COPYRIGHT OF FORESITE, LLC. AND FOR THE EXCLUSIVE USE BY THE TITLE CLIENT. DUPLICATION OR USE WITHOUT THE EXPRESS WRITTEN CONSENT OF THE CREATOR IS STRICTLY PROHIBITED. DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

REV	DESCRIPTION	DATE
A	PRELIMINARY	05/23/19
B	UPDATED STRUCTURAL INFO	07/16/19
C	REVISED PER COMMENTS	07/19/19
0	FINAL ISSUED	07/19/19

SITE NUMBER: CT11230A
 SITE NAME: NORTH HAVEN/RT 17
 SITE ADDRESS: 88 PARSONAGE HILL ROAD
 NORTH BRANDFORD, CT 06472

SHEET TITLE:
 A-1: SITE PLAN

Copyright © 2018 Foresite LLC all rights reserved. The details, templates, drawing formats or any portion of this document generated by Foresite LLC may not be duplicated, traced or used otherwise for any profit-driven enterprise.

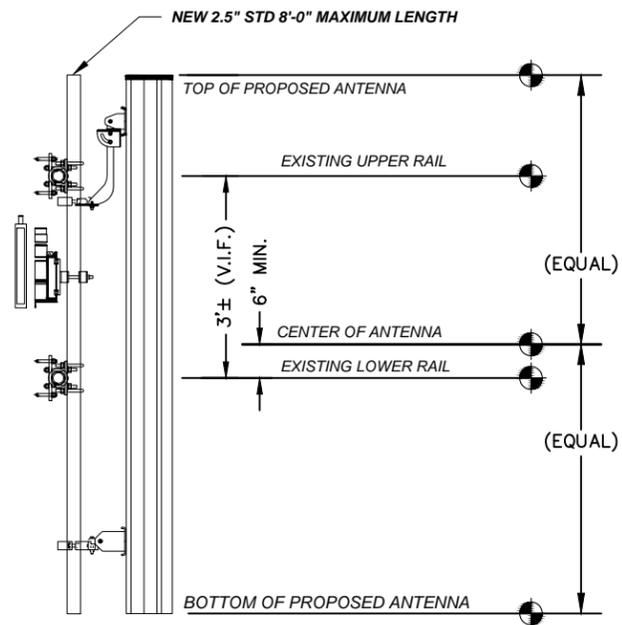


ELEVATION
SCALE: NTS

1
A-2

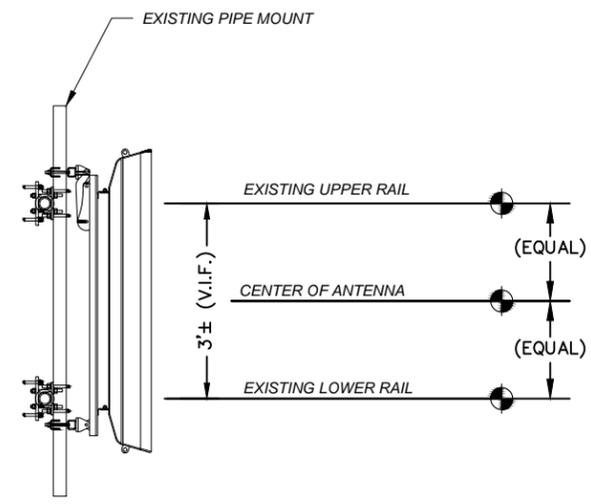
STRUCTURAL NOTES:

PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT CONTRACTOR SHOULD REVIEW THE STRUCTURAL EVALUATION REPORT AND MOUNT EVALUATION REPORT DATED JULY 16, 2019 PREPARED BY DESTEK ENGINEERING, LLC. AND ADHERE TO THE REPORT FULLY AND ALL THE RECOMMENDATIONS THEREIN, INCLUDING BUT NOT LIMITED TO ANTENNA PLACEMENT, COAX ROUTING, STRUCTURAL IMPROVEMENTS, ETC.



APXVAAR24 43-U-NA20
ANTENNA MOUNTING
N.T.S.

2
A-2



AIR21 KRC118023-1
ANTENNA MOUNTING
N.T.S.

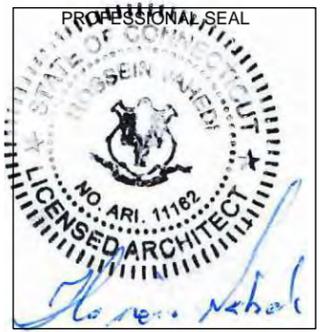
3
A-2

APPLICANT:
T-Mobile
T-MOBILE NORTHEAST LLC

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

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

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



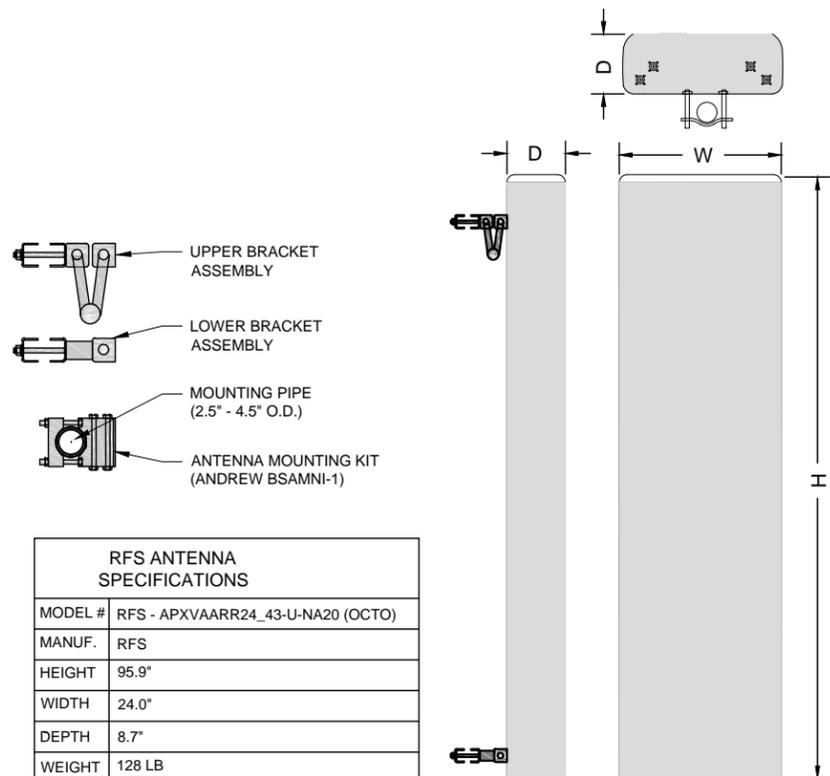
THIS DOCUMENT IS THE DESIGN PROPERTY AND COPYRIGHT OF FORESITE, LLC. AND FOR THE EXCLUSIVE USE BY THE TITLE CLIENT. DUPLICATION OR USE WITHOUT THE EXPRESS WRITTEN CONSENT OF THE CREATOR IS STRICTLY PROHIBITED. DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

REV	DESCRIPTION	DATE
A	PRELIMINARY	05/23/19
B	UPDATED STRUCTURAL INFO	07/16/19
C	REVISED PER COMMENTS	07/19/19
0	FINAL ISSUED	07/19/19

SITE NUMBER: CT11230A
SITE NAME: NORTH HAVEN/RT 17
SITE ADDRESS: 88 PARSONAGE HILL ROAD
NORTH BRANDFORD, CT 06472

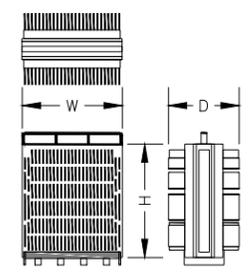
SHEET TITLE:
A-2: ELEVATION AND MOUNTING DETAILS

Copyright © 2018 Foresite LLC all rights reserved. The details, templates, drawing formats or any portion of this document generated by Foresite LLC may not be duplicated, traced or used otherwise for any profit-driven enterprise.



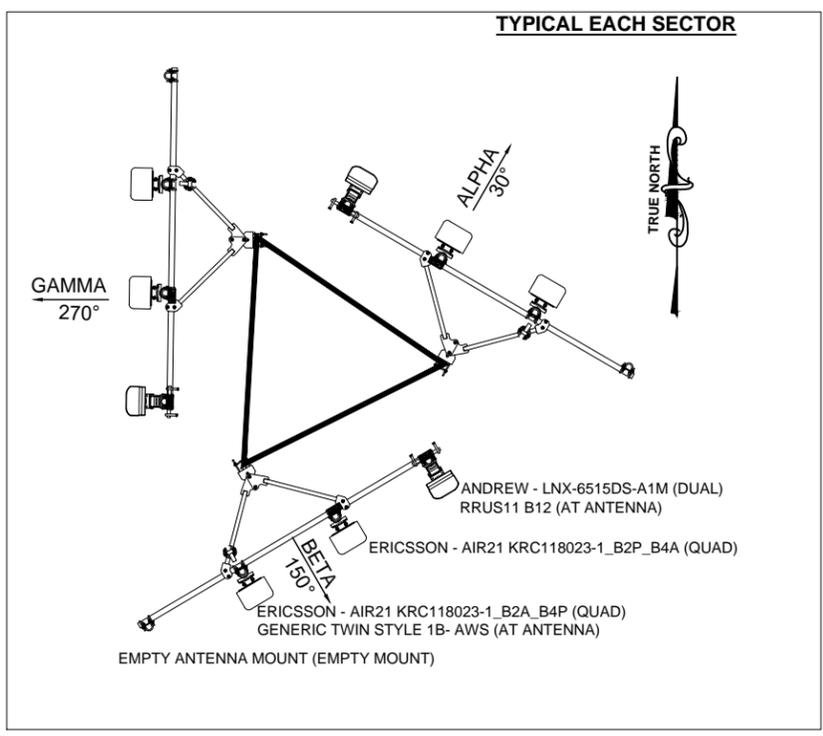
RFS ANTENNA SPECIFICATIONS	
MODEL #	RFS - APXVAARR24_43-U-NA20 (OCTO)
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24.0"
DEPTH	8.7"
WEIGHT	128 LB

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

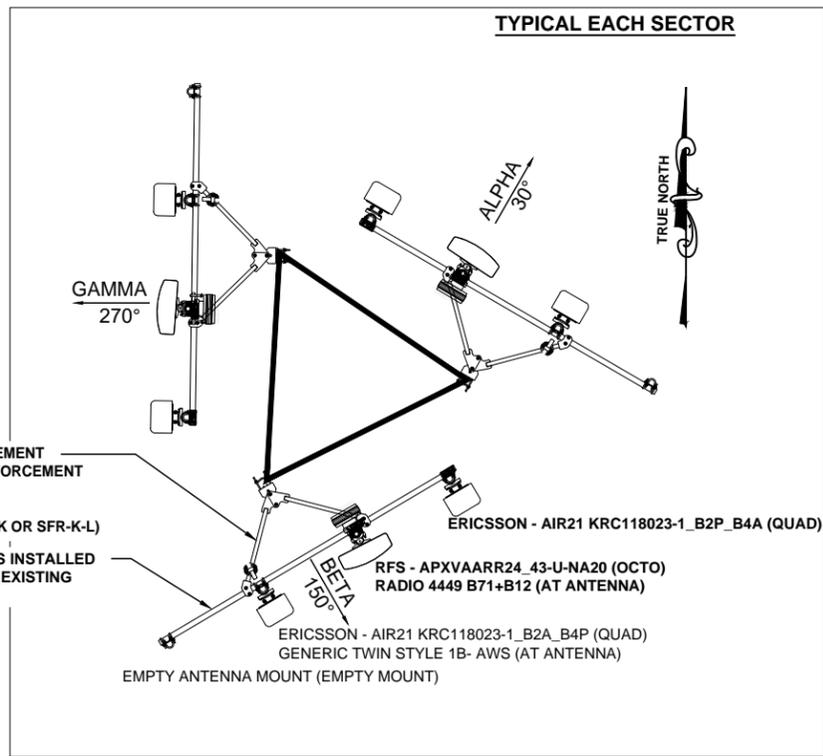


REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4449 B71+B12
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	10.4"
WEIGHT	74 LB

REMOTE RADIO UNIT
N.T.S. 2
A-3



EXISTING ANTENNA PLAN
N.T.S. 3
A-3



FINAL ANTENNA PLAN
N.T.S. 4
A-3

STRUCTURAL NOTES:
PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT CONTRACTOR SHOULD REVIEW THE STRUCTURAL EVALUATION REPORT AND MOUNT EVALUATION REPORT DATED JULY 16, 2019 PREPARED BY DESTEK ENGINEERING, LLC. AND ADHERE TO THE REPORT FULLY AND ALL THE RECOMMENDATIONS THEREIN, INCLUDING BUT NOT LIMITED TO ANTENNA PLACEMENT, COAX ROUTING, STRUCTURAL IMPROVEMENTS, ETC.



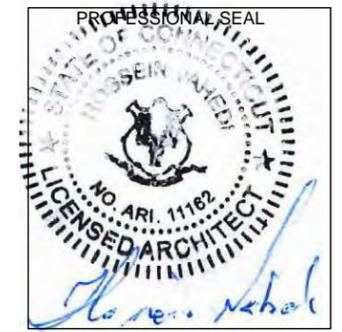
XLD SECTOR FRAME REINFORCEMENT KIT	
MODEL #	SFR-K
MANUF.	SITE PRO 1
WIDTH	12'-6"
WEIGHT	132 LB

SECTOR FRAME REINFORCEMENT
N.T.S. 5
A-3

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

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

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



THIS DOCUMENT IS THE DESIGN PROPERTY AND COPYRIGHT OF FORESITE, LLC. AND FOR THE EXCLUSIVE USE BY THE TITLE CLIENT. DUPLICATION OR USE WITHOUT THE EXPRESS WRITTEN CONSENT OF THE CREATOR IS STRICTLY PROHIBITED. DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

REV	DESCRIPTION	DATE
A	PRELIMINARY	05/23/19
B	UPDATED STRUCTURAL INFO	07/16/19
C	REVISED PER COMMENTS	07/19/19
0	FINAL ISSUED	07/19/19

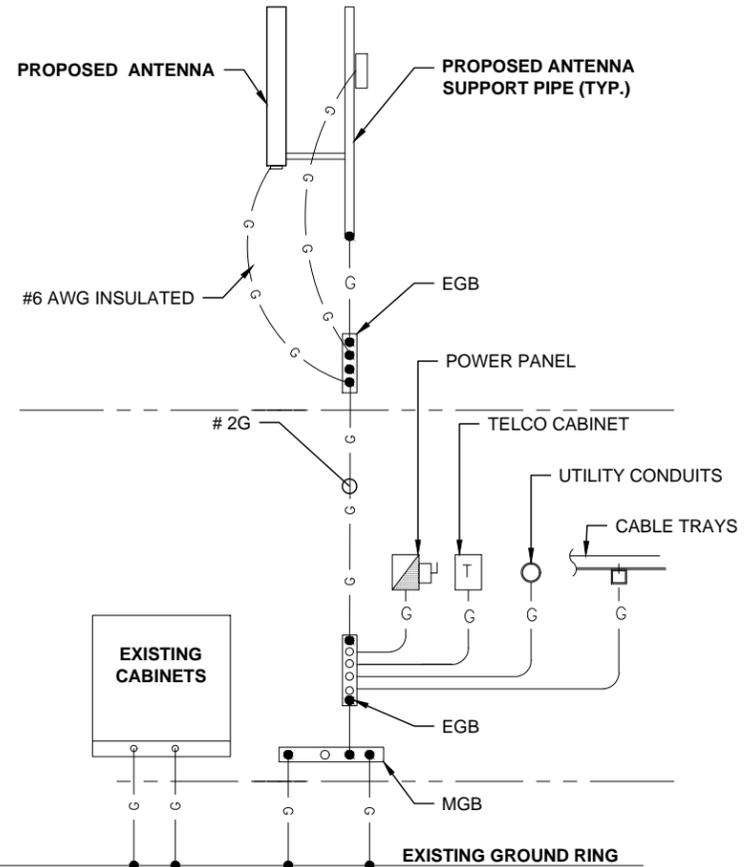
SITE NUMBER: CT11230A
SITE NAME: NORTH HAVEN/RT 17
SITE ADDRESS: 88 PARSONAGE HILL ROAD
NORTH BRANDFORD, CT 06472

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

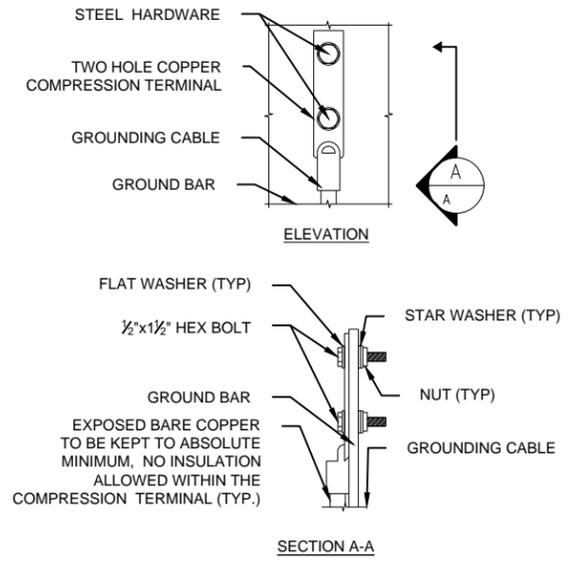
Copyright © 2018 Foresite LLC all rights reserved. The details, templates, drawing formats or any portion of this document generated by Foresite LLC may not be duplicated, traced or used otherwise for any profit-driven enterprise.

