NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
4 Angela's Way, Burlington CT 06013
203-435-3640
denise@northeastsitesolutions.com

August 16, 2022

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

RE: Tower Share Application
52 Stadley Rough Road, Danbury, CT 06811
Latitude: 41.433102
Longitude: -73.431916
Site #: CT13549-S_NJJER01104B_SBA/Dish

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 52 Stadley Rough Road, Danbury, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 127-foot level of the existing 139-foot monopole tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the existing fenced compound. Included are plans by B+T, dated August 8, 2022, Exhibit C. Also included is a structural analysis prepared by TES, dated October 13, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was originally approved by the Connecticut Siting Council, Docket No 366 on April 23, 2009. Please see attached Exhibit A

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Mayor Dean Esposito and Sharon Calitro, Director of Planning & Zoning for the City of Danbury, as well as the tower owner (SBA) and property owner (Christ the Shepherd Church PCA).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 139-feet and the Dish Wireless LLC antennas will be located at a centerline height of 127-feet.

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

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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 5.97% as evidenced by Exhibit F.

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

A. Technical Feasibility. The existing tower has been deemed structurally capable of supporting Dish Wireless LLC proposed loading. The structural analysis is included as Exhibit D.

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

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 127-foot level of the existing 139-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

Sincerely,

Denise Sabo

Denise Sabo
Mobile: 203-435-3640
Fax: 413-521-0558
Office: 4 Angela's Way, Burlington CT 06013
Email: denise@northeastsitesolutions.com

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Attachments

Cc: Mayor Dean Esposito
Danbury City Hall
155 Deer Hill Ave.
Danbury, CT 06810

Sharon Calitro, Director of Planning & Zoning
Danbury City Hall
155 Deer Hill Ave.
Danbury, CT 06810

Christ the Shepherd Church PCA - Property Owner
52 Stadley Rough Road
Danbury, CT 06811

SBA – Tower Owner

Exhibit A

Original Facility Approval

DOCKET NO. 366 - Optasite Towers LLC and Omnipoint Communications, Inc. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located at 52 Stadley Rough Road in Danbury, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		April 23, 2009

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Optasite Towers LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at 52 Stadley Rough Road, Danbury, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of Omnipoint Communications, Inc. and other entities, both public and private, but such tower shall not exceed a height of 140 feet above ground level. All antennas attached to the monopole shall be flush-mounted.

2. The Certificate Holder shall shift, to the extent feasible, the compound to the north and east to help retain the existing vegetative buffer.

3. The Certificate Holder shall incorporate an architectural treatment for the fence of the facility compound and any equipment shelters therein that is consistent with and amenable to adjacent land uses.

4. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the City of Danbury for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:

a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping that will provide additional vegetative buffering for the adjacent properties; and

b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

5. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

6. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

7. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

8. The Certificate Holder shall provide reasonable space on the tower for no compensation for any City of Danbury public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.

9. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.

10. Any request for extension of the time period referred to in Condition 9 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the City of Danbury. Any proposed modifications to this Decision and Order shall likewise be so served.

11. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

12. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

13. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction and the commencement of site operation.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Danbury News-Times.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

APPLICANT	**ITS REPRESENTATIVE**
Optasite Towers LLC and Omnipoint Communications, Inc. One Research Drive, Suite 200C Westborough, MA 01581	Christopher B. Fisher, Esq. Lucia Chiocchio, Esq. Cuddy & Feder LLP 445 Hamilton Avenue, 14th Floor White Plains, New York 10601
City of Danbury	Laszlo L. Pinter, Esq. Robin Edwards, Esq. City of Danbury 155 Deer Hill Avenue Danbury, CT 06810

Exhibit B

Property Card

52 STADLEY ROUGH RD

Location	52 STADLEY ROUGH RD	**Mblu**	K07/ / 19/ /
Acct#		**Owner**	CHRIST THE SHEPHERD CHURCH PCA
Assessment	$1,400,200	**Appraisal**	$2,000,200
PID	23658	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$1,482,100	$518,100	$2,000,200
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$1,037,500	$362,700	$1,400,200

Owner of Record

Owner	CHRIST THE SHEPHERD CHURCH PCA	**Sale Price**	$450,000
Co-Owner		**Book & Page**	1948/ 939
Address	52 STADLEY ROUGH RD DANBURY, CT 06811	**Sale Date**	07/25/2007
		Instrument	25

Ownership History

Ownership History				
Owner	**Sale Price**	**Book & Page**	**Instrument**	**Sale Date**
CHRIST THE SHEPHERD CHURCH PCA	$450,000	1948/ 939	25	07/25/2007
CANDLEWOOD BAPTIST CHURCH	$0	0510/0346		01/24/1972

Building Information

Building 1 : Section 1

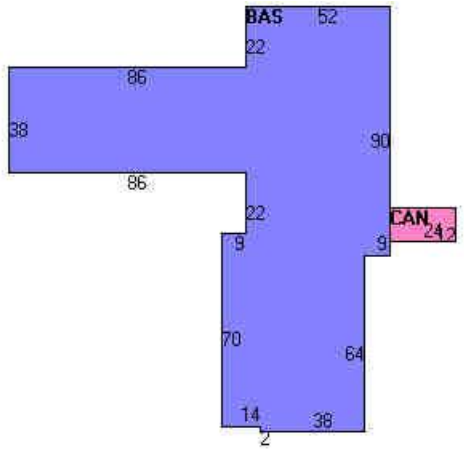
Year Built:	1997
Living Area:	11,320
Replacement Cost:	$1,540,478
Building Percent Good:	85
Replacement Cost Less Depreciation:	$1,309,400

Building Attributes	
Field	**Description**
STYLE	Churches
MODEL	Ind/Comm
Grade	Good
Stories:	1
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Asphalt Shngl.
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Forced Air-Duc
AC Type	Central
Bldg Use	Church
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	200I
Heat/AC	HEAT/AC PKGS
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL & WL
Rooms/Prtns	AVERAGE
Wall Height	12
% Comn Wall	0

Building Photo

(http://images.vgsi.com/photos2/DanburyCTPhotos//\00\02\81/21.jpg)

Building Layout



(http://images.vgsi.com/photos2/DanburyCTPhotos//Sketches/23658_2365

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	11,320	11,320
CAN	Canopy	288	0
		11,608	11,320

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 918

Land Line Valuation

Size (Acres) 4.85

Description	Church	**Frontage**	0
Zone	RA40	**Depth**	0
Neighborhood	3000	**Assessed Value**	$362,700
Alt Land Appr	No	**Appraised Value**	$518,100
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	Paving-Asphalt			20000 S.F.	$21,000	1
SHD1	Shed-Avg			128 S.F.	$1,100	1
FN3	Fence 3			160 L.F.	$600	1
CEL	Cell Tower			1 UNITS	$150,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$1,482,100	$518,100	$2,000,200
2018	$1,482,100	$518,100	$2,000,200
2017	$1,482,100	$518,100	$2,000,200

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$1,037,500	$362,700	$1,400,200
2018	$1,037,500	$362,700	$1,400,200
2017	$1,037,500	$362,700	$1,400,200

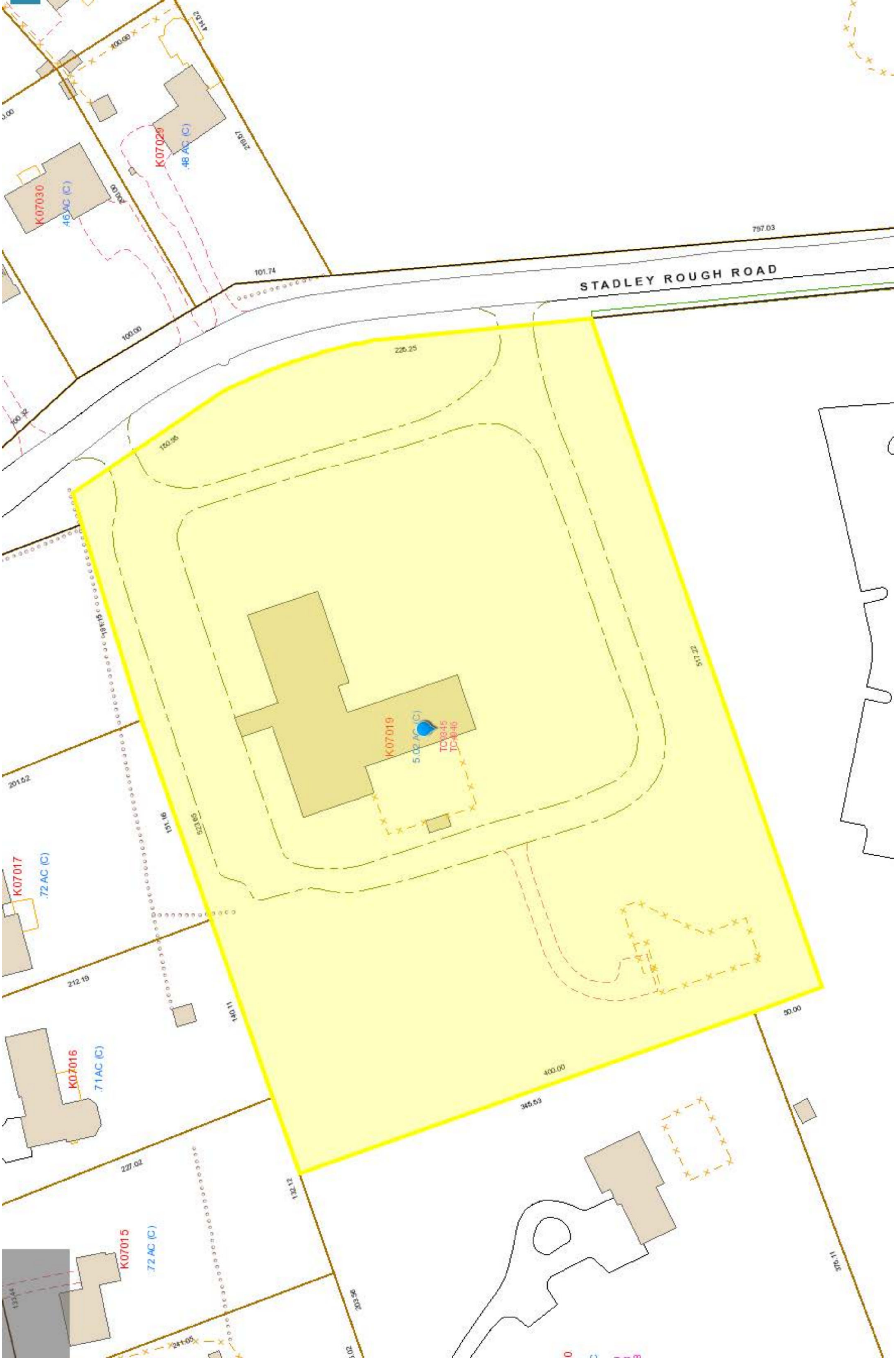

STADLEY ROUGH ROAD
K07030
.46 AC (C)
K07029
.48 AC (C)
K07019
5.02 AC (C)
K07017
.72 AC (C)
K07016
.71 AC (C)
K07015
.72 AC (C)
797.03
101.74
100.00
226.25
150.95
517.22
523.65
400.00
345.53
50.00
201.62
151.16
212.19
140.11
227.02
132.12
203.56
376.11

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

NJJER01104B

DISH Wireless L.L.C. SITE ADDRESS:

52 STADLEY ROUGH ROAD
DANBURY, CT 06811

NOTE:
THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION REMOVAL AND/OR REPLACEMENT OF THE TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR 1.61000 (B)(7).

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (1) PROPOSED TOWER PLATFORM MOUNT
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)

SITE INFORMATION

PROPERTY OWNER:	CHRIST THE SHEPHERD CHURCH PCA
ADDRESS:	52 STADLEY ROUGH RD DANBURY, CT 06811
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	CT13549-S
TOWER APP NUMBER:	163808
COUNTY:	FAIRFIELD
LATITUDE (NAD 83):	41° 25' 59.17" N 41.43310211 N
LONGITUDE (NAD 83):	73° 25' 54.90" W 73.431916 W
ZONING JURISDICTION:	FAIRFIELD COUNTY
ZONING DISTRICT:	RA40
PARCEL NUMBER:	K07019
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	XFINITY

PROJECT DIRECTORY

APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120 (303) 706-5008
TOWER OWNER:	SBA COMMUNICATAIONS CORP. 8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800) 487-7483
SITE DESIGNER:	B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
SITE ACQUISITION:	GREGG BAILEY GREGG.BAILEY@DISH.COM
CONSTRUCTION MANAGER:	MICHAEL NARDUCCI MICHAEL.NARDUCCI@DISH.COM
RF ENGINEER:	MURUGABIRAN JAYAPAL MURUGABIRAN.JAYAPAL@DISH.COM

CONNECTICUT 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	2018 CT STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS
MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS
ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS

SITE PHOTO

DIRECTIONS

DIRECTIONS FROM 3 ADP BLVD, ROSELAND, NJ 07068:

TURN RIGHT ONTO CR-527 [LIVINGSTON AVE]. TAKE RAMP (RIGHT) ONTO I-280. AT EXIT 17B, STAY ON I-280. TAKE RAMP ONTO I-95 [NEW JERSEY TPKE]. STAY ON I-95 [NEW JERSEY TPKE]. AT EXIT 73, STAY ON I-95 [NEW JERSEY TPKE]. STAY ON I-95 [US-1]. AT EXIT 3, TAKE RAMP (RIGHT) ONTO I-87 [MAJOR DEEGAN EXPY]. AT EXIT 4, TAKE RAMP ONTO CENTRAL PARK AVE. TAKE RAMP ONTO CROSS COUNTY PKWY. MERGE ONTO HUTCHINSON RIVER PKWY N. KEEP LEFT ONTO I-684 . AT EXIT 9E, TAKE RAMP (RIGHT) ONTO I-84. KEEP LEFT ONTO US-202 [US-7]. ROAD NAME CHANGES TO US-7. AT EXIT 11, KEEP LEFT ONTO RAMP. TURN LEFT ONTO WHITE TURKEY RD. TURN LEFT ONTO US-202 [FEDERAL RD]. TURN RIGHT ONTO NABBY RD. TURN LEFT ONTO PALMER RD, THEN IMMEDIATELY TURN RIGHT ONTO KAREN RD. TURN LEFT ONTO STADLEY ROUGH RD. TURN RIGHT ONTO INDIAN SPRING RD. TURN LEFT ONTO LOCAL ROAD(S). ARRIVE AT NJJER01104B.

SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
LS1	SITE SURVEY
A-1	OVERALL AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	EQUIPMENT PLATFORM AND H-FRAME DETAILS
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
E-2	ELECTRICAL DETAILS
E-3	ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
RF-1	RF CABLE COLOR CODE
GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES

UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

VICINITY MAP

NO SCALE

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD BUTLER
No. 23924
LICENSED PROFESSIONAL ENGINEER
8/8/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
YN	BLJ	BEH

RFDS REV #: 3

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	7/19/21	ISSUED FOR REVIEW
0	10/20/21	ISSUED FOR CONSTRUCTION
1	8/8/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

153448.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01104B
52 STADLEY ROUGH ROAD
DANBURY, CT 06811

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

VICINITY MAP NOT TO SCALE

LEGAL DESCRIPTION: 20' NON-EXCLUSIVE ACCESS AND UTILITY EASEMENT (AS SURVEYED)

COMMENCING FROM AN EXISTING IRON PIPE ON THE WESTERN RIGHT OF WAY OF STADLEY ROUGH ROAD, HAVING CONNECTICUT STATE PLANE COORDINATES E:813,361.77' -AND- N:719,635.32'; THENCE, S 20° 01' 42" E FOR A DISTANCE OF 333.46 FEET TO A POINT ON SAID RIGHT OF WAY, ALSO BEING THE POINT OF BEGINNING; THENCE, ALONG SAID RIGHT OF WAY S 04° 48' 18" E FOR A DISTANCE OF 20.58 FEET TO A POINT; THENCE, DEPARTING SAID RIGHT OF WAY S 71° 34' 18" W FOR A DISTANCE OF 294.88 FEET TO THE BEGINNING OF A NON-TANGENTIAL CURVE, SAID CURVE TURNING TO THE RIGHT THROUGH AN ANGLE OF 91° 46' 37", HAVING A RADIUS OF 60.19 FEET, AND WHOSE LONG CHORD BEARS N 62° 49' 03" W FOR A DISTANCE OF 86.43 FEET. THENCE, N 16° 55' 45" W FOR A DISTANCE OF 57.98 FEET TO A POINT; THENCE, S 72° 56' 26" W FOR A DISTANCE OF 73.09 FEET TO THE BEGINNING OF A CURVE, SAID CURVE TURNING TO THE LEFT THROUGH 91° 49' 30", HAVING A RADIUS OF 42.21 FEET, AND WHOSE LONG CHORD BEARS S 27° 01' 41" W FOR A DISTANCE OF 60.63 FEET. THENCE, S 71° 06' 56" W FOR A DISTANCE OF 20.00 FEET TO THE BEGINNING OF A NON-TANGENTIAL CURVE, SAID CURVE TURNING TO THE RIGHT THROUGH AN ANGLE OF 91° 49' 30", HAVING A RADIUS OF 62.21 FEET, AND WHOSE LONG CHORD BEARS N 27° 01' 41" E FOR A DISTANCE OF 89.36 FEET. THENCE, N 72° 56' 26" E FOR A DISTANCE OF 93.13 FEET TO A POINT; THENCE, S 16° 55' 45" E FOR A DISTANCE OF 78.03 FEET TO THE BEGINNING OF A CURVE, SAID CURVE TURNING TO THE LEFT THROUGH AN ANGLE OF 91° 50' 20", HAVING A RADIUS OF 40.19 FEET, AND WHOSE LONG CHORD BEARS S 62° 50' 55" E FOR A DISTANCE OF 57.74 FEET TO A POINT OF INTERSECTION WITH A NON-TANGENTIAL LINE. THENCE, N 71° 34' 18" E FOR A DISTANCE OF 299.78 FEET TO A POINT ON SAID RIGHT OF WAY, ALSO BEING THE POINT OF BEGINNING, CONTAINING 12,250 SQFT -AND- 0.28 ACRES.

LEGAL DESCRIPTION: EXCLUSIVE EASEMENT (AS SURVEYED)

COMMENCING FROM AN EXISTING IRON PIPE ON THE WESTERN RIGHT OF WAY OF STADLEY ROUGH ROAD, HAVING CONNECTICUT STATE PLANE COORDINATES E:813,361.77' -AND- N:719,635.32'; THENCE, S 38° 13' 17" W FOR A DISTANCE OF 498.43 FEET TO THE POINT OF BEGINNING; THENCE, S 18° 53' 04" E FOR A DISTANCE OF 100.00 FEET TO A POINT; THENCE, S 71° 06' 56" W FOR A DISTANCE OF 100.00 FEET TO A POINT; THENCE, N 18° 53' 04" W FOR A DISTANCE OF 100.00 FEET TO A POINT; THENCE, N 71° 06' 56" E FOR A DISTANCE OF 100.00 FEET TO THE POINT OF BEGINNING, CONTAINING 10,000 SQFT -AND- 0.23 ACRES.

