NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
199 Brickyard Rd Farmington, CT 06032
860-209-4690
denise@northeastsitesolutions.com

March 28, 2016

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

RE: Tower Share Application
7 SURDAN MOUNTAIN ROAD, SHARON, CT 06069
Latitude: 41.86205000
Longitude: -73.39963000
T-Mobile Site#: CTNH544A-NSD-ROB

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of T-Mobile Northeast LLC ("T-Mobile"). T-Mobile plans to install antennas and related equipment at the tower site located at 7 Surdan Mountain Road in Sharon, Connecticut.

T-Mobile will install three (3) 700MHz antenna, three (3) 1900/2100 MHz antennas and nine (9) RRUs at the 140-foot level of the existing 197-foot support tower Two (2) hybrid cables will also be installed. T-Mobile's equipment cabinets will be placed within 10x20 lease area. Included are plans by SMW Engineering, dated March 21, 2017. **Exhibit C**. Also included is a structural analysis prepared by Destek Engineering, dated March 27, 2017, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as **Exhibit D.**

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of T-Mobile's intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Brent M. Colley, First Selectman of the Town of Sharon, as well as the tower owner (Litchfield County Dispatch) and property owner (Prindle Ann Adele).

The planned modifications of the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the support tower is 197-feet; T-Mobile's proposed antennas will be located at a center line height of 140-feet.

2. The proposed modifications will not result in the increase of the site boundary as depicted on the attached site plan.

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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 12.26% as evidenced by **Exhibit E.**

NORTHEAST SITE SOLUTIONS

Turnkey Wireless Development

Connecticut General Statutes 16-50aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, T-Mobile respectfully indicates that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting T-Mobile's proposed loading. The structural analysis is included as **Exhibit D**.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this support tower in Sharon. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit T-Mobile to obtain a building permit for the proposed installation. Further, a Letter of Authorization is included as **Exhibit F**, authorizing T-Mobile to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of T-Mobile equipment at the 140-foot level of the existing 197-foot tower would have an insignificant visual impact on the area around the tower. T-Mobile's ground equipment would be installed within the existing facility compound. T-Mobile's shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by **Exhibit E**, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. T-Mobile will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist T-Mobile with this tower sharing application.

E. Public Safety Concerns. As discussed above, the guyed tower is structurally capable of supporting T-Mobile's proposed loading. T-Mobile is not aware of any public safety concerns relative to the proposed sharing of the existing guyed tower. T-Mobile's intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through Cornwall.

Sincerely,

Denise Sabo
Mobile: 860-209-4690
Fax: 413-521-0558
Office: 199 Brickyard Rd, Farmington, CT 06032
Email: denise@northeastsitesolutions.com

Attachments

cc: Brent M. Colley, First Selectman, as elected official
Litchfield County Dispatch - as tower owner
Prindle Ann Adele - property owner

Exhibit A

7 SURDAN MOUNTAIN RD

Location	7 SURDAN MOUNTAIN RD	**Mblu**	15/ 2/ / /
Acct#	00173200	**Owner**	PRINDLE ANN ADELE
Assessment	$474,200	**Appraisal**	$677,400
PID	1487	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$412,700	$264,700	$677,400
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$288,900	$185,300	$474,200

Owner of Record

Owner	PRINDLE ANN ADELE	**Sale Price**	$0
Co-Owner		**Certificate**	
		Book & Page	158/ 453
		Sale Date	04/19/2004

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
PRINDLE ANN ADELE	$0		158/ 453	04/19/2004
PRINDLE DARIEN R & ANN ADELE	$0		136/ 456	09/23/1999
PRINDLE DARIEN R & ANN ADELE	$115,000		132/ 861	08/03/1998
PRINDLE DARIEN	$0		98/ 458	10/19/1981

Building Information

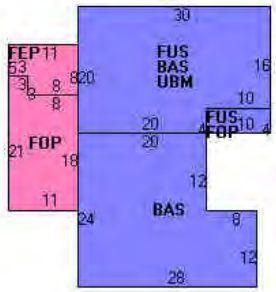
Building 1 : Section 1

Year Built:	1952
Living Area:	1,736
Building Percent Good:	80
Replacement Cost Less Depreciation:	$163,500

Building Attributes	
Field	**Description**

Building Layout

Style	Conventional
Model	Residential
Grade:	C+
Stories:	2 Stories
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt Shngl.
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	Carpet
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	3 Bedrooms
Total Bthrms:	2
Total Half Baths:	0
Total Rooms:	7
Bath Style:	Average
Kitchen Style:	Average



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,136	1,136
FUS	Upper Story, Finished	600	600
FEP	Enclosed Porch	79	0
FOP	Open Porch	247	0
UBM	Basement, Unfinished	560	0
		2,622	1,736

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

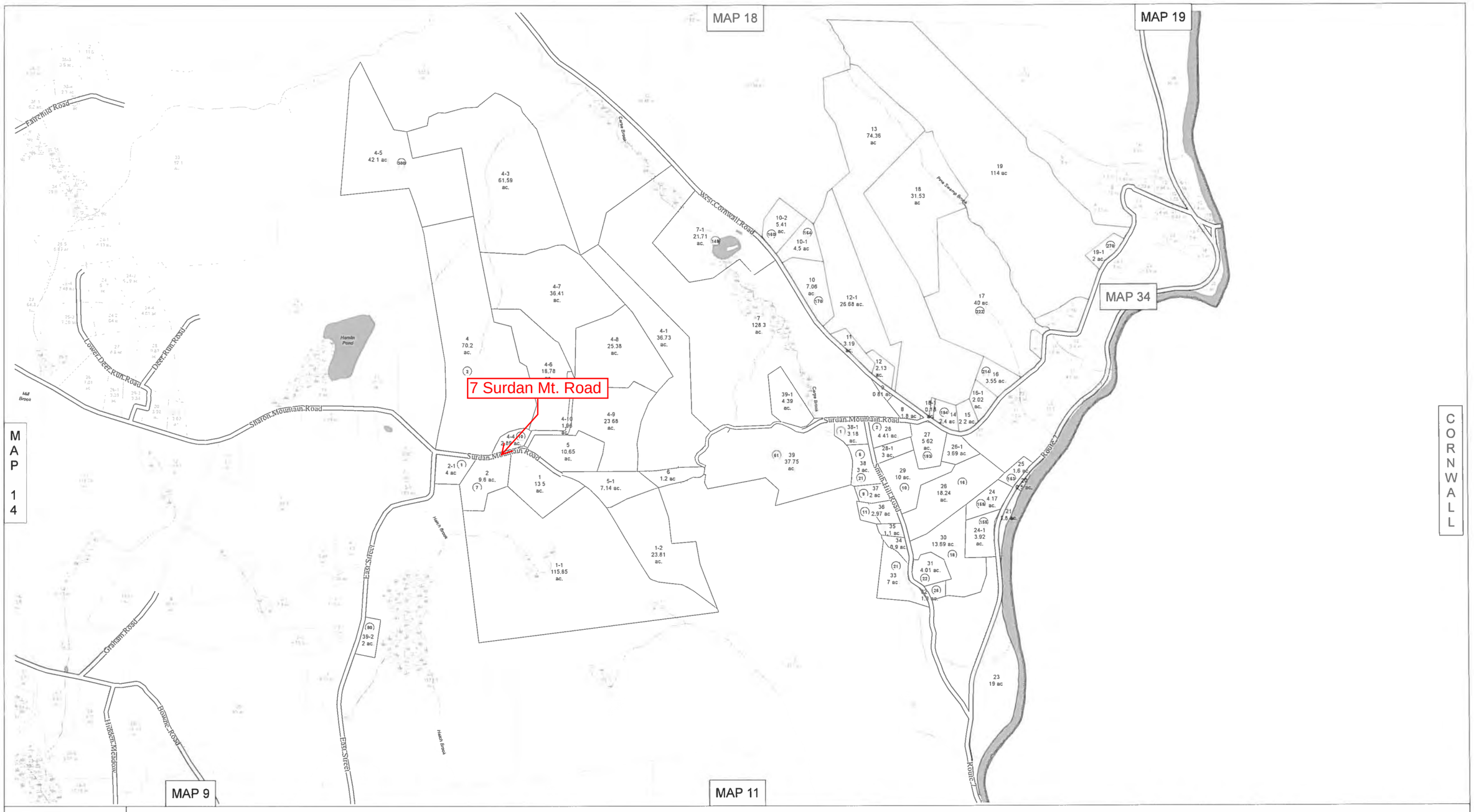
Use Code	101
Description	Single Family
Zone	RR
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	9.6
Frontage	
Depth	
Assessed Value	$185,300
Appraised Value	$264,700

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
BRN1	Barn 1 St.			860 S.F.	$11,600	1
SHD1	Shed			100 S.F.	$1,400	1
GAR1	Garage w/Shop			1254 S.F.	$31,000	1
CELL	Cell Tower site			1 UNITS	$205,200	1



② Street Number | Parcel Boundary | Town Boundary | Roads | Water Course | Water | Marsh

Property Map
TOWN OF SHARON
Litchfield County, Connecticut
----------2013----------

MAP 15

Revised October 1, 2013

N W E S

For assessment purposes only.
Not to be used for conveyance.

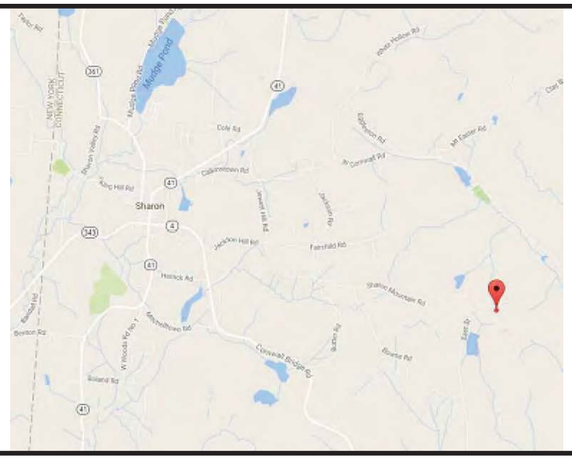
Prepared by
Housatonic Valley Association
PO Box 28, 150 Kent Road
Cornwall Bridge, CT 06754
860-672-6678
maps@hvatoday.org

Exhibit B

GENERAL NOTES

1. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTORS SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
2. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
3. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
4. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
5. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
6. THE SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
7. THE SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
8. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWING MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
9. ALL SAFETY PRECAUTIONS MUCH BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

LOCATION MAP



HANDICAP REQUIREMENTS

FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAP ACCESS IS NOT REQUIRED.

PLUMBING REQUIREMENTS

FACILITY HAS NO SANITARY OR POTABLE WATER

T-Mobile

2016 INFILL/ROB/GREENFIELD

T-MOBILE SITE NUMBER

CTNH544A

195' SELF SUPPORT TOWER

SITE ADDRESS
7 SURDAN MOUNTAIN ROAD
SHARON, CT 06498

CONFIGURATION
707C

SITE SUMMARY

SITE TYPE:	PROPOSED EQUIPMENT INSTALLATION
TECHNOLOGY TYPE:	U1900/L2100/L700
SITE ADDRESS:	7 SURDAN MOUNTAIN ROAD SHARON, CT 06498
SITE LATITUDE:	41° 51' 43.307" NORTH
SITE LONGITUDE:	73° 23' 58.535" WEST
JURISDICTION:	TOWN OF SHARON
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	TO BE DETERMINED
PROPERTY OWNER:	ANN ADELE PRINDLE
TOWER OWNER:	LITCHFIELD COUNTY DISPATCH
TOWER MANAGER:	NORTHEAST SITE SOLUTIONS, LLC 420 MAIN ST #2 STURBRIDGE, MA 01566 SHELDON FREINCLE (201) 776-8521
WIRELESS CARRIER:	T-MOBILE 35 GRIFFIN RD S BLOOMFIELD, CT 06002 OFFICE: 860-692-7100 FAX: 860-692-7159
ENGINEER:	SMW ENGINEERING 158 BUSINESS CENTER DRIVE BIRMINGHAM, AL 35244 PHONE: 205-252-6985 ALVIN A. KRAFT, PE

BUILDING CODES

ALL CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITION OF THE (AS ADOPTED BY LOCAL JURISDICTION):

- 2016 CONNECTICUT BUILDING CODE
- 2012 INTERNATIONAL BUILDING CODE W/AMENDMENTS
- 2009 ICC/ANSI A117.1 W/AMENDMENTS
- 2012 INTERNATIONAL EXISTING BUILDING CODE W/AMENDMENTS
- 2012 INTERNATIONAL PLUMBING CODE WITH AMENDMENTS
- 2012 INTERNATIONAL MECHANICAL CODE W/AMENDMENTS
- 2012 INTERNATIONAL ENERGY CONSERVATION CODE W/AMENDMENTS
- 2014 NFPA 70, NATIONAL ELECTRICAL CODE W/AMENDMENTS
- 2012 INTERNATIONAL RESIDENTIAL CODE W/AMENDMENTS

APPROVALS

DEPARTMENT	NAME/SIGNATURE	DATE
DEVELOPMENT MANAGER		
PROPERTY/TOWER OWNER		
SITE ACQUISITION MANAGER		
CONSTRUCTION MANAGER		
RF ENGINEER		
OPERATIONS MANAGER		

PROJECT SCOPE

THE PROPOSED PROJECT SCOPE WILL CONSIST OF CONSTRUCTING A NEW TELECOMMUNICATIONS BASE STATION INSTALLATION ON AN EXISTING TOWER SITE. THE PROPOSED CONSTRUCTION WILL INCLUDE THE INSTALLATION OF ANTENNA, RADIOS, CABLES AND RELATED EQUIPMENT ON THE TOWER AS WELL AS THE RADIOS, CABINETS, UTILITIES AND ANCILLARY EQUIPMENT ON THE GROUND.

SHEET INDEX

CALL BEFORE YOU DIG

811 Know what's below. Call before you dig.

CONNECTICUT CALL BEFORE YOU DIG
STATE WIDE
1-800-922-4455 OR 811
HTTP://WWW.CBYD.COM/#

T-Mobile
35 GRIFFIN RD S
BLOOMFIELD, CT 06002
OFFICE: 860-692-7100
FAX: 860-692-7159

PLANS PREPARED BY:
NSS NORTHEAST SITE SOLUTIONS
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST #2
STURBRIDGE, MA 01566
(860) 677-1999

SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW

STATE OF CONNECTICUT
ALVIN A. KRAFT
No. 25787
LICENSED PROFESSIONAL ENGINEER

03/21/17

SITE INFORMATION:
CTNH544A
7 SURDAN MOUNTAIN ROAD
SHARON, CT 06498

#	DATE	DESCRIPTION:
0	10/19/16	ISSUED FOR CLIENT REV.
1	10/25/16	REISSUED FOR CLIENT REV.
2	03/10/17	ISSUED FOR CONSTRUCTION
3	03/21/17	REISSUED FOR CONSTRUCTION

T-MOBILE SITE ID: CTNH544A

SHEET NAME: TITLE SHEET

SMW #: 16-2211

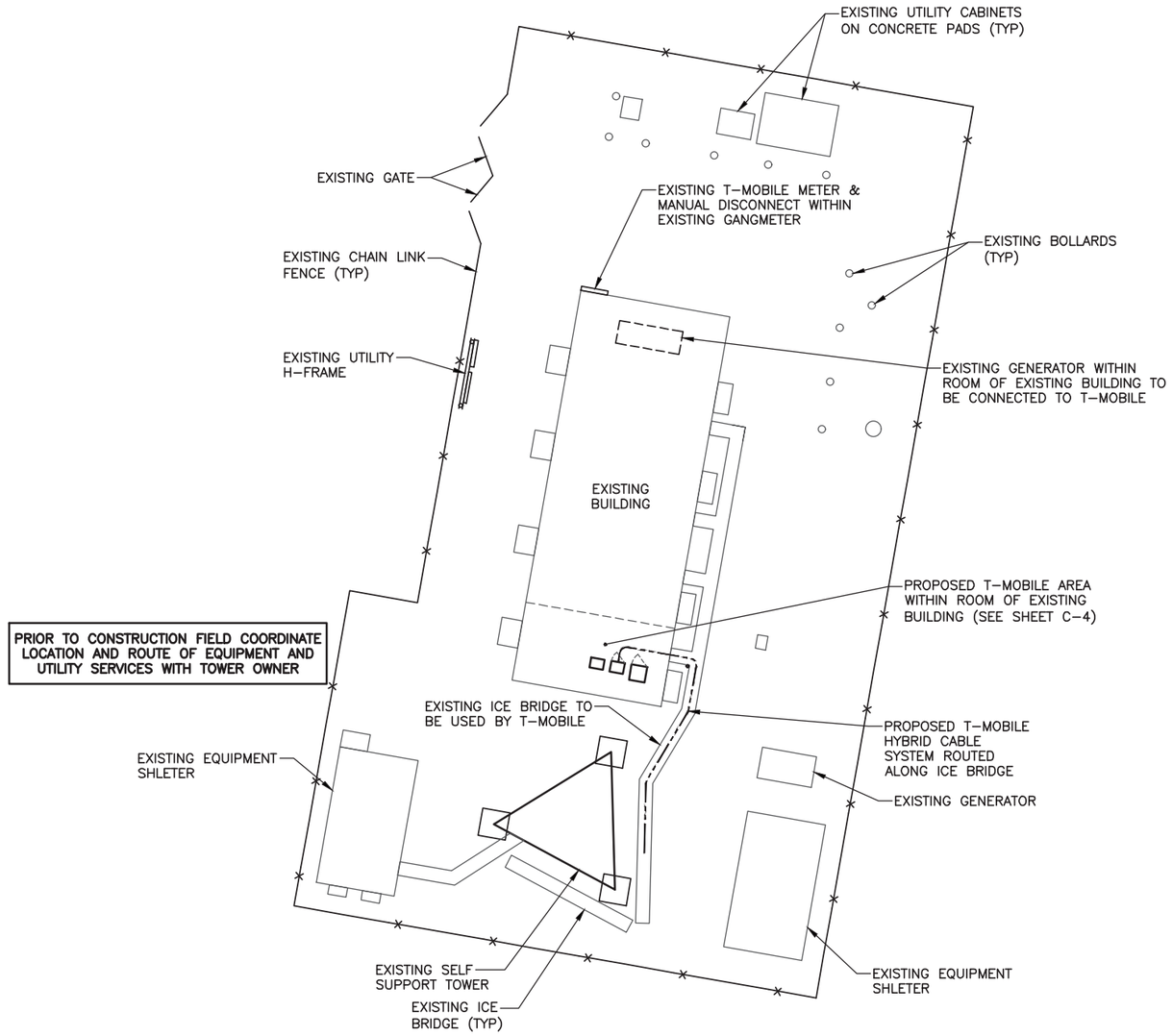
DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

SHEET NUMBER: T-1

NOTE TO CONTRACTORS:
DIGGING AND/OR TRENCHING INSIDE COMPOUND, MUST BE DONE BY HAND.

UTILITY NOTE:
THERE ARE NOT ANY EXISTING STORM OR SANITARY SEWER LINES OR BURIED UTILITIES ON THE PARENT TRACK WITHIN THE VICINITY OF THE PROPOSED CONSTRUCTION.

SUBJECT PROPERTY IS LOCATED IN PANEL # 0900530016B, DATED (AUGUST 16, 1988) AND IS IN THE BASE FLOOD ZONE "X" AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.