ELECTRICAL & GROUNDING NOTES

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

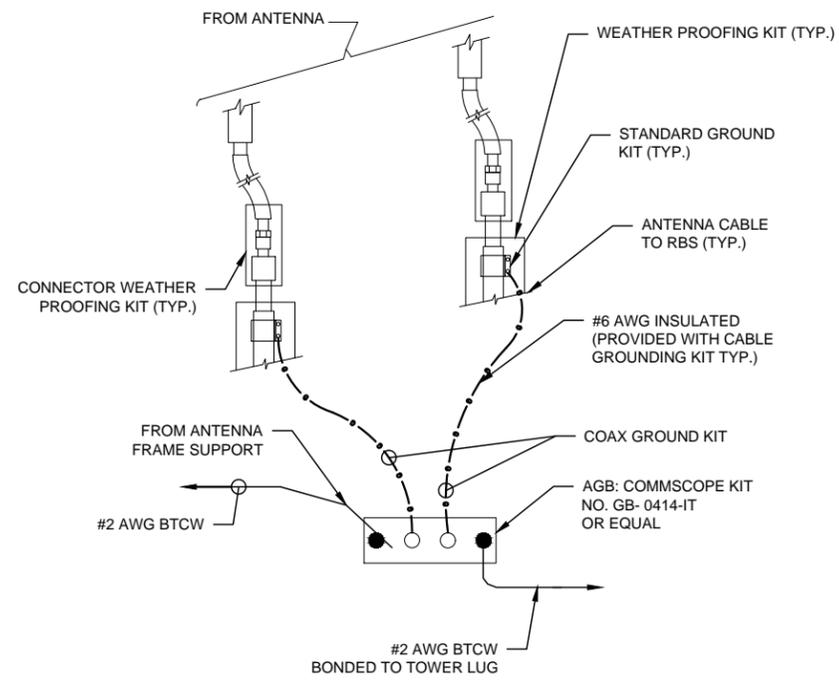


GROUNDING RISER DIAGRAM 1
N.T.S. E-1



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

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



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

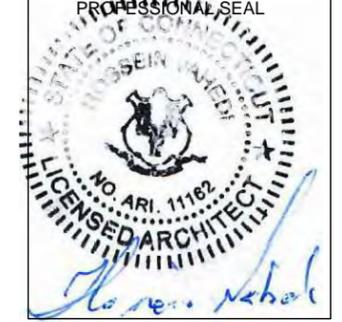
ANTENNA CABLE GROUNDING 2
N.T.S. E-1

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



THIS DOCUMENT IS THE DESIGN PROPERTY AND COPYRIGHT OF FORESITE, LLC. AND FOR THE EXCLUSIVE USE BY THE TITLE CLIENT. DUPLICATION OR USE WITHOUT THE EXPRESS WRITTEN CONSENT OF THE CREATOR IS STRICTLY PROHIBITED. DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

REV	DESCRIPTION	DATE
A	PRELIMINARY	05/23/19
B	UPDATED STRUCTURAL INFO	07/16/19
C	REVISED PER COMMENTS	07/19/19
0	FINAL ISSUED	07/19/19

SITE NUMBER: CT11230A
 SITE NAME: NORTH HAVEN/RT 17
 SITE ADDRESS: 88 PARSONAGE HILL ROAD
 NORTH BRANDFORD, CT 06472

SHEET TITLE:
 E-1: GROUNDING DETAILS

Exhibit D

**STRUCTURAL ANALYSIS REPORT
SELF SUPPORT TOWER**



Prepared For:



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

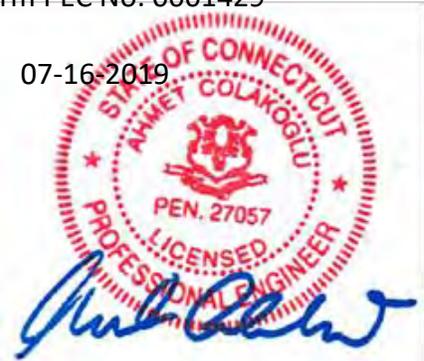


Structure Rating:

Tower:	71.5% (Pass)
Anchor bolts:	59.3% (Pass)
Foundation:	51.3% (Pass)

Sincerely,
Destek Engineering, LLC
Firm PEC No: 0001429

07-16-2019



Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

**Site ID: CT11230A
Site Name: North Haven/ Rt17
88 Parsonage Hill Road
North Branford, CT 06472**

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 195 feet tall self-support tower located at 88 Parsonage Hill Road, North Branford, CT 06472 for the additions and alterations proposed by T-Mobile.

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

- Structural Analysis Report prepared by Destek Engineering, dated 06/25/2019.
- Structural Analysis Report prepared by Comex Consultants, dated 09/25/2017.
- Structural Analysis Report prepared by Atlantis Group, dated 09/02/2014.
- RFDS prepared by T-Mobile, dated 05/06/2019.
- Construction Drawings prepared by Atlantis Group, dated 09/04/2014.
- SST Tower Mapping Form prepared by ProVertic.
- Site Photos dated 04/15/2019.

1.1 STRUCTURE

The subject structure is a 3-sided, 195'-0" tall self-support tower formed by nine 20'-0" sections and one 15'-0" section. Solid rod legs are X-braced at all sections with single angle diagonals. The tower is 5' wide at the top and 23.5' wide at the base, with a slope change at 175'-0" level. The tower is supported on a mat foundation. Please refer to the software output in Appendix A for tower geometry, member sizes, and other details.

2.0 EXISTING AND PROPOSED APPURTENANCES

The analysis is based on the following existing and proposed appurtenances:

Existing T-Mobile Appurtenance Configuration:

RAD CENTER (FT)	ANTENNA & TMA	FEED LINES	MOUNT
180	(3) Andrew LNX-6515DS-A1M (3) Ericsson AIR21 KCR118023-1_B2A_B4P (3) Ericsson AIR21 KCR118023-1_B2P_B4A (3) Ericsson RRUS11 B12 (3) Generic Twin Style 1B-AWS	(12) 1-5/8" (1) 9x18 HCS	(3) Sector Mounts

Proposed and Final T-Mobile Appurtenances:

RAD CENTER (FT)	ANTENNA & TMA	FEED LINES	MOUNT
180	(3) Ericsson AIR21 KCR118023-1_B2A_B4P (3) Ericsson AIR21 KCR118023-1_B2P_B4A (3) RFS APXVAARR24_43-U-NA20 (3) Ericsson Radio 4449 B71+B12* (3) Generic Twin Style 1B-AWS	(9) 1-5/8" (1) 9x18 HCS (3) 6x12 HCS	(3) Sector Mounts with proposed modifications

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

Existing Appurtenances by Others:

RAD CENTER (FT) CARRIER	ANTENNA & TMA	FEED LINES	MOUNT
190 Sprint	(3) APXVSPP18-C-A20 (3) APXVTM14-C-12 (3) RRH 2x50 800Mhz (3) RRH 8x20-25 2500Mhz	(3) Hybrid cables (4) RET Cables	(3) 20' Triangular Mount
173 AT&T	(3) Kathrein 800-10121 (6) Kathrein 800-10965 (6) Powerwave LGP21401 (3) Ericsson Radio B14 4478 (3) Ericsson RRUS B5/B12 4449 (3) Ericsson RRUS-32 (3) Ericsson RRUS-12 (3) Raycap DC6-48-60-18-8C	(6) 1-5/8" (2) Fiber Cable (6) DC Cables	(3) T-Frame Sector Mounts
160 Nextel	-	-	(3) Sector Mounts
147 Verizon	(3) BXA17106312CFEDIN5 (3) BXA171085/8BFEDIN2 (3) BXA70063/6CFEDIN2 (3) LNX-6513DS-VTM (3) 9442 RRH2x40-AWS (1) RC2DC-3315-PF-48 (3) RFS Diplexers	(12) 1-5/8" (1) 1-1/2"	(3) Sector Mounts
80	(2) GPS	(2) 1/2"	(2) 2' Stand Off

3.0 CODES AND LOADING

This analysis has been performed in accordance with the 2018 Connecticut Building Code (2015 IBC) based upon an ultimate 3-second gust wind speed of 125 mph (Risk Category II) converted to a nominal 3-second gust wind speed of 97 mph per section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. The following loading criteria were used in the analysis for New Haven County, CT:

- Basic wind speed of 97 mph without ice (V)
- Basic wind speed of 50 mph concurrent with the design ice thickness of 0.75" (V_i and t_i)
- Exposure Category C, Topographic Category 1, Risk Category II

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

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

D : Dead load of structures and appurtenances

D_i : Weight of ice due to factored ice thickness (based upon t_i)

T_i : Load effects due to temperature

W_0 : Wind load without ice (based upon V)

W_i : Wind load with ice (based upon V_i)

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided to Destek and is assumed to be current and correct. Unless otherwise noted, the structure is 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 appurtenances. Any deviation of the appurtenances and appurtenance placement will require Destek to generate an additional structural analysis. Additionally, the proposed linear appurtenances should be placed per recommendations of this report.

5.0 **ANALYSIS AND ASSUMPTIONS**

The tower was analyzed by utilizing tnxTower, a non-linear 3-Dimensional finite element software, 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 an analysis per ANSI/TIA-222-G, the existing tower is found to have **adequate** structural capacity for the proposed changes by T-Mobile. For the code specified load combinations and as a maximum, tower diagonal bolts between 40 feet and 55 feet are stressed to **71.5%** of their structural capacity. The tower legs, diagonals and anchor bolts are stressed to 58.3%, 71.5% and 59.3% of their structural capacity, respectively.

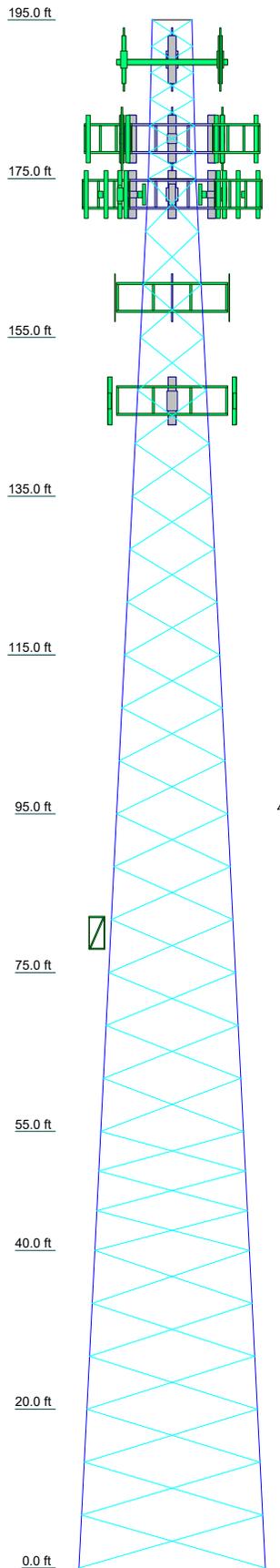
The existing tower foundation has **adequate** capacity for the proposed loading by T-Mobile. For the code specified load combinations and as a maximum, the tower foundation is stressed to **51.3%** of its structural capacity.

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

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

APPENDIX A
SOFTWARE OUTPUT

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	5
Legs	SR 3	SR 3 3/4	SR 4	SR 4 1/4	SR 4 1/2	SR 4 3/4	SR 4 3/4	SR 4 3/4	SR 5	SR 5	6
Leg Grade					A529-50						2.7
Diagonals	SR 1 1/4	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x5/16	L3x3x1/4	L3x3x3/8	L3 1/2x3 1/2x5/16	L4x4x1/4	L4x4x1/4	L4x4x3/8	L4x4x1/4	6 @ 3.33333
Diagonal Grade					A36						2.7
Top Girts	SR 1 1/4										
Bottom Girts	SR 1 1/4										
Face Width (ft)	23.5								21.5		
# Panels @ (ft)					18 @ 6.66667				6 @ 6.66667		
Weight (K)									8.5		



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVSP18-C-A20 w/ Mount Pipe	190	RRUS 4478 B14	173
APXVSP18-C-A20 w/ Mount Pipe	190	RRUS 4449 B5/B12	173
APXVSP18-C-A20 w/ Mount Pipe	190	RRUS 4449 B5/B12	173
APXVTM14-C-120 w/ Mount Pipe	190	RRUS 4449 B5/B12	173
APXVTM14-C-120 w/ Mount Pipe	190	RRUS 32	173
APXVTM14-C-120 w/ Mount Pipe	190	RRUS 32	173
RRH2X50-800	190	RRUS 32	173
RRH2X50-800	190	RRUS 12	173
RRH2X50-800	190	RRUS 12	173
TD-RRH8x20-25	190	RRUS 12	173
TD-RRH8x20-25	190	DC6-48-60-18-8C	173
TD-RRH8x20-25	190	DC6-48-60-18-8C	173
(2) 8'-P2x0.203	190	DC6-48-60-18-8C	173
(2) 8'-P2x0.203	190	Sector Mount [SM 409-3]	173
(2) 8'-P2x0.203	190	Sector Mount [SM 410-3]	160
Platform Mount [LP 1101-1]	190	(4) 6'-P2x0.154	160
AIR 21 B2A/B4P w/ Mount Pipe	180	(4) 6'-P2x0.154	160
AIR 21 B2A/B4P w/ Mount Pipe	180	(4) 6'-P2x0.154	160
AIR 21 B4A/B2P w/ Mount Pipe	180	BXA-171063-12CF-EDIN-X w/ Mount Pipe	147
AIR 21 B4A/B2P w/ Mount Pipe	180	BXA-171063-12CF-EDIN-X w/ Mount Pipe	147
AIR 21 B4A/B2P w/ Mount Pipe	180	BXA-171063-12CF-EDIN-X w/ Mount Pipe	147
AIR 21 B4A/B2P w/ Mount Pipe	180	BXA-171063-12CF-EDIN-X w/ Mount Pipe	147
APXVAARR24_43-U-NA20 w/ Mount Pipe	180	BXA-171085-8BF-EDIN-2 w/ Mount Pipe	147
APXVAARR24_43-U-NA20 w/ Mount Pipe	180	BXA-171085-8BF-EDIN-2 w/ Mount Pipe	147
APXVAARR24_43-U-NA20 w/ Mount Pipe	180	BXA-171085-8BF-EDIN-2 w/ Mount Pipe	147
RADIO 4449 B12/B71	180	BXA-171085-8BF-EDIN-2 w/ Mount Pipe	147
RADIO 4449 B12/B71	180	BXA-70063/6CF-EDIN w/ Mount Pipe	147
RADIO 4449 B12/B71	180	BXA-70063/6CF-EDIN w/ Mount Pipe	147
TMA	180	BXA-70063/6CF-EDIN w/ Mount Pipe	147
TMA	180	LNx-6513DS-VTM w/ Mount Pipe	147
TMA	180	LNx-6513DS-VTM w/ Mount Pipe	147
8'-P2x0.203	180	LNx-6513DS-VTM w/ Mount Pipe	147
8'-P2x0.203	180	9442 RRH2X40-AWS	147
8'-P2x0.203	180	9442 RRH2X40-AWS	147
Sector Mount [SM 410-3]	180	9442 RRH2X40-AWS	147
800 10121 w/ Mount Pipe	173	RFS Diplexers	147
800 10121 w/ Mount Pipe	173	RFS Diplexers	147
800 10121 w/ Mount Pipe	173	RFS Diplexers	147
(2) 80010965 w/ Mount Pipe	173	RC2DC-3315-PF-48	147
(2) 80010965 w/ Mount Pipe	173	Sector Mount [SM 410-3]	147
(2) 80010965 w/ Mount Pipe	173	GPS	80
(2) LGP21401	173	GPS	80
(2) LGP21401	173	2ft Stand Off	80
(2) LGP21401	173	2ft Stand Off	80
RRUS 4478 B14	173		
RRUS 4478 B14	173		