ZONING: RA-40

THIS PARCEL OF LAND LIES WITHIN FLOOD ZONE X WHICH IS NOT A SPECIAL FLOOD HAZARD AREA AS PER F.I.R.M. PANEL NUMBER: 09001C0141F EFFECTIVE DATE: 05/18/2010

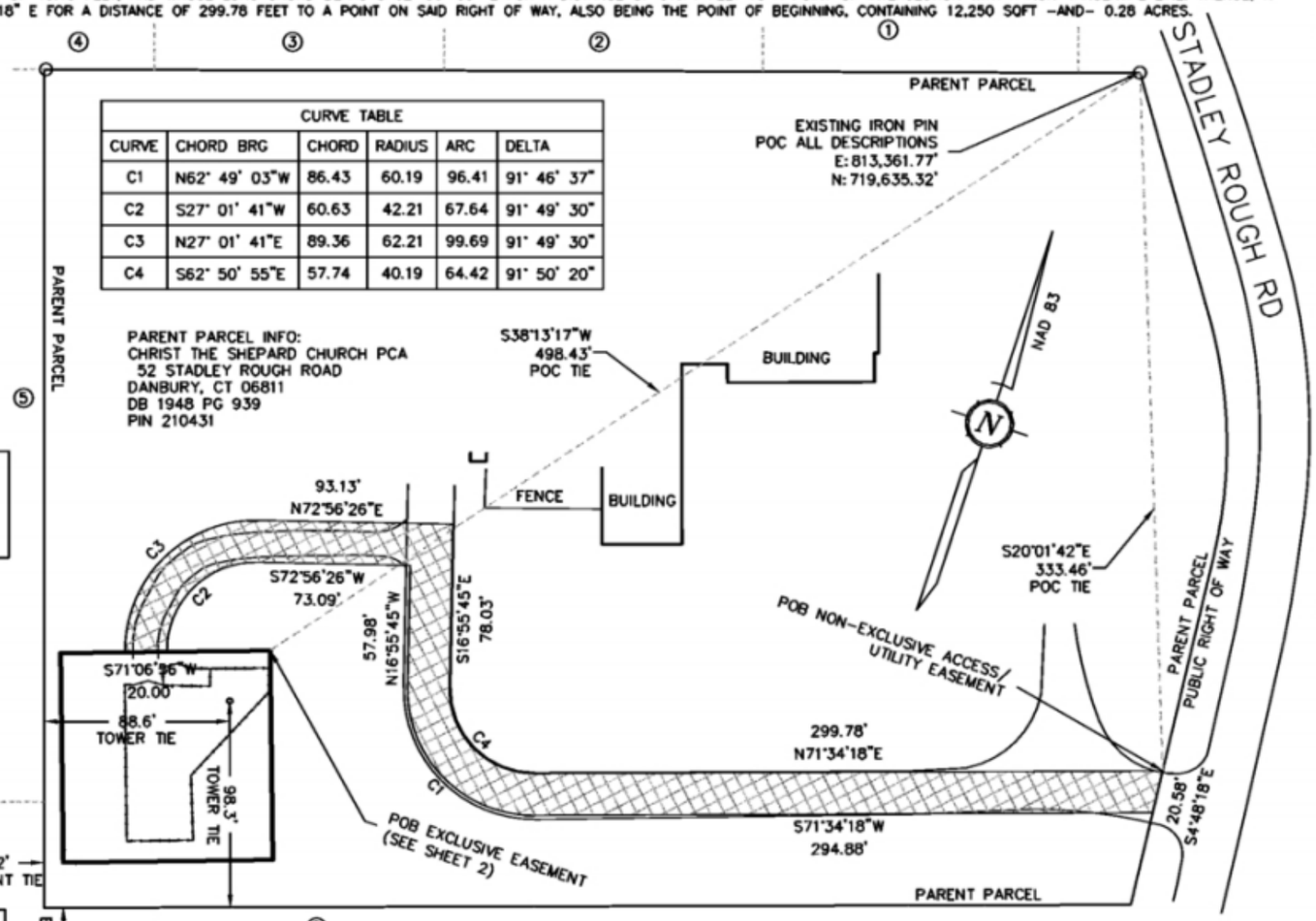
LEGEND

- ● :SET 5/8" REBAR.
- O :FOUND 1/2" REBAR AS NOTED.
- (___) :RECORD DESCRIPTION DATA.
- P.O.B. :POINT OF BEGINNING.
- P.O.C. :POINT OF COMMENCEMENT.
- —— o —— :FENCE AS NOTED.
- —— OH —— :OVER HEAD UTILITY LINES.
- :WOOD UTILITY POLE.
- E :ELECTRIC TRANSFORMER.
- T :TELCO PEDESTAL.
- WM :WATER METER.
- CATV :CABLE TELEVISION
- S :SEWER MAN HOLE
- N/F :NOW OR FORMERLY

AREA	SQUARE FEET	ACRE
PARENT PARCEL	215,273	4.94
EXCLUSIVE EASEMENT	10,000	0.23
COMPOUND AREA	3611	0.08
NON-EXCLUSIVE ACCESS/ UTILITY EASEMENT	12250	0.28
NON-EXCLUSIVE UTILITY EASEMENT		

CURVE TABLE					
CURVE	CHORD BRG	CHORD	RADIUS	ARC	DELTA
C1	N62° 49' 03"W	86.43	60.19	96.41	91° 46' 37"
C2	S27° 01' 41"W	60.63	42.21	67.64	91° 49' 30"
C3	N27° 01' 41"E	89.36	62.21	99.69	91° 49' 30"
C4	S62° 50' 55"E	57.74	40.19	64.42	91° 50' 20"

PARENT PARCEL INFO:
CHRIST THE SHEPARD CHURCH PCA
52 STADLEY ROUGH ROAD
DANBURY, CT 06811
DB 1948 PG 939
PIN 210431



ADJOINER INFO:
① N/F TOM & ROSE MARY PEAT PIN K070180000
② N/F LISA MARIA & JAMES J BAKER PIN K070170000
③ N/F CAROL RIZZA PIN K070160000
④ N/F CHARLES H & RUTH R SNODGRASS PIN K070150000
⑤ N/F JOSE & CHRISTINA CARVALHEIRO PIN K070200000
⑥ COLONIAL HILLS BAPTIST CHURCH PIN K071050000

CT13549-S DANBURY 1.DWG

SHEET 1 OF 2

SHEET 1 OF 3

AS-BUILT SURVEY

PREPARED FOR SBA

SITE: DANBURY 1
ID: CT13549-S
ADDRESS: 52 Stadley Rough Road
DANBURY, CT 06811
FAIRFIELD COUNTY

NATIONAL SURVEY SERVICES COORDINATION BY:

GEOLINE SURVEYING, INC.
13430 NW 104th Terrace, Alachua, FL 32615
Office:(386) 418-0500 Fax:(386) 462-9986
WWW.GEOLINEINC.COM

SURVEY WORK PERFORMED BY:

JONATHAN MURPHY
Professional Land Surveying
10505 Leafwood Place (919) 280-8189
Raleigh NC 27613 FAX 995-9616
E-MAIL : info@murphygeomatics.com FIRM C-2757

SURVEYOR'S NOTES

1. BASIS OF BEARING:
CT GRID NAD83

2. NO SUBSURFACE INVESTIGATION WAS PERFORMED TO LOCATE UNDERGROUND UTILITIES. UTILITIES SHOWN HEREON ARE LIMITED TO AND ARE PER OBSERVED EVIDENCE ONLY.

3. THIS SURVEY DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARENT PARCEL.

4. ALL VISIBLE TOWER EQUIPMENT AND IMPROVEMENTS ARE CONTAINED WITH IN THE DESCRIBED AREA.

5. AT THE TIME OF THE SURVEY THERE WERE NO VISIBLE ENCROACHMENT ONTO OR BEYOND SUBJECT PROPERTY.

SURVEYOR'S CERTIFICATION

I HEREBY CERTIFY TO SBA ENTITY: SBA TOWERS II, LLC, A FLORIDA LIMITED LIABILITY COMPANY, NATHANSON, CIPRIANO, AND GAMBARDELLA, PC, AND STEWART TITLE GUARANTY COMPANY COMMITMENT CTH 27474 EFFECTIVE AUGUST 25, 2014.

MURPHY GEOMATICS

MATTHEW BATTEY
LAND SURVEYOR -
DATE: 9/3/2014

STATE OF CONNECTICUT
MATTHEW R. BATTEY
No. 70369
LICENSED LAND SURVEYOR

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
YN	BLJ	BEH

RFDS REV #: 3

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	7/19/21	ISSUED FOR REVIEW
0	10/20/21	ISSUED FOR CONSTRUCTION
1	8/8/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
153448.001.01

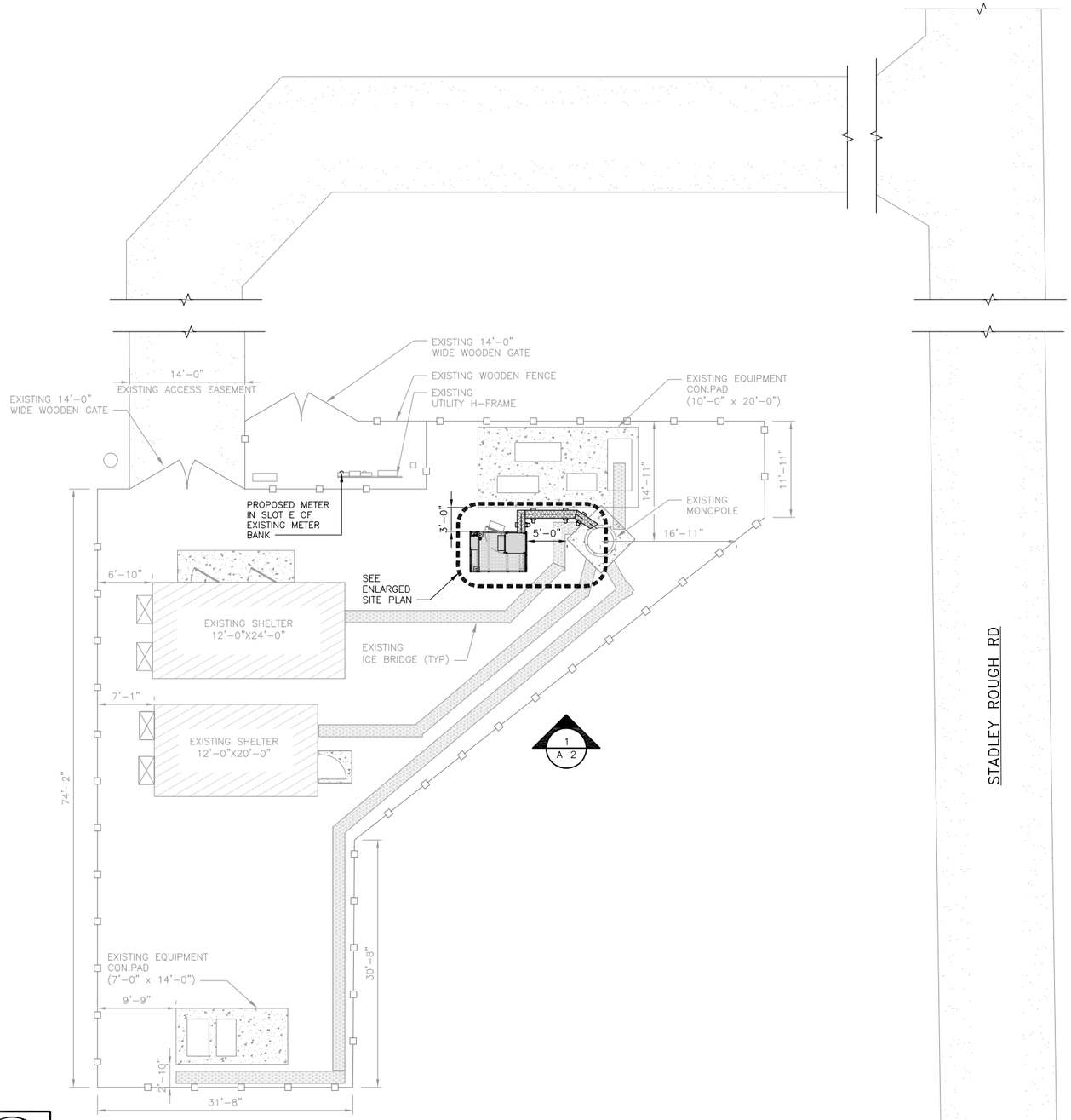
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER01104B
52 STADLEY ROUGH ROAD
DANBURY, CT 06811

SHEET TITLE
SITE SURVEY

SHEET NUMBER
LS1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



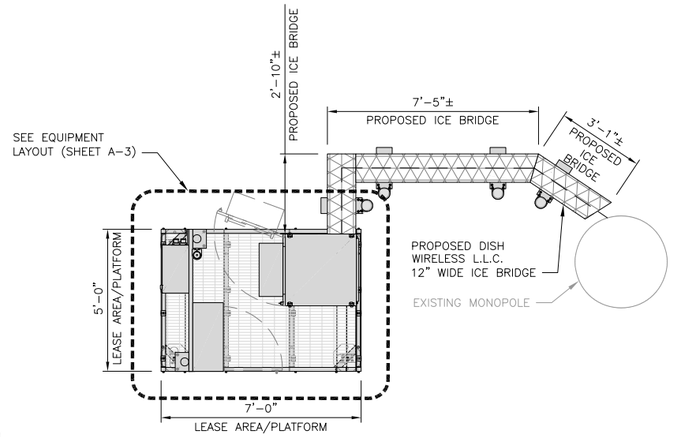
OVERALL SITE PLAN

8' 4' 0 8' 16'
1/8"=1'-0"

1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

2

NOT USED

3

dish wireless.

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LICENSED PROFESSIONAL ENGINEER
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PROJECT INFORMATION

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52 STADLEY ROUGH ROAD
DANBURY, CT 06811

SHEET TITLE

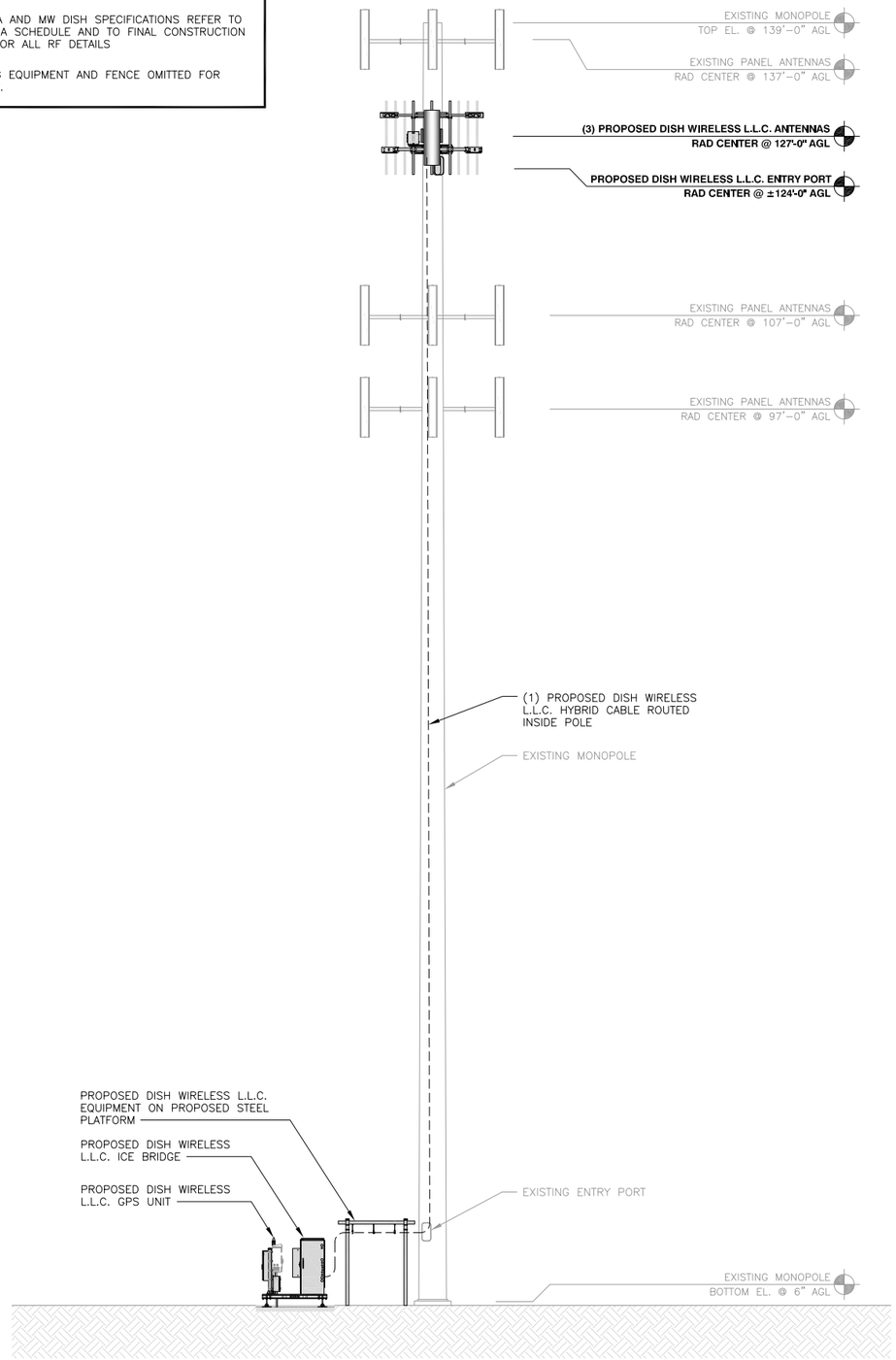
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

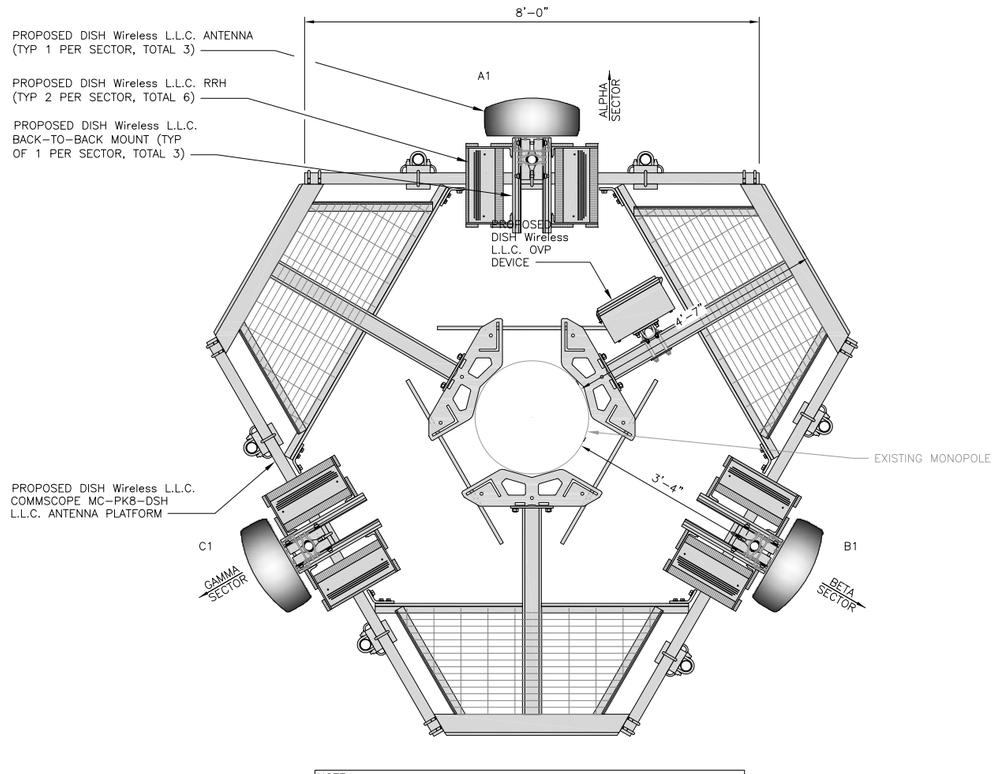
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED SOUTH ELEVATION

8' 4' 0 8' 16'
1/8"=1'-0"

1



NOTE:
AZIMUTHS ARE TENTATIVE, CONFIRM BEFORE STARTING CONSTRUCTION

ANTENNA LAYOUT

12" 6" 0 1' 2' 3'
3/4"=1'-0"

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	COMMSCOPE – FFVV-65B-R2	5G	72.0" x 19.6"	0°	127'-0"	(1) HIGH-CAPACITY HYBRID CABLE (165' LONG)
BETA	B1	PROPOSED	COMMSCOPE – FFVV-65B-R2	5G	72.0" x 19.6"	120°	127'-0"	
GAMMA	C1	PROPOSED	COMMSCOPE – FFVV-65B-R2	5G	72.0" x 19.6"	240°	127'-0"	

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	FUJITSU – TA08025-B605	5G
	A1	FUJITSU – TA08025-B604	5G
BETA	B1	FUJITSU – TA08025-B605	5G
	B1	FUJITSU – TA08025-B604	5G
GAMMA	C1	FUJITSU – TA08025-B605	5G
	C1	FUJITSU – TA08025-B604	5G

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.