N

0' 20' 40' 60'
1" = 20' (11"x17")

0' 10' 20' 30'
1" = 10' (24"x36")

1/C-1 OVERALL SITE PLAN

T-Mobile
35 GRIFFIN RD S
BLOOMFIELD, CT 06002
OFFICE: 860-692-7100
FAX: 860-692-7159

PLANS PREPARED BY:
NSS NORTHEAST SITE SOLUTIONS
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST #2
STURBRIDGE, MA 01566
(860) 677-1999

SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW

STATE OF CONNECTICUT · KEVIN A. KRATTENAU · No. 30760 · LICENSED PROFESSIONAL ENGINEER

03/21/17

SITE INFORMATION:
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T-MOBILE SITE ID: CTNH544A

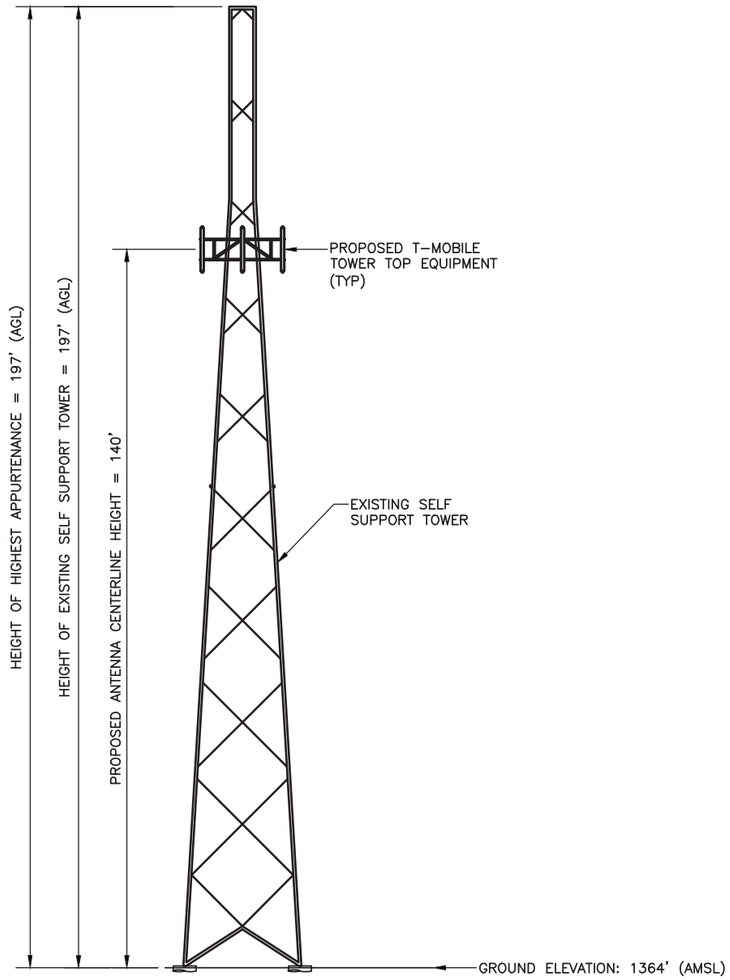
SHEET NAME:
OVERALL SITE PLAN

SMW #: 16-2211

DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

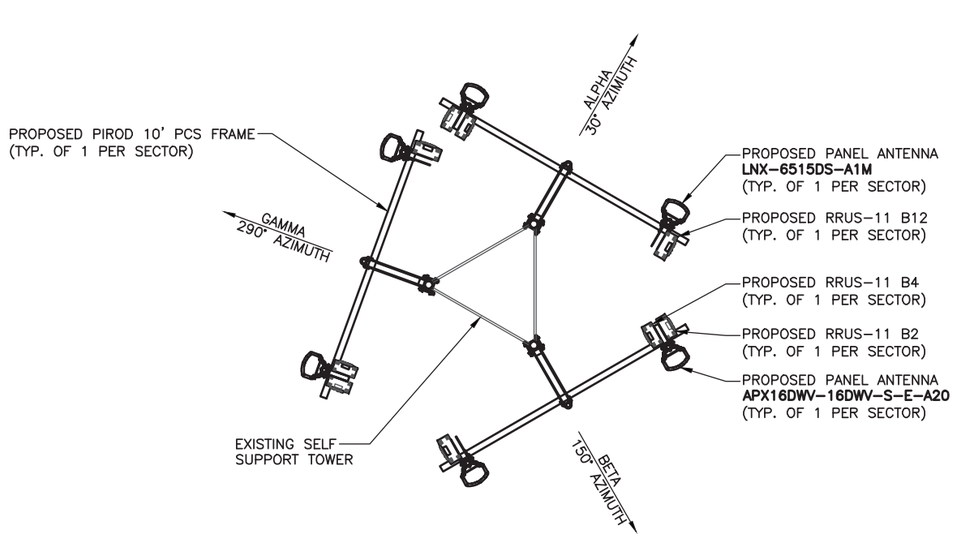
SHEET NUMBER: C-1

SMW ENGINEERING HAS NOT PERFORMED A STRUCTURAL EVALUATION FOR THIS PROJECT. REFER TO THE STRUCTURAL ANALYSIS BY DESTEK ENGINEERING ISSUED ON 03/03/17.

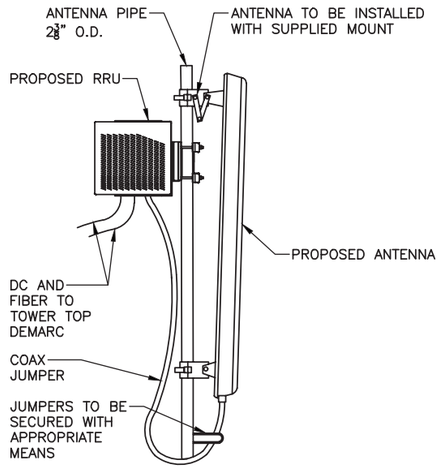


NOTES:
1. IF THE TOWER STRUCTURAL ANALYSIS SHOWS THE NEED FOR TOWER REINFORCEMENT REFER TO TOWER REINFORCEMENT DESIGN PRIOR TO THE INSTALLATION OF ANY PROPOSED EQUIPMENT.
2. REFER TO TOWER STRUCTURAL ANALYSIS FOR PROPOSED CABLE ROUTING AND ATTACHMENT DETAILS.
3. TOWER ELEVATION SHOWN IS NOT DRAWN TO SCALE AND IS INTENDED ONLY FOR REFERENCE PURPOSES. REFER TO ORIGINAL TOWER DESIGN FOR ADDITIONAL INFORMATION.

1 / C-2 TOWER ELEVATION
NOT TO SCALE



2 / C-2 PROPOSED ANTENNA ORIENTATION PLAN
NOT TO SCALE



3 / C-2 ANTENNA MOUNT DETAIL
NOT TO SCALE

T-Mobile
35 GRIFFIN RD S
BLOOMFIELD, CT 06002
OFFICE: 860-692-7100
FAX: 860-692-7159

PLANS PREPARED BY:
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NORTHEAST SITE SOLUTIONS, LLC
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STURBRIDGE, MA 01566
(860) 677-1999

SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW

STATE OF CONNECTICUT KEVIN A. KRAFT No. 32787 LICENSED PROFESSIONAL ENGINEER

03/21/17

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T-MOBILE SITE ID: CTNH544A

SHEET NAME:
TOWER ELEVATION & ANTENNA PLAN

SMW #: 16-2211

DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

SHEET NUMBER: C-2

707C_TOWER_1QP_1DP / U1900/L2100/L700 – TOWER TOP EQUIPMENT SCHEDULE							
ANTENNA SECTOR	ANTENNA MARK	ANTENNA AZIMUTH	ANTENNA MODEL	RRU MODEL	TMA MODEL	TOWER TOP COVP MODEL	ANTENNA CABLE DESCRIPTION
ALPHA	A1	30°	APX16DWV-16DWV-S-E-A20 (QUAD)	(1) RRUS-11 B2 (P) (1) RRUS-11 B4 (P)	--	--	(1) 1 5/8" HYBRID CABLE SYSTEM (P)
	A2	30°	--	--	--	--	--
	A3	30°	LNX-6515DS-A1M (DUAL)	(1) RRUS-11 B12 (P)	--	--	--
BETA	B1	150°	APX16DWV-16DWV-S-E-A20 (QUAD)	(1) RRUS-11 B2 (P) (1) RRUS-11 B4 (P)	--	--	(1) 1 5/8" HYBRID CABLE SYSTEM (P)
	B2	150°	--	--	--	--	--
	B3	150°	LNX-6515DS-A1M (DUAL)	(1) RRUS-11 B12 (P)	--	--	--
GAMMA	C1	290°	APX16DWV-16DWV-S-E-A20 (QUAD)	(1) RRUS-11 B2 (P) (1) RRUS-11 B4 (P)	--	--	--
	C2	290°	--	--	--	--	--
	C3	290°	LNX-6515DS-A1M (DUAL)	(1) RRUS-11 B12 (P)	--	--	--

NOTE:
(P) DENOTES PROPOSED EQUIPMENT
(R) DENOTES RESERVED EQUIPMENT
(E) DENOTES EXISTING EQUIPMENT

NOTE:
1. THE HYBRID CABLE LENGTH SHOWN IS ONLY AN ESTIMATE AND SHOULD NOT BE USED FOR ORDERING MATERIALS. CONFIRM THE REQUIRED HYBRID CABLE LENGTH WITH T-MOBILE PRIOR TO ORDERING OR INSTALLATION.
2. THE CONTRACTOR SHALL TEST THE OPTICAL FIBER AFTER INSTALLATION IN ACCORDANCE WITH T-MOBILE STANDARDS AND SUPPLY THE RESULTS TO T-MOBILE.
3. THE CONTRACTOR SHALL CONFIRM THE TOWER TOP EQUIPMENT LIST ABOVE WITH THE FINAL T-MOBILE RFDS PRIOR TO INSTALLATION.
4. ALL EXISTING AND PROPOSED ANTENNA CABLES SHALL BE COLOR CODED PER T-MOBILE MARKET STANDARDS.
5. REFER TO MANUFACTURERS INSTALLATION STANDARDS FOR ADDITIONAL INFORMATION.
6. REFER TO EQUIPMENT MANUFACTURER'S SPECIFICATION SHEETS FOR ADDITIONAL INFORMATION NOT LISTED ABOVE.

TOWER LOADING SUMMARY		
EQUIPMENT TYPE	ADD QUANITY	TOTAL QUANITY
PANEL ANTENNA	6	6
COAX CABLE	0	0
RRUS	9	9
HYBRID CABLE	2	2
COVP	0	0

T-Mobile
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OFFICE: 860-692-7100
FAX: 860-692-7159

PLANS PREPARED BY:
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NORTHEAST SITE SOLUTIONS, LLC
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STURBRIDGE, MA 01566
(860) 677-1999

SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW

STATE OF CONNECTICUT
JOHN A. KNAPP
No. 20787
LICENSED PROFESSIONAL ENGINEER

03/21/17

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T-MOBILE SITE ID:
CTNH544A

SHEET NAME:
TOWER TOP EQUIPMENT SCHEDULE

SMW #:
16-2211

DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

SHEET NUMBER:
C-3

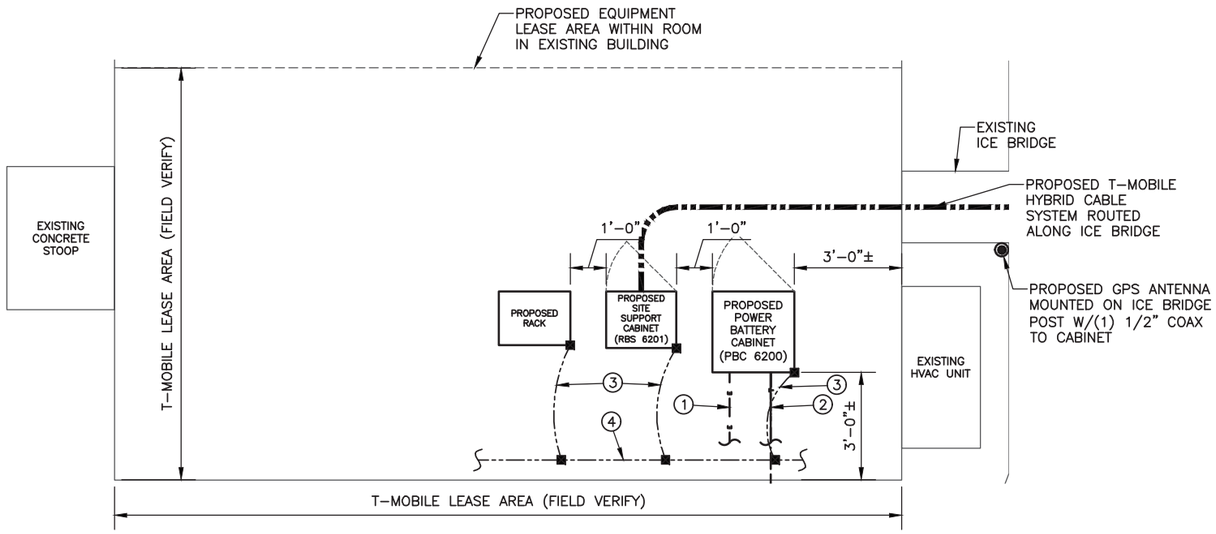
① (3) 3/0 + #4G FROM EXISTING METER TO T–MOBILE CABINET. COORDINATE WITH THE LOCAL UTILITY COMPANY REGARDING FINAL SERVICE CONNECTION.

② ROUTE FOR TELCO FROM PROPOSED T–MOBILE CABINET TO EXISTING TELCO SERVICE. COORDINATE WITH THE LOCAL UTILITY COMPANY REGARDING FINAL SERVICE CONNECTION.

③ GROUND PROPOSED CABINET TO EXISTING HALO RING (TYP)

④ EXISTING GROUND HALO RING

PRIOR TO CONSTRUCTION FIELD VERIFY AND COORDINATE LOCATION AND ROUTE OF EQUIPMENT WITH TOWER OWNER



0' 4' 8' 12'
1" = 4' (11"x17")

0' 2' 4' 6'
1" = 2' (24"x36")

1/C-4 GROUND EQUIPMENT DETAIL

T-Mobile
35 GRIFFIN RD S
BLOOMFIELD, CT 06002
OFFICE: 860-692-7100
FAX: 860-692-7159

PLANS PREPARED BY:
NSS NORTHEAST SITE SOLUTIONS
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST #2
STURBRIDGE, MA 01566
(860) 677-1999

SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW

03/21/17

SITE INFORMATION:
CTNH544A
7 SURDAN MOUNTAIN ROAD
SHARON, CT 06498

#	DATE	DESCRIPTION:
0	10/19/16	ISSUED FOR CLIENT REV.
1	10/25/16	REISSUED FOR CLIENT REV.
2	03/10/17	ISSUED FOR CONSTRUCTION
3	03/21/17	REISSUED FOR CONSTRUCTION

T-MOBILE SITE ID: CTNH544A

SHEET NAME: GROUND EQUIPMENT DETAIL

SMW #: 16-2211

DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

SHEET NUMBER: C-4

1. ALL WORK IS TO COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AND ANY LOCAL ORDINANCES, CODES, AND ALL OTHER ADMINISTRATIVE AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL FURNISH AND PAY FOR ALL PERMITS AND RELATED FEES.

2. ALL EQUIPMENT AND MATERIAL FURNISHED AND INSTALLED UNDER THIS CONTRACT SHALL BE UNDERWRITERS LABORATORIES (U.L.) LISTED, NEW, FREE FROM DEFECTS, AND SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY OWNER OR HIS REPRESENTATIVE. SHOULD ANY TROUBLE DEVELOP DURING THIS PERIOD DUE TO FAULTY WORKMANSHIP, MATERIAL, OR EQUIPMENT, THE CONTRACTOR SHALL FURNISH ALL NECESSARY MATERIALS AND LABOR TO CORRECT THE TROUBLE WITHOUT COST TO THE OWNER.

3. ALL WORK SHALL BE EXECUTED IN A WORKMAN LIKE MANNER AND SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED. CONTRACTOR SHOULD AVOID DAMAGE TO EXISTING UTILITIES WHEREVER POSSIBLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING RELATED TO ELECTRICAL WORK, AND SHALL RESTORE ALL EXISTING LANDSCAPING, SPRINKLER SYSTEMS, CONDUITS, WIRING, PIPING, ETC. DAMAGED BY THE ELECTRICAL WORK TO MATCH EXISTING CONDITIONS.

4. ELECTRICAL WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO COMPLETE ELECTRICAL POWER AND LIGHTING SYSTEMS, TELEPHONE AND COMMUNICATION SYSTEMS, PANELBOARDS, CONDUIT, CONTROL WIRING, GROUNDING, ETC. AS INDICATED ON ELECTRICAL DRAWINGS AND/OR AS REQUIRED BY GOVERNING CODES.

5. PRIOR TO INSTALLING ANY ELECTRICAL WORK, THE CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY EXISTING SITE LOCATIONS AND CONDITIONS AND UTILITY SERVICE REQUIREMENTS OF THE JOB, AND BY REFERENCE TO ENGINEERING AND EQUIPMENT SUPPLIERS' DRAWINGS. SHOULD THERE BE ANY QUESTION OR PROBLEM CONCERNING THE NECESSARY PROVISIONS TO BE MADE. PROPER DIRECTIONS SHALL BE OBTAINED BEFORE PROCEEDING WITH ANY WORK.

6. PROVIDE POWER AND TELEPHONE TO SERVICE POINTS PER UTILITY COMPANY REQUIREMENTS. CONTRACTOR SHALL CONTACT UTILITY SERVICE PLANNERS AND OBTAIN ALL SERVICE REQUIREMENTS AND INCLUDE COSTS FOR SUCH IN THEIR BID.

7. SERVICE EQUIPMENT SHALL HAVE A SHORT CIRCUIT WITHSTAND RATING EXCEEDING THE MAXIMUM AVAILABLE FAULT CURRENT AT THE SUPPLY TERMINAL ON THE UTILITY TRANSFORMER SECONDARY, THE INSULATION SHALL BE FREE FROM ANY SHORT CIRCUITS AND GROUNDS. CONTRACTOR TO OBTAIN THE AVAILABLE SHORT CIRCUIT CURRENT FROM THE ELECTRICAL SERVICE PROVIDER.

8. ALL WIRES SHALL BE STRANDED COPPER WITH THHN/THWN AND 600 VOLTS INSULATION. ALL GROUND CONDUCTORS TO BE PROPERLY SIZED COPPER. (STRANDED OR SOLID)

9. IN THE EVENT OF ANY CONFLICT OR INCONSISTENCY BETWEEN ITEMS SHOWN ON THE PLANS AND/OR SPECIFICATIONS, THE NOTE, SPECIFICATION OR CODE WHICH PRESCRIBES AND ESTABLISHES THE HIGHEST STANDARD OF PERFORMANCE SHALL PREVAIL.

10. SERVICE CONDUITS SHALL HAVE NO MORE THAN (4) –50° BENDS IN ANY SINGLE RUN. THE CONTRACTOR SHALL PROVIDE PULL BOXES AS NEEDED WHERE CONDUIT REQUIREMENTS EXCEED THESE CONDITIONS. PULL WIRES AND CAPS SHALL BE PROVIDED AT ALL SPARE CONDUITS FOR FUTURE USE.

11. ALL ELECTRICAL EQUIPMENT SHALL BE ANCHORED TO WITHSTAND LOCAL WIND SPEED REQUIREMENTS AND DESIGNED FOR OUTDOOR EXPOSURE.

12. ALL COAX, POWER AND TELEPHONE SYSTEM CONDUITS SHALL HAVE A MINIMUM 24" SCH. 80 PVC RADIUS SWEEPS TO EQUIPMENT, PULLBOXES, GUY, ETC., UNLESS OTHERWISE NOTED, OR AS REQUIRED BY UTILITY COMPANIES.

13. FUSE TYPE SHALL BE BUSSMAN RKI LOW PEAK FUSE (LPN–RK–140).

14. UPON COMPLETION OF THE JOB, THE CONTRACTOR SHALL FURNISH AS–BUILT DRAWINGS TO THE OWNER.

15. GENERAL GROUNDING CRITERIA
    1ST STEP: GROUND TO EXISTING BUILDING STRUCTURAL STEEL AND TO THE EXISTING COLD WATER METAL PIPE LINE. (WHERE APPLICABLE) THEN TEST GROUNDING RESISTANCE FOR 5 OHMS OR LESS OVERALL GROUND RESISTANCE. WHERE THE EFFECTIVE RESISTANCE DOES NOT MEET THIS CRITERIA, PROVIDE SUPPLEMENTAL GROUNDING AND RE–TEST UNTIL GROUND RESISTANCE FALLS BELOW THIS LEVEL.

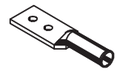
16. SUPPLEMENTAL GROUND MAY CONSIST OF ONE OR MORE OF THE FOLLOWING:
    COUNTERPOISE, USER GROUND, GROUND ROD AND/OR GROUND WELL IN EXTREMELY ADVERSE SOIL CONDITIONS. WHERE THE EXISTING BUILDING STEEL DOES NOT PROVIDE AN EFFECTIVE GROUND RESISTANCE, THEN THE CONTRACTOR SHALL PROVIDE A SEPARATE GROUND CONDUCTOR FROM ROOF MOUNTED BTS EQUIPMENT LOCATIONS EITHER DOWN THROUGH THE INSIDE OF THE BUILDING OR DOWN THE OUTSIDE OF THE BUILDING, DEPENDING UPON OWNER PREFERENCE. WHERE THE GROUND CONDUCTOR FROM THE ROOF MOUNTED EQUIPMENT IS ROUTED IN CONDUIT, THE CONDUIT SHALL BE EFFECTIVELY GROUNDED TO THE GROUND CONDUCTOR AT BOTH ENDS OF THE CONDUIT. (GUY INSTALLATIONS):

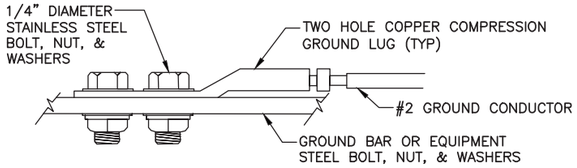
    FOR INSTALLATIONS WHERE WOODEN STRUCTURES, TOWERS, CONCRETE SILOS ETC. ARE ENCOUNTERED A PARATE DOWNLEAD SHALL BE PROVIDED FROM THE 3 ANTENNAS SEPARATED BY A MINIMUM OF 12 INCHES FROM THE COAXIAL CABLES. THE GROUND CONDUCTOR SHALL BE SECURELY FASTENED TO THE EXTERIOR OF OUTSIDE STRUCTURES WITH NONMETALLIC GROUND STRAPS EVERY 10 FEET. AGAIN, AS FOR TENANT IMPROVEMENT PROJECTS, TEST THE GROUND RESISTANCE FOR GUY INSTALLATIONS AND PROCEED PER THE ABOVE STEPS.