ALL RE
ARE FA
MAX. C

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A529-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

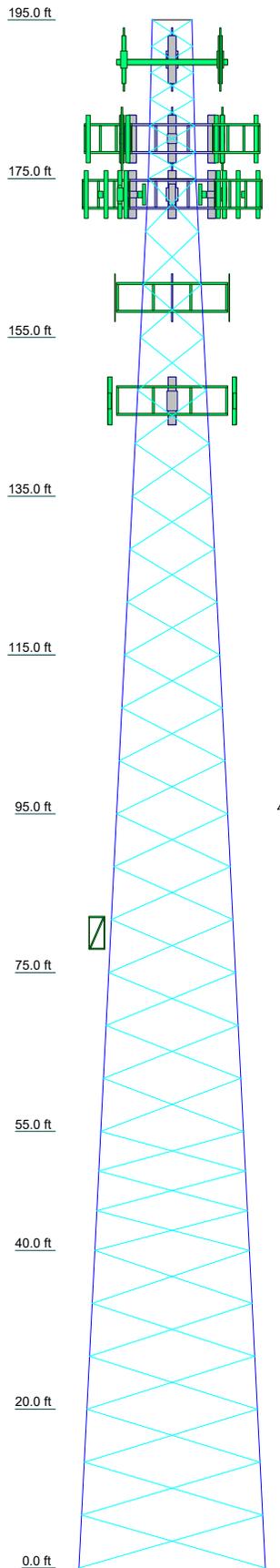
TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
 2. Tower designed for Exposure C 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 0.00 ft
 8. TOWER RATING: 71.5%
- SHEAR 19 K
 TORQUE 50 mph WIND
 AXIAL 84 K
 SHEAR 67 K
 MOMENT 7157 kip-ft
 TORQUE 67 kip-ft
 REACTIONS - 97 mph WIND

Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:		Job: CT11230A Project: 1975071 Client: Foresite Drawn by: Ahmet Colakoglu App'd: Code: TIA-222-G Date: 07/16/19 Scale: NTS Path:
--	--	---

S:\Projects\2019\75 - Foresite LLC\071 - CT11230A\TNS\CT11230A.dwg

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Legs	SR 3	SR 3 3/4	SR 4	SR 4 1/4	A529-50	SR 4 1/2	SR 4 3/4	SR 4 3/4	L4x4x5/16	SR 5
Leg Grade										
Diagonals	SR 1 1/4	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x5/16	L3x3x1/4	L3x3x3/8	L3 1/2x3 1/2x5/16	L4x4x1/4	L4x4x3/8	L4x4x5/16	L4x4x3/8
Diagonal Grade										
Top Girts	SR 1 1/4					N.A.				
Bottom Girts	SR 1 1/4					N.A.				
Face Width (ft)	5	6	8	10	12	14	16	18	19.5	21.5
# Panels @ (ft)	6 @ 3.33333	2.9	3.8	4.2	5.0	5.6	6.1	6.3	7.1	8.5
Weight (K)	2.7									



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A529-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

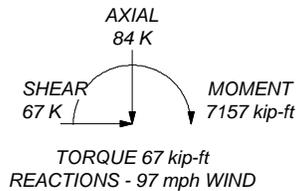
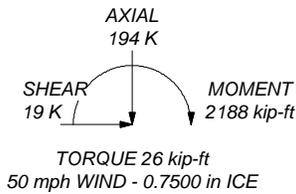
1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 71.5%

ALL REACTIONS
ARE FACTORED

MAX. CORNER REACTIONS AT BASE:

DOWN: 380 K
SHEAR: 41 K

UPLIFT: -313 K
SHEAR: 35 K



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

Job:	CT11230A		
Project:	1975071		
Client:	Foresite	Drawn by:	Ahmet Colakoglu
Code:	TIA-222-G	Date:	07/16/19
Path:	S:\Projects\2019\75 - Foresite LLC\071 - CT11230A\ITN\CT11230A.dwg		App'd:
			Scale: NTS
			Dwg No. E-1

<p style="text-align: center;"><i>tnxTower</i></p> <p>Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:</p>	Job CT11230A	Page 1 of 28
	Project 1975071	Date 11:15:25 07/16/19
	Client Foresite	Designed by Ahmet Colakoglu

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 195.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 5.00 ft at the top and 23.50 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 C.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

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

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

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

Pressures are calculated at each section.

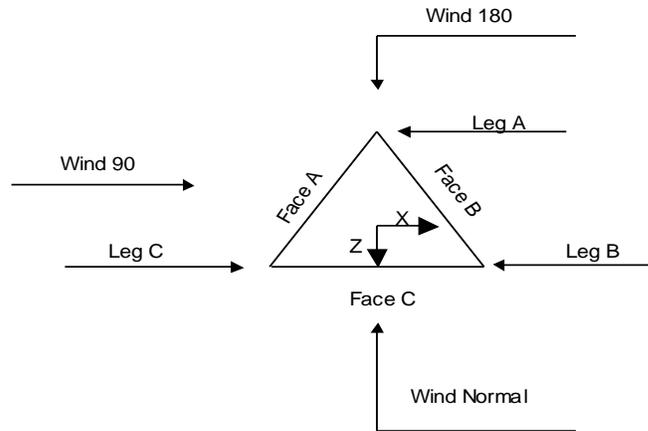
Stress ratio used in tower member design is 1.

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

Options

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

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job CT11230A	Page 2 of 28
	Project 1975071	Date 11:15:25 07/16/19
	Client Foresite	Designed by Ahmet Colakoglu



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	195.00-175.00			5.00	1	20.00
T2	175.00-155.00			6.00	1	20.00
T3	155.00-135.00			8.00	1	20.00
T4	135.00-115.00			10.00	1	20.00
T5	115.00-95.00			12.00	1	20.00
T6	95.00-75.00			14.00	1	20.00
T7	75.00-55.00			16.00	1	20.00
T8	55.00-40.00			18.00	1	15.00
T9	40.00-20.00			19.50	1	20.00
T10	20.00-0.00			21.50	1	20.00

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T1	195.00-175.00	3.33	X Brace	No	Yes	0.0000	0.0000
T2	175.00-155.00	6.67	X Brace	No	No	0.0000	0.0000
T3	155.00-135.00	6.67	X Brace	No	No	0.0000	0.0000
T4	135.00-115.00	6.67	X Brace	No	No	0.0000	0.0000
T5	115.00-95.00	6.67	X Brace	No	No	0.0000	0.0000

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	3 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T6	95.00-75.00	6.67	X Brace	No	No	0.0000	0.0000
T7	75.00-55.00	6.67	X Brace	No	No	0.0000	0.0000
T8	55.00-40.00	5.00	X Brace	No	No	0.0000	0.0000
T9	40.00-20.00	6.67	X Brace	No	No	0.0000	0.0000
T10	20.00-0.00	6.67	X Brace	No	No	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 195.00-175.00	Solid Round	3	A529-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T2 175.00-155.00	Solid Round	3 3/4	A529-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T3 155.00-135.00	Solid Round	4	A529-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x5/16	A36 (36 ksi)
T4 135.00-115.00	Solid Round	4 1/4	A529-50 (50 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T5 115.00-95.00	Solid Round	4 1/4	A529-50 (50 ksi)	Single Angle	L3x3x3/8	A36 (36 ksi)
T6 95.00-75.00	Solid Round	4 1/2	A529-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T7 75.00-55.00	Solid Round	4 3/4	A529-50 (50 ksi)	Single Angle	L4x4x1/4	A36 (36 ksi)
T8 55.00-40.00	Solid Round	4 3/4	A529-50 (50 ksi)	Single Angle	L4x4x1/4	A36 (36 ksi)
T9 40.00-20.00	Solid Round	4 3/4	A529-50 (50 ksi)	Single Angle	L4x4x5/16	A36 (36 ksi)
T10 20.00-0.00	Solid Round	5	A529-50 (50 ksi)	Single Angle	L4x4x3/8	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 195.00-175.00	Solid Round	1 1/4	A36 (36 ksi)	Solid Round	1 1/4	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
-----------------------	--	------------------------	--------------	----------------------------------	----------------------------------	--------------	---	---	--

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	4 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
T1 195.00-175.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T2 175.00-155.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T3 155.00-135.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T4 135.00-115.00	0.00	0.5000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T5 115.00-95.00	0.00	0.5000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T6 95.00-75.00	0.00	0.5000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T7 75.00-55.00	0.00	0.5000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T8 55.00-40.00	0.00	0.5000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T9 40.00-20.00	0.00	0.5000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T10 20.00-0.00	0.00	0.5000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹							
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace	
											X
ft			Y	Y	Y	Y	Y	Y	Y	Y	
T1 195.00-175.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T2 175.00-155.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T3 155.00-135.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T4 135.00-115.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T5 115.00-95.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T6 95.00-75.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T7 75.00-55.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T8 55.00-40.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T9 40.00-20.00	Yes	Yes	1	1	1	1	1	1	1	1	1
T10 20.00-0.00	Yes	Yes	1	1	1	1	1	1	1	1	1

¹Note: 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.

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	5 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

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 195.00-175.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 175.00-155.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 155.00-135.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 135.00-115.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 115.00-95.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 95.00-75.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 75.00-55.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 55.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

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.										
T1 195.00-175.00	Flange	1.1250	4	0.7500	0	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.6250	0
T2 175.00-155.00	Flange	1.1250	6	0.8750	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.6250	0
T3 155.00-135.00	Flange	1.1250	6	0.8750	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	0
T4 135.00-115.00	Flange	1.1250	6	0.8750	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	0
T5 115.00-95.00	Flange	1.1250	8	1.0000	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	0
T6 95.00-75.00	Flange	1.1250	8	1.0000	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	0
T7 75.00-55.00	Flange	1.2500	8	1.0000	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	2
T8 55.00-40.00	Flange	1.2500	8	1.0000	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	2
T9 40.00-20.00	Flange	1.2500	8	1.0000	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	2
T10 20.00-0.00	Flange	1.3750	0	1.0000	1	0.7500	0	0.6250	0	0.6250	0	0.7500	0	0.7500	2
		A449		A325N											

Feed Line/Linear Appurtenances - Entered As Round Or Flat

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	6 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
ATT													
LDF7-50A(1-5/8")	A	No	No	Ar (CaAa)	173.00 - 0.00	-9.0000	0.45	6	3	1.9800	1.9800		0.82
Fiber Cable	A	No	No	Ar (CaAa)	173.00 - 0.00	-9.0000	0.45	2	2	0.5000	0.5000		1.00
DC Cable	A	No	No	Ar (CaAa)	173.00 - 0.00	-9.0000	0.45	6	3	0.2500	0.1285		0.05

190ft Sprint													
Hybrid Cable	A	No	No	Ar (CaAa)	190.00 - 0.00	0.0000	-0.4	3	3	1.5500	1.5500		0.66
RET Cable	A	No	No	Ar (CaAa)	190.00 - 0.00	0.0000	-0.38	4	4	0.6300	0.6300		0.15
180ft T-Mobile													
LDF7-50A(1-5/8")	C	No	No	Ar (CaAa)	180.00 - 0.00	0.0000	0.45	1	1	1.9800	1.9800		0.82
LDF7-50A(1-5/8")	C	No	No	Ar (CaAa)	180.00 - 0.00	0.0000	0.4	12	6	1.9800	1.9800		0.82
Feedline Ladder (Rail)	C	No	No	Ar (CaAa)	180.00 - 0.00	0.0000	0.4	2	2	38.0000 1.7500	1.7500		3.00
145ft Verizon													
LDF7-50A(1-5/8")	B	No	No	Ar (CaAa)	145.00 - 0.00	0.0000	-0.38	13	13	1.9800	1.9800		0.82
81ft													
LDF4-50A(1/2")	A	No	No	Ar (CaAa)	81.00 - 0.00	0.0000	-0.39	1	1	0.6300	0.6300		0.15

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _{AA} ft ² /ft	Weight plf

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
T1	195.00-175.00	A	0.000	0.000	10.755	0.000	0.04
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	14.620	0.000	0.08
T2	175.00-155.00	A	0.000	0.000	38.912	0.000	0.18
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	58.480	0.000	0.33

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:</p>	Job	CT11230A	Page	7 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
T3	155.00-135.00	A	0.000	0.000	41.642	0.000	0.20
		B	0.000	0.000	25.740	0.000	0.11
		C	0.000	0.000	58.480	0.000	0.33
T4	135.00-115.00	A	0.000	0.000	41.642	0.000	0.20
		B	0.000	0.000	51.480	0.000	0.21
		C	0.000	0.000	58.480	0.000	0.33
T5	115.00-95.00	A	0.000	0.000	41.642	0.000	0.20
		B	0.000	0.000	51.480	0.000	0.21
		C	0.000	0.000	58.480	0.000	0.33
T6	95.00-75.00	A	0.000	0.000	42.020	0.000	0.20
		B	0.000	0.000	51.480	0.000	0.21
		C	0.000	0.000	58.480	0.000	0.33
T7	75.00-55.00	A	0.000	0.000	42.902	0.000	0.20
		B	0.000	0.000	51.480	0.000	0.21
		C	0.000	0.000	58.480	0.000	0.33
T8	55.00-40.00	A	0.000	0.000	32.176	0.000	0.15
		B	0.000	0.000	38.610	0.000	0.16
		C	0.000	0.000	43.860	0.000	0.25
T9	40.00-20.00	A	0.000	0.000	42.902	0.000	0.20
		B	0.000	0.000	51.480	0.000	0.21
		C	0.000	0.000	58.480	0.000	0.33
T10	20.00-0.00	A	0.000	0.000	42.902	0.000	0.20
		B	0.000	0.000	51.480	0.000	0.21
		C	0.000	0.000	58.480	0.000	0.33

