April 1, 2020

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Regarding: **Notice of Exempt Modification – T-Mobile Site #: CT11923C_L600**
Address: **7 Westview Drive, Danbury, CT**

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 50-foot level of the existing 100-foot self-support tower at the above-referenced address, latitude 41.3960000000, longitude -73.4238000000. The tower and property are owned by Seven T, LLC.

T-Mobile now intends to modify its existing telecommunications facility by replacing three (3) of its existing antennas with three (3) new 600/700 MHz antennas, replacing three (3) remote radio units, and removing two (3) coax as more particularly detailed and described on the enclosed Construction Drawings prepared by B&T Group, last revised September 26, 2019. The centerline height of the existing and proposed antennas is and will remain at 50 feet.

Planned Modifications:

Remove:
(2) Coax Lines

Remove and Replace:
(3) LNX-6515DS-A1M Antennas **(Remove)** – (3) APXVAARR24_43U-NA20 Antennas 600/700 MHz **(Replace)**
(3) RRUS11 B12 **(Remove)** – (3) 4449 B71+B12 **(Replace)**

Existing to Remain:
(3) AIR32 KRD901146-1 Antennas (1900 MHz/2100 MHz)
(3) AIR21 KRC118023-1 Antenna (1900 MHz/2100 MHz)
(3) Generic Twin Style 1B AWS TMA
(16) Coax Lines

This facility was approved by Connecticut Siting Council Petition **TS-T-MOBILE-034-040527** on June 10, 2004.

Please accept this letter as notification pursuant to R.C.S.A §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Seven T, LLC as tower and property owner, The Honorable Mark D. Boughton, Mayor of the City of Danbury as chief elected official and Sharon B. Calitro, AICP, Director of Planning & Zoning of the City of Danbury.

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

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

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

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

4. The operation of the modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. *Please see the RF emissions calculation for T-Mobile's modified facility dated May 21, 2019 and prepared by EBI Consulting enclosed herewith.*

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

6. The existing structure and its foundation can support the proposed loading. *Please see the structural analysis dated September 26, 2019 and prepared by B+T Group enclosed herewith.*

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

Respectfully submitted,

Jennifer Iliades
Site Acquisition Consultant
Centerline Communications, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379
jiliades@clinellc.com

Enclosures:
Exhibit A – Original Facility Approval
Exhibit B – GIS and Property Card
Exhibit C – Construction Drawings
Exhibit D – Structural Analysis Report
Exhibit E – Mount Analysis
Exhibit F – Power Density/RF Emissions Report

cc:
Seven T, LLC, property and tower owner
The Honorable Mark D. Boughton, Mayor, City of Danbury
Sharon B. Calitro, AICP, Director of Planning & Zoning, City of Danbury

Exhibit A

Original Facility Approval

CITY OF DANBURY
Building Department
155 DEER HILL AVENUE
DANBURY, CONNECTICUT 06810

Certificate of Approval

Issued Date: 05/31/2017 Application #: 17-00060059 Parcel #L14107

Property Zone: RA-8

Owner: SEVEN T LLC
Contractor: D & A CONSTRUCTION MANAGEMENT

Property Address: 7 WESTVIEW DR

Owner Address: 39 PADANARAM RD.
DANBURY, CT, 06811

Application type: COMMERCIAL ALTERATION

The described portion has been inspected for substantial compliance with the current Connecticut State Building Code.

Work Description: UPGRADE/REPLACE EXISTING CELL TOWER EQUIPMENT.

Stipulations or conditions:

David Newland
Building Official City of Danbury

CITY OF DANBURY
Building Department

155 DEER HILL AVENUE
DANBURY, CONNECTICUT 06810

Certificate of Approval

Issued Date: 06/03/2015 Application #: 15-00056347 Parcel #L14107-

Property Zone: RA-8

Owner: SEVEN T LLC
Contractor: TRANSCEND WIRELESS LLC

Property Address: 7 WESTVIEW DR

Owner Address: 39 PADANARAM RD.
DANBURY, CT, 06811

Application type: CELL TOWER NEW CONSTRUCTION

The described portion has been inspected for substantial compliance with the current Connecticut State Building Code.

C

Work Description: UPGRADE EXISTING TELECOMMUNICATION FACILITY. .ADD 3 ANTENNAS

Stipulations or conditions:

David Newland
Building Official City of Danbury

CITY OF DANBURY
Department of Permit Coordination
155 DEER HILL AVENUE
DANBURY, CONNECTICUT 06810

Certificate of Zoning Compliance

Issued Date: 03/04/2014 Application #: 13-00053832 Parcel #L14107-

Property Zone: RA-8

Owner: SEVEN T LLC
Contractor: HPC WIRELESS SERVICES LLC

Property Address: 7 WESTVIEW DR

Owner Address: 39 PADANARAM RD.
DANBURY, CT, 06811

Application type: CELL TOWER

Work Description: REPLACE 6 EXISTING ANTENNAS & ONE FIBER CABLE.

Stipulations or conditions:

Approved..... Timothy Rosati
Sean Hearty
Zoning Enforcement Officer, City of Danbury

CITY OF DANBURY
Building Department

155 DEER HILL AVENUE
DANBURY, CONNECTICUT 06810

Certificate of Completion

Issued Date: 03/04/2014 Application #: 13-00053832 Parcel #L14107-

Property Zone: RA-8

Owner: SEVEN T LLC
Contractor: HPC WIRELESS SERVICES LLC

Property Address: 7 WESTVIEW DR

Owner Address: 39 PADANARAM RD.
DANBURY, CT, 06811

Application type: CELL TOWER NEW CONSTRUCTION

The described portion has been inspected for substantial compliance with the current Connecticut State Building Code.

Work Description: REPLACE 6 EXISTING ANTENNAS & ONE FIBER CABLE.

Stipulations or conditions:

David Newland
Building Official City of Danbury

City of Danbury
155 DEER HILL AVE.
DANBURY CT 06810

City of Danbury

C E R T I F I C A T E O F C O M P L I A N C E

P E R M A N E N T

Issue Date 1/05/10

Parcel Number L14107-
Property Address . . . 7 WESTVIEW DR
DANBURY CT 06811
Subdivision Name . . .
Legal Description . . .
Property Zoning . . . . RES, SF 8000

Owner . . . . . SEVEN T LLC

Contractor . . . . . MAXTON TECHNOLOGY INC.
508 936-6393

Application number . . 09-00046693 000 000
Description of Work . . CELL TOWER NEW CONSTRUCTION
Construction type . . .
Occupancy type . . . .
Flood Zone . . . . . .
Special conditions . .
REPLACE 3 ANTENNAS AND ADD EQUIPMENT CABINET TO EXISTING PAD.

Approved . . . . . _____
Zoning Enforcement Officer

VOID UNLESS SIGNED BY ZONING ENFORCEMENT OFFICER

City of Danbury
155 DEER HILL AVE.
DANBURY CT 06810

City of Danbury

C E R T I F I C A T E O F O C C U P A N C Y

P E R M A N E N T

Issue Date	1/05/10
Parcel Number	L14107-
Property Address . . .	7 WESTVIEW DR DANBURY CT 06811
Subdivision Name . . .	
Legal Description . . .	
Property Zoning	RES, SF 8000
Owner	SEVEN T LLC
Contractor	MAXTON TECHNOLOGY INC. 508 936-6393
Application number . .	09-00046693 000 000
Description of Work . .	CELL TOWER NEW CONSTRUCTION
Construction type . . .	
Occupancy type	
Flood Zone	
Special conditions . .	REPLACE 3 ANTENNAS AND ADD EQUIPMENT CABINET TO EXISTING PAD.

Approved . . . . . Leo P. Mull
Building Official

VOID UNLESS SIGNED BY BUILDING OFFICIAL

City of Danbury
155 DEER HILL AVE.
DANBURY CT 06810

City of Danbury

C E R T I F I C A T E O F C O M P L I A N C E

P E R M A N E N T

Issue Date 5/20/05

Parcel Number L14107-
Property Address . . . 7 WESTVIEW DR
DANBURY CT 06811
Subdivision Name . . .
Legal Description . . .
Property Zoning . . . . RES, SF 8000

Owner . . . . . SEVEN T LLC

Contractor . . . . . COSTROTTA CONSTRUCTION MGMNT I

Application number . . 04-00037316 000 000
Description of Work . . CELL TOWER NEW CONSTRUCTION
Construction type . . .
Occupancy type . . . .
Flood Zone . . . . . .
Special conditions . .
INSTALLATION OF TELECOMMUNICATION ANTENNAS AND ASSOCIATED EQUIPMENT ON AN EXISTING TOWER.

Approved . . . . . _____
Zoning Enforcement Officer

VOID UNLESS SIGNED BY ZONING ENFORCEMENT OFFICER

City of Danbury
155 DEER HILL AVE.
DANBURY CT 06810

City of Danbury

C E R T I F I C A T E O F O C C U P A N C Y

P E R M A N E N T

Issue Date 5/20/05

Parcel Number L14107-
Property Address . . . 7 WESTVIEW DR
DANBURY CT 06811
Subdivision Name . . .
Legal Description . . .
Property Zoning . . . . RES, SF 8000

Owner . . . . . SEVEN T LLC

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Approved . . . . . Leo P Mull
Building Official

VOID UNLESS SIGNED BY BUILDING OFFICIAL

Building Department Record

Department of Buildings

№ 19147 Dated Nov. 13, 1989

To the Building Inspector of the City of Danbury:

The undersigned files the following application to erect Addition to radio building

Located Westview Dr. Assessors Lot L-14107

Distance from street line ..... from adjacent property lines ..... from rear line .....

from nearest building ..... No. of tenements .....

Lot dimensions ..... Size of Building or Additions 28 x 38'

If new Dwelling or Addition. No. of Rooms and Baths .....

If new Garage or Addition. No. of Cars to be used for .....

LOT PLAN

Zone Ra-8 Septic System ☐ City Sewer ☐ City Water ☐

Use Group No. _____

Construction wood

Footings concrete Width 16" Thickness 8"

Foundation walls concrete Depth 42" Thickness 8"

Exterior walls ..... Thickness .....

Interior walls sheetrock Thickness .....

Ceilings " "

Floors concrete

Size: Sills 2 x 6 Floor Joists ..... Post or Lalley Cols. .....

Size: Plate 2 x 4 Ceiling Joists 2x6 Roof Rafters 2 x 8

Type of Heat None No. of Chimneys ..... Flue size .....

Kind of Roof (Gable, Shed, Hip, Other Gable) Roof Covering 240 # asphalt
(Mark with an X kind of Roof)

No. of Stories 1½ Height Basement ..... 1st 9'

2nd 8' 3rd ..... 4th .....

Estimated Cost $ 22,500. Name of Architect or Engineer .....
(If building contains over 5,000 square feet)

All details of construction to be in accordance with the ordinances of the City of Danbury.

Permit Fee Paid $ 164.00 Adjusted Fee $ ..... Adjusted Cost $ .....

☒ Application for Certificate of Occupancy

Builder Glenwood Construciton Co.

Electrical Contractor ..... License No. .....

Plumbing & Heating Contractor ..... License No. .....

Owner Robert Kaufman

Phone ..... Address 41 Padanaram Rd. Danbury, Ct.

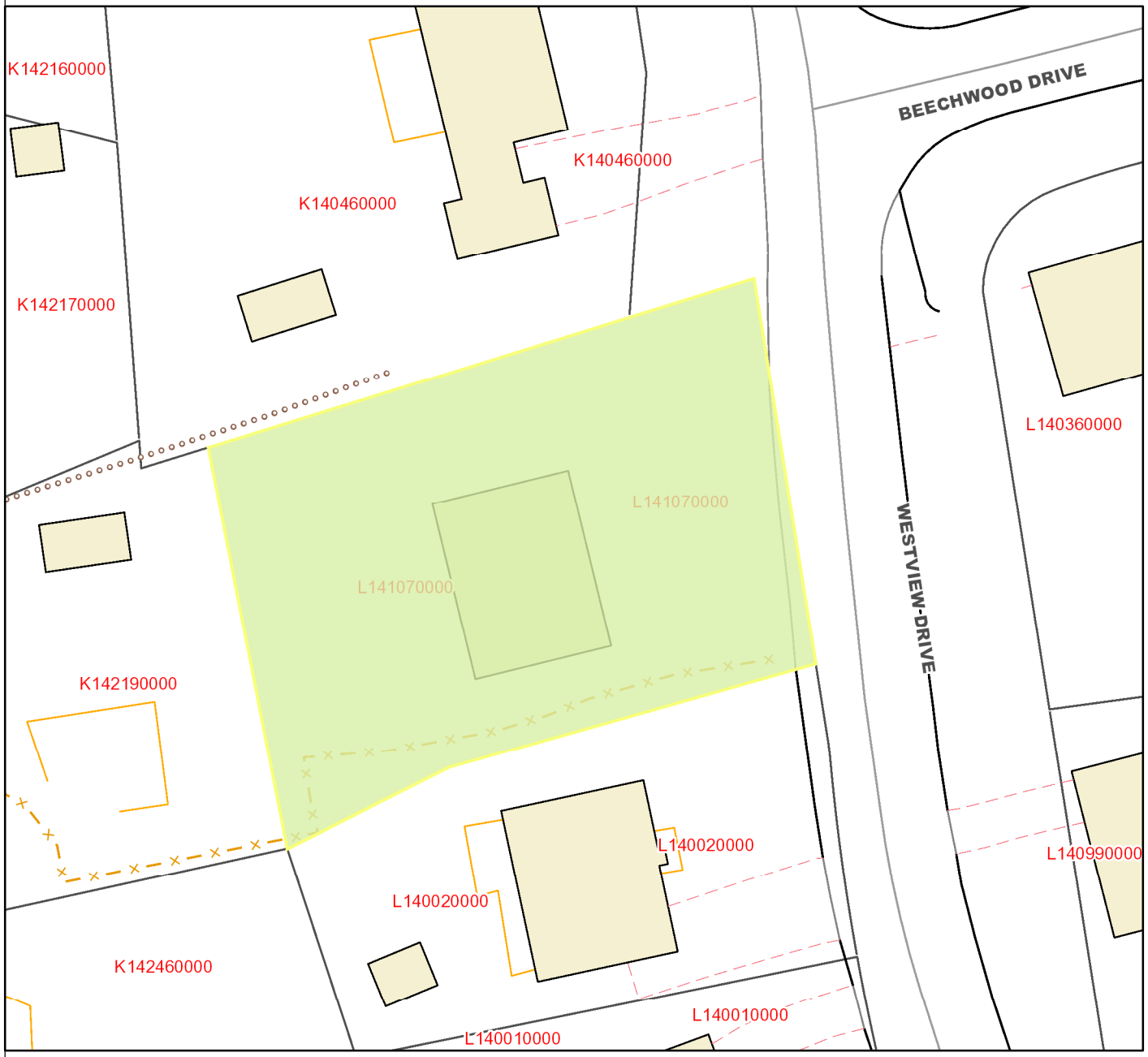
Assessor Note: .....

.....

March - 1974	Name	Address	Permit No.	Kind of Construction	Builder	Est. Cost
1	Joseph Joo	Hamilton Dr.	7965	One-Car Garage	Self	1,000.00
1	Abraham Gorlicki	Lot #59 Carol St.	G-7966	One-family Dwelling	M. Lounsbury	30,000.00
1	Les Juhas	Mill Plain Rd.	G-7967	Addition	Commercial Structures	3,000.00
1	Anthony Cordio	Lot #12 Richter Dr.	G-7968	One-family Dwelling	self	26,000.00
4	Charles Linek	50 Lincoln Ave.	7969	Re-side Dwelling	Apex Products, Inc.	2,800.00
4	Charles Walters	Lot #84 Sturdevant Dr.	G-7970	One-family Dwelling	Self	30,000.00
4	Francis Despees	22 E. Pembroke Rd.	7971	Swimming Pool	self	500.00
4	Albert MacMonegle	35 Oak Ridge Gate	7972	Basement Playroom	self	500.00
5	Roger Manning	12 Cushing Dr.	7973	Deck	self	500.00
5	James Botelho	46 Olive St. Ext.	7974	One-Car Garage	Self	1,000.00
5	Joseph Walker	32 Seneca Rd.	7975	Basement Playroom	Gene Passarella	1,500.00
6	Mrs. Lena Holmgren	80 Franklin St.	G-7976	Alterations	J. Gilbert	2,000.00
6	Edward Gallagher	44 Oak Ridge Gate	G-7977	Basement Playroom	J. Vaghi	3,000.00
6	Charles Williams	Lot 18N South View Ave.	G-7978	One-family Dwelling	self	18,000.00
6	A.M. Lypenski	41 Driftway Rd.	G-7979	Alterations	self	1,500.00
* 7	Robert Kaufman	So. W. Cor. of Westview Dr.	7980	Tower	Self	5,000.00
7	Virginia George	Shelter Rock Rd.	7981	Addition	Glenwood Corp.	5,000.00
7	Robert Kaufman	41 Padanaram Rd.	7982	Addition	Self	60,000.00
7	Frank Annin	1 Roundhill Rd.	7983	Swimming Pool	Self	3,000.00
7	George Huse	Lot # 11 Lindencrest Dr.	G-7984	One-family Dwelling	self	37,000.00
7	Albert Goelin	129 Carol St.	G-7985	Addition	E Cerroni	2,800.00
7	Peter Filous	Lot #5 Nabby Rd.	G-7986	One-family Dwelling	self	35,000.00
7	Peter LaManna	Benson Dr.	7987	Swimming Pool	self	1,200.00
7	Michael Stavros	10 Hayestown Rd.	7988	Alterations		800.00
8 Extend	Bear Mountain Corp.	Lot #52 Mendes Rd.	G-7989	One-family Dwelling	Self	18,000.00
8	" " "	Lot # 61 " "	G-7990	" " "	"	18,000.00
8	" " "	Lot # 64 Elaine Dr.	G-7991	" " "	"	18,000.00
8	" " "	Lot # 66 " "	G-7992	" " "	"	18,000.00
8	" " "	Lot # 67 Mendes Rd.	G-7993	" " "	"	18,000.00
11	Ruimi Caetano	36 Town Hill Ave.	7994	Re-side Dwelling	Chas. Tahan	1,000.00
11	Jean Haddad	39 Padanaram Rd.	7995	Addn + Alterations	Don Metz	8,000.00
13	Des Thomas & Fenster	93 West St.	7996	Alterations & Office	Harold Noe	5,000.00
13	Rocky Ledge Bldg Corp.	Lot 59+60 Hunters Lane	G-7997	One-family Dwelling	Self	26,000.00
14	David Layton	13 Pocono Point Rd.	G-7998	Addition	John Layda	5,000.00
18	Elmer Heyde	6 Alexander Ave.	7999	Addition & Garage	Self	500.00
					Forward	387,600.00

Exhibit B

Property Card



Not a legal survey.

7 WESTVIEW DR

Location	7 WESTVIEW DR	**Mblu**	L14/ / 107/ /
Acct#		**Owner**	SEVEN T LLC
Assessment	$354,900	**Appraisal**	$507,000
PID	10750	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$413,300	$93,700	$507,000
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$289,300	$65,600	$354,900

Owner of Record

Owner	SEVEN T LLC	**Sale Price**	$0
Co-Owner		**Book & Page**	1579/ 817
Address	39 PADANARAM RD DANBURY, CT 06811	**Sale Date**	08/27/2003
		Instrument	03

Ownership History

Ownership History				
Owner	**Sale Price**	**Book & Page**	**Instrument**	**Sale Date**
SEVEN T LLC	$0	1579/ 817	03	08/27/2003
KAUFMAN ROBERT J	$0	0580/0698		05/05/1976

Building Information

Building 1 : Section 1

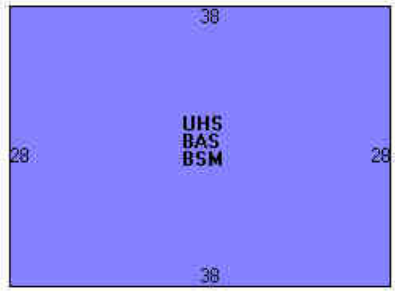
Year Built:	1979
Living Area:	1,064
Replacement Cost:	$151,045
Building Percent Good:	75
Replacement Cost Less Depreciation:	$113,300

Building Photo


Building Photo
(http://images.vgsi.com/photos2/DanburyCTPhotos//\00\02\90/98.jpg)

Building Attributes	
Field	**Description**
Style	Cape Cod
Model	Residential
Grade:	Average
Stories:	1 1/2 Stories
Occupancy	
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable
Roof Cover	Asphalt Shngl.
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Flr 1	Minimum/Plywd
Interior Flr 2	
Heat Fuel	Coal or Wood
Heat Type:	None
AC Type:	None
Total Bedrooms:	00
Total Bthrms:	0
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	1 Room
Bath Style:	Average
Kitchen Style:	Average
Fireplaces	
Whirlpool	
Addn'l Kitchen	
Bsm Gar	
Fin Bsm Area	
Fin Bsm Qual	
Nhbd	
MH Park	

Building Layout



(http://images.vgsi.com/photos2/DanburyCTPhotos//Sketches/10750_1075

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,064	1,064
BSM	Basement	1,064	0
UHS	Half Story, Unfinished	1,064	0
		3,192	1,064

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	201R
Description	Comm/Res MDL-01
Zone	RA-8
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.23
Frontage	0
Depth	0
Assessed Value	$65,600
Appraised Value	$93,700

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CEL	Cell Tower			1 UNITS	$300,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$413,300	$93,700	$507,000
2017	$413,300	$93,700	$507,000
2016	$103,500	$89,200	$192,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$289,300	$65,600	$354,900
2017	$289,300	$65,600	$354,900
2016	$72,500	$62,400	$134,900

Exhibit C

Construction Drawings

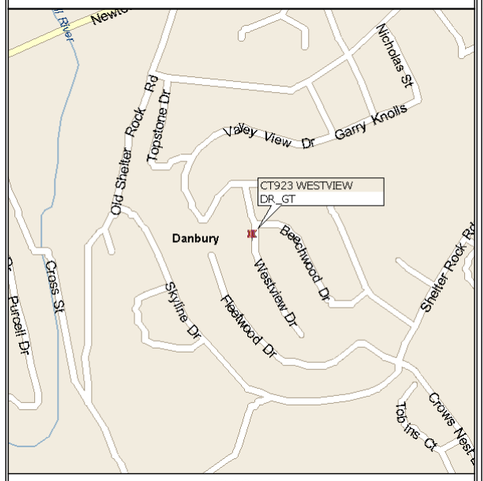
T···Mobile

SITE NAME:	**CT923 / WESTVIEW DR_GT**
SITE NUMBER:	**CT11923C**
SITE TYPE:	**SELF-SUPPORT TOWER**
RF CONFIG:	**67D92DB**
JURISDICTION:	**CITY OF DANBURY**
SITE ADDRESS:	**7 WESTVIEW DR DANBURY, CT 06810**

PROJECT SUMMARY

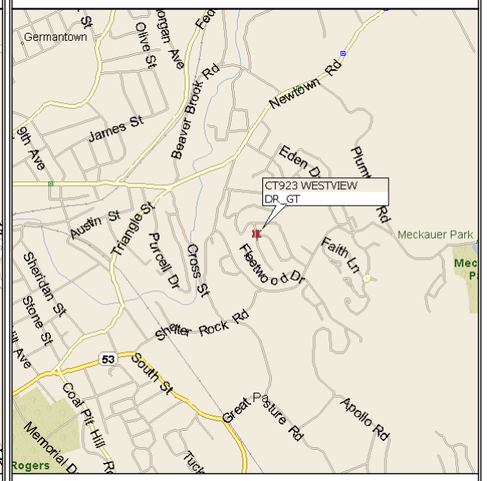
SITE NAME:	CT923 / WESTVIEW DR_GT
SITE NUMBER:	CT11923C
SITE ADDRESS:	7 WESTVIEW DR DANBURY, CT 06810
COUNTY:	FAIRFIELD COUNTY
JURISDICTION:	CITY OF DANBURY
NAD83	
LATITUDE:	41.396000° N
LONGITUDE:	73.423800° W
GROUND ELEVATION:	634' AMSL
CUSTOMER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 (913) 402-6500
OCCUPANCY TYPE:	UNMANNED
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION

AREA MAP



NO SCALE

LOCATION MAP



NO SCALE

DRAWING INDEX

SHEET #	SHEET DESCRIPTION	REV. #
T-1	TITLE SHEET	0
SP-1	SPECIFICATIONS	0
SP-2	SPECIFICATIONS	0
A-1	OVERALL SITE PLAN	0
A-2	BUILDING ELEVATIONS	0
A-3	ANTENNA LAYOUTS	0
A-4	ANTENNA DETAIL AND SPECIFICATIONS	0
A-5	ANTENNA & RRU CONFIGURATION KEYS	0
E-1	PANEL SCHEDULE & ONE-LINE DIAGRAM	0
G-1	GROUNDING RISER DIAGRAM AND DETAILS	0

CONTACT INFORMATION

A&E FIRM:	B&T ENGINEERING, INC. 1717 S. BOULDER, STE. 300 TULSA, OK 74119	CONSTR. MANAGER:	T-MOBILE BRIAN PAUL Brian.Paul14@t-mobile.com (860) 550-5971
CONTACT:	MIKE OAKES	PROJECT MANAGER:	T-MOBILE MARK RICHARD mark.richard64@t-mobile.com (860) 648-1116
PHONE:	(918) 587-4630		

DRIVING DIRECTIONS

DEPART DANBURY MUNICIPAL AIRPORT ON KENOSIA AVE EXT [KENOSIA AVE]. TURN RIGHT ONTO BACKUS AVE. KEEP RIGHT ONTO RAMP. KEEP LEFT TO STAY ON RAMP. BEAR LEFT ONTO US-7. MERGE ONTO I-84 [US-7]. AT EXIT 8, TURN RIGHT ONTO RAMP. TURN RIGHT ONTO NEWTOWN RD. TURN LEFT ONTO OLD SHELTER ROCK RD. TURN LEFT ONTO WOODSIDE AVE, THEN IMMEDIATELY TURN RIGHT ONTO TOPSTONE DR. TURN RIGHT TO STAY ON TOPSTONE DR. TURN RIGHT ONTO WESTVIEW DR AND ARRIVE AT CT923 WESTVIEW.

A/E DOCUMENT REVIEW STATUS

TITLE	SIGNATURE	DATE
T-MOBILE R.E. MGR.:		
T-MOBILE R.F. MGR.:		
T-MOBILE NetOps:		
T-MOBILE CONST. MGR.:		
INTERCONNECT:		
T-MOBILE SITE DEV. MGR.:		
PROPERTY OWNER:		
PLANNING:		

1		ACCEPTED: WITH OR NO COMMENTS, CONSTRUCTION MAY PROCEED
2		NOT ACCEPTED: RESOLVE COMMENTS AND RESUBMIT

ACCEPTANCE DOES NOT CONSTITUTE APPROVAL OF DESIGN, CALCULATIONS, ANALYSIS, TEST METHODS OF MATERIALS DEVELOPED OR SELECTED BY THE SUBCONTRACTOR AND DOES NOT RELIEVE SUBCONTRACTOR FROM FULL COMPLIANCE WITH CONTRACTUAL OBLIGATIONS.

CODE COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING/DWELLING	2018 CONNECTICUT STATE BUILDING CODE
STRUCTURAL	2018 CONNECTICUT STATE BUILDING CODE
MECHANICAL	2018 CONNECTICUT STATE BUILDING CODE
ELECTRICAL	NEC 2017

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES:

- REMOVE & REPLACE (3) ANTENNAS
- REMOVE & REPLACE (3) RRUS
- REMOVE (2) COAX CABLES
- REMOVE (2) DUS41 & (1) XMU
- INSTALL (2) BB6630
- INSTALL (2) 6x12 HCS

DO NOT SCALE DRAWINGS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11X17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SEE SHEETS SP-1 & SP-2 FOR ADDITIONAL CONSTRUCTION NOTES

CALL CONNECTICUT ONE CALL
(800) 922-4455
CALL 3 WORKING DAYS
BEFORE YOU DIG!

811

B+T GRP

T···Mobile

CENTERLINE COMMUNICATIONS

SITE NUMBER:
CT11923C

SITE NAME:
CT923 / WESTVIEW DR_GT

SITE ADDRESS:
7 WESTVIEW DR
DANBURY, CT 06810

PROJECT NO:	135927.004.01
CHECKED BY:	MDW

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
A	8/16/19	JCO	PRELIMINARY REVIEW
B	9/13/19	JCO	PRELIMINARY REVIEW
0	9/26/19	JCO	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

STATE OF CONNECTICUT
31627
LICENSED
PROFESSIONAL ENGINEER
9/26/19

SHEET NUMBER:	REVISION:
T-1	0

GENERAL REQUIREMENTS SECTION 01 10 00:

PART 1 GENERAL

1.1 INTENT:

A. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION. PLANS ARE NOT TO BE SCALED.

B. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY, HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH.

C. THE INTENTION OF DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.

D. CONFLICTS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING MATERIAL OR DOING ANY WORK. NO COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND THOSE ON THE DOCUMENTS. ANY DISCREPANCY SHALL BE REPORTED TO THE OWNER OR HIS AGENT FOR CONSIDERATION.

1.2 LICENSING REQUIREMENTS:

THE CONTRACTOR IS RESPONSIBLE FOR PROCUREMENT AND MAINTAINING OF ALL APPLICABLE LICENSES AND BONDS.

1.3 STORAGE:

ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION THAT DOES NOT OBSTRUCT THE FLOW OF OTHER WORK. ANY STORAGE METHOD MUST MEET ALL RECOMMENDATIONS OF THE ASSOCIATED MANUFACTURER.

1.4 CLEAN UP:

THE CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH AT ALL TIMES. TRASH MUST BE REMOVED DAILY.

1.5 QUALITY ASSURANCE:

ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

PART 2 PRODUCTS – NOT APPLICABLE TO THIS SECTION

PART 3 EXECUTION – NOT APPLICABLE TO THIS SECTION

ELECTRICAL SECTION 16000:

PART 1 GENERAL

1.1 GENERAL CONDITIONS:

A. THE CONTRACTOR SHALL INSPECT THE SITE WHERE THIS WORK IS TO BE PERFORMED AND FULLY FAMILIARIZE HIMSELF WITH ALL CONDITIONS RELATED TO THIS PROJECT.

B. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND LICENSES AND SHALL MAKE ALL DEPOSITS AND PAY ALL FEES REQUIRED FOR THE PERFORMANCE OF WORK UNDER THIS SECTION.

C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWINGS SHALL NOT BE SCALED TO DETERMINE DIMENSIONS.

1.2 LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES

A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES.

1.3 REFERENCES:

A. THE PUBLICATIONS LISTED BELOW FORM PART OF THIS SPECIFICATION. EACH PUBLICATION SHALL BE THE LATEST REVISION AND ADDENDUM IN EFFECT ON THE DATE OF THIS SPECIFICATION IS ISSUED FOR CONSTRUCTION UNLESS OTHERWISE NOTED. EXCEPT AS MODIFIED BY THE REQUIREMENTS SPECIFIED HEREIN OR THE DETAILS OF THE DRAWINGS, WORK INCLUDED IN THIS SPECIFICATION SHALL CONFIRM TO THE APPLICABLE PROVISIONS OF THESE PUBLICATIONS.

1. ANSI/IEEE (AMERICAN NATIONAL STANDARDS INSTITUTE)
2. IEEE (INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS)
3. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
4. ICEA (INSULATED CABLE ENGINEERS ASSOCIATION)
5. NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION)
6. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
7. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
8. UL (UNDERWRITERS LABORATORIES, INC.)

1.4 SCOPE OF WORK:

A. WORK UNDER THIS SECTION SHALL CONSIST OF FURNISHING ALL LABOR, MATERIAL AND ASSOCIATED SERVICES REQUIRED TO COMPLETELY CONSTRUCT AND LEAVE READY FOR OPERATION SYSTEMS AS SHOWN ON THE DRAWINGS AND HEREIN DESCRIBED.

B. ALL ELECTRICAL EQUIPMENT UNDER THIS CONTRACT SHALL BE PROPERLY TESTED, ADJUSTED AND ALIGNED BY THE CONTRACTOR.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATING, DRAINING, TRENCHES, BACKFILLING, AND REMOVAL AND EXCESS DIRT.

D. THE CONTRACTOR SHALL FURNISH TO THE OWNER, CERTIFICATES OF FINAL INSPECTION AND APPROVAL FROM THE INSPECTION AUTHORITIES HAVING JURISDICTION.

PART 2 PRODUCTS

2.1 GENERAL:

A. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE NEW, FREE FROM DEFECTS AND OF THE BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE.

B. ALL MATERIALS AND EQUIPMENT SHALL BE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION AS SUITABLE FOR THE USE INTENDED.

C. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.

D. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING RATING EQUAL TO OR GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 10,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT.

2.2 MATERIALS AND EQUIPMENT:

A. CONDUIT:

1. RIGID GALVANIZED STEEL CONDUIT (RGS) SHALL BE HOT-DIP GALVANIZED INSIDE AND OUTSIDE INCLUDING ENDS AND THREADS AND ENAMELED OR LACQUERED INSIDE IN ADDITION TO GALVANIZING.
2. FLEXIBLE METAL CONDUIT SHALL BE GALVANIZED, ZINC-COATED STEEL, PVC COATED FOR OUTDOOR APPLICATIONS.
3. CONDUIT CLAMPS, STRAPS AND SUPPORTS SHALL BE STEEL OR MALLEABLE IRON. ALL FITTINGS SHALL BE COMPRESSION TYPE AND WATERTIGHT.
4. NON-METALLIC CONDUIT FITTINGS SHALL BE SCHEDULE 40 PVC, HEAVY-WALL RIGID WITH SOLVENT-CEMENT-TYPE JOINTS AS RECOMMENDED BY THE MANUFACTURER.