17. CONTRACTOR TO COLOR PHASE CONDUCTORS BLACK (B PHASE), RED (A PHASE), WHITE (NEUTRAL), AND GREEN (GROUND).

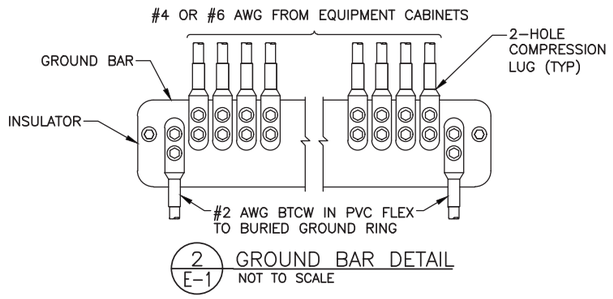
18. CONTRACTOR TO PROVIDE GUTTER TAP.

19. THERE SHALL BE A MINIMUM CLEARANCE OF 48" BETWEEN FRONT OF ELECTRICAL EQUIPMENT AND ANY WALL OR OBSTRUCTION.

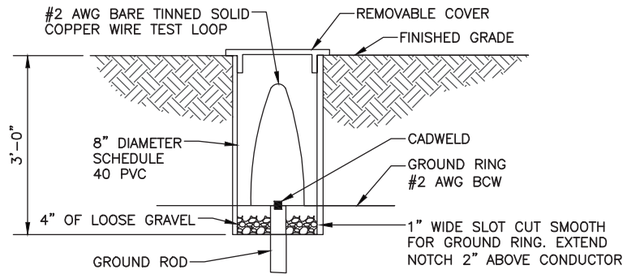
CADWELD CONNECTIONS OR APPROVED EQUAL			BURNDY CONNECTIONS OR APPROVED EQUAL
 PARALLEL HORIZONTAL CONDUCTORS — PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLES — TYPE PT	 HORIZONTAL STEEL SURFACE — TO FLAT STEEL SURFACE OR HORIZONTAL PIPE — TYPE HS	 VERTICAL PIPE — CABLE DOWN AT 45° TO RANGE OF VERTICAL PIPES — TYPE VS	 BOND JUMPER — FIELD FABRICATED GREEN STRANDED INSULATED — TYPE 2–YA–2
 THROUGH CABLE TO GROUND ROD — THROUGH CABLE TO TOP OF GROUND ROD — TYPE GT	 VERTICAL STEEL SURFACE — CABLE DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE — TYPE VS		 COPPER LUGS — TWO HOLE – LONG BARREL LENGTH — TYPE YA–2



1 / E-1 TWO HOLE LUG CONNECTION DETAIL
NOT TO SCALE



2 / E-1 GROUND BAR DETAIL
NOT TO SCALE



3 / E-1 TEST WELL DETAIL
NOT TO SCALE

T-Mobile
35 GRIFFIN RD S
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OFFICE: 860–692–7100
FAX: 860–692–7159

PLANS PREPARED BY:
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NORTHEAST SITE SOLUTIONS, LLC
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T-MOBILE SITE ID: CTNH544A

SHEET NAME:
ELECTRICAL & GROUNDING DETAILS

SMW #: 16–2211

DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

SHEET NUMBER: E-1

Exhibit C

STRUCTURAL ANALYSIS REPORT- REV. 2
SELF-SUPPORT TOWER

Prepared For:

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

Structure Rating

Tower:	**Pass (82%)**
Foundation:	**Pass**

Sincerely,
Destek Engineering, LLC
License No: PEC0001429

03/27/2017

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

Site ID: CTNH544A
Site Name: CTNH544A
7 Surdan Mountain Road
Sharon, CT 06069

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

CONTENTS

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

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the existing tower located at 7 Surdan Mountain Road, Sharon, CT 06069, for the proposed telecommunication installation by T-Mobile.

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

- RFDS provided by T-Mobile, dated 09/27/2016.
- Structural Analysis Report prepared by Centek Engineering, dated 12/03/2012.

1.1 STRUCTURE

The subject structure is a three-sided, 195'-0" tall self-support tower. The tower is X-braced thought the structure. The leg members consist of truss legs from 0' to 150' and solid rod legs from 150' to 195'. The tower is 4'-6" wide at the top and 20'-0" wide at the bottom, with a slope change at 150'-0" level. Please refer to the software output in Appendix A for tower geometry, member sizes, and other details.

2.0 PROPOSED APPURTENANCES

Proposed and Final Configuration of T-Mobile Appurtenances:

Sector	Rad Center (AGL ft.)	Antennas & Equipment	Coax	Mount
Alpha, Beta & Gamma	140.0	(3) APX16DWV-16DWV-S-E-A20 (3) LNX-6515DA-A1M (3) RRUS 11 B2 (3) RRUS 11 B4 (3) RRUS 11 B12	(2) 1-1/4'' Hybrid 6x12	(3) USF10-396-U Sector Mounts

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Existing Configuration of Appurtenances by Others:

Carrier	Rad Center (AGL ft.)	Antennas & Equipment	Coax	Mount
Unknown	196.3	DB201-D	(1) 7/8”	(1) Side Arm
Unknown	194.9	PA6-65AC	(1) WE-65	(1) Pipe Mount
Unknown	192.8	3"x9' Omni	(1) 1-5/8”	(1) Side Arm
Unknown	190.3	OGT9-840	(1) 1-5/8”	-
Unknown	188.8	3"x9' Omni	(1) 1-5/8”	-
Unknown	185.3	DB222-A	(1) 7/8”	-
Unknown	183.0	Filter Box	-	-
Unknown	182.3	PD220	(1) 7/8”	(1) Side Arm
Unknown	181.5	BCD-87077	(1) 7/8”	(1) Platform
Unknown	180.3	DB222-A	(1) 7/8”	-
Unknown	175.3	3"x12' Omni	(1) 1-5/8”	-
Unknown	174.3	3"x10' Omni	(1) 1-5/8”	-
Unknown	173.8	ANT150D6-9	(1) 7/8”	-
Unknown	172.3	PD220		(1) Side Arm
Unknown	167.0	(6) LPA-80080/4CF (6) LPA-185080/8CF	(12) 1-5/8”	(3) Sector Mounts
Unknown	150.3	(1) 80010764 (2) AM-X-CD-16-65-00T (6) RRUS 11 (6) 7770.00 (6) LGP 13519 (6) LGP 21401 (1) DC6-48-60-18-8F	(12) 1-5/8” (1) Fiber Cable (2) DC Cable	(3) Sector Mounts
Unknown	135.0	SRL110	(1) 7/8”	(1) Side Arm
Unknown	130.0	DB586-Y	(2) 7/8”	(1) Side Arm
Unknown	126.0	Tower Top Amplifier		
Unknown	125.0	DB586-Y		
Unknown	120.7	DB212-1	(1) 7/8”	(1) Side Arm
Unknown	109.3	DB205-L	(1) 7/8”	(1) Side Arm
Unknown	102.3	PA6-65AC	(1) WE-65	(1) Pipe Mount
Unknown	94.0	DB224	(1) 1/2”	(1) Side Arm
Unknown	90.4	PD220	(1) 1/2”	(1) Standoff Mount
Unknown	79.5	3"x12' Omni	(1) 1/2”	(1) Side Arm
Unknown	70.3	DB432-A	(1) 1/2”	(1) Side Arm
Unknown	17.0	1.2M	(2) 1/4”	(1) Standoff Mount

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3.0 CODES AND LOADING

This analysis has been performed in accordance with the 2016 Connecticut Building Code based upon an ultimate 3-second gust wind speed of 120 mph (Risk Category III) converted to a nominal 3-second gust wind speed of 93 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:

- Basic wind speed of 93 mph without ice (V)
- Basic wind speed of 40 mph concurrent with the design ice thickness of 0.75" (V_i and t_i)
- Service wind speed of 90 mph
- Exposure Category C, Topographic Category 1

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

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

D: Dead load of structure and appurtenances
W_o: Wind load without ice (based upon V)
W_i: Concurrent wind load with factored ice thickness (based upon V_i)
D_i: Weight of ice due to factored ice thickness (based upon t_i)

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4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided 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 placement, etc., will require Destek to generate an additional structural analysis.

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5.0 ANALYSIS AND ASSUMPTIONS

The tower was analyzed by utilizing tnxTower, a 3-Dimensional finite element software, a product of Tower Numerics, Inc. Software output for this analysis is provided in Appendix-A of this report.

The tower truss legs modifications were not consider in this report.

6.0 RESULTS AND CONCLUSION

Based on an analysis per ANSI/TIA-222-G, the existing self-support tower **has adequate** capacity for the proposed loading by T-Mobile. For the aforementioned load combinations and as a maximum, the tower diagonals between elevation 140 feet and 150 feet are stressed to **82.0%** of capacity. Tower legs and anchor bolts are stressed to maximum of 79.8% and 64.1% of their capacity, respectively.

Dish Twist/Sway Results for 90 mph Service Wind

Elevation (ft)	Appurtenance	Deflection (in)	Tilt (deg)	Twist (deg)
194.25	PA6-65AC	14.626	0.7037	0.1971
102.25	PA6-65AC	3.552	0.3465	0.0253
17.00	1.2M	0.117	0.0424	0.0023

Based on a reaction comparison, the existing tower foundation has **adequate** structural capacity to support the proposed installation by T-Mobile.

Reactions Comparison

Maximums	Destek Analysis	Centek Reactions*
Compression at base(kip)	415	680.4
Uplift at base(kip)	376	596.7
Shear at base (kip)	43	68.85
Moment at base(kip-ft)	6844	7368.3

*Service level reactions multiplied with 1.35 for comparison.

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

Should you have any questions about this report, please contact us at (770) 693-0835.

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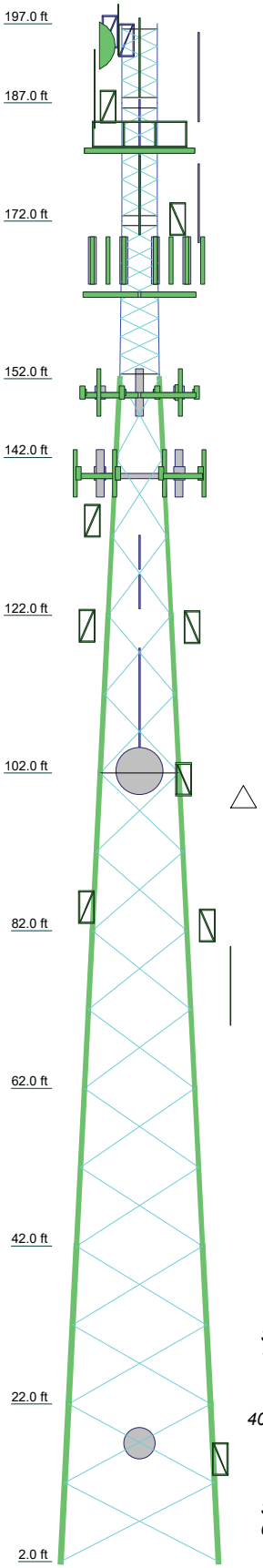
APPENDIX A
CALCULATIONS

Section		T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs		Pirod 105220		Pirod 105219		Pirod 105218		Pirod 105217	A	SR 2 1/4	SR 2	SR 1 3/4
Leg Grade		A572-50										
Diagonals		L4x4x1/4	L3 1/2x3 1/2x5/16	L3 1/2x3 1/2x1/4	L3x3x5/16	L3x3x1/4		L3x3x3/16	B	SR 1	SR 7/8	
Diagonal Grade		A572-50	A36	A572-50	A36	A572-50			A36			
Top Girts			N.A.			L3x3x3/16		N.A.		SR 1	L3x3x5/16	
Bottom Girts				N.A.						SR 1	SR 7/8	
Face Width (ft)	20	18	16	14	12	10	8	6	5	4.5		
# Panels @ (ft)		15 @ 10							9 @ 2.344	7 @ 2.27733	5 @ 2.166	
Weight (K)	31.8	5.2	5.1	4.1	4.1	3.3	3.1	2.4	1.2	1.6	1.0	0.6



ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 415 K
SHEAR: 43 K

UPLIFT: -376 K
SHEAR: 39 K

AXIAL 235 K
SHEAR 15 K
MOMENT 1610 kip-ft
TORQUE 5 kip-ft
40 mph WIND - 0.7500 in ICE
AXIAL 61 K
SHEAR 67 K
MOMENT 6844 kip-ft
TORQUE 20 kip-ft
REACTIONS - 93 mph WIND

SYMBOL LIST

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

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-G Standard.
2. Tower designed for a 93 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 40 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class III.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 82%

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Destek Engineering, LLC
1281 Kennestone Circle, Suite 100
Marietta, GA 30066
Phone: (770) 693-0835
FAX:

Job: ***CTNH544A Rev. 2***			
Project: ***1775011***			
Client: Foresite, LLC.	Drawn by: Ahmet Colakoglu	App'd:	
Code: TIA-222-G	Date: 03/27/17	Scale: NTS	
Path: Z:\Projects\2017\75 - Foresite LLC\011 - CTNH544A\TNX\032717_Rev 2\CTNH544A Rev. 2.eri		Dwg No. E-1	

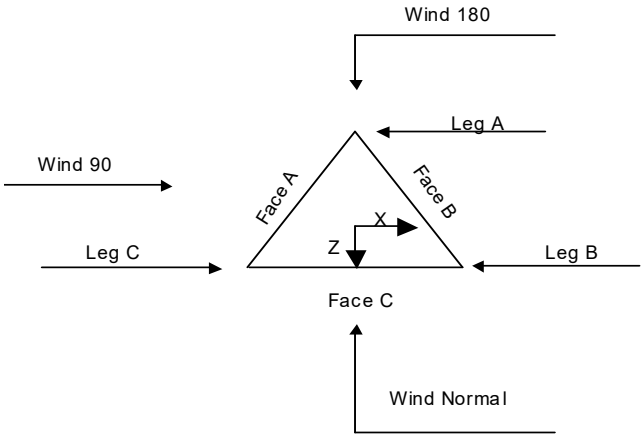
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 197.00 ft above the ground line.
The base of the tower is set at an elevation of 2.00 ft above the ground line.
The face width of the tower is 4.50 ft at the top and 20.00 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Basic wind speed of 93 mph.
Structure Class III.
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 40 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

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area	√	SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
√	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric				



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	197.00-187.00			4.50	1	10.00
T2	187.00-172.00			4.50	1	15.00
T3	172.00-152.00			4.50	1	20.00
T4	152.00-142.00			5.00	1	10.00
T5	142.00-122.00			6.00	1	20.00
T6	122.00-102.00			8.00	1	20.00
T7	102.00-82.00			10.00	1	20.00
T8	82.00-62.00			12.00	1	20.00
T9	62.00-42.00			14.00	1	20.00
T10	42.00-22.00			16.00	1	20.00
T11	22.00-2.00			18.00	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	197.00-187.00	2.17	X Brace	No	Steps	8.0160	8.0160
T2	187.00-172.00	2.28	X Brace	No	Steps	8.0160	8.0160
T3	172.00-152.00	2.34	X Brace	No	Steps	7.4880	7.4880
T4	152.00-142.00	10.00	X Brace	No	No	0.0000	0.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T5	142.00-122.00	10.00	X Brace	No	No	0.0000	0.0000
T6	122.00-102.00	10.00	X Brace	No	No	0.0000	0.0000
T7	102.00-82.00	10.00	X Brace	No	No	0.0000	0.0000
T8	82.00-62.00	10.00	X Brace	No	No	0.0000	0.0000
T9	62.00-42.00	10.00	X Brace	No	No	0.0000	0.0000
T10	42.00-22.00	10.00	X Brace	No	No	0.0000	0.0000
T11	22.00-2.00	10.00	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 197.00-187.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 187.00-172.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 172.00-152.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T4 152.00-142.00	Truss Leg	Pirod 105245	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 142.00-122.00	Truss Leg	Pirod 105217	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A572-50 (50 ksi)
T6 122.00-102.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T7 102.00-82.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T8 82.00-62.00	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T9 62.00-42.00	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T10 42.00-22.00	Truss Leg	Pirod 105220	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T11 22.00-2.00	Truss Leg	Pirod 105220	A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A572-50 (50 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 197.00-187.00	Equal Angle	L3x3x5/16	A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 187.00-172.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T3 172.00-152.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T7 102.00-82.00	Equal Angle	L3x3x3/16	A572-50 (50 ksi)	Solid Round		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
T1 197.00-187.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T2 187.00-172.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T3 172.00-152.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T4 152.00-142.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T5 142.00-122.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T6 122.00-102.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T7 102.00-82.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T8 82.00-62.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T9 62.00-42.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T10 42.00-22.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T11 22.00-2.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Brace Diags X	K Brace Diags Y	Single Diags X	Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T1	Yes	Yes	1	1		1		1		1		1		1		1	
197.00-187.00				1		1		1		1		1		1		1	
T2	Yes	Yes	1	1		1		1		1		1		1		1	
187.00-172.00				1		1		1		1		1		1		1	
T3	Yes	Yes	1	1		1		1		1		1		1		1	
172.00-152.00				1		1		1		1		1		1		1	
T4	Yes	Yes	1	1		1		1		1		1		1		1	
152.00-142.00				1		1		1		1		1		1		1	
T5	Yes	Yes	1	1		1		1		1		1		1		1	
142.00-122.00				1		1		1		1		1		1		1	
T6	Yes	Yes	1	1		1		1		1		1		1		1	
122.00-102.00				1		1		1		1		1		1		1	
T7	Yes	Yes	1	1		1		1		1		1		1		1	
102.00-82.00				1		1		1		1		1		1		1	
T8	Yes	Yes	1	1		1		1		1		1		1		1	
82.00-62.00				1		1		1		1		1		1		1	
T9	Yes	Yes	1	1		1		1		1		1		1		1	
62.00-42.00				1		1		1		1		1		1		1	
T10	Yes	Yes	1	1		1		1		1		1		1		1	
42.00-22.00				1		1		1		1		1		1		1	

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T11 22.00-2.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Truss-Leg K Factors: Truss-Legs Used As Leg Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals	Truss-Legs Used As Inner Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals
T4 152.00-142.00	1	0.5	0.85	1	0.5	0.85
T5 142.00-122.00	1	0.5	0.85	1	0.5	0.85
T6 122.00-102.00	1	0.5	0.85	1	0.5	0.85
T7 102.00-82.00	1	0.5	0.85	1	0.5	0.85
T8 82.00-62.00	1	0.5	0.85	1	0.5	0.85
T9 62.00-42.00	1	0.5	0.85	1	0.5	0.85
T10 42.00-22.00	1	0.5	0.85	1	0.5	0.85
T11 22.00-2.00	1	0.5	0.85	1	0.5	0.85

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 197.00-187.00	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 187.00-172.00	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 172.00-152.00	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 152.00-142.00	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 142.00-122.00	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 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
T6 122.00-102.00	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 102.00-82.00	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 82.00-62.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 62.00-42.00	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 42.00-22.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 22.00-2.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 197.00-187.00	Sleeve DS	0.6250 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 187.00-172.00	Sleeve DS	0.7500 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 172.00-152.00	Flange	1.0000 A325N	6	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 152.00-142.00	Flange	1.0000 A325N	6	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 142.00-122.00	Flange	1.0000 A325N	6	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 122.00-102.00	Flange	1.0000 A325N	6	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 102.00-82.00	Flange	1.0000 A325N	6	1.0000 A325N	1	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 82.00-62.00	Flange	1.2500 A325N	6	1.2500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 62.00-42.00	Flange	1.2500 A325N	6	1.2500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 42.00-22.00	Flange	1.2500 A325N	6	1.2500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 22.00-2.00	Flange	0.7500 A325N	0	1.2500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
HJ7-50A(1-5/8")	A	No	Ar (CaAa)	165.00 - 7.00	2.0000	-0.365	9	5	1.9800	1.9800		0.00
HJ7-50A(1-5/	A	No	Ar (CaAa)	165.00 - 7.00	2.0000	-0.42	1	1	1.9800	1.9800		0.00