OVP		
EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	SIZE (HxWxD)
PROPOSED	RAYCAP-RDIDC-9181-PF-48	16"x14"x8"

ANTENNA SCHEDULE

NO SCALE

3

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DISH Wireless L.L.C.
PROJECT INFORMATION

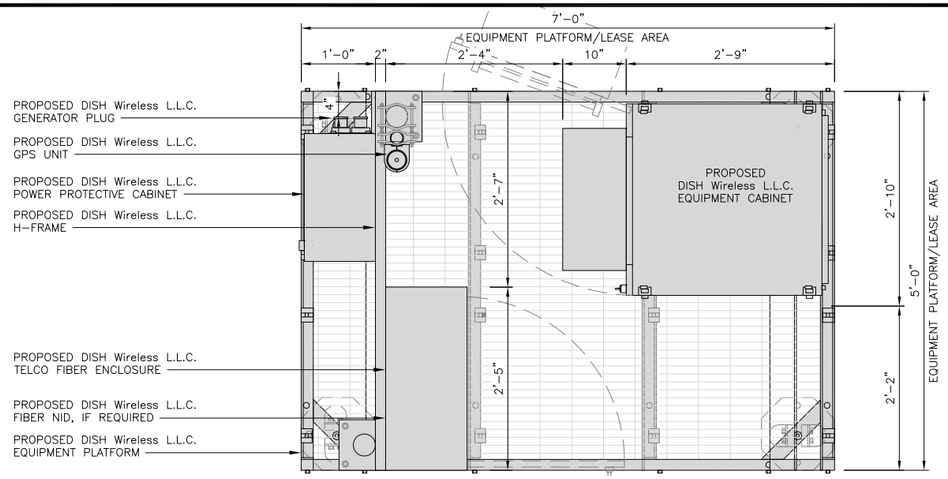
NJJER01104B
52 STADLEY ROUGH ROAD
DANBURY, CT 06811

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



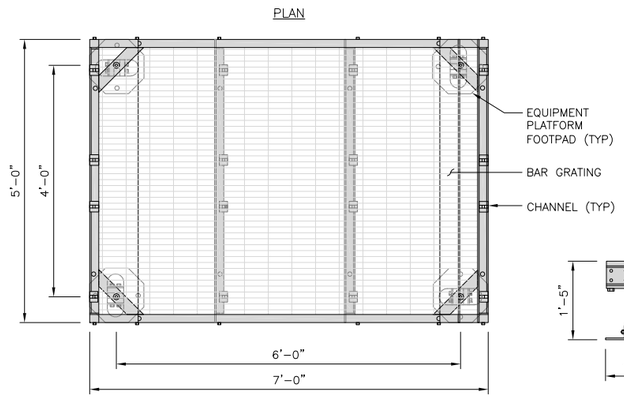
PLATFORM EQUIPMENT PLAN

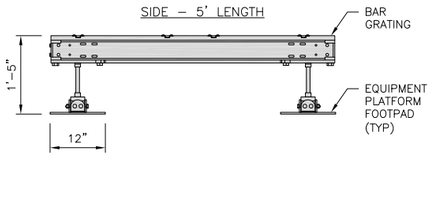
12" 9" 6" 3" 0 1' 2'
1"=1'-0"

1

COMMSCOPE MTC4045LP 5X7 PLATFORM	
DIMENSIONS (HxWxD)	16"x84"x60"
TOTAL WEIGHT	423 LBS

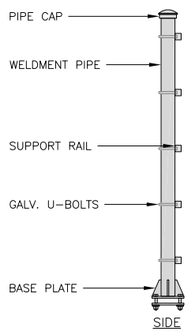
NOTE:
GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"





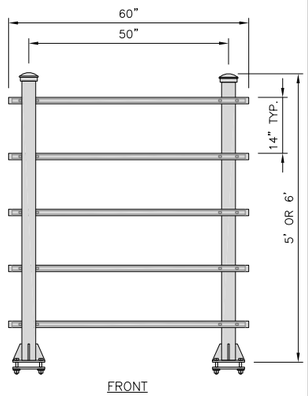
PLATFORM DETAIL | NO SCALE | 2

COMMSCOPE MTC4045HFLD H-FRAME	
UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs



SIDE

NOTE:
OR DISH Wireless L.L.C. APPROVED EQUIVALENT



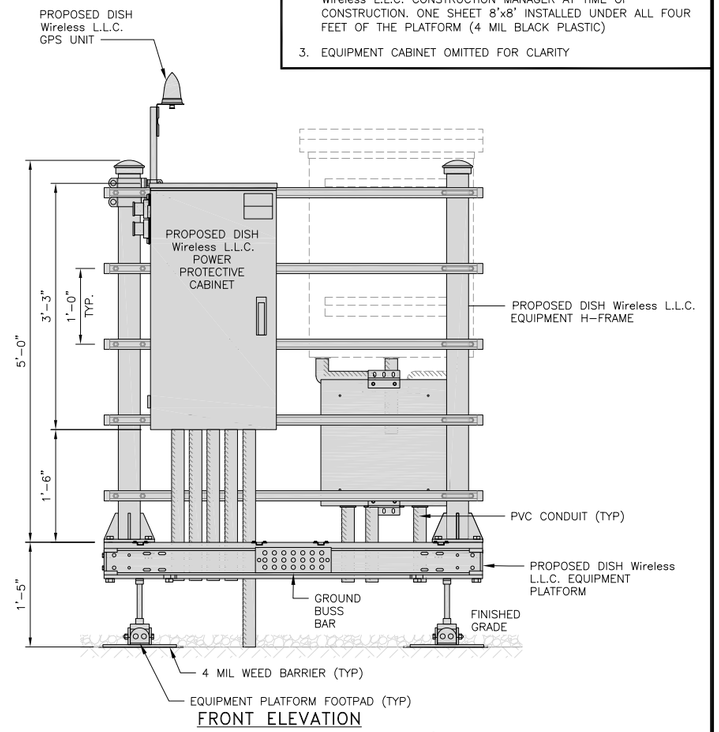
FRONT

H-FRAME DETAIL | NO SCALE | 3

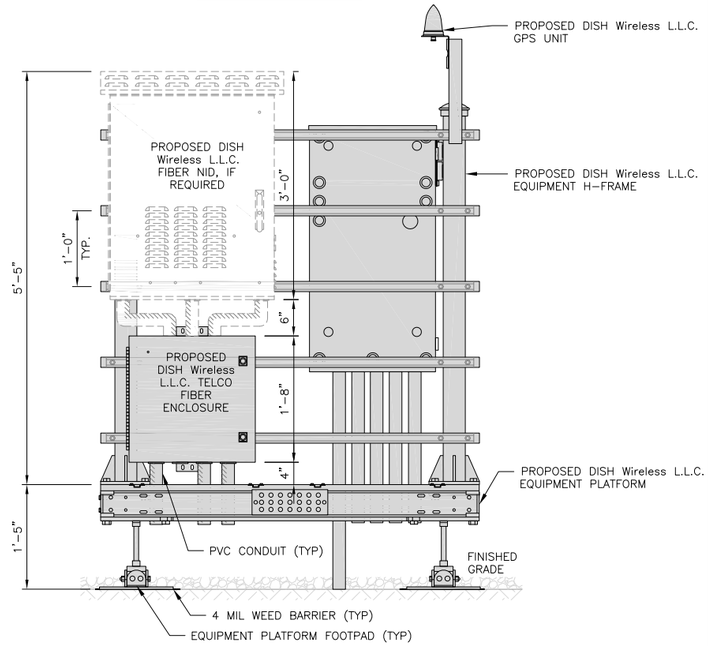
NOT USED | NO SCALE | 4

NOTES

1. CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
2. WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH Wireless L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
3. EQUIPMENT CABINET OMITTED FOR CLARITY



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

12" 9" 6" 3" 0 1' 2'
1"=1'-0"

5

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DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01104B
52 STADLEY ROUGH ROAD
DANBURY, CT 06811

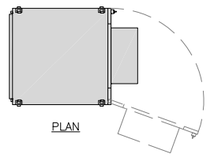
SHEET TITLE

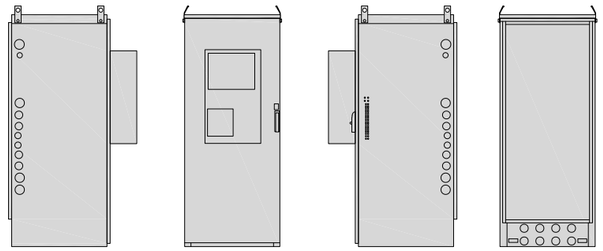
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER

A-3

ENERSYS HVAC CABINET 2000005995	
DIMENSIONS (HxWxD):	73"x30"x32"
WEIGHT EMPTY:	371 lbs
HVAC	600W
POWER SYSTEM	-48V ALPHA/600A

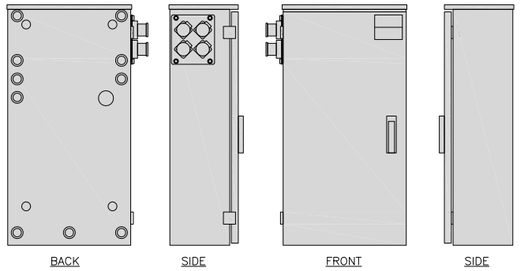

PLAN


SIDE FRONT SIDE BACK

CABINET DETAIL | NO SCALE | 1

RAYCAP PPC RDIAC-2465-P-240-MTS	
ENCLOSURE DIMENSIONS (HxWxD):	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G


TOP

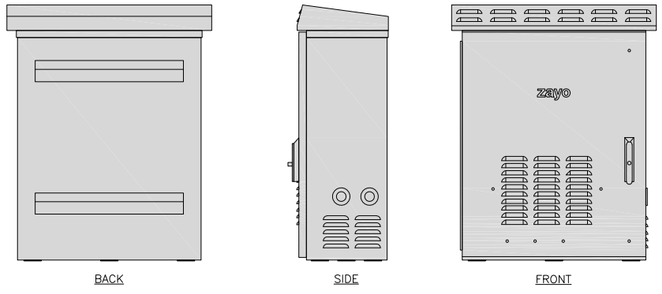

BACK SIDE FRONT SIDE

POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

NOT USED | NO SCALE | 3

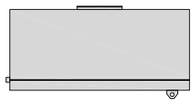
ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs

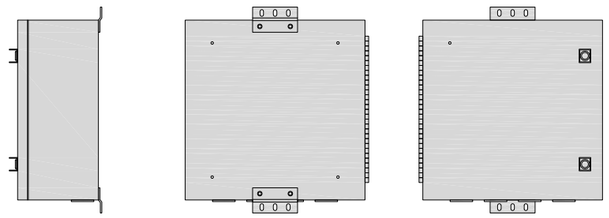

BOTTOM


BACK SIDE FRONT

FIBER NID ENCLOSURE DETAIL | NO SCALE | 5

CHARLES CFIT-PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4

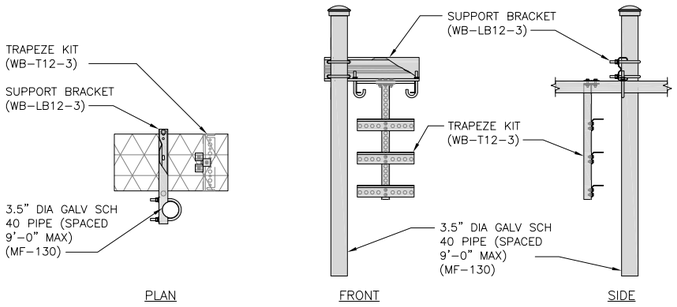

FRONT


SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

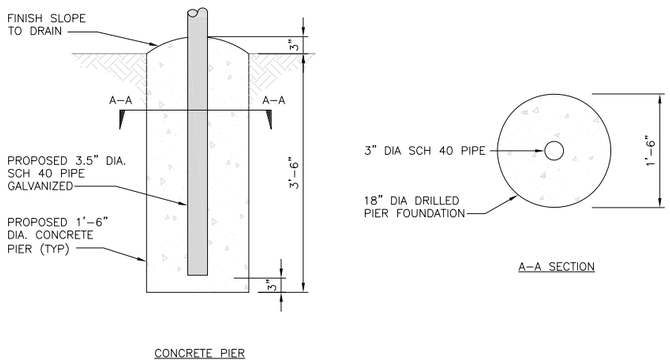
COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

INCLUDED PRODUCTS:	WB-T12-3 TRAPEZE KIT, 3 RUNGS
	WB-LB12-3 SUPPORT BRACKET
	MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"



PLAN FRONT SIDE

ICE BRIDGE DETAIL | NO SCALE | 7



CONCRETE PIER

A-A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8

NOT USED | NO SCALE | 9

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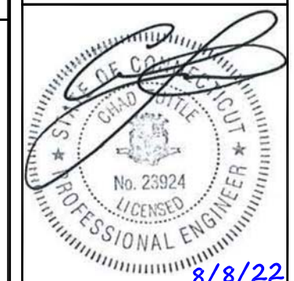

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52 STADLEY ROUGH ROAD
DANBURY, CT 06811

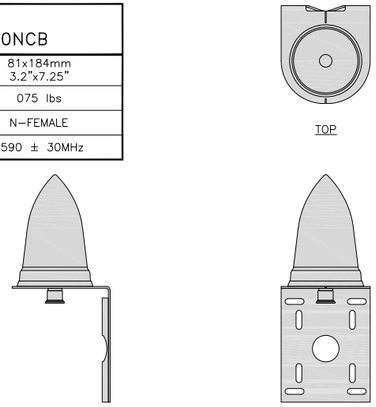
SHEET TITLE

EQUIPMENT DETAILS

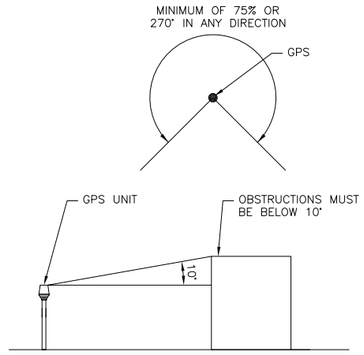
SHEET NUMBER

A-4

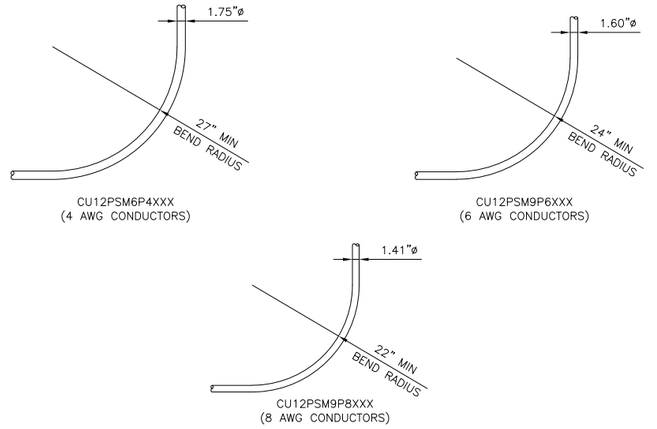
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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A&E PROJECT NUMBER

153448.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01104B
52 STADLEY ROUGH ROAD
DANBURY, CT 06811

SHEET TITLE

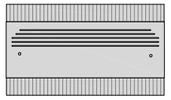
EQUIPMENT DETAILS

SHEET NUMBER

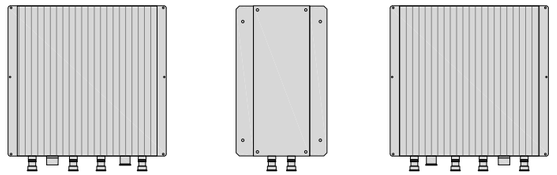
A-5

FUJITSU TRIPLE BAND TA08025-B605

DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



PLAN

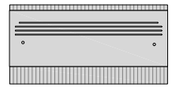


BACK SIDE FRONT

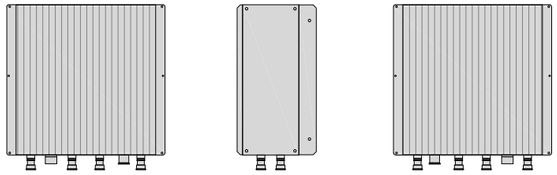
RRH DETAIL | NO SCALE | 1

FUJITSU DUAL BAND TA08025-B604

DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



PLAN



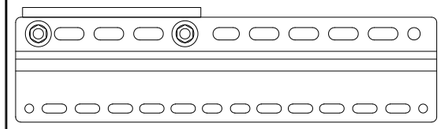
BACK SIDE FRONT

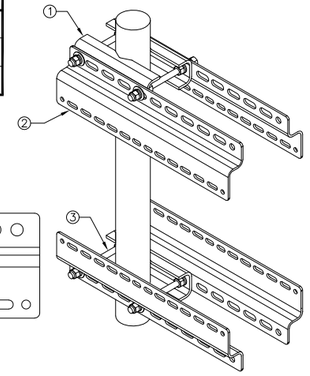
RRH DETAIL | NO SCALE | 2

SABRE DOUBLE Z-BRACKET C10123155

DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"





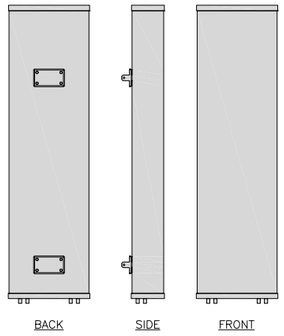
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

COMMSCOPE FFVV-65B-R2

DIMENSIONS (HxWxD)(MM/IN)	1828x498x197 72"x19.6"x7.8"
RF CONNECTOR INTERFACE	4.3-10 FEMALE
WEIGHT	70.8 lbs
WEIGHT WITH BRACKETS	98.1 lbs

PLAN



BACK SIDE FRONT

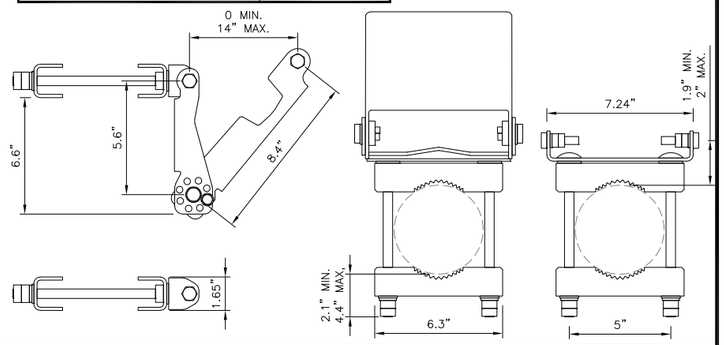
ANTENNA DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

COMMSCOPE ANTENNA BRACKET BSAMNT-3

DIAMETER COMPATIBILITY	2.362" - 4.528"
NET WEIGTH	13.669 lbs

NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

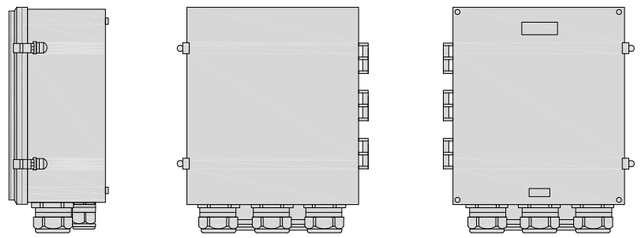


ANTENNA BRACKET DETAIL | NO SCALE | 6

RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)

DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS

PLAN



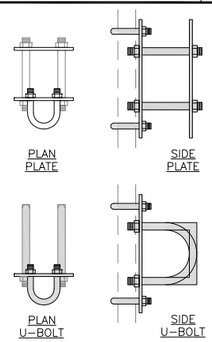
SIDE BACK FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

COMMSCOPE XP-2040 CROSSOVER PLATE

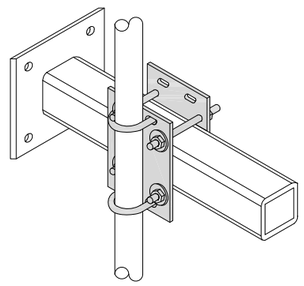
DIMENSIONS (HxW)	10"x12"
WEIGHT	11 lbs

NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



PLAN PLATE SIDE PLATE

PLAN U-BOLT SIDE U-BOLT

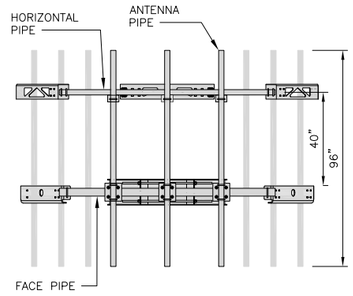


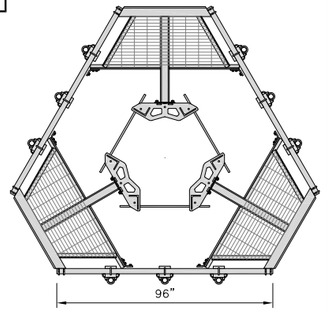
RRH/OVP MOUNT DETAIL | NO SCALE | 8

COMMSCOPE MC-PK8-DSH

FACE WIDTH	96"
WEIGHT	1373.08 lbs
NOTE: 15" TO 38" O.D.	

NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT





ANTENNA PLATFORM DETAIL | NO SCALE | 9

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DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01104B
52 STADLEY ROUGH ROAD
DANBURY, CT 06811

SHEET TITLE

EQUIPMENT DETAILS

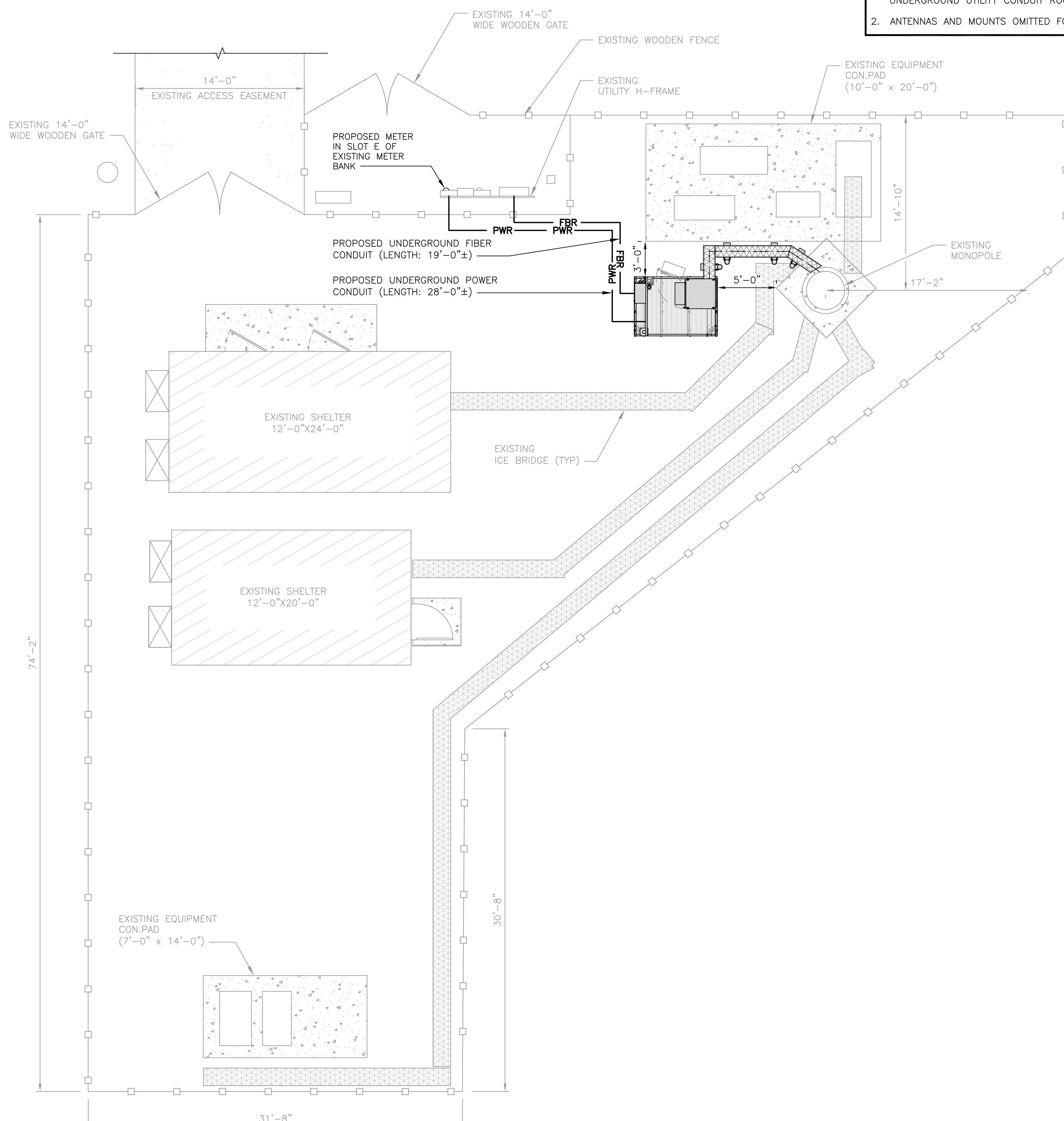
SHEET NUMBER

A-6

FINAL POWER OR FIBER DESIGN
NOT AVAILABLE AT TIME OF ISSUE

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



UTILITY ROUTE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

1

DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND −48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY −48V.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG