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
T1	195.00-175.00	A	1.782	0.000	0.000	40.175	0.000	0.48
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	25.004	0.000	0.58
T2	175.00-155.00	A	1.762	0.000	0.000	118.176	0.000	1.69
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	99.642	0.000	2.32
T3	155.00-135.00	A	1.739	0.000	0.000	124.606	0.000	1.79
		B		0.000	0.000	66.574	0.000	1.05
		C		0.000	0.000	99.226	0.000	2.30
T4	135.00-115.00	A	1.714	0.000	0.000	123.724	0.000	1.76
		B		0.000	0.000	133.007	0.000	2.08
		C		0.000	0.000	98.753	0.000	2.28
T5	115.00-95.00	A	1.684	0.000	0.000	122.706	0.000	1.74
		B		0.000	0.000	132.845	0.000	2.05
		C		0.000	0.000	98.207	0.000	2.25
T6	95.00-75.00	A	1.649	0.000	0.000	123.852	0.000	1.73
		B		0.000	0.000	132.652	0.000	2.02
		C		0.000	0.000	97.559	0.000	2.22
T7	75.00-55.00	A	1.605	0.000	0.000	127.677	0.000	1.76
		B		0.000	0.000	132.413	0.000	1.98
		C		0.000	0.000	96.755	0.000	2.18
T8	55.00-40.00	A	1.556	0.000	0.000	94.333	0.000	1.28
		B		0.000	0.000	99.107	0.000	1.46
		C		0.000	0.000	71.882	0.000	1.61
T9	40.00-20.00	A	1.486	0.000	0.000	123.102	0.000	1.64
		B		0.000	0.000	131.762	0.000	1.88
		C		0.000	0.000	94.557	0.000	2.08
T10	20.00-0.00	A	1.331	0.000	0.000	117.194	0.000	1.50

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job CT11230A	Page 8 of 28
	Project 1975071	Date 11:15:25 07/16/19
	Client Foresite	Designed by Ahmet Colakoglu

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
		B		0.000	0.000	130.921	0.000	1.75
		C		0.000	0.000	91.714	0.000	1.95

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
T1	195.00-175.00	-9.5272	4.1499	-7.5564	3.7898
T2	175.00-155.00	-13.4256	-0.8475	-13.7492	-0.2783
T3	155.00-135.00	-14.0315	-9.6487	-15.0043	-9.4836
T4	135.00-115.00	-13.7211	-16.1991	-15.6416	-16.8983
T5	115.00-95.00	-15.4218	-18.2191	-17.6774	-19.2442
T6	95.00-75.00	-16.0217	-18.8187	-19.1813	-20.5300
T7	75.00-55.00	-16.4450	-18.9904	-20.7769	-21.1533
T8	55.00-40.00	-15.3300	-17.8246	-19.9184	-20.7750
T9	40.00-20.00	-18.0354	-20.8772	-22.8972	-24.0444
T10	20.00-0.00	-18.7567	-21.7270	-23.6704	-25.7525

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	7	Hybrid Cable	175.00 - 190.00	0.6000	0.5397
T1	8	RET Cable	175.00 - 190.00	0.6000	0.5397
T1	10	LDF7-50A(1-5/8")	175.00 - 180.00	0.6000	0.5397
T1	11	LDF7-50A(1-5/8")	175.00 - 180.00	0.6000	0.5397
T1	12	Feedline Ladder (Rail)	175.00 - 180.00	0.6000	0.5397
T2	2	LDF7-50A(1-5/8")	155.00 - 173.00	0.6000	0.6000
T2	3	Fiber Cable	155.00 - 173.00	0.6000	0.6000
T2	4	DC Cable	155.00 - 173.00	0.6000	0.6000
T2	7	Hybrid Cable	155.00 - 175.00	0.6000	0.6000
T2	8	RET Cable	155.00 - 175.00	0.6000	0.6000
T2	10	LDF7-50A(1-5/8")	155.00 - 175.00	0.6000	0.6000
T2	11	LDF7-50A(1-5/8")	155.00 - 175.00	0.6000	0.6000
T2	12	Feedline Ladder (Rail)	155.00 - 175.00	0.6000	0.6000
T3	2	LDF7-50A(1-5/8")	135.00 - 155.00	0.6000	0.6000

Job	CT11230A	Page	9 of 28
Project	1975071	Date	11:15:25 07/16/19
Client	Foresite	Designed by	Ahmet Colakoglu

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	3	Fiber Cable	135.00 - 155.00	0.6000	0.6000
T3	4	DC Cable	135.00 - 155.00	0.6000	0.6000
T3	7	Hybrid Cable	135.00 - 155.00	0.6000	0.6000
T3	8	RET Cable	135.00 - 155.00	0.6000	0.6000
T3	10	LDF7-50A(1-5/8")	135.00 - 155.00	0.6000	0.6000
T3	11	LDF7-50A(1-5/8")	135.00 - 155.00	0.6000	0.6000
T3	12	Feedline Ladder (Rail)	135.00 - 155.00	0.6000	0.6000
T3	14	LDF7-50A(1-5/8")	135.00 - 145.00	0.6000	0.6000
T4	2	LDF7-50A(1-5/8")	115.00 - 135.00	0.6000	0.6000
T4	3	Fiber Cable	115.00 - 135.00	0.6000	0.6000
T4	4	DC Cable	115.00 - 135.00	0.6000	0.6000
T4	7	Hybrid Cable	115.00 - 135.00	0.6000	0.6000
T4	8	RET Cable	115.00 - 135.00	0.6000	0.6000
T4	10	LDF7-50A(1-5/8")	115.00 - 135.00	0.6000	0.6000
T4	11	LDF7-50A(1-5/8")	115.00 - 135.00	0.6000	0.6000
T4	12	Feedline Ladder (Rail)	115.00 - 135.00	0.6000	0.6000
T4	14	LDF7-50A(1-5/8")	115.00 - 135.00	0.6000	0.6000
T5	2	LDF7-50A(1-5/8")	95.00 - 115.00	0.6000	0.6000
T5	3	Fiber Cable	95.00 - 115.00	0.6000	0.6000
T5	4	DC Cable	95.00 - 115.00	0.6000	0.6000
T5	7	Hybrid Cable	95.00 - 115.00	0.6000	0.6000
T5	8	RET Cable	95.00 - 115.00	0.6000	0.6000
T5	10	LDF7-50A(1-5/8")	95.00 - 115.00	0.6000	0.6000
T5	11	LDF7-50A(1-5/8")	95.00 - 115.00	0.6000	0.6000
T5	12	Feedline Ladder (Rail)	95.00 - 115.00	0.6000	0.6000
T5	14	LDF7-50A(1-5/8")	95.00 - 115.00	0.6000	0.6000
T6	2	LDF7-50A(1-5/8")	75.00 - 95.00	0.6000	0.6000
T6	3	Fiber Cable	75.00 - 95.00	0.6000	0.6000
T6	4	DC Cable	75.00 - 95.00	0.6000	0.6000
T6	7	Hybrid Cable	75.00 - 95.00	0.6000	0.6000
T6	8	RET Cable	75.00 - 95.00	0.6000	0.6000
T6	10	LDF7-50A(1-5/8")	75.00 - 95.00	0.6000	0.6000
T6	11	LDF7-50A(1-5/8")	75.00 - 95.00	0.6000	0.6000
T6	12	Feedline Ladder (Rail)	75.00 - 95.00	0.6000	0.6000
T6	14	LDF7-50A(1-5/8")	75.00 - 95.00	0.6000	0.6000
T6	16	LDF4-50A(1/2")	75.00 - 81.00	0.6000	0.6000
T7	2	LDF7-50A(1-5/8")	55.00 - 75.00	0.6000	0.6000
T7	3	Fiber Cable	55.00 - 75.00	0.6000	0.6000
T7	4	DC Cable	55.00 - 75.00	0.6000	0.6000
T7	7	Hybrid Cable	55.00 - 75.00	0.6000	0.6000
T7	8	RET Cable	55.00 - 75.00	0.6000	0.6000
T7	10	LDF7-50A(1-5/8")	55.00 - 75.00	0.6000	0.6000
T7	11	LDF7-50A(1-5/8")	55.00 - 75.00	0.6000	0.6000
T7	12	Feedline Ladder (Rail)	55.00 - 75.00	0.6000	0.6000
T7	14	LDF7-50A(1-5/8")	55.00 - 75.00	0.6000	0.6000

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	10 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	16	LDF4-50A(1/2")	55.00 - 75.00	0.6000	0.6000
T8	2	LDF7-50A(1-5/8")	40.00 - 55.00	0.6000	0.6000
T8	3	Fiber Cable	40.00 - 55.00	0.6000	0.6000
T8	4	DC Cable	40.00 - 55.00	0.6000	0.6000
T8	7	Hybrid Cable	40.00 - 55.00	0.6000	0.6000
T8	8	RET Cable	40.00 - 55.00	0.6000	0.6000
T8	10	LDF7-50A(1-5/8")	40.00 - 55.00	0.6000	0.6000
T8	11	LDF7-50A(1-5/8")	40.00 - 55.00	0.6000	0.6000
T8	12	Feedline Ladder (Rail)	40.00 - 55.00	0.6000	0.6000
T8	14	LDF7-50A(1-5/8")	40.00 - 55.00	0.6000	0.6000
T8	16	LDF4-50A(1/2")	40.00 - 55.00	0.6000	0.6000
T9	2	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T9	3	Fiber Cable	20.00 - 40.00	0.6000	0.6000
T9	4	DC Cable	20.00 - 40.00	0.6000	0.6000
T9	7	Hybrid Cable	20.00 - 40.00	0.6000	0.6000
T9	8	RET Cable	20.00 - 40.00	0.6000	0.6000
T9	10	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T9	11	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T9	12	Feedline Ladder (Rail)	20.00 - 40.00	0.6000	0.6000
T9	14	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T9	16	LDF4-50A(1/2")	20.00 - 40.00	0.6000	0.6000
T10	2	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T10	3	Fiber Cable	0.00 - 20.00	0.6000	0.6000
T10	4	DC Cable	0.00 - 20.00	0.6000	0.6000
T10	7	Hybrid Cable	0.00 - 20.00	0.6000	0.6000
T10	8	RET Cable	0.00 - 20.00	0.6000	0.6000
T10	10	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T10	11	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T10	12	Feedline Ladder (Rail)	0.00 - 20.00	0.6000	0.6000
T10	14	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T10	16	LDF4-50A(1/2")	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_{AA} Front	C_{AA} Side	Weight	
			ft ft ft	°	ft	ft ²	ft ²	K	
190ft Sprint									
APXVSP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23
APXVSP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23
APXVSP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice 1" Ice	4.09 4.48 4.88	2.86 3.23 3.61	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount	B	From Leg	4.00	0.0000	190.00	No Ice	4.09	2.86	0.08

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job		CT11230A		Page		11 of 28	
	Project		1975071		Date		11:15:25 07/16/19	
	Client		Foresite		Designed by		Ahmet Colakoglu	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
Pipe			0.00			1/2" Ice	4.48	3.23	0.13
			0.00			1" Ice	4.88	3.61	0.19
APXVTM14-C-120 w/ Mount	C	From Leg	4.00	0.0000	190.00	No Ice	4.09	2.86	0.08
Pipe			0.00			1/2" Ice	4.48	3.23	0.13
			0.00			1" Ice	4.88	3.61	0.19
RRH2X50-800	A	From Leg	4.00	0.0000	190.00	No Ice	1.70	1.28	0.05
			0.00			1/2" Ice	1.86	1.43	0.07
			0.00			1" Ice	2.03	1.58	0.09
RRH2X50-800	B	From Leg	4.00	0.0000	190.00	No Ice	1.70	1.28	0.05
			0.00			1/2" Ice	1.86	1.43	0.07
			0.00			1" Ice	2.03	1.58	0.09
RRH2X50-800	C	From Leg	4.00	0.0000	190.00	No Ice	1.70	1.28	0.05
			0.00			1/2" Ice	1.86	1.43	0.07
			0.00			1" Ice	2.03	1.58	0.09
TD-RRH8x20-25	A	From Leg	4.00	0.0000	190.00	No Ice	4.05	1.53	0.07
			0.00			1/2" Ice	4.30	1.71	0.10
			0.00			1" Ice	4.56	1.90	0.13
TD-RRH8x20-25	B	From Leg	4.00	0.0000	190.00	No Ice	4.05	1.53	0.07
			0.00			1/2" Ice	4.30	1.71	0.10
			0.00			1" Ice	4.56	1.90	0.13
TD-RRH8x20-25	C	From Leg	4.00	0.0000	190.00	No Ice	4.05	1.53	0.07
			0.00			1/2" Ice	4.30	1.71	0.10
			0.00			1" Ice	4.56	1.90	0.13
(2) 8'-P2x0.203	A	From Leg	4.00	0.0000	190.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
(2) 8'-P2x0.203	B	From Leg	4.00	0.0000	190.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
(2) 8'-P2x0.203	C	From Leg	4.00	0.0000	190.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
Platform Mount [LP 1101-1]	C	None		0.0000	190.00	No Ice	51.45	51.45	2.94
						1/2" Ice	66.50	66.50	3.70
						1" Ice	81.55	81.55	4.46
*** 180ft T-Mobile***									
AIR 21 B2A/B4P w/ Mount	A	From Leg	4.00	0.0000	180.00	No Ice	6.16	5.55	0.10
Pipe			0.00			1/2" Ice	6.60	6.30	0.16
			0.00			1" Ice	7.03	7.00	0.22
AIR 21 B2A/B4P w/ Mount	B	From Leg	4.00	0.0000	180.00	No Ice	6.16	5.55	0.10
Pipe			0.00			1/2" Ice	6.60	6.30	0.16
			0.00			1" Ice	7.03	7.00	0.22
AIR 21 B2A/B4P w/ Mount	C	From Leg	4.00	0.0000	180.00	No Ice	6.16	5.55	0.10
Pipe			0.00			1/2" Ice	6.60	6.30	0.16
			0.00			1" Ice	7.03	7.00	0.22
AIR 21 B4A/B2P w/ Mount	A	From Leg	4.00	0.0000	180.00	No Ice	6.16	5.55	0.10
Pipe			0.00			1/2" Ice	6.60	6.30	0.16
			0.00			1" Ice	7.03	7.00	0.22
AIR 21 B4A/B2P w/ Mount	B	From Leg	4.00	0.0000	180.00	No Ice	6.16	5.55	0.10
Pipe			0.00			1/2" Ice	6.60	6.30	0.16
			0.00			1" Ice	7.03	7.00	0.22
AIR 21 B4A/B2P w/ Mount	C	From Leg	4.00	0.0000	180.00	No Ice	6.16	5.55	0.10
Pipe			0.00			1/2" Ice	6.60	6.30	0.16
			0.00			1" Ice	7.03	7.00	0.22
APXVAARR24_43-U-NA20	A	From Leg	4.00	0.0000	180.00	No Ice	14.69	6.87	0.19
w/ Mount Pipe			0.00			1/2" Ice	15.46	7.55	0.31
			0.00			1" Ice	16.23	8.25	0.46