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
8")												
HJ7-50A(1-5/8")	A	No	Ar (CaAa)	165.00 - 7.00	4.5000	-0.45	1	1	1.9800	1.9800		0.00
HJ7-50A(1-5/8")	A	No	Ar (CaAa)	165.00 - 7.00	2.0000	-0.47	1	1	1.9800	1.9800		0.00
HJ4-50(1/2")	A	No	Ar (CaAa)	194.00 - 7.00	3.0000	-0.42	1	1	0.5800	0.5800		0.00
HJ5-50(7/8")	A	No	Ar (CaAa)	194.00 - 7.00	2.0000	-0.445	1	1	1.1100	1.1100		0.00
*****												
HJ7-50A(1-5/8")	C	No	Ar (CaAa)	150.00 - 10.00	0.0000	0.1	12	6	1.9800	1.9800		0.00
#8 AWG Copper Wire	C	No	Ar (CaAa)	150.00 - 10.00	0.0000	0.155	2	2	0.2500 0.0000	0.1285		0.00
RG6-Fiber	C	No	Ar (CaAa)	150.00 - 10.00	0.0000	0.165	1	1	0.5000 0.0000	0.5000		0.00
*****												
HJ5-50(7/8")	B	No	Ar (CaAa)	152.00 - 9.50	0.0000	0.095	2	2	1.1100	1.1100		0.00
HJ7-50A(1-5/8")	B	No	Ar (CaAa)	82.67 - 9.50	0.0000	0.12	1	1	1.9800	1.9800		0.00
HJ7-50A(1-5/8")	B	No	Ar (CaAa)	152.00 - 9.50	0.0000	0.1	1	1	1.9800	1.9800		0.00
HJ5-50(7/8")	B	No	Ar (CaAa)	194.00 - 7.00	2.0000	0.44	3	3	1.1100	1.1100		0.00
WE65	B	No	Ar (CaAa)	194.00 - 7.00	2.0000	-0.42	1	1	1.5836	1.5836		0.00
WE65	B	No	Ar (CaAa)	102.00 - 7.00	2.0000	-0.405	1	1	1.5836	1.5836		0.00
HJ4-50(1/2")	B	No	Ar (CaAa)	194.00 - 7.00	2.0000	-0.385	1	1	0.5800	0.5800		0.00
LDF2-50(3/8)	B	No	Ar (CaAa)	194.00 - 7.00	2.0000	-0.375	1	1	0.4400	0.4400		0.00
HJ7-50A(1-5/8")	B	No	Ar (CaAa)	185.00 - 7.00	2.0000	-0.355	4	2	1.9800	1.9800		0.00
HJ4-50(1/2")	B	No	Ar (CaAa)	194.00 - 7.00	3.0000	-0.31	1	1	0.5800	0.5800		0.00
HJ5-50(7/8")	B	No	Ar (CaAa)	194.00 - 7.00	2.0000	-0.31	2	1	1.1100	1.1100		0.00
LDF1-50A(1/4)	B	No	Ar (CaAa)	17.00 - 9.50	0.0000	0.08	2	2	0.3450	0.3450		0.00
LDF2-50A(3/8")	B	No	Ar (CaAa)	194.00 - 7.00	1.0000	-0.33	1	1	0.4400	0.4400		0.00
HJ5-50(7/8")	B	No	Ar (CaAa)	194.00 - 7.00	1.0000	-0.32	1	1	1.1100	1.1100		0.00
1-1/4" Hybrid 6x12	B	No	Ar (CaAa)	140.00 - 7.00	0.0000	-0.45	2	2	1.6250	1.6250		0.00
******												
1" Dia. SR	A	No	Ar (CaAa)	104.00 - 4.00	0.0000	-0.5	1	1	0.0000	1.0000		0.00
1" Dia. SR	A	No	Ar (CaAa)	104.00 - 4.00	0.0000	-0.48	1	1	0.0000	1.0000		0.00
1" Dia. SR	A	No	Ar (CaAa)	104.00 - 4.00	0.0000	0.48	1	1	0.0000	1.0000		0.00
1" Dia. SR	B	No	Ar (CaAa)	104.00 - 4.00	0.0000	-0.5	1	1	0.0000	1.0000		0.00
1" Dia. SR	B	No	Ar (CaAa)	104.00 - 4.00	0.0000	-0.48	1	1	0.0000	1.0000		0.00
1" Dia. SR	B	No	Ar (CaAa)	104.00 - 4.00	0.0000	0.48	1	1	0.0000	1.0000		0.00
1" Dia. SR	C	No	Ar (CaAa)	104.00 - 4.00	0.0000	-0.5	1	1	0.0000	1.0000		0.00
1" Dia. SR	C	No	Ar (CaAa)	104.00 - 4.00	0.0000	-0.48	1	1	0.0000	1.0000		0.00
1" Dia. SR	C	No	Ar (CaAa)	104.00 - 4.00	0.0000	0.48	1	1	0.0000	1.0000		0.00

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	197.00-187.00	A	0.000	0.000	1.183	0.000	0.01
		B	0.000	0.000	7.199	0.000	0.03
		C	0.000	0.000	0.000	0.000	0.00
T2	187.00-172.00	A	0.000	0.000	2.535	0.000	0.01

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	25.721	0.000	0.12
		C	0.000	0.000	0.000	0.000	0.00
T3	172.00-152.00	A	0.000	0.000	34.268	0.000	0.18
		B	0.000	0.000	36.407	0.000	0.17
		C	0.000	0.000	0.000	0.000	0.00
T4	152.00-142.00	A	0.000	0.000	25.450	0.000	0.13
		B	0.000	0.000	22.404	0.000	0.11
		C	0.000	0.000	19.614	0.000	0.11
T5	142.00-122.00	A	0.000	0.000	50.900	0.000	0.27
		B	0.000	0.000	50.657	0.000	0.25
		C	0.000	0.000	49.034	0.000	0.27
T6	122.00-102.00	A	0.000	0.000	51.500	0.000	0.28
		B	0.000	0.000	51.907	0.000	0.27
		C	0.000	0.000	49.634	0.000	0.29
T7	102.00-82.00	A	0.000	0.000	56.900	0.000	0.43
		B	0.000	0.000	60.607	0.000	0.43
		C	0.000	0.000	55.034	0.000	0.43
T8	82.00-62.00	A	0.000	0.000	56.900	0.000	0.43
		B	0.000	0.000	64.434	0.000	0.45
		C	0.000	0.000	55.034	0.000	0.43
T9	62.00-42.00	A	0.000	0.000	56.900	0.000	0.43
		B	0.000	0.000	64.434	0.000	0.45
		C	0.000	0.000	55.034	0.000	0.43
T10	42.00-22.00	A	0.000	0.000	56.900	0.000	0.43
		B	0.000	0.000	64.434	0.000	0.45
		C	0.000	0.000	55.034	0.000	0.43
T11	22.00-2.00	A	0.000	0.000	43.575	0.000	0.34
		B	0.000	0.000	48.198	0.000	0.35
		C	0.000	0.000	34.820	0.000	0.31

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	197.00-187.00	A	2.236	0.000	0.000	7.444	0.000	0.12
		B		0.000	0.000	40.528	0.000	0.63
		C		0.000	0.000	0.000	0.000	0.00
T2	187.00-172.00	A	2.221	0.000	0.000	15.861	0.000	0.26
		B		0.000	0.000	110.280	0.000	1.83
		C		0.000	0.000	0.000	0.000	0.00
T3	172.00-152.00	A	2.198	0.000	0.000	85.655	0.000	1.83
		B		0.000	0.000	150.918	0.000	2.51
		C		0.000	0.000	0.000	0.000	0.00
T4	152.00-142.00	A	2.177	0.000	0.000	59.960	0.000	1.30
		B		0.000	0.000	93.103	0.000	1.50
		C		0.000	0.000	38.585	0.000	0.92
T5	142.00-122.00	A	2.154	0.000	0.000	119.300	0.000	2.58
		B		0.000	0.000	209.503	0.000	3.30
		C		0.000	0.000	96.052	0.000	2.27
T6	122.00-102.00	A	2.119	0.000	0.000	121.507	0.000	2.60
		B		0.000	0.000	213.177	0.000	3.33
		C		0.000	0.000	98.579	0.000	2.31
T7	102.00-82.00	A	2.077	0.000	0.000	148.195	0.000	3.12
		B		0.000	0.000	250.265	0.000	4.02
		C		0.000	0.000	125.642	0.000	2.84
T8	82.00-62.00	A	2.027	0.000	0.000	146.252	0.000	3.04
		B		0.000	0.000	257.964	0.000	4.10

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	124.156	0.000	2.79
T9	62.00-42.00	A	1.962	0.000	0.000	143.745	0.000	2.95
		B		0.000	0.000	252.599	0.000	3.94
		C		0.000	0.000	122.240	0.000	2.71
T10	42.00-22.00	A	1.869	0.000	0.000	140.154	0.000	2.81
		B		0.000	0.000	244.916	0.000	3.71
		C		0.000	0.000	119.495	0.000	2.61
T11	22.00-2.00	A	1.695	0.000	0.000	104.010	0.000	2.00
		B		0.000	0.000	177.039	0.000	2.52
		C		0.000	0.000	76.506	0.000	1.61

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	197.00-187.00	0.9080	-1.2075	0.1883	-1.3387
T2	187.00-172.00	1.3485	-2.8016	0.3169	-1.8863
T3	172.00-152.00	-1.6696	-1.2037	-0.8795	-1.2579
T4	152.00-142.00	-1.8644	0.7373	-0.8844	-0.2343
T5	142.00-122.00	-2.2109	0.8544	-1.2107	-0.2935
T6	122.00-102.00	-2.7243	1.0399	-1.6199	-0.3758
T7	102.00-82.00	-2.9141	0.9101	-1.6539	-0.6563
T8	82.00-62.00	-3.1441	1.0317	-1.7623	-0.7817
T9	62.00-42.00	-3.5290	1.1700	-2.0163	-0.8470
T10	42.00-22.00	-3.9147	1.3083	-2.2765	-0.8878
T11	22.00-2.00	-3.8042	0.6876	-2.2931	-1.0721

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	5	HJ4-50(1/2")	187.00 - 194.00	0.6000	0.3568
T1	6	HJ5-50(7/8")	187.00 - 194.00	0.6000	0.3568
T1	15	HJ5-50(7/8")	187.00 - 194.00	0.6000	0.3568
T1	16	WE65	187.00 - 194.00	0.6000	0.3568
T1	18	HJ4-50(1/2")	187.00 - 194.00	0.6000	0.3568
T1	19	LDF2-50(3/8)	187.00 - 194.00	0.6000	0.3568
T1	21	HJ4-50(1/2")	187.00 - 194.00	0.6000	0.3568
T1	22	HJ5-50(7/8")	187.00 - 194.00	0.6000	0.3568
T1	24	LDF2-50A(3/8")	187.00 - 194.00	0.6000	0.3568
T1	25	HJ5-50(7/8")	187.00 -	0.6000	0.3568

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			194.00		
T2	5	HJ4-50(1/2")	172.00 - 187.00	0.6000	0.3930
T2	6	HJ5-50(7/8")	172.00 - 187.00	0.6000	0.3930
T2	15	HJ5-50(7/8")	172.00 - 187.00	0.6000	0.3930
T2	16	WE65	172.00 - 187.00	0.6000	0.3930
T2	18	HJ4-50(1/2")	172.00 - 187.00	0.6000	0.3930
T2	19	LDF2-50(3/8)	172.00 - 187.00	0.6000	0.3930
T2	20	HJ7-50A(1-5/8")	172.00 - 185.00	0.6000	0.3930
T2	21	HJ4-50(1/2")	172.00 - 187.00	0.6000	0.3930
T2	22	HJ5-50(7/8")	172.00 - 187.00	0.6000	0.3930
T2	24	LDF2-50A(3/8")	172.00 - 187.00	0.6000	0.3930
T2	25	HJ5-50(7/8")	172.00 - 187.00	0.6000	0.3930
T3	1	HJ7-50A(1-5/8")	152.00 - 165.00	0.6000	0.4073
T3	2	HJ7-50A(1-5/8")	152.00 - 165.00	0.6000	0.4073
T3	3	HJ7-50A(1-5/8")	152.00 - 165.00	0.6000	0.4073
T3	4	HJ7-50A(1-5/8")	152.00 - 165.00	0.6000	0.4073
T3	5	HJ4-50(1/2")	152.00 - 172.00	0.6000	0.4073
T3	6	HJ5-50(7/8")	152.00 - 172.00	0.6000	0.4073
T3	15	HJ5-50(7/8")	152.00 - 172.00	0.6000	0.4073
T3	16	WE65	152.00 - 172.00	0.6000	0.4073
T3	18	HJ4-50(1/2")	152.00 - 172.00	0.6000	0.4073
T3	19	LDF2-50(3/8)	152.00 - 172.00	0.6000	0.4073
T3	20	HJ7-50A(1-5/8")	152.00 - 172.00	0.6000	0.4073
T3	21	HJ4-50(1/2")	152.00 - 172.00	0.6000	0.4073
T3	22	HJ5-50(7/8")	152.00 - 172.00	0.6000	0.4073
T3	24	LDF2-50A(3/8")	152.00 - 172.00	0.6000	0.4073
T3	25	HJ5-50(7/8")	152.00 - 172.00	0.6000	0.4073
T4	1	HJ7-50A(1-5/8")	142.00 - 152.00	0.6000	0.2701
T4	2	HJ7-50A(1-5/8")	142.00 - 152.00	0.6000	0.2701
T4	3	HJ7-50A(1-5/8")	142.00 - 152.00	0.6000	0.2701
T4	4	HJ7-50A(1-5/8")	142.00 - 152.00	0.6000	0.2701
T4	5	HJ4-50(1/2")	142.00 -	0.6000	0.2701

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	6	HJ5-50(7/8")	142.00 - 152.00	0.6000	0.2701
T4	8	HJ7-50A(1-5/8")	142.00 - 150.00	0.6000	0.2701
T4	9	#8 AWG Copper Wire RG6-Fiber	142.00 - 150.00	0.6000	0.2701
T4	10	RG6-Fiber	142.00 - 150.00	0.6000	0.2701
T4	12	HJ5-50(7/8")	142.00 - 152.00	0.6000	0.2701
T4	14	HJ7-50A(1-5/8")	142.00 - 152.00	0.6000	0.2701
T4	15	HJ5-50(7/8")	142.00 - 152.00	0.6000	0.2701
T4	16	WE65	142.00 - 152.00	0.6000	0.2701
T4	18	HJ4-50(1/2")	142.00 - 152.00	0.6000	0.2701
T4	19	LDF2-50(3/8)	142.00 - 152.00	0.6000	0.2701
T4	20	HJ7-50A(1-5/8")	142.00 - 152.00	0.6000	0.2701
T4	21	HJ4-50(1/2")	142.00 - 152.00	0.6000	0.2701
T4	22	HJ5-50(7/8")	142.00 - 152.00	0.6000	0.2701
T4	24	LDF2-50A(3/8")	142.00 - 152.00	0.6000	0.2701
T4	25	HJ5-50(7/8")	142.00 - 152.00	0.6000	0.2701
T5	1	HJ7-50A(1-5/8")	122.00 - 142.00	0.6000	0.3741
T5	2	HJ7-50A(1-5/8")	122.00 - 142.00	0.6000	0.3741
T5	3	HJ7-50A(1-5/8")	122.00 - 142.00	0.6000	0.3741
T5	4	HJ7-50A(1-5/8")	122.00 - 142.00	0.6000	0.3741
T5	5	HJ4-50(1/2")	122.00 - 142.00	0.6000	0.3741
T5	6	HJ5-50(7/8")	122.00 - 142.00	0.6000	0.3741
T5	8	HJ7-50A(1-5/8")	122.00 - 142.00	0.6000	0.3741
T5	9	#8 AWG Copper Wire RG6-Fiber	122.00 - 142.00	0.6000	0.3741
T5	10	RG6-Fiber	122.00 - 142.00	0.6000	0.3741
T5	12	HJ5-50(7/8")	122.00 - 142.00	0.6000	0.3741
T5	14	HJ7-50A(1-5/8")	122.00 - 142.00	0.6000	0.3741
T5	15	HJ5-50(7/8")	122.00 - 142.00	0.6000	0.3741
T5	16	WE65	122.00 - 142.00	0.6000	0.3741
T5	18	HJ4-50(1/2")	122.00 - 142.00	0.6000	0.3741
T5	19	LDF2-50(3/8)	122.00 - 142.00	0.6000	0.3741
T5	20	HJ7-50A(1-5/8")	122.00 -	0.6000	0.3741

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	21	HJ4-50(1/2")	142.00 122.00 -	0.6000	0.3741
T5	22	HJ5-50(7/8")	142.00 122.00 -	0.6000	0.3741
T5	24	LDF2-50A(3/8")	142.00 122.00 -	0.6000	0.3741
T5	25	HJ5-50(7/8")	142.00 122.00 -	0.6000	0.3741
T5	26	1-1/4" Hybrid 6x12	142.00 122.00 -	0.6000	0.3741
T6	1	HJ7-50A(1-5/8")	140.00 102.00 -	0.6000	0.4757
T6	2	HJ7-50A(1-5/8")	122.00 102.00 -	0.6000	0.4757
T6	3	HJ7-50A(1-5/8")	122.00 102.00 -	0.6000	0.4757
T6	4	HJ7-50A(1-5/8")	122.00 102.00 -	0.6000	0.4757
T6	5	HJ4-50(1/2")	122.00 102.00 -	0.6000	0.4757
T6	6	HJ5-50(7/8")	122.00 102.00 -	0.6000	0.4757
T6	8	HJ7-50A(1-5/8")	122.00 102.00 -	0.6000	0.4757
T6	9	#8 AWG Copper Wire	122.00 102.00 -	0.6000	0.4757
T6	10	RG6-Fiber	122.00 102.00 -	0.6000	0.4757
T6	12	HJ5-50(7/8")	122.00 102.00 -	0.6000	0.4757
T6	14	HJ7-50A(1-5/8")	122.00 102.00 -	0.6000	0.4757
T6	15	HJ5-50(7/8")	122.00 102.00 -	0.6000	0.4757
T6	16	WE65	122.00 102.00 -	0.6000	0.4757
T6	18	HJ4-50(1/2")	122.00 102.00 -	0.6000	0.4757
T6	19	LDF2-50(3/8)	122.00 102.00 -	0.6000	0.4757
T6	20	HJ7-50A(1-5/8")	122.00 102.00 -	0.6000	0.4757
T6	21	HJ4-50(1/2")	122.00 102.00 -	0.6000	0.4757
T6	22	HJ5-50(7/8")	122.00 102.00 -	0.6000	0.4757
T6	24	LDF2-50A(3/8")	122.00 102.00 -	0.6000	0.4757
T6	25	HJ5-50(7/8")	122.00 102.00 -	0.6000	0.4757
T6	26	1-1/4" Hybrid 6x12	122.00 102.00 -	0.6000	0.4757
T6	28	1" Dia. SR	122.00 102.00 -	0.6000	0.4757
T6	29	1" Dia. SR	104.00 102.00 -	0.6000	0.4757
T6	30	1" Dia. SR	104.00 102.00 -	0.6000	0.4757
T6	31	1" Dia. SR	104.00 102.00 -	0.6000	0.4757
T6	32	1" Dia. SR	104.00 102.00 -	0.6000	0.4757