B. WIRE AND CABLE:

1. WIRE AND CABLE SHALL BE FLAME-RETARDANT, MOISTURE AND HEAT RESISTANT THERMOPLASTIC, SINGLE CONDUCTOR, COPPER, TYPE THHN/THWN, 600 VOLT, SIZES AS INDICATED, #12 AWG MINIMUM.
2. #10 AWG AND SMALLER CONDUCTORS SHALL BE SOLID AND #8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED.
3. SOLDERLESS, PRESSURE-TYPE CONNECTORS CONSTRUCTED OF HIGH-STRENGTH, NON-CORRODIBLE, TIN-PLATED COPPER DESIGNED TO FURNISH HIGH-PULLOUT STRENGTH AND HIGH CONDUCTIVITY JOINTS SHALL BE USED.
4. SUPPORT GRIPS SHALL BE SINGLE WEAVE, CLOSED MESH, HIGH-GRADE, NON-MAGNETIC, TIN-COATED BRONZE, CAPABLE OF SUPPORTING TEN TIMES THE CABLE DEAD WEIGHT, HUBBELL KELLEMS OR APPROVED EQUAL.

C. DISCONNECT SWITCHES:

1. DISCONNECT SWITCHES SHALL BE HEAVY DUTY, DEAD-FRONT, QUICK-MAKE, QUICK-BREAK, EXTERNALLY OPERABLE, HANDLE LOCKABLE AND INTERLOCKED WITH COVER IN CLOSED POSITION, RATING AS INDICATED, UL LABELED FURNISHED IN NEMA 3R ENCLOSURE, SQUARE D CLASS 3110 OR APPROVED EQUAL.

D. SYSTEM GROUNDING:

1. GROUNDING CONDUCTOR SHALL BE BARE, SOLID TINNED COPPER, SIZE AS INDICATED, EXCEPT ABOVE GROUND GROUNDING CONDUCTORS SHALL BE INSULATED.
2. GROUND BUSSES SHALL BE BARE ANNEALED COPPER BARS OF RECTANGULAR CROSS SECTION.
3. CONNECTORS SHALL BE HIGH-CONDUCTIVITY, HEAVY DUTY, LISTED AND LABELED AS GROUNDING CONNECTORS FOR THE MATERIALS USED. USE TWO-HOLE COMPRESSION LUGS WITH HEAT SHRINK FOR MECHANICAL CONNECTIONS.
4. EXOTHERMIC WELDED CONNECTIONS SHALL BE PROVIDED IN KIT FORM AND SELECTED FOR THE SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS TO BE CONNECTED.
5. GROUND RODS SHALL BE COPPER-CLAD STEEL WITH HIGH-STRENGTH STEEL CORE AND ELECTROLYTIC-GRADE COPPER OUTER SHEATH, MOLTEN WELDED TO CORE, 3/4"x10'-0".

E. OTHER MATERIALS:

1. THE CONTRACTOR SHALL PROVIDE OTHER MATERIALS, THOUGH NOT SPECIFICALLY DESCRIBED, WHICH ARE REQUIRED FOR A COMPLETELY OPERATIONAL SYSTEM AND PROPER INSTALLATION OF THE WORK.

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CENTERLINE COMMUNICATIONS

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CT923 / WESTVIEW DR_GT

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7 WESTVIEW DR
DANBURY, CT 06810

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PART 3 EXECUTION

3.1 GENERAL:

A. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE W/ THE MANUFACTURER'S RECOMMENDATION

B. EQUIPMENT SHALL BE TIGHTLY COVER AND PROTECTED AGAINST DIRT OR WATER, AND AGAINST CHEMICAL OR MECHANICAL INJURY DURING INSTALLATION AND CONSTRUCTION PERIODS.

3.2 LABOR AND WORK:

A. ALL LABOR FOR THE INSTALLATION OF MATERIALS AND EQUIPMENT FURNISHED FOR THE ELECTRICAL SYSTEM SHALL BE DONE BY EXPERIENCED MECHANICS OF THE PROPER TRADES.

B. ALL ELECTRICAL EQUIPMENT FURNISHED SHALL BE ADJUSTED, ALIGNED AND TESTED BY THE CONTRACTOR AS REQUIRED TO PRODUCE THE INTENDED PERFORMANCE.

C. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED EQUIPMENT, REMOVE ALL LABELS AND ANY DEBRIS, CRATING OR CARTONS AND LEAVE THE INSTALLATION FINISHED AND READY FOR OPERATION.

3.3 COORDINATION:

A. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRICAL ITEMS WITH THE OWNER–FURNISHED EQUIPMENT DELIVERY SCHEDULE TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

3.4 INSTALLATION:

A. CONDUIT

1. ALL ELECTRICAL WIRING SHALL BE INSTALLED IN CONDUIT AS HEREIN SPECIFIED. NO CONDUIT OR TUBING OF LESS THAN 3/4 INCH NOMINAL SIZE SHALL BE USED.
2. PROVIDE RGS CONDUIT FOR ALL EXPOSED, EXTERIOR CONDUIT.
3. PROVIDE SCHEDULE 40 PVC OR RGS CONDUIT BELOW GRADE, 1" MINIMUM, UNLESS NOTED OTHERWISE. ALL 90 DEGREE BENDS TO ABOVE GRADE SHALL BE RGS, MINIMUM BURIAL DEPTH SHALL BE 30" CLEAR TO TOP OF CONDUIT, UNLESS NOTED OTHERWISE.
4. USE GALVANIZED FLEXIBLE STEEL CONDUIT WHERE DIRECT CONNECTION IS NOT DESIRABLE FOR REASONS EQUIPMENT MOVEMENT, VIBRATION OR FOR EASE OF MAINTENANCE. USE LIQUIDTIGHT, PVC COATED FLEXIBLE METAL CONDUIT FOR OUTDOOR APPLICATIONS.
5. INSTALL GALVANIZED FLEXIBLE STEEL CONDUIT AT ALL POINTS OF CONNECTION TO EQUIPMENT MOUNTED ON SUPPORTS TO ALLOW FOR EXPANSION AND CONTRACTION.
6. A RUN OF CONDUIT BETWEEN BOXES OR FITTINGS SHALL NOT CONTAIN MORE THE EQUIVALENT OF FOUR QURATER–BENDS INCLUDING THOSE BENDS LOCATED IMMEDIATELY AT THE BOX OR FITTING. THE RADIUS OF BENDS SHALL NEVER BE SHORTER THAN THAT OF THE CORRESPONDING TRADE ELBOW.
7. WHERE CONDUIT HAS TO BE CUT IN THE FIELD, IT SHALL BE CUT SQUARE WITH A PIPE CUTTER USING CUTTING KNIVES.
8. ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATE SIZE MANDREL THROUGH THE CONDUIT BEFORE INSTALLATION OF WIRE OR CABLE. CLEAR ALL BLOCKAGES AND REMOVE BURRS, DIRT AND DEBRIS.
9. INSTALL MULE TAPE IN ALL EMPTY CONDUIT IDENTIFY PULL STRINGS AT EACH END WITH ITS DESTINATION.
10. PROVIDE INSULATED GROUNDING BUSHINGS OR ALL CONDUITS STUBBED INTO EQUIPMENT ENCLOSURES OR STUBBED OUT FOR FUTURE USE BY OTHERS.
11. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION. TEMPORARY OPENINGS IN THE CONDUIT SYSTEM SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE OF MOISTURE OR FOREIGN MATTER. CONTRACTOR SHALL REPLACE ANY CONDUIT CONTAINING FOREIGN MATERIALS THAT CANNOT BE REMOVED.
12. INSTALL 3" RED METALLIC LOCATOR TAPE 12" ABOVE ALL UNDERGROUND CONDUIT AND WIRE.
13. CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.

B. WIRE AND CABLE:

1. ALL POWER WIRING SHALL BE COLOR CODED AS FOLLOWS

DESCRIPTION	120/270V	208Y/120V	480Y/277V
PHASE A	BLACK	BLACK	BROWN
PHASE B	RED	RED	ORANGE
PHASE C		BLUE	YELLOW
NEUTRAL	WHITE	WHITE	GRAY
GROUND	GREEN	GREEN	GREEN

2. SPLICES SHALL BE MADE ONLY AT OUTLETS, JUNCTION BOXES OR ACCESSIBLE RACEWAYS WITH PRESSURE–TYPE CONNECTORS.
3. PULLING LUBRICANT SHALL BE SOAPSTONE POWDER, POWDERED TALC OR A COMMERCIAL PULLING COMPOUND. NO SOAP SUDS, SOAP FLAKES, OIL OR GREASE SHALL BE USED, AS THESE MAY BE HARMFUL TO CABLE INSULATION. CONTRACTOR SHALL USE NYLON OR HEMP ROPE FOR PULLING CABLE TO AVOID SCORING THE CONDUIT.
4. CABLES SHALL BE NEATLY TRAINED, WITHOUT INTERLACING, AND BE OF SUFFICIENT LENGTH IN ALL BOXES, EQUIPMENT. ETC. TO PERMIT MAKING A NEAT ARRANGEMENT. CABLES SHALL BE SECURED IN A MANNER TO AVOID TENSION ON CONDUCTORS OR TERMINALS AND SHALL BE PROTECTED FROM MECHANICAL INJURY AND FROM MOISTURE. SHARP BENDS OVER CONDUIT BUSHINGS ARE PROHIBITED. DAMAGED CABLES SHALL BE REMOVED AND REPLACE AT THE CONTRACTOR'S EXPENSE.

C. DISCONNECT SWITCHES:

1. INSTALL DISCONNECT SWITCHED LEVEL AND PLUMB. CONNECT TO WIRING SYSTEM AND GROUND AS INDICATED.

D. GROUNDING:

1. ALL METALLIC PARTS OF ELECTRICAL EQUIPMENT WHICH DO NOT CARRY CURRENT SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 250 OF THE NATIONAL ELECTRIC CODE.
2. PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEMS INDICATED WITH ASSEMBLY OF MATERIALS, INCLUDING GROUNDING ELECTRODES, BONDING JUMPERS AND ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION.
3. ROUTE GROUNDING CONNECTIONS AND CONDUCTORS TO GROUND IN THE SHORTEST AND STRAIGHTEST PATHS POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISES.
4. TIGHTEN GROUNDING AND BONDING CONNECTORS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR CONNECTORS AND BOLTS. WHERE MANUFACTURE'S TORQUING REQUIREMENTS ARE NOT AVAILABLE, TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
5. ALL UNDERGROUND GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS AND INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTION.
6. ALL GROUND CONNECTIONS SHALL BE INSPECTED FOR TIGHTNESS. EXOTHERMIC–WELDED CONNECTIONS SHALL BE APPROVED BY THE CONSTRUCTION INSPECTOR BEFORE BEING PERMANENTLY CONCEALED.
7. APPLY CORROSION–RESISTANT FINISH TO FIELD CONNECTION AND PLACES WHERE FACTORY APPLIED PROTECTIVE COATING HAVE BEEN DESTROYED. USE COPPER–BASED "NO–OX" OR APPROVED EQUAL.
8. A SEPARATE, CONTINUOUS, INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL FEEDER AND BRACH CIRCUITS.
9. BOND ALL INSULATED GROUNDING BUSHINGS WITH A BARE #6 AWG GROUNDING CONDUCTOR TO A GROUND BUS OR GROUNDING LUG IN ENCLOSURE.
10. DIRECT BURIED GROUND CONDUCTORS SHALL BE INSTALLED AT A NOMINAL DEPTH OF 30" BELOW GRADE, UNLESS NOTED OTHERWISE.
11. ALL GROUNDING CONDUCTORS EMBEDDED IN OR PENETRATING CONCRETE SHALL BE INSULATED OR INSTALLED IN PVC CONDUIT.
12. INSTALL ELECTROLYTIC GROUNDING SYSTEM IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. REMOVE SEALING TAPE FROM LEACHING AND BREATHER HOLES, INSTALL PROTECTIVE BOX FLUSH WITH GRADE.
13. DRIVE GROUND RODS UNTIL TOPS ARE 30" BELOW FINAL GRADE.
14. GROUNDING CONDUCTOR TO EQUIP[MENT GROUND LUGS:
    1) BOLTED TO EQUIPMENT HOUSING WITH STAINLESS STEEL BOLTS AND LOCK WASHERS.
    2) ALL EQUIPMENT TO BE GROUNDED SHALL BE FREE OF PAINT OR ANY OTHER MATERIAL COVERING BARE METAL AT THE POINT OF CONNECTION.

3.5 ACCEPTANCE TESTING:

1. PROVIDE PERSONNEL AND EQUIPMENT, MAKE REQUIRED TESTS AND SUBMIT TEST REPORTS UPON COMPLETE OF TESTS.
2. WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND NOT TO COMPLY WITH THE SPECIFIED REQUIREMENTS, THE NON–COMPLYING ITEMS SHALL BE REMOVED FROM THE JOBSITE AND REPLACED WITH THE ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS PROMPTLY AFTER RECEIPT OF NOTICE OF SUCH NON–COMPLIANCE.

A. TEST PROCEDURES:

1. ALL FEEDERS SHALL HAVE THEIR INSULATION TESTED AFTER INSTALLATION, BUT BEFORE CONNECTION TO DEVICES. THE CONDUCTORS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDS. TESTING SHALL BE FOR ONE MINUTE, USING 1000V DC. INVESTIGATE ANY VALUES LESS THAN 50 MEGOHMS.
2. PRIOR TO ENERGIZING CIRCUITRY, TEST WIRING DEVICES FOR ELECTRICAL CONTINUITY AND PROPER POLARITY CONNECTIONS.
3. MEASURE AND RECORD VOLTAGES BETWEEN PHASES AN BETWEEN PHASE WIRE AND NEUTRALS. SUBMIT A REPORT OF MAXIMUM AND MINIMUM VOLTAGES.
4. PERFORM GROUND TEST TO MEASURE GROUND RESISTANCE OF GROUNDING SYSTEM USING THE IEEE STANDARD 3–POINT "FALL–OF–POTENTIAL" METHOD. PROVIDE PLOTTED TEST VALUES AND LOCATION SKETCH. NOTIFY THE ENGINEER IMMEDIATELY IF MEASURED VALUE IS OVER 5 OHMS.

END OF SECTION

END OF SPECIFICATION

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CENTERLINE COMMUNICATIONS

SITE NUMBER:
CT11923C

SITE NAME:
CT923 / WESTVIEW DR_GT

SITE ADDRESS:
7 WESTVIEW DR
DANBURY, CT 06810

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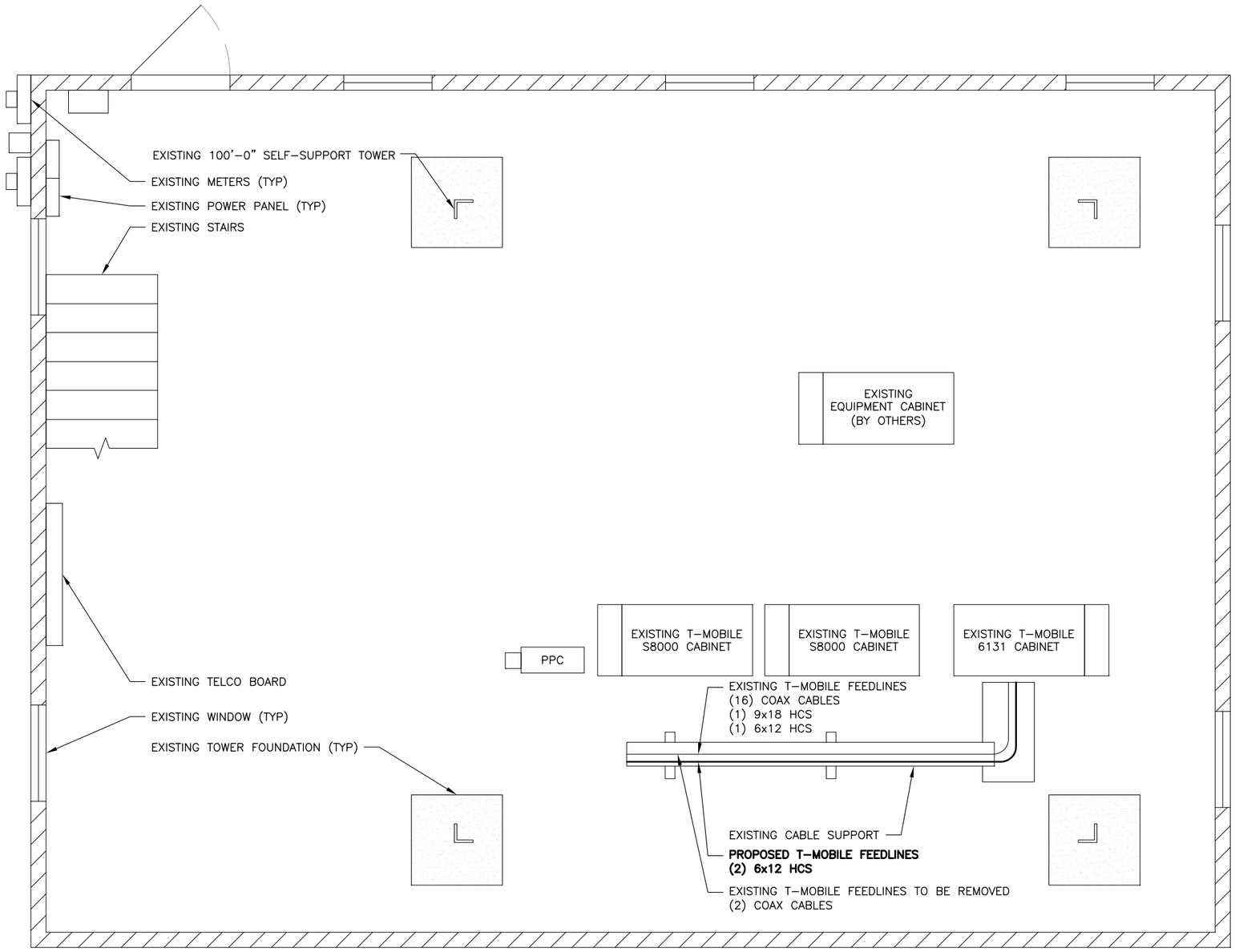
SHEET NUMBER: SP-2

REVISION: 0



1 OVERALL SITE PLAN

SCALE: 0' 1' 2' 4' 10'

N

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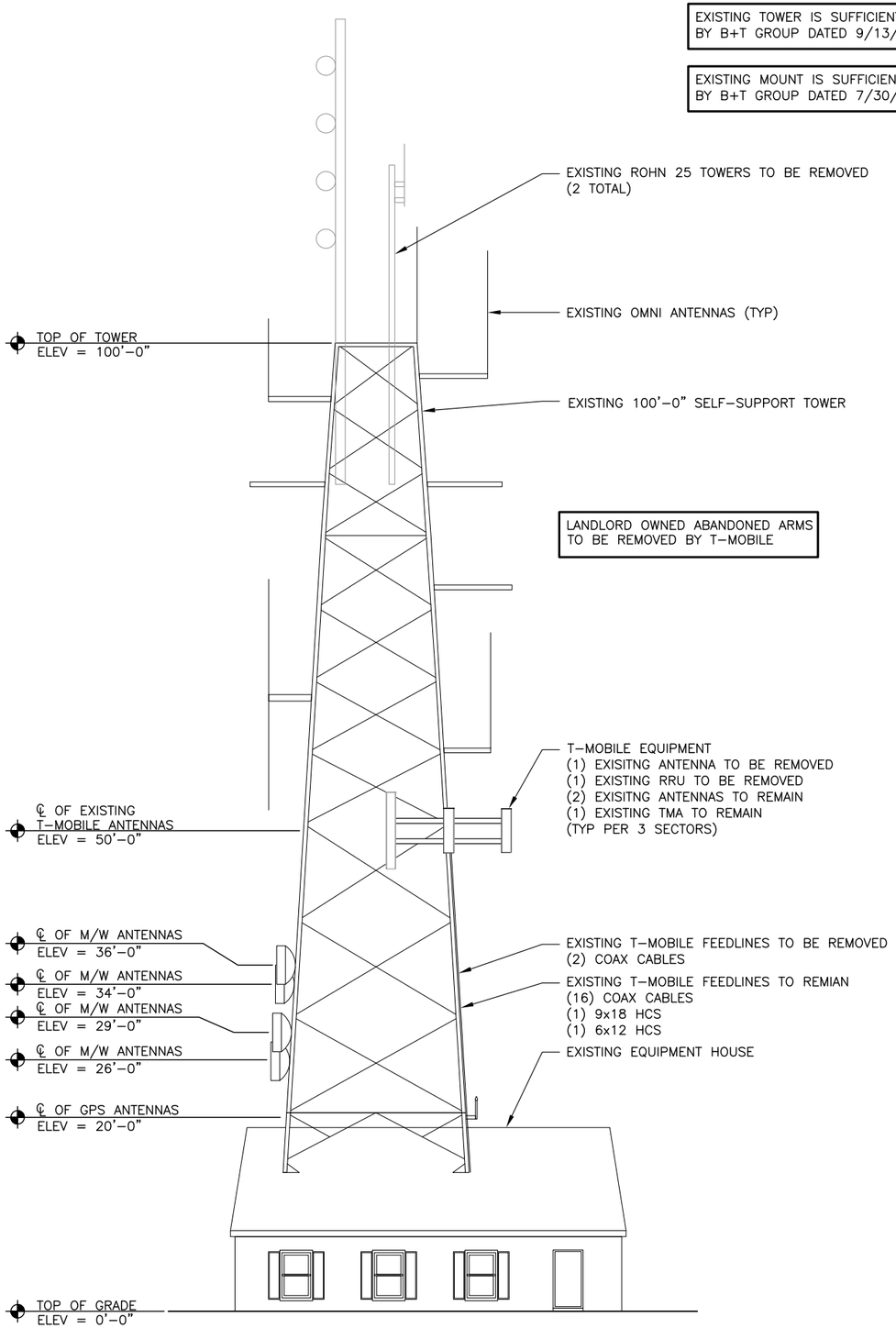
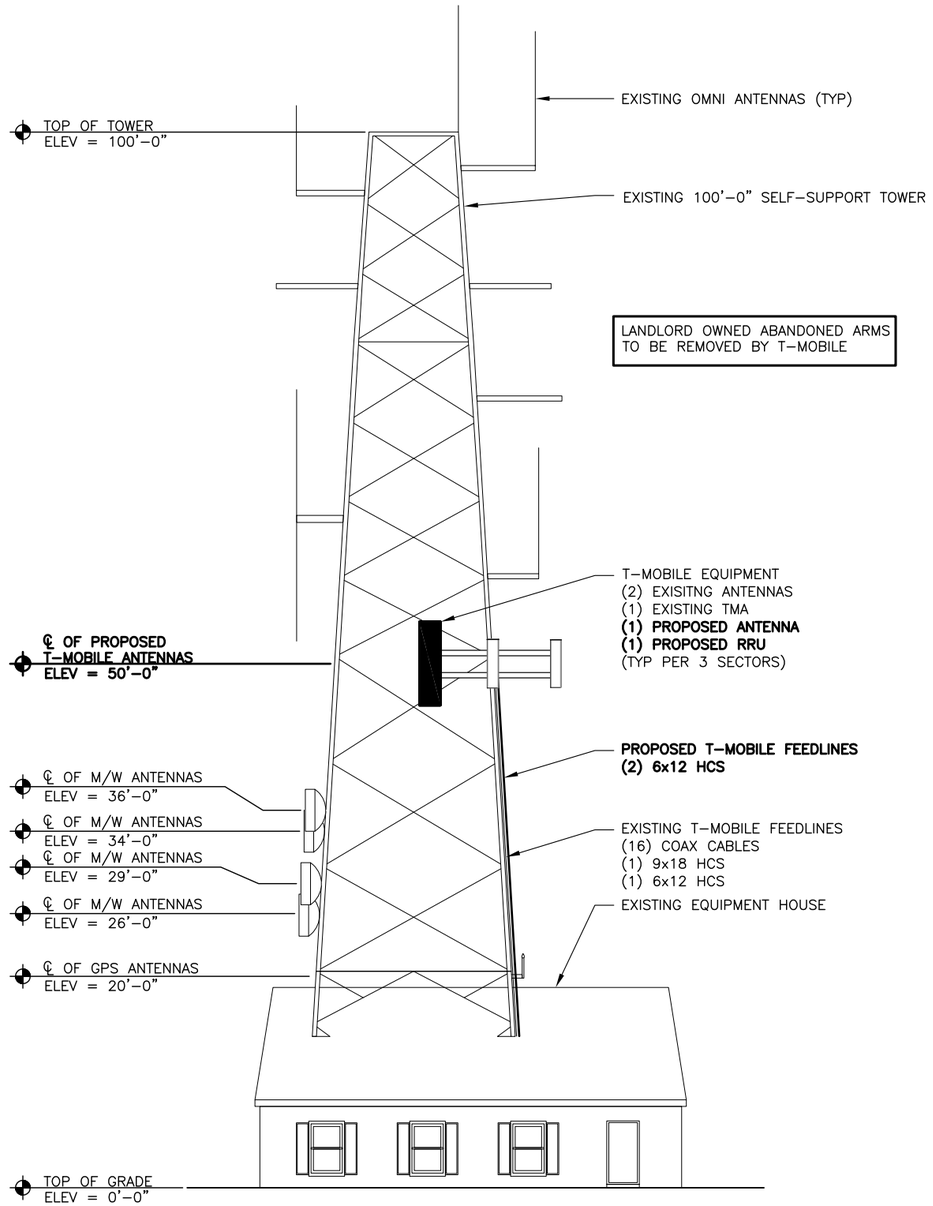
A-1	0

EXISTING TOWER IS SUFFICIENT PER STRUCTURAL ANALYSIS BY B+T GROUP DATED 9/13/19.

EXISTING MOUNT IS SUFFICIENT PER MOUNT ANALYSIS BY B+T GROUP DATED 7/30/19.



1 EXISTING TOWER ELEVATION
SCALE: N.T.S.



2 PROPOSED TOWER ELEVATION
SCALE: N.T.S.

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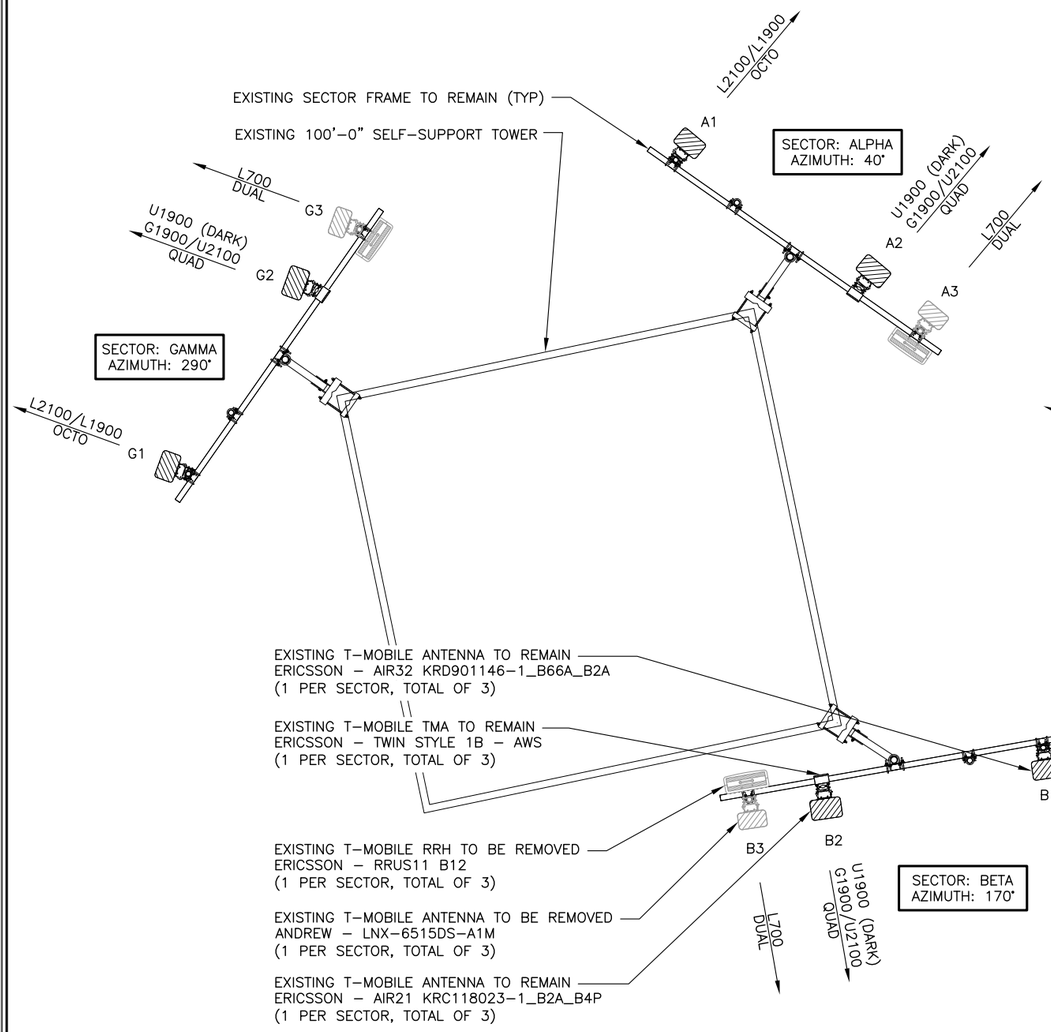
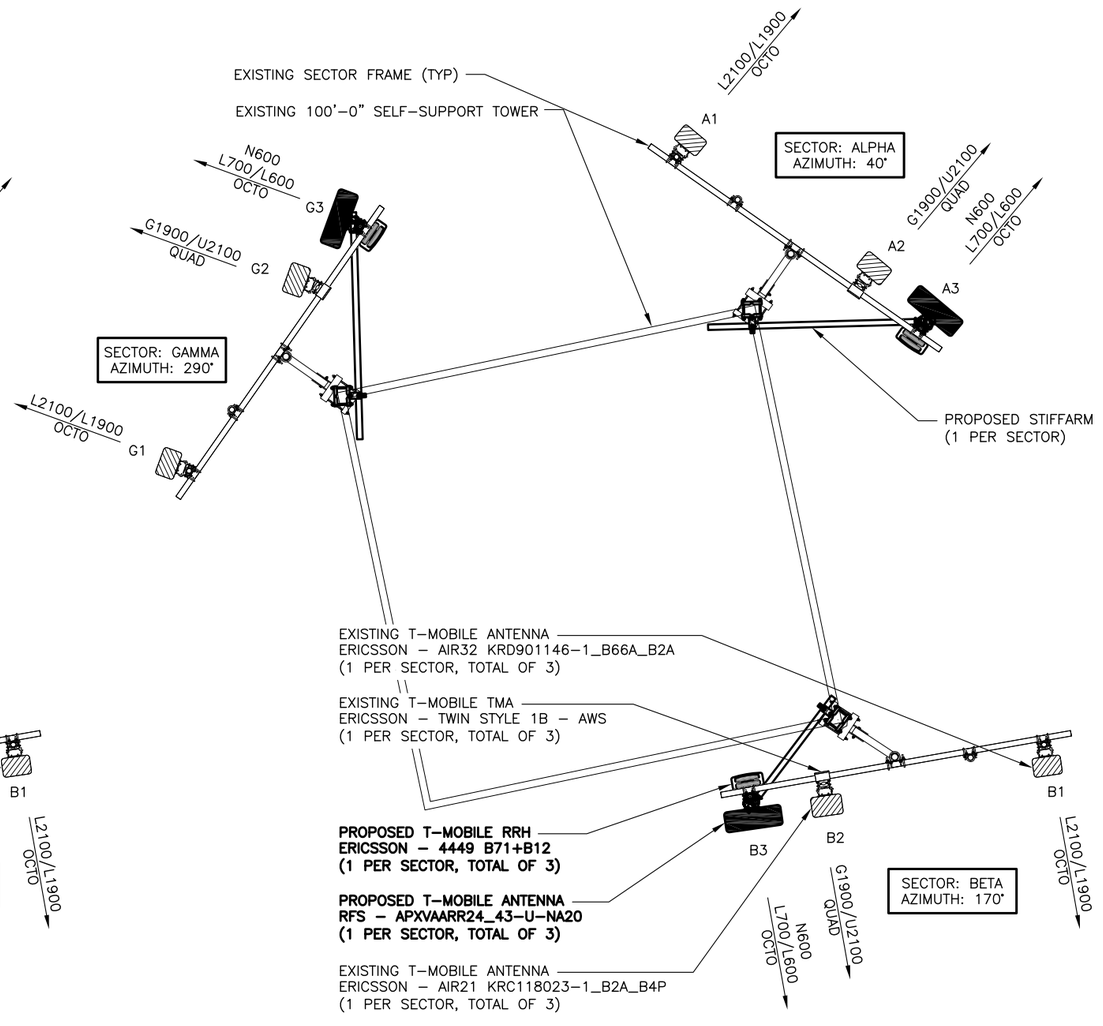


1 EXISTING ALPHA ANTENNA LAYOUT
SCALE: N.T.S.



2 PROPOSED ALPHA ANTENNA LAYOUT
SCALE: N.T.S.

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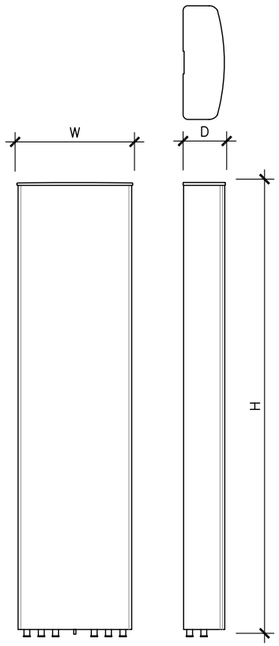
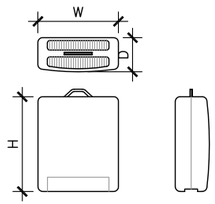
A-3	0



ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVAARR24_43-U-NA20
WIDTH	24.0"
DEPTH	8.7"
HEIGHT	95.9"
WEIGHT	128.0 LBS

1 ANTENNA DETAIL
SCALE: N.T.S.



RRH SPECS	
MANUFACTURER	ERICSSON
MODEL #	4449 B71+B12
WIDTH	13.2"
DEPTH	9.4"
HEIGHT	17.9"
WEIGHT	70.5 LBS

2 RRH DETAIL
SCALE: N.T.S.

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DANBURY, CT 06810

PROJECT NO:	135927.004.01
CHECKED BY:	MDW

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
A	8/16/19	JCO	PRELIMINARY REVIEW
B	9/13/19	JCO	PRELIMINARY REVIEW
0	9/26/19	JCO	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

STATE OF CONNECTICUT
31627
LICENSED PROFESSIONAL ENGINEER
9/26/19

SHEET NUMBER:	REVISION:
A-4	0

ANTENNA NOTES:

1. ANTENNA CONTRACTOR SHALL INSURE THAT ALL ANTENNA MOUNTING PIPES ARE PLUMB.
2. COAXIAL FEEDER & FIBER LENGTHS INDICATED ARE APPROXIMATE.
3. ANTENNA COAXIAL FEEDERS & ANTENNA JUMPERS SHALL BE COLOR CODED PER T-MOBILE REQUIREMENTS. IN ADDITION TO THE COLOR CODE IN THE ANTENNA KEY THE FOLLOWING CHECKER STRIPE SHALL BE ADDED TO EACH ANTENNA COAXIAL FEEDER & ANTENNA JUMPER.