ELECTRICAL NOTES

NO SCALE

2

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DISH Wireless L.L.C.
PROJECT INFORMATION

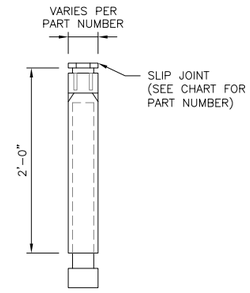
NJJER01104B
52 STADLEY ROUGH ROAD
DANBURY, CT 06811

SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER
E-1

CARLON EXPANSION FITTINGS

COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N	E945NX	4"	5	8"
E945P	E945PX	5"	1	8"
E945R	E945RX	6"	1	8"

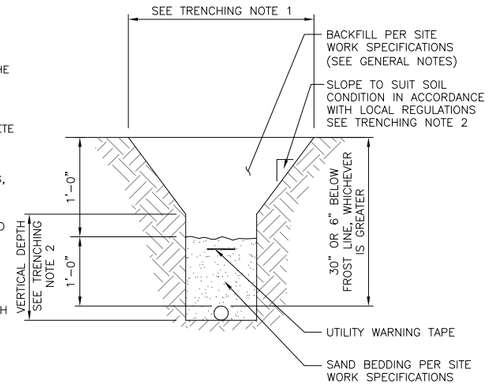


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

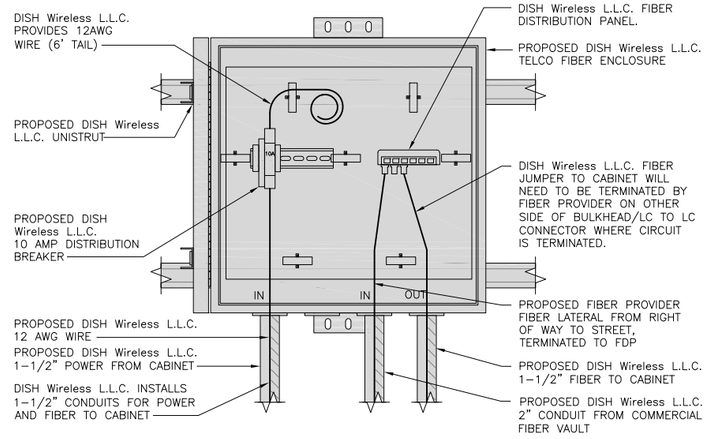
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

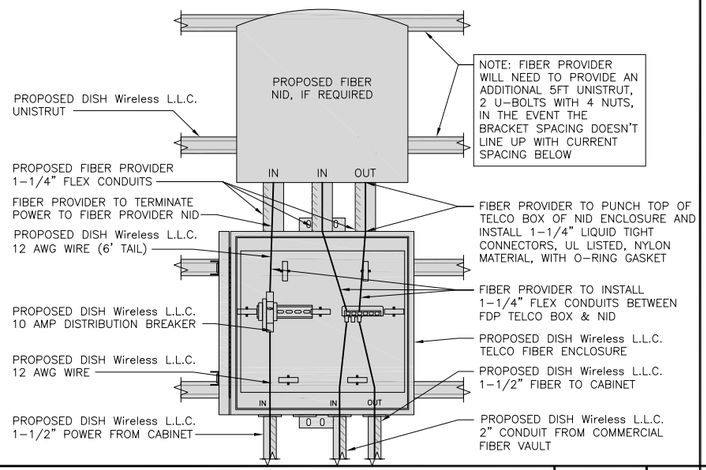
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
3. ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



DARK TELCO BOX – INTERIOR WIRING LAYOUT | NO SCALE | 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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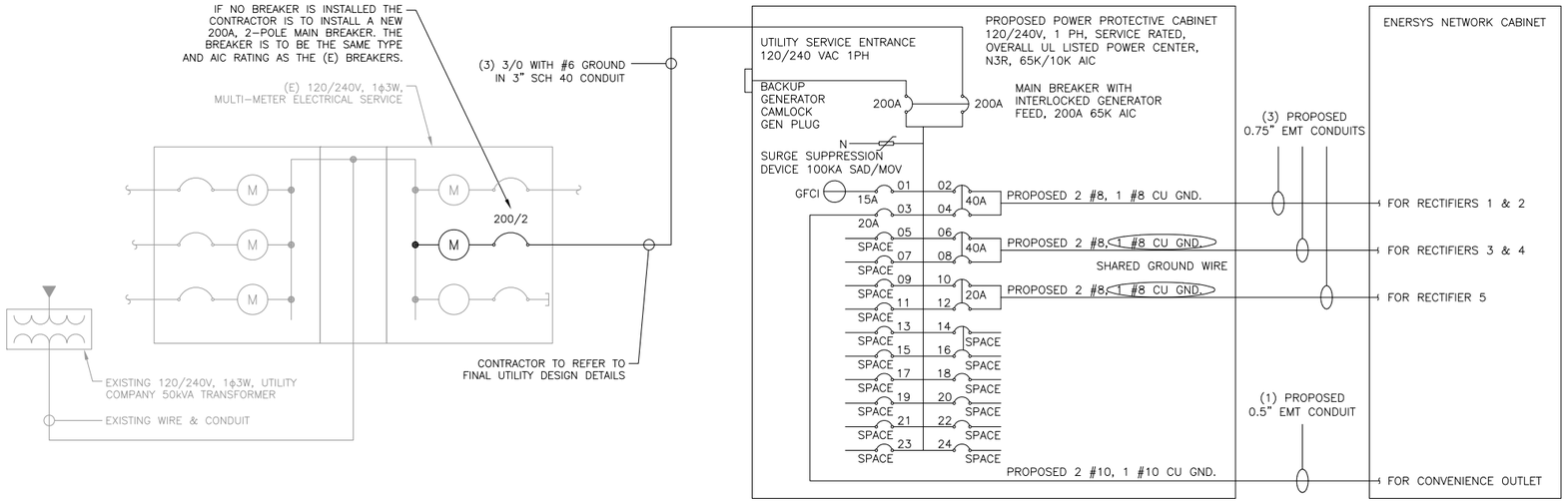
SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E-2



NOTE:
BRANCH CIRCUIT WIRING SUPPLYING RECTIFIERS ARE TO BE RATED UL1015, 105°C, 600V, AND PVC INSULATED, IN THE SIZES SHOWN IN THE ONE–LINE DIAGRAM. CONTRACTOR MAY SUBSTITUTE UL1015 WIRE FOR THWN–2 FOR CONVENIENCE OUTLET BRANCH CIRCUIT.

BREAKERS REQUIRED:
(2) 40A, 2P BREAKER – SQUARE D P/N:QO240
(1) 20A, 2P BREAKER – SQUARE D P/N:QO220
(1) 20A, 1P BREAKER – SQUARE D P/N:QO120

NOTES

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.
0.5" CONDUIT – 0.122 SQ. IN AREA
0.75" CONDUIT – 0.213 SQ. IN AREA
2.0" CONDUIT – 1.316 SQ. IN AREA
3.0" CONDUIT – 2.907 SQ. IN AREA

CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN–2, CU.

#10 – 0.0211 SQ. IN X 2 = 0.0422 SQ. IN
#10 – 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
TOTAL = 0.0633 SQ. IN

0.5" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

RECTIFIER CONDUCTORS (3 CONDUITS): USING UL1015, CU.

#8 – 0.0552 SQ. IN X 2 = 0.1103 SQ. IN
#8 – 0.0131 SQ. IN X 1 = 0.0131 SQ. IN <BARE GROUND
TOTAL = 0.1234 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.

3/0 – 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
#6 – 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND
TOTAL = 0.8544 SQ. IN

3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC ONE–LINE DIAGRAM

NO SCALE | 1

PROPOSED ENERSYS PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	40A	3840		ENERSYS ALPHA CORDEX
ENERSYS GFCI OUTLET		180	20A	3	B	4			3840	RECTIFIERS 1 & 2
–SPACE–				5	A	6	40A	3840		ENERSYS ALPHA CORDEX
–SPACE–				7	B	8			3840	RECTIFIER 3 & 4
–SPACE–				9	A	10	20A	1920		ENERSYS ALPHA CORDEX
–SPACE–				11	B	12			1920	RECTIFIER 5
–SPACE–				13	A	14				–SPACE–
–SPACE–				15	B	16				–SPACE–
–SPACE–				17	A	18				–SPACE–
–SPACE–				19	B	20				–SPACE–
–SPACE–				21	A	22				–SPACE–
–SPACE–				23	B	24				–SPACE–
VOLTAGE AMPS	180	180						9500	9500	
200A MCB, 1ϕ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			9680		9680		VOLTAGE AMPS			
			81		81		AMPS			
			81				MAX AMPS			
			102				MAX 125%			

PANEL SCHEDULE | NO SCALE | 2

NOT USED | NO SCALE | 3

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STATE OF CONNECTICUT
CHAD L. JOHNSON
No. 23924
LICENSED PROFESSIONAL ENGINEER
8/8/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
YN	BLJ	BEH

RFDS REV #: 3

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	7/19/21	ISSUED FOR REVIEW
0	10/20/21	ISSUED FOR CONSTRUCTION
1	8/8/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

153448.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

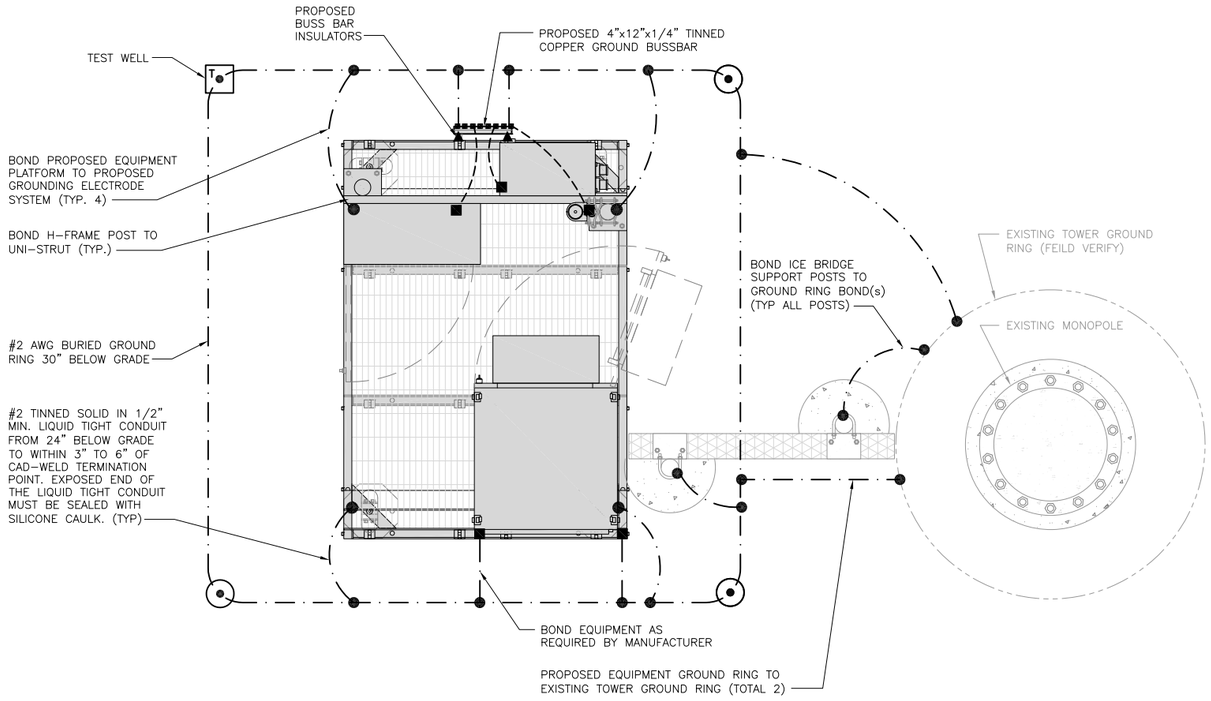
NJJER01104B
52 STADLEY ROUGH ROAD
DANBURY, CT 06811

SHEET TITLE

ELECTRICAL ONE–LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER

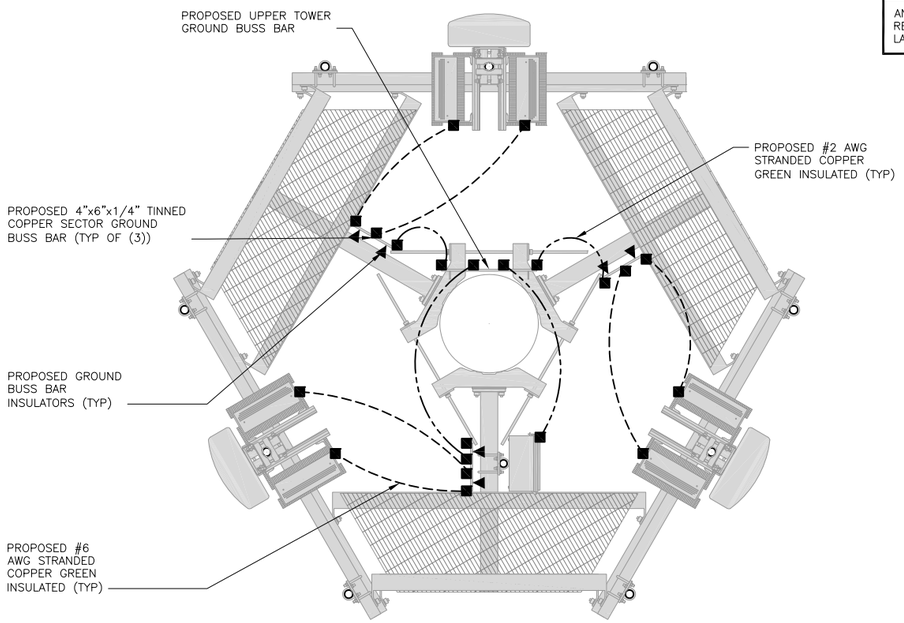
E-3



TYPICAL EQUIPMENT GROUNDING PLAN | NO SCALE | 1

NOTES

ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE PURPOSES ONLY



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2

EXOTHERMIC CONNECTION
MECHANICAL CONNECTION
GROUND BUS BAR
GROUND ROD
TEST GROUND ROD WITH INSPECTION SLEEVE
#6 AWG STRANDED & INSULATED
#2 AWG SOLID COPPER TINNED
BUSS BAR INSULATOR

GROUNDING LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH Wireless L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

(A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.

(B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.

(C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.

(D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.

(E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

(F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

(G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.

(H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.

(I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.

(J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.

(K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.

(L) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.

(M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE

(N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.

(O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR

(P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR.

REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES | NO SCALE | 3

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PROJECT INFORMATION

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DANBURY, CT 06811

SHEET TITLE

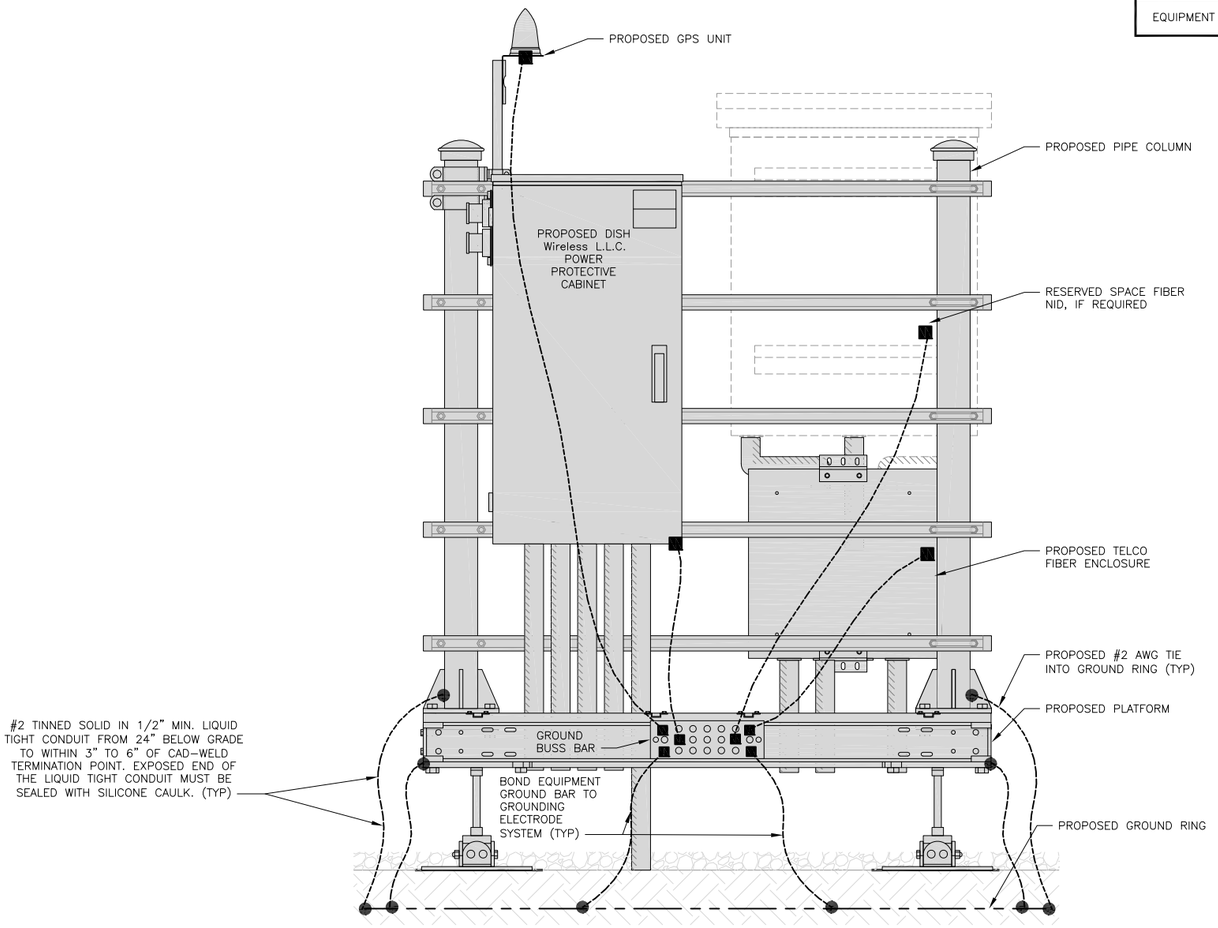
GROUNDING PLANS AND NOTES

SHEET NUMBER

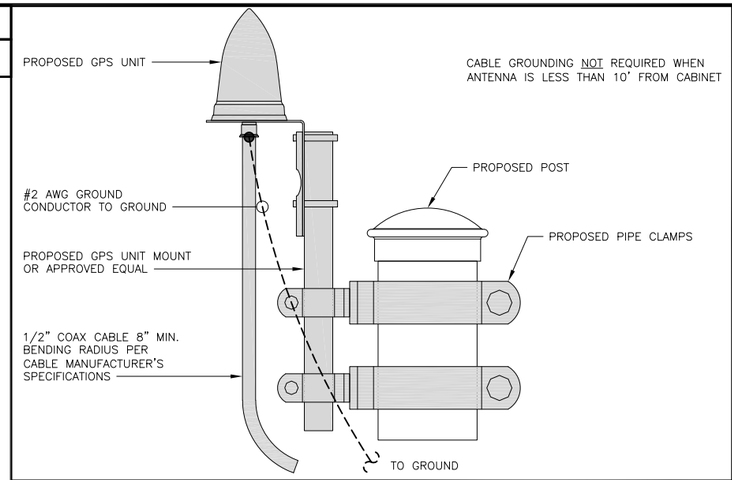
G-1

NOTES

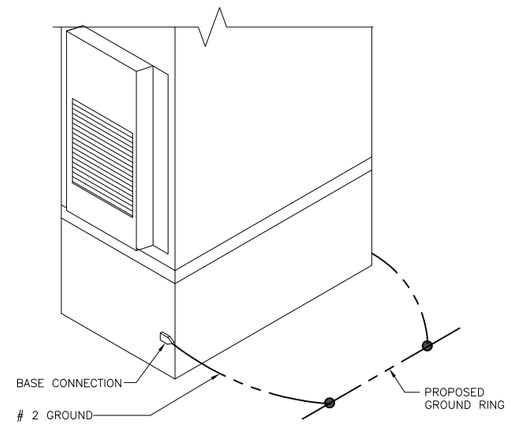
EQUIPMENT CABINET OMITTED FOR CLARITY



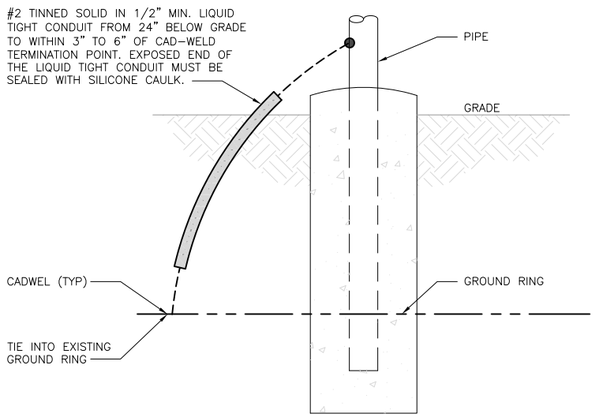
H-FRAME GROUNDING DETAIL | NO SCALE | 1



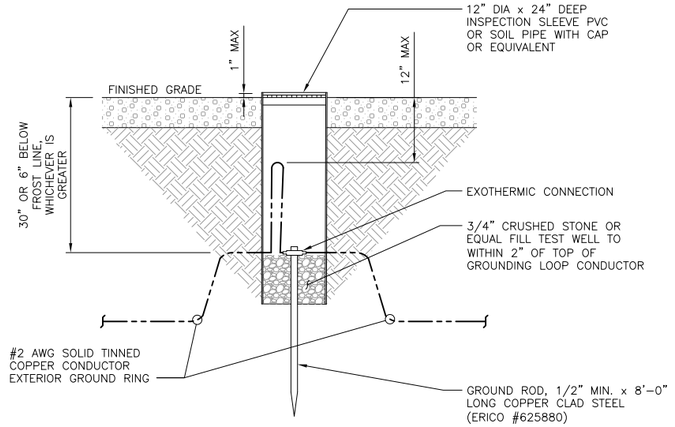
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