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	33	1" Dia. SR	104.00 102.00 - 104.00	0.6000	0.4757
T6	34	1" Dia. SR	102.00 - 104.00	0.6000	0.4757
T6	35	1" Dia. SR	102.00 - 104.00	0.6000	0.4757
T6	36	1" Dia. SR	102.00 - 104.00	0.6000	0.4757
T7	1	HJ7-50A(1-5/8")	82.00 - 102.00	0.6000	0.5255
T7	2	HJ7-50A(1-5/8")	82.00 - 102.00	0.6000	0.5255
T7	3	HJ7-50A(1-5/8")	82.00 - 102.00	0.6000	0.5255
T7	4	HJ7-50A(1-5/8")	82.00 - 102.00	0.6000	0.5255
T7	5	HJ4-50(1/2")	82.00 - 102.00	0.6000	0.5255
T7	6	HJ5-50(7/8")	82.00 - 102.00	0.6000	0.5255
T7	8	HJ7-50A(1-5/8")	82.00 - 102.00	0.6000	0.5255
T7	9	#8 AWG Copper Wire RG6-Fiber	82.00 - 102.00	0.6000	0.5255
T7	10	RG6-Fiber	82.00 - 102.00	0.6000	0.5255
T7	12	HJ5-50(7/8")	82.00 - 102.00	0.6000	0.5255
T7	13	HJ7-50A(1-5/8")	82.00 - 82.67	0.6000	0.5255
T7	14	HJ7-50A(1-5/8")	82.00 - 102.00	0.6000	0.5255
T7	15	HJ5-50(7/8")	82.00 - 102.00	0.6000	0.5255
T7	16	WE65	82.00 - 102.00	0.6000	0.5255
T7	17	WE65	82.00 - 102.00	0.6000	0.5255
T7	18	HJ4-50(1/2")	82.00 - 102.00	0.6000	0.5255
T7	19	LDF2-50(3/8)	82.00 - 102.00	0.6000	0.5255
T7	20	HJ7-50A(1-5/8")	82.00 - 102.00	0.6000	0.5255
T7	21	HJ4-50(1/2")	82.00 - 102.00	0.6000	0.5255
T7	22	HJ5-50(7/8")	82.00 - 102.00	0.6000	0.5255
T7	24	LDF2-50A(3/8")	82.00 - 102.00	0.6000	0.5255
T7	25	HJ5-50(7/8")	82.00 - 102.00	0.6000	0.5255
T7	26	1-1/4" Hybrid 6x12	82.00 - 102.00	0.6000	0.5255
T7	28	1" Dia. SR	82.00 - 102.00	0.6000	0.5255
T7	29	1" Dia. SR	82.00 - 102.00	0.6000	0.5255
T7	30	1" Dia. SR	82.00 - 102.00	0.6000	0.5255
T7	31	1" Dia. SR	82.00 - 102.00	0.6000	0.5255
T7	32	1" Dia. SR	82.00 - 102.00	0.6000	0.5255
T7	33	1" Dia. SR	82.00 - 102.00	0.6000	0.5255
T7	34	1" Dia. SR	82.00 - 102.00	0.6000	0.5255
T7	35	1" Dia. SR	82.00 - 102.00	0.6000	0.5255
T7	36	1" Dia. SR	82.00 - 102.00	0.6000	0.5255
T8	1	HJ7-50A(1-5/8")	62.00 - 82.00	0.6000	0.5972
T8	2	HJ7-50A(1-5/8")	62.00 - 82.00	0.6000	0.5972
T8	3	HJ7-50A(1-5/8")	62.00 - 82.00	0.6000	0.5972
T8	4	HJ7-50A(1-5/8")	62.00 - 82.00	0.6000	0.5972
T8	5	HJ4-50(1/2")	62.00 - 82.00	0.6000	0.5972
T8	6	HJ5-50(7/8")	62.00 - 82.00	0.6000	0.5972
T8	8	HJ7-50A(1-5/8")	62.00 - 82.00	0.6000	0.5972
T8	9	#8 AWG Copper Wire RG6-Fiber	62.00 - 82.00	0.6000	0.5972
T8	10	RG6-Fiber	62.00 - 82.00	0.6000	0.5972
T8	12	HJ5-50(7/8")	62.00 - 82.00	0.6000	0.5972
T8	13	HJ7-50A(1-5/8")	62.00 - 82.00	0.6000	0.5972
T8	14	HJ7-50A(1-5/8")	62.00 - 82.00	0.6000	0.5972
T8	15	HJ5-50(7/8")	62.00 - 82.00	0.6000	0.5972
T8	16	WE65	62.00 - 82.00	0.6000	0.5972
T8	17	WE65	62.00 - 82.00	0.6000	0.5972
T8	18	HJ4-50(1/2")	62.00 - 82.00	0.6000	0.5972
T8	19	LDF2-50(3/8)	62.00 - 82.00	0.6000	0.5972
T8	20	HJ7-50A(1-5/8")	62.00 - 82.00	0.6000	0.5972
T8	21	HJ4-50(1/2")	62.00 - 82.00	0.6000	0.5972

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	22	HJ5-50(7/8")	62.00 - 82.00	0.6000	0.5972
T8	24	LDF2-50A(3/8")	62.00 - 82.00	0.6000	0.5972
T8	25	HJ5-50(7/8")	62.00 - 82.00	0.6000	0.5972
T8	26	1-1/4" Hybrid 6x12	62.00 - 82.00	0.6000	0.5972
T8	28	1" Dia. SR	62.00 - 82.00	0.6000	0.5972
T8	29	1" Dia. SR	62.00 - 82.00	0.6000	0.5972
T8	30	1" Dia. SR	62.00 - 82.00	0.6000	0.5972
T8	31	1" Dia. SR	62.00 - 82.00	0.6000	0.5972
T8	32	1" Dia. SR	62.00 - 82.00	0.6000	0.5972
T8	33	1" Dia. SR	62.00 - 82.00	0.6000	0.5972
T8	34	1" Dia. SR	62.00 - 82.00	0.6000	0.5972
T8	35	1" Dia. SR	62.00 - 82.00	0.6000	0.5972
T8	36	1" Dia. SR	62.00 - 82.00	0.6000	0.5972
T9	1	HJ7-50A(1-5/8")	42.00 - 62.00	0.6000	0.6000
T9	2	HJ7-50A(1-5/8")	42.00 - 62.00	0.6000	0.6000
T9	3	HJ7-50A(1-5/8")	42.00 - 62.00	0.6000	0.6000
T9	4	HJ7-50A(1-5/8")	42.00 - 62.00	0.6000	0.6000
T9	5	HJ4-50(1/2")	42.00 - 62.00	0.6000	0.6000
T9	6	HJ5-50(7/8")	42.00 - 62.00	0.6000	0.6000
T9	8	HJ7-50A(1-5/8")	42.00 - 62.00	0.6000	0.6000
T9	9	#8 AWG Copper Wire RG6-Fiber	42.00 - 62.00	0.6000	0.6000
T9	10	RG6-Fiber	42.00 - 62.00	0.6000	0.6000
T9	12	HJ5-50(7/8")	42.00 - 62.00	0.6000	0.6000
T9	13	HJ7-50A(1-5/8")	42.00 - 62.00	0.6000	0.6000
T9	14	HJ7-50A(1-5/8")	42.00 - 62.00	0.6000	0.6000
T9	15	HJ5-50(7/8")	42.00 - 62.00	0.6000	0.6000
T9	16	WE65	42.00 - 62.00	0.6000	0.6000
T9	17	WE65	42.00 - 62.00	0.6000	0.6000
T9	18	HJ4-50(1/2")	42.00 - 62.00	0.6000	0.6000
T9	19	LDF2-50(3/8)	42.00 - 62.00	0.6000	0.6000
T9	20	HJ7-50A(1-5/8")	42.00 - 62.00	0.6000	0.6000
T9	21	HJ4-50(1/2")	42.00 - 62.00	0.6000	0.6000
T9	22	HJ5-50(7/8")	42.00 - 62.00	0.6000	0.6000
T9	24	LDF2-50A(3/8")	42.00 - 62.00	0.6000	0.6000
T9	25	HJ5-50(7/8")	42.00 - 62.00	0.6000	0.6000
T9	26	1-1/4" Hybrid 6x12	42.00 - 62.00	0.6000	0.6000
T9	28	1" Dia. SR	42.00 - 62.00	0.6000	0.6000
T9	29	1" Dia. SR	42.00 - 62.00	0.6000	0.6000
T9	30	1" Dia. SR	42.00 - 62.00	0.6000	0.6000
T9	31	1" Dia. SR	42.00 - 62.00	0.6000	0.6000
T9	32	1" Dia. SR	42.00 - 62.00	0.6000	0.6000
T9	33	1" Dia. SR	42.00 - 62.00	0.6000	0.6000
T9	34	1" Dia. SR	42.00 - 62.00	0.6000	0.6000
T9	35	1" Dia. SR	42.00 - 62.00	0.6000	0.6000
T9	36	1" Dia. SR	42.00 - 62.00	0.6000	0.6000
T10	1	HJ7-50A(1-5/8")	22.00 - 42.00	0.6000	0.6000
T10	2	HJ7-50A(1-5/8")	22.00 - 42.00	0.6000	0.6000
T10	3	HJ7-50A(1-5/8")	22.00 - 42.00	0.6000	0.6000
T10	4	HJ7-50A(1-5/8")	22.00 - 42.00	0.6000	0.6000
T10	5	HJ4-50(1/2")	22.00 - 42.00	0.6000	0.6000
T10	6	HJ5-50(7/8")	22.00 - 42.00	0.6000	0.6000
T10	8	HJ7-50A(1-5/8")	22.00 - 42.00	0.6000	0.6000
T10	9	#8 AWG Copper Wire RG6-Fiber	22.00 - 42.00	0.6000	0.6000
T10	10	RG6-Fiber	22.00 - 42.00	0.6000	0.6000
T10	12	HJ5-50(7/8")	22.00 - 42.00	0.6000	0.6000
T10	13	HJ7-50A(1-5/8")	22.00 - 42.00	0.6000	0.6000
T10	14	HJ7-50A(1-5/8")	22.00 - 42.00	0.6000	0.6000
T10	15	HJ5-50(7/8")	22.00 - 42.00	0.6000	0.6000
T10	16	WE65	22.00 - 42.00	0.6000	0.6000
T10	17	WE65	22.00 - 42.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T10	18	HJ4-50(1/2")	22.00 - 42.00	0.6000	0.6000
T10	19	LDF2-50(3/8)	22.00 - 42.00	0.6000	0.6000
T10	20	HJ7-50A(1-5/8")	22.00 - 42.00	0.6000	0.6000
T10	21	HJ4-50(1/2")	22.00 - 42.00	0.6000	0.6000
T10	22	HJ5-50(7/8")	22.00 - 42.00	0.6000	0.6000
T10	24	LDF2-50A(3/8")	22.00 - 42.00	0.6000	0.6000
T10	25	HJ5-50(7/8")	22.00 - 42.00	0.6000	0.6000
T10	26	1-1/4" Hybrid 6x12	22.00 - 42.00	0.6000	0.6000
T10	28	1" Dia. SR	22.00 - 42.00	0.6000	0.6000
T10	29	1" Dia. SR	22.00 - 42.00	0.6000	0.6000
T10	30	1" Dia. SR	22.00 - 42.00	0.6000	0.6000
T10	31	1" Dia. SR	22.00 - 42.00	0.6000	0.6000
T10	32	1" Dia. SR	22.00 - 42.00	0.6000	0.6000
T10	33	1" Dia. SR	22.00 - 42.00	0.6000	0.6000
T10	34	1" Dia. SR	22.00 - 42.00	0.6000	0.6000
T10	35	1" Dia. SR	22.00 - 42.00	0.6000	0.6000
T10	36	1" Dia. SR	22.00 - 42.00	0.6000	0.6000
T11	1	HJ7-50A(1-5/8")	7.00 - 22.00	0.6000	0.6000
T11	2	HJ7-50A(1-5/8")	7.00 - 22.00	0.6000	0.6000
T11	3	HJ7-50A(1-5/8")	7.00 - 22.00	0.6000	0.6000
T11	4	HJ7-50A(1-5/8")	7.00 - 22.00	0.6000	0.6000
T11	5	HJ4-50(1/2")	7.00 - 22.00	0.6000	0.6000
T11	6	HJ5-50(7/8")	7.00 - 22.00	0.6000	0.6000
T11	8	HJ7-50A(1-5/8")	10.00 - 22.00	0.6000	0.6000
T11	9	#8 AWG Copper Wire RG6-Fiber	10.00 - 22.00	0.6000	0.6000
T11	10	RG6-Fiber	10.00 - 22.00	0.6000	0.6000
T11	12	HJ5-50(7/8")	9.50 - 22.00	0.6000	0.6000
T11	13	HJ7-50A(1-5/8")	9.50 - 22.00	0.6000	0.6000
T11	14	HJ7-50A(1-5/8")	9.50 - 22.00	0.6000	0.6000
T11	15	HJ5-50(7/8")	7.00 - 22.00	0.6000	0.6000
T11	16	WE65	7.00 - 22.00	0.6000	0.6000
T11	17	WE65	7.00 - 22.00	0.6000	0.6000
T11	18	HJ4-50(1/2")	7.00 - 22.00	0.6000	0.6000
T11	19	LDF2-50(3/8)	7.00 - 22.00	0.6000	0.6000
T11	20	HJ7-50A(1-5/8")	7.00 - 22.00	0.6000	0.6000
T11	21	HJ4-50(1/2")	7.00 - 22.00	0.6000	0.6000
T11	22	HJ5-50(7/8")	7.00 - 22.00	0.6000	0.6000
T11	23	LDF1-50A(1/4)	9.50 - 17.00	0.6000	0.6000
T11	24	LDF2-50A(3/8")	7.00 - 22.00	0.6000	0.6000
T11	25	HJ5-50(7/8")	7.00 - 22.00	0.6000	0.6000
T11	26	1-1/4" Hybrid 6x12	7.00 - 22.00	0.6000	0.6000
T11	28	1" Dia. SR	4.00 - 22.00	0.6000	0.6000
T11	29	1" Dia. SR	4.00 - 22.00	0.6000	0.6000
T11	30	1" Dia. SR	4.00 - 22.00	0.6000	0.6000
T11	31	1" Dia. SR	4.00 - 22.00	0.6000	0.6000
T11	32	1" Dia. SR	4.00 - 22.00	0.6000	0.6000
T11	33	1" Dia. SR	4.00 - 22.00	0.6000	0.6000
T11	34	1" Dia. SR	4.00 - 22.00	0.6000	0.6000
T11	35	1" Dia. SR	4.00 - 22.00	0.6000	0.6000
T11	36	1" Dia. SR	4.00 - 22.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DB201-D	C	From Leg	0.50	0.0000	196.26	No Ice	0.81	0.81	0.02
			0.00			1/2" Ice	1.48	1.48	0.03
			0.00			1" Ice	2.15	2.15	0.04
Pirod 6'-8" Rigid Side Arm	A	From Face	3.00	0.0000	196.00	No Ice	8.00	8.00	0.20
			0.00			1/2" Ice	9.60	9.60	0.20
			0.00			1" Ice	11.20	11.20	0.30
6'x4-1/2" Mount Pipe	A	From Face	0.67	0.0000	194.92	No Ice	1.83	1.83	0.04
			0.00			1/2" Ice	2.62	2.62	0.09
			0.00			1" Ice	3.41	3.41	0.14
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OGT9-840	A	From Leg	3.00	0.0000	190.25	No Ice	2.27	2.27	0.02
			7.50			1/2" Ice	3.44	3.44	0.04
			0.00			1" Ice	4.61	4.61	0.06
3"x9' Omni	C	From Face	4.00	0.0000	192.75	No Ice	2.70	2.70	0.04
			0.00			1/2" Ice	3.63	3.63	0.09
			0.00			1" Ice	4.56	4.56	0.14
Pirod 4' Side Mount Stanoff	C	From Leg	2.00	0.0000	186.50	No Ice	2.72	2.72	0.10
			0.00			1/2" Ice	4.91	4.91	0.12
			0.00			1" Ice	7.10	7.10	0.14
3"x9' Omni	C	From Leg	4.00	0.0000	188.75	No Ice	2.70	2.70	0.04
			0.00			1/2" Ice	3.63	3.63	0.09
			0.00			1" Ice	4.56	4.56	0.14
DB222-A	C	From Leg	4.00	0.0000	180.25	No Ice	1.60	1.60	0.02
			0.00			1/2" Ice	2.88	2.88	0.02
			0.00			1" Ice	4.16	4.16	0.03
DB222-A	A	From Leg	3.00	0.0000	185.25	No Ice	1.60	1.60	0.02
			-7.50			1/2" Ice	2.88	2.88	0.02
			0.00			1" Ice	4.16	4.16	0.03
BCD-87077	A	From Leg	4.00	0.0000	181.50	No Ice	3.06	3.06	0.03
			0.00			1/2" Ice	4.27	4.27	0.05
			0.00			1" Ice	5.49	5.49	0.08
Filter Box	C	From Face	0.00	0.0000	183.00	No Ice	3.50	1.40	0.04
			0.00			1/2" Ice	3.75	1.57	0.09
			0.00			1" Ice	4.00	1.74	0.14
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(4) 6' x 2" Mount Pipe	A	From Leg	3.00	0.0000	181.25	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' x 2" Mount Pipe	B	From Leg	3.00	0.0000	181.25	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' x 2" Mount Pipe	C	From Leg	3.00	0.0000	181.25	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
Pirod 15' Rotatable Platfrom	C	None		0.0000	181.25	No Ice	24.90	24.90	1.80
						1/2" Ice	30.70	30.70	2.44
						1" Ice	36.50	36.50	3.08
3"x12' Omni	C	From Face	4.00	0.0000	175.25	No Ice	3.60	3.60	0.04
			0.00			1/2" Ice	4.83	4.83	0.09
			0.00			1" Ice	6.06	6.06	0.14
ANT150D6-9	A	From Leg	3.00	0.0000	173.75	No Ice	5.94	5.94	0.04
			-7.50			1/2" Ice	11.80	11.80	0.06
			0.00			1" Ice	17.66	17.66	0.07
3"x10' Omni	A	From Leg	3.00	0.0000	174.25	No Ice	3.00	3.00	0.04
			7.50			1/2" Ice	4.03	4.03	0.09
			0.00			1" Ice	5.06	5.06	0.14
Pirod 4' Side Mount Standoff	A	From Leg	2.00	0.0000	174.25	No Ice	2.72	2.72	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(1)			0.00			1/2" Ice	4.91	4.91	0.09
			0.00			1" Ice	7.10	7.10	0.13
Priod 6' Side Mount Standoff	B	From Leg	3.00	0.0000	172.25	No Ice	4.97	4.97	0.10
			0.00			1/2" Ice	6.12	6.12	0.14
			0.00			1" Ice	7.27	7.27	0.18
PD220	B	From Leg	6.00	10.0000	172.25	No Ice	3.56	3.56	0.02
			0.00			1/2" Ice	7.13	7.13	0.05
			0.00			1" Ice	10.70	10.70	0.07
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3' Side Mount Standoff	A	From Leg	1.25	0.0000	170.25	No Ice	2.18	2.18	0.04
			0.00			1/2" Ice	3.93	3.93	0.09
			0.00			1" Ice	5.68	5.68	0.14
3"x12' Omni	A	From Leg	3.00	0.0000	175.25	No Ice	3.60	3.60	0.04
			0.00			1/2" Ice	4.83	4.83	0.09
			0.00			1" Ice	6.06	6.06	0.14
LPA-80080/4CF	A	From Leg	3.00	0.0000	163.00	No Ice	2.62	5.40	0.01
			6.00			1/2" Ice	2.92	5.73	0.05
			4.00			1" Ice	3.23	6.06	0.08
LPA-185080/8CF	A	From Leg	3.00	0.0000	163.00	No Ice	2.09	2.79	0.01
			2.00			1/2" Ice	2.39	3.09	0.03
			4.00			1" Ice	2.69	3.40	0.05
LPA-185080/8CF	A	From Leg	3.00	0.0000	163.00	No Ice	2.09	2.79	0.01
			-2.00			1/2" Ice	2.39	3.09	0.03
			4.00			1" Ice	2.69	3.40	0.05
LPA-80080/4CF	A	From Leg	3.00	0.0000	163.00	No Ice	2.62	5.40	0.01
			-6.00			1/2" Ice	2.92	5.73	0.05
			4.00			1" Ice	3.23	6.06	0.08
LPA-80080/4CF	B	From Leg	3.00	0.0000	163.00	No Ice	2.62	5.40	0.01
			6.00			1/2" Ice	2.92	5.73	0.05
			4.00			1" Ice	3.23	6.06	0.08
LPA-185080/8CF	B	From Leg	3.00	0.0000	163.00	No Ice	2.09	2.79	0.01
			2.00			1/2" Ice	2.39	3.09	0.03
			4.00			1" Ice	2.69	3.40	0.05
LPA-185080/8CF	B	From Leg	3.00	0.0000	163.00	No Ice	2.09	2.79	0.01
			-2.00			1/2" Ice	2.39	3.09	0.03
			4.00			1" Ice	2.69	3.40	0.05
LPA-80080/4CF	B	From Leg	3.00	0.0000	163.00	No Ice	2.62	5.40	0.01
			-6.00			1/2" Ice	2.92	5.73	0.05
			4.00			1" Ice	3.23	6.06	0.08
LPA-80080/4CF	B	From Leg	3.00	0.0000	163.00	No Ice	2.62	5.40	0.01
			6.00			1/2" Ice	2.92	5.73	0.05
			4.00			1" Ice	3.23	6.06	0.08
LPA-185080/8CF	C	From Leg	3.00	0.0000	163.00	No Ice	2.09	2.79	0.01
			2.00			1/2" Ice	2.39	3.09	0.03
			4.00			1" Ice	2.69	3.40	0.05
LPA-185080/8CF	C	From Leg	3.00	0.0000	163.00	No Ice	2.09	2.79	0.01
			-2.00			1/2" Ice	2.39	3.09	0.03
			4.00			1" Ice	2.69	3.40	0.05
LPA-80080/4CF	C	From Leg	3.00	0.0000	163.00	No Ice	2.62	5.40	0.01
			-6.00			1/2" Ice	2.92	5.73	0.05
			4.00			1" Ice	3.23	6.06	0.08
Pirod 15' T-Frame Sector Mount	A	From Leg	1.50	0.0000	163.00	No Ice	15.00	15.00	0.50
			0.00			1/2" Ice	20.60	20.60	0.67
			0.00			1" Ice	26.20	26.20	0.84
Pirod 15' T-Frame Sector Mount	B	From Leg	1.50	0.0000	163.00	No Ice	15.00	15.00	0.50
			0.00			1/2" Ice	20.60	20.60	0.67
			0.00			1" Ice	26.20	26.20	0.84