   LTE L600 – WHITE-SOLID STRIPE
   LTE 700 – RED-BLACK CHECKER STRIPE
   LTE PCS – RED-GREEN CHECKER STRIPE
   LTE AWS – YELLOW-BLACK CHECKER STRIPE
   UMTS PCS – RED-WHITE CHECKER STRIPE
   UMTS AWS – GREEN-WHITE CHECKER STRIPE
   GSM PCS – BLACK-WHITE CHECKER STRIPE
4. UMTS AWS LINE 1 & 2 TO HAVE TMA, MOUNTED ON PIPE BEHIND ANTENNA POSITION #2.
5. MULTI-PORTS ANTENNAS: TERMINATE UNUSED ANTENNA PORTS WITH CONNECTOR CAP & WEATHERPROOF THOROUGHLY. JUMPERS FROM TMAS MUST TERMINATE TO OPPOSITE POLARIZATIONS IN EACH SECTOR,
6. CONTRACTOR MUST FOLLOW ALL MANUFACTURERS' RECOMMENDATIONS REGARDING THE INSTALLATION OF COAXIAL CABLES, CONNECTORS & ANTENNAS.
7. MINIMUM BEND RADIUS:

   LDF4-50A (1/2" HARD LINE) = 5"
   FSJ4-50B (1/2" SUPER FLEX) = 1 1/4"
   AVA5-50A (7/8" HARD LINE) = 10"
   AVA7-50A (1 5/8 HARD LINE) = 15"
   LDF7-50A (1 5/8" HARD LINE) = 20"
8. CONTRACTOR SHALL RECORD THE SERIAL, SECTOR & POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND FURNISH THE INFORMATION TO T-MOBILE.
9. WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF-AMALGAMATING TAPE.
10. ANTENNA CONTRACTOR SHALL PERFORM A "TAPE DROP" MEASUREMENT TO CONFIRM/VALIDATE ANTENNA CENTERLINE (ACL) HEIGHT. CONTRACTOR SHALL SUBMIT A COMPLETED HEIGHT VERIFICATION FORM TO THE CONSTRUCTION MANAGER.
11. ALL FIBER RUNS TO BE CONTAINED IN (1) NOKIA HYBRID DC-FIBER CABLE (P/N: ASU9325TYP01) FROM LOWER COVP TO UPPER COVP. HYBRID CABLE SHALL BE COLOR CODED PER T-MOBILE REQUIREMENTS.

ANTENNA KEY

SECTOR	STATUS	ANTENNA NUMBER	TYPE	COLOR CODE	ANTENNA VENDOR	MODEL #	AZIMUTH	ELEC. TILT	MECH TILT	RAD CENTER	COAXIAL FEEDER SIZE	COAXIAL FEEDER LENGTH	HYBRID CABLE FEEDER SIZE	HYBRID CABLE FEEDER LENGTH
ALPHA	EXISTING	B-2	L1900	RED-GREEN	ERICSSON	AIR32 KRD901146-1_B66A_B4A	40°	2°	0°	50'-0"	–	–	6x12 HCS (SHARED)	**50'**
			L2100	YELLOW-BLACK				2°			–	–		
	EXISTING	A-2	G1900	BLACK-WHITE	ERICSSON	AIR21 KRC118023-1_B2A_B4P	40°	2°	0°	50'-0"	–	–	(1) 9x18 HCS	50'
			U2100	GREEN-WHITE				2°			(2) 7/8"	EXISTING	–	–
	NEW	**A-3**	**L600**	**WHITE-SOLID**	**RFS**	**APXVAARR24_43-U-NA20**	**40°**	**2°**	**0°**	**50'-0"**	–	–	**(1) 6x12 HCS**	50'
			L700	**RED-BLACK**				**2°**			–	–		
			N600	**WHITE-SOLID**				**2°**			–	–		
BETA	EXISTING	B-2	L1900	RED-GREEN	ERICSSON	AIR32 KRD901146-1_B66A_B4A	170°	2°	0°	50'-0"	–	–	6x12 HCS (SHARED)	**50'**
			L2100	YELLOW-BLACK				2°			–	–		
	EXISTING	A-2	G1900	BLACK-WHITE	ERICSSON	AIR21 KRC118023-1_B2A_B4P	170°	2°	0°	50'-0"	–	–	(1) 9x18 HCS	50'
			U2100	GREEN-WHITE				2°			(2) 7/8"	EXISTING	–	–
	NEW	**A-3**	**L600**	**WHITE-SOLID**	**RFS**	**APXVAARR24_43-U-NA20**	**170°**	**2°**	**0°**	**50'-0"**	–	–	**(1) 6x12 HCS**	50'
			L700	**RED-BLACK**				**2°**			–	–		
			N600	**WHITE-SOLID**				**2°**			–	–		
GAMMA	EXISTING	B-2	L1900	RED-GREEN	ERICSSON	AIR32 KRD901146-1_B66A_B4A	290°	2°	0°	50'-0"	–	–	6x12 HCS (SHARED)	**50'**
			L2100	YELLOW-BLACK				2°			–	–		
	EXISTING	A-2	G1900	BLACK-WHITE	ERICSSON	AIR21 KRC118023-1_B2A_B4P	290°	2°	0°	50'-0"	–	–	(1) 9x18 HCS	50'
			U2100	GREEN-WHITE				2°			(2) 7/8"	EXISTING	–	–
	NEW	**A-3**	**L600**	**WHITE-SOLID**	**RFS**	**APXVAARR24_43-U-NA20**	**290°**	**2°**	**0°**	**50'-0"**	–	–	**(1) 6x12 HCS**	50'
			L700	**RED-BLACK**				**2°**			–	–		
			N600	**WHITE-SOLID**				**2°**			–	–		

RRU KEY – ON BUILDING

SECTOR	VENDOR	EQUIPMENT	MODEL #	ELEVATION	QUANTITY	STATUS
MULTI	ERICSSON	TMA	TWIN STYLE 1B – AWS	50'-0"	3	EXISTING
MULTI	**ERICSSON**	**RRU**	**4449 B71+B12**	**50'-0"**	**3**	**NEW**

1 ANTENNA, RRU & TMA SCHEDULE
SCALE: N.T.S.

B+T GRP

T···Mobile

CENTERLINE COMMUNICATIONS

SITE NUMBER:
CT11923C

SITE NAME:
CT923 / WESTVIEW DR_GT

SITE ADDRESS:
7 WESTVIEW DR
DANBURY, CT 06810

PROJECT NO:	135927.004.01
CHECKED BY:	MDW

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
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0	9/26/19	JCO	CONSTRUCTION

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9/26/19

SHEET NUMBER:	REVISION:
A-5	0

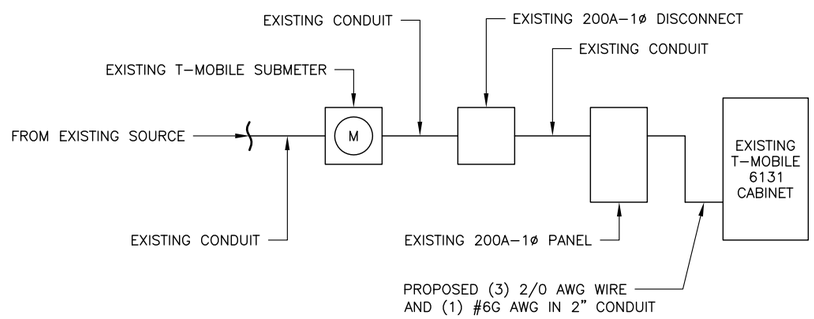
FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
EQUIPMENT	2	60A	1	2	20A	1	OUTLET
			3	4	**125A**	2	6131
BTS 1 (DARK)	2	50A	5	6			
			7	8			
BTS 2	2	60A	9	10			
			11	12			

RATED VOLTAGE: ■120/240 □_____. 1 PHASE, 3 WIRE		BRANCH POLES: □12 ■24 □30 □42	APPROVED MF'RS	
RATED AMPS: □100 ■200 □400 □_____.		CABINET: ■SURFACE □FLUSH	NEMA □1 ■3R □4X	
□MAIN LUGS ONLY	MAIN 200 AMPS ■BREAKER □FUSED SWITCH	■HINGED DOOR	■KEYED DOOR LATCH	
□FUSED ■CIRCUIT BREAKER	BRANCH DEVICES	□_____ TO BE GFCI BREAKERS	FULL NEUTRAL BUS	GROUND BAR
ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL				

REPLACE EXISTING BREAKER IN POSITION 4 AND 6 WITH A NEW 2P 125A BREAKER
REPLACE EXISTING WIRES FOR EXISTING 6131 CABINET WITH (3) 2/0 AWG THWN (COPPER) AND (1) #6G AWG. MINIMUM CONDUIT SIZE TO BE 2".
IF 125A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL QO12040M200RB (OR APPROVED EQUAL).
UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING PHOTOS

1 FINAL T-MOBILE PANEL DETAIL

SCALE: N.T.S.



2 ONE-LINE DIAGRAM

SCALE: N.T.S.

B+T GRP

T···Mobile

CENTERLINE COMMUNICATIONS

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31627
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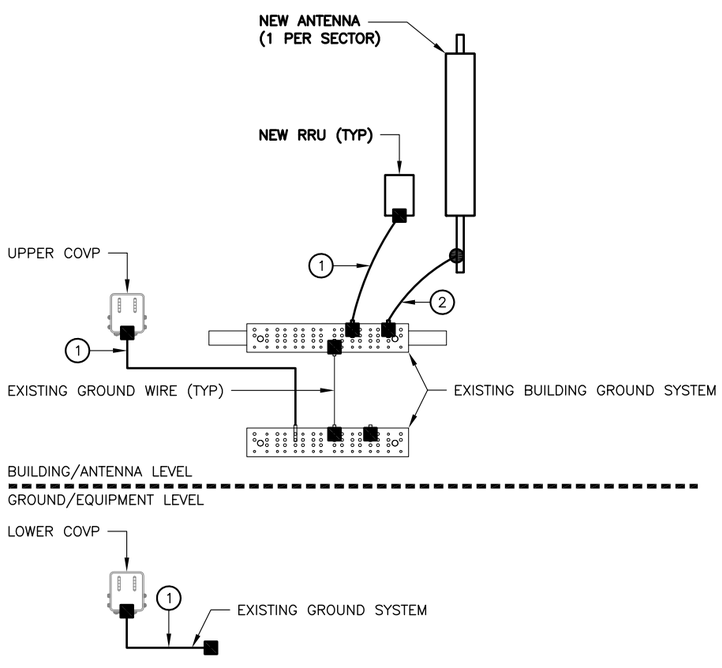
9/26/19

SHEET NUMBER:	REVISION:
E-1	0

LEGEND	
●	EXOTHERMIC CONNECTION
■	MECHANICAL CONNECTION
(1)	#2 AWG STRANDED INSULATED COPPER GROUND WIRE
(2)	#2 SOLID TINNED, BARE COPPER GROUND WIRE

TYPICAL SECTOR



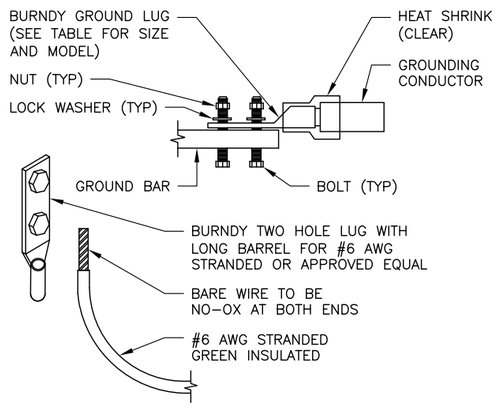
1 ANTENNA GROUND DIAGRAM

SCALE: N.T.S.

WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6A-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3A-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2A-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT

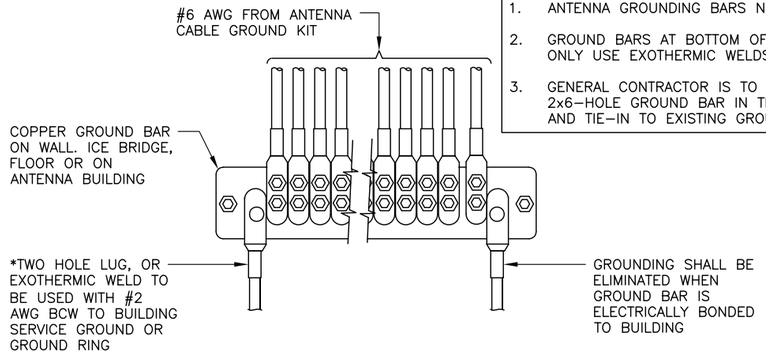
NOTES:

1. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.
2. COPPER SHIELD, ANTIOX, CR NO-OX OR APPROVED EQUAL SHALL BE PLACE WHERE ALL DISSIMILAR METALS CONNECT.
3. ALL LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.



2 MECHANICAL LUG CONNECTION

SCALE: N.T.S.



NOTES:

1. ANTENNA GROUNDING BARS NOT TO USE INSULATORS.
2. GROUND BARS AT BOTTOM OF BUILDINGS SHALL ONLY USE EXOTHERMIC WELDS.
3. GENERAL CONTRACTOR IS TO FURNISH AND INSTALL A 2x6-HOLE GROUND BAR IN THE GBF OF THE RBS AND TIE-IN TO EXISTING GROUND RING.

3 GROUNDWIRE INSTALLATION

SCALE: N.T.S.

B+T GRP

T···Mobile

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B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

STATE OF CONNECTICUT 31627 LICENSED PROFESSIONAL ENGINEER

9/26/19

SHEET NUMBER:	REVISION:
G-1	0

Exhibit D

Structural Analysis Report

Date: **September 26, 2019**

Evelyn Radowicz
Centerline Communications
750 W Center St, Floor 3
West Bridgewater, MA 02379

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11923C
	Carrier Site Name:	W. View Dr_GT
Centerline Comm. Designation:	**Site Number:**	CT11923C
	Site Name:	W. View Dr_GT
Engineering Firm Designation:	**B+T Group Project Number:**	135927.003.01b
Site Data:	**7 West View Drive, Danbury, Fairfield County, CT 06810** **Latitude *41° 23' 45.4"*, Longitude *-73° 25' 26.16"*** **100 Foot - Self Support Tower**	

Dear Evelyn Radowicz,

B+T Group is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

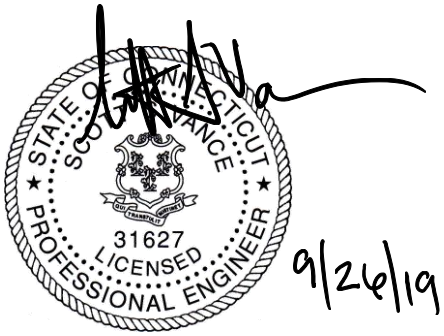
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

Proposed Equipment Configuration **Sufficient Capacity – 71.1%**

The analysis has been performed in accordance with the TIA-222-G Standard. This analysis utilizes an ultimate 3-second gust wind speed of 125 mph (converted to an equivalent 97 mph nominal 3-second gust wind speed per Section 1609.3.1 for use with TIA-222 G) as required by the 2018 Connecticut State Building Code. Exposure Category B and Risk Category II were used in this analysis.

Structural analysis prepared by: Xavier Jones

Respectfully submitted by: B+T Engineering, Inc.
COA: PEC.0001564; Expires: 02/10/2020



Scott S. Vance, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 100 ft Self Support tower Mapped by Vertical Solutions in July of 2013.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-G
Risk Category:	II
Wind Speed:	97 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	0.75 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
50.0	53.0	3	Ericsson	AIR21 KRC118023-1_B2A_B4P	16 1 3	7/8 9X18 6X12
		3	Ericsson	AIR32 KRD901146-1_B66A_B2A		
		3	Ericsson	KRY 112 144/2		
	50.0	3	Ericsson	Radio 4449 B71+B12		
		3	Rfs Celwave	APXVAARR24_43-U-NA20		
		3	--	Modified Sector Mounts		

Table 2 - Non-Carrier Equipment To Be Conditionally Removed

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
86.3	107.5	4	Unknown	Hoop Appurtenances	1	7/8
		1	--	Rohn 25 tower 55'		
	86.3	1	--	Rohn 25 tower 27.5'	--	--

Table 3 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
100.0	113.0	1	Unknown	25' Omni	1 2	1-5/8 7/8
	108.0	1	Unknown	15' x 3" Omni		
	104.0	1	Decibel	DB561K-CR		
	100.0	1	--	10' x 2" Mount Pipe		
		2	--	Side Arm Mount		
	97.0	1	Unknown	6' x 3" Omni		
		1	--	15' x 4" Mount Pipe		
98.0	98.0	1	Unknown	10' x 3" Omni	1	1/2
		1	--	6' Standoff Arm		
97.0	109.0	1	Shively Labs	FM Antenna	1 1	7/8 1/2
	104.0	1	Shively Labs	FM Antenna		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	97.0	1	--	Side Arm Mount		
96.0	101.0	1	Unknown	10' x 3" Omni	2	7/8
	96.0	3	--	6' Standoff Arm		
	91.0	1	Unknown	10' x 3" Omni		
93.0	93.0	1	Decibel	DB292-A	1	7/8
91.0	99.0	1	Unknown	6' x 3" Omni	1	7/8
	91.0	1	--	Side Arm Mount		
90.0	90.0	1	Decibel	DB225-2-A	1	1/2
89.0	89.0	1	Unknown	6' Grid	1	1/2
		1	--	Angle Mount		
85.5	85.5	1	Decibel	DB499-A	1	1/2
85.0	87.0	1	Decibel	DB633-C	2	1/2
	85.0	1	Unknown	3' Grid Dish		
84.0	84.0	1	Decibel	DB432-A	1	1/2
83.0	87.0	2	Unknown	8' x 3" Omni	3 1	7/8 1/2
	86.3	1	--	Side Arm Mount		
	86.0	1	Unknown	6' x 3" Omni		
	83.0	4	--	6' Standoff Arm		
		1	--	7' x 2" Pipe Mount		
		1	--	Side Arm Mount		
	81.0	1	Unknown	8' Yagi		
	79.0	1	Unknown	8' x 3" Omni		
82.0	82.0	1	--	Side Arm Mount	--	--
80.0	80.0	1	Unknown	3' Grid Dish	1	1/2
79.0	79.0	3	Til Tek	TA-2304-2-DAB-H	3	1/2
		3	--	10' x 2" Pipe Mount		
74.0	74.0	2	--	6' Standoff Arm	--	--
66.0	71.0	1	Unknown	10' x 3" Omni	1	1/2
	66.0	1	--	Side Arm Mount		
60.0	60.0	1	--	9' x 2" Pipe Mount	--	--
58.0	66.0	2	Unknown	15' x 3" Omni	1 2	7/8 1/2
	62.0	2	Decibel	ASP-2011		
	58.0	1	Unknown	15" x 2" Omni (GPS)		
		3	--	6' Standoff Arm		
38.0	38.0	1	Unknown	3' Yagi	1 1	1/2 1/4
		1	Unknown	4' Dish		
		1	--	7.5' x 2.375" Mount Pipe		
		1	--	Side Arm Mount		
36.0	36.0	1	Unknown	4' Dish	1	1/4
		1	--	Pipe Mount		
34.0	34.0	1	Decibel	DB254-A	1	1/2
		1	--	7.5' x 2.375" Mount Pipe		
29.0	29.0	2	Unknown	4' Dish	2	1/4
		2	--	Side Arm Mount		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
26.0	26.0	1	Unknown	4' Dish	1	1/4
		1	--	Side Arm Mount		
20.0	20.0	1	Unknown	GPS_A	1	1/4
		1	--	8' horizontal x 2" Pipe Mount		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Tower Data	Tower Mapping by Vertical Solutions, Project No. 130578	Date: 07/03/2013	Centerline
Foundation Data	Foundation Mapping by Vertical Solutions, Project No. 130578	Date: 07/03/2013	Centerline
Soil Properties	Geotech Report by Tectonic, WO No. 6644.CT11923C	Date: 07/05/2013	Centerline
Existing Loading	Previous SA by Centek, Project No. 17012.06	Date: 02/10/2017	Centerline
	Tower Mapping by Vertical Solutions, Project No. 130578	Date: 07/03/2013	Centerline
	Mount Analysis by B+T Group, Project No. 135927.002.01	Date: 07/03/2019	On File
Proposed Loading	Mount Analysis by B+T Group, Project No. 135927.002.01	Date: 07/03/2019	On File
	RFDS	Date: 05/10/2019	Centerline

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) The tower and structures were built and have been maintained in accordance with the manufacturer's specification.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
3) Mount areas and weights are assumed based on photographs provided.
4) The existing base plate grout was considered in this analysis. Grout must be maintained and inspected periodically, and must be replaced if damaged or cracked.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	100 - 80	Leg	L5x5x3/8	3	-7.941	82.635	9.6 10.7 (b)	Pass
T2	80 - 50	Leg	L6x6x3/8	35	-24.480	101.819	24.0 24.6 (b)	Pass
T3	50 - 20	Leg	L6x6x9/16	75	-46.490	120.399	38.6 46.8 (b)	Pass
T4	20 - 15	Leg	L6x6x1/2	107	-50.824	162.428	31.3	Pass
T5	15 - 0	Leg	L6x6x1/2	136	-59.816	133.016	45.0	Pass
T1	100 - 80	Diagonal	L2x2 1/2x3/16	14	-1.972	6.500	30.3	Pass
T2	80 - 50	Diagonal	L2 1/2x2 1/2x3/16	46	-3.287	6.229	52.8	Pass
T3	50 - 20	Diagonal	L3x3 1/2x1/4	86	-5.434	10.897	49.9	Pass
T4	20 - 15	Diagonal	L2 1/2x2 1/2x1/4	122	-5.219	12.564	41.5	Pass
T5	15 - 0	Diagonal	L3 1/2x4x1/4	143	-6.330	8.899	71.1	Pass
T4	20 - 15	Horizontal	L3x3x1/4	119	-4.295	9.415	45.6	Pass
T5	15 - 0	Secondary Horizontal	L3 1/2x3 /12x1/4	147	-0.899	12.668	7.1	Pass
T1	100 - 80	Top Girt	L2 1/2x2 1/2x3/16	6	-0.075	7.304	1.0	Pass
T2	80 - 50	Top Girt	L2x2 1/2x3/16	40	-0.135	3.261	4.1	Pass
T3	50 - 20	Top Girt	L2x3x3/16	79	-0.277	2.395	11.6	Pass
T4	20 - 15	Redund Diag 1 Bracing	L2 1/2x2 1/2x1/8	121	-0.423	8.152	5.2	Pass
T4	20 - 15	Inner Bracing	L2x2 1/2x1/4	130	-0.023	1.732	1.4	Pass
							Summary	
						Leg (T3)	46.8	Pass
						Diagonal (T5)	71.1	Pass
						Horizontal (T4)	45.6	Pass
						Secondary Horizontal (T5)	7.1	Pass
						Top Girt (T3)	11.6	Pass
						Redund Diag 1 Bracing (T4)	5.2	Pass
						Inner Bracing (T4)	1.4	Pass
						Bolt Checks	46.8	Pass
						RATING =	**71.1**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Redundant Connections	15-20	8.1	Pass
1	Anchor Rods	Base	15.6	Pass
1	Base Foundation (Soil Interaction)	Base	40.3	Pass
1	Base Foundation (Structure)	Base	45.6	Pass

Structure Rating (max from all components) =	71.1%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

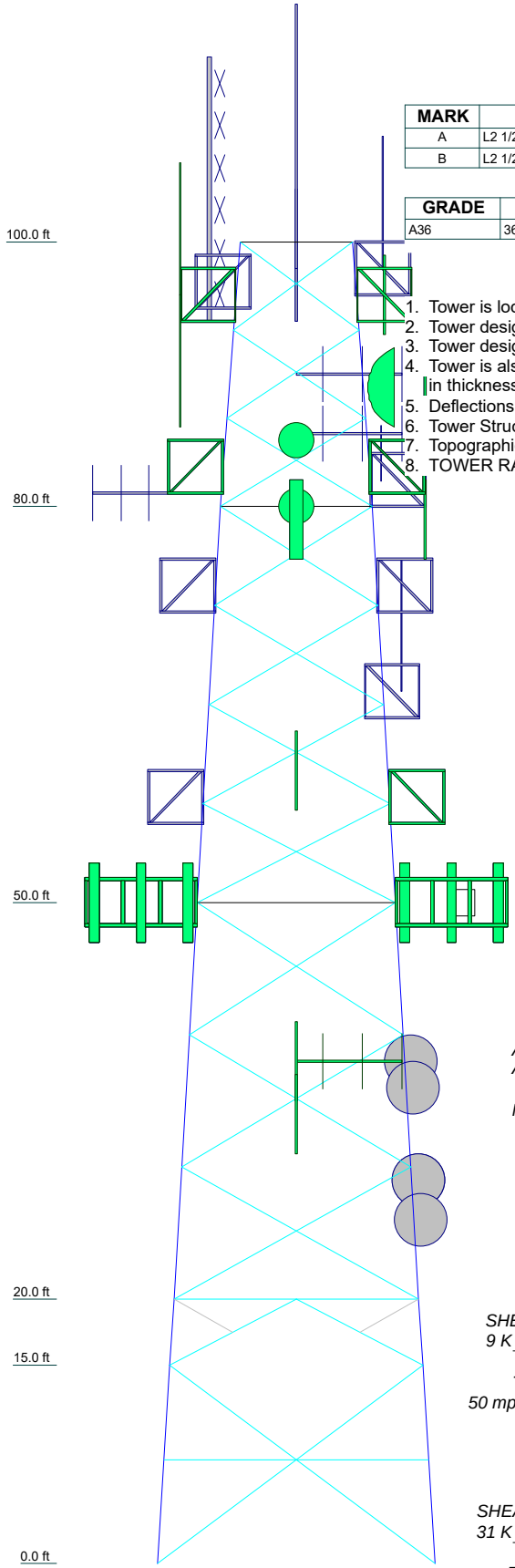
4.1) Recommendations

Once the equipment in Table 2 is removed, the tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	T5	T4	T3	T2	T1
Legs	L6x6x1/2		L6x6x9/16	L6x6x3/8	L5x5x3/8
Leg Grade				A36	
Diagonals	L3 1/2x4x1/4	A	L3x3 1/2x1/4	L2 1/2x2 1/2x3/16	L2x2 1/2x3/16
Diagonal Grade				A36	
Top Girts	N.A.		L2x3x3/16	L2x2 1/2x3/16	L2 1/2x2 1/2x3/16
Horizontals	N.A.	L3x3x1/4		N.A.	
Sec. Horizontals	L3 1/2x3 /12x1/4			N.A.	
Red. Diagonals	N.A.	B		N.A.	
Inner Bracing	N.A.	C		N.A.	
Face Width (ft)	19.19	18.58	15	11.42	8.5
# Panels @ (ft)	1 @ 15	1 @ 5	3 @ 10	4 @ 7.5	3 @ 6.66667
Weight (K)	15.7	1.5	5.6	3.6	2.0



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L2 1/2x2 1/2x1/4	C	L2x2 1/2x1/4
B	L2 1/2x2 1/2x1/8		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 71.1%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 66 K
SHEAR: 11 K

UPLIFT: -52 K
SHEAR: 10 K

AXIAL 85 K
SHEAR 9 K *MOMENT 550 kip-ft*
TORQUE 8 kip-ft
50 mph WIND - 0.750 in ICE

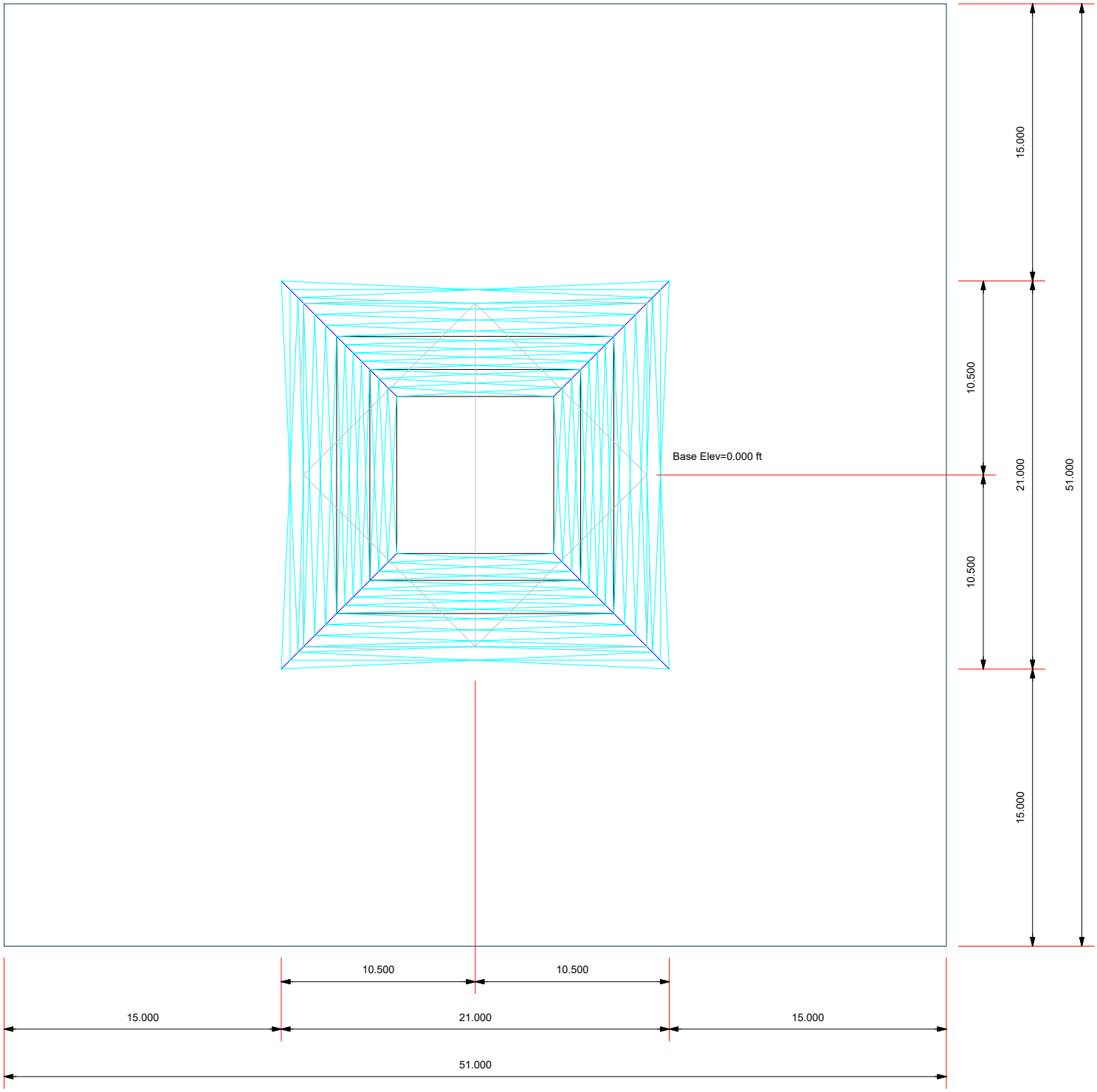
AXIAL 32 K
SHEAR 31 K *MOMENT 1717 kip-ft*
TORQUE 27 kip-ft
REACTIONS - 97 mph WIND

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 135927.003.01 - W. View Dr_GT, CT (Site# CT11923C			
Project:			
Client: Centerline Communications	Drawn by: xjones	App'd:	
Code: TIA-222-G	Date: 09/26/19	Scale: NTS	
Path:		Dwg No. E-1	