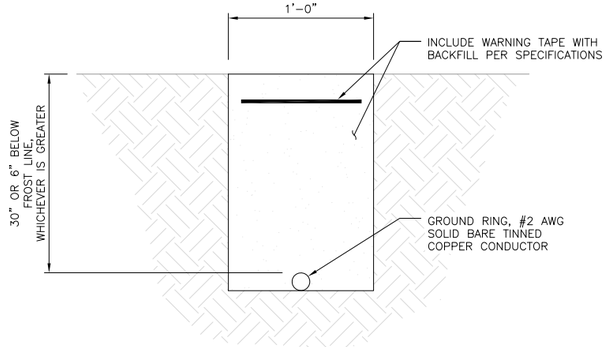
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE | NO SCALE | 5



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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SHEET TITLE

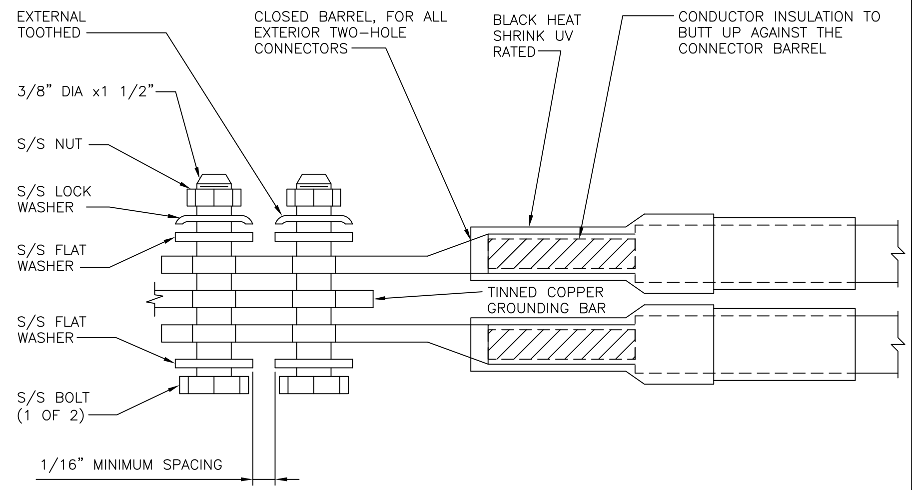
GROUNDING DETAILS

SHEET NUMBER

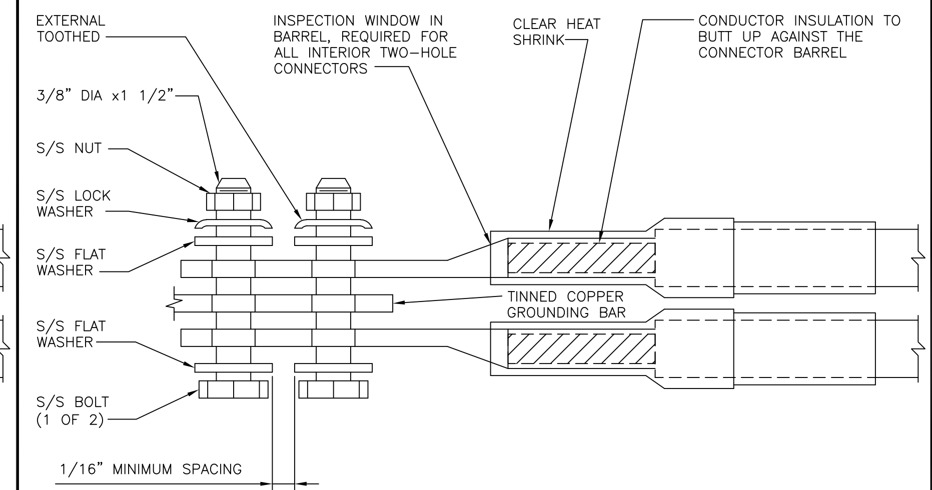
G-2

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18–8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI–OXIDANT COMPOUND BEFORE MATING.
3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI–OXIDANT COMPOUND BEFORE MATING.
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

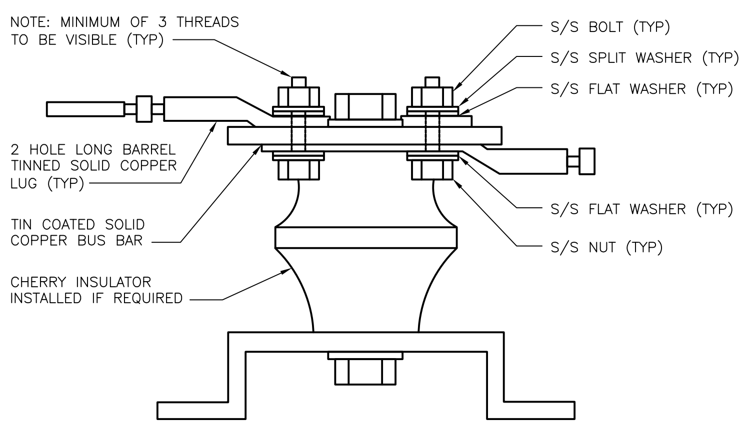
TYPICAL GROUNDING NOTES — NO SCALE — 1



TYPICAL EXTERIOR TWO HOLE LUG — NO SCALE — 2



TYPICAL INTERIOR TWO HOLE LUG — NO SCALE — 3



LUG DETAIL — NO SCALE — 4

NOT USED — NO SCALE — 5

NOT USED — NO SCALE — 6

NOT USED — NO SCALE — 7

NOT USED — NO SCALE — 8

NOT USED — NO SCALE — 9

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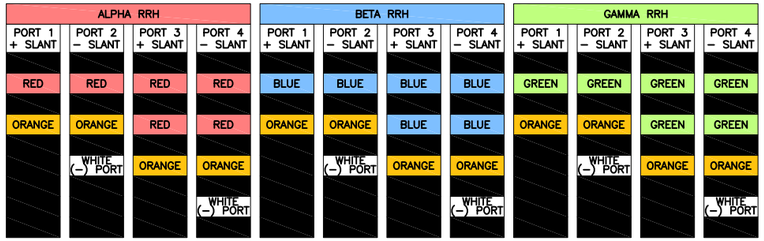
SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

HYBRID/DISCREET CABLES — 3/4" TAPE WIDTHS WITH 3/4" SPACING

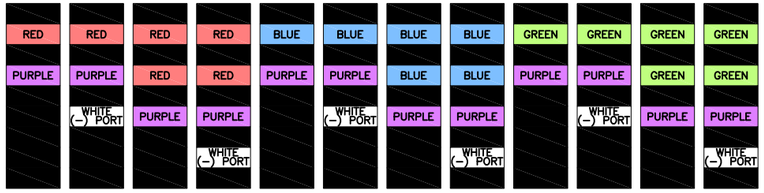
LOW–BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BAND)



MID–BAND RRH
(AWS BANDS N66+N70)

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BANDS)



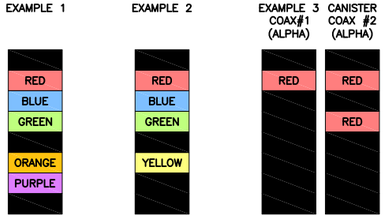
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW–BANDS AND MID–BANDS.

EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.

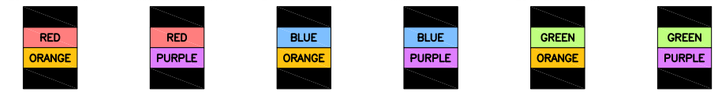
EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.



CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RD DETAILS. FINAL RFDS IS IN NEXSYSONE.

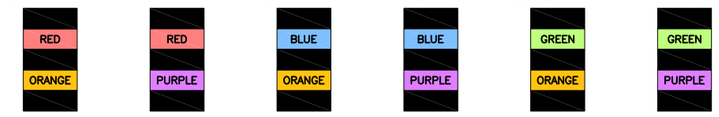
FIBER JUMPERS TO RRHs

LOW–BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.



POWER CABLES TO RRHs

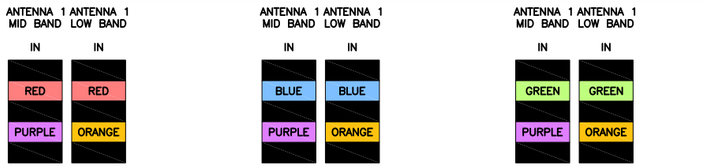
LOW–BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

RET CONTROL IS HANDLED BY THE MID–BAND RRH WHEN ONE SET OF RET PORTS EXIST ON ANTENNA.

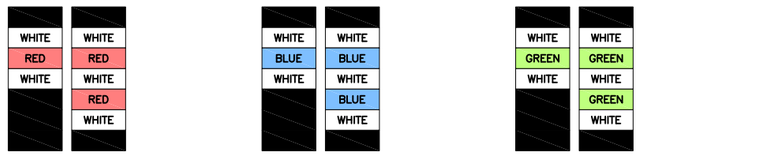
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



MICROWAVE RADIO LINKS

LINKS WILL HAVE A 1.5–2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.
ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.

MICROWAVE CABLES WILL REQUIRE P–TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID's.



RF CABLE COLOR CODES | NO SCALE | 1

LOW BANDS (N71+N26)
OPTIONAL – (N29)
ORANGE

AWS
(N66+N70+H–BLOCK)
PURPLE

CBRS TECH
(3 GHz)
YELLOW

NEGATIVE SLANT PORT
ON ANT/RRH
WHITE

ALPHA SECTOR
RED

BETA SECTOR
BLUE

GAMMA SECTOR
GREEN

COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED–1–25A400/51K–SR4–120–PE–DDBTXD

CHAIN LINK FENCE

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

W.P.

SECTION REFERENCE

XX
X–X

DETAIL REFERENCE

XX
X–X

LEGEND

AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGL	ABOVE GROUND LEVEL
AIC	AMPERAGE INTERRUPTION CAPACITY
ALUM	ALUMINUM
ALT	ALTERNATE
ANT	ANTENNA
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BTC	BARE TINNED COPPER CONDUCTOR
BOF	BOTTOM OF FOOTING
CAB	CABINET
CANT	CANTILEVERED
CHG	CHARGING
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COMM	COMMON
CONC	CONCRETE
CONSTR	CONSTRUCTION
DBL	DOUBLE
DC	DIRECT CURRENT
DEPT	DEPARTMENT
DF	DOUGLAS FIR
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
EC	ELECTRICAL CONDUCTOR
EL.	ELEVATION
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ENG	ENGINEER
EQ	EQUAL
EXP	EXPANSION
EXT	EXTERIOR
EW	EACH WAY
FAB	FABRICATION
FF	FINISH FLOOR
FG	FINISH GRADE
FIF	FACILITY INTERFACE FRAME
FIN	FINISH(ED)
FLR	FLOOR
FDN	FOUNDATION
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FS	FINISH SURFACE
FT	FOOT
FTG	FOOTING
GA	GAUGE
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GLB	GLUE LAMINATED BEAM
GLV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE
HDG	HOT DIPPED GALVANIZED
HDR	HEADER
HGR	HANGER
HVAC	HEAT/VENTILATION/AIR CONDITIONING
HT	HEIGHT
IGR	INTERIOR GROUND RING
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
LF	LINEAR FEET
LTE	LONG TERM EVOLUTION
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
NEC	NATIONAL ELECTRIC CODE
NM	NEWTON METERS
NO.	NUMBER
#	NUMBER
NTS	NOT TO SCALE
OC	ON–CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OPNG	OPENING
P/C	PRECAST CONCRETE
PCS	PERSONAL COMMUNICATION SERVICES
PCU	PRIMARY CONTROL UNIT
PRC	PRIMARY RADIO CABINET
PP	POLARIZING PRESERVING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PWR	POWER CABINET
QTY	QUANTITY
RAD	RADIUS
RECT	RECTIFIER
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RET	REMOTE ELECTRIC TILT
RF	RADIO FREQUENCY
RMC	RIGID METALLIC CONDUIT
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RWY	RACEWAY
SCH	SCHEDULE
SHT	SHEET
SIAD	SMART INTEGRATED ACCESS DEVICE
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
TEMP	TEMPORARY
THK	THICKNESS
TMA	TOWER MOUNTED AMPLIFIER
TN	TOE NAIL
TOA	TOP OF ANTENNA
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOP	TOP OF PLATE (PARAPET)
TOS	TOP OF STEEL
TOW	TOP OF WALL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS	UNITERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

ABBREVIATIONS

dish wireless.

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No. 23924
LICENSED
PROFESSIONAL ENGINEER

8/8/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
YN	BLJ	BEH

RFDS REV #: 3

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	7/19/21	ISSUED FOR REVIEW
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A&E PROJECT NUMBER

153448.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01104B
52 STADLEY ROUGH ROAD
DANBURY, CT 06811

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.

2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.

4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).

5. ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."

6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.

10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.

11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.

12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.

14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.

15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.

16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.

18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.

4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.

5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.

6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.

12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER

13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

dish wireless.

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8/8/22

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Expires 2/10/22

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YN	BLJ	BEH

RFDS REV #: 3

CONSTRUCTION DOCUMENTS

SUBMITTALS

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A&E PROJECT NUMBER

153448.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01104B
52 STADLEY ROUGH ROAD
DANBURY, CT 06811

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.

3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.

4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.

5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER:
- #6 BARS AND LARGER 2"
- #5 BARS AND SMALLER 1-1/2"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- SLAB AND WALLS 3/4"
- BEAMS AND COLUMNS 1-1/2"

7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.

2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.

3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.

4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

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

4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.

5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.

6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).

7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.

8. TIE WRAPS ARE NOT ALLOWED.

9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.

12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).

14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.

18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.

21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).

22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).

23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.

25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH Wireless L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.

29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".

30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

dish wireless.

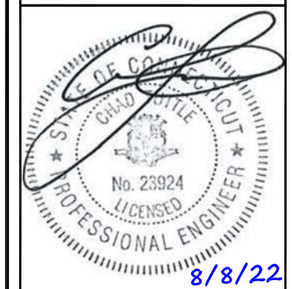
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



8/8/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
YN	BLJ	BEH

RFDS REV #: 3

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	7/19/21	ISSUED FOR REVIEW
0	10/20/21	ISSUED FOR CONSTRUCTION
1	8/8/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

153448.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01104B
52 STADLEY ROUGH ROAD
DANBURY, CT 06811

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.

4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.

7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.

8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.

11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.

13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.

14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.

17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.

19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

dish wireless.

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STATE OF CONNECTICUT
CHAD J. LITTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER

8/8/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
YN	BLJ	BEH

RFDS REV #: 3

CONSTRUCTION DOCUMENTS

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A&E PROJECT NUMBER

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DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01104B
52 STADLEY ROUGH ROAD
DANBURY, CT 06811

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 139 ft SABRE Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13549-S

Customer Site Name: Danbury 1

Carrier Name: Dish Wireless (App#: 163808, V1)

Carrier Site ID / Name: NJJER01104B / 0

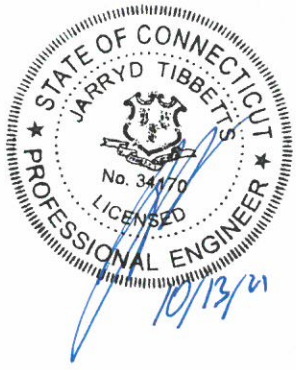
Site Location: 52 Stadley Rough Road

Danbury, Connecticut

Fairfield County

Latitude: 41.433102

Longitude: -73.431916



Analysis Result:

Max Structural Usage: 97.5% [Pass]

Max Foundation Usage: 83.0% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Sital Shrestha

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

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Analysis Result:

Max Structural Usage: 97.5% [Pass]

Max Foundation Usage: 83.0% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Sital Shrestha

Introduction

The purpose of this report is to summarize the analysis results on the 139 ft SABRE Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Tower Drawings prepared by Sabre Towers and Poles, Job # 10-01206 Dated 01/28/2010
Foundation Drawing	Foundation Drawings prepared by Sabre Towers and Poles, Job # 10-01206 Dated 01/28/2010
Geotechnical Report	Geotechnical Report prepared by Tower Engineering Professionals Project # 091184.01 Dated 05/13/2009
Modification Drawings	N/A
Mount Analysis	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} =120.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 93.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.217, S_1 = 0.067

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	137.0	3	RFS APXVAARR18_43-U-NA20 - Panel	(3) T-Arms with extended horizontal support Sitepro RDS-272	(9) 1 5/8" (4) 1 5/8" Fiber	T-Mobile
2		3	Air 32 KRD901146_1_B66A_B2A - Panel			
3		3	AIR6449 B41 - Panel			
4		3	Ericsson KRY 112 144/1-TMA			
5		3	Commscope SDX1926Q-43-Diplexers			
6		3	Ericsson 4449 B71+B85 RRU			
7		3	Ericsson 4415 B25 RRU			
12	107.0	3	CCI OPA-65R-LCUU-H6	(1) Commscope MC-HPM1250-B (1) Commscope RR-RM1560	(6) 3/4" DC Power (2) 3/8" Fiber (6) 7/8" Coax	AT&T
13		3	KMW EPBQ-652L8H6-L2			
14		3	CCI DTMABP7819VG12A TMA			
15		3	Ericsson RRUS-11 700MHz			
16		3	Ericsson RRUS-12			
17		3	Ericsson RRUS-32			
18		3	Ericsson RRUS 4449 B5/B12			
19		3	Ericsson RRUS 4426 B66			
20		3	Ericsson RRUS-A2			
21		3	Kaelus DBC2055F1V1			
22		3	Raycap DC6-48-60-18-8F			
23	97.0	6	JMA MX06FRO660-03 - Panel	(3) Standoff	(12) 1 5/8" (1) 1 5/8" Hybrid	Verizon
24		3	Samsung VZS01 - Panel			
25		3	Samsung B5/B13 RRH-BR04C			
26		3	Samsung B2/B66A RRH-BR049			
27		1	Commscope RCMDC-6627-PF-48			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
8	127.0	3	Commscope FFVV-65B-R2- Panel	(1) Commscope MC-PK8-DSH	(1) 1.75" Hybrid	Dish Wireless
9		3	Fujitsu TA08025-B605- RRH			
10		3	Fujitsu TA08025-B604- RRH			
11		1	Raycap RDIDC-9181-PF-48- OVP			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**97.5%**	**76.6%**	**72.7%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	2549.7	25.0	53.7

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 2.1653 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 97.50% at 53.3ft