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Pirod 15' T-Frame Sector Mount	C	From Leg	1.50 0.00 0.00	0.0000	163.00	No Ice 1/2" Ice 1" Ice	15.00 20.60 26.20	15.00 20.60 26.20	0.50 0.67 0.84
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(2) 7770.00	A	From Leg	3.00 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	5.51 5.87 6.23	2.93 3.27 3.63	0.04 0.07 0.11
(2) 7770.00	B	From Leg	3.00 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	5.51 5.87 6.23	2.93 3.27 3.63	0.04 0.07 0.11
(2) 7770.00	C	From Leg	3.00 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	5.51 5.87 6.23	2.93 3.27 3.63	0.04 0.07 0.11
(2) LGP21401	A	From Leg	2.25 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401	B	From Leg	2.25 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401	C	From Leg	2.25 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP13519	A	From Leg	2.50 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	0.29 0.36 0.44	0.18 0.24 0.31	0.01 0.01 0.01
(2) LGP13519	B	From Leg	2.50 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	0.29 0.36 0.44	0.18 0.24 0.31	0.01 0.01 0.01
(2) LGP13519	C	From Leg	2.50 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	0.29 0.36 0.44	0.18 0.24 0.31	0.01 0.01 0.01
AM-X-CD-16-65-00T	A	From Leg	3.00 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	6.04 6.41 6.78	4.11 4.45 4.80	0.04 0.06 0.08
AM-X-CD-16-65-00T	B	From Leg	3.00 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	6.04 6.41 6.78	4.11 4.45 4.80	0.04 0.06 0.08
80010764	C	From Leg	3.00 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	5.87 6.23 6.59	3.39 3.74 4.09	0.04 0.06 0.08
(2) RRUS 11	A	From Leg	2.50 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.10
(2) RRUS 11	B	From Leg	2.50 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.10
(2) RRUS 11	C	From Leg	2.50 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.10
DC6-48-60-18-8F	B	From Leg	2.50 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	2.20 2.40 2.60	2.20 2.40 2.60	0.02 0.04 0.07
Pirod 12' T-Frame Sector Mount	A	From Leg	1.25 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	13.60 18.40 23.20	13.60 18.40 23.20	0.50 0.60 0.70
Pirod 12' T-Frame Sector Mount	B	From Leg	1.25 0.00	0.0000	150.25	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.50 0.60

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	23.20	23.20	0.70
Pirod 12' T-Frame Sector Mount	C	From Leg	1.25 0.00 0.00	0.0000	150.25	No Ice 1/2" Ice 1" Ice	13.60 18.40 23.20	13.60 18.40 23.20	0.50 0.60 0.70
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LNX-6515DS-A1M	A	From Leg	3.00 -5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	11.45 12.06 12.69	7.70 8.29 8.89	0.05 0.12 0.19
LNX-6515DS-A1M	B	From Leg	3.00 -5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	11.45 12.06 12.69	7.70 8.29 8.89	0.05 0.12 0.19
LNX-6515DS-A1M	C	From Leg	3.00 -5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	11.45 12.06 12.69	7.70 8.29 8.89	0.05 0.12 0.19
APX16DWV-16DWV-S-E-A20	A	From Leg	3.00 5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	6.59 6.96 7.34	2.15 2.49 2.84	0.04 0.07 0.11
APX16DWV-16DWV-S-E-A20	B	From Leg	3.00 5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	6.59 6.96 7.34	2.15 2.49 2.84	0.04 0.07 0.11
APX16DWV-16DWV-S-E-A20	C	From Leg	3.00 5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	6.59 6.96 7.34	2.15 2.49 2.84	0.04 0.07 0.11
RRUS 11 B12	A	From Leg	2.50 -5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
RRUS 11 B12	B	From Leg	2.50 -5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
RRUS 11 B12	C	From Leg	2.50 -5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
RRUS 11 B2	A	From Leg	2.50 -5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
RRUS 11 B2	B	From Leg	2.50 -5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
RRUS 11 B2	C	From Leg	2.50 -5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
RRUS 11 B4	A	From Leg	2.50 5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
RRUS 11 B4	B	From Leg	2.50 5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
RRUS 11 B4	C	From Leg	2.50 5.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.83 3.04 3.26	1.18 1.33 1.48	0.05 0.07 0.10
USF10-396-U	A	From Leg	2.75 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	9.00 13.20 17.40	9.00 13.20 17.40	0.20 0.34 0.48
USF10-396-U	B	From Leg	2.75 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	9.00 13.20 17.40	9.00 13.20 17.40	0.20 0.34 0.48
USF10-396-U	C	From Leg	2.75	0.0000	140.00	No Ice	9.00	9.00	0.20

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	13.20	13.20	0.34
			0.00			1" Ice	17.40	17.40	0.48
****									
SRL110	C	From Leg	2.50	0.0000	135.00	No Ice	9.00	9.00	0.04
			0.00			1/2" Ice	10.58	10.58	0.08
			0.00			1" Ice	12.16	12.16	0.12
Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	C	From Leg	3.00	0.0000	134.00	No Ice	2.60	3.41	0.20
			0.00			1/2" Ice	4.20	7.18	0.30
			0.00			1" Ice	5.80	10.95	0.40
***									
DB586-Y	A	From Leg	6.00	0.0000	130.00	No Ice	1.01	1.01	0.01
			0.00			1/2" Ice	1.28	1.28	0.02
			0.00			1" Ice	1.56	1.56	0.03
Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	A	From Leg	3.00	0.0000	126.00	No Ice	2.60	3.41	0.20
			0.00			1/2" Ice	4.20	7.18	0.30
			0.00			1" Ice	5.80	10.95	0.40
Tower Top Amplifier	A	From Leg	3.00	0.0000	126.00	No Ice	2.10	2.10	0.04
			0.00			1/2" Ice	2.40	2.40	0.08
			0.00			1" Ice	2.70	2.70	0.12
DB586-Y	A	From Leg	6.00	0.0000	125.00	No Ice	1.01	1.01	0.01
			0.00			1/2" Ice	1.28	1.28	0.02
			0.00			1" Ice	1.56	1.56	0.03
***									
Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	B	From Leg	3.00	0.0000	120.50	No Ice	2.60	3.41	0.20
			0.00			1/2" Ice	4.20	7.18	0.30
			0.00			1" Ice	5.80	10.95	0.40
DB212-1	C	From Leg	6.00	0.0000	120.69	No Ice	4.50	4.50	0.03
			0.00			1/2" Ice	8.10	8.10	0.04
			0.00			1" Ice	11.70	11.70	0.05
Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	C	From Leg	3.00	0.0000	120.69	No Ice	2.60	3.41	0.20
			0.00			1/2" Ice	4.20	7.18	0.30
			0.00			1" Ice	5.80	10.95	0.40
*****									
Ice Canopy	B	From Leg	3.00	0.0000	106.00	No Ice	3.73	2.80	0.30
			0.00			1/2" Ice	4.39	3.30	0.55
			0.00			1" Ice	5.05	3.80	0.80
DB205-L	A	From Leg	5.20	0.0000	109.25	No Ice	1.72	1.72	0.04
			0.00			1/2" Ice	3.45	3.45	0.05
			0.00			1" Ice	5.20	5.20	0.08
Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	A	From Leg	3.00	0.0000	100.83	No Ice	2.60	3.41	0.20
			0.00			1/2" Ice	4.20	7.18	0.30
			0.00			1" Ice	5.80	10.95	0.40
6'8" x4" Pipe Mount	B	From Leg	0.67	0.0000	101.20	No Ice	2.20	2.20	0.08
			0.00			1/2" Ice	3.01	3.01	0.10
			0.00			1" Ice	3.82	3.82	0.12
DB224	C	From Leg	2.00	0.0000	94.00	No Ice	3.15	3.15	0.03
			0.00			1/2" Ice	5.67	5.67	0.04
			0.00			1" Ice	8.19	8.19	0.05
2-ft Standoff	C	From Leg	1.00	0.0000	85.00	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
PD220	A	From Leg	5.20	0.0000	90.41	No Ice	3.56	3.56	0.02
			0.00			1/2" Ice	7.13	7.13	0.05
			0.00			1" Ice	10.70	10.70	0.07
Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	A	From Leg	3.00	0.0000	79.50	No Ice	2.60	3.41	0.20
			0.00			1/2" Ice	4.20	7.18	0.30
			0.00			1" Ice	5.80	10.95	0.40

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	B	From Leg	3.00 0.00 0.00	0.0000	82.67	No Ice 1/2" Ice 1" Ice	2.60 4.20 5.80	3.41 7.18 10.95	0.20 0.30 0.40
3"x12' Omni	B	From Leg	6.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice 1" Ice	3.60 4.83 6.06	3.60 4.83 6.06	0.04 0.09 0.14
DB432-A	A	From Leg	1.50 0.00 0.00	0.0000	70.25	No Ice 1/2" Ice 1" Ice	0.30 0.54 0.78	0.30 0.54 0.78	0.01 0.01 0.01
2-ft Standoff	B	From Leg	1.00 0.00 0.00	0.0000	15.00	No Ice 1/2" Ice 1" Ice	1.07 1.62 2.17	1.07 1.62 2.17	0.02 0.03 0.04

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
PA6-65AC	C	Paraboloid w/o Radome	From Leg	1.00 0.00 0.00	-10.0000		194.25	6.00	No Ice 1/2" Ice 1" Ice	28.27 29.05 29.83	0.09 0.24 0.39
PA6-65AC	A	Paraboloid w/o Radome	From Leg	1.00 0.00 0.00	-50.0000		102.25	6.00	No Ice 1/2" Ice 1" Ice	28.27 29.05 29.83	0.09 0.24 0.39
1.2M	A	Paraboloid w/o Radome	From Leg	2.00 0.00 0.00	40.0000		17.00	4.00	No Ice 1/2" Ice 1" Ice	12.57 13.10 13.63	0.17 0.23 0.30

Truss-Leg Properties

Section Designation	Area in^2	Area Ice in^2	Self Weight K	Ice Weight K	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in^2
Pirod 105245	1090.3344	3385.9120	0.68	1.20	7.5718	23.5133	5.3014
Pirod 105217	2130.7479	6937.0126	0.62	2.46	7.3984	24.0868	5.3014
Pirod 105218	2263.4687	6977.9854	0.75	2.48	7.8593	24.2291	7.2158
Pirod 105218	2263.4687	6941.5027	0.75	2.46	7.8593	24.1024	7.2158
Pirod 105219	2441.8688	6969.0343	0.94	2.48	8.4787	24.1980	9.4248
Pirod 105219	2441.8688	6911.6576	0.94	2.44	8.4787	23.9988	9.4248
Pirod 105220	2578.8005	6901.4525	1.12	2.43	8.9542	23.9634	11.9282
Pirod 105220	2578.8005	6747.0742	1.12	2.34	8.9542	23.4273	11.9282

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
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

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	197 - 187	Leg	Max Tension	7	5.05	0.44	-0.53
			Max. Compression	2	-5.25	-0.11	0.14
			Max. Mx	8	-2.71	0.64	-0.24
			Max. My	14	-2.22	0.13	0.69
			Max. Vy	8	1.19	-0.15	0.05
			Max. Vx	14	1.29	-0.03	-0.17
		Diagonal	Max Tension	6	2.04	0.00	0.00
			Max. Compression	2	-1.99	0.00	0.00
			Max. Mx	32	0.27	-0.01	-0.00
			Max. My	14	-1.75	-0.00	0.00
			Max. Vy	33	0.02	-0.01	0.00
			Max. Vx	14	0.00	-0.00	0.00
		Top Girt	Max Tension	3	0.28	0.00	0.00
			Max. Compression	2	-0.21	0.00	0.00
			Max. Mx	26	-0.04	-0.06	0.00
			Max. My	16	-0.01	0.00	-0.00
			Max. Vy	26	0.06	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Bottom Girt	Max Tension	6	0.85	0.00	0.00
			Max. Compression	3	-0.73	0.00	0.00
			Max. Mx	26	0.04	0.03	0.00
			Max. My	16	0.04	0.00	0.00
			Max. Vy	26	-0.02	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
T2	187 - 172	Leg	Max Tension	7	25.26	-0.31	0.39
			Max. Compression	2	-26.71	0.46	-1.42
			Max. Mx	8	-9.14	1.49	-0.21
			Max. My	14	-11.77	0.10	1.46
			Max. Vy	8	2.91	1.49	-0.21
			Max. Vx	16	2.93	-0.52	1.43
		Diagonal	Max Tension	16	4.52	0.00	0.00
			Max. Compression	16	-4.49	0.00	0.00
			Max. Mx	29	1.19	-0.01	-0.00
			Max. My	16	-4.47	-0.00	0.00
			Max. Vy	29	0.02	-0.01	-0.00
			Max. Vx	16	-0.00	-0.00	0.00
		Top Girt	Max Tension	2	0.84	0.00	0.00
			Max. Compression	6	-0.96	0.00	0.00
			Max. Mx	26	-0.02	0.03	0.00
			Max. My	16	-0.03	0.00	0.00
			Max. Vy	26	0.03	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Bottom Girt	Max Tension	6	1.67	0.00	0.00
			Max. Compression	2	-1.64	0.00	0.00
			Max. Mx	26	0.04	0.03	0.00
			Max. My	16	0.13	0.00	0.00
			Max. Vy	26	0.03	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
T3	172 - 152	Leg	Max Tension	7	72.63	0.66	-0.07
			Max. Compression	2	-75.12	2.84	0.24
			Max. Mx	2	-75.12	2.84	0.24
			Max. My	8	-9.60	0.30	2.24
			Max. Vy	2	-5.64	2.84	0.24
			Max. Vx	8	-2.87	0.30	2.24
		Diagonal	Max Tension	16	5.07	0.00	0.00
			Max. Compression	16	-5.12	0.00	0.00
			Max. Mx	27	0.85	-0.01	-0.00
			Max. My	16	-4.85	-0.00	0.00
			Max. Vy	27	0.02	-0.01	-0.00
			Max. Vx	16	-0.00	-0.00	0.00
		Top Girt	Max Tension	2	1.70	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	6	-1.75	0.00	0.00
			Max. Mx	26	-0.02	0.03	0.00
			Max. My	16	-0.12	0.00	0.00
			Max. Vy	26	-0.03	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Bottom Girt	Max Tension	6	0.69	0.00	0.00
			Max. Compression	3	-0.62	0.00	0.00
			Max. Mx	26	0.08	0.04	0.00
			Max. My	6	-0.38	0.00	-0.00
			Max. Vy	26	-0.03	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
T4	152 - 142	Leg	Max Tension	7	79.53	-2.77	0.25
			Max. Compression	2	-82.76	5.16	1.26
			Max. Mx	6	77.75	-5.75	0.44
			Max. My	4	-10.43	0.11	-7.30
			Max. Vy	22	-0.83	-2.55	0.05
			Max. Vx	4	0.95	0.11	-7.30
		Diagonal	Max Tension	7	7.50	0.06	0.01
			Max. Compression	10	-7.78	0.00	0.00
			Max. Mx	6	6.15	0.06	-0.00
			Max. My	16	-7.38	-0.04	-0.03
			Max. Vy	29	0.04	0.05	0.01
			Max. Vx	16	0.01	0.00	0.00
T5	142 - 122	Leg	Max Tension	7	126.23	-5.07	0.24
			Max. Compression	2	-134.11	6.37	0.53
			Max. Mx	2	-134.11	6.37	0.53
			Max. My	4	-11.63	0.11	-7.30
			Max. Vy	6	-1.04	-5.75	0.44
			Max. Vx	24	1.15	-0.60	6.59
		Diagonal	Max Tension	16	9.35	0.00	0.00
			Max. Compression	16	-9.80	0.00	0.00
			Max. Mx	2	6.29	0.12	0.01
			Max. My	16	-9.52	-0.06	-0.02
			Max. Vy	27	-0.06	0.10	0.01
			Max. Vx	34	0.00	0.00	0.00
T6	122 - 102	Leg	Max Tension	7	169.60	-4.48	0.19
			Max. Compression	2	-181.06	7.73	0.07
			Max. Mx	2	-181.06	7.73	0.07
			Max. My	4	-14.38	-0.17	-8.29
			Max. Vy	10	-1.06	7.51	-0.35
			Max. Vx	8	0.98	0.01	8.16
		Diagonal	Max Tension	15	9.59	0.00	0.00
			Max. Compression	2	-10.15	0.00	0.00
			Max. Mx	35	0.85	0.13	0.02
			Max. My	25	-8.67	-0.05	0.02
			Max. Vy	36	0.07	0.12	-0.02
			Max. Vx	33	0.01	0.00	0.00
T7	102 - 82	Leg	Max Tension	7	213.73	-4.32	0.17
			Max. Compression	2	-229.53	6.86	0.36
			Max. Mx	2	-203.87	7.73	0.07
			Max. My	4	-16.12	-0.25	-9.25
			Max. Vy	18	0.62	7.67	0.11
			Max. Vx	8	-1.03	-0.15	9.19
		Diagonal	Max Tension	4	10.05	0.00	0.00
			Max. Compression	4	-10.47	0.00	0.00
			Max. Mx	27	1.83	0.16	0.02
			Max. My	6	-7.64	-0.01	0.03
			Max. Vy	37	0.08	0.14	-0.02
			Max. Vx	6	-0.01	0.00	0.00
		Top Girt	Max Tension	6	4.85	0.00	0.00
			Max. Compression	3	-4.25	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	26	1.23	-0.26	0.00
			Max. My	29	0.70	0.00	0.01
			Max. Vy	26	0.10	0.00	0.00
			Max. Vx	29	-0.00	0.00	0.00
T8	82 - 62	Leg	Max Tension	7	254.69	-5.86	0.02
			Max. Compression	2	-275.24	5.60	0.36
			Max. Mx	2	-252.01	6.86	0.36
			Max. My	4	-19.09	0.13	-5.76
			Max. Vy	10	0.31	6.80	-0.20
			Max. Vx	4	0.27	0.08	-5.37
		Diagonal	Max Tension	4	10.45	0.00	0.00
			Max. Compression	4	-10.84	0.00	0.00
			Max. Mx	27	1.71	0.19	0.02
			Max. My	29	-2.21	0.15	0.03
			Max. Vy	37	0.10	0.18	-0.02
			Max. Vx	35	-0.01	0.00	0.00
T9	62 - 42	Leg	Max Tension	7	293.85	-5.56	-0.00
			Max. Compression	2	-319.29	6.42	0.36
			Max. Mx	10	-318.37	6.43	-0.23
			Max. My	8	-24.88	0.17	6.39
			Max. Vy	11	-0.25	6.41	-0.23
			Max. Vx	24	-0.20	-0.16	6.19
		Diagonal	Max Tension	4	10.92	0.00	0.00
			Max. Compression	4	-11.42	0.00	0.00
			Max. Mx	35	2.22	0.24	0.03
			Max. My	35	0.06	0.21	-0.03
			Max. Vy	37	0.12	0.23	-0.03
			Max. Vx	35	-0.01	0.00	0.00
T10	42 - 22	Leg	Max Tension	7	331.42	-5.84	-0.03
			Max. Compression	2	-362.65	5.93	0.19
			Max. Mx	10	-340.16	6.43	-0.23
			Max. My	8	-25.08	0.17	6.39
			Max. Vy	29	0.76	-5.98	0.03
			Max. Vx	24	0.28	-0.26	5.26
		Diagonal	Max Tension	4	11.71	0.00	0.00
			Max. Compression	4	-12.14	0.00	0.00
			Max. Mx	35	2.80	0.28	-0.03
			Max. My	29	-1.96	0.25	0.04
			Max. Vy	37	0.14	0.28	-0.03
			Max. Vx	29	0.01	0.00	0.00
T11	22 - 2	Leg	Max Tension	7	366.50	-5.91	-0.00
			Max. Compression	10	-403.89	0.00	-0.00
			Max. Mx	35	-157.99	8.22	0.07
			Max. My	8	-27.85	-0.26	10.30
			Max. Vy	33	-1.25	-6.00	-0.05
			Max. Vx	8	1.15	-0.26	10.30
		Diagonal	Max Tension	17	13.06	0.00	0.00
			Max. Compression	16	-13.65	0.00	0.00
			Max. Mx	35	0.32	0.34	-0.04
			Max. My	29	-4.12	0.30	0.05
			Max. Vy	37	0.14	0.34	-0.04
			Max. Vx	29	-0.01	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	412.57	36.67	-21.64
	Max. H_x	18	412.57	36.67	-21.64
	Max. H_z	7	-375.90	-33.89	20.13
	Min. Vert	7	-375.90	-33.89	20.13
	Min. H_x	7	-375.90	-33.89	20.13
	Min. H_z	18	412.57	36.67	-21.64
Leg B	Max. Vert	10	415.31	-37.05	-21.58
	Max. H_x	23	-362.62	33.29	19.25
	Max. H_z	23	-362.62	33.29	19.25
	Min. Vert	23	-362.62	33.29	19.25
	Min. H_x	10	415.31	-37.05	-21.58
	Min. H_z	10	415.31	-37.05	-21.58
Leg A	Max. Vert	2	415.02	-0.31	42.66
	Max. H_x	21	14.13	3.30	0.90
	Max. H_z	2	415.02	-0.31	42.66
	Min. Vert	15	-366.17	0.26	-38.86
	Min. H_x	9	23.61	-3.42	1.46
	Min. H_z	15	-366.17	0.26	-38.86