Plot Plan

Total Area - 0.06 Acres



B+T GRP

B+T Group
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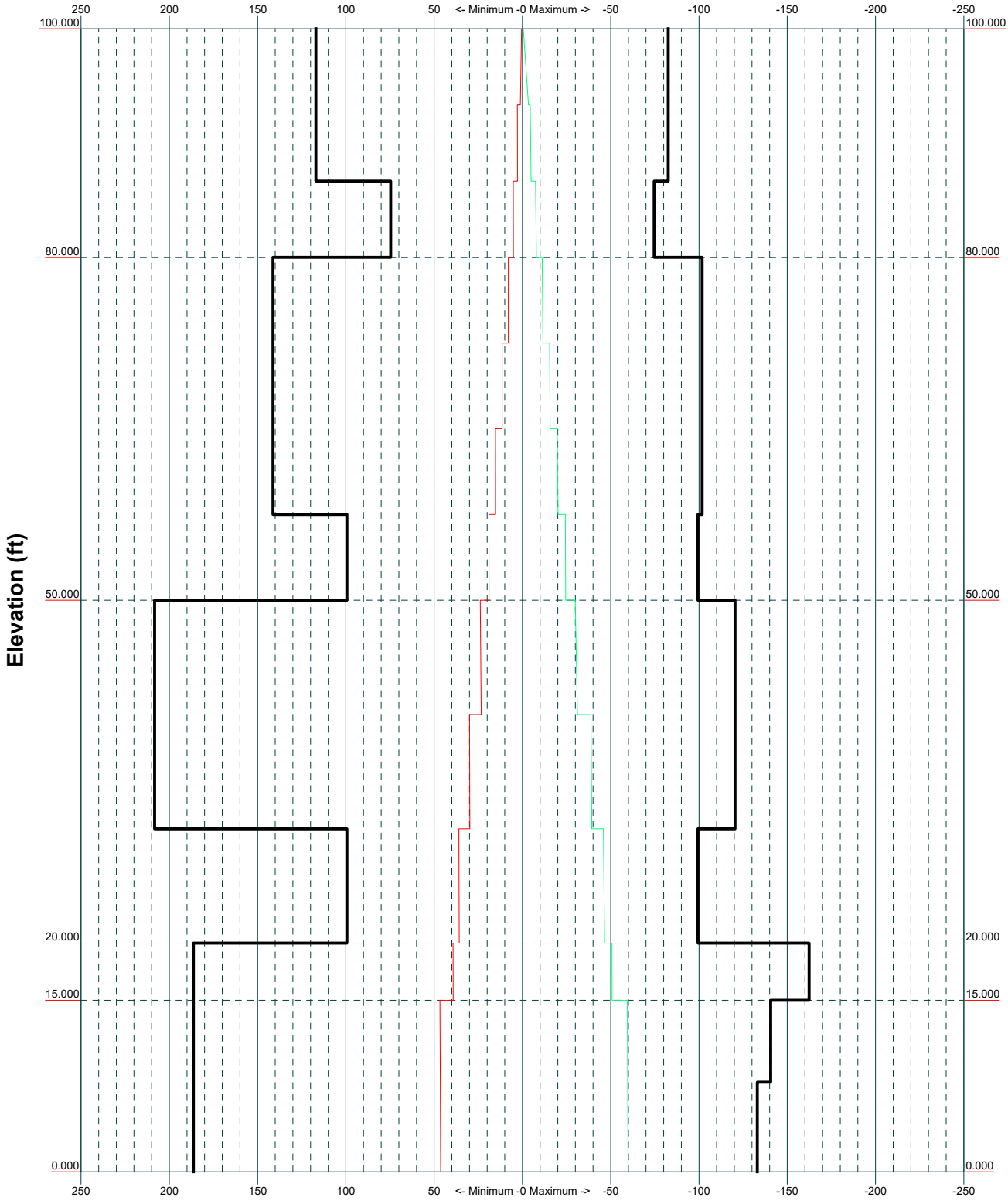
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: *135927.003.01 - W. View Dr_GT, CT (Site# CT11923C*			
Project:			
Client: Centerline Communications	Drawn by: xjones	App'd:	
Code: TIA-222-G	Date: 09/26/19	Scale: NTS	
Path:		Dwg No. E-2	

TIA-222-G - 97 mph/50 mph 0.750 in Ice Exposure B

Leg Capacity ——— **Leg Compression (K)**



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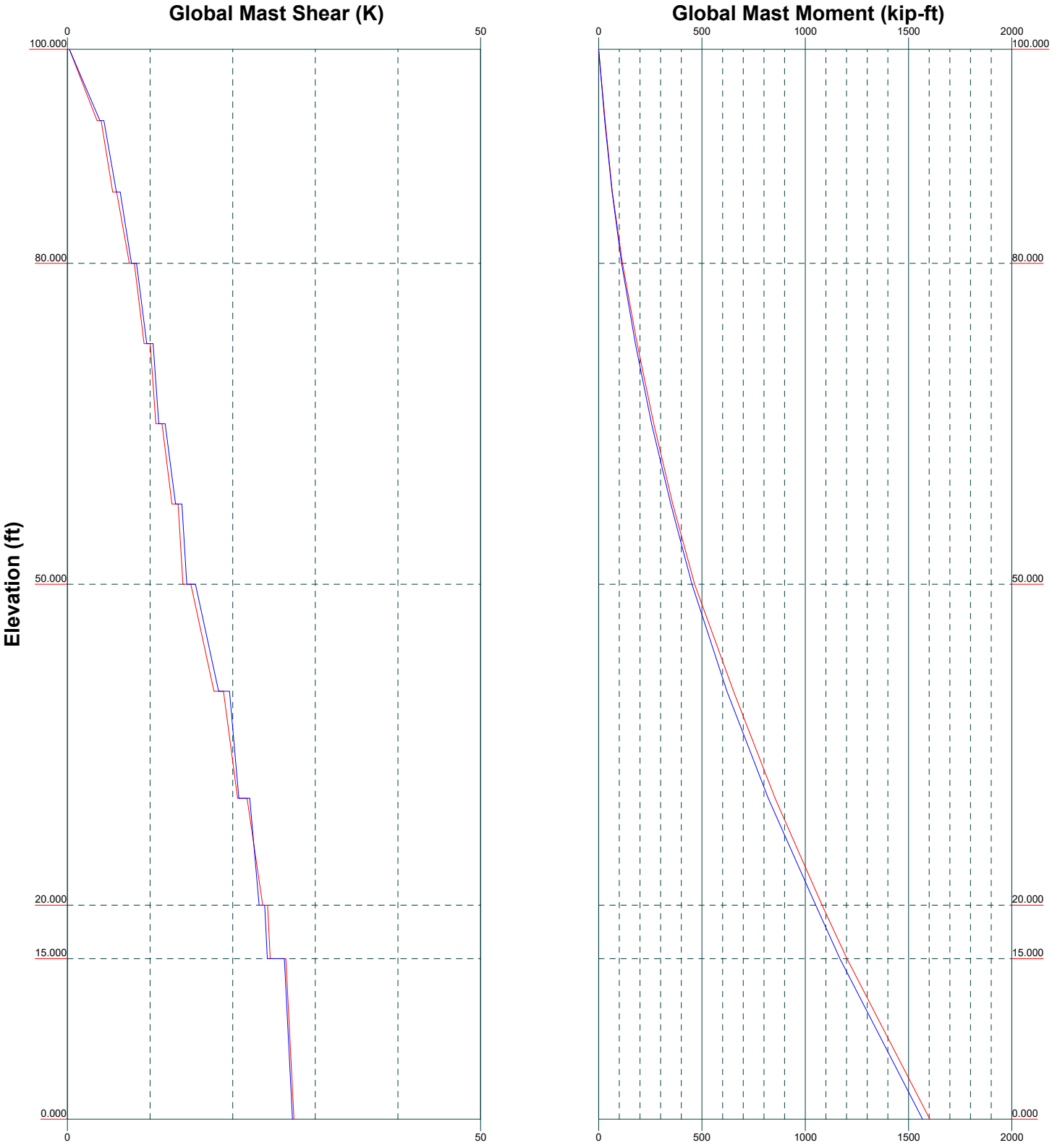
FAX: (918) 295-0265

Job: 135927.003.01 - W. View Dr_GT, CT (Site# CT11923C			
Project:			
Client: Centerline Communications	Drawn by: xjones	App'd:	
Code: TIA-222-G	Date: 09/26/19	Scale: NTS	
Path:		Dwg No. E-3	

TIA-222-G - 97 mph/50 mph 0.750 in Ice Exposure B

Maximum Values

Vx Vz Mx Mz



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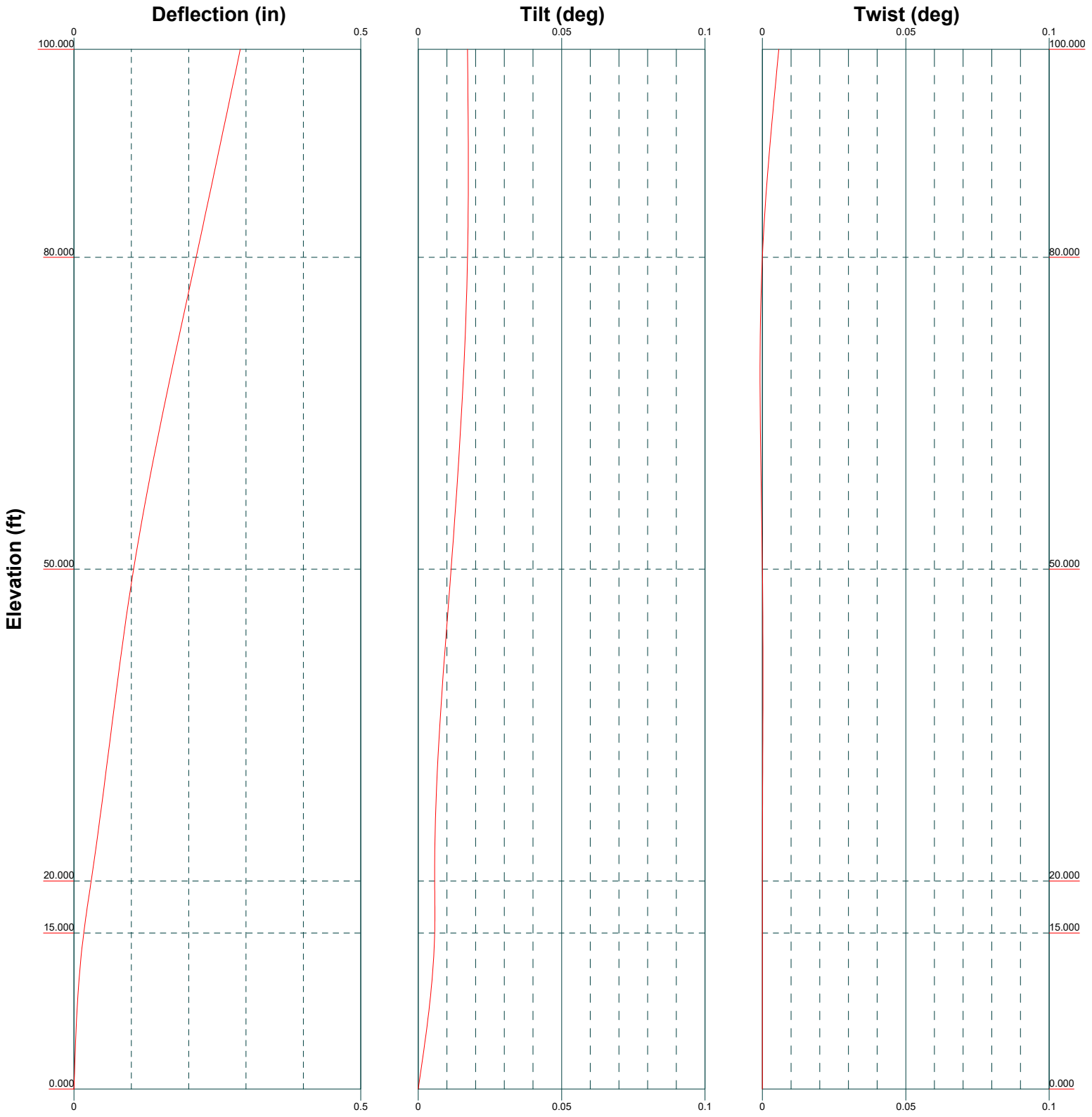
Project:			
Client: Centerline Communications	Drawn by: xjones	App'd:	
Code: TIA-222-G	Date: 09/26/19	Scale: NTS	
Path:		Dwg No. E-4	

TIA-222-G - Service - 60 mph

Maximum Values



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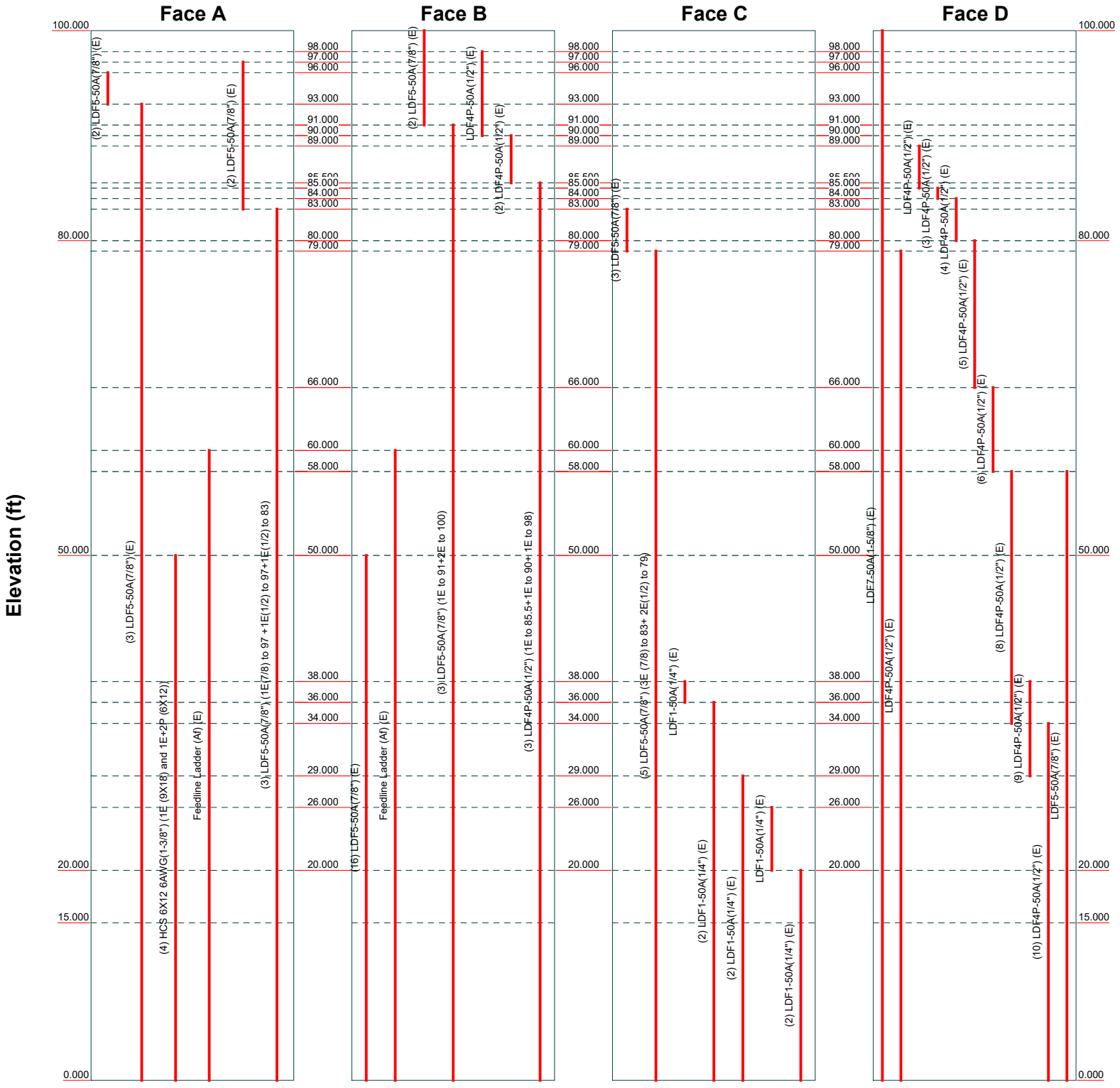
Job: 135927.003.01 - W. View Dr_GT, CT (Site# CT11923C			
Project:			
Client: Centerline Communications	Drawn by: xjones	App'd:	
Code: TIA-222-G	Date: 09/26/19	Scale: NTS	
Path:		Dwg No. E-5	

Feed Line Distribution Chart
0' - 100'

Round | Flat | App In Face | App Out Face | Truss Leg



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FAX: (918) 295-0265

Job:	135927.003.01 - W. View Dr_GT, CT (Site# CT11923C		
Project:			
Client: Centerline Communications	Drawn by: xjones	App'd:	
Code: TIA-222-G	Date: 09/26/19	Scale: NTS	
Path:		Dwg No. E-7	

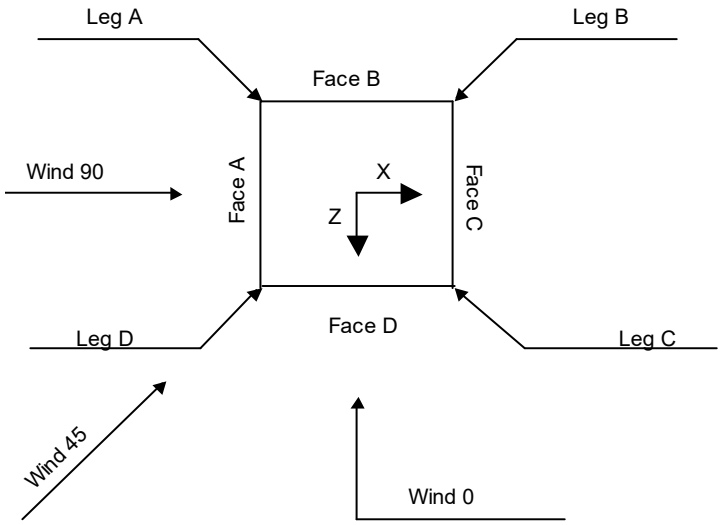
Tower Input Data

The main tower is a 4x free standing tower with an overall height of 100.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 8.500 ft at the top and 21.000 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
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		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Square Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	100.000-80.000			8.500	1	20.000
T2	80.000-50.000			11.420	1	30.000
T3	50.000-20.000			15.000	1	30.000
T4	20.000-15.000			18.580	1	5.000
T5	15.000-0.000			19.190	1	15.000

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	100.000-80.000	6.667	X Brace	No	No	0.000	0.000
T2	80.000-50.000	7.500	X Brace	No	No	0.000	0.000
T3	50.000-20.000	10.000	X Brace	No	No	0.000	0.000
T4	20.000-15.000	5.000	K1 Down	No	Yes	0.000	0.000
T5	15.000-0.000	15.000	X Brace	No	Yes	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 100.000-80.000	Single Angle	L5x5x3/8	A36 (36 ksi)	Single Angle	L2x2 1/2x3/16	A36 (36 ksi)
T2 80.000-50.000	Single Angle	L6x6x3/8	A36 (36 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T3 50.000-20.000	Single Angle	L6x6x9/16	A36 (36 ksi)	Single Angle	L3x3 1/2x1/4	A36 (36 ksi)
T4 20.000-15.000	Single Angle	L6x6x1/2	A36 (36 ksi)	Single Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T5 15.000-0.000	Single Angle	L6x6x1/2	A36 (36 ksi)	Single Angle	L3 1/2x4x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 100.000-80.000	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T2 80.000-50.000	Single Angle	L2x2 1/2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T3 50.000-20.000	Single Angle	L2x3x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T4 20.000-15.000	None	Single Angle		A36 (36 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T4 20.000-15.000	Single Angle		A36 (36 ksi)	Single Angle	L2x2 1/2x1/4	A36 (36 ksi)
T5 15.000-0.000	Single Angle	L3 1/2x3 /12x1/4	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T4 20.000-15.000	A36 (36 ksi)	Diagonal (1)	Single Angle	L2 1/2x2 1/2x1/8	1

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 100.000-80.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T2 80.000-50.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T3 50.000-20.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T4 20.000-15.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T5 15.000-0.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt

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 Single Diags X	K Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T1 100.000-80.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 80.000-50.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 50.000-20.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 20.000-15.000	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 15.000-0.000	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 0.5	1 1	1 1	1 1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 100.000-80.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 80.000-50.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 50.000-20.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 20.000-15.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 15.000-0.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	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 100.000-80.000	Sleeve SS	0.625 A325N	12	0.625 A325N	2	0.625 A325N	2	0.750 A325X	0	0.625 A325X	0	0.750 A325N	0	0.750 A325X	0
T2 80.000-50.000	Sleeve SS	0.625 A325N	16	0.625 A325N	2	0.625 A325N	2	0.750 A325X	0	0.625 A325X	0	0.750 A325N	0	0.750 A325X	0
T3 50.000-20.000	Sleeve SS	0.625 A325N	16	0.625 A325N	2	0.625 A325N	2	0.750 A325X	0	0.625 A325X	0	0.750 A325N	0	0.750 A325X	0
T4 20.000-15.000	Sleeve SS	0.625 A325N	0	0.625 A325N	2	0.750 A325N	0	0.750 A325X	0	0.625 A325X	0	0.625 A325N	1	0.750 A325X	0
T5 15.000-0.000	Sleeve SS	1.500 A354-BC	0	0.625 A325N	2	0.750 A325N	0	0.750 A325X	0	0.625 A325X	0	0.750 A325N	0	0.625 A325N	2

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
Face A													
LDF5-50A(7/8") (E)	A	No	No	Ar (CaAa)	96.000 - 93.000	-3.000	-0.48	2	2	1.000 0.750	1.090		0.000
LDF5-50A(7/8") (E)	A	No	No	Ar (CaAa)	93.000 - 0.000	-3.000	-0.48	3	3	1.000 0.750	1.090		0.000
$													
HCS 6X12 6AWG(1-3/8") (1E (9X18)	A	No	No	Ar (CaAa)	50.000 - 0.000	-3.000	-0.42	4	4	0.850 0.750	1.380		0.002

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
and 1E+2P (6X12))													
Feedline Ladder (Af) (E) *$*	A	No	No	Af (CaAa)	60.000 - 0.000	-1.000	-0.4	1	1	3.000	3.000		0.008
LDF5-50A(7/8") (E)	A	No	No	Ar (CaAa)	97.000 - 83.000	-5.000	0.48	2	2	0.500	1.090		0.000
LDF5-50A(7/8") (1E(7/8) to 97 +1E(1/2) to 97+1E(1/2) to 83) *$*	A	No	No	Ar (CaAa)	83.000 - 0.000	-5.000	0.48	3	1	0.500	1.090		0.000
Face B													
LDF5-50A(7/8") (E)	B	No	No	Ar (CaAa)	50.000 - 0.000	-3.000	0.35	16	8	1.000 0.750	1.090		0.000
Feedline Ladder (Af) (E) *$*	B	No	No	Af (CaAa)	60.000 - 0.000	-1.000	0.35	1	1	3.000	3.000		0.008
LDF5-50A(7/8") (E)	B	No	No	Ar (CaAa)	100.000 - 91.000	0.000	0.48	2	2	0.750	1.090		0.000
LDF5-50A(7/8") (1E to 91+2E to 100) *$*	B	No	No	Ar (CaAa)	91.000 - 0.000	0.000	0.48	3	3	0.750	1.090		0.000
LDF4P-50A(1/2") (E)	B	No	No	Ar (CaAa)	98.000 - 90.000	0.000	-0.49	1	1	0.500	0.630		0.000
LDF4P-50A(1/2") (E)	B	No	No	Ar (CaAa)	90.000 - 85.500	0.000	-0.49	2	2	0.500	0.630		0.000
LDF4P-50A(1/2") (1E to 85.5+1E to 90+ 1E to 98) *$* *$*	B	No	No	Ar (CaAa)	85.500 - 0.000	0.000	-0.49	3	3	0.500	0.630		0.000
Face C													
LDF5-50A(7/8") (E)	C	No	No	Ar (CaAa)	83.000 - 79.000	0.000	-0.48	3	3	0.750	1.090		0.000
LDF5-50A(7/8") (3E (7/8) to 83+ 2E(1/2) to 79) *$*	C	No	No	Ar (CaAa)	79.000 - 0.000	0.000	-0.48	5	3	0.750	1.090		0.000
LDF1-50A(1/4") (E)	C	No	No	Ar (CaAa)	38.000 - 36.000	0.000	-0.4	1	1	0.250	0.345		0.000
LDF1-50A(1/4")	C	No	No	Ar (CaAa)	36.000 - 0.000	0.000	-0.4	2	2	0.250	0.345		0.000

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
(E) *$*													
LDF1-50A(1/4")	C	No	No	Ar (CaAa)	29.000 - 0.000	-1.000	-0.38	2	2	0.250	0.345		0.000
(E) *$*													
LDF1-50A(1/4")	C	No	No	Ar (CaAa)	26.000 - 20.000	-1.000	0.45	1	1	0.250	0.345		0.000
(E)													
LDF1-50A(1/4")	C	No	No	Ar (CaAa)	20.000 - 0.000	-1.000	0.45	2	2	0.250	0.345		0.000
(E) *$*													
Face D													
LDF7-50A(1-5/8")	D	No	No	Ar (CaAa)	100.000 - 0.000	0.000	-0.48	1	1	1.980	1.980		0.001
(E) *$*													
LDF4P-50A(1/2")	D	No	No	Ar (CaAa)	79.000 - 0.000	0.000	-0.49	1	1	0.500	0.630		0.000
(E) *$*													
LDF4P-50A(1/2")	D	No	No	Ar (CaAa)	89.000 - 85.000	-3.000	-0.48	1	1	0.500	0.630		0.000
(E)													
LDF4P-50A(1/2")	D	No	No	Ar (CaAa)	85.000 - 84.000	-3.000	-0.48	3	3	0.500	0.630		0.000
(E)													
LDF4P-50A(1/2")	D	No	No	Ar (CaAa)	84.000 - 80.000	-3.000	-0.48	4	4	0.500	0.630		0.000
(E)													
LDF4P-50A(1/2")	D	No	No	Ar (CaAa)	80.000 - 66.000	-3.000	-0.48	5	4	0.500	0.630		0.000
(E)													
LDF4P-50A(1/2")	D	No	No	Ar (CaAa)	66.000 - 58.000	-3.000	-0.48	6	4	0.500	0.630		0.000
(E)													
LDF4P-50A(1/2")	D	No	No	Ar (CaAa)	58.000 - 34.000	-3.000	-0.48	8	4	0.500	0.630		0.000
(E)													
LDF4P-50A(1/2")	D	No	No	Ar (CaAa)	38.000 - 29.000	-3.000	-0.48	9	4	0.500	0.630		0.000
(E)													
LDF4P-50A(1/2")	D	No	No	Ar (CaAa)	34.000 - 0.000	-3.000	-0.48	10	4	0.500	0.630		0.000
(E) *$*													
LDF5-50A(7/8")	D	No	No	Ar (CaAa)	58.000 - 0.000	-2.000	0.49	1	1	0.750	1.090		0.000
(E) *$*													

Feed Line/Linear Appurtenances - Entered As Area

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

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	100.000-80.000	A	0.000	0.000	8.938	0.000	0.027
		B	0.000	0.000	7.670	0.000	0.022
		C	0.000	0.000	0.981	0.000	0.003
		D	0.000	0.000	5.409	0.000	0.020
T2	80.000-50.000	A	0.000	0.000	24.620	0.000	0.143
		B	0.000	0.000	20.480	0.000	0.127
		C	0.000	0.000	16.132	0.000	0.049
		D	0.000	0.000	20.105	0.000	0.059
T3	50.000-20.000	A	0.000	0.000	51.180	0.000	0.515
		B	0.000	0.000	82.800	0.000	0.454
		C	0.000	0.000	18.351	0.000	0.053
		D	0.000	0.000	33.087	0.000	0.091
T4	20.000-15.000	A	0.000	0.000	8.530	0.000	0.086
		B	0.000	0.000	13.800	0.000	0.076
		C	0.000	0.000	3.760	0.000	0.010
		D	0.000	0.000	5.000	0.000	0.014
T5	15.000-0.000	A	0.000	0.000	25.590	0.000	0.258
		B	0.000	0.000	41.400	0.000	0.227
		C	0.000	0.000	11.280	0.000	0.030
		D	0.000	0.000	15.000	0.000	0.042

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	100.000-80.000	A	1.658	0.000	0.000	34.940	0.000	0.371
		B		0.000	0.000	33.094	0.000	0.328
		C		0.000	0.000	3.453	0.000	0.036
		D		0.000	0.000	16.906	0.000	0.232
T2	80.000-50.000	A	1.605	0.000	0.000	76.224	0.000	1.078
		B		0.000	0.000	69.238	0.000	0.787
		C		0.000	0.000	37.635	0.000	0.465
		D		0.000	0.000	63.051	0.000	0.764
T3	50.000-20.000	A	1.509	0.000	0.000	134.841	0.000	2.031
		B		0.000	0.000	156.828	0.000	2.355
		C		0.000	0.000	55.354	0.000	0.578
		D		0.000	0.000	81.689	0.000	1.008
T4	20.000-15.000	A	1.408	0.000	0.000	21.868	0.000	0.317
		B		0.000	0.000	25.535	0.000	0.372
		C		0.000	0.000	15.151	0.000	0.127

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
T5	15.000-0.000	D	1.293	0.000	0.000	11.638	0.000	0.141
		A		0.000	0.000	63.555	0.000	0.882
		B		0.000	0.000	74.561	0.000	1.048
		C		0.000	0.000	43.040	0.000	0.344
		D		0.000	0.000	33.282	0.000	0.384

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	100.000-80.000	1.386	0.355	1.414	-0.796
T2	80.000-50.000	3.868	-0.445	4.529	0.398
T3	50.000-20.000	11.194	1.347	9.798	3.120
T4	20.000-15.000	9.198	0.894	10.381	2.127
T5	15.000-0.000	11.660	1.143	12.733	2.788

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	2	LDF5-50A(7/8")	93.00 - 96.00	0.6000	0.6000
T1	3	LDF5-50A(7/8")	80.00 - 93.00	0.6000	0.6000
T1	9	LDF5-50A(7/8")	83.00 - 97.00	0.6000	0.6000
T1	10	LDF5-50A(7/8")	80.00 - 83.00	0.6000	0.6000
T1	16	LDF5-50A(7/8")	91.00 - 100.00	0.6000	0.6000
T1	17	LDF5-50A(7/8")	80.00 - 91.00	0.6000	0.6000
T1	19	LDF4P-50A(1/2")	90.00 - 98.00	0.6000	0.6000
T1	20	LDF4P-50A(1/2")	85.50 - 90.00	0.6000	0.6000
T1	21	LDF4P-50A(1/2")	80.00 - 85.50	0.6000	0.6000
T1	26	LDF5-50A(7/8")	80.00 - 83.00	0.6000	0.6000
T1	39	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T1	43	LDF4P-50A(1/2")	85.00 - 89.00	0.6000	0.6000
T1	44	LDF4P-50A(1/2")	84.00 - 85.00	0.6000	0.6000
T1	45	LDF4P-50A(1/2")	80.00 - 84.00	0.6000	0.6000
T2	3	LDF5-50A(7/8")	50.00 - 80.00	0.6000	0.6000
T2	7	Feedline Ladder (Af)	50.00 - 60.00	0.6000	0.6000
T2	10	LDF5-50A(7/8")	50.00 - 80.00	0.6000	0.6000
T2	14	Feedline Ladder (Af)	50.00 - 60.00	0.6000	0.6000
T2	17	LDF5-50A(7/8")	50.00 - 80.00	0.6000	0.6000
T2	21	LDF4P-50A(1/2")	50.00 - 80.00	0.6000	0.6000
T2	26	LDF5-50A(7/8")	79.00 - 80.00	0.6000	0.6000
T2	27	LDF5-50A(7/8")	50.00 - 79.00	0.6000	0.6000
T2	39	LDF7-50A(1-5/8")	50.00 - 80.00	0.6000	0.6000
T2	41	LDF4P-50A(1/2")	50.00 - 79.00	0.6000	0.6000
T2	46	LDF4P-50A(1/2")	66.00 - 80.00	0.6000	0.6000
T2	47	LDF4P-50A(1/2")	58.00 - 66.00	0.6000	0.6000
T2	49	LDF4P-50A(1/2")	50.00 - 58.00	0.6000	0.6000
T2	53	LDF5-50A(7/8")	50.00 - 58.00	0.6000	0.6000
T3	3	LDF5-50A(7/8")	20.00 - 50.00	0.6000	0.6000
T3	6	HCS 6X12 6AWG(1-3/8")	20.00 - 50.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	7	Feedline Ladder (Af)	20.00 - 50.00	0.6000	0.6000
T3	10	LDF5-50A(7/8")	20.00 - 50.00	0.6000	0.6000
T3	13	LDF5-50A(7/8")	20.00 - 50.00	0.6000	0.6000
T3	14	Feedline Ladder (Af)	20.00 - 50.00	0.6000	0.6000
T3	17	LDF5-50A(7/8")	20.00 - 50.00	0.6000	0.6000
T3	21	LDF4P-50A(1/2")	20.00 - 50.00	0.6000	0.6000
T3	27	LDF5-50A(7/8")	20.00 - 50.00	0.6000	0.6000
T3	30	LDF1-50A(1/4")	36.00 - 38.00	0.6000	0.6000
T3	31	LDF1-50A(1/4")	20.00 - 36.00	0.6000	0.6000
T3	33	LDF1-50A(1/4")	20.00 - 29.00	0.6000	0.6000
T3	35	LDF1-50A(1/4")	20.00 - 26.00	0.6000	0.6000
T3	39	LDF7-50A(1-5/8")	20.00 - 50.00	0.6000	0.6000
T3	41	LDF4P-50A(1/2")	20.00 - 50.00	0.6000	0.6000
T3	49	LDF4P-50A(1/2")	34.00 - 50.00	0.6000	0.6000
T3	50	LDF4P-50A(1/2")	29.00 - 38.00	0.6000	0.6000
T3	51	LDF4P-50A(1/2")	20.00 - 34.00	0.6000	0.6000
T3	53	LDF5-50A(7/8")	20.00 - 50.00	0.6000	0.6000
T4	3	LDF5-50A(7/8")	15.00 - 20.00	0.6000	0.6000
T4	6	HCS 6X12 6AWG(1-3/8")	15.00 - 20.00	0.6000	0.6000
T4	7	Feedline Ladder (Af)	15.00 - 20.00	0.6000	0.6000
T4	10	LDF5-50A(7/8")	15.00 - 20.00	0.6000	0.6000
T4	13	LDF5-50A(7/8")	15.00 - 20.00	0.6000	0.6000
T4	14	Feedline Ladder (Af)	15.00 - 20.00	0.6000	0.6000
T4	17	LDF5-50A(7/8")	15.00 - 20.00	0.6000	0.6000
T4	21	LDF4P-50A(1/2")	15.00 - 20.00	0.6000	0.6000
T4	27	LDF5-50A(7/8")	15.00 - 20.00	0.6000	0.6000
T4	31	LDF1-50A(1/4")	15.00 - 20.00	0.6000	0.6000
T4	33	LDF1-50A(1/4")	15.00 - 20.00	0.6000	0.6000
T4	36	LDF1-50A(1/4")	15.00 - 20.00	0.6000	0.6000
T4	39	LDF7-50A(1-5/8")	15.00 - 20.00	0.6000	0.6000
T4	41	LDF4P-50A(1/2")	15.00 - 20.00	0.6000	0.6000
T4	51	LDF4P-50A(1/2")	15.00 - 20.00	0.6000	0.6000
T4	53	LDF5-50A(7/8")	15.00 - 20.00	0.6000	0.6000
T5	3	LDF5-50A(7/8")	0.00 - 15.00	0.6000	0.6000
T5	6	HCS 6X12 6AWG(1-3/8")	0.00 - 15.00	0.6000	0.6000
T5	7	Feedline Ladder (Af)	0.00 - 15.00	0.6000	0.6000
T5	10	LDF5-50A(7/8")	0.00 - 15.00	0.6000	0.6000
T5	13	LDF5-50A(7/8")	0.00 - 15.00	0.6000	0.6000
T5	14	Feedline Ladder (Af)	0.00 - 15.00	0.6000	0.6000
T5	17	LDF5-50A(7/8")	0.00 - 15.00	0.6000	0.6000
T5	21	LDF4P-50A(1/2")	0.00 - 15.00	0.6000	0.6000
T5	27	LDF5-50A(7/8")	0.00 - 15.00	0.6000	0.6000
T5	31	LDF1-50A(1/4")	0.00 - 15.00	0.6000	0.6000
T5	33	LDF1-50A(1/4")	0.00 - 15.00	0.6000	0.6000
T5	36	LDF1-50A(1/4")	0.00 - 15.00	0.6000	0.6000
T5	39	LDF7-50A(1-5/8")	0.00 - 15.00	0.6000	0.6000
T5	41	LDF4P-50A(1/2")	0.00 - 15.00	0.6000	0.6000
T5	51	LDF4P-50A(1/2")	0.00 - 15.00	0.6000	0.6000
T5	53	LDF5-50A(7/8")	0.00 - 15.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
L4x4x1/4x20'	D	From Face	0.500	0.000	100.000	No Ice	13.333	0.833	0.104
(E)			0.000			1/2" Ice	15.599	3.064	0.145
			0.000			1" Ice	17.877	5.307	0.202
9' x 2" Pipe Mount	C	From Leg	3.000	0.000	100.000	No Ice	2.138	2.138	0.065
(E)			0.000			1/2" Ice	3.066	3.066	0.081
			0.000			1" Ice	4.010	4.010	0.103
$									
$									
DB561K-CR	D	From Face	0.000	0.000	100.000	No Ice	5.315	5.315	0.043
(E)			0.000			1/2" Ice	6.832	6.832	0.073
			4.000			1" Ice	8.362	8.362	0.115
$									
6' x 2" Mount Pipe	C	None		0.000	100.000	No Ice	1.425	1.425	0.022
(E-Empty)						1/2" Ice	1.925	1.925	0.033
						1" Ice	2.294	2.294	0.048
(2) Side Arm Mount [SO 302-1]	C	None		0.000	100.000	No Ice	0.810	3.310	0.055
						1/2" Ice	1.300	5.000	0.083
(E-Empty)						1" Ice	1.810	6.800	0.122
$									
6' x 3" Omni	B	From Face	0.500	0.000	100.000	No Ice	1.767	1.767	0.015
(E-face Mounted)			0.000			1/2" Ice	2.129	2.129	0.028
			-3.000			1" Ice	2.501	2.501	0.046
$									
25' Omni	B	From Face	1.000	0.000	100.000	No Ice	7.500	7.500	0.024
(E)			0.000			1/2" Ice	10.033	10.033	0.078
			13.000			1" Ice	12.583	12.583	0.147
10' x 2" Mount Pipe	B	From Face	0.500	0.000	100.000	No Ice	2.375	2.375	0.037
(E)			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
$									
15' x 3" Omni	B	From Face	1.000	0.000	100.000	No Ice	4.500	4.500	0.050
(E)			0.000			1/2" Ice	6.033	6.033	0.082
			8.000			1" Ice	7.583	7.583	0.125
15' x 4" Mount Pipe	B	From Face	0.500	0.000	100.000	No Ice	5.973	5.973	0.180
(E)			0.000			1/2" Ice	8.296	8.296	0.227
			-3.000			1" Ice	9.858	9.858	0.283
$									
10' x 3" Omni	B	From Leg	3.000	0.000	98.000	No Ice	3.000	3.000	0.050
(E)			0.000			1/2" Ice	4.033	4.033	0.072
			5.000			1" Ice	5.027	5.027	0.100
4' x 2" Pipe Mount	B	From Leg	6.000	0.000	98.000	No Ice	0.785	0.785	0.029
(E-Empty)			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
6' Standoff Arm	B	From Leg	3.000	0.000	98.000	No Ice	1.000	3.947	0.092
(E-Empty)			0.000			1/2" Ice	1.250	5.653	0.098
			0.000			1" Ice	1.500	7.360	0.104
$									
FM Antenna	A	From Leg	3.000	0.000	97.000	No Ice	11.725	18.244	0.051
(E)			0.000			1/2" Ice	12.148	18.770	0.228
			7.000			1" Ice	12.579	19.304	0.414
FM Antenna	A	From Leg	3.000	0.000	97.000	No Ice	11.725	18.244	0.051
(E)			0.000			1/2" Ice	12.148	18.770	0.228
			12.000			1" Ice	12.579	19.304	0.414
Side Arm Mount [SO 203-1]	A	From Leg	1.500	0.000	97.000	No Ice	1.780	3.790	0.125
(E)			0.000			1/2" Ice	2.240	4.470	0.153
			0.000			1" Ice	2.750	5.210	0.189
20' x 2.5" Mount Pipe	A	From Leg	1.500	0.000	97.000	No Ice	5.750	5.750	0.116