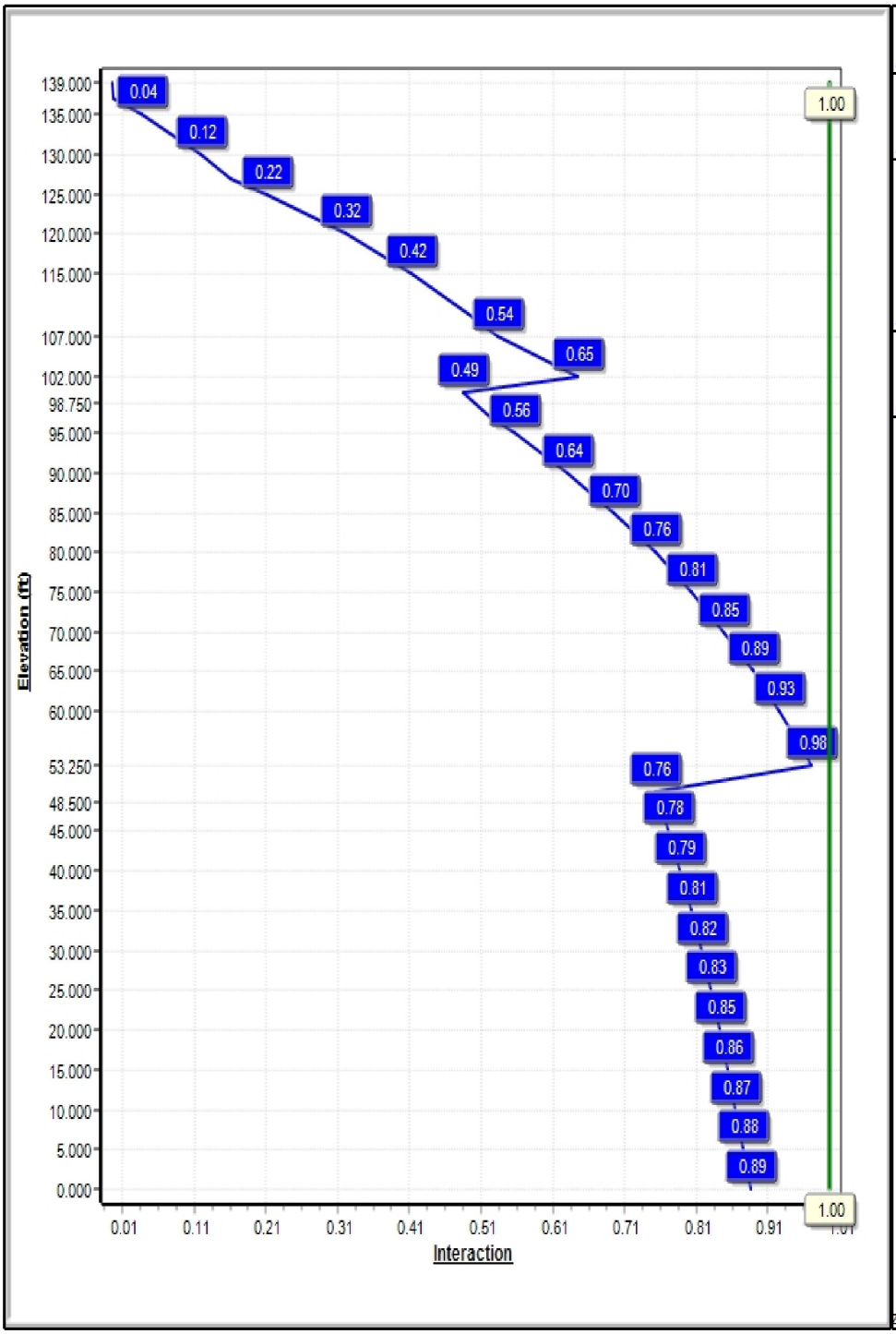
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021
Site Name:	Danbury 1	**Exposure:**	C	
Height:	139.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

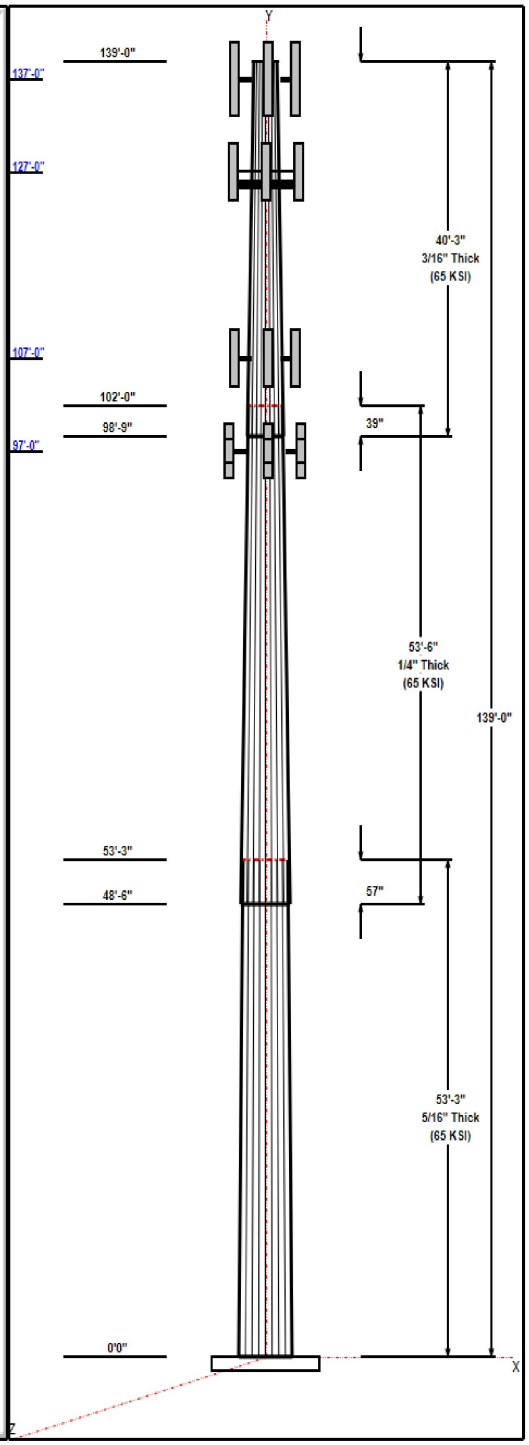
Tower Engineering Solutions

Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 93 mph Wind

Iterations: 27





Structure: CT13549-S-SBA

Type: Tapered
Site Name: Danbury 1
Height: 139.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.23097

10/13/2021

Tower Engineering Solutions

Shaft Properties

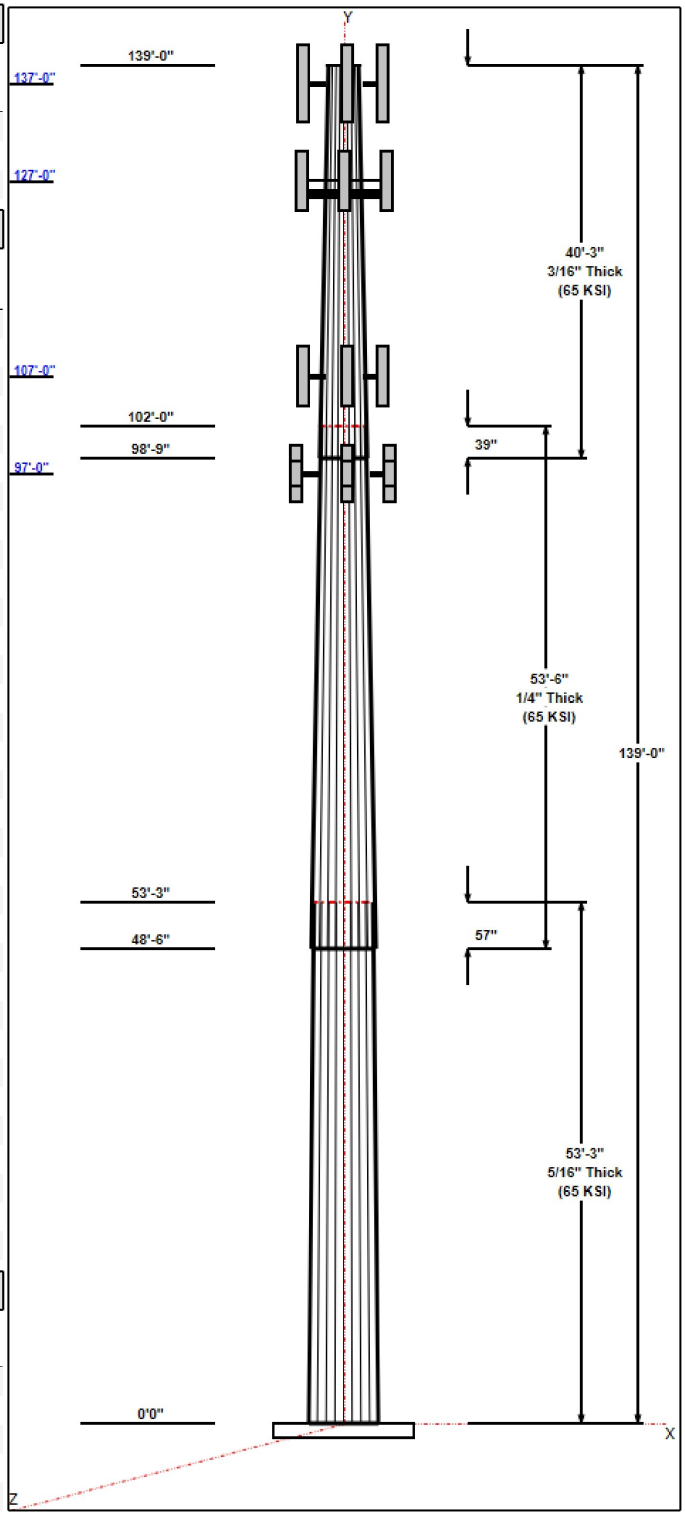
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	34.93	47.23	0.313		0.23097	65
2	53.50	24.17	36.53	0.250	Slip	0.23097	65
3	40.25	16.00	25.30	0.188	Slip	0.23097	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
139.00	139.00	1	6' Lightning rod	
137.00	137.00	3	AIR6449 B41	T-Mobile
137.00	137.00	3	KRY 112 144/1	T-Mobile
137.00	137.00	3	SDX1926Q-43	T-Mobile
137.00	137.00	3	RDS-272	T-Mobile
137.00	137.00	3	4415 B25	T-Mobile
137.00	137.00	3	RFS	T-Mobile
137.00	137.00	3	Air 32	T-Mobile
137.00	137.00	3	4449 B71+B85	T-Mobile
127.00	127.00	3	Commscope	Dish Wireless
127.00	127.00	3	TA08025-B604	Dish Wireless
127.00	127.00	3	TA08025-B605	Dish Wireless
127.00	127.00	1	RDIDC-9181-OF-48	Dish Wireless
127.00	127.00	1	MC-PK8-DSH	Dish Wireless
107.00	107.00	1	Collar Mount Commscope	AT&T
107.00	107.00	3	T-Arm Commscope	AT&T
107.00	107.00	3	RRUS-11 700MHz	AT&T
107.00	107.00	3	RRUS 12	AT&T
107.00	107.00	3	RRUS A2	AT&T
107.00	107.00	3	RRUS-32	AT&T
107.00	107.00	3	DC6-48-60-18-8F	AT&T
107.00	107.00	3	OPA-65R-LCUU-H6	AT&T
107.00	107.00	3	EPBQ-652L8H6-L2	AT&T
107.00	107.00	3	DBC20056F1V1	AT&T
107.00	107.00	3	DTMABP7819VG12A	AT&T
107.00	107.00	3	RRUS-E2	AT&T
107.00	107.00	3	RRUS 4449 B5/B12	AT&T
97.00	97.00	6	JMA MX06FRO660-03	Verizon
97.00	97.00	3	Samsung VZS01	Verizon
97.00	97.00	3	Samsung B5/B13	Verizon
97.00	97.00	3	Samsung B2/B66A	Verizon
97.00	97.00	1	Commscope	Verizon
97.00	97.00	3	T-Arms	Verizon

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	139.00	Outside	Safety Cable	
0.00	139.00	Outside	Step bolts (ladder)	
0.00	137.00	Inside	1 5/8" Coax	T-Mobile
0.00	137.00	Inside	1 5/8" Fiber	T-Mobile
0.00	127.00	Inside	1.75" Hybrid	Dish Wireless
0.00	107.00	Inside	3/4" DC	AT&T
0.00	107.00	Inside	3/8" Fiber	AT&T
0.00	107.00	Inside	7/8" Coax	AT&T
0.00	97.00	Inside	1 5/8" Coax	Verizon
0.00	97.00	Inside	1 5/8" Hybrid	Verizon



Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
12	2.25" 18J	75.0	Cluster

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	51.5	50.0	Clipped

Reactions

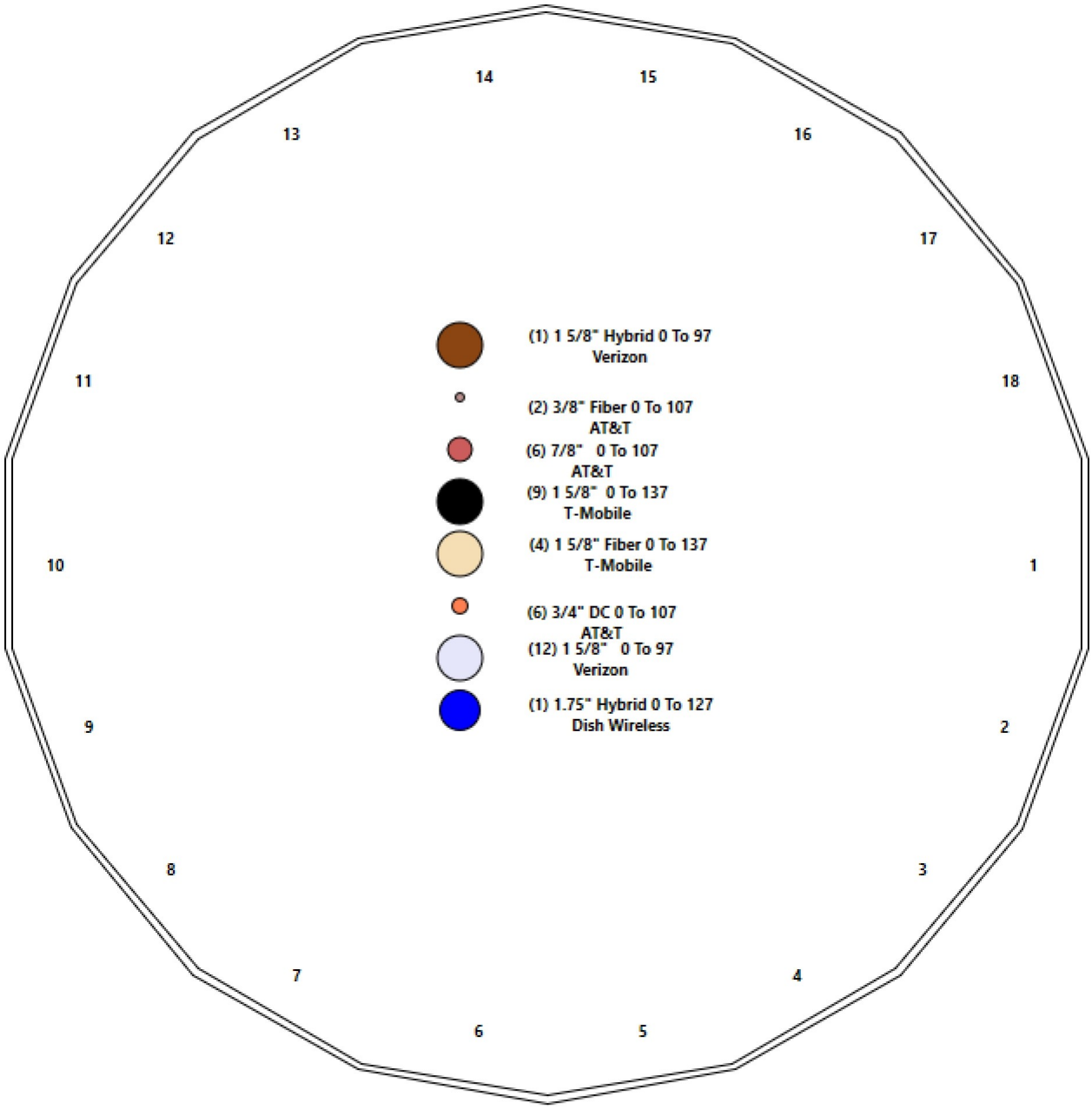
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 93 mph Wind	2549.7	25.0	32.5
0.9D + 1.6W 93 mph Wind	2511.6	24.9	24.4
1.2D + 1.0Di + 1.0Wi 50 mph Wind	797.1	7.7	53.7
1.2D + 1.0E	184.0	1.6	32.6
0.9D + 1.0E	180.8	1.6	24.4
1.0D + 1.0W 60 mph Wind	658.4	6.5	27.1

Structure: CT13549-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Danbury 1
Height: 139.00 (ft)

10/13/2021

Tower Engineering Solutions



Shaft Properties

Structure:	CT13549-S-SBA		**Code:**	EIA/TIA-222-G	10/13/2021
Site Name:	Danbury 1		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.3125	65		0.00	7,327
2	18	53.500	0.2500	65	Slip	57.00	4,348
3	18	40.250	0.1875	65	Slip	39.00	1,668
					Total Shaft Weight:		**13,342**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	47.23	0.00	46.53	12941.93	25.24	151.14	34.93	53.25	34.34	5198.89	18.30	111.7	0.230971
2	36.53	48.50	28.79	4786.42	24.35	146.11	24.17	102.00	18.98	1372.20	15.64	96.68	0.230971
3	25.30	98.75	14.94	1190.25	22.38	134.92	16.00	139.00	9.41	297.27	13.64	85.33	0.230971

Load Summary

Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	139.00	6' Lightning rod	1	6.50	0.38	1.00	42.53	1.459	1.00	0.00	0.00
2	137.00	AIR6449 B41	3	103.00	5.65	0.71	238.88	6.592	0.71	0.00	0.00
3	137.00	KRY 112 144/1	3	11.00	0.41	0.67	21.68	0.881	0.67	0.00	0.00
4	137.00	SDX1926Q-43	3	7.00	0.38	0.67	16.60	0.832	0.67	0.00	0.00
5	137.00	RDS-272	3	400.00	10.00	0.75	676.71	18.647	0.75	0.00	0.00
6	137.00	4415 B25	3	46.30	1.86	0.67	106.37	2.419	0.67	0.00	0.00
7	137.00	RFS APXVAARR18_43-U-NA20	3	128.00	20.24	0.70	541.69	22.122	0.70	0.00	0.00
8	137.00	Air 32 KRD901146_1_B66A_B2A	3	132.20	6.51	0.87	314.61	7.679	0.87	0.00	0.00
9	137.00	4449 B71+B85	3	70.00	1.65	0.67	137.47	2.182	0.67	0.00	0.00
10	127.00	Commscope FFVV-65B-R2	3	70.80	12.24	0.74	292.46	13.669	0.74	0.00	0.00
11	127.00	TA08025-B604	3	63.90	1.96	0.67	113.69	2.512	0.67	0.00	0.00
12	127.00	TA08025-B605	3	75.00	1.96	0.75	126.44	2.512	0.67	0.00	0.00
13	127.00	RDIDC-9181-OF-48	1	21.90	2.01	1.00	74.27	2.569	1.00	0.00	0.00
14	127.00	MC-PK8-DSH	1	1727.00	37.59	1.00	3386.97	84.044	1.00	0.00	0.00
15	107.00	Collar Mount Commscope	1	122.40	5.00	1.00	411.53	13.436	1.00	0.00	0.00
16	107.00	T-Arm Commscope MC-HPM1250-B	3	178.00	10.00	0.75	298.13	18.436	0.75	0.00	0.00
17	107.00	RRUS-11 700MHz	3	50.70	2.52	0.67	136.29	3.148	0.67	0.00	0.00
18	107.00	RRUS 12	3	58.00	3.15	0.67	149.55	3.838	0.67	0.00	0.00
19	107.00	RRUS A2	3	21.20	1.86	0.67	56.11	2.801	0.67	0.00	0.00
20	107.00	RRUS-32	3	77.00	3.87	0.67	186.06	4.078	0.67	0.00	0.00
21	107.00	DC6-48-60-18-8F	3	31.80	1.47	0.67	91.57	2.147	0.67	0.00	0.00
22	107.00	OPA-65R-LCUU-H6	3	80.00	9.66	0.79	302.78	10.978	0.79	0.00	0.00
23	107.00	EPBQ-652L8H6-L2	3	72.80	9.66	0.85	343.47	14.704	0.85	0.00	0.00
24	107.00	DBC20056F1V1	3	6.60	0.41	0.67	19.83	0.720	0.67	0.00	0.00
25	107.00	DTMABP7819VG12A	3	19.20	1.14	0.67	43.87	1.884	0.67	0.00	0.00
26	107.00	RRUS-E2	3	77.00	1.65	0.67	123.37	2.209	0.67	0.00	0.00
27	107.00	RRUS 4449 B5/B12	3	85.00	1.65	0.67	198.76	4.261	0.67	0.00	0.00
28	97.00	JMA MX06FRO660-03	6	46.00	9.87	0.87	301.82	11.184	0.87	0.00	0.00
29	97.00	Samsung VZS01	3	87.10	4.30	0.69	192.41	5.144	0.75	0.00	0.00
30	97.00	Samsung B5/B13 RRH-BR04C	3	84.40	1.88	0.67	133.47	2.408	0.67	0.00	0.00
31	97.00	Samsung B2/B66A RRH-BR049	3	70.30	1.88	0.67	116.86	2.408	0.67	0.00	0.00
32	97.00	Commscope RCMDC-6627-PF-48	1	20.00	5.60	1.00	130.14	7.191	1.00	0.00	0.00
33	97.00	T-Arms	3	350.00	8.00	0.75	583.91	14.683	0.75	0.00	0.00
		Totals:	**92**	**9,542.70**			**22,545.50**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	139.00	(1) Safety Cable	0.00	Outside
0.00	139.00	(1) Step bolts (ladder)	0.00	Outside
0.00	137.00	(9) 1 5/8" Coax	0.00	Inside
0.00	137.00	(4) 1 5/8" Fiber	0.00	Inside
0.00	127.00	(1) 1.75" Hybrid	0.00	Inside
0.00	107.00	(6) 3/4" DC	0.00	Inside
0.00	107.00	(2) 3/8" Fiber	0.00	Inside
0.00	107.00	(6) 7/8" Coax	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
0.00	97.00	(12) 1 5/8" Coax			0.00	Inside					
0.00	97.00	(1) 1 5/8" Hybrid			0.00	Inside					