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	51.14	0.00	0.00	-0.47	7.43	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	61.36	1.49	-66.56	-6834.08	-282.94	-14.05
0.9 Dead+1.6 Wind 0 deg - No Ice	46.02	1.49	-66.56	-6823.46	-284.52	-14.03
1.2 Dead+1.6 Wind 30 deg - No Ice	61.36	33.23	-56.80	-5871.42	-3498.06	-12.84
0.9 Dead+1.6 Wind 30 deg - No Ice	46.02	33.23	-56.80	-5862.24	-3494.78	-12.82
1.2 Dead+1.6 Wind 60 deg - No Ice	61.36	56.70	-31.86	-3366.04	-5891.42	-19.66
0.9 Dead+1.6 Wind 60 deg - No Ice	46.02	56.70	-31.86	-3360.56	-5884.58	-19.65
1.2 Dead+1.6 Wind 90 deg - No Ice	61.36	66.19	-0.25	-143.81	-6842.38	-12.57
0.9 Dead+1.6 Wind 90 deg - No Ice	46.02	66.19	-0.25	-143.20	-6834.12	-12.56
1.2 Dead+1.6 Wind 120 deg - No Ice	61.36	58.59	32.49	3219.73	-6038.11	-3.02
0.9 Dead+1.6 Wind 120 deg - No Ice	46.02	58.59	32.49	3215.18	-6031.07	-3.03
1.2 Dead+1.6 Wind 150 deg - No Ice	61.36	32.58	56.83	5809.00	-3307.87	7.06
0.9 Dead+1.6 Wind 150 deg - No Ice	46.02	32.58	56.83	5800.30	-3305.19	7.04
1.2 Dead+1.6 Wind 180 deg - No Ice	61.36	0.82	64.33	6618.02	-90.10	10.37
0.9 Dead+1.6 Wind 180 deg - No Ice	46.02	0.82	64.33	6608.05	-92.28	10.35
1.2 Dead+1.6 Wind 210 deg - No Ice	61.36	-32.21	56.93	5855.38	3314.77	14.76
0.9 Dead+1.6 Wind 210 deg - No Ice	46.02	-32.21	56.93	5846.55	3307.43	14.74

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	61.36	-57.60	33.20	3380.75	5890.51	14.27
0.9 Dead+1.6 Wind 240 deg - No Ice	46.02	-57.60	33.20	3375.70	5879.28	14.26
1.2 Dead+1.6 Wind 270 deg - No Ice	61.36	-65.21	0.47	20.89	6691.99	7.83
0.9 Dead+1.6 Wind 270 deg - No Ice	46.02	-65.21	0.47	21.00	6679.54	7.83
1.2 Dead+1.6 Wind 300 deg - No Ice	61.36	-55.44	-31.35	-3214.44	5717.15	0.94
0.9 Dead+1.6 Wind 300 deg - No Ice	46.02	-55.44	-31.35	-3209.44	5706.16	0.95
1.2 Dead+1.6 Wind 330 deg - No Ice	61.36	-31.63	-56.69	-5841.66	3184.32	-10.72
0.9 Dead+1.6 Wind 330 deg - No Ice	46.02	-31.63	-56.69	-5832.56	3177.35	-10.70
1.2 Dead+1.0 Ice+1.0 Temp	234.63	0.00	0.00	-16.34	61.89	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	234.63	0.16	-14.78	-1582.75	30.48	-2.99
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	234.63	7.39	-12.69	-1363.86	-729.37	-4.03
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	234.63	12.79	-7.27	-795.98	-1298.51	-5.19
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	234.63	14.75	-0.02	-31.76	-1504.49	-4.00
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	234.63	12.94	7.31	745.23	-1311.14	-1.90
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	234.63	7.32	12.70	1325.02	-709.65	0.71
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	234.63	0.09	14.62	1531.32	50.17	2.63
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	234.63	-7.28	12.71	1329.09	831.33	4.24
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	234.63	-12.82	7.38	761.58	1415.98	4.61
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	234.63	-14.65	0.05	-15.32	1610.23	3.48
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	234.63	-12.66	-7.22	-780.70	1402.78	1.63
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	234.63	-7.22	-12.68	-1361.67	818.50	-1.11
Dead+Wind 0 deg - Service	51.14	0.34	-15.06	-1544.80	-58.47	-3.18
Dead+Wind 30 deg - Service	51.14	7.52	-12.85	-1327.24	-785.07	-2.92
Dead+Wind 60 deg - Service	51.14	12.83	-7.21	-761.00	-1325.97	-4.45
Dead+Wind 90 deg - Service	51.14	14.97	-0.06	-32.79	-1540.88	-2.83
Dead+Wind 120 deg - Service	51.14	13.25	7.35	727.33	-1359.12	-0.68
Dead+Wind 150 deg - Service	51.14	7.37	12.86	1312.45	-742.13	1.58
Dead+Wind 180 deg - Service	51.14	0.19	14.55	1495.27	-14.93	2.34
Dead+Wind 210 deg - Service	51.14	-7.29	12.88	1322.93	754.55	3.35
Dead+Wind 240 deg - Service	51.14	-13.03	7.51	763.69	1336.67	3.23
Dead+Wind 270 deg - Service	51.14	-14.75	0.11	4.38	1517.80	1.76
Dead+Wind 300 deg - Service	51.14	-12.54	-7.09	-726.79	1297.48	0.21
Dead+Wind 330 deg - Service	51.14	-7.16	-12.82	-1320.52	725.09	-2.41

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-51.14	0.00	0.00	51.14	0.00	0.000%
2	1.49	-61.36	-66.56	-1.49	61.36	66.56	0.000%
3	1.49	-46.02	-66.56	-1.49	46.02	66.56	0.000%
4	33.23	-61.36	-56.80	-33.23	61.36	56.80	0.000%
5	33.23	-46.02	-56.80	-33.23	46.02	56.80	0.000%
6	56.70	-61.36	-31.86	-56.70	61.36	31.86	0.000%
7	56.70	-46.02	-31.86	-56.70	46.02	31.86	0.000%
8	66.19	-61.36	-0.25	-66.19	61.36	0.25	0.000%
9	66.19	-46.02	-0.25	-66.19	46.02	0.25	0.000%
10	58.59	-61.36	32.49	-58.59	61.36	-32.49	0.000%
11	58.59	-46.02	32.49	-58.59	46.02	-32.49	0.000%
12	32.58	-61.36	56.83	-32.58	61.36	-56.83	0.000%
13	32.58	-46.02	56.83	-32.58	46.02	-56.83	0.000%
14	0.82	-61.36	64.33	-0.82	61.36	-64.33	0.000%
15	0.82	-46.02	64.33	-0.82	46.02	-64.33	0.000%
16	-32.21	-61.36	56.93	32.21	61.36	-56.93	0.000%
17	-32.21	-46.02	56.93	32.21	46.02	-56.93	0.000%
18	-57.60	-61.36	33.20	57.60	61.36	-33.20	0.000%
19	-57.60	-46.02	33.20	57.60	46.02	-33.20	0.000%
20	-65.21	-61.36	0.47	65.21	61.36	-0.47	0.000%
21	-65.21	-46.02	0.47	65.21	46.02	-0.47	0.000%
22	-55.44	-61.36	-31.35	55.44	61.36	31.35	0.000%
23	-55.44	-46.02	-31.35	55.44	46.02	31.35	0.000%
24	-31.63	-61.36	-56.69	31.63	61.36	56.69	0.000%
25	-31.63	-46.02	-56.69	31.63	46.02	56.69	0.000%
26	0.00	-234.63	0.00	-0.00	234.63	-0.00	0.000%
27	0.16	-234.63	-14.78	-0.16	234.63	14.78	0.000%
28	7.39	-234.63	-12.69	-7.39	234.63	12.69	0.000%
29	12.79	-234.63	-7.27	-12.79	234.63	7.27	0.000%
30	14.75	-234.63	-0.02	-14.75	234.63	0.02	0.000%
31	12.94	-234.63	7.31	-12.94	234.63	-7.31	0.000%
32	7.32	-234.63	12.70	-7.32	234.63	-12.70	0.000%
33	0.09	-234.63	14.62	-0.09	234.63	-14.62	0.000%
34	-7.28	-234.63	12.71	7.28	234.63	-12.71	0.000%
35	-12.82	-234.63	7.38	12.82	234.63	-7.38	0.000%
36	-14.65	-234.63	0.05	14.65	234.63	-0.05	0.000%
37	-12.66	-234.63	-7.22	12.66	234.63	7.22	0.000%
38	-7.22	-234.63	-12.68	7.22	234.63	12.68	0.000%
39	0.34	-51.14	-15.06	-0.34	51.14	15.06	0.000%
40	7.52	-51.14	-12.85	-7.52	51.14	12.85	0.000%
41	12.83	-51.14	-7.21	-12.83	51.14	7.21	0.000%
42	14.97	-51.14	-0.06	-14.97	51.14	0.06	0.000%
43	13.25	-51.14	7.35	-13.25	51.14	-7.35	0.000%
44	7.37	-51.14	12.86	-7.37	51.14	-12.86	0.000%
45	0.19	-51.14	14.55	-0.19	51.14	-14.55	0.000%
46	-7.29	-51.14	12.88	7.29	51.14	-12.88	0.000%
47	-13.03	-51.14	7.51	13.03	51.14	-7.51	0.000%
48	-14.75	-51.14	0.11	14.75	51.14	-0.11	0.000%
49	-12.54	-51.14	-7.09	12.54	51.14	7.09	0.000%
50	-7.16	-51.14	-12.82	7.16	51.14	12.82	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001

2	Yes	4	0.00000001	0.00000069
3	Yes	4	0.00000001	0.00000001
4	Yes	4	0.00000001	0.00000136
5	Yes	4	0.00000001	0.00000116
6	Yes	4	0.00000001	0.00000095
7	Yes	4	0.00000001	0.00000061
8	Yes	4	0.00000001	0.00000163
9	Yes	4	0.00000001	0.00000146
10	Yes	4	0.00000001	0.00000071
11	Yes	4	0.00000001	0.00000001
12	Yes	4	0.00000001	0.00000143
13	Yes	4	0.00000001	0.00000117
14	Yes	4	0.00000001	0.00000092
15	Yes	4	0.00000001	0.00000001
16	Yes	4	0.00000001	0.00000133
17	Yes	4	0.00000001	0.00000107
18	Yes	4	0.00000001	0.00000076
19	Yes	4	0.00000001	0.00000001
20	Yes	4	0.00000001	0.00000142
21	Yes	4	0.00000001	0.00000119
22	Yes	4	0.00000001	0.00000083
23	Yes	4	0.00000001	0.00000001
24	Yes	4	0.00000001	0.00000157
25	Yes	4	0.00000001	0.00000130
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00003274
28	Yes	4	0.00000001	0.00003285
29	Yes	4	0.00000001	0.00003292
30	Yes	4	0.00000001	0.00003196
31	Yes	4	0.00000001	0.00003116
32	Yes	4	0.00000001	0.00003144
33	Yes	4	0.00000001	0.00003241
34	Yes	4	0.00000001	0.00003261
35	Yes	4	0.00000001	0.00003273
36	Yes	4	0.00000001	0.00003327
37	Yes	4	0.00000001	0.00003368
38	Yes	4	0.00000001	0.00003306
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00000001
41	Yes	4	0.00000001	0.00000001
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000001
44	Yes	4	0.00000001	0.00000001
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00000001
47	Yes	4	0.00000001	0.00000001
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00000001
50	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	*Elevation* *ft*	*Horz. Deflection* *in*	*Gov. Load Comb.*	*Tilt* °	*Twist* °
T1	197 - 187	6.669	40	0.3117	0.0919
T2	187 - 172	6.004	40	0.3105	0.0763
T3	172 - 152	5.005	40	0.2992	0.0442
T4	152 - 142	3.783	40	0.2598	0.0245
T5	142 - 122	3.243	40	0.2389	0.0187

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T6	122 - 102	2.310	40	0.1915	0.0137
T7	102 - 82	1.568	40	0.1533	0.0112
T8	82 - 62	0.985	40	0.1131	0.0070
T9	62 - 42	0.558	39	0.0816	0.0045
T10	42 - 22	0.258	43	0.0499	0.0026
T11	22 - 2	0.078	43	0.0249	0.0013

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
196.26	DB201-D	40	6.620	0.3116	0.0908	187276
196.00	Pirod 6'-8" Rigid Side Arm	40	6.603	0.3116	0.0904	187276
194.92	6'x4-1/2" Mount Pipe	40	6.531	0.3116	0.0887	187276
194.25	PA6-65AC	40	6.487	0.3115	0.0876	187276
192.75	3"x9' Omni	40	6.387	0.3114	0.0853	187276
190.25	OGT9-840	40	6.221	0.3112	0.0818	141090
188.75	3"x9' Omni	40	6.121	0.3109	0.0794	124441
186.50	Pirod 4' Side Mount Stanoff	40	5.970	0.3104	0.0753	130988
185.25	DB222-A	40	5.887	0.3100	0.0728	159721
183.00	Filter Box	40	5.736	0.3090	0.0678	421724
181.50	BCD-87077	40	5.635	0.3082	0.0643	195752
181.25	(4) 6' x 2" Mount Pipe	40	5.618	0.3081	0.0637	176658
180.25	DB222-A	40	5.551	0.3075	0.0613	127076
175.25	3"x12' Omni	40	5.218	0.3032	0.0498	47999
174.25	3"x10' Omni	40	5.152	0.3020	0.0480	43025
173.75	ANT150D6-9	40	5.119	0.3014	0.0471	41032
172.25	Priod 6' Side Mount Standoff	40	5.021	0.2995	0.0446	36573
170.25	3' Side Mount Standoff	40	4.891	0.2966	0.0416	33211
163.00	LPA-80080/4CF	40	4.434	0.2833	0.0330	28228
150.25	(2) 7770.00	40	3.685	0.2561	0.0234	23773
140.00	LNX-6515DS-A1M	40	3.141	0.2343	0.0178	24937
135.00	SRL110	40	2.894	0.2224	0.0161	24617
134.00	Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	40	2.846	0.2200	0.0158	24545
130.00	DB586-Y	40	2.660	0.2102	0.0149	24260
126.00	Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	40	2.481	0.2006	0.0143	23985
125.00	DB586-Y	40	2.437	0.1982	0.0141	23935
120.69	DB212-1	40	2.256	0.1887	0.0136	24285
120.50	Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	40	2.248	0.1883	0.0136	24330
109.25	DB205-L	40	1.817	0.1668	0.0123	28772
106.00	Ice Canopy	40	1.703	0.1609	0.0118	30422
102.25	PA6-65AC	40	1.577	0.1538	0.0112	32020
101.20	6'8" x4" Pipe Mount	40	1.542	0.1517	0.0110	32193
100.83	Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	40	1.530	0.1510	0.0110	32217
94.00	DB224	40	1.317	0.1370	0.0095	31241
90.41	PD220	40	1.211	0.1296	0.0087	30610
85.00	2-ft Standoff	40	1.063	0.1187	0.0075	29734
82.67	Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	40	1.002	0.1143	0.0071	29624
79.50	Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	39	0.924	0.1087	0.0065	30251
75.00	3"x12' Omni	39	0.819	0.1013	0.0059	32101

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
70.25	DB432-A	39	0.717	0.0941	0.0053	34397
17.00	1.2M	43	0.052	0.0188	0.0010	52133
15.00	2-ft Standoff	43	0.043	0.0164	0.0009	60153

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	197 - 187	29.617	4	1.3879	0.4075
T2	187 - 172	26.656	4	1.3818	0.3382
T3	172 - 152	22.215	4	1.3293	0.1963
T4	152 - 142	16.788	4	1.1545	0.1088
T5	142 - 122	14.389	4	1.0616	0.0829
T6	122 - 102	10.245	4	0.8505	0.0610
T7	102 - 82	6.953	4	0.6801	0.0496
T8	82 - 62	4.371	8	0.5016	0.0308
T9	62 - 42	2.472	8	0.3621	0.0199
T10	42 - 22	1.143	10	0.2216	0.0114
T11	22 - 2	0.347	10	0.1105	0.0058

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
196.26	DB201-D	4	29.398	1.3877	0.4024	46001
196.00	Pirod 6'-8" Rigid Side Arm	4	29.321	1.3876	0.4006	46001
194.92	6'x4-1/2" Mount Pipe	4	29.002	1.3873	0.3930	46001
194.25	PA6-65AC	4	28.804	1.3871	0.3883	46001
192.75	3"x9' Omni	4	28.361	1.3866	0.3779	46001
190.25	OGT9-840	4	27.621	1.3851	0.3624	34639
188.75	3"x9' Omni	4	27.176	1.3838	0.3519	30480
186.50	Pirod 4' Side Mount Stanoff	4	26.507	1.3811	0.3339	32425
185.25	DB222-A	4	26.134	1.3792	0.3226	40614
183.00	Filter Box	4	25.463	1.3746	0.3005	115783
181.50	BCD-87077	4	25.015	1.3709	0.2849	42447
181.25	(4) 6' x 2" Mount Pipe	4	24.941	1.3702	0.2823	37897
180.25	DB222-A	4	24.643	1.3672	0.2716	26525
175.25	3"x12' Omni	4	23.163	1.3473	0.2209	10640
174.25	3"x10' Omni	4	22.869	1.3422	0.2130	9569
173.75	ANT150D6-9	4	22.723	1.3395	0.2092	9138
172.25	Priod 6' Side Mount Standoff	4	22.287	1.3308	0.1981	8171
170.25	3' Side Mount Standoff	4	21.710	1.3177	0.1845	7440
163.00	LPA-80080/4CF	4	19.678	1.2587	0.1463	6358
150.25	(2) 7770.00	4	16.352	1.1383	0.1037	5367
140.00	LNX-6515DS-A1M	4	13.936	1.0414	0.0790	5582
135.00	SRL110	4	12.839	0.9884	0.0714	5516
134.00	Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	4	12.627	0.9775	0.0702	5501
130.00	DB586-Y	4	11.797	0.9338	0.0662	5442
126.00	Pirod 6' Rigid Side Arm w/ 3" STD	4	11.003	0.8909	0.0632	5379

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
	Mount Pipe					
125.00	DB586-Y	4	10.810	0.8805	0.0626	5368
120.69	DB212-1	4	10.004	0.8380	0.0603	5446
120.50	Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	4	9.970	0.8362	0.0602	5456
109.25	DB205-L	4	8.058	0.7403	0.0545	6463
106.00	Ice Canopy	4	7.551	0.7138	0.0525	6838
102.25	PA6-65AC	4	6.990	0.6822	0.0498	7202
101.20	6'8" x4" Pipe Mount	4	6.836	0.6731	0.0490	7242
100.83	Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	4	6.783	0.6699	0.0487	7248
94.00	DB224	8	5.837	0.6078	0.0423	7035
90.41	PD220	8	5.372	0.5747	0.0387	6896
85.00	2-ft Standoff	8	4.714	0.5265	0.0334	6703
82.67	Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	8	4.446	0.5070	0.0314	6680
79.50	Pirod 6' Rigid Side Arm w/ 3" STD Mount Pipe	8	4.098	0.4821	0.0290	6822
75.00	3"x12' Omni	8	3.633	0.4495	0.0261	7239
70.25	DB432-A	8	3.179	0.4173	0.0236	7757
17.00	1.2M	10	0.230	0.0835	0.0044	11739
15.00	2-ft Standoff	10	0.192	0.0726	0.0039	13545