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(E)			0.000			1/2" Ice	7.782	7.782	0.157
			0.000			1" Ice	9.831	9.831	0.212
$									
Pirod 10' Box Arm	C	From Leg	3.000	0.000	96.000	No Ice	5.000	5.000	0.250
(E)			0.000			1/2" Ice	10.000	10.000	0.300
			0.000			1" Ice	15.000	15.000	0.350
$									
10' x 3" Omni	D	From Leg	6.000	0.000	96.000	No Ice	3.000	3.000	0.050
(E)			0.000			1/2" Ice	4.033	4.033	0.072
			5.000			1" Ice	5.027	5.027	0.100
10' x 3" Omni	D	From Leg	6.000	0.000	96.000	No Ice	3.000	3.000	0.050
(E)			0.000			1/2" Ice	4.033	4.033	0.072
			-5.000			1" Ice	5.027	5.027	0.100
6' Standoff Arm	A	From Leg	3.000	0.000	96.000	No Ice	1.000	3.947	0.092
(E-Empty)			0.000			1/2" Ice	1.250	5.653	0.098
			0.000			1" Ice	1.500	7.360	0.104
6' Standoff Arm	C	From Leg	3.000	0.000	96.000	No Ice	1.000	3.947	0.092
(E-Empty)			0.000			1/2" Ice	1.250	5.653	0.098
			0.000			1" Ice	1.500	7.360	0.104
6' Standoff Arm	D	From Leg	3.000	0.000	96.000	No Ice	1.000	3.947	0.092
(E)			0.000			1/2" Ice	1.250	5.653	0.098
			0.000			1" Ice	1.500	7.360	0.104
4' x 2" Pipe Mount	A	From Leg	6.000	0.000	96.000	No Ice	0.785	0.785	0.029
(E-Empty)			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
4' x 2" Pipe Mount	C	From Leg	6.000	0.000	96.000	No Ice	0.785	0.785	0.029
(E-Empty)			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
4' x 2" Pipe Mount	D	From Leg	6.000	0.000	96.000	No Ice	0.785	0.785	0.029
(E)			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
$									
DB292-A	B	From Leg	6.000	0.000	93.000	No Ice	1.800	1.800	0.015
(E)			0.000			1/2" Ice	3.240	3.240	0.020
			0.000			1" Ice	4.680	4.680	0.024
$									
6' x 3" Omni	B	From Face	6.000	0.000	91.000	No Ice	1.767	1.767	0.015
(E)			0.000			1/2" Ice	2.129	2.129	0.028
			8.000			1" Ice	2.501	2.501	0.046
5' x 2" Pipe Mount	B	From Face	6.000	0.000	91.000	No Ice	1.188	1.188	0.018
(E)			0.000			1/2" Ice	1.496	1.496	0.027
			3.000			1" Ice	1.807	1.807	0.040
Side Arm Mount [SO 308-1]	B	From Face	3.000	0.000	91.000	No Ice	0.410	3.060	0.053
(E)			0.000			1/2" Ice	0.810	5.100	0.080
			0.000			1" Ice	1.230	7.200	0.122
$									
25' x 2" Pipe Mount	B	From Leg	2.000	0.000	91.000	No Ice	5.938	5.938	0.238
(E)			0.000			1/2" Ice	8.466	8.466	0.282
			0.000			1" Ice	11.010	11.010	0.342
$									
DB225-2-A	B	From Face	1.000	0.000	90.000	No Ice	3.210	3.210	0.074
(E)			0.000			1/2" Ice	5.778	5.778	0.096
			0.000			1" Ice	8.346	8.346	0.118
$									
Angle Mount	C	From Leg	1.000	0.000	89.000	No Ice	1.050	0.075	0.090
(E-For Grid Dish)			0.000			1/2" Ice	1.304	0.112	0.100
			0.000			1" Ice	1.565	0.156	0.113

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
30' x 2" Pipe Mount	C	From Leg	2.000	0.000	89.000	No Ice	7.125	7.125	0.240
(E)			0.000			1/2" Ice	10.153	10.153	0.293
			0.000			1" Ice	13.198	13.198	0.365
3' x 2" Pipe Mount	C	From Leg	2.000	0.000	89.000	No Ice	0.583	0.583	0.011
(E)			0.000			1/2" Ice	0.770	0.770	0.017
			0.000			1" Ice	0.967	0.967	0.024
3' x 2" Horizontal Mount Pipe	C	From Leg	1.500	0.000	83.000	No Ice	0.522	0.522	0.011
(E)			0.000			1/2" Ice	0.708	0.708	0.016
			0.000			1" Ice	0.903	0.903	0.023
5' Hor x 4" x 4" Angle Mount	C	From Leg	3.000	0.000	58.000	No Ice	2.000	0.133	0.093
(E)			0.000			1/2" Ice	2.359	0.181	0.111
			0.000			1" Ice	2.726	0.237	0.134
$									
$									
Side Arm Mount [SO 308-1]	B	From Face	0.500	0.000	86.250	No Ice	0.410	3.060	0.053
(E)			0.000			1/2" Ice	0.810	5.100	0.080
			0.000			1" Ice	1.230	7.200	0.122
$									
DB499-A	B	From Face	1.000	0.000	85.500	No Ice	0.250	0.250	0.005
(E)			0.000			1/2" Ice	0.450	0.450	0.006
			0.000			1" Ice	0.650	0.650	0.008
$									
DB633-C	D	From Face	4.000	0.000	85.000	No Ice	0.648	0.648	0.008
(E)			0.000			1/2" Ice	0.863	0.863	0.014
			2.000			1" Ice	1.086	1.086	0.022
$									
DB432-A	C	From Face	1.000	0.000	84.000	No Ice	0.300	0.300	0.005
(E)			0.000			1/2" Ice	0.540	0.540	0.006
			0.000			1" Ice	0.780	0.780	0.008
10' x 2" Mount Pipe	C	From Face	0.500	0.000	84.000	No Ice	2.375	2.375	0.037
(E)			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
$									
7' x 2" Pipe Mount	D	From Face	0.500	0.000	83.000	No Ice	1.663	1.663	0.026
(E-for dishes at 85' & 80')			0.000			1/2" Ice	2.391	2.391	0.038
			0.000			1" Ice	2.825	2.825	0.055
$									
8' Yagi	A	From Leg	6.000	0.000	83.000	No Ice	2.600	0.126	0.070
(E)			0.000			1/2" Ice	5.068	0.319	0.095
			-2.000			1" Ice	7.536	0.512	0.120
8' x 3" Omni	B	From Leg	6.000	0.000	83.000	No Ice	2.400	2.400	0.015
(E)			0.000			1/2" Ice	3.188	3.188	0.033
			4.000			1" Ice	3.675	3.675	0.055
8' x 3" Omni	C	From Leg	6.000	0.000	83.000	No Ice	2.400	2.400	0.015
(E)			0.000			1/2" Ice	3.188	3.188	0.033
			4.000			1" Ice	3.675	3.675	0.055
8' x 3" Omni	C	From Leg	6.000	0.000	83.000	No Ice	2.400	2.400	0.015
(E)			0.000			1/2" Ice	3.188	3.188	0.033
			-4.000			1" Ice	3.675	3.675	0.055
5' x 2" Pipe Mount	A	From Leg	6.000	0.000	83.000	No Ice	1.188	1.188	0.018
(E)			0.000			1/2" Ice	1.496	1.496	0.027
			0.000			1" Ice	1.807	1.807	0.040
6' Standoff Arm	A	From Leg	3.000	0.000	83.000	No Ice	1.000	3.947	0.092
(E)			0.000			1/2" Ice	1.250	5.653	0.098
			0.000			1" Ice	1.500	7.360	0.104
3' x 2" Pipe Mount	B	From Leg	6.000	0.000	83.000	No Ice	0.583	0.583	0.011
(E)			0.000			1/2" Ice	0.770	0.770	0.017

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
			0.000			1" Ice	0.967	0.967	0.024
6' Standoff Arm	B	From Leg	3.000	0.000	83.000	No Ice	1.000	3.947	0.092
(E)			0.000			1/2" Ice	1.250	5.653	0.098
			0.000			1" Ice	1.500	7.360	0.104
4' x 2" Pipe Mount	C	From Leg	3.000	0.000	83.000	No Ice	0.785	0.785	0.029
(E)			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
6' Standoff Arm	C	From Leg	3.000	0.000	83.000	No Ice	1.000	3.947	0.092
(E)			0.000			1/2" Ice	1.250	5.653	0.098
			0.000			1" Ice	1.500	7.360	0.104
3' x 2" Pipe Mount	D	From Leg	6.000	0.000	83.000	No Ice	0.583	0.583	0.011
(E)			0.000			1/2" Ice	0.770	0.770	0.017
			0.000			1" Ice	0.967	0.967	0.024
6' Standoff Arm	D	From Leg	3.000	0.000	83.000	No Ice	1.000	3.947	0.092
(E-Empty)			0.000			1/2" Ice	1.250	5.653	0.098
			0.000			1" Ice	1.500	7.360	0.104
$									
6' x 3" Omni	B	From Face	6.000	0.000	83.000	No Ice	1.767	1.767	0.015
(E-Per photo)			0.000			1/2" Ice	2.129	2.129	0.028
			3.000			1" Ice	2.501	2.501	0.046
Side Arm Mount [SO 308-1]	B	From Face	3.000	0.000	83.000	No Ice	0.410	3.060	0.053
(E)			0.000			1/2" Ice	0.810	5.100	0.080
			0.000			1" Ice	1.230	7.200	0.122
3' x 2" Pipe Mount	B	From Face	3.000	0.000	83.000	No Ice	0.583	0.583	0.011
(E)			0.000			1/2" Ice	0.770	0.770	0.017
			0.000			1" Ice	0.967	0.967	0.024
$									
Side Arm Mount [SO 308-1]	B	From Leg	3.000	0.000	82.000	No Ice	0.410	3.060	0.053
(E-Empty)			0.000			1/2" Ice	0.810	5.100	0.080
			0.000			1" Ice	1.230	7.200	0.122
$									
TA-2304-2-DAB-H	B	From Face	1.000	0.000	79.000	No Ice	3.150	3.150	0.015
(E)			0.000			1/2" Ice	3.630	3.630	0.035
			0.000			1" Ice	4.110	4.110	0.055
TA-2304-2-DAB-H	C	From Face	1.000	0.000	79.000	No Ice	3.150	3.150	0.015
(E)			0.000			1/2" Ice	3.630	3.630	0.035
			0.000			1" Ice	4.110	4.110	0.055
TA-2304-2-DAB-H	D	From Face	1.000	0.000	79.000	No Ice	3.150	3.150	0.015
(E)			0.000			1/2" Ice	3.630	3.630	0.035
			0.000			1" Ice	4.110	4.110	0.055
10' x 2" Pipe Mount	B	From Face	0.500	0.000	79.000	No Ice	2.375	2.375	0.037
(E)			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
10' x 2" Pipe Mount	C	From Face	0.500	0.000	79.000	No Ice	2.375	2.375	0.037
(E)			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
10' x 2" Pipe Mount	D	From Face	0.500	0.000	79.000	No Ice	2.375	2.375	0.037
(E)			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
$									
6' Standoff Arm	A	From Leg	3.000	0.000	74.000	No Ice	1.000	3.947	0.092
(E-Empty)			0.000			1/2" Ice	1.250	5.653	0.098
			0.000			1" Ice	1.500	7.360	0.104
6' Standoff Arm	B	From Leg	3.000	0.000	74.000	No Ice	1.000	3.947	0.092
(E-Empty)			0.000			1/2" Ice	1.250	5.653	0.098
			0.000			1" Ice	1.500	7.360	0.104
$									

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
10' x 3" Omni	B	From Leg	2.000	0.000	66.000	No Ice	3.000	3.000	0.050
(E)			0.000			1/2" Ice	4.033	4.033	0.072
			5.000			1" Ice	5.027	5.027	0.100
Side Arm Mount [SO 304-1]	B	From Leg	1.000	0.000	66.000	No Ice	0.310	0.880	0.023
(E)			0.000			1/2" Ice	0.500	1.260	0.032
			0.000			1" Ice	0.730	1.670	0.046
$									
9' x 2" Pipe Mount	D	From Face	0.500	0.000	60.000	No Ice	2.138	2.138	0.065
(E-Empty)			0.000			1/2" Ice	3.066	3.066	0.081
			0.000			1" Ice	4.010	4.010	0.103
12' horizontal x 2" Pipe Mount	D	From Face	2.000	0.000	60.000	No Ice	2.400	0.022	0.100
			0.000			1/2" Ice	3.625	0.050	0.100
(E-Tie Back)			0.000			1" Ice	4.867	0.089	0.101
$									
ASP-2011	A	From Leg	6.000	0.000	58.000	No Ice	1.063	1.063	0.004
(E)			0.000			1/2" Ice	1.931	1.931	0.013
			4.000			1" Ice	2.817	2.817	0.028
15" x 2" Omni (GPS)	A	From Leg	3.000	0.000	58.000	No Ice	0.169	0.169	0.010
(E)			0.000			1/2" Ice	0.254	0.254	0.012
			0.000			1" Ice	0.349	0.349	0.015
15' x 3" Omni	B	From Leg	6.000	0.000	58.000	No Ice	4.500	4.500	0.050
(E)			0.000			1/2" Ice	6.033	6.033	0.082
			8.000			1" Ice	7.583	7.583	0.125
15' x 3" Omni	C	From Leg	6.000	0.000	58.000	No Ice	4.500	4.500	0.050
(E)			0.000			1/2" Ice	6.033	6.033	0.082
			8.000			1" Ice	7.583	7.583	0.125
ASP-2011	D	From Leg	6.000	0.000	58.000	No Ice	1.063	1.063	0.004
(E)			0.000			1/2" Ice	1.931	1.931	0.013
			4.000			1" Ice	2.817	2.817	0.028
6' x 2" Mount Pipe	A	From Leg	3.000	0.000	58.000	No Ice	1.425	1.425	0.022
(E)			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
4' x 2" Pipe Mount	A	From Leg	1.500	0.000	58.000	No Ice	0.785	0.785	0.029
(E-GPS)			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
4' x 2" Pipe Mount	C	From Leg	3.000	0.000	58.000	No Ice	0.785	0.785	0.029
(E)			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
4' x 2" Pipe Mount	D	From Leg	3.000	0.000	58.000	No Ice	0.785	0.785	0.029
(E)			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
6' Standoff Arm	A	From Leg	3.000	0.000	58.000	No Ice	1.000	3.947	0.092
(E)			0.000			1/2" Ice	1.250	5.653	0.098
			0.000			1" Ice	1.500	7.360	0.104
6' Standoff Arm	B	From Leg	3.000	0.000	58.000	No Ice	1.000	3.947	0.092
(E)			0.000			1/2" Ice	1.250	5.653	0.098
			0.000			1" Ice	1.500	7.360	0.104
6' Standoff Arm	C	From Leg	3.000	0.000	58.000	No Ice	1.000	3.947	0.092
(E)			0.000			1/2" Ice	1.250	5.653	0.098
			0.000			1" Ice	1.500	7.360	0.104
$									
AIR21	A	From Leg	4.000	0.000	50.000	No Ice	6.162	5.545	0.103
KRC118023-1_B2A_B4P w/			0.000			1/2" Ice	6.600	6.303	0.159
Mount Pipe			3.000			1" Ice	7.033	6.998	0.222
(E)									
AIR21	B	From Leg	4.000	0.000	50.000	No Ice	6.162	5.545	0.103
KRC118023-1_B2A_B4P w/			0.000			1/2" Ice	6.600	6.303	0.159

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Pipe (E)			3.000			1" Ice	7.033	6.998	0.222
AIR21	D	From Leg	4.000	0.000	50.000	No Ice	6.162	5.545	0.103
KRC118023-1_B2A_B4P w/			0.000			1/2" Ice	6.600	6.303	0.159
Mount Pipe (E)			3.000			1" Ice	7.033	6.998	0.222
AIR32	A	From Leg	4.000	0.000	50.000	No Ice	13.207	4.787	0.132
KRD901146-1_B66A_B2A			0.000			1/2" Ice	13.733	5.215	0.202
(E)			3.000			1" Ice	14.269	5.651	0.277
AIR32	B	From Leg	4.000	0.000	50.000	No Ice	13.207	4.787	0.132
KRD901146-1_B66A_B2A			0.000			1/2" Ice	13.733	5.215	0.202
(E)			3.000			1" Ice	14.269	5.651	0.277
AIR32	D	From Leg	4.000	0.000	50.000	No Ice	13.207	4.787	0.132
KRD901146-1_B66A_B2A			0.000			1/2" Ice	13.733	5.215	0.202
(E)			3.000			1" Ice	14.269	5.651	0.277
KRY 112 144/2	A	From Leg	4.000	0.000	50.000	No Ice	0.479	0.232	0.010
(E)			0.000			1/2" Ice	0.568	0.299	0.014
			3.000			1" Ice	0.664	0.376	0.019
KRY 112 144/2	B	From Leg	4.000	0.000	50.000	No Ice	0.479	0.232	0.010
(E)			0.000			1/2" Ice	0.568	0.299	0.014
			3.000			1" Ice	0.664	0.376	0.019
KRY 112 144/2	D	From Leg	4.000	0.000	50.000	No Ice	0.479	0.232	0.010
(E)			0.000			1/2" Ice	0.568	0.299	0.014
			3.000			1" Ice	0.664	0.376	0.019
APXVAARR24_43-U-NA20	A	From Leg	4.000	0.000	50.000	No Ice	14.690	6.870	0.186
w/ Mount Pipe			0.000			1/2" Ice	15.460	7.550	0.315
(P)			0.000			1" Ice	16.230	8.250	0.458
APXVAARR24_43-U-NA20	B	From Leg	4.000	0.000	50.000	No Ice	14.690	6.870	0.186
w/ Mount Pipe			0.000			1/2" Ice	15.460	7.550	0.315
(P)			0.000			1" Ice	16.230	8.250	0.458
APXVAARR24_43-U-NA20	D	From Leg	4.000	0.000	50.000	No Ice	14.690	6.870	0.186
w/ Mount Pipe			0.000			1/2" Ice	15.460	7.550	0.315
(P)			0.000			1" Ice	16.230	8.250	0.458
Radio 4449 B71+B12	A	From Leg	4.000	0.000	50.000	No Ice	1.650	1.300	0.075
(P)			0.000			1/2" Ice	1.810	1.445	0.092
			0.000			1" Ice	1.978	1.597	0.112
Radio 4449 B71+B12	B	From Leg	4.000	0.000	50.000	No Ice	1.650	1.300	0.075
(P)			0.000			1/2" Ice	1.810	1.445	0.092
			0.000			1" Ice	1.978	1.597	0.112
Radio 4449 B71+B12	D	From Leg	4.000	0.000	50.000	No Ice	1.650	1.300	0.075
(P)			0.000			1/2" Ice	1.810	1.445	0.092
			0.000			1" Ice	1.978	1.597	0.112
(3) 12.5' x 2.375" Horizontal	C	None		0.000	50.000	No Ice	1.237	1.237	0.048
Mount Pipe						1/2" Ice	2.831	2.831	0.070
(P-Mods)						1" Ice	3.694	3.694	0.101
(3) 12.5' x 2.375" Horizontal	C	None		0.000	50.000	No Ice	1.237	1.237	0.048
Mount Pipe						1/2" Ice	2.831	2.831	0.070
(P-Mods)						1" Ice	3.694	3.694	0.101
Sector Mount [SM 403-3]	C	None		0.000	50.000	No Ice	19.400	19.400	0.873
(E)						1/2" Ice	27.200	27.200	1.244
						1" Ice	34.930	34.930	1.744
$									
3' Yagi	D	From Face	1.000	0.000	38.000	No Ice	2.080	2.080	0.030
(E)			0.000			1/2" Ice	3.790	3.790	0.050
			0.000			1" Ice	5.520	5.520	0.090
7.5' x 2.375" Mount Pipe	D	From Face	0.500	0.000	38.000	No Ice	1.781	1.781	0.030
(E)			0.000			1/2" Ice	2.559	2.559	0.043

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
			0.000			1" Ice	3.107	3.107	0.062
Side Arm Mount [SO 301-1]	C	From Face	1.000	0.000	38.000	No Ice	0.460	0.910	0.023
(E-For Dish)			0.000			1/2" Ice	0.650	1.300	0.033
			0.000			1" Ice	0.870	1.710	0.047
$									
DB254-A	D	From Face	1.000	0.000	34.000	No Ice	1.100	1.100	0.010
(E)			0.000			1/2" Ice	1.980	1.980	0.013
			0.000			1" Ice	2.860	2.860	0.016
7.5' x 2.375" Mount Pipe	D	From Face	0.500	0.000	34.000	No Ice	1.781	1.781	0.030
(E)			0.000			1/2" Ice	2.559	2.559	0.043
			0.000			1" Ice	3.107	3.107	0.062
$									
Pipe Mount [PM 601-1]	C	From Face	1.000	0.000	36.000	No Ice	1.320	1.320	0.065
(E)			0.000			1/2" Ice	1.580	1.580	0.077
			0.000			1" Ice	1.840	1.840	0.093
$									
10' x 2" Pipe Mount	C	From Face	0.500	0.000	32.000	No Ice	2.375	2.375	0.037
(E)			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
$									
Side Arm Mount [SO 301-1]	C	From Face	1.000	0.000	29.000	No Ice	0.460	0.910	0.023
(E)			0.000			1/2" Ice	0.650	1.300	0.033
			0.000			1" Ice	0.870	1.710	0.047
Side Arm Mount [SO 301-1]	C	From Face	1.000	0.000	29.000	No Ice	0.460	0.910	0.023
(E)			0.000			1/2" Ice	0.650	1.300	0.033
			0.000			1" Ice	0.870	1.710	0.047
Pipe Mount [PM 601-1]	C	From Face	1.000	0.000	29.000	No Ice	1.320	1.320	0.065
(E)			0.000			1/2" Ice	1.580	1.580	0.077
			0.000			1" Ice	1.840	1.840	0.093
$									
Side Arm Mount [SO 301-1]	C	From Face	1.000	0.000	26.000	No Ice	0.460	0.910	0.023
(E)			0.000			1/2" Ice	0.650	1.300	0.033
			0.000			1" Ice	0.870	1.710	0.047
8' x 2" Pipe Mount	C	From Face	0.500	0.000	24.000	No Ice	1.900	1.900	0.029
(E)			0.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.063
$									
GPS_A	A	From Face	3.000	0.000	20.000	No Ice	0.255	0.255	0.001
(E)			0.000			1/2" Ice	0.320	0.320	0.005
			0.000			1" Ice	0.393	0.393	0.010
8' horizontal x 2" Pipe Mount	A	From Face	1.500	0.000	20.000	No Ice	0.667	0.667	0.080
			0.000			1/2" Ice	1.415	1.415	0.329
(E)			0.000			1" Ice	1.906	1.906	0.589
$									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft²	Weight K
6' Grid	C	Grid	From	0.500	68.000		89.000	6.000	No Ice	28.274	0.050
(E)			Leg	0.000					1/2" Ice	29.065	0.060
				0.000					1" Ice	29.856	0.070
$											
3' Grid Dish	D	Grid	From	0.500	90.000		85.000	2.833	No Ice	5.190	0.008
(E-Azimuth/Photo)			Face	0.000					1/2" Ice	6.678	0.042
				0.000					1" Ice	8.166	0.077
$											
3' Grid Dish	D	Grid	From	0.500	0.000		80.000	2.833	No Ice	5.190	0.008
(E-Azimuth/Photo)			Face	0.000					1/2" Ice	6.678	0.042
				0.000					1" Ice	8.166	0.077
$											
$											
4' Dish	C	Paraboloid w/o	From	0.500	8.000		38.000	4.000	No Ice	12.570	0.110
(E)		Radome	Face	0.000					1/2" Ice	13.100	0.160
				0.000					1" Ice	13.630	0.210
$											
4' Dish	C	Paraboloid w/o	From	0.500	8.000		36.000	4.000	No Ice	12.570	0.110
(E)		Radome	Face	0.000					1/2" Ice	13.100	0.160
				0.000					1" Ice	13.630	0.210
$											
4' Dish	C	Paraboloid w/o	From	0.500	8.000		29.000	4.000	No Ice	12.570	0.110
(E)		Radome	Face	0.000					1/2" Ice	13.100	0.160
				0.000					1" Ice	13.630	0.210
$											
4' Dish	C	Paraboloid w/o	From	0.500	8.000		29.000	4.000	No Ice	12.570	0.110
(E)		Radome	Face	0.000					1/2" Ice	13.100	0.160
				0.000					1" Ice	13.630	0.210
$											
4' Dish	C	Paraboloid w/o	From	0.500	8.000		26.000	4.000	No Ice	12.570	0.110
(E)		Radome	Face	0.000					1/2" Ice	13.100	0.160
				0.000					1" Ice	13.630	0.210
$											

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 45 deg - No Ice
5	0.9 Dead+1.6 Wind 45 deg - No Ice
6	1.2 Dead+1.6 Wind 90 deg - No Ice
7	0.9 Dead+1.6 Wind 90 deg - No Ice
8	1.2 Dead+1.6 Wind 135 deg - No Ice
9	0.9 Dead+1.6 Wind 135 deg - No Ice
10	1.2 Dead+1.6 Wind 180 deg - No Ice
11	0.9 Dead+1.6 Wind 180 deg - No Ice
12	1.2 Dead+1.6 Wind 225 deg - No Ice
13	0.9 Dead+1.6 Wind 225 deg - No Ice
14	1.2 Dead+1.6 Wind 270 deg - No Ice
15	0.9 Dead+1.6 Wind 270 deg - No Ice
16	1.2 Dead+1.6 Wind 315 deg - No Ice
17	0.9 Dead+1.6 Wind 315 deg - No Ice
18	1.2 Dead+1.0 Ice+1.0 Temp

Comb. No.	Description
19	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
20	1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp
21	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
22	1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp
23	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
24	1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp
25	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
26	1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 45 deg - Service
29	Dead+Wind 90 deg - Service
30	Dead+Wind 135 deg - Service
31	Dead+Wind 180 deg - Service
32	Dead+Wind 225 deg - Service
33	Dead+Wind 270 deg - Service
34	Dead+Wind 315 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	100 - 80	Leg	Max Tension	5	5.163	0.036	0.261
			Max. Compression	4	-7.941	-0.157	-0.176
			Max. Mx	4	-0.780	-0.937	-0.440
			Max. My	12	-0.695	-0.440	-0.938
			Max. Vy	6	0.661	0.000	0.000
			Max. Vx	10	0.670	0.000	0.000
		Diagonal	Max Tension	14	1.918	0.000	0.000
			Max. Compression	14	-1.972	0.000	0.000
			Max. Mx	20	0.271	0.063	-0.020
			Max. My	26	0.149	0.063	-0.020
			Max. Vy	20	0.047	0.063	-0.020
			Max. Vx	26	0.006	0.000	0.000
		Top Girt	Max Tension	1	0.000	0.000	0.000
			Max. Compression	21	-0.075	0.000	0.000
			Max. Mx	18	-0.063	-0.130	0.000
			Max. My	18	-0.063	0.000	0.009
			Max. Vy	18	0.061	0.000	0.000
			Max. Vx	18	-0.004	0.000	0.000
T2	80 - 50	Leg	Max Tension	5	19.005	0.091	0.096
			Max. Compression	4	-24.480	-0.113	-0.128
			Max. Mx	8	6.691	0.236	0.193
			Max. My	16	6.482	0.188	0.219
			Max. Vy	10	-0.288	0.184	-0.045
			Max. Vx	2	-0.294	-0.046	0.195
		Diagonal	Max Tension	14	3.229	0.000	0.000
			Max. Compression	14	-3.287	0.000	0.000
			Max. Mx	20	0.483	0.110	-0.028
			Max. My	26	0.348	0.110	-0.028
			Max. Vy	20	0.065	0.110	-0.028
			Max. Vx	26	0.007	0.000	0.000
		Top Girt	Max Tension	6	0.178	0.000	0.000
			Max. Compression	7	-0.135	0.000	0.000
			Max. Mx	18	0.059	-0.210	0.000
			Max. My	18	0.059	0.000	0.013
			Max. Vy	18	-0.074	0.000	0.000
			Max. Vx	18	-0.004	0.000	0.000
T3	50 - 20	Leg	Max Tension	5	35.982	0.173	0.299