Shaft Section Properties

Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3125	47.230	46.535	12941.9	25.24	151.14	71.7	539.7	0.0
5.00		0.3125	46.075	45.389	12009.6	24.59	147.44	72.5	513.4	782.0
10.00		0.3125	44.920	44.244	11123.1	23.94	143.74	73.2	487.7	762.5
15.00		0.3125	43.765	43.098	10281.4	23.28	140.05	74.0	462.7	743.0
20.00		0.3125	42.611	41.953	9483.2	22.63	136.35	74.8	438.3	723.5
25.00		0.3125	41.456	40.807	8727.5	21.98	132.66	75.5	414.7	704.0
30.00		0.3125	40.301	39.662	8013.0	21.33	128.96	76.3	391.6	684.5
35.00		0.3125	39.146	38.517	7338.6	20.68	125.27	77.1	369.2	665.1
40.00		0.3125	37.991	37.371	6703.2	20.03	121.57	77.8	347.5	645.6
45.00		0.3125	36.836	36.226	6105.5	19.37	117.88	78.6	326.5	626.1
48.50	Bot - Section 2	0.3125	36.028	35.424	5709.0	18.92	115.29	79.1	312.1	426.7
50.00		0.3125	35.681	35.080	5544.5	18.72	114.18	79.4	306.1	326.2
53.25	Top - Section 1	0.2500	35.431	27.915	4365.2	23.58	141.72	0.0	0.0	695.8
55.00		0.2500	35.027	27.594	4216.4	23.29	140.11	74.0	237.1	165.3
60.00		0.2500	33.872	26.678	3810.2	22.48	135.49	75.0	221.6	461.7
65.00		0.2500	32.717	25.762	3430.9	21.66	130.87	75.9	206.5	446.1
70.00		0.2500	31.562	24.845	3077.6	20.85	126.25	76.9	192.1	430.5
75.00		0.2500	30.407	23.929	2749.5	20.04	121.63	77.8	178.1	414.9
80.00		0.2500	29.252	23.012	2445.6	19.22	117.01	78.8	164.7	399.3
85.00		0.2500	28.097	22.096	2164.9	18.41	112.39	79.8	151.8	383.7
90.00		0.2500	26.943	21.180	1906.6	17.59	107.77	80.7	139.4	368.1
95.00		0.2500	25.788	20.263	1669.7	16.78	103.15	81.7	127.5	352.6
97.00		0.2500	25.326	19.897	1580.7	16.45	101.30	82.1	122.9	136.7
98.75	Bot - Section 3	0.2500	24.922	19.576	1505.5	16.17	99.69	82.4	119.0	117.5
100.00		0.2500	24.633	19.347	1453.2	15.96	98.53	82.5	116.2	146.0
102.00	Top - Section 2	0.1875	24.546	14.496	1086.7	21.67	130.91	0.0	0.0	230.0
105.00		0.1875	23.853	14.083	996.5	21.02	127.22	76.7	82.3	145.9
107.00		0.1875	23.391	13.809	939.3	20.59	124.75	77.2	79.1	94.9
110.00		0.1875	22.698	13.396	857.7	19.93	121.06	78.0	74.4	138.9
115.00		0.1875	21.543	12.709	732.3	18.85	114.90	79.2	67.0	222.1
120.00		0.1875	20.388	12.022	619.8	17.76	108.74	80.5	59.9	210.4
125.00		0.1875	19.234	11.334	519.5	16.68	102.58	81.8	53.2	198.7
127.00		0.1875	18.772	11.059	482.6	16.24	100.12	82.3	50.6	76.2
130.00		0.1875	18.079	10.647	430.6	15.59	96.42	82.5	46.9	110.8
135.00		0.1875	16.924	9.960	352.5	14.50	90.26	82.5	41.0	175.3
137.00		0.1875	16.462	9.685	324.1	14.07	87.80	82.5	38.8	66.8
139.00		0.1875	16.000	9.410	297.3	13.64	85.33	82.5	36.6	65.0
										13342.3

Wind Loading - Shaft

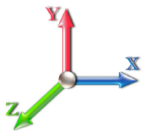
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 27

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	17.879	19.67	342.67	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	334.29	0.650	0.000	5.00	19.738	12.83	403.7	0.0	938.4
10.00		1.00	0.85	17.879	19.67	325.91	0.650	0.000	5.00	19.250	12.51	393.7	0.0	915.0
15.00		1.00	0.85	17.879	19.67	317.53	0.650	0.000	5.00	18.761	12.19	383.7	0.0	891.6
20.00		1.00	0.90	18.971	20.87	318.45	0.650	0.000	5.00	18.273	11.88	396.6	0.0	868.2
25.00		1.00	0.95	19.883	21.87	317.18	0.650	0.000	5.00	17.784	11.56	404.5	0.0	844.8
30.00		1.00	0.98	20.661	22.73	314.32	0.650	0.000	5.00	17.295	11.24	408.8	0.0	821.5
35.00		1.00	1.01	21.343	23.48	310.31	0.650	0.000	5.00	16.807	10.92	410.4	0.0	798.1
40.00		1.00	1.04	21.951	24.15	305.42	0.650	0.000	5.00	16.318	10.61	409.8	0.0	774.7
45.00		1.00	1.07	22.502	24.75	299.83	0.650	0.000	5.00	15.830	10.29	407.5	0.0	751.3
48.50	Bot - Section 2	1.00	1.09	22.860	25.15	295.57	0.650	0.000	3.50	10.790	7.01	282.2	0.0	512.0
50.00		1.00	1.09	23.007	25.31	293.67	0.650	0.000	1.50	4.614	3.00	121.5	0.0	391.4
53.25	Top - Section 1	1.00	1.11	23.314	25.65	289.40	0.650	0.000	3.25	9.847	6.40	262.6	0.0	835.0
55.00		1.00	1.12	23.473	25.82	291.19	0.650	0.000	1.75	5.217	3.39	140.1	0.0	198.3
60.00		1.00	1.14	23.907	26.30	284.18	0.650	0.000	5.00	14.575	9.47	398.6	0.0	554.0
65.00		1.00	1.16	24.313	26.74	276.81	0.650	0.000	5.00	14.087	9.16	391.8	0.0	535.3
70.00		1.00	1.17	24.696	27.17	269.13	0.650	0.000	5.00	13.598	8.84	384.2	0.0	516.6
75.00		1.00	1.19	25.057	27.56	261.17	0.650	0.000	5.00	13.109	8.52	375.8	0.0	497.9
80.00		1.00	1.21	25.400	27.94	252.97	0.650	0.000	5.00	12.621	8.20	366.7	0.0	479.2
85.00		1.00	1.22	25.726	28.30	244.53	0.650	0.000	5.00	12.132	7.89	357.1	0.0	460.5
90.00		1.00	1.24	26.037	28.64	235.90	0.650	0.000	5.00	11.644	7.57	346.8	0.0	441.8
95.00		1.00	1.25	26.336	28.97	227.08	0.650	0.000	5.00	11.155	7.25	336.1	0.0	423.1
97.00	Appurtenance(s)	1.00	1.26	26.451	29.10	223.50	0.650	0.000	2.00	4.325	2.81	130.9	0.0	164.0
98.75	Bot - Section 3	1.00	1.26	26.551	29.21	220.34	0.650	0.000	1.75	3.720	2.42	113.0	0.0	141.0
100.00		1.00	1.27	26.621	29.28	218.08	0.650	0.000	1.25	2.660	1.73	81.0	0.0	175.2
102.00	Top - Section 2	1.00	1.27	26.733	29.41	214.44	0.650	0.000	2.00	4.193	2.73	128.2	0.0	276.0
105.00		1.00	1.28	26.896	29.59	212.26	0.650	0.000	3.00	6.143	3.99	189.0	0.0	175.0
107.00	Appurtenance(s)	1.00	1.28	27.003	29.70	208.57	0.650	0.000	2.00	3.998	2.60	123.5	0.0	113.9
110.00		1.00	1.29	27.161	29.88	202.98	0.650	0.000	3.00	5.850	3.80	181.8	0.0	166.6
115.00		1.00	1.30	27.416	30.16	193.55	0.650	0.000	5.00	9.359	6.08	293.5	0.0	266.5
120.00		1.00	1.32	27.663	30.43	184.00	0.650	0.000	5.00	8.871	5.77	280.7	0.0	252.5
125.00		1.00	1.33	27.902	30.69	174.33	0.650	0.000	5.00	8.382	5.45	267.5	0.0	238.4
127.00	Appurtenance(s)	1.00	1.33	27.995	30.79	170.42	0.650	0.000	2.00	3.216	2.09	103.0	0.0	91.4
130.00		1.00	1.34	28.133	30.95	164.54	0.650	0.000	3.00	4.677	3.04	150.5	0.0	133.0
135.00		1.00	1.35	28.358	31.19	154.64	0.650	0.000	5.00	7.405	4.81	240.2	0.0	210.4
137.00	Appurtenance(s)	1.00	1.35	28.446	31.29	150.65	0.650	0.000	2.00	2.825	1.84	91.9	0.0	80.2
139.00	Appurtenance(s)	1.00	1.36	28.533	31.39	146.65	0.650	0.000	2.00	2.747	1.79	89.7	0.0	78.0
								Totals:	**139.00**			**9,846.7**		**16,010.8**

Discrete Appurtenance Forces

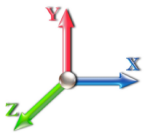
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 27

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	139.00	6' Lightning rod	1	28.533	31.386	1.00	1.00	0.38	7.80	0.000	0.000	19.08	0.00	0.00
2	137.00	RFS	3	28.446	31.290	0.56	0.80	34.00	460.80	0.000	0.000	1702.35	0.00	0.00
3	137.00	AIR6449 B41	3	28.446	31.290	0.57	0.80	9.63	370.80	0.000	0.000	482.00	0.00	0.00
4	137.00	4415 B25	3	28.446	31.290	0.54	0.80	2.99	166.68	0.000	0.000	149.74	0.00	0.00
5	137.00	KRY 112 144/1	3	28.446	31.290	0.54	0.80	0.66	39.60	0.000	0.000	33.01	0.00	0.00
6	137.00	4449 B71+B85	3	28.446	31.290	0.54	0.80	2.65	252.00	0.000	0.000	132.83	0.00	0.00
7	137.00	RDS-272	3	28.446	31.290	0.56	0.75	16.88	1440.00	0.000	0.000	844.84	0.00	0.00
8	137.00	SDX1926Q-43	3	28.446	31.290	0.54	0.80	0.61	25.20	0.000	0.000	30.59	0.00	0.00
9	137.00	Air 32	3	28.446	31.290	0.70	0.80	13.59	475.92	0.000	0.000	680.52	0.00	0.00
10	127.00	TA08025-B604	3	27.995	30.795	0.54	0.80	3.15	230.04	0.000	0.000	155.29	0.00	0.00
11	127.00	Commscope	3	27.995	30.795	0.59	0.80	21.74	254.88	0.000	0.000	1071.08	0.00	0.00
12	127.00	RDIDC-9181-OF-48	1	27.995	30.795	0.80	0.80	1.61	26.28	0.000	0.000	79.23	0.00	0.00
13	127.00	TA08025-B605	3	27.995	30.795	0.60	0.80	3.53	270.00	0.000	0.000	173.83	0.00	0.00
14	127.00	MC-PK8-DSH	1	27.995	30.795	1.00	1.00	37.59	2072.40	0.000	0.000	1852.13	0.00	0.00
15	107.00	RRUS 4449 B5/B12	3	27.003	29.704	0.54	0.80	2.65	306.00	0.000	0.000	126.10	0.00	0.00
16	107.00	RRUS-E2	3	27.003	29.704	0.54	0.80	2.65	277.20	0.000	0.000	126.10	0.00	0.00
17	107.00	DTMABP7819VG12A	3	27.003	29.704	0.54	0.80	1.83	69.12	0.000	0.000	87.12	0.00	0.00
18	107.00	RRUS A2	3	27.003	29.704	0.54	0.80	2.99	76.32	0.000	0.000	142.14	0.00	0.00
19	107.00	Collar Mount Commscope	1	27.003	29.704	1.00	1.00	5.00	146.88	0.000	0.000	237.63	0.00	0.00
20	107.00	T-Arm Commscope	3	27.003	29.704	0.56	0.75	16.88	640.80	0.000	0.000	802.00	0.00	0.00
21	107.00	RRUS-11 700MHz	3	27.003	29.704	0.54	0.80	4.05	182.52	0.000	0.000	192.58	0.00	0.00
22	107.00	RRUS 12	3	27.003	29.704	0.54	0.80	5.07	208.80	0.000	0.000	240.73	0.00	0.00
23	107.00	DBC20056F1V1	3	27.003	29.704	0.54	0.80	0.66	23.76	0.000	0.000	31.33	0.00	0.00
24	107.00	RRUS-32	3	27.003	29.704	0.54	0.80	6.22	277.20	0.000	0.000	295.75	0.00	0.00
25	107.00	DC6-48-60-18-8F	3	27.003	29.704	0.54	0.80	2.36	114.48	0.000	0.000	112.34	0.00	0.00
26	107.00	OPA-65R-LCUU-H6	3	27.003	29.704	0.63	0.80	18.32	288.00	0.000	0.000	870.46	0.00	0.00
27	107.00	EPBQ-652L8H6-L2	3	27.003	29.704	0.68	0.80	19.71	262.08	0.000	0.000	936.57	0.00	0.00
28	97.00	Commscope	1	26.451	29.096	1.00	1.00	5.60	24.00	0.000	0.000	260.70	0.00	0.00
29	97.00	Samsung B2/B66A	3	26.451	29.096	0.54	0.80	3.02	253.08	0.000	0.000	140.74	0.00	0.00
30	97.00	Samsung B5/B13	3	26.451	29.096	0.54	0.80	3.02	303.84	0.000	0.000	140.74	0.00	0.00
31	97.00	Samsung VZS01	3	26.451	29.096	0.55	0.80	7.12	313.56	0.000	0.000	331.50	0.00	0.00
32	97.00	JMA MX06FRO660-03	6	26.451	29.096	0.70	0.80	41.22	331.20	0.000	0.000	1918.84	0.00	0.00
33	97.00	T-Arms	3	26.451	29.096	0.56	0.75	13.50	1260.00	0.000	0.000	628.48	0.00	0.00
							Totals:		**11,451.24**			**15,028.35**		

Total Applied Force Summary

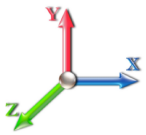
Structure:	CT13549-S-SBA		**Code:**	EIA/TIA-222-G	10/13/2021
Site Name:	Danbury 1		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 11

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 27

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		403.73	1156.09	0.00	0.00
10.00		393.73	1132.71	0.00	0.00
15.00		383.74	1109.32	0.00	0.00
20.00		396.56	1085.94	0.00	0.00
25.00		404.52	1062.55	0.00	0.00
30.00		408.80	1039.16	0.00	0.00
35.00		410.35	1015.78	0.00	0.00
40.00		409.78	992.39	0.00	0.00
45.00		407.49	969.01	0.00	0.00
48.50		282.17	664.39	0.00	0.00
50.00		121.45	456.70	0.00	0.00
53.25		262.63	976.52	0.00	0.00
55.00		140.09	274.53	0.00	0.00
60.00		398.63	771.73	0.00	0.00
65.00		391.81	753.02	0.00	0.00
70.00		384.17	734.31	0.00	0.00
75.00		375.78	715.61	0.00	0.00
80.00		366.73	696.90	0.00	0.00
85.00		357.06	678.19	0.00	0.00
90.00		346.83	659.48	0.00	0.00
95.00		336.08	640.77	0.00	0.00
97.00	(19) attachments	3551.88	2736.75	0.00	0.00
98.75		113.00	188.71	0.00	0.00
100.00		81.02	209.22	0.00	0.00
102.00		128.24	330.50	0.00	0.00
105.00		189.02	256.78	0.00	0.00
107.00	(37) attachments	4324.34	3041.54	0.00	0.00
110.00		181.77	228.06	0.00	0.00
115.00		293.54	368.87	0.00	0.00
120.00		280.72	354.84	0.00	0.00
125.00		267.55	340.81	0.00	0.00
127.00	(11) attachments	3434.55	2986.00	0.00	0.00
130.00		150.54	187.22	0.00	0.00
135.00		240.22	300.80	0.00	0.00
137.00	(24) attachments	4147.80	3347.39	0.00	0.00
139.00	(1) attachments	108.74	88.92	0.00	0.00
	Totals:	**24,875.08**	**32,551.51**	**0.00**	**0.00**

Linear Appurtenance Segment Forces (Factored)

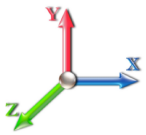
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 27

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	17.879	0.00	1.64
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	17.879	0.00	6.24
10.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	17.879	0.00	1.64
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	17.879	0.00	6.24
15.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	17.879	0.00	1.64
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	17.879	0.00	6.24
20.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	18.971	0.00	1.64
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	18.971	0.00	6.24
25.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	19.883	0.00	1.64
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	19.883	0.00	6.24
30.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	20.661	0.00	1.64
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	20.661	0.00	6.24
35.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.343	0.00	1.64
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.343	0.00	6.24
40.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.951	0.00	1.64
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.951	0.00	6.24
45.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	22.502	0.00	1.64
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	22.502	0.00	6.24
48.50	Safety Cable	Yes	3.50	0.000	0.00	0.00	0.00	0.000	0.000	22.860	0.00	1.15
48.50	Step bolts (ladder)	Yes	3.50	0.000	0.00	0.00	0.00	0.000	0.000	22.860	0.00	4.37
50.00	Safety Cable	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	23.007	0.00	0.49
50.00	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	23.007	0.00	1.87
53.25	Safety Cable	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	23.314	0.00	1.06
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	23.314	0.00	4.06
55.00	Safety Cable	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	23.473	0.00	0.57
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	23.473	0.00	2.18
60.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.907	0.00	1.64
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.907	0.00	6.24
65.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.313	0.00	1.64
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.313	0.00	6.24
70.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.696	0.00	1.64
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.696	0.00	6.24
75.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.057	0.00	1.64
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.057	0.00	6.24
80.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.400	0.00	1.64
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.400	0.00	6.24
85.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.726	0.00	1.64
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.726	0.00	6.24
90.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.037	0.00	1.64
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.037	0.00	6.24
95.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.336	0.00	1.64
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.336	0.00	6.24
97.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	26.451	0.00	0.66
97.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	26.451	0.00	2.50
98.75	Safety Cable	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	26.551	0.00	0.57
98.75	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	26.551	0.00	2.18
100.00	Safety Cable	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	26.621	0.00	0.41

Linear Appurtenance Segment Forces (Factored)

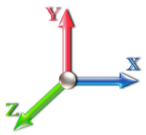
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 27

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	26.621	0.00	1.56
102.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	26.733	0.00	0.66
102.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	26.733	0.00	2.50
105.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	26.896	0.00	0.98
105.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	26.896	0.00	3.74
107.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.003	0.00	0.66
107.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.003	0.00	2.50
110.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	27.161	0.00	0.98
110.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	27.161	0.00	3.74
115.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.416	0.00	1.64
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.416	0.00	6.24
120.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.663	0.00	1.64
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.663	0.00	6.24
125.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.902	0.00	1.64
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.902	0.00	6.24
127.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.995	0.00	0.66
127.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.995	0.00	2.50
130.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	28.133	0.00	0.98
130.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	28.133	0.00	3.74
135.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.358	0.00	1.64
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.358	0.00	6.24
137.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	28.446	0.00	0.66
137.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	28.446	0.00	2.50
139.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	28.533	0.00	0.66
139.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	28.533	0.00	2.50
										Totals:	**0.0**	**219.0**

Calculated Forces

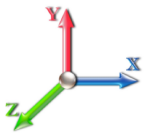
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 27