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	197	Leg	A325N	0.6250	5	1.05	24.85	0.042 ✔	1	Bolt DS
T2	187	Leg	A325N	0.7500	5	5.34	35.78	0.149 ✔	1	Bolt DS
T3	172	Leg	A325N	1.0000	6	12.11	53.01	0.228 ✔	1	Bolt Tension
T4	152	Leg	A325N	1.0000	6	13.25	53.01	0.250 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	7.50	9.14	0.820 ✔	1	Member Block Shear
T5	142	Leg	A325N	1.0000	6	21.04	53.01	0.397 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	9.35	11.43	0.818 ✔	1	Member Block Shear
T6	122	Leg	A325N	1.0000	6	28.27	53.01	0.533 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	9.59	15.23	0.630 ✔	1	Member Block Shear
T7	102	Leg	A325N	1.0000	6	35.62	53.01	0.672 ✔	1	Bolt Tension
		Diagonal	A325N	1.0000	1	10.05	15.23	0.660 ✔	1	Member Block Shear
		Top Girt	A325N	1.0000	1	4.85	11.43	0.424 ✔	1	Member Block Shear
T8	82	Leg	A325N	1.2500	6	42.45	82.83	0.512 ✔	1	Bolt Tension
		Diagonal	A325N	1.2500	1	10.45	17.14	0.610 ✔	1	Member Block Shear
T9	62	Leg	A325N	1.2500	6	48.98	82.83	0.591 ✔	1	Bolt Tension
		Diagonal	A325N	1.2500	1	10.92	18.59	0.588 ✔	1	Member Block Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T10	42	Leg	A325N	1.2500	6	55.24	82.83	0.667 ✔	1	Bolt Tension
		Diagonal	A325N	1.2500	1	11.71	20.54	0.570 ✔	1	Member Block Shear
T11	22	Diagonal	A325N	1.2500	1	13.06	18.59	0.703 ✔	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 K	Ratio $P_u / \phi P_n$
T1	197 - 187	1 3/4	10.00	0.67	18.3 K=1.00	2.4053	-5.25	105.61	0.050 [1] ✔
T2	187 - 172	2	15.00	2.28	54.7 K=1.00	3.1416	-23.88	113.63	0.210 [1] ✔
T3	172 - 152	2 1/4	20.00	2.34	50.0 K=1.00	3.9761	-71.47	149.02	0.480 [1] ✔
T4	152 - 142	Pirod 105245	10.02	10.02	37.8 K=1.00	5.3014	-82.76	214.86	0.385 [1] ✔
T5	142 - 122	Pirod 105217	20.03	10.02	37.8 K=1.00	5.3014	-134.11	214.86	0.624 [1] ✔
T6	122 - 102	Pirod 105218	20.03	10.02	32.4 K=1.00	7.2158	-181.06	300.68	0.602 [1] ✔
T7	102 - 82	Pirod 105218	20.03	10.02	32.4 K=1.00	7.2158	-229.53	300.68	0.763 [1] ✔
T8	82 - 62	Pirod 105219	20.03	10.02	28.4 K=1.00	9.4248	-275.24	399.87	0.688 [1] ✔
T9	62 - 42	Pirod 105219	20.03	10.02	28.4 K=1.00	9.4248	-319.29	399.87	0.798 [1] ✔
T10	42 - 22	Pirod 105220	20.03	10.02	25.2 K=1.00	11.9282	-362.65	512.38	0.708 [1] ✔
T11	22 - 2	Pirod 105220	20.03	10.02	25.2 K=1.00	11.9282	-403.89	512.38	0.788 [1] ✔

[1] $P_u / \phi P_n$ controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T4	152 - 142	0.5	1.47	120.0	238.57	0.1963	0.96	3.45	0.279

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T5	142 - 122	0.5	1.47	120.0	238.57	0.1963	1.15	3.34	0.345
T6	122 - 102	0.5	1.46	119.0	324.71	0.1963	1.32	3.38	0.390
T7	102 - 82	0.5	1.46	119.0	324.71	0.1963	1.04	3.38	0.308
T8	82 - 62	0.625	1.45	94.4	424.12	0.3068	0.31	6.96	0.044
T9	62 - 42	0.625	1.45	94.4	424.12	0.3068	0.25	6.96	0.036
T10	42 - 22	0.625	1.43	93.6	536.77	0.3068	0.76	7.01	0.108
T11	22 - 2	0.625	1.43	93.6	536.77	0.3068	1.25	7.01	0.179

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	197 - 187	7/8	4.99	2.42	119.3 K=0.90	0.6013	-1.99	9.55	0.208 [1]
T2	187 - 172	7/8	5.04	2.43	119.9 K=0.90	0.6013	-4.49	9.45	0.475 [1]
T3	172 - 152	1	5.48	2.65	114.6 K=0.90	0.7854	-5.12	13.51	0.379 [1]
T4	152 - 142	L2 1/2x2 1/2x3/16	11.42	5.02	121.8 K=1.00	0.9020	-7.78	13.38	0.582 [1]
T5	142 - 122	L3x3x3/16	12.50	5.67	115.6 K=1.01	1.0900	-9.80	18.13	0.540 [1]
T6	122 - 102	L3x3x1/4	13.80	6.37	129.1 K=1.00	1.4400	-10.15	19.52	0.520 [1]
T7	102 - 82	L3x3x1/4	15.24	7.12	144.4 K=1.00	1.4400	-10.47	15.60	0.671 [1]
T8	82 - 62	L3x3x5/16	16.80	7.89	160.8 K=1.00	1.7800	-10.84	15.55	0.697 [1]
T9	62 - 42	L3 1/2x3 1/2x1/4	18.45	8.73	150.9 K=1.00	1.6900	-11.42	16.76	0.681 [1]
T10	42 - 22	L3 1/2x3 1/2x5/16	20.16	9.59	166.8 K=1.00	2.0900	-12.14	16.96	0.716 [1]
T11	22 - 2	L4x4x1/4	21.92	10.48	158.2 K=1.00	1.9400	-13.65	17.52	0.779 [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	197 - 187	L3x3x5/16	4.50	4.35	104.4 K=1.18	1.7800	-0.21	32.51	0.006 [1] ✔
T2	187 - 172	1	4.50	4.33	145.6 K=0.70	0.7854	-0.96	8.37	0.114 [1] ✔
T3	172 - 152	1	4.52	4.33	145.4 K=0.70	0.7854	-1.75	8.39	0.208 [1] ✔
T7	102 - 82	L3x3x3/16	10.00	8.67	174.5 K=1.00	1.0900	-4.25	8.09	0.526 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	197 - 187	7/8	4.50	4.35	167.2 K=0.70	0.6013	-0.73	4.86	0.150 [1] ✔
T2	187 - 172	1	4.50	4.33	145.6 K=0.70	0.7854	-1.64	8.37	0.196 [1] ✔
T3	172 - 152	1	4.98	4.80	161.2 K=0.70	0.7854	-0.62	6.83	0.091 [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	197 - 187	1 3/4	10.00	0.67	18.3	1.7942	5.05	87.47	0.058 [1 #] ✔
T2	187 - 172	2	15.00	0.67	16.0	2.1885	25.26	106.69	0.237 [1 #] ✔
T3	172 - 152	2 1/4	20.00	0.62	13.3	3.9761	72.63	178.92	0.406 [1] ✔
T4	152 - 142	Pirod 105245	10.02	10.02	37.8	5.3014	79.53	238.57	0.333 [1] ✔
T5	142 - 122	Pirod 105217	20.03	10.02	37.8	5.3014	126.22	238.57	0.529 [1] ✔
T6	122 - 102	Pirod 105218	20.03	10.02	32.4	7.2158	169.60	324.71	0.522 [1] ✔
T7	102 - 82	Pirod 105218	20.03	10.02	32.4	7.2158	213.73	324.71	0.658 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T8	82 - 62	Pirod 105219	20.03	10.02	28.4	9.4248	254.69	424.12	0.601 [1]
T9	62 - 42	Pirod 105219	20.03	10.02	28.4	9.4248	293.85	424.12	0.693 [1]
T10	42 - 22	Pirod 105220	20.03	10.02	25.2	11.9282	331.42	536.77	0.617 [1]
T11	22 - 2	Pirod 105220	20.03	10.02	25.2	11.9282	366.50	536.77	0.683 [1]

[1] P_u / ϕP_n controls
[#] Based on net area of leg in section below

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T4	152 - 142	0.5	1.47	120.0	238.57	0.1963	0.96	3.45	0.279
T5	142 - 122	0.5	1.47	120.0	238.57	0.1963	1.15	3.34	0.345
T6	122 - 102	0.5	1.46	119.0	324.71	0.1963	1.32	3.38	0.390
T7	102 - 82	0.5	1.46	119.0	324.71	0.1963	1.04	3.38	0.308
T8	82 - 62	0.625	1.45	94.4	424.12	0.3068	0.31	6.96	0.044
T9	62 - 42	0.625	1.45	94.4	424.12	0.3068	0.25	6.96	0.036
T10	42 - 22	0.625	1.43	93.6	536.77	0.3068	0.76	7.01	0.108
T11	22 - 2	0.625	1.43	93.6	536.77	0.3068	1.25	7.01	0.179

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	197 - 187	7/8	4.99	2.42	132.5	0.6013	2.04	27.06	0.075 [1]
T2	187 - 172	7/8	5.04	2.43	133.2	0.6013	4.52	27.06	0.167 [1]
T3	172 - 152	1	5.48	2.65	127.4	0.7854	5.07	35.34	0.143 [1]
T4	152 - 142	L2 1/2x2 1/2x3/16	11.42	5.02	80.1	0.5183	7.50	22.55	0.332 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T5	142 - 122	L3x3x3/16	11.93	5.42	71.5	0.6593	9.35	32.14	0.291 [1]
T6	122 - 102	L3x3x1/4	13.80	6.37	84.3	0.8691	9.59	42.37	0.226 [1]
T7	102 - 82	L3x3x1/4	15.24	7.12	94.1	0.8691	10.05	42.37	0.237 [1]
T8	82 - 62	L3x3x5/16	16.80	7.89	105.3	1.0127	10.45	44.05	0.237 [1]
T9	62 - 42	L3 1/2x3 1/2x1/4	18.45	8.73	98.3	1.0097	10.92	49.22	0.222 [1]
T10	42 - 22	L3 1/2x3 1/2x5/16	20.16	9.59	108.8	1.2452	11.71	54.17	0.216 [1]
T11	22 - 2	L4x4x1/4	21.92	10.48	102.5	1.1972	13.06	58.36	0.224 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	197 - 187	L3x3x5/16	4.50	4.35	56.7	1.7800	0.28	57.67	0.005 [1]
T2	187 - 172	1	4.50	4.33	208.0	0.7854	0.84	35.34	0.024 [1]
T3	172 - 152	1	4.52	4.33	207.7	0.7854	1.70	35.34	0.048 [1]
T7	102 - 82	L3x3x3/16	10.00	8.67	115.0	0.6593	4.85	32.14	0.151 [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	197 - 187	7/8	4.50	4.35	238.9	0.6013	0.85	27.06	0.032 [1]
T2	187 - 172	1	4.50	4.33	208.0	0.7854	1.67	35.34	0.047 [1]
T3	172 - 152	1	4.98	4.80	230.3	0.7854	0.69	35.34	0.019 [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	197 - 187	Leg	1 3/4	1	5.05	87.47	5.8	Pass
T2	187 - 172	Leg	2	34	25.26	106.69	23.7	Pass
T3	172 - 152	Leg	2 1/4	81	-71.47	149.02	48.0	Pass
T4	152 - 142	Leg	Pirod 105245	138	-82.76	214.86	38.5	Pass
T5	142 - 122	Leg	Pirod 105217	147	-134.11	214.86	62.4	Pass
T6	122 - 102	Leg	Pirod 105218	162	-181.06	300.68	60.2	Pass
T7	102 - 82	Leg	Pirod 105218	177	-229.53	300.68	76.3	Pass
T8	82 - 62	Leg	Pirod 105219	195	-275.24	399.87	68.8	Pass
T9	62 - 42	Leg	Pirod 105219	210	-319.29	399.87	79.8	Pass
T10	42 - 22	Leg	Pirod 105220	225	-362.65	512.38	70.8	Pass
T11	22 - 2	Leg	Pirod 105220	239	-403.89	512.38	78.8	Pass
T1	197 - 187	Diagonal	7/8	14	-1.99	9.55	20.8	Pass
T2	187 - 172	Diagonal	7/8	48	-4.49	9.45	47.5	Pass
T3	172 - 152	Diagonal	1	93	-5.12	13.51	37.9	Pass
T4	152 - 142	Diagonal	L2 1/2x2 1/2x3/16	141	-7.78	13.38	58.2 82.0 (b)	Pass
T5	142 - 122	Diagonal	L3x3x3/16	153	-9.80	18.13	54.0 81.8 (b)	Pass
T6	122 - 102	Diagonal	L3x3x1/4	167	-10.15	19.52	52.0 63.0 (b)	Pass
T7	102 - 82	Diagonal	L3x3x1/4	185	-10.47	15.60	67.1	Pass
T8	82 - 62	Diagonal	L3x3x5/16	200	-10.84	15.55	69.7	Pass
T9	62 - 42	Diagonal	L3 1/2x3 1/2x1/4	215	-11.42	16.76	68.1	Pass
T10	42 - 22	Diagonal	L3 1/2x3 1/2x5/16	230	-12.14	16.96	71.6	Pass
T11	22 - 2	Diagonal	L4x4x1/4	246	-13.65	17.52	77.9	Pass
T1	197 - 187	Top Girt	L3x3x5/16	4	-0.21	32.51	0.6	Pass
T2	187 - 172	Top Girt	1	38	-0.96	8.37	11.4	Pass
T3	172 - 152	Top Girt	1	83	-1.75	8.39	20.8	Pass
T7	102 - 82	Top Girt	L3x3x3/16	178	-4.25	8.09	52.6	Pass
T1	197 - 187	Bottom Girt	7/8	7	-0.73	4.86	15.0	Pass
T2	187 - 172	Bottom Girt	1	40	-1.64	8.37	19.6	Pass
T3	172 - 152	Bottom Girt	1	85	-0.62	6.83	9.1	Pass
							Summary	
						Leg (T9)	79.8	Pass
						Diagonal (T4)	82.0	Pass
						Top Girt (T7)	52.6	Pass
						Bottom Girt (T2)	19.6	Pass
						Bolt Checks	82.0	Pass
						RATING =	**82.0**	**Pass**

Anchor Rod Check for Self Supporting Towers

TIA-222-G, Section 4.9.9 Rev. 6.1

Site Data	
BU#:	
Site Name:	**CTNH544A**
App #:	

Anchor Rod Data		
Qty:	**6**	
Diam:	**1.25**	in
Rod Material:	**A687**	
Strength (Fu):	150	ksi
Yield (Fy):	105	ksi

* Rod Circle:		in
* e:		in
* # of Rods		1 or 2

Mu= Pu x e:		ft-kips

** Only enter rod circle, offset (e) and number of anchor rods at the extreme fiber to consider if eccentric load due to leg reinforcement exist.*

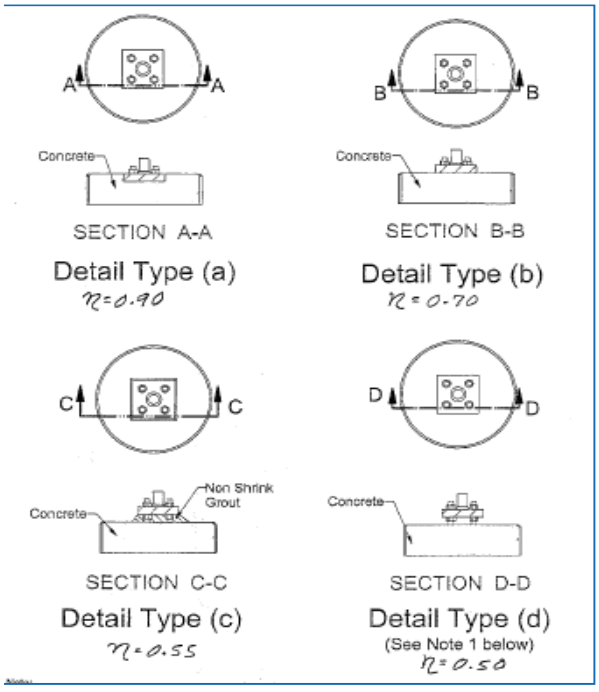

Figure 4-4 of TIA-222-G

Reactions		
Eta Factor, η	**0.55**	Detail Type
Uplift, Pu:	**376**	kips
Shear, Vu:	**39**	kips

I_{ar}:		in
Mu = 0.65*I_{ar}*V_u		ft-kips

Anchor Rod Results:

Max Rod (Cu+ Vu/ή):	74.5	Kips
Design Axial, Φ*Fu*Anet:	116.3	Kips
Anchor Rod Stress Ratio:	64.1%	

If Applicable;

Anchor Rod Results with Bending Considered:

When the clear distance from the top of concrete to the bottom of level nut excceeds 1.0 times the diameter of the anchor rod, the following interaction equation shall also be satisfied (see Figure 4-4 of Rev. G):

$$(V_u/\phi R_{nv})^2 + [(P_u/\phi R_{nt}) + (M_u/\phi R_{nm})]^2 <= 1$$

$\phi R_{nv}=\phi*0.45*F_{ub}*A_b=$		kips
$\phi R_{nt}=\phi*F_u*A_{net}=$		kips
$\phi R_{nm}=\phi*F_y*Z=$		ft-kips

Maximum Acceptable Ratio:	**105**	%
Governing Stress Ratio:	**64.1%**	**Pass**

Exhibit D

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

T-Mobile Existing Facility

Site ID: CTNH544A

CTNH544A - Sharon CT
7 Surdan Mountain Road
Sharon, CT 06498

October 18, 2016

EBI Project Number: 6216004580

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	12.26 %

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EBI Consulting
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October 18, 2016

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

Emissions Analysis for Site: **CTNH544A – CTNH544A - Sharon CT**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **7 Surdan Mountain Road, Sharon, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

General population/uncontrolled exposure limits apply to situations in which the general public 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 public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **7 Surdan Mountain Road, Sharon, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, 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 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.

2) 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

3) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

4) 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.

5) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB 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.

6) The antennas used in this modeling are the **RFS APX16DWV-16DWVS-E-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APX16DWV-16DWVS-E-A20** has a maximum gain of **16.3 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe at 700 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, 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.

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

8) 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.

9) All calculations were done with respect to uncontrolled / general public threshold limits.

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T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	140	Height (AGL):	140	Height (AGL):	140
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	7,678.43	ERP (W):	7,678.43	ERP (W):	7,678.43
Antenna A1 MPE%	1.54	Antenna B1 MPE%	1.54	Antenna C1 MPE%	1.54
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	140	Height (AGL):	140	Height (AGL):	140
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A2 MPE%	0.37	Antenna B2 MPE%	0.37	Antenna C2 MPE%	0.37

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**1.91 %**
CT State Police	1.87 %
LCD	1.00 %
CL&P	0.87 %
CL&P-SD210	0.13 %
CL&P-SD210	0.09 %
CL&P-DB586	0.16 %
CL&P-DB586	0.24 %
CL&P-SD110	0.34 %
PageNet	0.26 %
Ham	0.97 %
Town of Sharon	0.33 %
Verizon	2.54 %
AT&T	1.55 %
Site Total MPE %:	**12.26 %**

T-Mobile Sector A Total:	1.91 %
T-Mobile Sector B Total:	1.91 %
T-Mobile Sector C Total:	1.91 %
Site Total:	12.26 %

T-Mobile _per sector	**# Channels**	**Watts ERP (Per Channel)**	**Height (feet)**	**Total Power Density (µW/cm²)**	**Frequency (MHz)**	**Allowable MPE (µW/cm²)**	**Calculated % MPE**
T-Mobile AWS - 2100 MHz LTE	2	2,559.48	140	10.25	AWS - 2100 MHz	1000	1.02%
T-Mobile PCS - 1950 MHz UMTS	2	1,279.74	140	5.12	PCS - 1950 MHz	1000	0.51%
T-Mobile 700 MHz LTE	1	865.21	140	1.73	700 MHz	467	0.37%
						Total:	**1.91%**

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public 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 public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	1.91 %
Sector B:	1.91 %
Sector C:	1.91 %
T-Mobile Per Sector Maximum:	1.91 %
Site Total:	12.26 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **12.26%** of the allowable FCC established general public 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.