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	4	-46.490	-0.266	-0.242
			Max. Mx	12	-5.480	0.787	-0.407
			Max. My	12	-6.015	0.638	-0.808
			Max. Vy	6	0.738	0.179	-0.026
			Max. Vx	10	0.730	-0.005	0.163
		Diagonal	Max Tension	14	5.217	0.000	0.000
			Max. Compression	14	-5.434	0.000	0.000
			Max. Mx	20	0.595	0.222	-0.057
			Max. My	19	0.760	0.222	-0.057
			Max. Vy	20	0.104	0.222	-0.057
			Max. Vx	19	0.011	0.000	0.000
		Top Girt	Max Tension	10	0.311	0.000	0.000
			Max. Compression	11	-0.277	0.000	0.000
			Max. Mx	18	0.128	-0.373	0.000
			Max. My	18	0.128	0.000	0.022
			Max. Vy	18	0.100	0.000	0.000
			Max. Vx	18	-0.006	0.000	0.000
T4	20 - 15	Leg	Max Tension	5	39.318	0.160	0.201
			Max. Compression	4	-50.824	0.243	0.248
			Max. Mx	4	-6.829	1.417	-1.236
			Max. My	12	-6.850	-1.235	1.423
			Max. Vy	4	-0.473	1.417	-1.236
			Max. Vx	12	-0.479	-1.235	1.423
		Diagonal	Max Tension	15	4.798	0.000	0.000
			Max. Compression	14	-5.219	0.000	0.000
			Max. Mx	23	-1.893	0.047	0.017
			Max. My	19	-0.450	0.038	0.017
			Max. Vy	23	0.041	0.047	0.017
			Max. Vx	26	0.005	0.000	0.000
		Horizontal	Max Tension	14	4.515	0.000	0.000
			Max. Compression	15	-4.295	0.000	0.000
			Max. Mx	21	-0.095	0.206	-0.014
			Max. My	23	-0.116	0.203	-0.014
			Max. Vy	21	-0.096	0.206	-0.014
			Max. Vx	23	0.006	0.203	-0.014
		Redund Diag 1 Bracing	Max Tension	4	0.423	0.000	0.000
			Max. Compression	4	-0.423	0.000	0.000
			Max. Mx	18	0.145	-0.032	0.000
			Max. My	18	0.145	0.000	-0.002
			Max. Vy	18	0.025	0.000	0.000
			Max. Vx	18	0.002	0.000	0.000
		Inner Bracing	Max Tension	1	0.000	0.000	0.000
			Max. Compression	24	-0.023	0.000	0.000
			Max. Mx	18	-0.007	-0.538	0.000
			Max. Vy	18	-0.116	0.000	0.000
T5	15 - 0	Leg	Max Tension	5	46.668	-0.083	-0.096
			Max. Compression	4	-59.817	0.000	-0.000
			Max. Mx	4	-7.445	1.417	-1.236
			Max. My	12	-8.063	-1.235	1.423
			Max. Vy	8	0.282	1.397	-1.218
			Max. Vx	16	0.286	-1.244	1.422
		Diagonal	Max Tension	14	6.374	0.000	0.000
			Max. Compression	14	-6.330	0.000	0.000
			Max. Mx	19	1.523	0.275	-0.073
			Max. My	26	1.468	0.246	-0.076
			Max. Vy	19	0.116	0.275	-0.073
			Max. Vx	26	0.013	0.000	0.000
		Secondary Horizontal	Max Tension	4	0.899	0.000	0.000
			Max. Compression	4	-0.899	0.102	0.022

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	0.287	0.180	0.076
			Max. My	20	0.143	0.171	0.081
			Max. Vy	26	0.104	0.180	0.076
			Max. Vx	20	0.013	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg D	Max. Vert	12	65.465	8.151	-8.006
	Max. H_x	12	65.465	8.151	-8.006
	Max. H_z	5	-51.768	-6.998	7.034
	Min. Vert	5	-51.768	-6.998	7.034
	Min. H_x	5	-51.768	-6.998	7.034
	Min. H_z	12	65.465	8.151	-8.006
Leg C	Max. Vert	8	63.367	-7.433	-8.155
	Max. H_x	17	-50.126	6.868	7.056
	Max. H_z	17	-50.126	6.868	7.056
	Min. Vert	17	-50.126	6.868	7.056
	Min. H_x	8	63.367	-7.433	-8.155
	Min. H_z	8	63.367	-7.433	-8.155
Leg B	Max. Vert	4	65.727	-8.012	7.952
	Max. H_x	13	-51.733	7.451	-6.790
	Max. H_z	4	65.727	-8.012	7.952
	Min. Vert	13	-51.733	7.451	-6.790
	Min. H_x	4	65.727	-8.012	7.952
	Min. H_z	11	-32.088	2.048	-6.904
Leg A	Max. Vert	16	63.972	8.350	7.498
	Max. H_x	16	63.972	8.350	7.498
	Max. H_z	16	63.972	8.350	7.498
	Min. Vert	9	-49.522	-7.152	-6.512
	Min. H_x	9	-49.522	-7.152	-6.512
	Min. H_z	9	-49.522	-7.152	-6.512

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	26.373	0.000	0.000	-7.996	-7.971	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	31.647	-0.392	-28.336	-1603.326	-11.902	19.490
0.9 Dead+1.6 Wind 0 deg - No Ice	23.735	-0.392	-28.336	-1600.927	-9.511	19.490
1.2 Dead+1.6 Wind 45 deg - No Ice	31.647	21.523	-21.531	-1219.324	-1208.929	-3.115
0.9 Dead+1.6 Wind 45 deg - No Ice	23.735	21.523	-21.531	-1216.925	-1206.537	-3.115
1.2 Dead+1.6 Wind 90 deg - No Ice	31.647	27.695	-0.293	-34.844	-1560.367	-14.055
0.9 Dead+1.6 Wind 90 deg - No Ice	23.735	27.695	-0.293	-32.445	-1557.976	-14.055

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.6 Wind 135 deg - No Ice	31.647	21.015	21.195	1165.119	-1164.021	-27.337
0.9 Dead+1.6 Wind 135 deg - No Ice	23.735	21.015	21.195	1167.518	-1161.630	-27.337
1.2 Dead+1.6 Wind 180 deg - No Ice	31.647	-0.001	28.313	1584.649	7.482	-19.516
0.9 Dead+1.6 Wind 180 deg - No Ice	23.735	-0.001	28.313	1587.048	9.873	-19.516
1.2 Dead+1.6 Wind 225 deg - No Ice	31.647	-22.940	20.940	1182.986	1234.244	9.735
0.9 Dead+1.6 Wind 225 deg - No Ice	23.735	-22.940	20.940	1185.385	1236.635	9.735
1.2 Dead+1.6 Wind 270 deg - No Ice	31.647	-28.410	0.049	10.438	1565.478	16.691
0.9 Dead+1.6 Wind 270 deg - No Ice	23.735	-28.410	0.049	12.837	1567.870	16.691
1.2 Dead+1.6 Wind 315 deg - No Ice	31.647	-22.281	-20.781	-1168.803	1185.727	22.775
0.9 Dead+1.6 Wind 315 deg - No Ice	23.735	-22.281	-20.781	-1166.404	1188.118	22.775
1.2 Dead+1.0 Ice+1.0 Temp	84.976	0.000	0.000	-48.665	-16.871	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	84.976	-0.014	-7.990	-520.155	-22.709	7.660
1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp	84.976	6.006	-6.083	-408.260	-368.646	1.489
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	84.976	7.890	-0.184	-64.966	-482.272	-2.002
1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp	84.976	5.946	5.907	294.593	-363.094	-7.831
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	84.976	0.031	7.890	414.640	-16.335	-6.675
1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp	84.976	-6.249	5.830	295.425	341.334	0.377
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	84.976	-7.948	0.004	-45.267	446.426	3.489
1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp	84.976	-6.062	-6.023	-405.801	326.572	8.493
Dead+Wind 0 deg - Service	26.373	-0.094	-6.776	-389.109	-8.530	4.661
Dead+Wind 45 deg - Service	26.373	5.147	-5.149	-297.282	-294.778	-0.745
Dead+Wind 90 deg - Service	26.373	6.623	-0.070	-14.034	-378.818	-3.361
Dead+Wind 135 deg - Service	26.373	5.025	5.068	272.917	-284.039	-6.537
Dead+Wind 180 deg - Service	26.373	-0.000	6.771	373.240	-3.894	-4.667
Dead+Wind 225 deg - Service	26.373	-5.486	5.008	277.189	289.465	2.328
Dead+Wind 270 deg - Service	26.373	-6.794	0.012	-3.205	368.674	3.991
Dead+Wind 315 deg - Service	26.373	-5.328	-4.969	-285.200	277.863	5.446

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-26.373	0.000	0.000	26.373	0.000	0.000%
2	-0.392	-31.647	-28.336	0.392	31.647	28.336	0.000%
3	-0.392	-23.735	-28.336	0.392	23.735	28.336	0.000%
4	21.523	-31.647	-21.531	-21.523	31.647	21.531	0.000%
5	21.523	-23.735	-21.531	-21.523	23.735	21.531	0.000%
6	27.695	-31.647	-0.293	-27.695	31.647	0.293	0.000%
7	27.695	-23.735	-0.293	-27.695	23.735	0.293	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
8	21.015	-31.647	21.195	-21.015	31.647	-21.195	0.000%
9	21.015	-23.735	21.195	-21.015	23.735	-21.195	0.000%
10	-0.001	-31.647	28.313	0.001	31.647	-28.313	0.000%
11	-0.001	-23.735	28.313	0.001	23.735	-28.313	0.000%
12	-22.940	-31.647	20.940	22.940	31.647	-20.940	0.000%
13	-22.940	-23.735	20.940	22.940	23.735	-20.940	0.000%
14	-28.410	-31.647	0.049	28.410	31.647	-0.049	0.000%
15	-28.410	-23.735	0.049	28.410	23.735	-0.049	0.000%
16	-22.281	-31.647	-20.781	22.281	31.647	20.781	0.000%
17	-22.281	-23.735	-20.781	22.281	23.735	20.781	0.000%
18	0.000	-84.976	0.000	0.000	84.976	-0.000	0.000%
19	-0.014	-84.976	-7.990	0.014	84.976	7.990	0.000%
20	6.006	-84.976	-6.083	-6.006	84.976	6.083	0.000%
21	7.890	-84.976	-0.184	-7.890	84.976	0.184	0.000%
22	5.946	-84.976	5.907	-5.946	84.976	-5.907	0.000%
23	0.031	-84.976	7.890	-0.031	84.976	-7.890	0.000%
24	-6.249	-84.976	5.830	6.249	84.976	-5.830	0.000%
25	-7.948	-84.976	0.004	7.948	84.976	-0.004	0.000%
26	-6.062	-84.976	-6.023	6.062	84.976	6.023	0.000%
27	-0.094	-26.373	-6.776	0.094	26.373	6.776	0.000%
28	5.147	-26.373	-5.149	-5.147	26.373	5.149	0.000%
29	6.623	-26.373	-0.070	-6.623	26.373	0.070	0.000%
30	5.025	-26.373	5.068	-5.025	26.373	-5.068	0.000%
31	-0.000	-26.373	6.771	0.000	26.373	-6.771	0.000%
32	-5.486	-26.373	5.008	5.486	26.373	-5.008	0.000%
33	-6.794	-26.373	0.012	6.794	26.373	-0.012	0.000%
34	-5.328	-26.373	-4.969	5.328	26.373	4.969	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	100 - 80	0.290	28	0.017	0.004
T2	80 - 50	0.213	28	0.016	0.003
T3	50 - 20	0.104	28	0.011	0.001
T4	20 - 15	0.030	32	0.006	0.001
T5	15 - 0	0.017	32	0.004	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100.000	L4x4x1/4x20'	28	0.290	0.017	0.004	Inf
98.000	10' x 3" Omni	28	0.282	0.017	0.004	Inf
97.000	FM Antenna	28	0.278	0.017	0.004	Inf
96.000	Pirod 10' Box Arm	28	0.274	0.017	0.003	Inf
93.000	DB292-A	28	0.263	0.017	0.003	Inf
91.000	6' x 3" Omni	28	0.255	0.017	0.003	Inf
90.000	DB225-2-A	28	0.251	0.017	0.003	Inf
89.000	6' Grid	28	0.248	0.017	0.003	Inf

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
86.250	Side Arm Mount [SO 308-1]	28	0.237	0.017	0.003	971845
85.500	DB499-A	28	0.234	0.017	0.003	921575
85.000	3' Grid Dish	28	0.232	0.017	0.003	890856
84.000	DB432-A	28	0.228	0.016	0.003	836647
83.000	3' x 2" Horizontal Mount Pipe	28	0.224	0.016	0.003	796508
82.000	Side Arm Mount [SO 308-1]	28	0.220	0.016	0.003	774840
80.000	3' Grid Dish	28	0.213	0.016	0.003	809427
79.000	TA-2304-2-DAB-H	28	0.209	0.016	0.003	889453
74.000	6' Standoff Arm	28	0.189	0.015	0.002	Inf
66.000	10' x 3" Omni	28	0.158	0.014	0.002	419831
60.000	9' x 2" Pipe Mount	28	0.136	0.013	0.002	271744
58.000	5' Hor x 4" x 4" Angle Mount	28	0.129	0.013	0.002	243154
50.000	AIR21 KRC118023-1_B2A_B4P w/ Mount Pipe	28	0.104	0.011	0.001	184957
38.000	4' Dish	28	0.072	0.009	0.001	464828
36.000	4' Dish	28	0.067	0.009	0.001	651038
34.000	DB254-A	28	0.062	0.009	0.001	Inf
32.000	10' x 2" Pipe Mount	32	0.058	0.008	0.001	Inf
29.000	4' Dish	32	0.051	0.008	0.001	671562
26.000	4' Dish	32	0.044	0.007	0.001	398287
24.000	8' x 2" Pipe Mount	32	0.040	0.007	0.001	316400
20.000	GPS_A	32	0.030	0.006	0.001	Inf

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	100 - 80	1.179	4	0.068	0.016
T2	80 - 50	0.870	4	0.064	0.011
T3	50 - 20	0.428	13	0.046	0.006
T4	20 - 15	0.125	13	0.023	0.003
T5	15 - 0	0.073	13	0.017	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100.000	L4x4x1/4x20'	4	1.179	0.068	0.016	722680
98.000	10' x 3" Omni	4	1.148	0.068	0.015	722680
97.000	FM Antenna	4	1.133	0.068	0.015	722680
96.000	Pirod 10' Box Arm	4	1.118	0.068	0.014	722680
93.000	DB292-A	4	1.072	0.067	0.014	516198
91.000	6' x 3" Omni	4	1.041	0.067	0.013	401491
90.000	DB225-2-A	4	1.026	0.067	0.013	361341
89.000	6' Grid	4	1.010	0.067	0.013	328492
86.250	Side Arm Mount [SO 308-1]	4	0.968	0.066	0.012	262793
85.500	DB499-A	4	0.956	0.066	0.012	249201
85.000	3' Grid Dish	4	0.948	0.066	0.012	240894
84.000	DB432-A	4	0.933	0.065	0.012	226263
83.000	3' x 2" Horizontal Mount Pipe	4	0.917	0.065	0.011	215601

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
82.000	Side Arm Mount [SO 308-1]	4	0.902	0.065	0.011	210215
80.000	3' Grid Dish	4	0.870	0.064	0.011	222421
79.000	TA-2304-2-DAB-H	4	0.854	0.064	0.011	247954
74.000	6' Standoff Arm	4	0.775	0.062	0.010	563486
66.000	10' x 3" Omni	4	0.650	0.057	0.008	109525
60.000	9' x 2" Pipe Mount	4	0.561	0.053	0.007	67871
58.000	5' Hor x 4" x 4" Angle Mount	4	0.532	0.052	0.007	60235
50.000	AIR21 KRC118023-1_B2A_B4P w/ Mount Pipe	13	0.428	0.046	0.006	45047
38.000	4' Dish	13	0.300	0.038	0.005	120551
36.000	4' Dish	13	0.281	0.036	0.005	176505
34.000	DB254-A	13	0.262	0.035	0.005	329348
32.000	10' x 2" Pipe Mount	13	0.244	0.033	0.004	572821
29.000	4' Dish	13	0.215	0.031	0.004	180208
26.000	4' Dish	13	0.186	0.028	0.004	103005
24.000	8' x 2" Pipe Mount	13	0.166	0.027	0.003	80944
20.000	GPS_A	13	0.125	0.023	0.003	460718

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	100	Leg	A325N	0.625	12	1.324	12.425	0.107 ✔	1	Bolt SS
		Diagonal	A325N	0.625	2	0.959	6.168	0.155 ✔	1	Member Block Shear
		Top Girt	A325N	0.625	2	0.038	12.425	0.003 ✔	1	Bolt Shear
T2	80	Leg	A325N	0.625	16	3.060	12.425	0.246 ✔	1	Bolt SS
		Diagonal	A325N	0.625	2	1.615	7.188	0.225 ✔	1	Member Block Shear
		Top Girt	A325N	0.625	2	0.089	6.168	0.014 ✔	1	Member Block Shear
T3	50	Leg	A325N	0.625	16	5.811	12.425	0.468 ✔	1	Bolt SS
		Diagonal	A325N	0.625	2	2.609	10.263	0.254 ✔	1	Member Block Shear
		Top Girt	A325N	0.625	2	0.155	6.168	0.025 ✔	1	Member Block Shear
T4	20	Diagonal	A325N	0.625	2	2.399	9.584	0.250 ✔	1	Member Block Shear
		Horizontal	A325N	0.625	1	4.515	10.440	0.432 ✔	1	Member Bearing
T5	15	Diagonal	A325N	0.625	2	3.187	11.623	0.274 ✔	1	Member Block Shear
		Secondary Horizontal	A325N	0.625	2	0.449	11.623	0.039 ✔	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 $\frac{P_u}{\phi P_n}$
T1	100 - 80	L5x5x3/8	20.106	6.702	81.2 K=1.00	3.610	-7.941	82.635	0.096 [1] ✔
T2	80 - 50	L6x6x3/8	30.107	7.527	75.9 K=1.00	4.360	-24.480	101.819	0.240 [1] ✔
T3	50 - 20	L6x6x9/16	30.107	10.036	102.1 K=1.00	6.430	-46.490	120.399	0.386 [1] ✔
T4	20 - 15	L6x6x1/2	5.019	5.019	51.0 K=1.00	5.750	-50.824	162.428	0.313 [1] ✔
T5	15 - 0	L6x6x1/2	15.055	7.866	80.0 K=1.00	5.750	-59.816	133.016	0.450 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	L2x2 1/2x3/16	12.815	6.495	167.7 K=0.92	0.809	-1.972	6.500	0.303 [1] ✔
T2	80 - 50	L2 1/2x2 1/2x3/16	16.378	8.243	180.9 K=0.91	0.902	-3.287	6.229	0.528 [1] ✔
T3	50 - 20	L3x3 1/2x1/4	20.585	10.436	179.8 K=0.91	1.560	-5.434	10.897	0.499 [1] ✔
T4	20 - 15	L2 1/2x2 1/2x1/4	10.824	10.428	146.3 K=0.90	1.190	-5.219	12.564	0.415 [1] ✔
T5	15 - 0	L3 1/2x4x1/4	25.092	13.111	214.4 K=1.00	1.810	-6.330	8.899	0.711 [1] ✔
		KL/R > 200 (C) - 143							

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	20 - 15	L3x3x1/4	18.580	9.170	185.9 K=1.00	1.440	-4.295	9.415	0.456 [1] ✔

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T5	15 - 0	L3 1/2x3 /12x1/4	20.054	10.027	173.5 K=1.00	1.688	-0.899	12.668	0.071 [1] ✔

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	L2 1/2x2 1/2x3/16	8.500	8.104	167.0 K=0.85	0.902	-0.075	7.304	0.010 [1] ✔
T2	80 - 50	L2x2 1/2x3/16	11.420	11.024	236.7 K=0.76	0.809	-0.135	3.261	0.041 [1] ✔
T3	50 - 20	KL/R > 200 (C) - 40 L2x3x3/16 KL/R > 200 (C) - 79	15.000	14.604	291.7 K=0.73	0.902	-0.277	2.395	0.116 [1] ✔

[1] $P_u / \phi P_n$ controls

Redundant Diagonal (1) 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 $\frac{P_u}{\phi P_n}$
T4	20 - 15	L2 1/2x2 1/2x1/8	5.144	5.144	123.6 K=1.00	0.609	-0.423	8.152	0.052 [1] ✔

[1] $P_u / \phi P_n$ controls

Inner Bracing 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 $\frac{P_u}{\phi P_n}$
T4	20 - 15	L2x2 1/2x1/4 KL/R > 250 (C) - 130	13.138	13.138	371.8 K=1.00	1.060	-0.023	1.732	0.014 [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	100 - 80	L5x5x3/8	20.106	6.702	51.6	3.610	5.163	116.964	0.044 [1] ✔
T2	80 - 50	L6x6x3/8	30.107	7.527	48.0	4.360	19.005	141.264	0.135 [1] ✔
T3	50 - 20	L6x6x9/16	30.107	10.036	65.1	6.430	35.982	208.332	0.173 [1] ✔
T4	20 - 15	L6x6x1/2	5.019	5.019	32.4	5.750	39.319	186.300	0.211 [1] ✔
T5	15 - 0	L6x6x1/2	15.055	7.188	46.4	5.750	46.669	186.300	0.251 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	L2x2 1/2x3/16	12.815	6.495	133.9	0.501	1.918	21.806	0.088 [1] ✔
T2	80 - 50	L2 1/2x2 1/2x3/16	16.378	8.243	130.2	0.571	3.229	24.840	0.130 [1] ✔
T3	50 - 20	L3x3 1/2x1/4	20.585	10.436	139.8	1.029	5.217	44.778	0.117 [1] ✔
T4	20 - 15	L2 1/2x2 1/2x1/4	10.824	10.428	168.9	0.752	4.798	32.707	0.147 [1] ✔
T5	15 - 0	L3 1/2x4x1/4	25.092	13.111	146.4	1.217	6.374	52.934	0.120 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	20 - 15	L3x3x1/4	18.580	9.170	119.9	0.939	4.515	40.863	0.110 [1] ✔

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T5	15 - 0	L3 1/2x3 /12x1/4	20.054	10.027	220.5	1.125	0.899	48.938	0.018 [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 $\frac{P_u}{\phi P_n}$
T2	80 - 50	L2x2 1/2x3/16	11.420	11.024	228.5	0.501	0.178	21.806	0.008 [1] ✔
T3	50 - 20	L2x3x3/16	15.000	14.604	308.5	0.571	0.311	24.840	0.013 [1] ✔

[1] P_u / ϕP_n controls

Redundant Diagonal (1) 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 $\frac{P_u}{\phi P_n}$
T4	20 - 15	L2 1/2x2 1/2x1/8	5.144	5.144	78.4	0.609	0.423	19.744	0.021 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

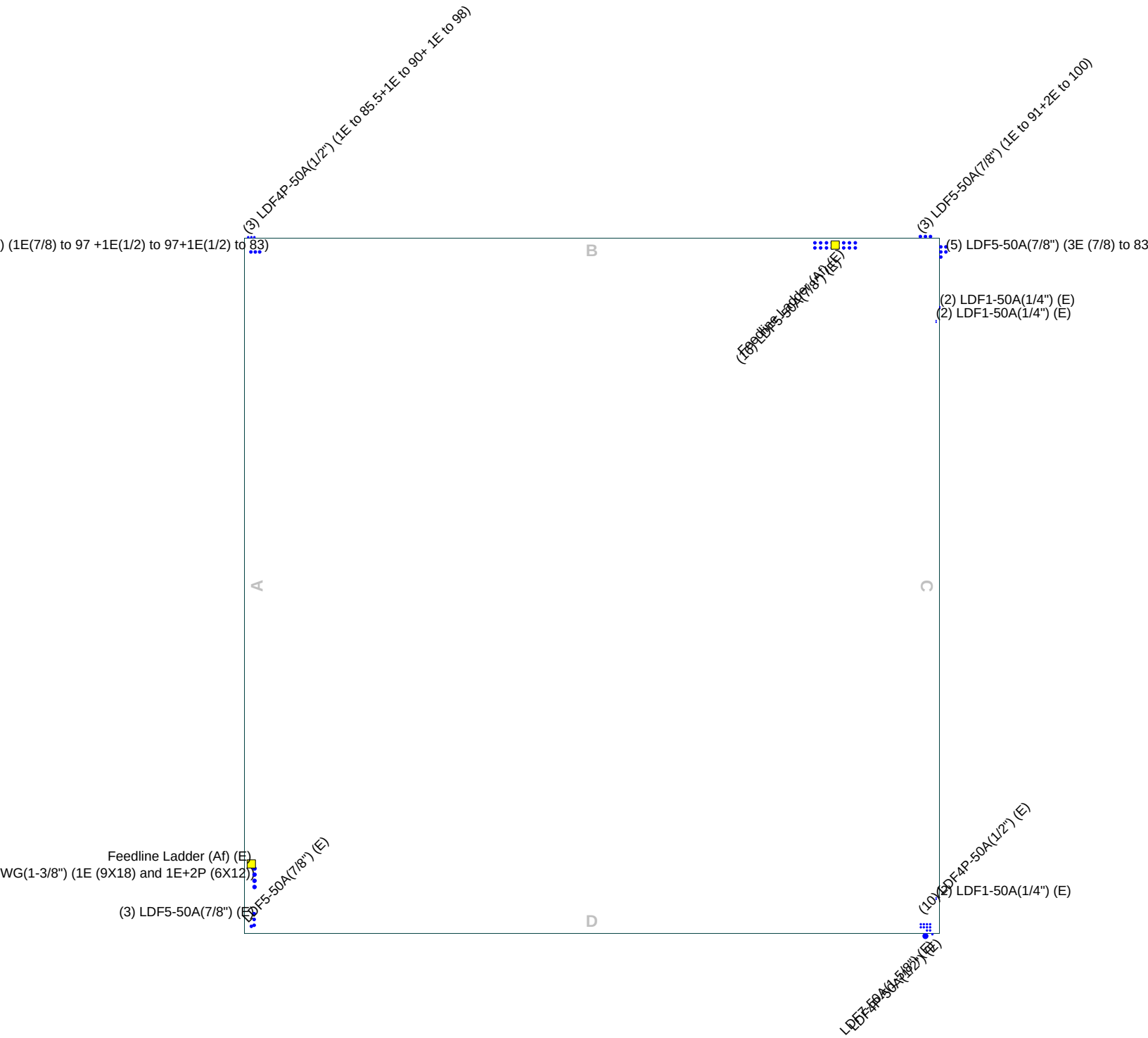
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	100 - 80	Leg	L5x5x3/8	3	-7.941	82.635	9.6 10.7 (b)	Pass
T2	80 - 50	Leg	L6x6x3/8	35	-24.480	101.819	24.0 24.6 (b)	Pass
T3	50 - 20	Leg	L6x6x9/16	75	-46.490	120.399	38.6 46.8 (b)	Pass
T4	20 - 15	Leg	L6x6x1/2	107	-50.824	162.428	31.3	Pass
T5	15 - 0	Leg	L6x6x1/2	136	-59.816	133.016	45.0	Pass
T1	100 - 80	Diagonal	L2x2 1/2x3/16	14	-1.972	6.500	30.3	Pass
T2	80 - 50	Diagonal	L2 1/2x2 1/2x3/16	46	-3.287	6.229	52.8	Pass
T3	50 - 20	Diagonal	L3x3 1/2x1/4	86	-5.434	10.897	49.9	Pass
T4	20 - 15	Diagonal	L2 1/2x2 1/2x1/4	122	-5.219	12.564	41.5	Pass
T5	15 - 0	Diagonal	L3 1/2x4x1/4	143	-6.330	8.899	71.1	Pass
T4	20 - 15	Horizontal	L3x3x1/4	119	-4.295	9.415	45.6	Pass
T5	15 - 0	Secondary Horizontal	L3 1/2x3 /12x1/4	147	-0.899	12.668	7.1	Pass
T1	100 - 80	Top Girt	L2 1/2x2 1/2x3/16	6	-0.075	7.304	1.0	Pass
T2	80 - 50	Top Girt	L2x2 1/2x3/16	40	-0.135	3.261	4.1	Pass
T3	50 - 20	Top Girt	L2x3x3/16	79	-0.277	2.395	11.6	Pass
T4	20 - 15	Redund Diag 1 Bracing	L2 1/2x2 1/2x1/8	121	-0.423	8.152	5.2	Pass
T4	20 - 15	Inner Bracing	L2x2 1/2x1/4	130	-0.023	1.732	1.4	Pass
						Summary		
						Leg (T3)	46.8	Pass
						Diagonal (T5)	71.1	Pass
						Horizontal (T4)	45.6	Pass
						Secondary Horizontal (T5)	7.1	Pass
						Top Girt (T3)	11.6	Pass
						Redund Diag 1 Bracing (T4)	5.2	Pass
						Inner Bracing (T4)	1.4	Pass
						Bolt Checks	46.8	Pass
						RATING =	**71.1**	**Pass**

APPENDIX B

BASE LEVEL DRAWING

Feed Line Plan

Round Flat App In Face App Out Face



B+T GRP

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job:	***135927.003.01 - W. View Dr_GT, CT (Site# CT11923C***		
Project:			
Client: Centerline Communications		Drawn by: S. Bhat	App'd:
Code: TIA-222-G		Date: 07/26/19	Scale: NTS
Path: C:\Users\Sahana\Desktop\135927_CT11923C_W. View Dr_GT_Compile----Sahana------G\tnxTower\135927_001_01_W. View Dr_GT_CT.eri			Dwg No. E-7

APPENDIX C

ADDITIONAL CALCULATIONS

PROJECT	**135927.003.01 - W. View Dr_GT, CT**
SUBJECT	**Bolted Angle Connection Analysis**
DATE	**09/26/19** PAGE 1 OF 1

V2.2.1

B+T GRP
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TIA-222 Rev. G

Max Rating **8.1%**

	Elevation (ft)	Component	Angle			Bolt						Coping Dimensions (in)						Tens. Load (k)	Comp. Load (k)	Tens. Capacity (k)	Comp. Capacity (k)	Rating	Limit State
			Qty	Size	Grade	Qty	Size	Grade	Edge Dist. (in)	Gage (in)	Pitch (in)	Coping	A	B	C	D	E						
1	20 - 15	Redundant Diagonal (1)	1	L2 1/2x2 1/2x1/8	A36	1	5/8	A325N	Auto Calc	Auto Calc		Allowable						0.42	0.42	5.22	8.70	8.1%	Tension - Mbr. Bearing

Project Information

Site #	CT11923C
Site Name:	W. View Dr_GT, CT
County:	Fairfield

Tower Information

Tower Type	Self Support
TIA-222 Rev	G

☐ Load Z Normalization

Applied Loads

	Comp.	Uplift
Axial (k)	66.00	52.00
Shear (k)	11.00	10.00

Anchor Rod Data

Quantity:	4
Diameter (in):	1.5
Material Grade:	A354-BC
Grout Considered:	No
l_{ar} (in):	0
Eta Factor, η:	0.5
Thread Type:	N-Included
Configuration:	Symmetrical

Fy=109 ksi Fu=125 ksi

Anchor Rod Results

Axial, Pu_c (kips)	16.50
Shear, Vu (kips)	2.75
Moment, Mu (kip-in)	-
Axial Cap., φPn_t (kips)	141.00
Shear Cap., ϕVn (kips)	-
Moment Cap., ϕMn (kip-in)	-
Stress Rating	15.6%

Pass

Drilled Pier Foundation

BU # :	CT11923C
Site Name:	W. View Dr_GT, CT
Order Number:	Fairfield
TIA-222 Revison:	G
Tower Type:	Self Support

Applied Loads	Comp.	Uplift
Moment (kip-ft)	0	0
Axial Force (kips)	66	52
Shear Force (kips)	11	10

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	18	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 18' below grade		
Pier Diameter	2.5	ft
Rebar Quantity	6	
Rebar Size	7	
Clear Cover to Ties	3	in
Tie Size	3	

Analysis Results	Compression	Uplift
Soil Lateral Capacity		
$D_{v=0}$ (ft from TOC)	9.81	9.81
Soil Safety Factor	12.47	13.72
Max Moment (kip-ft)	81.58	74.17
Rating	*10.7%*	*9.7%*
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	116.68	116.68
End Bearing (kips)	302.92	-
Weight of Concrete (kips)	16.35	12.26
Total Capacity (kips)	419.59	128.94
Axial (kips)	82.35	52.00
Rating	*19.6%*	*40.3%*
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	9.84	9.38
Critical Moment (kip-ft)	81.58	73.94
Critical Moment Capacity	239.90	162.27
Rating	*34.0%*	*45.6%*

Min. Steel is assumed

Soil Interaction Rating	**40.3%**
Structural Foundation Rating	**45.6%**

Check Limitation	
N/A	☑
Load Z Normalization:	☐

Soil Profile

Groundwater Depth	N/A	ft	# of Layers	5

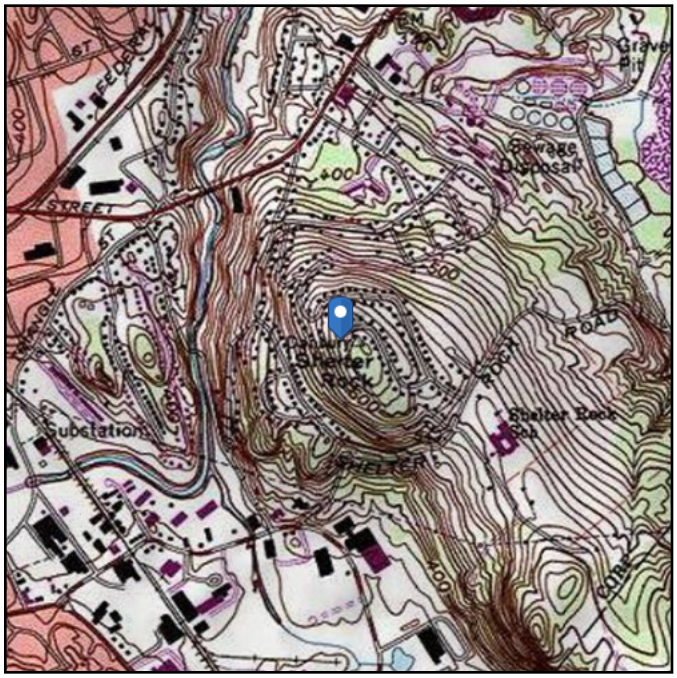
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3.33	3.33	110	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3.33	4	0.67	110	150	0	30	0.434	0.434				13	Cohesionless
3	4	10	6	130	150	0	38	0.949	0.949				50	Cohesionless
4	10	16	6	130	150	0	38	1.631	1.631				50	Cohesionless
5	16	18	2	140	150	0	40	2.019	2.019			82.28	50	Cohesionless

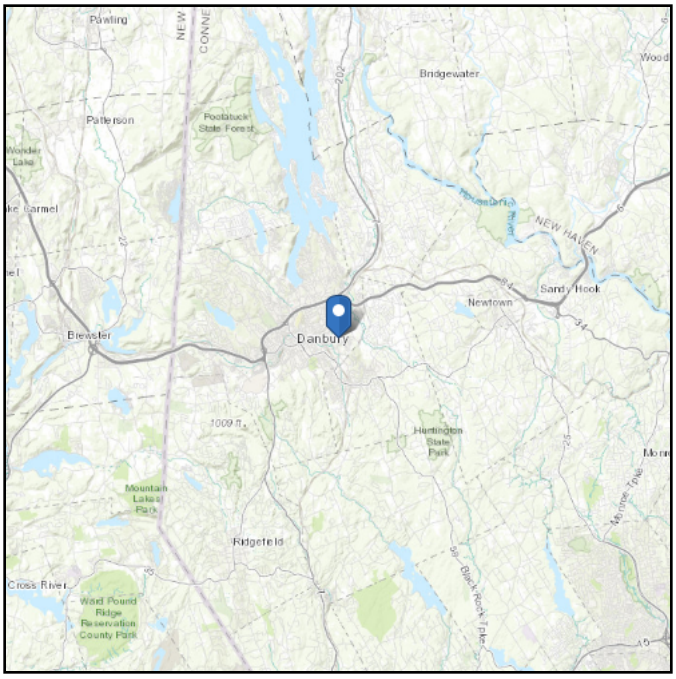
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 632.51 ft (NAVD 88)
Latitude: 41.395944
Longitude: -73.423934





Wind

Results:

Wind Speed:	116 Vmph
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Tue Jul 09 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

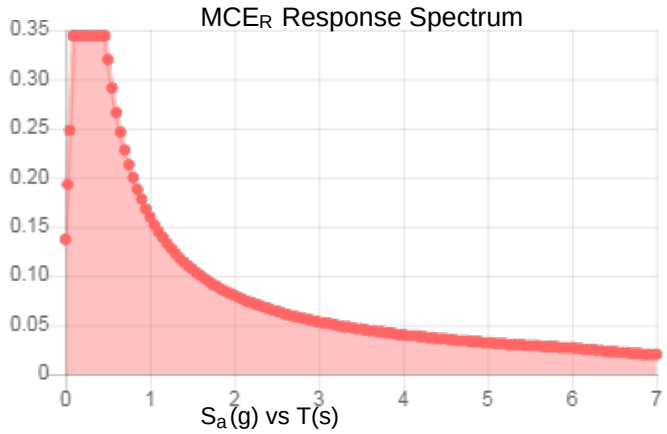
Seismic

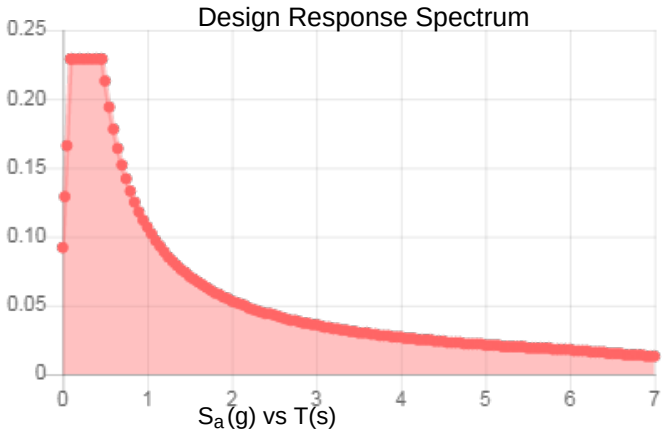
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.215	S_{DS} :	0.229
S_1 :	0.067	S_{D1} :	0.107
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.117
S_{MS} :	0.344	PGA_M :	0.183
S_{M1} :	0.16	F_{PGA} :	1.566
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Jul 09 2019

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue Jul 09 2019

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Exhibit E

Mount Analysis

September 9, 2019

Mr. Peter Fales
Centerline Communications
95 Ryan Drive, Suite 1
Raynham, MA 02767
(401) 835-2033

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject:	**Appurtenance Mount Analysis Report**	
Carrier Designation:	**Site Number:**	CT11923C
	Site Name:	W. View Dr_GT
Engineering Firm Designation:	**B+T Group Project Number:**	135927.002.01.R1
Site Data:	**7 West View Drive, Danbury, CT 06810. Fairfield County** **Latitude *41.39600*°, Longitude *-73.42380*°** **Self Support Tower** **(3) 12.5 ft. T-Frame with Stabilizer Kits**	

Dear Mr. Fales,

B+T Group is pleased to submit this **"Appurtenance Mount Analysis Report"** to determine the structural integrity of the antenna mount on the above-mentioned structure.