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	12 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00	0.0000	180.00	No Ice	14.69	6.87	0.19
			0.00			1/2" Ice	15.46	7.55	0.31
			0.00			1" Ice	16.23	8.25	0.46
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00	0.0000	180.00	No Ice	14.69	6.87	0.19
			0.00			1/2" Ice	15.46	7.55	0.31
			0.00			1" Ice	16.23	8.25	0.46
RADIO 4449 B12/B71	A	From Leg	4.00	0.0000	180.00	No Ice	1.65	1.30	0.08
			0.00			1/2" Ice	1.81	1.44	0.09
			0.00			1" Ice	1.98	1.60	0.11
RADIO 4449 B12/B71	B	From Leg	4.00	0.0000	180.00	No Ice	1.65	1.30	0.08
			0.00			1/2" Ice	1.81	1.44	0.09
			0.00			1" Ice	1.98	1.60	0.11
RADIO 4449 B12/B71	C	From Leg	4.00	0.0000	180.00	No Ice	1.65	1.30	0.08
			0.00			1/2" Ice	1.81	1.44	0.09
			0.00			1" Ice	1.98	1.60	0.11
TMA	A	From Leg	4.00	0.0000	180.00	No Ice	1.17	0.39	0.01
			0.00			1/2" Ice	1.31	0.48	0.02
			0.00			1" Ice	7.43	5.20	0.16
TMA	B	From Leg	4.00	0.0000	180.00	No Ice	1.17	0.39	0.01
			0.00			1/2" Ice	1.31	0.48	0.02
			0.00			1" Ice	7.43	5.20	0.16
TMA	C	From Leg	4.00	0.0000	180.00	No Ice	1.17	0.39	0.01
			0.00			1/2" Ice	1.31	0.48	0.02
			0.00			1" Ice	7.43	5.20	0.16
8'-P2x0.203	A	From Leg	4.00	0.0000	180.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
8'-P2x0.203	B	From Leg	4.00	0.0000	180.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
8'-P2x0.203	C	From Leg	4.00	0.0000	180.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
Sector Mount [SM 410-3]	A	None		0.0000	180.00	No Ice	23.96	23.96	1.10
						1/2" Ice	34.06	34.06	1.60
						1" Ice	44.16	44.16	2.10
173ft AT&T									
800 10121 w/ Mount Pipe	A	From Leg	4.00	0.0000	173.00	No Ice	3.60	2.95	0.07
			0.00			1/2" Ice	4.00	3.34	0.11
			0.00			1" Ice	4.42	3.74	0.17
800 10121 w/ Mount Pipe	B	From Leg	4.00	0.0000	173.00	No Ice	3.60	2.95	0.07
			0.00			1/2" Ice	4.00	3.34	0.11
			0.00			1" Ice	4.42	3.74	0.17
800 10121 w/ Mount Pipe	C	From Leg	4.00	0.0000	173.00	No Ice	3.60	2.95	0.07
			0.00			1/2" Ice	4.00	3.34	0.11
			0.00			1" Ice	4.42	3.74	0.17
(2) 80010965 w/ Mount Pipe	A	From Leg	4.00	0.0000	173.00	No Ice	12.26	5.79	0.14
			0.00			1/2" Ice	13.03	6.47	0.23
			0.00			1" Ice	13.80	7.17	0.33
(2) 80010965 w/ Mount Pipe	B	From Leg	4.00	0.0000	173.00	No Ice	12.26	5.79	0.14
			0.00			1/2" Ice	13.03	6.47	0.23
			0.00			1" Ice	13.80	7.17	0.33
(2) 80010965 w/ Mount Pipe	C	From Leg	4.00	0.0000	173.00	No Ice	12.26	5.79	0.14
			0.00			1/2" Ice	13.03	6.47	0.23
			0.00			1" Ice	13.80	7.17	0.33
(2) LGP21401	A	From Leg	4.00	0.0000	173.00	No Ice	1.10	0.21	0.01
			0.00			1/2" Ice	1.24	0.27	0.02

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	13 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral						
			Vert		°	ft	ft ²	ft ²	K	
			ft	ft						
(2) LGP21401	B	From Leg	0.00		0.0000	173.00	1" Ice	1.38	0.35	0.03
			4.00				No Ice	1.10	0.21	0.01
			0.00				1/2" Ice	1.24	0.27	0.02
(2) LGP21401	C	From Leg	0.00		0.0000	173.00	1" Ice	1.38	0.35	0.03
			4.00				No Ice	1.10	0.21	0.01
			0.00				1/2" Ice	1.24	0.27	0.02
RRUS 4478 B14	A	From Leg	0.00		0.0000	173.00	1" Ice	1.38	0.35	0.03
			4.00				No Ice	1.84	1.06	0.06
			0.00				1/2" Ice	2.01	1.20	0.08
RRUS 4478 B14	B	From Leg	0.00		0.0000	173.00	1" Ice	2.19	1.34	0.09
			4.00				No Ice	1.84	1.06	0.06
			0.00				1/2" Ice	2.01	1.20	0.08
RRUS 4478 B14	C	From Leg	0.00		0.0000	173.00	1" Ice	2.19	1.34	0.09
			4.00				No Ice	1.84	1.06	0.06
			0.00				1/2" Ice	2.01	1.20	0.08
RRUS 4449 B5/B12	A	From Leg	0.00		0.0000	173.00	1" Ice	2.19	1.34	0.09
			4.00				No Ice	1.97	1.41	0.07
			0.00				1/2" Ice	2.14	1.56	0.09
RRUS 4449 B5/B12	B	From Leg	0.00		0.0000	173.00	1" Ice	2.33	1.73	0.11
			4.00				No Ice	1.97	1.41	0.07
			0.00				1/2" Ice	2.14	1.56	0.09
RRUS 4449 B5/B12	C	From Leg	0.00		0.0000	173.00	1" Ice	2.33	1.73	0.11
			4.00				No Ice	1.97	1.41	0.07
			0.00				1/2" Ice	2.14	1.56	0.09
RRUS 32	A	From Leg	0.00		0.0000	173.00	1" Ice	2.33	1.73	0.11
			4.00				No Ice	2.86	1.78	0.06
			0.00				1/2" Ice	3.08	1.97	0.08
RRUS 32	B	From Leg	0.00		0.0000	173.00	1" Ice	3.32	2.17	0.10
			4.00				No Ice	2.86	1.78	0.06
			0.00				1/2" Ice	3.08	1.97	0.08
RRUS 32	C	From Leg	0.00		0.0000	173.00	1" Ice	3.32	2.17	0.10
			4.00				No Ice	2.86	1.78	0.06
			0.00				1/2" Ice	3.08	1.97	0.08
RRUS 12	A	From Leg	0.00		0.0000	173.00	1" Ice	3.32	2.17	0.10
			4.00				No Ice	3.15	1.29	0.06
			0.00				1/2" Ice	3.36	1.44	0.08
RRUS 12	B	From Leg	0.00		0.0000	173.00	1" Ice	3.59	1.60	0.11
			4.00				No Ice	3.15	1.29	0.06
			0.00				1/2" Ice	3.36	1.44	0.08
RRUS 12	C	From Leg	0.00		0.0000	173.00	1" Ice	3.59	1.60	0.11
			4.00				No Ice	3.15	1.29	0.06
			0.00				1/2" Ice	3.36	1.44	0.08
DC6-48-60-18-8C	A	From Leg	0.00		0.0000	173.00	1" Ice	3.59	1.60	0.11
			0.50				No Ice	1.14	1.14	0.03
			0.00				1/2" Ice	1.79	1.79	0.05
DC6-48-60-18-8C	B	From Leg	0.00		0.0000	173.00	1" Ice	2.00	2.00	0.07
			0.50				No Ice	1.14	1.14	0.03
			0.00				1/2" Ice	1.79	1.79	0.05
DC6-48-60-18-8C	C	From Leg	0.00		0.0000	173.00	1" Ice	2.00	2.00	0.07
			0.50				No Ice	1.14	1.14	0.03
			0.00				1/2" Ice	1.79	1.79	0.05
Sector Mount [SM 409-3]	A	None	0.00		0.0000	173.00	1" Ice	2.00	2.00	0.07
							No Ice	22.47	22.47	1.03
							1/2" Ice	31.99	31.99	1.50
160ft Nextel Sector Mount [SM 410-3]	A	None			0.0000	160.00	1" Ice	41.51	41.51	1.97
							No Ice	23.96	23.96	1.10

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:</p>	Job		CT11230A		Page		14 of 28	
	Project		1975071		Date		11:15:25 07/16/19	
	Client		Foresite		Designed by		Ahmet Colakoglu	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
						1/2" Ice	34.06	34.06	1.60
						1" Ice	44.16	44.16	2.10
(4) 6'-P2x0.154	A	From Leg	4.00	0.0000	160.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
(4) 6'-P2x0.154	B	From Leg	4.00	0.0000	160.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
(4) 6'-P2x0.154	C	From Leg	4.00	0.0000	160.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
147ft Verizon									
BXA-171063-12CF-EDIN-X w/ Mount Pipe	A	From Leg	4.00	0.0000	147.00	No Ice	5.03	5.29	0.04
			0.00			1/2" Ice	5.58	6.46	0.09
			0.00			1" Ice	6.10	7.35	0.14
BXA-171063-12CF-EDIN-X w/ Mount Pipe	B	From Leg	4.00	0.0000	147.00	No Ice	5.03	5.29	0.04
			0.00			1/2" Ice	5.58	6.46	0.09
			0.00			1" Ice	6.10	7.35	0.14
BXA-171063-12CF-EDIN-X w/ Mount Pipe	C	From Leg	4.00	0.0000	147.00	No Ice	5.03	5.29	0.04
			0.00			1/2" Ice	5.58	6.46	0.09
			0.00			1" Ice	6.10	7.35	0.14
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	A	From Leg	4.00	0.0000	147.00	No Ice	3.16	3.33	0.03
			0.00			1/2" Ice	3.53	3.94	0.06
			0.00			1" Ice	3.90	4.56	0.10
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	B	From Leg	4.00	0.0000	147.00	No Ice	3.16	3.33	0.03
			0.00			1/2" Ice	3.53	3.94	0.06
			0.00			1" Ice	3.90	4.56	0.10
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	C	From Leg	4.00	0.0000	147.00	No Ice	3.16	3.33	0.03
			0.00			1/2" Ice	3.53	3.94	0.06
			0.00			1" Ice	3.90	4.56	0.10
BXA-70063/6CF-EDIN w/ Mount Pipe	A	From Leg	4.00	0.0000	147.00	No Ice	7.81	5.40	0.04
			0.00			1/2" Ice	8.36	6.55	0.10
			0.00			1" Ice	8.87	7.41	0.17
BXA-70063/6CF-EDIN w/ Mount Pipe	B	From Leg	4.00	0.0000	147.00	No Ice	7.81	5.40	0.04
			0.00			1/2" Ice	8.36	6.55	0.10
			0.00			1" Ice	8.87	7.41	0.17
BXA-70063/6CF-EDIN w/ Mount Pipe	C	From Leg	4.00	0.0000	147.00	No Ice	7.81	5.40	0.04
			0.00			1/2" Ice	8.36	6.55	0.10
			0.00			1" Ice	8.87	7.41	0.17
LNx-6513DS-VTM w/ Mount Pipe	A	From Leg	4.00	0.0000	147.00	No Ice	6.08	5.16	0.05
			0.00			1/2" Ice	6.52	5.92	0.10
			0.00			1" Ice	6.95	6.62	0.16
LNx-6513DS-VTM w/ Mount Pipe	B	From Leg	4.00	0.0000	147.00	No Ice	6.08	5.16	0.05
			0.00			1/2" Ice	6.52	5.92	0.10
			0.00			1" Ice	6.95	6.62	0.16
LNx-6513DS-VTM w/ Mount Pipe	C	From Leg	4.00	0.0000	147.00	No Ice	6.08	5.16	0.05
			0.00			1/2" Ice	6.52	5.92	0.10
			0.00			1" Ice	6.95	6.62	0.16
9442 RRH2X40-AWS	A	From Leg	4.00	0.0000	147.00	No Ice	2.16	1.42	0.04
			0.00			1/2" Ice	2.35	1.59	0.06
			0.00			1" Ice	2.56	1.77	0.08
9442 RRH2X40-AWS	B	From Leg	4.00	0.0000	147.00	No Ice	2.16	1.42	0.04
			0.00			1/2" Ice	2.35	1.59	0.06
			0.00			1" Ice	2.56	1.77	0.08
9442 RRH2X40-AWS	C	From Leg	4.00	0.0000	147.00	No Ice	2.16	1.42	0.04
			0.00			1/2" Ice	2.35	1.59	0.06
			0.00			1" Ice	2.56	1.77	0.08

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	15 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz Lateral	Vert					
			ft	ft	°	ft	ft ²	ft ²	K
RFS Diplexers	A	From Leg	4.00	0.0000		147.00	No Ice 0.31	0.08	0.00
			0.00				1/2" Ice 0.39	0.12	0.01
			0.00				1" Ice 0.47	0.17	0.01
RFS Diplexers	B	From Leg	4.00	0.0000		147.00	No Ice 0.31	0.08	0.00
			0.00				1/2" Ice 0.39	0.12	0.01
			0.00				1" Ice 0.47	0.17	0.01
RFS Diplexers	C	From Leg	4.00	0.0000		147.00	No Ice 0.31	0.08	0.00
			0.00				1/2" Ice 0.39	0.12	0.01
			0.00				1" Ice 0.47	0.17	0.01
RC2DC-3315-PF-48	A	From Leg	4.00	0.0000		147.00	No Ice 4.05	2.96	0.03
			0.00				1/2" Ice 4.31	3.19	0.07
			0.00				1" Ice 4.57	3.43	0.11
Sector Mount [SM 410-3]	A	None		0.0000		147.00	No Ice 23.96	23.96	1.10
							1/2" Ice 34.06	34.06	1.60
							1" Ice 44.16	44.16	2.10
80ft									
GPS	A	From Leg	2.00	0.0000		80.00	No Ice 1.00	1.00	0.01
			0.00				1/2" Ice 1.50	1.50	0.01
			0.00				1" Ice 2.00	2.00	0.04
GPS	C	From Leg	2.00	0.0000		80.00	No Ice 1.00	1.00	0.01
			0.00				1/2" Ice 1.50	1.50	0.01
			0.00				1" Ice 2.00	2.00	0.04
2ft Stand Off	A	From Leg	2.00	0.0000		80.00	No Ice 1.07	1.07	0.02
			0.00				1/2" Ice 1.62	1.62	0.03
			0.00				1" Ice 2.17	2.17	0.04
2ft Stand Off	C	From Leg	2.00	0.0000		80.00	No Ice 1.07	1.07	0.02
			0.00				1/2" Ice 1.62	1.62	0.03
			0.00				1" Ice 2.17	2.17	0.04

Load Combinations

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

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:</p>	<p>Job</p> <p style="text-align: center;">CT11230A</p>	<p>Page</p> <p style="text-align: center;">16 of 28</p>
	<p>Project</p> <p style="text-align: center;">1975071</p>	<p>Date</p> <p style="text-align: center;">11:15:25 07/16/19</p>
	<p>Client</p> <p style="text-align: center;">Foresite</p>	<p>Designed by</p> <p style="text-align: center;">Ahmet Colakoglu</p>