The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

Existing + Proposed Equipment Note: See Table 1 for the final loading configuration	**Sufficient Capacity** 50.5% [PASS]

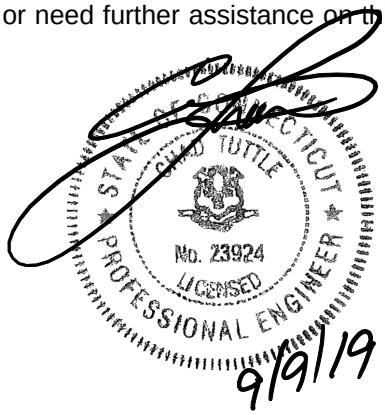
The analysis has been performed in accordance with the ANSI/TIA-222-G Standard. This analysis utilizes an ultimate 3-second gust wind speed of 120 mph converted to an equivalent 93 mph nominal 3-second gust wind speed per Section 1609.3.1 for use with ANSI/TIA-222-G as required by the 2018 Connecticut Building Code (IBC 2015). Exposure Category C and Risk Category II were used in this analysis.

All equipment proposed in this report shall be installed in accordance with the drawings for the determined available structural capacity to be effective.

We at *B+T Group* appreciate the opportunity of providing our continuing professional services to you and Centerline Communications. If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount Structural Analysis prepared by: Khup Hatzaw

Respectfully submitted by: B+T Engineering, Inc.
COA #: PEC.0001564, Expires: 02/10/2020.



Chad Tuttle, P.E.
Engineer of Record

TABLE OF CONTENTS

1) INTRODUCTION

The Appurtenance Mount consists of 12.5 ft. T-Frame Mounts attached at the elevation of 53.0 ft. to the Self Support Tower located at 7 West View Drive, Danbury, CT 06810 in Fairfield County. A new T-Arm Reinforcement/Stabilizer Kit (Commscope #VSR-MS-B) will be installed to the existing Mount per Centerline Communications requirement. The proposed equipment will be mounted on the existing Mount Pipes. The proposed antenna loading information was obtained from Centerline Communications. All information provided to *B+T Group* was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-G-2-2005 Structural Standard for Antenna Supporting Structures and Antennas – Addendum 2 using a 3-second gust nominal wind speed of 93 mph with no ice and 50 mph with 0.75 inch radial ice. Exposure Category C and Topo Category 1 with Risk Category II were used in this analysis.

In addition, the mount has been analyzed for various live loading conditions consisting of a 250 lb-man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500 pound-man live load applied individually at mount pipe locations using a 3-second gust of 30mph. The mount was analyzed under 30º increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 - Antenna and Equipment Information

Loading	RAD Center Elevation	Position	Qty.	Manufacturer	Model	Note
Proposed	50.0’	4	3	RFS/Cellwave	APXVAARR24_43-U-NA20	1
			3	Ericsson	Radio 4449 B71+B12	2
Existing	53.0’	1	3	Ericsson	AIR32 KRD901146-1_B66A_B2A	3
		3	3	Ericsson	AIR21 KRC118023-1_B2A_B4P	
			3	Ericsson	KRY 112 144/2	

Note:
(1) Proposed Antenna to be installed on the existing Mount Pipe.
(2) Proposed Equipment to be installed directly behind the Antenna.
(3) Existing Equipment installed on the new Mount.

Table 2 - Documents Provided

Document	Descriptions	Reference	Source
CT11923C_RFDS	Existing Loading and Proposed Loading	Dated: 05/10/2019	Centerline
Mount Mapping Report by B+T Group	Existing Mount and Existing Loading	Dated: 06/17/2019	On File
Appurtenance Mount Analysis Report by B+T Group	Existing Mount Structural Analysis	Dated: 07/03/2019	

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 17.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Manufacturing drawing were used to create the model.

3.2) Assumptions

1) The mount was built in accordance with the manufacturer's specifications.
2) The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3) The configuration of antennas and other appurtenances are as specified in Table 1.
4) All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5) Mount areas, weights and equipment location are determined from field measurements, standard material properties, and/or manufacturer product data.
6) Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7) All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9) The following material grades were assumed (unless noted otherwise):
   a) Connection Bolts : ASTM A325
   b) Steel Pipe : ASTM A53 (GR. 35)
   c) HSS (Round) : ASTM 500 (GR. B-42)
   d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   e) Channel : ASTM A36 (GR. 36)
   f) Steel Solid Rod : ASTM A36 (GR. 36)
   g) Steel Plate : ASTM A36 (GR. 36)
   h) Steel Angle : ASTM A36 (GR. 36)
   i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. *B+T Group* should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

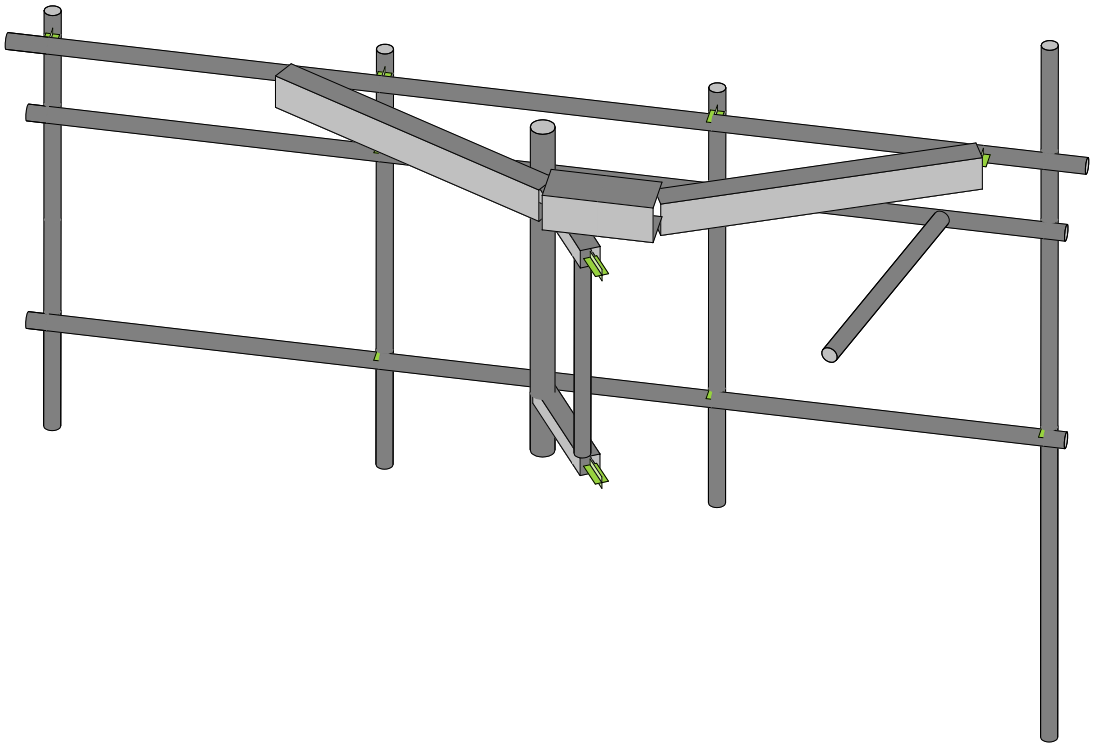
Table 3 – Mount Component Stresses vs. Capacity

Notes	Component	Elevation	Capacity	Pass / Fail
-	Antenna Mount – Pipes	53.0'	40.7%	Pass
-	Face Horizontal – Pipes	53.0'	50.5%	Pass
-	Standoff Horizontal – Tubes	53.0'	19.0%	Pass
-	Standoff Vertical – Pipe	53.0'	31.1%	Pass
-	Frame Mount – Pipe	53.0'	22.8%	Pass
-	Frame Tieback – Pipe	53.0'	4.2%	Pass
Proposed	Face Horizontal – Pipes	53.0'	37.4%	Pass
Proposed	Frame Stabilizer – Bent Channels	53.0'	12.4%	Pass
Proposed	Stabilizer Mount – Bent Channels	53.0'	3.0%	Pass

5) RECOMMENDATIONS

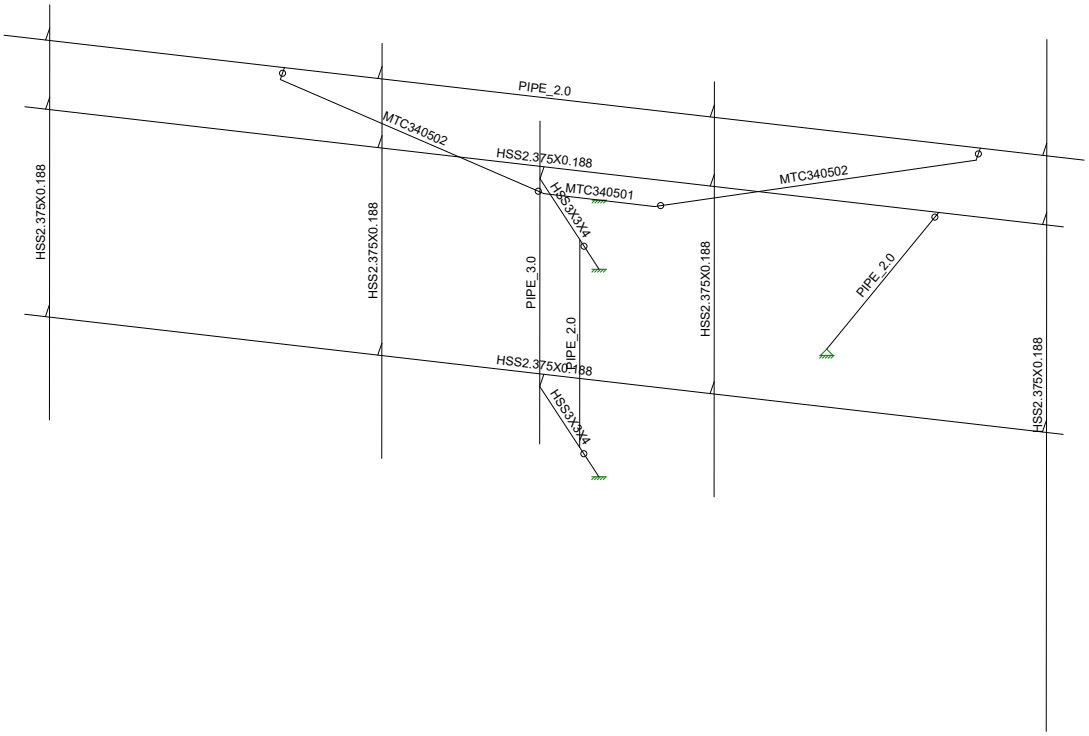
The Mount with new T-Arm Reinforcement Kit has sufficient capacity to carry the existing and proposed loads and is in compliance with the ANSI/TIA-222-G Standard for the proposed and existing loading.
(Refer to the RISA output for the specific members).

APPENDIX A
(RISA-3D Output)



Envelope Only Solution

B+T GROUP		SK - 1
KH	W. VIEW DR_GT CT11923C	Sept 9, 2019 at 10:12 AM
135927.002.01.R1	MODIFIED T-FRAME	135927_002_01_R1_T-Frame+(V...



Envelope Only Solution

B+T GROUP		SK - 2
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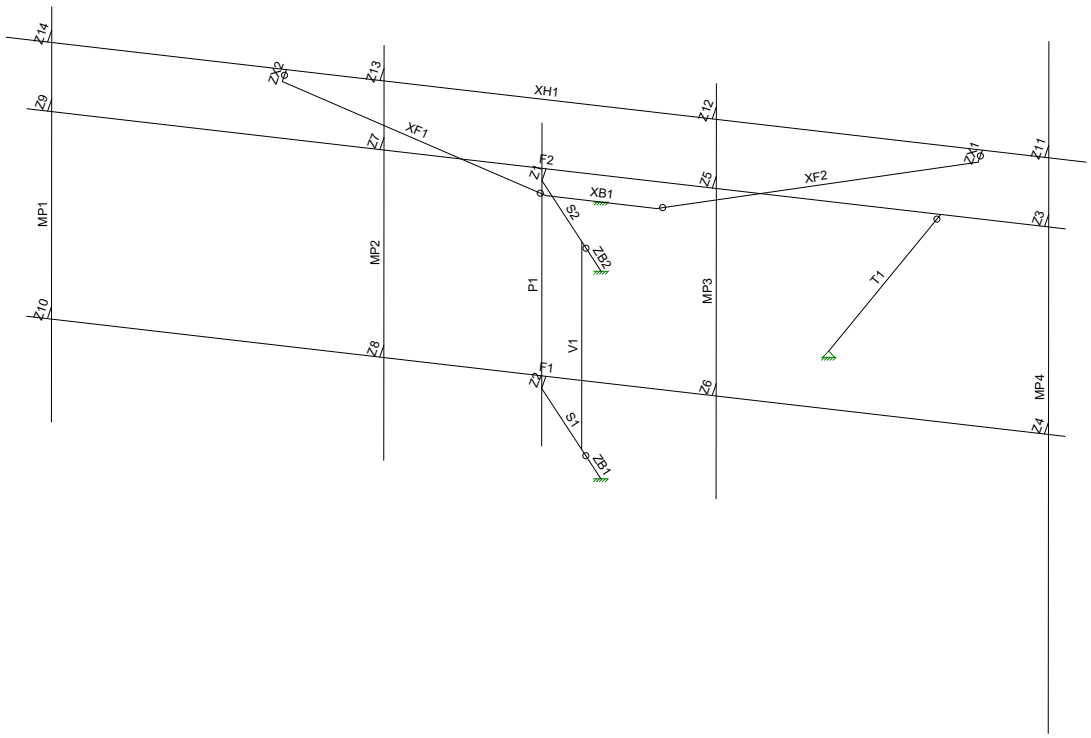

Envelope Only Solution

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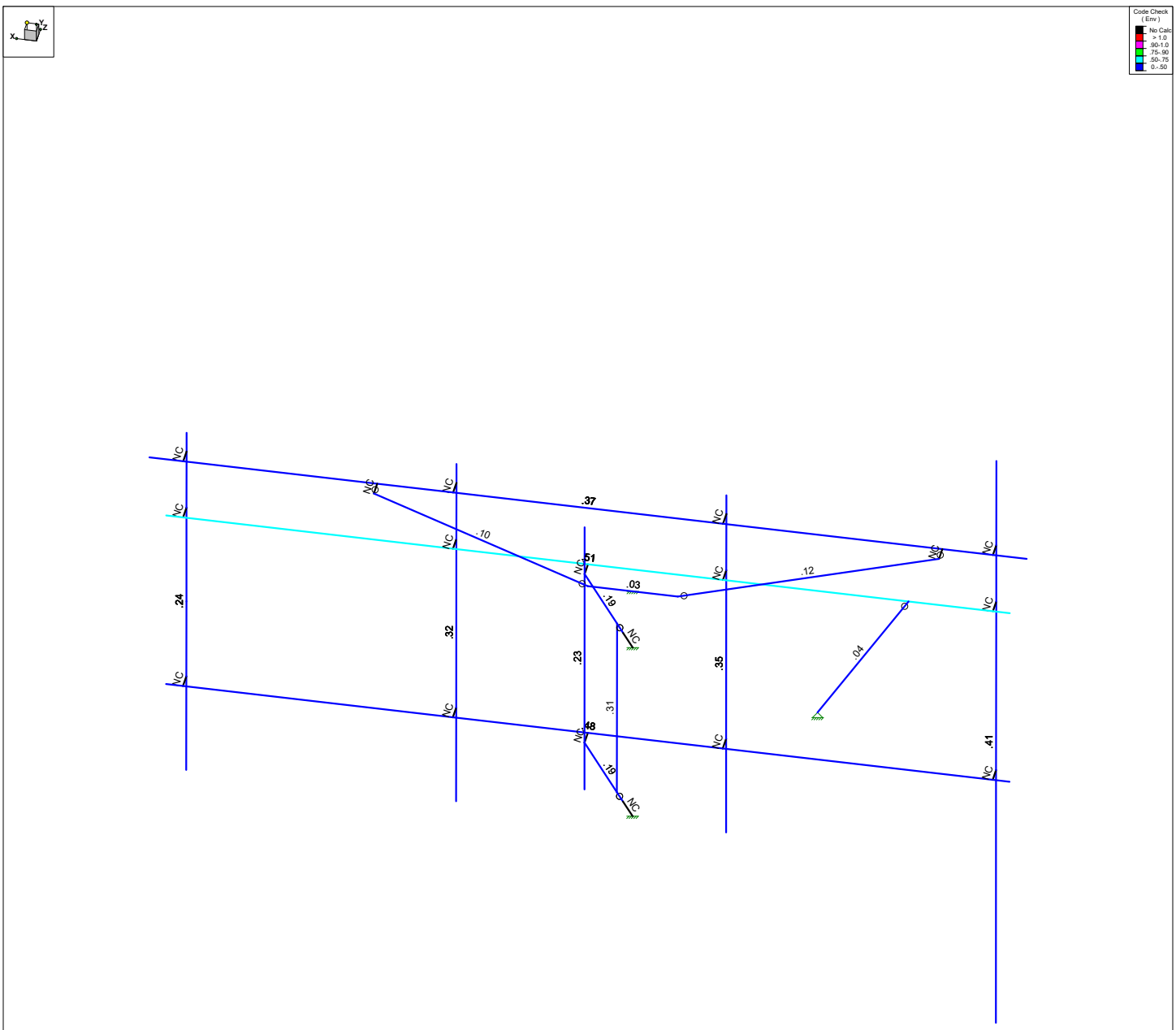

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

B+T GROUP		SK - 4
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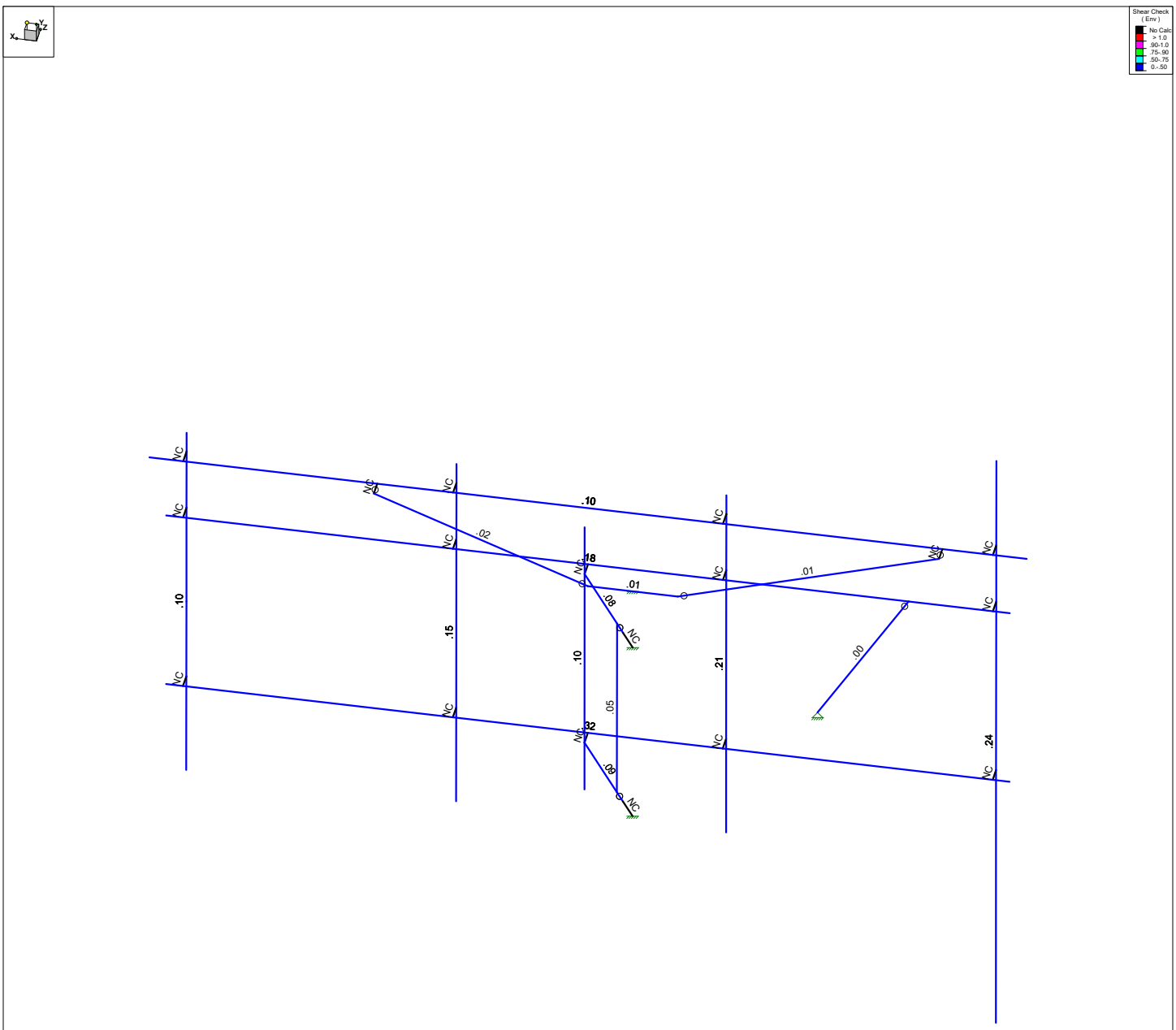

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T GROUP		SK - 5
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135927.002.01.R1	MODIFIED T-FRAME - SHEAR CHECK	135927_002_01_R1_T-Frame+(V...

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	FH-Pipe	HSS2.375X0.188	Beam	Pipe	A500 Gr.B RND	Typical	1.2	.733	.733	1.47
2	AM-2.0"Pipe	HSS2.375X0.188	Column	Pipe	A500 Gr.B RND	Typical	1.2	.733	.733	1.47
3	SH-Tube	HSS3X3X4	Beam	Tube	A500 Gr.B Rect	Typical	2.44	3.02	3.02	5.08
4	FM-Pipe	PIPE_3.0	Column	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
5	SV-Pipe	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	TB-Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
7	AM-2.5"Pipe	PIPE_2.5	Column	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
8	MOD-FH-Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
9	MOD-FB-(VSR-MS-B)	MTC340501	Beam	Pipe	A36 Gr.36	Typical	4.625	20.886	30.346	.094
10	MOD-FS-(VSR-MS-B)	MTC340502	Beam	Pipe	A36 Gr.36	Typical	2.337	3.325	11.604	.027

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design Rul...
1	F1	N1	N2			FH-Pipe	Beam	Pipe	A500 Gr....	Typical
2	F2	N3	N4			FH-Pipe	Beam	Pipe	A500 Gr....	Typical
3	MP1	N35	N36			AM-2.0"Pipe	Column	Pipe	A500 Gr....	Typical
4	MP2	N33	N34			AM-2.0"Pipe	Column	Pipe	A500 Gr....	Typical
5	MP3	N21	N22			AM-2.0"Pipe	Column	Pipe	A500 Gr....	Typical
6	MP4	N15	N16			AM-2.0"Pipe	Column	Pipe	A500 Gr....	Typical
7	P1	N6	N7			FM-Pipe	Column	Pipe	A53 Gr.B	Typical
8	S1	N11	N43			SH-Tube	Beam	Tube	A500 Gr....	Typical
9	S2	N9	N10			SH-Tube	Beam	Tube	A500 Gr....	Typical
10	T1	N37	N38			TB-Pipe	Beam	Pipe	A53 Gr.B	Typical
11	V1	N41	N42			SV-Pipe	Column	Pipe	A53 Gr.B	Typical
12	XB1	N56	N57			MOD-FB-(VSR-MS-B)	Beam	Pipe	A36 Gr.36	Typical
13	XF1	N57	N59			MOD-FS-(VSR-MS-B)	Beam	Pipe	A36 Gr.36	Typical
14	XF2	N56	N54		180	MOD-FS-(VSR-MS-B)	Beam	Pipe	A36 Gr.36	Typical
15	XH1	N44	N49			MOD-FH-Pipe	Beam	Pipe	A53 Gr.B	Typical
16	Z1	N5	N9			RIGID	None	None	RIGID	Typical
17	Z2	N8	N11			RIGID	None	None	RIGID	Typical
18	Z3	N13	N14			RIGID	None	None	RIGID	Typical
19	Z4	N17	N18			RIGID	None	None	RIGID	Typical
20	Z5	N19	N20			RIGID	None	None	RIGID	Typical
21	Z6	N23	N24			RIGID	None	None	RIGID	Typical
22	Z7	N25	N26			RIGID	None	None	RIGID	Typical
23	Z8	N27	N28			RIGID	None	None	RIGID	Typical
24	Z9	N29	N30			RIGID	None	None	RIGID	Typical
25	Z10	N31	N32			RIGID	None	None	RIGID	Typical
26	Z11	N45	N50			RIGID	None	None	RIGID	Typical
27	Z12	N46	N51			RIGID	None	None	RIGID	Typical
28	Z13	N47	N52			RIGID	None	None	RIGID	Typical
29	Z14	N48	N53			RIGID	None	None	RIGID	Typical
30	ZB1	R1	N43			BRACKET	None	None	RIGID	DR1
31	ZB2	R2	N10			BRACKET	None	None	RIGID	DR1
32	ZX1	N54	N58			BRACKET	None	None	RIGID	DR1
33	ZX2	N59	N60			BRACKET	None	None	RIGID	DR1

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Dead Load	DL		-1			15			
2	0 Wind - No Ice	WLZ					15	15		
3	90 Wind - No Ice	WLX					15	15		
4	0 Wind - Ice	WLZ					15	15		
5	90 Wind - Ice	WLX					15	15		
6	0 Wind - Service	WLZ					15	15		
7	90 Wind - Service	WLX					15	15		
8	Ice Load	OL1					15	15		
9	Live Load a	LL				1				
10	Live Load b	LL				1				
11	Live Load c	LL				1				
12	Live Load d	LL				1				
13	Maint LL 1	LL					2			
14	Maint LL 2	LL					1			
15	Maint LL 3	LL					1			
16	Maint LL 4	LL					1			
17	Maint LL 5	LL								
18	Maint LL 6	LL								
19	Maint LL 7	LL								
20	Maint LL 8	LL								
21	Maint LL 9	LL								
22	Maint LL 10	LL								
23	Maint LL 11	LL								
24	Maint LL 12	LL								
25	Maint LL 13	LL								
26	Maint LL 14	LL								
27	Maint LL 15	LL								
28	Maint LL 16	LL								
29	Maint LL 17	LL								
30	Maint LL 18	LL								

Load Combinations

	Description	S...	P...	S...	B...	Fac...	BLC	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...
1	1.4 Dead	Yes	Y		1	1.4																		
2	0.9 D + 1.6 - 0 W	Yes	Y		1	.9	2	1.6																
3	0.9 D + 1.6 - 30 W	Yes	Y		1	.9	2	1.3...	3	.8														
4	0.9 D + 1.6 - 60 W	Yes	Y		1	.9	3	1.3...	2	.8														
5	0.9 D + 1.6 - 90 W	Yes	Y		1	.9	3	1.6																
6	0.9 D + 1.6 - 120 W	Yes	Y		1	.9	3	1.3...	2	-.8														
7	0.9 D + 1.6 - 150 W	Yes	Y		1	.9	2	-1....	3	.8														
8	0.9 D + 1.6 - 180 W	Yes	Y		1	.9	2	-1.6																
9	0.9 D + 1.6 - 210 W	Yes	Y		1	.9	2	-1....	3	-.8														
10	0.9 D + 1.6 - 240 W	Yes	Y		1	.9	3	-1....	2	-.8														
11	0.9 D + 1.6 - 270 W	Yes	Y		1	.9	3	-1.6																
12	0.9 D + 1.6 - 300 W	Yes	Y		1	.9	3	-1....	2	.8														
13	0.9 D + 1.6 - 330 W	Yes	Y		1	.9	2	1.3...	3	-.8														
14	1.2 D + 1.6 - 0 W	Yes	Y		1	1.2	2	1.6																
15	1.2 D + 1.6 - 30 W	Yes	Y		1	1.2	2	1.3...	3	.8														
16	1.2 D + 1.6 - 60 W	Yes	Y		1	1.2	3	1.3...	2	.8														