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	195 - 175	Leg	Max Tension	15	12.22	-0.13	0.01
			Max. Compression	2	-18.50	0.55	0.05
			Max. Mx	14	-1.40	0.77	-0.01
			Max. My	24	-0.22	-0.01	-0.79
			Max. Vy	6	0.71	-0.39	-0.00
			Max. Vx	24	0.69	-0.01	0.34
		Diagonal	Max Tension	8	3.10	0.00	0.00
			Max. Compression	8	-3.13	0.00	0.00
			Max. Mx	34	0.43	-0.02	0.00
			Max. My	14	-2.16	-0.01	0.00
			Max. Vy	35	-0.02	-0.02	0.00
			Max. Vx	14	-0.00	-0.01	0.00
		Top Girt	Max Tension	7	0.07	0.00	0.00
			Max. Compression	18	-0.11	0.00	0.00
			Max. Mx	26	-0.04	0.04	0.00
			Max. My	24	-0.02	0.00	-0.00
			Max. Vy	26	-0.03	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	17 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft			
T2	175 - 155	Bottom Girt	Max Tension	3	0.40	0.00	0.00			
			Max. Compression	14	-0.45	0.00	0.00			
			Max. Mx	26	-0.09	0.05	0.00			
			Max. My	24	-0.02	0.00	-0.00			
			Max. Vy	26	-0.04	0.00	0.00			
			Max. Vx	24	0.00	0.00	0.00			
		Leg	Max Tension	15	45.35	-0.24	-0.06			
			Max. Compression	2	-56.69	0.26	0.08			
			Max. Mx	6	19.40	1.43	0.02			
			Max. My	24	-5.43	-0.05	-1.44			
			Max. Vy	6	-1.02	-0.58	0.02			
			Max. Vx	24	1.01	-0.02	0.51			
			Diagonal	Max Tension	4	5.85	0.00	0.00		
				Max. Compression	4	-5.94	0.00	0.00		
Max. Mx	37	1.35		0.04	0.01					
Max. My	14	-5.44		0.01	-0.01					
Max. Vy	37	0.04		0.04	0.01					
Max. Vx	38	-0.00		0.00	0.00					
T3	155 - 135	Leg	Max Tension	15	83.38	-0.39	-0.06			
			Max. Compression	2	-100.30	0.11	0.06			
			Max. Mx	14	68.31	0.69	-0.06			
			Max. My	8	-8.61	-0.03	-0.81			
			Max. Vy	14	-0.96	-0.57	-0.06			
			Max. Vx	20	-0.94	-0.02	-0.43			
		Diagonal	Max Tension	4	7.55	0.00	0.00			
			Max. Compression	4	-7.59	0.00	0.00			
			Max. Mx	37	1.66	0.07	0.01			
			Max. My	14	-6.40	0.01	-0.01			
			Max. Vy	37	0.05	0.07	0.01			
			Max. Vx	27	-0.00	0.00	0.00			
			T4	135 - 115	Leg	Max Tension	15	121.20	-0.17	-0.05
						Max. Compression	2	-142.87	0.32	0.08
Max. Mx	3	-139.81				0.33	0.08			
Max. My	24	-11.69				-0.01	0.38			
Max. Vy	14	0.09				-0.32	-0.08			
Max. Vx	20	0.15				-0.01	-0.28			
Diagonal	Max Tension	4			8.00	0.00	0.00			
	Max. Compression	4			-8.09	0.00	0.00			
	Max. Mx	37			1.57	0.10	0.01			
	Max. My	27			-0.06	0.09	0.01			
	Max. Vy	37			0.07	0.10	0.01			
	Max. Vx	27			-0.00	0.00	0.00			
	T5	115 - 95			Leg	Max Tension	15	155.97	-0.22	-0.06
						Max. Compression	2	-183.28	0.21	0.05
Max. Mx			3	-152.87		0.33	0.08			
Max. My			24	-11.97		-0.01	0.38			
Max. Vy			14	-0.09		-0.32	-0.08			
Max. Vx			8	0.13		-0.01	0.36			
Diagonal			Max Tension	4	8.85	0.00	0.00			
			Max. Compression	4	-8.97	0.00	0.00			
			Max. Mx	37	1.57	0.15	0.02			
			Max. My	35	-0.05	0.13	-0.02			
			Max. Vy	37	0.09	0.15	0.02			
			Max. Vx	35	0.01	0.00	0.00			
			T6	95 - 75	Leg	Max Tension	15	189.11	-0.27	-0.06
						Max. Compression	2	-222.91	0.20	0.04
Max. Mx	14	185.50				-0.27	-0.06			
Max. My	24	-15.73				-0.01	0.33			
Max. Vy	6	-0.11				-0.26	0.07			
Max. Vx	18	-0.17				-0.15	-0.31			
Diagonal	Max Tension	4			9.92	0.00	0.00			

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	18 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T7	75 - 55	Leg	Max. Compression	4	-9.99	0.00	0.00
			Max. Mx	37	1.65	0.20	0.02
			Max. My	35	-0.03	0.18	-0.03
			Max. Vy	37	0.11	0.20	0.02
			Max. Vx	35	0.01	0.00	0.00
			Max Tension	15	221.67	-0.31	-0.06
			Max. Compression	2	-262.54	0.06	-0.02
		Diagonal	Max. Mx	14	217.39	-0.32	-0.06
			Max. My	24	-18.49	-0.04	0.41
			Max. Vy	14	-0.11	-0.32	-0.06
			Max. Vx	12	-0.16	-0.04	-0.40
			Max Tension	4	11.04	0.00	0.00
			Max. Compression	4	-11.16	0.00	0.00
			Max. Mx	37	1.62	0.25	0.03
T8	55 - 40	Leg	Max. My	35	-0.10	0.23	-0.03
			Max. Vy	37	0.13	0.25	0.03
			Max. Vx	35	0.01	0.00	0.00
			Max Tension	15	247.21	-0.10	0.00
			Max. Compression	2	-294.43	0.68	0.14
			Max. Mx	29	26.09	-0.74	0.05
			Max. My	24	-21.75	-0.02	0.64
		Diagonal	Max. Vy	29	0.24	-0.74	0.05
			Max. Vx	12	0.17	-0.02	-0.64
			Max Tension	4	11.63	0.00	0.00
			Max. Compression	4	-11.73	0.00	0.00
			Max. Mx	37	1.42	0.26	0.03
			Max. My	29	-2.29	0.23	0.04
			Max. Vy	37	0.13	0.25	0.03
T9	40 - 20	Leg	Max. Vx	29	0.01	0.00	0.00
			Max Tension	15	277.99	-0.30	-0.04
			Max. Compression	2	-333.31	0.35	0.07
			Max. Mx	31	-137.69	2.04	-0.00
			Max. My	24	-22.16	-0.02	0.64
			Max. Vy	33	-0.50	-1.29	-0.02
			Max. Vx	20	0.15	-0.03	-0.57
		Diagonal	Max Tension	4	12.90	0.00	0.00
			Max. Compression	4	-13.08	0.00	0.00
			Max. Mx	37	0.57	0.40	0.05
			Max. My	29	-4.13	0.37	0.05
			Max. Vy	37	0.16	0.40	0.05
			Max. Vx	29	0.01	0.00	0.00
			Max Tension	15	308.94	-0.31	-0.04
T10	20 - 0	Leg	Max. Compression	2	-373.71	-0.00	-0.00
			Max. Mx	31	-147.38	3.33	-0.00
			Max. My	24	-27.26	-0.06	0.66
			Max. Vy	33	-0.96	-3.04	-0.01
			Max. Vx	20	-0.18	-0.06	-0.65
			Max Tension	4	13.82	0.00	0.00
			Max. Compression	4	-14.08	0.00	0.00
		Diagonal	Max. Mx	37	-1.15	0.54	0.06
			Max. My	29	-7.02	0.52	0.06
			Max. Vy	37	0.18	0.54	0.06
			Max. Vx	29	-0.01	0.00	0.00

Maximum Reactions

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	19 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	369.23	33.98	-21.36
	Max. H _x	18	369.23	33.98	-21.36
	Max. H _z	5	-269.73	-24.31	19.05
	Min. Vert	7	-302.31	-28.58	18.29
	Min. H _x	7	-302.31	-28.58	18.29
	Min. H _z	18	369.23	33.98	-21.36
Leg B	Max. Vert	10	366.03	-34.30	-20.02
	Max. H _x	23	-302.52	28.95	16.95
	Max. H _z	23	-302.52	28.95	16.95
	Min. Vert	23	-302.52	28.95	16.95
	Min. H _x	10	366.03	-34.30	-20.02
	Min. H _z	10	366.03	-34.30	-20.02
Leg A	Max. Vert	2	379.77	-1.63	41.15
	Max. H _x	21	21.42	6.66	1.66
	Max. H _z	2	379.77	-1.63	41.15
	Min. Vert	15	-313.39	1.68	-34.97
	Min. H _x	9	21.42	-6.69	1.66
	Min. H _z	15	-313.39	1.68	-34.97

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	70.29	-0.00	-0.00	-7.38	19.09	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	84.35	0.00	-67.17	-7156.63	23.10	-67.44
0.9 Dead+1.6 Wind 0 deg - No Ice	63.26	0.00	-67.17	-7147.26	17.32	-67.43
1.2 Dead+1.6 Wind 30 deg - No Ice	84.35	31.89	-55.26	-5947.18	-3402.91	-63.38
0.9 Dead+1.6 Wind 30 deg - No Ice	63.26	31.89	-55.26	-5938.98	-3405.23	-63.37
1.2 Dead+1.6 Wind 60 deg - No Ice	84.35	52.70	-30.45	-3310.75	-5691.56	-62.22
0.9 Dead+1.6 Wind 60 deg - No Ice	63.26	52.70	-30.44	-3305.19	-5691.55	-62.21
1.2 Dead+1.6 Wind 90 deg - No Ice	84.35	61.12	0.00	-8.99	-6571.60	-61.72
0.9 Dead+1.6 Wind 90 deg - No Ice	63.26	61.12	0.00	-6.75	-6570.72	-61.69
1.2 Dead+1.6 Wind 120 deg - No Ice	84.35	56.01	32.36	3443.65	-5952.72	-7.95
0.9 Dead+1.6 Wind 120 deg - No Ice	63.26	56.01	32.36	3442.41	-5952.49	-7.95
1.2 Dead+1.6 Wind 150 deg - No Ice	84.35	30.24	52.40	5758.45	-3304.18	67.37
0.9 Dead+1.6 Wind 150 deg - No Ice	63.26	30.24	52.40	5754.79	-3306.56	67.34
1.2 Dead+1.6 Wind 180 deg - No Ice	84.35	0.00	62.65	6811.93	23.10	67.43
0.9 Dead+1.6 Wind 180 deg - No Ice	63.26	0.00	62.65	6807.24	17.33	67.41
1.2 Dead+1.6 Wind 210 deg - No Ice	84.35	-31.89	55.26	5929.32	3449.05	63.38
0.9 Dead+1.6 Wind 210 deg - No Ice	63.26	-31.89	55.26	5925.57	3439.84	63.37

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:</p>	Job	CT11230A	Page	20 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
1.2 Dead+1.6 Wind 240 deg - No Ice	84.35	-56.62	32.70	3456.31	6020.76	62.24
0.9 Dead+1.6 Wind 240 deg - No Ice	63.26	-56.62	32.70	3455.07	6009.00	62.22
1.2 Dead+1.6 Wind 270 deg - No Ice	84.35	-61.12	0.00	-8.95	6617.57	61.72
0.9 Dead+1.6 Wind 270 deg - No Ice	63.26	-61.12	0.00	-6.72	6605.16	61.69
1.2 Dead+1.6 Wind 300 deg - No Ice	84.35	-52.10	-30.10	-3297.95	5715.54	7.95
0.9 Dead+1.6 Wind 300 deg - No Ice	63.26	-52.10	-30.10	-3292.38	5704.00	7.95
1.2 Dead+1.6 Wind 330 deg - No Ice	84.35	-30.24	-52.40	-5776.10	3350.33	-67.37
0.9 Dead+1.6 Wind 330 deg - No Ice	63.26	-30.24	-52.40	-5768.01	3341.18	-67.34
1.2 Dead+1.0 Ice+1.0 Temp	194.09	0.00	0.00	-82.77	138.82	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	194.09	0.00	-17.94	-2112.09	139.20	-20.42
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	194.09	9.12	-15.80	-1853.89	-882.77	-21.12
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	194.09	15.99	-9.23	-1112.55	-1643.19	-25.67
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	194.09	18.00	0.00	-83.03	-1883.22	-19.25
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	194.09	15.53	8.97	932.11	-1618.19	3.38
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	194.09	8.53	14.78	1622.95	-845.21	19.22
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	194.09	0.00	17.30	1899.95	139.24	20.42
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	194.09	-9.12	15.80	1687.91	1161.20	21.12
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	194.09	-16.55	9.56	969.64	1961.61	25.67
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	194.09	-18.00	0.00	-82.96	2161.64	19.25
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	194.09	-14.97	-8.64	-1074.98	1856.62	-3.38
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	194.09	-8.53	-14.78	-1788.91	1123.65	-19.22
Dead+Wind 0 deg - Service	70.29	0.00	-16.06	-1715.51	19.15	-16.13
Dead+Wind 30 deg - Service	70.29	7.63	-13.21	-1426.47	-799.56	-15.15
Dead+Wind 60 deg - Service	70.29	12.60	-7.28	-796.43	-1346.47	-14.88
Dead+Wind 90 deg - Service	70.29	14.62	0.00	-7.41	-1556.77	-14.76
Dead+Wind 120 deg - Service	70.29	13.39	7.74	817.66	-1408.88	-1.90
Dead+Wind 150 deg - Service	70.29	7.23	12.53	1370.81	-775.96	16.11
Dead+Wind 180 deg - Service	70.29	0.00	14.98	1622.57	19.15	16.12
Dead+Wind 210 deg - Service	70.29	-7.63	13.21	1411.67	837.86	15.15
Dead+Wind 240 deg - Service	70.29	-13.54	7.82	820.70	1452.43	14.88
Dead+Wind 270 deg - Service	70.29	-14.62	0.00	-7.40	1595.05	14.76
Dead+Wind 300 deg - Service	70.29	-12.46	-7.20	-793.38	1379.49	1.90
Dead+Wind 330 deg - Service	70.29	-7.23	-12.53	-1385.59	814.26	-16.11

Solution Summary

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	21 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-70.29	0.00	0.00	70.29	0.00	0.000%
2	0.00	-84.35	-67.17	-0.00	84.35	67.17	0.001%
3	0.00	-63.26	-67.17	-0.00	63.26	67.17	0.002%
4	31.89	-84.35	-55.26	-31.89	84.35	55.26	0.000%
5	31.89	-63.26	-55.26	-31.89	63.26	55.26	0.002%
6	52.70	-84.35	-30.45	-52.70	84.35	30.45	0.000%
7	52.70	-63.26	-30.45	-52.70	63.26	30.44	0.002%
8	61.12	-84.35	0.00	-61.12	84.35	-0.00	0.000%
9	61.12	-63.26	0.00	-61.12	63.26	-0.00	0.002%
10	56.01	-84.35	32.36	-56.01	84.35	-32.36	0.000%
11	56.01	-63.26	32.36	-56.01	63.26	-32.36	0.002%
12	30.24	-84.35	52.40	-30.24	84.35	-52.40	0.000%
13	30.24	-63.26	52.40	-30.24	63.26	-52.40	0.002%
14	0.00	-84.35	62.65	-0.00	84.35	-62.65	0.000%
15	0.00	-63.26	62.65	-0.00	63.26	-62.65	0.002%
16	-31.89	-84.35	55.26	31.89	84.35	-55.26	0.000%
17	-31.89	-63.26	55.26	31.89	63.26	-55.26	0.002%
18	-56.62	-84.35	32.70	56.62	84.35	-32.70	0.001%
19	-56.62	-63.26	32.70	56.62	63.26	-32.70	0.002%
20	-61.12	-84.35	0.00	61.12	84.35	-0.00	0.000%
21	-61.12	-63.26	0.00	61.12	63.26	-0.00	0.002%
22	-52.10	-84.35	-30.10	52.10	84.35	30.10	0.000%
23	-52.10	-63.26	-30.10	52.10	63.26	30.10	0.002%
24	-30.24	-84.35	-52.40	30.24	84.35	52.40	0.000%
25	-30.24	-63.26	-52.40	30.24	63.26	52.40	0.002%
26	0.00	-194.09	0.00	-0.00	194.09	-0.00	0.000%
27	0.00	-194.09	-17.94	-0.00	194.09	17.94	0.000%
28	9.12	-194.09	-15.80	-9.12	194.09	15.80	0.000%
29	15.99	-194.09	-9.23	-15.99	194.09	9.23	0.000%
30	18.00	-194.09	0.00	-18.00	194.09	-0.00	0.000%
31	15.53	-194.09	8.97	-15.53	194.09	-8.97	0.000%
32	8.53	-194.09	14.78	-8.53	194.09	-14.78	0.000%
33	0.00	-194.09	17.30	-0.00	194.09	-17.30	0.000%
34	-9.12	-194.09	15.80	9.12	194.09	-15.80	0.000%
35	-16.55	-194.09	9.56	16.55	194.09	-9.56	0.000%
36	-18.00	-194.09	0.00	18.00	194.09	-0.00	0.000%
37	-14.97	-194.09	-8.64	14.97	194.09	8.64	0.000%
38	-8.53	-194.09	-14.78	8.53	194.09	14.78	0.000%
39	0.00	-70.29	-16.06	-0.00	70.29	16.06	0.001%
40	7.63	-70.29	-13.22	-7.63	70.29	13.21	0.001%
41	12.60	-70.29	-7.28	-12.60	70.29	7.28	0.001%
42	14.62	-70.29	0.00	-14.62	70.29	-0.00	0.001%
43	13.39	-70.29	7.74	-13.39	70.29	-7.74	0.000%
44	7.23	-70.29	12.53	-7.23	70.29	-12.53	0.001%
45	0.00	-70.29	14.98	-0.00	70.29	-14.98	0.001%
46	-7.63	-70.29	13.22	7.63	70.29	-13.21	0.001%
47	-13.54	-70.29	7.82	13.54	70.29	-7.82	0.001%
48	-14.62	-70.29	0.00	14.62	70.29	-0.00	0.001%
49	-12.46	-70.29	-7.20	12.46	70.29	7.20	0.001%
50	-7.23	-70.29	-12.53	7.23	70.29	12.53	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001