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fac...	BLC	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...
17	1.2 D + 1.6 - 90 W	Yes	Y		1	1.2	3	1.6																
18	1.2 D + 1.6 - 120 W	Yes	Y		1	1.2	3	1.3...	2	-.8														
19	1.2 D + 1.6 - 150 W	Yes	Y		1	1.2	2	-1....	3	.8														
20	1.2 D + 1.6 - 180 W	Yes	Y		1	1.2	2	-1.6																
21	1.2 D + 1.6 - 210 W	Yes	Y		1	1.2	2	-1....	3	-.8														
22	1.2 D + 1.6 - 240 W	Yes	Y		1	1.2	3	-1....	2	-.8														
23	1.2 D + 1.6 - 270 W	Yes	Y		1	1.2	3	-1.6																
24	1.2 D + 1.6 - 300 W	Yes	Y		1	1.2	3	-1....	2	.8														
25	1.2 D + 1.6 - 330 W	Yes	Y		1	1.2	2	1.3...	3	-.8														
26	0.9 D + 1.6 - 0 W/Ice	Yes	Y		1	.9	4	1.6			8	1												
27	0.9 D + 1.6 - 30 W/Ice	Yes	Y		1	.9	4	1.3...	5	.8	8	1												
28	0.9 D + 1.6 - 60 W/Ice	Yes	Y		1	.9	5	1.3...	4	.8	8	1												
29	0.9 D + 1.6 - 90 W/Ice	Yes	Y		1	.9	5	1.6			8	1												
30	0.9 D + 1.6 - 120 W/Ice	Yes	Y		1	.9	5	1.3...	4	-.8	8	1												
31	0.9 D + 1.6 - 150 W/Ice	Yes	Y		1	.9	4	-1....	5	.8	8	1												
32	0.9 D + 1.6 - 180 W/Ice	Yes	Y		1	.9	4	-1.6			8	1												
33	0.9 D + 1.6 - 210 W/Ice	Yes	Y		1	.9	4	-1....	5	-.8	8	1												
34	0.9 D + 1.6 - 240 W/Ice	Yes	Y		1	.9	5	-1....	4	-.8	8	1												
35	0.9 D + 1.6 - 270 W/Ice	Yes	Y		1	.9	5	-1.6			8	1												
36	0.9 D + 1.6 - 300 W/Ice	Yes	Y		1	.9	5	-1....	4	.8	8	1												
37	0.9 D + 1.6 - 330 W/Ice	Yes	Y		1	.9	4	1.3...	5	-.8	8	1												
38	1.2 D + 1.0 - 0 W/Ice	Yes	Y		1	1.2	4	1			8	1												
39	1.2 D + 1.0 - 30 W/Ice	Yes	Y		1	1.2	4	.866	5	.5	8	1												
40	1.2 D + 1.0 - 60 W/Ice	Yes	Y		1	1.2	5	.866	4	.5	8	1												
41	1.2 D + 1.0 - 90 W/Ice	Yes	Y		1	1.2	5	1			8	1												
42	1.2 D + 1.0 - 120 W/Ice	Yes	Y		1	1.2	5	.866	4	-.5	8	1												
43	1.2 D + 1.0 - 150 W/Ice	Yes	Y		1	1.2	4	-.866	5	.5	8	1												
44	1.2 D + 1.0 - 180 W/Ice	Yes	Y		1	1.2	4	-1			8	1												
45	1.2 D + 1.0 - 210 W/Ice	Yes	Y		1	1.2	4	-.866	5	-.5	8	1												
46	1.2 D + 1.0 - 240 W/Ice	Yes	Y		1	1.2	5	-.866	4	-.5	8	1												
47	1.2 D + 1.0 - 270 W/Ice	Yes	Y		1	1.2	5	-1			8	1												
48	1.2 D + 1.0 - 300 W/Ice	Yes	Y		1	1.2	5	-.866	4	.5	8	1												
49	1.2 D + 1.0 - 330 W/Ice	Yes	Y		1	1.2	4	.866	5	-.5	8	1												
50	1.2 D + 1.5 LL a + Servic...	Yes	Y		1	1.2	6	1			9	1.5												
51	1.2 D + 1.5 LL a + Servic...	Yes	Y		1	1.2	6	.866	7	.5	9	1.5												
52	1.2 D + 1.5 LL a + Servic...	Yes	Y		1	1.2	7	.866	6	.5	9	1.5												
53	1.2 D + 1.5 LL a + Servic...	Yes	Y		1	1.2	7	1			9	1.5												
54	1.2 D + 1.5 LL a + Servic...	Yes	Y		1	1.2	7	.866	6	-.5	9	1.5												
55	1.2 D + 1.5 LL a + Servic...	Yes	Y		1	1.2	6	-.866	7	.5	9	1.5												
56	1.2 D + 1.5 LL a + Servic...	Yes	Y		1	1.2	6	-1			9	1.5												
57	1.2 D + 1.5 LL a + Servic...	Yes	Y		1	1.2	6	-.866	7	-.5	9	1.5												
58	1.2 D + 1.5 LL a + Servic...	Yes	Y		1	1.2	7	-.866	6	-.5	9	1.5												
59	1.2 D + 1.5 LL a + Servic...	Yes	Y		1	1.2	7	-1			9	1.5												
60	1.2 D + 1.5 LL a + Servic...	Yes	Y		1	1.2	7	-.866	6	.5	9	1.5												
61	1.2 D + 1.5 LL a + Servic...	Yes	Y		1	1.2	6	.866	7	-.5	9	1.5												
62	1.2 D + 1.5 LL b + Servic...	Yes	Y		1	1.2	6	1			10	1.5												
63	1.2 D + 1.5 LL b + Servic...	Yes	Y		1	1.2	6	.866	7	.5	10	1.5												
64	1.2 D + 1.5 LL b + Servic...	Yes	Y		1	1.2	7	.866	6	.5	10	1.5												
65	1.2 D + 1.5 LL b + Servic...	Yes	Y		1	1.2	7	1			10	1.5												
66	1.2 D + 1.5 LL b + Servic...	Yes	Y		1	1.2	7	.866	6	-.5	10	1.5												
67	1.2 D + 1.5 LL b + Servic...	Yes	Y		1	1.2	6	-.866	7	.5	10	1.5												
68	1.2 D + 1.5 LL b + Servic...	Yes	Y		1	1.2	6	-1			10	1.5												

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fac...	BLC	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...
69	1.2 D + 1.5 LL b + Servic...	Yes	Y		1	1.2	6	-.866	7	-.5	10	1.5														
70	1.2 D + 1.5 LL b + Servic...	Yes	Y		1	1.2	7	-.866	6	-.5	10	1.5														
71	1.2 D + 1.5 LL b + Servic...	Yes	Y		1	1.2	7	-1			10	1.5														
72	1.2 D + 1.5 LL b + Servic...	Yes	Y		1	1.2	7	-.866	6	.5	10	1.5														
73	1.2 D + 1.5 LL b + Servic...	Yes	Y		1	1.2	6	.866	7	-.5	10	1.5														
74	1.2 D + 1.5 LL c + Servic...	Yes	Y		1	1.2	6	1			11	1.5														
75	1.2 D + 1.5 LL c + Servic...	Yes	Y		1	1.2	6	.866	7	.5	11	1.5														
76	1.2 D + 1.5 LL c + Servic...	Yes	Y		1	1.2	7	.866	6	.5	11	1.5														
77	1.2 D + 1.5 LL c + Servic...	Yes	Y		1	1.2	7	1			11	1.5														
78	1.2 D + 1.5 LL c + Servic...	Yes	Y		1	1.2	7	.866	6	-.5	11	1.5														
79	1.2 D + 1.5 LL c + Servic...	Yes	Y		1	1.2	6	-.866	7	.5	11	1.5														
80	1.2 D + 1.5 LL c + Servic...	Yes	Y		1	1.2	6	-1			11	1.5														
81	1.2 D + 1.5 LL c + Servic...	Yes	Y		1	1.2	6	-.866	7	-.5	11	1.5														
82	1.2 D + 1.5 LL c + Servic...	Yes	Y		1	1.2	7	-.866	6	-.5	11	1.5														
83	1.2 D + 1.5 LL c + Servic...	Yes	Y		1	1.2	7	-1			11	1.5														
84	1.2 D + 1.5 LL c + Servic...	Yes	Y		1	1.2	7	-.866	6	.5	11	1.5														
85	1.2 D + 1.5 LL c + Servic...	Yes	Y		1	1.2	6	.866	7	-.5	11	1.5														
86	1.2 D + 1.5 LL d + Servic...	Yes	Y		1	1.2	6	1			12	1.5														
87	1.2 D + 1.5 LL d + Servic...	Yes	Y		1	1.2	6	.866	7	.5	12	1.5														
88	1.2 D + 1.5 LL d + Servic...	Yes	Y		1	1.2	7	.866	6	.5	12	1.5														
89	1.2 D + 1.5 LL d + Servic...	Yes	Y		1	1.2	7	1			12	1.5														
90	1.2 D + 1.5 LL d + Servic...	Yes	Y		1	1.2	7	.866	6	-.5	12	1.5														
91	1.2 D + 1.5 LL d + Servic...	Yes	Y		1	1.2	6	-.866	7	.5	12	1.5														
92	1.2 D + 1.5 LL d + Servic...	Yes	Y		1	1.2	6	-1			12	1.5														
93	1.2 D + 1.5 LL d + Servic...	Yes	Y		1	1.2	6	-.866	7	-.5	12	1.5														
94	1.2 D + 1.5 LL d + Servic...	Yes	Y		1	1.2	7	-.866	6	-.5	12	1.5														
95	1.2 D + 1.5 LL d + Servic...	Yes	Y		1	1.2	7	-1			12	1.5														
96	1.2 D + 1.5 LL d + Servic...	Yes	Y		1	1.2	7	-.866	6	.5	12	1.5														
97	1.2 D + 1.5 LL d + Servic...	Yes	Y		1	1.2	6	.866	7	-.5	12	1.5														
98	1.2 D + 1.5 LL Maint (1)	Yes	Y		1	1.2					13	1.5														
99	1.2 D + 1.5 LL Maint (2)	Yes	Y		1	1.2					14	1.5														
100	1.2 D + 1.5 LL Maint (3)	Yes	Y		1	1.2					15	1.5														
101	1.2 D + 1.5 LL Maint (4)	Yes	Y		1	1.2					16	1.5														
102	1.2 D + 1.5 LL Maint (5)	Yes	Y		1	1.2					17	1.5														
103	1.2 D + 1.5 LL Maint (6)	Yes	Y		1	1.2					18	1.5														
104	1.2 D + 1.5 LL Maint (7)	Yes	Y		1	1.2					19	1.5														
105	1.2 D + 1.5 LL Maint (8)	Yes	Y		1	1.2					20	1.5														
106	1.2 D + 1.5 LL Maint (9)	Yes	Y		1	1.2					21	1.5														
107	1.2 D + 1.5 LL Maint (10)	Yes	Y		1	1.2					22	1.5														
108	1.2 D + 1.5 LL Maint (11)	Yes	Y		1	1.2					23	1.5														
109	1.2 D + 1.5 LL Maint (12)	Yes	Y		1	1.2					24	1.5														
110	1.2 D + 1.5 LL Maint (13)	Yes	Y		1	1.2					25	1.5														
111	1.2 D + 1.5 LL Maint (14)	Yes	Y		1	1.2					26	1.5														
112	1.2 D + 1.5 LL Maint (15)	Yes	Y		1	1.2					27	1.5														
113	1.2 D + 1.5 LL Maint (16)	Yes	Y		1	1.2					28	1.5														
114	1.2 D + 1.5 LL Maint (17)	Yes	Y		1	1.2					29	1.5														
115	1.2 D + 1.5 LL Maint (18)	Yes	Y		1	1.2					30	1.5														

Member Point Loads (BLC 1 : Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP1	Y	-.071	%15
2	MP1	Y	-.071	%80
3	MP1	Y	0	0
4	MP1	Y	0	0
5	MP1	Y	0	0
6	MP3	Y	-.046	%5
7	MP3	Y	-.046	%65
8	MP3	Y	-.01	%45
9	MP3	Y	0	0
10	MP3	Y	0	0
11	MP4	Y	-.064	%10
12	MP4	Y	-.064	%80
13	MP4	Y	-.075	%40
14	MP4	Y	0	0
15	MP4	Y	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP1	Z	-.08	%15
2	MP1	Z	-.08	%80
3	MP1	Z	0	0
4	MP1	Z	0	0
5	MP1	Z	0	0
6	MP3	Z	-.071	%5
7	MP3	Z	-.071	%65
8	MP3	Z	-.011	%45
9	MP3	Z	0	0
10	MP3	Z	0	0
11	MP4	Z	-.236	%10
12	MP4	Z	-.236	%80
13	MP4	Z	-.038	%40
14	MP4	Z	0	0
15	MP4	Z	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP1	X	-.054	%15
2	MP1	X	-.054	%80
3	MP1	X	0	0
4	MP1	X	0	0
5	MP1	X	0	0
6	MP3	X	-.046	%5
7	MP3	X	-.046	%65
8	MP3	X	-.005	%45
9	MP3	X	0	0
10	MP3	X	0	0
11	MP4	X	-.086	%10
12	MP4	X	-.086	%80
13	MP4	X	-.027	%40
14	MP4	X	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
15	MP4	X	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP1	Z	-.03	%15
2	MP1	Z	-.03	%80
3	MP1	Z	0	0
4	MP1	Z	0	0
5	MP1	Z	0	0
6	MP3	Z	-.027	%5
7	MP3	Z	-.027	%65
8	MP3	Z	-.006	%45
9	MP3	Z	0	0
10	MP3	Z	0	0
11	MP4	Z	-.079	%10
12	MP4	Z	-.079	%80
13	MP4	Z	-.017	%40
14	MP4	Z	0	0
15	MP4	Z	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP1	X	-.022	%15
2	MP1	X	-.022	%80
3	MP1	X	0	0
4	MP1	X	0	0
5	MP1	X	0	0
6	MP3	X	-.019	%5
7	MP3	X	-.019	%65
8	MP3	X	-.004	%45
9	MP3	X	0	0
10	MP3	X	0	0
11	MP4	X	-.034	%10
12	MP4	X	-.034	%80
13	MP4	X	-.013	%40
14	MP4	X	0	0
15	MP4	X	0	0

Member Point Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP1	Z	-.008	%15
2	MP1	Z	-.008	%80
3	MP1	Z	0	0
4	MP1	Z	0	0
5	MP1	Z	0	0
6	MP3	Z	-.007	%5
7	MP3	Z	-.007	%65
8	MP3	Z	-.001	%45
9	MP3	Z	0	0
10	MP3	Z	0	0

Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
11	MP4	Z	-.024	%10
12	MP4	Z	-.024	%80
13	MP4	Z	-.004	%40
14	MP4	Z	0	0
15	MP4	Z	0	0

Member Point Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP1	X	-.005	%15
2	MP1	X	-.005	%80
3	MP1	X	0	0
4	MP1	X	0	0
5	MP1	X	0	0
6	MP3	X	-.005	%5
7	MP3	X	-.005	%65
8	MP3	X	-.0006	%45
9	MP3	X	0	0
10	MP3	X	0	0
11	MP4	X	-.009	%10
12	MP4	X	-.009	%80
13	MP4	X	-.003	%40
14	MP4	X	0	0
15	MP4	X	0	0

Member Point Loads (BLC 8 : Ice Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP1	Y	-.081	%15
2	MP1	Y	-.081	%80
3	MP1	Y	0	0
4	MP1	Y	0	0
5	MP1	Y	0	0
6	MP3	Y	-.072	%5
7	MP3	Y	-.072	%65
8	MP3	Y	-.012	%45
9	MP3	Y	0	0
10	MP3	Y	0	0
11	MP4	Y	-.208	%10
12	MP4	Y	-.208	%80
13	MP4	Y	-.042	%40
14	MP4	Y	0	0
15	MP4	Y	0	0

Member Point Loads (BLC 13 : Maint LL 1)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	F2	Y	-.25	%95
2	XH1	Y	-.25	%95

Member Point Loads (BLC 14 : Maint LL 2)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	F1	Y	-.25	%95

Member Point Loads (BLC 15 : Maint LL 3)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	S2	Y	-.25	%50

Member Point Loads (BLC 16 : Maint LL 4)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	S1	Y	-.25	%50

Joint Loads and Enforced Displacements (BLC 9 : Live Load a)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N17	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 10 : Live Load b)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N23	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 11 : Live Load c)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N27	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 12 : Live Load d)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N31	L	Y	-.5

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	F1	Z	-.005	-.005	0	0
2	F2	Z	-.005	-.005	0	0
3	MP1	Z	-.005	-.005	0	0
4	MP2	Z	-.005	-.005	0	0
5	MP3	Z	-.005	-.005	0	0
6	MP4	Z	-.005	-.005	0	0
7	P1	Z	-.007	-.007	0	0
8	S1	Z	-.008	-.008	0	0
9	S2	Z	-.008	-.008	0	0
10	T1	Z	-.005	-.005	0	0
11	V1	Z	-.004	-.004	0	0
12	XB1	Z	-.014	-.014	0	0
13	XF1	Z	-.015	-.015	0	0
14	XF2	Z	-.015	-.015	0	0
15	XH1	Z	-.005	-.005	0	0

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	F1	X	-.005	-.005	0	0
2	F2	X	-.005	-.005	0	0
3	MP1	X	-.005	-.005	0	0
4	MP2	X	-.005	-.005	0	0

Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
5	MP3	X	-.005	-.005	0	0
6	MP4	X	-.005	-.005	0	0
7	P1	X	-.007	-.007	0	0
8	S1	X	-.008	-.008	0	0
9	S2	X	-.008	-.008	0	0
10	T1	X	-.005	-.005	0	0
11	V1	X	-.004	-.004	0	0
12	XB1	X	-.014	-.014	0	0
13	XF1	X	-.015	-.015	0	0
14	XF2	X	-.015	-.015	0	0
15	XH1	X	-.005	-.005	0	0

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	F1	Z	-.002	-.002	0	0
2	F2	Z	-.002	-.002	0	0
3	MP1	Z	-.002	-.002	0	0
4	MP2	Z	-.002	-.002	0	0
5	MP3	Z	-.002	-.002	0	0
6	MP4	Z	-.002	-.002	0	0
7	P1	Z	-.002	-.002	0	0
8	S1	Z	-.005	-.005	0	0
9	S2	Z	-.005	-.005	0	0
10	T1	Z	-.002	-.002	0	0
11	V1	Z	-.002	-.002	0	0
12	XB1	Z	-.007	-.007	0	0
13	XF1	Z	-.007	-.007	0	0
14	XF2	Z	-.007	-.007	0	0
15	XH1	Z	-.002	-.002	0	0

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	F1	X	-.002	-.002	0	0
2	F2	X	-.002	-.002	0	0
3	MP1	X	-.002	-.002	0	0
4	MP2	X	-.002	-.002	0	0
5	MP3	X	-.002	-.002	0	0
6	MP4	X	-.002	-.002	0	0
7	P1	X	-.002	-.002	0	0
8	S1	X	-.005	-.005	0	0
9	S2	X	-.005	-.005	0	0
10	T1	X	-.002	-.002	0	0
11	V1	X	-.002	-.002	0	0
12	XB1	X	-.007	-.007	0	0
13	XF1	X	-.007	-.007	0	0
14	XF2	X	-.007	-.007	0	0
15	XH1	X	-.002	-.002	0	0

Member Distributed Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]

Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	F1	Z	-.0003	-.0003	0	0
2	F2	Z	-.0003	-.0003	0	0
3	MP1	Z	-.0003	-.0003	0	0
4	MP2	Z	-.0003	-.0003	0	0
5	MP3	Z	-.0003	-.0003	0	0
6	MP4	Z	-.0003	-.0003	0	0
7	P1	Z	-.0004	-.0004	0	0
8	S1	Z	-.0008	-.0008	0	0
9	S2	Z	-.0008	-.0008	0	0
10	T1	Z	-.0003	-.0003	0	0
11	V1	Z	-.0003	-.0003	0	0
12	XB1	Z	-.002	-.002	0	0
13	XF1	Z	-.002	-.002	0	0
14	XF2	Z	-.002	-.002	0	0
15	XH1	Z	-.0003	-.0003	0	0

Member Distributed Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	F1	X	-.0003	-.0003	0	0
2	F2	X	-.0003	-.0003	0	0
3	MP1	X	-.0003	-.0003	0	0
4	MP2	X	-.0003	-.0003	0	0
5	MP3	X	-.0003	-.0003	0	0
6	MP4	X	-.0003	-.0003	0	0
7	P1	X	-.0004	-.0004	0	0
8	S1	X	-.0008	-.0008	0	0
9	S2	X	-.0008	-.0008	0	0
10	T1	X	-.0003	-.0003	0	0
11	V1	X	-.0003	-.0003	0	0
12	XB1	X	-.002	-.002	0	0
13	XF1	X	-.002	-.002	0	0
14	XF2	X	-.002	-.002	0	0
15	XH1	X	-.0003	-.0003	0	0

Member Distributed Loads (BLC 8 : Ice Load)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	F1	Y	-.008	-.008	0	0
2	F2	Y	-.008	-.008	0	0
3	MP1	Y	-.008	-.008	0	0
4	MP2	Y	-.008	-.008	0	0
5	MP3	Y	-.008	-.008	0	0
6	MP4	Y	-.008	-.008	0	0
7	P1	Y	-.01	-.01	0	0
8	S1	Y	-.011	-.011	0	0
9	S2	Y	-.011	-.011	0	0
10	T1	Y	-.008	-.008	0	0
11	V1	Y	-.008	-.008	0	0
12	XB1	Y	-.02	-.02	0	0
13	XF1	Y	-.016	-.016	0	0
14	XF2	Y	-.016	-.016	0	0
15	XH1	Y	-.008	-.008	0	0

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Ch...	Loc.....		LC	phi*Pn...	phi*Pn...	phi*M...	phi*M...	Cb	Eqn
1	F1	HSS2.375X0.188	.485	6.25	14	.315	4.1...		20	7.36	45.36	2.662	2.662	1.63	H1-1b
2	F2	HSS2.375X0.188	.505	6.25	43	.182	1.4...		20	7.36	45.36	2.662	2.662	1.6...	H1-1b
3	MP1	HSS2.375X0.188	.243	4.313	87	.102	1.3...		90	26.934	45.36	2.662	2.662	2.2...	H1-1b
4	MP2	HSS2.375X0.188	.317	4.313	86	.148	.375		98	26.934	45.36	2.662	2.662	2.2...	H1-1b
5	MP3	HSS2.375X0.188	.351	4.313	52	.212	4.3...		14	26.934	45.36	2.662	2.662	2.2...	H1-1b
6	MP4	HSS2.375X0.188	.407	2.5	14	.243	2.5		14	11.5	45.36	2.662	2.662	1.87	H1-1b
7	P1	PIPE_3.0	.228	.875	38	.097	.875		57	58.03	65.205	5.749	5.749	1.7...	H1-1b
8	S1	HSS3X3X4	.190	0	38	.091	1.3...	z	60	99.053	101.016	8.556	8.556	2.1...	H1-1b
9	S2	HSS3X3X4	.189	0	38	.084	1.3...	y	60	99.053	101.016	8.556	8.556	2.1...	H1-1b
10	T1	PIPE_2.0	.042	3.092	14	.002	3.0...		47	28.65	32.13	1.872	1.872	1.1...	H1-1...
11	V1	PIPE_2.0	.311	3	38	.051	3		49	28.843	32.13	1.872	1.872	2.2...	H1-1b
12	XB1	MTC340501	.030	.667	20	.007	.667	z	20	108.856	149.85	11.09	30.333	1.3...	H1-1b
13	XF1	MTC340502	.096	3.885	8	.020	0	y	86	56.814	75.725	4	13.085	1.1...	H1-1b
14	XF2	MTC340502	.124	3.914	8	.013	3.9...	z	14	56.678	75.725	4	13.085	1.1...	H1-1b
15	XH1	PIPE_2.0	.374	.542	38	.104	1.2...		19	5.82	32.13	1.872	1.872	2.7...	H1-1b

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	R1	max	1.452	88	1.241	39	1.626	14	-.144	3	1.177	90	.339	87
2		min	-.878	58	.353	9	-.729	8	-.533	45	-1.958	60	-.099	57
3	N38	max	.256	8	.018	33	1.176	14	0	115	0	115	0	115
4		min	-.291	14	0	50	-1.032	8	0	1	0	1	0	1
5	R2	max	.717	7	1.236	46	.066	8	-.138	4	1.335	18	.327	88
6		min	-1.044	25	.357	3	-1.36	38	-.546	46	-1.098	12	-.119	59
7	X1	max	.931	15	.171	43	.447	13	.003	92	.225	9	.002	92
8		min	-.689	9	.049	13	-.604	19	-.002	50	-.305	15	-.005	54
9	Totals:	max	1.576	17	2.655	38	2.247	2						
10		min	-1.576	11	.801	8	-2.247	20						

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11923C

CT923/W. View Dr_GT
7 West View Drive
Danbury, Connecticut 06810

May 21, 2019

EBI Project Number: 6219001723

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**33.27%**

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

May 21, 2019

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

Emissions Analysis for Site: CT11923C - CT923/W. View Dr_GT

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **7 West View Drive** in **Danbury, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 7 West View Drive in Danbury, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

5) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

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

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

9) The antennas used in this modeling are the Ericsson AIR21 B2A_B4P for the 1900 MHz / 2100 MHz channel(s), the Ericsson AIR32 B66A_B2A for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s) in Sector A, the Ericsson AIR21 B2A_B4P for the 1900 MHz / 2100 MHz channel(s), the Ericsson AIR32 B66A_B2A for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s) in Sector B, the Ericsson AIR21 B2A_B4P for the 1900 MHz / 2100 MHz channel(s), the Ericsson AIR32 B66A_B2A for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerline of the proposed antennas is 50 feet above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR21 B2A_B4P	Make / Model:	Ericsson AIR21 B2A_B4P	Make / Model:	Ericsson AIR21 B2A_B4P
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd
Height (AGL):	50 feet	Height (AGL):	50 feet	Height (AGL):	50 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts
ERP (W):	6,169.82	ERP (W):	6,169.82	ERP (W):	6,169.82
Antenna A1 MPE %:	**8.87%**	Antenna B1 MPE %:	**8.87%**	Antenna C1 MPE %:	**8.87%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR32 B66A_B2A	Make / Model:	Ericsson AIR32 B66A_B2A	Make / Model:	Ericsson AIR32 B66A_B2A
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd
Height (AGL):	50 feet	Height (AGL):	50 feet	Height (AGL):	50 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	8,728.31	ERP (W):	8,728.31	ERP (W):	8,728.31
Antenna A2 MPE %:	**12.55%**	Antenna B2 MPE %:	**12.55%**	Antenna C2 MPE %:	**12.55%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz
Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd
Height (AGL):	50 feet	Height (AGL):	50 feet	Height (AGL):	50 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	2,481.08	ERP (W):	2,481.08	ERP (W):	2,481.08
Antenna A3 MPE %:	**8.25%**	Antenna B3 MPE %:	**8.25%**	Antenna C3 MPE %:	**8.25%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	29.67%
Numerous Others	3.6%
Site Total MPE % :	33.27%

T-Mobile Sector A Total:	29.67%
T-Mobile Sector B Total:	29.67%
T-Mobile Sector C Total:	29.67%
Site Total:	33.27%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 1900 MHz GSM	4	1028.30	50.0	59.15	1900 MHz GSM	1000	5.92%
T-Mobile 2100 MHz UMTS	2	1028.30	50.0	29.58	2100 MHz UMTS	1000	2.96%
T-Mobile 1900 MHz LTE PCS	2	2056.61	50.0	59.15	1900 MHz LTE PCS	1000	5.92%
T-Mobile 2100 MHz LTE AWS	2	2307.55	50.0	66.37	2100 MHz LTE AWS	1000	6.64%
T-Mobile 600 MHz LTE	2	591.73	50.0	17.02	600 MHz LTE	400	4.25%
T-Mobile 700 MHz LTE	2	648.82	50.0	18.66	700 MHz LTE	467	4.00%
						Total:	**29.67%**

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	29.67%
Sector B:	29.67%
Sector C:	29.67%
T-Mobile Maximum MPE % (Sector A):	29.67%
Site Total:	33.27%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **33.27%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

Mailing Receipts/Proof of Notice

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 972
555 WASHINGTON ST
SOUTH EASTON ,MA 02375

UPS Access Point™
CVS STORE # 7232
689 DEPOT ST
NORTH EASTON ,MA 02356

UPS Access Point™
TOWN LINE GENERAL STORE
450 E CENTER ST
WEST BRIDGEWATER ,MA 02379

FOLD HERE

Jennifer Iliades

From: UPS Quantum View <pkginfo@ups.com>
Sent: Thursday, April 2, 2020 1:33 PM
To: Jennifer Iliades
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030325328524

Your package has been delivered.

Delivery Date: Thursday, 04/02/2020
Delivery Time: 01:26 PM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z9Y45030325328524
Ship To:	Seven T, LLC 39 PADANARAM RD DANBURY, CT 06811 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	0.2 LBS
Delivery Location:	RECEIVER
	LINDA
Reference Number 1:	CT11923C - CSC to Owner

Download the UPS mobile app

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 972
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SOUTH EASTON ,MA 02375

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CVS STORE # 7232
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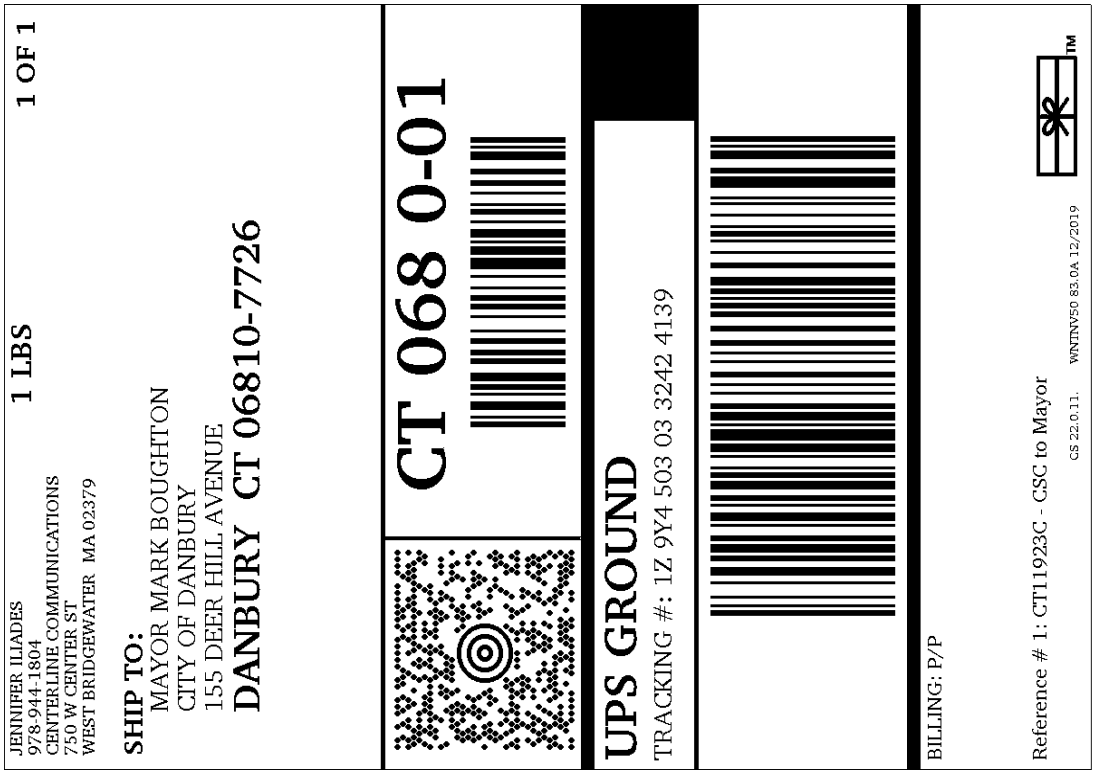

Jennifer Iliades

From: UPS Quantum View <pkginfo@ups.com>
Sent: Thursday, April 2, 2020 12:08 PM
To: Jennifer Iliades
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030332424139

Your package has been delivered.

Delivery Date: Thursday, 04/02/2020
Delivery Time: 12:05 PM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z9Y45030332424139
Ship To:	Mayor Mark Boughton City of Danbury 155 DEER HILL AVE DANBURY, CT 06810 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	0.2 LBS
Delivery Location:	FRONT DESK NADOR
Reference Number 1:	CT11923C - CSC to Mayor

Download the UPS mobile app

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

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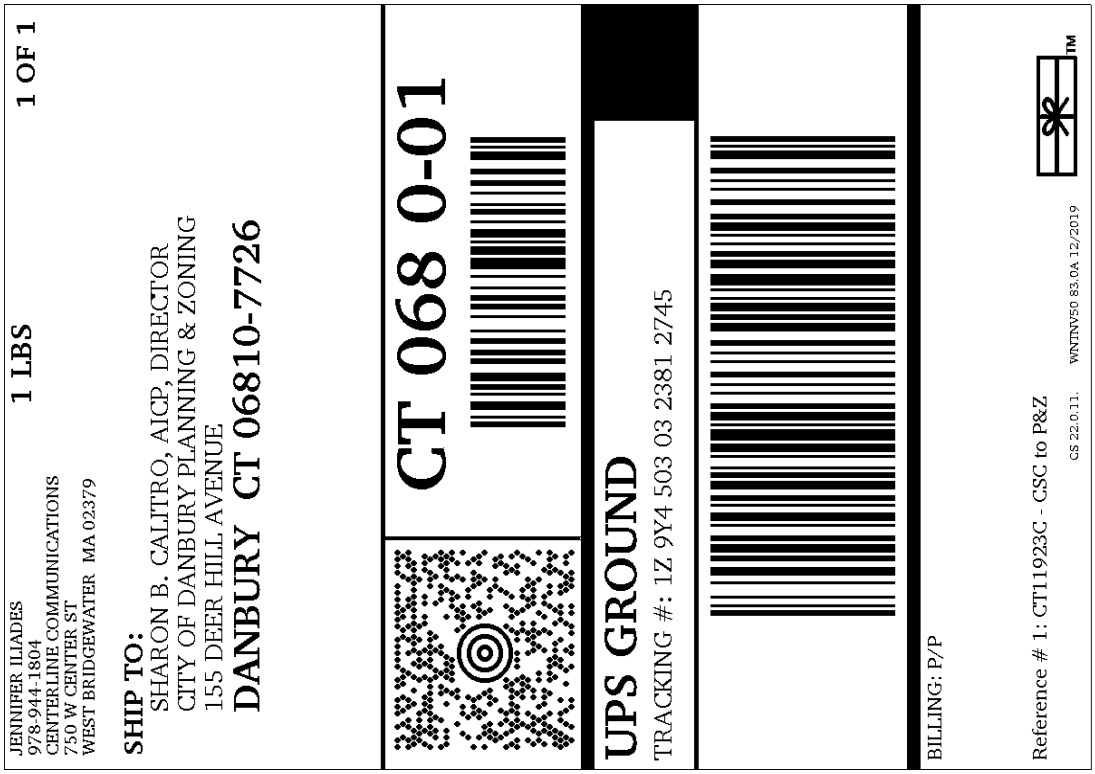
WEST BRIDGEWATER ,MA 02379

FOLD HERE



Jennifer Iliades

From: UPS Quantum View <pkginfo@ups.com>
Sent: Thursday, April 2, 2020 12:08 PM
To: Jennifer Iliades
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030323812745

Your package has been delivered.

Delivery Date: Thursday, 04/02/2020
Delivery Time: 12:05 PM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z9Y45030323812745
Ship To:	Sharon B. Calitro, AICP, Director City of Danbury Planning & Zoning 155 DEER HILL AVE DANBURY, CT 06810 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	0.2 LBS
Delivery Location:	FRONT DESK NADOR
Reference Number 1:	CT11923C - CSC to P&Z

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