<p style="text-align: center;">tnxTower</p> <p>Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:</p>	Job	CT11230A	Page	22 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

2	Yes	9	0.00000001	0.00004176
3	Yes	8	0.00000001	0.00012155
4	Yes	9	0.00000001	0.00004278
5	Yes	8	0.00000001	0.00012548
6	Yes	9	0.00000001	0.00004381
7	Yes	8	0.00000001	0.00012931
8	Yes	9	0.00000001	0.00004285
9	Yes	8	0.00000001	0.00012574
10	Yes	9	0.00000001	0.00004177
11	Yes	8	0.00000001	0.00012171
12	Yes	9	0.00000001	0.00004306
13	Yes	8	0.00000001	0.00012633
14	Yes	9	0.00000001	0.00004390
15	Yes	8	0.00000001	0.00012953
16	Yes	9	0.00000001	0.00004279
17	Yes	8	0.00000001	0.00012551
18	Yes	9	0.00000001	0.00004175
19	Yes	8	0.00000001	0.00012159
20	Yes	9	0.00000001	0.00004285
21	Yes	8	0.00000001	0.00012573
22	Yes	9	0.00000001	0.00004386
23	Yes	8	0.00000001	0.00012945
24	Yes	9	0.00000001	0.00004304
25	Yes	8	0.00000001	0.00012629
26	Yes	7	0.00000001	0.00008706
27	Yes	9	0.00000001	0.00008307
28	Yes	9	0.00000001	0.00008171
29	Yes	9	0.00000001	0.00008055
30	Yes	9	0.00000001	0.00007884
31	Yes	9	0.00000001	0.00007886
32	Yes	9	0.00000001	0.00007945
33	Yes	9	0.00000001	0.00008105
34	Yes	9	0.00000001	0.00008256
35	Yes	9	0.00000001	0.00008393
36	Yes	9	0.00000001	0.00008420
37	Yes	9	0.00000001	0.00008460
38	Yes	9	0.00000001	0.00008399
39	Yes	8	0.00000001	0.00012987
40	Yes	8	0.00000001	0.00013013
41	Yes	8	0.00000001	0.00013054
42	Yes	8	0.00000001	0.00012955
43	Yes	8	0.00000001	0.00012922
44	Yes	8	0.00000001	0.00013065
45	Yes	8	0.00000001	0.00013146
46	Yes	8	0.00000001	0.00013033
47	Yes	8	0.00000001	0.00012942
48	Yes	8	0.00000001	0.00012999
49	Yes	8	0.00000001	0.00013109
50	Yes	8	0.00000001	0.00013086

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	195 - 175	2.597	39	0.1009	0.0348
T2	175 - 155	2.170	39	0.0988	0.0338
T3	155 - 135	1.742	39	0.0928	0.0293
T4	135 - 115	1.355	39	0.0828	0.0257
T5	115 - 95	1.009	39	0.0713	0.0215

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	23 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T6	95 - 75	0.719	39	0.0580	0.0183
T7	75 - 55	0.481	39	0.0453	0.0148
T8	55 - 40	0.287	39	0.0335	0.0108
T9	40 - 20	0.164	39	0.0245	0.0068
T10	20 - 0	0.056	39	0.0118	0.0032

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.00	APXVSPP18-C-A20 w/ Mount Pipe	39	2.491	0.1006	0.0348	Inf
180.00	AIR 21 B2A/B4P w/ Mount Pipe	39	2.278	0.0996	0.0344	399301
173.00	800 10121 w/ Mount Pipe	39	2.127	0.0984	0.0335	600406
160.00	Sector Mount [SM 410-3]	39	1.847	0.0948	0.0305	123847
147.00	BXA-171063-12CF-EDIN-X w/ Mount Pipe	39	1.582	0.0891	0.0278	101329
80.00	GPS	39	0.536	0.0483	0.0158	97871

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	195 - 175	10.846	2	0.4217	0.1458
T2	175 - 155	9.062	2	0.4131	0.1414
T3	155 - 135	7.275	2	0.3877	0.1227
T4	135 - 115	5.656	2	0.3455	0.1074
T5	115 - 95	4.211	2	0.2976	0.0899
T6	95 - 75	3.003	2	0.2419	0.0767
T7	75 - 55	2.007	2	0.1889	0.0622
T8	55 - 40	1.198	2	0.1395	0.0451
T9	40 - 20	0.686	2	0.1020	0.0285
T10	20 - 0	0.232	2	0.0490	0.0132

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.00	APXVSPP18-C-A20 w/ Mount Pipe	2	10.402	0.4203	0.1457	290683
180.00	AIR 21 B2A/B4P w/ Mount Pipe	2	9.512	0.4163	0.1439	96895
173.00	800 10121 w/ Mount Pipe	2	8.882	0.4114	0.1401	147691
160.00	Sector Mount [SM 410-3]	2	7.711	0.3959	0.1276	29629
147.00	BXA-171063-12CF-EDIN-X w/ Mount Pipe	2	6.604	0.3721	0.1162	24287
80.00	GPS	2	2.237	0.2016	0.0659	23461

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job CT11230A	Page 24 of 28
	Project 1975071	Date 11:15:25 07/16/19
	Client Foresite	Designed by Ahmet Colakoglu

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio	Allowable Ratio	Criteria
								Load Allowable		
T1	195	Leg	A325N	1.1250	4	3.05	67.10	0.046	1	Bolt Tension
T2	175	Leg	A325N	1.1250	6	7.56	67.10	0.113	1	Bolt Tension
		Diagonal	A325N	0.8750	1	5.85	9.07	0.644	1	Member Block Shear
T3	155	Leg	A325N	1.1250	6	13.90	67.10	0.207	1	Bolt Tension
		Diagonal	A325N	0.8750	1	7.55	15.12	0.499	1	Member Block Shear
T4	135	Leg	A325N	1.1250	6	20.20	67.10	0.301	1	Bolt Tension
		Diagonal	A325N	0.8750	1	8.00	13.46	0.595	1	Member Block Shear
T5	115	Leg	A325N	1.1250	8	19.50	67.10	0.291	1	Bolt Tension
		Diagonal	A325N	1.0000	1	8.85	20.33	0.436	1	Member Block Shear
T6	95	Leg	A325N	1.1250	8	23.64	67.10	0.352	1	Bolt Tension
		Diagonal	A325N	1.0000	1	9.92	20.34	0.488	1	Member Block Shear
T7	75	Leg	A325N	1.2500	8	27.71	82.83	0.335	1	Bolt Tension
		Diagonal	A325N	1.0000	1	11.04	16.27	0.678	1	Member Block Shear
T8	55	Leg	A325N	1.2500	8	30.90	82.83	0.373	1	Bolt Tension
		Diagonal	A325N	1.0000	1	11.63	16.27	0.715	1	Member Block Shear
T9	40	Leg	A325N	1.2500	8	34.75	82.83	0.419	1	Bolt Tension
		Diagonal	A325N	1.0000	1	12.90	20.34	0.634	1	Member Block Shear
T10	20	Diagonal	A325N	1.0000	1	13.82	24.41	0.566	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n	Ratio
								K	$\frac{P_u}{\phi P_n}$
T1	195 - 175	3	20.01	3.33	53.4 K=1.00	7.0686	-18.50	258.31	0.072 ¹
T2	175 - 155	3 3/4	20.03	6.68	85.5 K=1.00	11.0447	-56.69	291.32	0.195 ¹
T3	155 - 135	4	20.03	6.68	80.1 K=1.00	12.5664	-100.30	353.60	0.284 ¹
T4	135 - 115	4 1/4	20.03	6.68	75.4 K=1.00	14.1863	-142.87	421.17	0.339 ¹
T5	115 - 95	4 1/4	20.03	6.68	75.4 K=1.00	14.1863	-183.28	421.17	0.435 ¹
T6	95 - 75	4 1/2	20.03	6.68	71.2	15.9043	-222.91	493.88	0.451 ¹

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	25 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T7	75 - 55	4 3/4	20.03	6.68	K=1.00 67.5	17.7205	-262.54	571.60	0.459 ¹
T8	55 - 40	4 3/4	15.03	5.01	K=1.00 50.6	17.7205	-294.43	661.23	0.445 ¹
T9	40 - 20	4 3/4	20.03	6.68	K=1.00 67.5	17.7205	-333.31	571.60	0.583 ¹
T10	20 - 0	5	20.03	6.68	K=1.00 64.1	19.6350	-373.71	654.25	0.571 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.79	3.30	114.0 K=0.90	1.2272	-3.13	20.05	0.156 ¹
T2	175 - 155	L2 1/2x2 1/2x3/16	10.16	4.94	119.9 K=1.00	0.9020	-5.94	13.71	0.433 ¹
T3	155 - 135	L2 1/2x2 1/2x5/16	11.74	5.72	140.4 K=1.00	1.4600	-7.59	16.73	0.453 ¹
T4	135 - 115	L3x3x1/4	13.44	6.56	132.9 K=1.00	1.4400	-8.09	18.41	0.440 ¹
T5	115 - 95	L3x3x3/8	15.21	7.43	151.8 K=1.00	2.1100	-8.97	20.69	0.434 ¹
T6	95 - 75	L3 1/2x3 1/2x5/16	17.03	8.32	144.8 K=1.00	2.0900	-9.99	22.53	0.443 ¹
T7	75 - 55	L4x4x1/4	18.88	9.24	139.5 K=1.00	1.9400	-11.16	22.52	0.495 ¹
T8	55 - 40	L4x4x1/4	19.89	9.70	146.5 K=1.00	1.9400	-11.73	20.43	0.574 ¹
T9	40 - 20	L4x4x5/16	22.19	10.90	165.3 K=1.00	2.4000	-13.08	19.84	0.659 ¹
T10	20 - 0	L4x4x3/8	24.11	11.84	180.4 K=1.00	2.8600	-14.08	19.86	0.709 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	5.00	4.75	127.7 K=0.70	1.2272	-0.11	16.86	0.006 ¹

¹ P_u / φP_n controls

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job CT11230A	Page 26 of 28
	Project 1975071	Date 11:15:25 07/16/19
	Client Foresite	Designed by Ahmet Colakoglu

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.00	5.75	154.6 K=0.70	1.2272	-0.45	11.61	0.039 ¹

¹ P_u / φP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	3	20.01	3.33	53.4	7.0686	12.22	318.09	0.038 ¹
T2	175 - 155	3 3/4	20.03	6.68	85.5	11.0447	45.35	497.01	0.091 ¹
T3	155 - 135	4	20.03	6.68	80.1	12.5664	83.38	565.49	0.147 ¹
T4	135 - 115	4 1/4	20.03	6.68	75.4	14.1863	121.20	638.38	0.190 ¹
T5	115 - 95	4 1/4	20.03	6.68	75.4	14.1863	155.97	638.38	0.244 ¹
T6	95 - 75	4 1/2	20.03	6.68	71.2	15.9043	189.11	715.69	0.264 ¹
T7	75 - 55	4 3/4	20.03	6.68	67.5	17.7205	221.67	797.42	0.278 ¹
T8	55 - 40	4 3/4	15.03	5.01	50.6	17.7205	247.21	797.42	0.310 ¹
T9	40 - 20	4 3/4	20.03	6.68	67.5	17.7205	277.99	797.42	0.349 ¹
T10	20 - 0	5	20.03	6.68	64.1	19.6350	308.94	883.57	0.350 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.79	3.30	126.7	1.2272	3.10	39.76	0.078 ¹
T2	175 - 155	L2 1/2x2 1/2x3/16	10.16	4.94	78.6	0.5359	5.85	23.31	0.251 ¹
T3	155 - 135	L2 1/2x2 1/2x5/16	11.74	5.72	92.6	0.8606	7.55	37.44	0.202 ¹
T4	135 - 115	L3x3x1/4	13.44	6.56	86.5	0.8925	8.00	38.82	0.206 ¹
T5	115 - 95	L3x3x3/8	15.21	7.43	99.8	1.2661	8.85	55.08	0.161 ¹
T6	95 - 75	L3 1/2x3 1/2x5/16	17.03	8.32	94.3	1.3038	9.92	56.72	0.175 ¹
T7	75 - 55	L4x4x1/4	18.88	9.24	90.3	1.2441	11.04	54.12	0.204 ¹
T8	55 - 40	L4x4x1/4	19.89	9.70	94.7	1.2441	11.63	54.12	0.215 ¹
T9	40 - 20	L4x4x5/16	22.19	10.90	107.1	1.5363	12.90	66.83	0.193 ¹
T10	20 - 0	L4x4x3/8	24.11	11.84	117.2	1.8286	13.82	79.54	0.174 ¹

¹ P_u / φP_n controls

tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:	Job	CT11230A	Page	27 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	5.00	4.75	182.4	1.2272	0.07	39.76	0.002 ¹

¹ P_u / φP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	195 - 175	1 1/4	6.00	5.75	220.8	1.2272	0.40	39.76	0.010 ¹

¹ P_u / φP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	φP _{allow} K	% Capacity	Pass Fail
T1	195 - 175	Leg	3	3	-18.50	258.31	7.2	Pass
T2	175 - 155	Leg	3 3/4	48	-56.69	291.32	19.5	Pass
T3	155 - 135	Leg	4	69	-100.30	353.60	28.4	Pass
T4	135 - 115	Leg	4 1/4	90	-142.87	421.17	33.9	Pass
T5	115 - 95	Leg	4 1/4	111	-183.28	421.17	43.5	Pass
T6	95 - 75	Leg	4 1/2	132	-222.91	493.88	45.1	Pass
T7	75 - 55	Leg	4 3/4	153	-262.54	571.60	45.9	Pass
T8	55 - 40	Leg	4 3/4	174	-294.43	661.23	44.5	Pass
T9	40 - 20	Leg	4 3/4	195	-333.31	571.60	58.3	Pass
T10	20 - 0	Leg	5	216	-373.71	654.25	57.1	Pass
T1	195 - 175	Diagonal	1 1/4	11	-3.13	20.05	15.6	Pass
T2	175 - 155	Diagonal	L2 1/2x2 1/2x3/16	53	-5.94	13.71	43.3	Pass
T3	155 - 135	Diagonal	L2 1/2x2 1/2x5/16	74	-7.59	16.73	64.4 (b)	Pass
T4	135 - 115	Diagonal	L3x3x1/4	95	-8.09	18.41	49.9 (b)	Pass
T5	115 - 95	Diagonal	L3x3x3/8	116	-8.97	20.69	59.5 (b)	Pass
T6	95 - 75	Diagonal	L3 1/2x3 1/2x5/16	137	-9.99	22.53	43.6 (b)	Pass
T7	75 - 55	Diagonal	L4x4x1/4	158	-11.16	22.52	44.3	Pass
T8	55 - 40	Diagonal	L4x4x1/4	179	-11.73	20.43	48.8 (b)	Pass
T9	40 - 20	Diagonal	L4x4x5/16	200	-13.08	19.84	49.5	Pass
T10	20 - 0	Diagonal	L4x4x3/8	221	-14.08	19.86	67.8 (b)	Pass
T1	195 - 175	Top Girt	1 1/4	5	-0.11	16.86	57.4	Pass
T1	195 - 175	Bottom Girt	1 1/4	7	-0.45	11.61	71.5 (b)	Pass

<p>tnxTower</p> <p>Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA Phone: (770) 693-0835 FAX:</p>	Job	CT11230A	Page	28 of 28
	Project	1975071	Date	11:15:25 07/16/19
	Client	Foresite	Designed by	Ahmet Colakoglu

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
Summary								
						Leg (T9)	58.3	Pass
						Diagonal (T8)	71.5	Pass
						Top Girt (T1)	0.6	Pass
						Bottom Girt (T1)	3.9	Pass
						Bolt Checks	71.5	Pass
						RATING =	71.5	Pass

Project Information	
Site #	CT11230A

Tower Information	
Tower Type	Self Support
TIA-222 Rev	G

Load Z Normalization

Applied Loads		
	Comp.	Uplift
Axial (k)	380.00	313.00
Shear (k)	41.00	35.00

Anchor Rod Data	
Quantity:	8
Diameter (in):	1.375
Material Grade:	A449
Grout Considered:	No
l_{ar} (in):	1
Eta Factor, η :	0.5
Thread Type:	N-Included
Configuration:	Symmetrical

Fy=81 ksi Fu=105 ksi

Anchor Rod Results	
Axial, Pu_c (kips)	47.50
Shear, Vu (kips)	5.13
Moment, Mu (kip-in)	-
Axial Cap., ϕPn_t (kips)	97.44
Shear Cap., ϕVn (kips)	-
Moment Cap., ϕMn (kip-in)	-
Stress Rating	59.3%

Pass

SST Unit Base Foundation

Site #:

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, M :	7157	ft-kips
Global Axial, P :	84	kips
Global Shear, V :	67	kips
Leg Compression, P_{comp} :	380	kips
Leg Comp. Shear, V_{u,comp} :	41	kips
Leg Uplift, P_{uplift} :	313	kips
Leg Uplift. Shear, V_{u,uplift} :	35	kips
Tower Height, H :	195	ft
Base Face Width, BW :	23.5	ft
BP Dist. Above Fdn, bp_{dist} :	3	in

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
<i>Lateral (Sliding) (kips)</i>	445.75	67.00	15.0%	Pass
<i>Bearing Pressure (ksf)</i>	9.54	1.87	19.6%	Pass
<i>Overturning (kip*ft)</i>	14837.37	7609.25	51.3%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	1045.11	164.00	15.7%	Pass
<i>Pier Flexure (Tension) (kip*ft)</i>	634.74	140.00	22.1%	Pass
<i>Pier Compression (kip)</i>	3374.26	385.09	11.4%	Pass
<i>Pad Flexure (kip*ft)</i>	2988.57	1438.54	48.1%	Pass
<i>Pad Shear - 1-way (kips)</i>	854.78	242.52	28.4%	Pass
<i>Pad Shear - Comp 2-way (ksi)</i>	0.164	0.082	49.7%	Pass

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, dpier :	3.0	ft
Ext. Above Grade, E :	0.50	ft
Pier Rebar Size, Sc :	8	
Pier Rebar Quantity, mc :	20	
Pier Tie/Spiral Size, St :	3	
Pier Tie/Spiral Quantity, mt :	6	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Soil Rating:	51.3%
Structural Rating:	49.7%

Pad Properties		
Depth, D :	6.00	ft
Pad Width, W :	34.00	ft
Pad Thickness, T :	2.50	ft
Pad Rebar Size (Bottom), Sp :	8	
Pad Rebar Quantity (Bottom), mp :	34	
Pad Clear Cover, cc_{pad} :	3	in

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

Soil Properties		
Total Soil Unit Weight, γ :	120	pcf
Ultimate Net Bearing, Qnet :	12.000	ksf
Cohesion, Cu :	0.000	ksf
Friction Angle, φ :	30	degrees
SPT Blow Count, N_{blows} :		
Base Friction, μ :	0.5	
Neglected Depth, N :	3.3	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	N/A	ft

<- Toggle between Gross and Net

Exhibit E

July 16, 2019

Re: Mount Structural Evaluation
T-Mobile Site ID: CT11230A
T-Mobile Site Name: North Haven/Rt 17
Site Address: 88 Parsonage Hill Road, North Branford, CT 06472
Destek Job Number: 1975071

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

- RFDS provided by T-Mobile, dated 05/06/2019.
- Structural Analysis Report prepared by Destek Engineering, LLC, dated 06/25/2019.
- Structural Analysis Report prepared by ComEx Consultants, dated 09/25/2017.
- Structural Analysis Report prepared by Atlantis Group, Inc., dated 09/02/2014.
- Construction Drawings prepared by Atlantis Group, Inc., dated 09/04/2014.

Proposed Changes:

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

- **(3) Proposed RFS APXVAARR24_43-U-NA20 – Antennas**
- **(3) Proposed Radio 4449 B71+B12 – RRUs**
- (3) Existing Ericsson AIR21 KRC118023-1_B2A_B4P – Antennas
- (3) Existing Ericsson AIR21 KRC118023-1_B2P_B4A – Antennas
- (3) Existing Generic Twin Style 1B AWS – TMAs

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

Codes and Loading:

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

- *2018 Connecticut State Building Code*
- *ASCE 7-10, Minimum Design Loads for Buildings and Other Structures.*
- *TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures.*
- Basic Wind Speed, V_{ult} = 130 mph converted to V_{asd} = 101 mph.
- RAD Center: 180 ft
- Exposure Category C
- Risk Category II

Engineering Evaluation and Conclusion: T-Mobile currently has nine (9) panel antennas supported by sector mounts attached to the tower legs at a RAD center of 180 feet above grade level. The proposed configuration will replace the three (3) existing panel antennas and three (3) existing RRU's with three (3) new panel antennas and three (3) new RRU's of similar dimensions. Based on our experience with similar mount structures and with respect to the changes in applied loads, Destek opines that the mounts **will have adequate** capacity for the proposed T-Mobile loading referenced above, ***once the mounts are reinforced with Valmont/Site Pro 1 XLD Sector Frame Reinforcement Kits (P/N: SFR-K-L) attached to new 2.0" STD horizontal pipes installed at mid-height between the existing mount horizontals. The new 2.0" STD horizontals must be connected to the existing pipe verticals with crossover plate kits and (2)-1/2" U-bolts per pipe.***

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

Sincerely,
Destek Engineering, LLC
License No: PEC0001429

7/16/2019



Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

Site Photographs



Existing T-Mobile Antenna Mount on Tower



Existing T-Mobile Antenna Mount on Tower

Exhibit F

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

T-Mobile Existing Facility

Site ID: CTI1230A

North Haven/Rt 17
88 Parsonage Hill Road
North Branford, Connecticut 06472

May 22, 2019

EBI Project Number: 6219001733

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	7.51%

May 22, 2019

T-Mobile

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

Emissions Analysis for Site: CT11230A - North Haven/Rt 17

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **88 Parsonage Hill Road in North Branford, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 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 11 GHz 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 88 Parsonage Hill Road in North Branford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

- 6) 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.
- 7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antennas used in this modeling are the Ericsson AIR21 B2A/B4P for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR21 B2A/B4P for the 2100 MHz channel(s) in Sector A, the Ericsson AIR21 B2A/B4P for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR21 B4A/B2P for the 2100 MHz channel(s) in Sector B, the Ericsson AIR21 B2A/B4P for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR21 B4A/B2P for the 2100 MHz channel(s) in Sector C.
- 10) This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 11) The antenna mounting height centerline of the proposed antennas is 180 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 AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.35 dBd
Height (AGL):	180 feet	Height (AGL):	180 feet	Height (AGL):	180 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	8,226.43	ERP (W):	8,226.43	ERP (W):	8,226.43
Antenna A1 MPE %:	0.91%	Antenna B1 MPE %:	0.91%	Antenna C1 MPE %:	0.91%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz
Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd
Height (AGL):	180 feet	Height (AGL):	180 feet	Height (AGL):	180 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	2,481.08	ERP (W):	2,481.08	ERP (W):	2,481.08
Antenna A2 MPE %:	0.64%	Antenna B2 MPE %:	0.64%	Antenna C2 MPE %:	0.64%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:		Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	180 feet	Height (AGL):	180 feet	Height (AGL):	180 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,113.21	ERP (W):	4,113.21	ERP (W):	4,113.21
Antenna A3 MPE %:	0.46%	Antenna B3 MPE %:	0.46%	Antenna C3 MPE %:	0.46%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	2.01%
Sprint	1.56%
Verizon	2.06%
AT&T	1.88%
Site Total MPE % :	7.51%

T-Mobile Sector A Total:	2.01%
T-Mobile Sector B Total:	2.01%
T-Mobile Sector C Total:	2.01%
Site Total:	7.51%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 1900 MHz UMTS	2	1028.30	180.0	2.28	1900 MHz UMTS	1000	0.23%
T-Mobile 1900 MHz GSM	4	1028.30	180.0	4.56	1900 MHz GSM	1000	0.45%
T-Mobile 2100 MHz UMTS	2	1028.30	180.0	2.28	2100 MHz UMTS	1000	0.23%
T-Mobile 600 MHz LTE	2	591.73	180.0	1.31	600 MHz LTE	400	0.33%
T-Mobile 700 MHz LTE	2	648.82	180.0	1.44	700 MHz LTE	467	0.31%
T-Mobile 2100 MHz LTE	2	2056.61	180.0	4.56	2100 MHz LTE	1000	0.46%
						Total:	2.01%

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:	2.01%
Sector B:	2.01%
Sector C:	2.01%
T-Mobile Maximum MPE % (Sector A):	2.01%
Site Total:	7.51%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **7.51%** 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



**UNITED STATES
POSTAL SERVICE®**

Click-N-Ship®

P

usps.com
US POSTAGE \$7.35
 Flat Rate Enviv



07/20/2019

Mailed from 06002 062S0000000310

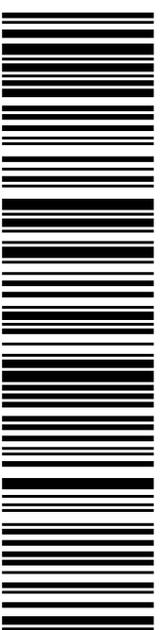
PRIORITY MAIL 1-DAY™

Expected Delivery Date: 07/22/19
 Ref#: 230ZAP
0024

R006

SHIP TO: MICHAEL T PAULHUS
 TON MANAGER - TOWN OF NORTH BRANFORD
 909 FOXON RD
 N BRANFORD CT 06471-1290

USPS TRACKING #



9405 5036 9930 0063 8867 01

Electronic Rate Approved #038555749



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0063 8867 01

Trans. #: 468634899	Priority Mail® Postage: \$7.35
Print Date: 07/20/2019	Total: \$7.35
Ship Date: 07/20/2019	
Expected Delivery Date: 07/22/2019	

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

Ref#: 230ZAP

To: MICHAEL T PAULHUS
 TON MANAGER- TOWN OF NORTH BRANFORD
 909 FOXON RD
 N BRANFORD CT 06471-1290

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



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



**UNITED STATES
POSTAL SERVICE®**

Click-N-Ship®

P

usps.com
US POSTAGE
 Flat Rate Env
\$7.35

9405 5036 9930 0063 8867 32 0073 5000 0010 6471

07/22/2019

Mailed from 06002 062S0000000310

PRIORITY MAIL 1-DAY™

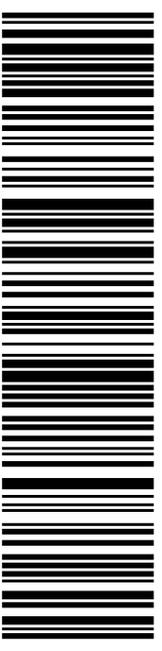
Expected Delivery Date: 07/23/19
 Ref#: 230ZAP
0024

SHIP TO: CARY DUQUES
 PLANNING & ZONING ADMIN-TOWN PLANNER-N.
 909 FOXON RD
 N BRANFORD CT 06471-1290

Carrier -- Leave if No Response

R006

USPS TRACKING #



9405 5036 9930 0063 8867 32

Electronic Rate Approved #038555749



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0063 8867 32

Trans. #: 468634899	Priority Mail® Postage: \$7.35
Print Date: 07/20/2019	Total: \$7.35
Ship Date: 07/22/2019	
Expected Delivery Date: 07/23/2019	

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

Ref#: 230ZAP

To: CARY DUQUES
 PLANNING & ZONING ADMIN-TOWN PLANNER-N.
 BRANFORD
 909 FOXON RD
 N BRANFORD CT 06471-1290

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



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



**UNITED STATES
POSTAL SERVICE®**

Click-N-Ship®

P

usps.com
US POSTAGE
 Flat Rate Env
 \$7.35

9405 5036 9930 0065 0237 77 0073 5000 0010 6472

07/22/2019

Mailed from 01566 062S0000000101

PRIORITY MAIL 2-DAY™

Expected Delivery Date: 07/24/19

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

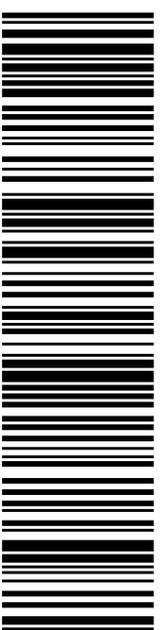
0006

Carrier -- Leave if No Response

R003

SHIP TO:
 JEAN SZWABOWSKI
 84 PARSONAGE HILL RD
 NORTHFORD CT 06472-1490

USPS TRACKING #



9405 5036 9930 0065 0237 77

Electronic Rate Approved #038555749



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0065 0237 77

Trans. #: 468730679	Priority Mail® Postage: \$7.35
Print Date: 07/22/2019	Total: \$7.35
Ship Date: 07/22/2019	
Expected Delivery Date: 07/24/2019	

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

To: JEAN SZWABOWSKI
 84 PARSONAGE HILL RD
 NORTHFORD CT 06472-1490

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



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



**UNITED STATES
POSTAL SERVICE®**

Click-N-Ship®

P

usps.com
US POSTAGE
 Flat Rate Env
 \$7.35

9405 5036 9930 0065 0238 07 0073 5000 0010 6472



07/22/2019

Mailed from 01566 062S0000000309

PRIORITY MAIL 2-DAY™

Expected Delivery Date: 07/24/19

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

0006

Carrier -- Leave if No Response

R003

SHIP TO:
 OCHENKOWSKI TOWERS LLC
 88 PARSONAGE HILL RD
 NORTHFORD CT 06472-1490

USPS TRACKING #



9405 5036 9930 0065 0238 07

Electronic Rate Approved #038555749



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0065 0238 07

Trans. #: 468730679	Priority Mail® Postage: \$7.35
Print Date: 07/22/2019	Total: \$7.35
Ship Date: 07/22/2019	
Expected Delivery Date: 07/24/2019	

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

To: OCHENKOWSKI TOWERS LLC
 88 PARSONAGE HILL RD
 NORTHFORD CT 06472-1490

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



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