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-32.49	-24.95	0.00	-2549.7	0.00	2549.72	3003.53	1501.76	5797.25	2902.93	0.00	0.000	0.000	0.889
5.00	-31.22	-24.70	0.00	-2424.9	0.00	2424.95	2960.91	1480.45	5573.38	2790.83	0.15	-0.273	0.000	0.880
10.00	-29.97	-24.45	0.00	-2301.4	0.00	2301.46	2916.70	1458.35	5350.68	2679.32	0.58	-0.553	0.000	0.870
15.00	-28.74	-24.19	0.00	-2179.2	0.00	2179.24	2870.92	1435.46	5129.40	2568.51	1.32	-0.840	0.000	0.859
20.00	-27.54	-23.92	0.00	-2058.2	0.00	2058.28	2823.56	1411.78	4909.74	2458.52	2.35	-1.133	0.000	0.847
25.00	-26.36	-23.63	0.00	-1938.6	0.00	1938.67	2774.61	1387.31	4691.94	2349.46	3.70	-1.433	0.000	0.835
30.00	-25.21	-23.33	0.00	-1820.5	0.00	1820.51	2724.09	1362.04	4476.23	2241.44	5.36	-1.739	0.000	0.822
35.00	-24.08	-23.02	0.00	-1703.8	0.00	1703.86	2671.99	1335.99	4262.83	2134.58	7.35	-2.052	0.000	0.808
40.00	-22.97	-22.70	0.00	-1588.7	0.00	1588.75	2618.30	1309.15	4051.97	2029.00	9.67	-2.371	0.000	0.792
45.00	-21.92	-22.36	0.00	-1475.2	0.00	1475.24	2563.04	1281.52	3843.87	1924.79	12.33	-2.696	0.000	0.775
48.50	-21.20	-22.11	0.00	-1396.9	0.00	1396.98	2523.41	1261.71	3699.97	1852.74	14.39	-2.930	0.000	0.763
50.00	-20.69	-22.02	0.00	-1363.8	0.00	1363.82	2506.19	1253.10	3638.77	1822.09	15.33	-3.034	0.000	0.757
53.25	-19.66	-21.76	0.00	-1292.2	0.00	1292.25	1850.79	925.39	2677.47	1340.72	17.47	-3.255	0.000	0.975
55.00	-19.30	-21.70	0.00	-1254.1	0.00	1254.17	1837.85	918.92	2627.99	1315.95	18.69	-3.377	0.000	0.964
60.00	-18.40	-21.38	0.00	-1145.6	0.00	1145.67	1799.82	899.91	2487.54	1245.62	22.44	-3.782	0.000	0.931
65.00	-17.53	-21.07	0.00	-1038.7	0.00	1038.76	1760.21	880.10	2348.61	1176.05	26.62	-4.190	0.000	0.894
70.00	-16.68	-20.75	0.00	-933.43	0.00	933.43	1719.02	859.51	2211.45	1107.37	31.22	-4.598	0.000	0.853
75.00	-15.85	-20.42	0.00	-829.70	0.00	829.70	1676.25	838.13	2076.26	1039.67	36.25	-5.006	0.000	0.808
80.00	-15.05	-20.10	0.00	-727.58	0.00	727.58	1631.90	815.95	1943.29	973.09	41.71	-5.409	0.000	0.758
85.00	-14.28	-19.78	0.00	-627.08	0.00	627.08	1585.97	792.99	1812.75	907.72	47.58	-5.803	0.000	0.700
90.00	-13.53	-19.45	0.00	-528.20	0.00	528.20	1538.46	769.23	1684.87	843.69	53.85	-6.182	0.000	0.635
95.00	-12.85	-19.10	0.00	-430.95	0.00	430.95	1489.37	744.69	1559.88	781.10	60.51	-6.540	0.000	0.561
97.00	-10.51	-15.28	0.00	-392.75	0.00	392.75	1469.29	734.65	1510.75	756.50	63.27	-6.680	0.000	0.527
98.75	-10.31	-15.16	0.00	-366.01	0.00	366.01	1451.52	725.76	1468.18	735.18	65.74	-6.800	0.000	0.505
100.00	-10.08	-15.08	0.00	-347.05	0.00	347.05	1437.39	718.70	1436.71	719.42	67.52	-6.884	0.000	0.490
102.00	-9.73	-14.94	0.00	-316.90	0.00	316.90	990.34	495.17	991.38	496.43	70.43	-7.014	0.000	0.649
105.00	-9.45	-14.75	0.00	-272.08	0.00	272.08	971.88	485.94	945.01	473.21	74.89	-7.197	0.000	0.586
107.00	-6.95	-10.09	0.00	-242.59	0.00	242.59	959.26	479.63	914.39	457.88	77.93	-7.344	0.000	0.538
110.00	-6.70	-9.91	0.00	-212.32	0.00	212.32	939.85	469.93	868.93	435.11	82.60	-7.551	0.000	0.496
115.00	-6.33	-9.61	0.00	-162.75	0.00	162.75	906.24	453.12	794.52	397.85	90.65	-7.862	0.000	0.417
120.00	-5.98	-9.30	0.00	-114.73	0.00	114.73	871.06	435.53	722.01	361.54	99.01	-8.131	0.000	0.325
125.00	-5.66	-9.00	0.00	-68.21	0.00	68.21	834.29	417.15	651.64	326.30	107.62	-8.341	0.000	0.216
127.00	-3.20	-5.17	0.00	-50.21	0.00	50.21	819.14	409.57	624.14	312.53	111.11	-8.406	0.000	0.165
130.00	-3.03	-5.00	0.00	-34.69	0.00	34.69	791.03	395.51	580.02	290.44	116.40	-8.481	0.000	0.123
135.00	-2.76	-4.72	0.00	-9.68	0.00	9.68	739.97	369.98	507.20	253.97	125.30	-8.555	0.000	0.042
137.00	-0.07	-0.12	0.00	-0.24	0.00	0.24	719.55	359.77	479.43	240.07	128.87	-8.563	0.000	0.001
139.00	0.00	-0.11	0.00	0.00	0.00	0.00	699.12	349.56	452.45	226.56	132.45	-8.563	0.000	0.000

Wind Loading - Shaft

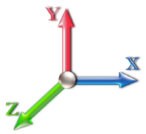
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 27

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	17.879	19.67	342.67	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	334.29	0.650	0.000	5.00	19.738	12.83	403.7	0.0	703.8
10.00		1.00	0.85	17.879	19.67	325.91	0.650	0.000	5.00	19.250	12.51	393.7	0.0	686.3
15.00		1.00	0.85	17.879	19.67	317.53	0.650	0.000	5.00	18.761	12.19	383.7	0.0	668.7
20.00		1.00	0.90	18.971	20.87	318.45	0.650	0.000	5.00	18.273	11.88	396.6	0.0	651.2
25.00		1.00	0.95	19.883	21.87	317.18	0.650	0.000	5.00	17.784	11.56	404.5	0.0	633.6
30.00		1.00	0.98	20.661	22.73	314.32	0.650	0.000	5.00	17.295	11.24	408.8	0.0	616.1
35.00		1.00	1.01	21.343	23.48	310.31	0.650	0.000	5.00	16.807	10.92	410.4	0.0	598.6
40.00		1.00	1.04	21.951	24.15	305.42	0.650	0.000	5.00	16.318	10.61	409.8	0.0	581.0
45.00		1.00	1.07	22.502	24.75	299.83	0.650	0.000	5.00	15.830	10.29	407.5	0.0	563.5
48.50	Bot - Section 2	1.00	1.09	22.860	25.15	295.57	0.650	0.000	3.50	10.790	7.01	282.2	0.0	384.0
50.00		1.00	1.09	23.007	25.31	293.67	0.650	0.000	1.50	4.614	3.00	121.5	0.0	293.5
53.25	Top - Section 1	1.00	1.11	23.314	25.65	289.40	0.650	0.000	3.25	9.847	6.40	262.6	0.0	626.3
55.00		1.00	1.12	23.473	25.82	291.19	0.650	0.000	1.75	5.217	3.39	140.1	0.0	148.7
60.00		1.00	1.14	23.907	26.30	284.18	0.650	0.000	5.00	14.575	9.47	398.6	0.0	415.5
65.00		1.00	1.16	24.313	26.74	276.81	0.650	0.000	5.00	14.087	9.16	391.8	0.0	401.5
70.00		1.00	1.17	24.696	27.17	269.13	0.650	0.000	5.00	13.598	8.84	384.2	0.0	387.5
75.00		1.00	1.19	25.057	27.56	261.17	0.650	0.000	5.00	13.109	8.52	375.8	0.0	373.4
80.00		1.00	1.21	25.400	27.94	252.97	0.650	0.000	5.00	12.621	8.20	366.7	0.0	359.4
85.00		1.00	1.22	25.726	28.30	244.53	0.650	0.000	5.00	12.132	7.89	357.1	0.0	345.4
90.00		1.00	1.24	26.037	28.64	235.90	0.650	0.000	5.00	11.644	7.57	346.8	0.0	331.3
95.00		1.00	1.25	26.336	28.97	227.08	0.650	0.000	5.00	11.155	7.25	336.1	0.0	317.3
97.00	Appurtenance(s)	1.00	1.26	26.451	29.10	223.50	0.650	0.000	2.00	4.325	2.81	130.9	0.0	123.0
98.75	Bot - Section 3	1.00	1.26	26.551	29.21	220.34	0.650	0.000	1.75	3.720	2.42	113.0	0.0	105.8
100.00		1.00	1.27	26.621	29.28	218.08	0.650	0.000	1.25	2.660	1.73	81.0	0.0	131.4
102.00	Top - Section 2	1.00	1.27	26.733	29.41	214.44	0.650	0.000	2.00	4.193	2.73	128.2	0.0	207.0
105.00		1.00	1.28	26.896	29.59	212.26	0.650	0.000	3.00	6.143	3.99	189.0	0.0	131.3
107.00	Appurtenance(s)	1.00	1.28	27.003	29.70	208.57	0.650	0.000	2.00	3.998	2.60	123.5	0.0	85.4
110.00		1.00	1.29	27.161	29.88	202.98	0.650	0.000	3.00	5.850	3.80	181.8	0.0	125.0
115.00		1.00	1.30	27.416	30.16	193.55	0.650	0.000	5.00	9.359	6.08	293.5	0.0	199.9
120.00		1.00	1.32	27.663	30.43	184.00	0.650	0.000	5.00	8.871	5.77	280.7	0.0	189.3
125.00		1.00	1.33	27.902	30.69	174.33	0.650	0.000	5.00	8.382	5.45	267.5	0.0	178.8
127.00	Appurtenance(s)	1.00	1.33	27.995	30.79	170.42	0.650	0.000	2.00	3.216	2.09	103.0	0.0	68.6
130.00		1.00	1.34	28.133	30.95	164.54	0.650	0.000	3.00	4.677	3.04	150.5	0.0	99.7
135.00		1.00	1.35	28.358	31.19	154.64	0.650	0.000	5.00	7.405	4.81	240.2	0.0	157.8
137.00	Appurtenance(s)	1.00	1.35	28.446	31.29	150.65	0.650	0.000	2.00	2.825	1.84	91.9	0.0	60.2
139.00	Appurtenance(s)	1.00	1.36	28.533	31.39	146.65	0.650	0.000	2.00	2.747	1.79	89.7	0.0	58.5
								Totals:	**139.00**			**9,846.7**		**12,008.1**

Discrete Appurtenance Forces

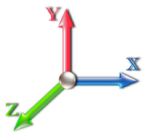
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 27

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	139.00	6' Lightning rod	1	28.533	31.386	1.00	1.00	0.38	5.85	0.000	0.000	19.08	0.00	0.00
2	137.00	RFS	3	28.446	31.290	0.56	0.80	34.00	345.60	0.000	0.000	1702.35	0.00	0.00
3	137.00	AIR6449 B41	3	28.446	31.290	0.57	0.80	9.63	278.10	0.000	0.000	482.00	0.00	0.00
4	137.00	4415 B25	3	28.446	31.290	0.54	0.80	2.99	125.01	0.000	0.000	149.74	0.00	0.00
5	137.00	KRY 112 144/1	3	28.446	31.290	0.54	0.80	0.66	29.70	0.000	0.000	33.01	0.00	0.00
6	137.00	4449 B71+B85	3	28.446	31.290	0.54	0.80	2.65	189.00	0.000	0.000	132.83	0.00	0.00
7	137.00	RDS-272	3	28.446	31.290	0.56	0.75	16.88	1080.00	0.000	0.000	844.84	0.00	0.00
8	137.00	SDX1926Q-43	3	28.446	31.290	0.54	0.80	0.61	18.90	0.000	0.000	30.59	0.00	0.00
9	137.00	Air 32	3	28.446	31.290	0.70	0.80	13.59	356.94	0.000	0.000	680.52	0.00	0.00
10	127.00	TA08025-B604	3	27.995	30.795	0.54	0.80	3.15	172.53	0.000	0.000	155.29	0.00	0.00
11	127.00	Commscope	3	27.995	30.795	0.59	0.80	21.74	191.16	0.000	0.000	1071.08	0.00	0.00
12	127.00	RDIDC-9181-OF-48	1	27.995	30.795	0.80	0.80	1.61	19.71	0.000	0.000	79.23	0.00	0.00
13	127.00	TA08025-B605	3	27.995	30.795	0.60	0.80	3.53	202.50	0.000	0.000	173.83	0.00	0.00
14	127.00	MC-PK8-DSH	1	27.995	30.795	1.00	1.00	37.59	1554.30	0.000	0.000	1852.13	0.00	0.00
15	107.00	RRUS 4449 B5/B12	3	27.003	29.704	0.54	0.80	2.65	229.50	0.000	0.000	126.10	0.00	0.00
16	107.00	RRUS-E2	3	27.003	29.704	0.54	0.80	2.65	207.90	0.000	0.000	126.10	0.00	0.00
17	107.00	DTMABP7819VG12A	3	27.003	29.704	0.54	0.80	1.83	51.84	0.000	0.000	87.12	0.00	0.00
18	107.00	RRUS A2	3	27.003	29.704	0.54	0.80	2.99	57.24	0.000	0.000	142.14	0.00	0.00
19	107.00	Collar Mount Commscope	1	27.003	29.704	1.00	1.00	5.00	110.16	0.000	0.000	237.63	0.00	0.00
20	107.00	T-Arm Commscope	3	27.003	29.704	0.56	0.75	16.88	480.60	0.000	0.000	802.00	0.00	0.00
21	107.00	RRUS-11 700MHz	3	27.003	29.704	0.54	0.80	4.05	136.89	0.000	0.000	192.58	0.00	0.00
22	107.00	RRUS 12	3	27.003	29.704	0.54	0.80	5.07	156.60	0.000	0.000	240.73	0.00	0.00
23	107.00	DBC20056F1V1	3	27.003	29.704	0.54	0.80	0.66	17.82	0.000	0.000	31.33	0.00	0.00
24	107.00	RRUS-32	3	27.003	29.704	0.54	0.80	6.22	207.90	0.000	0.000	295.75	0.00	0.00
25	107.00	DC6-48-60-18-8F	3	27.003	29.704	0.54	0.80	2.36	85.86	0.000	0.000	112.34	0.00	0.00
26	107.00	OPA-65R-LCUU-H6	3	27.003	29.704	0.63	0.80	18.32	216.00	0.000	0.000	870.46	0.00	0.00
27	107.00	EPBQ-652L8H6-L2	3	27.003	29.704	0.68	0.80	19.71	196.56	0.000	0.000	936.57	0.00	0.00
28	97.00	Commscope	1	26.451	29.096	1.00	1.00	5.60	18.00	0.000	0.000	260.70	0.00	0.00
29	97.00	Samsung B2/B66A	3	26.451	29.096	0.54	0.80	3.02	189.81	0.000	0.000	140.74	0.00	0.00
30	97.00	Samsung B5/B13	3	26.451	29.096	0.54	0.80	3.02	227.88	0.000	0.000	140.74	0.00	0.00
31	97.00	Samsung VZS01	3	26.451	29.096	0.55	0.80	7.12	235.17	0.000	0.000	331.50	0.00	0.00
32	97.00	JMA MX06FRO660-03	6	26.451	29.096	0.70	0.80	41.22	248.40	0.000	0.000	1918.84	0.00	0.00
33	97.00	T-Arms	3	26.451	29.096	0.56	0.75	13.50	945.00	0.000	0.000	628.48	0.00	0.00
							Totals:		**8,588.43**			**15,028.35**		

Total Applied Force Summary

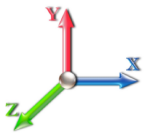
Structure:	CT13549-S-SBA		**Code:**	EIA/TIA-222-G	10/13/2021
Site Name:	Danbury 1		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 17

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 27

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		403.73	867.07	0.00	0.00
10.00		393.73	849.53	0.00	0.00
15.00		383.74	831.99	0.00	0.00
20.00		396.56	814.45	0.00	0.00
25.00		404.52	796.91	0.00	0.00
30.00		408.80	779.37	0.00	0.00
35.00		410.35	761.83	0.00	0.00
40.00		409.78	744.29	0.00	0.00
45.00		407.49	726.75	0.00	0.00
48.50		282.17	498.29	0.00	0.00
50.00		121.45	342.52	0.00	0.00
53.25		262.63	732.39	0.00	0.00
55.00		140.09	205.89	0.00	0.00
60.00		398.63	578.80	0.00	0.00
65.00		391.81	564.77	0.00	0.00
70.00		384.17	550.74	0.00	0.00
75.00		375.78	536.70	0.00	0.00
80.00		366.73	522.67	0.00	0.00
85.00		357.06	508.64	0.00	0.00
90.00		346.83	494.61	0.00	0.00
95.00		336.08	480.58	0.00	0.00
97.00	(19) attachments	3551.88	2052.56	0.00	0.00
98.75		113.00	141.53	0.00	0.00
100.00		81.02	156.92	0.00	0.00
102.00		128.24	247.87	0.00	0.00
105.00		189.02	192.59	0.00	0.00
107.00	(37) attachments	4324.34	2281.16	0.00	0.00
110.00		181.77	171.04	0.00	0.00
115.00		293.54	276.66	0.00	0.00
120.00		280.72	266.13	0.00	0.00
125.00		267.55	255.61	0.00	0.00
127.00	(11) attachments	3434.55	2239.50	0.00	0.00
130.00		150.54	140.41	0.00	0.00
135.00		240.22	225.60	0.00	0.00
137.00	(24) attachments	4147.80	2510.54	0.00	0.00
139.00	(1) attachments	108.74	66.69	0.00	0.00
	Totals:	**24,875.08**	**24,413.63**	**0.00**	**0.00**

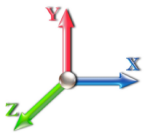
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 27

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	17.879	0.00	1.23
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	17.879	0.00	4.68
10.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	17.879	0.00	1.23
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	17.879	0.00	4.68
15.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	17.879	0.00	1.23
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	17.879	0.00	4.68
20.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	18.971	0.00	1.23
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	18.971	0.00	4.68
25.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	19.883	0.00	1.23
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	19.883	0.00	4.68
30.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	20.661	0.00	1.23
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	20.661	0.00	4.68
35.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.343	0.00	1.23
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.343	0.00	4.68
40.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.951	0.00	1.23
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.951	0.00	4.68
45.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	22.502	0.00	1.23
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	22.502	0.00	4.68
48.50	Safety Cable	Yes	3.50	0.000	0.00	0.00	0.00	0.000	0.000	22.860	0.00	0.86
48.50	Step bolts (ladder)	Yes	3.50	0.000	0.00	0.00	0.00	0.000	0.000	22.860	0.00	3.28
50.00	Safety Cable	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	23.007	0.00	0.37
50.00	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	23.007	0.00	1.40
53.25	Safety Cable	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	23.314	0.00	0.80
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	23.314	0.00	3.04
55.00	Safety Cable	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	23.473	0.00	0.43
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	23.473	0.00	1.64
60.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.907	0.00	1.23
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.907	0.00	4.68
65.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.313	0.00	1.23
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.313	0.00	4.68
70.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.696	0.00	1.23
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.696	0.00	4.68
75.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.057	0.00	1.23
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.057	0.00	4.68
80.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.400	0.00	1.23
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.400	0.00	4.68
85.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.726	0.00	1.23
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.726	0.00	4.68
90.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.037	0.00	1.23
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.037	0.00	4.68
95.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.336	0.00	1.23
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.336	0.00	4.68
97.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	26.451	0.00	0.49
97.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	26.451	0.00	1.87
98.75	Safety Cable	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	26.551	0.00	0.43
98.75	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	26.551	0.00	1.64
100.00	Safety Cable	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	26.621	0.00	0.31

Linear Appurtenance Segment Forces (Factored)

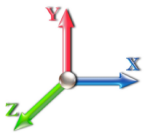
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 27

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	26.621	0.00	1.17
102.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	26.733	0.00	0.49
102.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	26.733	0.00	1.87
105.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	26.896	0.00	0.74
105.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	26.896	0.00	2.81
107.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.003	0.00	0.49
107.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.003	0.00	1.87
110.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	27.161	0.00	0.74
110.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	27.161	0.00	2.81
115.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.416	0.00	1.23
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.416	0.00	4.68
120.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.663	0.00	1.23
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.663	0.00	4.68
125.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.902	0.00	1.23
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	27.902	0.00	4.68
127.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.995	0.00	0.49
127.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	27.995	0.00	1.87
130.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	28.133	0.00	0.74
130.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	28.133	0.00	2.81
135.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.358	0.00	1.23
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.358	0.00	4.68
137.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	28.446	0.00	0.49
137.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	28.446	0.00	1.87
139.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	28.533	0.00	0.49
139.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	28.533	0.00	1.87
										Totals:	**0.0**	**164.3**

Calculated Forces

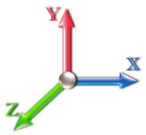
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 27

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-24.35	-24.93	0.00	-2511.5	0.00	2511.55	3003.53	1501.76	5797.25	2902.93	0.00	0.000	0.000	0.874
5.00	-23.37	-24.64	0.00	-2386.8	0.00	2386.89	2960.91	1480.45	5573.38	2790.83	0.14	-0.269	0.000	0.863
10.00	-22.41	-24.35	0.00	-2263.7	0.00	2263.70	2916.70	1458.35	5350.68	2679.32	0.57	-0.545	0.000	0.853
15.00	-21.46	-24.06	0.00	-2141.9	0.00	2141.96	2870.92	1435.46	5129.40	2568.51	1.30	-0.826	0.000	0.842
20.00	-20.53	-23.76	0.00	-2021.6	0.00	2021.65	2823.56	1411.78	4909.74	2458.52	2.32	-1.114	0.000	0.830
25.00	-19.62	-23.44	0.00	-1902.8	0.00	1902.87	2774.61	1387.31	4691.94	2349.46	3.64	-1.409	0.000	0.817
30.00	-18.73	-23.11	0.00	-1785.6	0.00	1785.69	2724.09	1362.04	4476.23	2241.44	5.28	-1.709	0.000	0.804
35.00	-17.86	-22.77	0.00	-1670.1	0.00	1670.16	2671.99	1335.99	4262.83	2134.58	7.23	-2.016	0.000	0.789
40.00	-17.01	-22.42	0.00	-1556.3	0.00	1556.33	2618.30	1309.15	4051.97	2029.00	9.51	-2.329	0.000	0.774
45.00	-16.20	-22.06	0.00	-1444.2	0.00	1444.21	2563.04	1281.52	3843.87	1924.79	12.12	-2.647	0.000	0.757
48.50	-15.65	-21.80	0.00	-1366.9	0.00	1366.99	2523.41	1261.71	3699.97	1852.74	14.15	-2.876	0.000	0.744
50.00	-15.25	-21.71	0.00	-1334.2	0.00	1334.29	2506.19	1253.10	3638.77	1822.09	15.07	-2.977	0.000	0.739
53.25	-14.47	-21.45	0.00	-1263.7	0.00	1263.74	1850.79	925.39	2677.47	1340.72	17.17	-3.194	0.000	0.951
55.00	-14.18	-21.36	0.00	-1226.2	0.00	1226.21	1837.85	918.92	2627.99	1315.95	18.36	-3.313	0.000	0.940
60.00	-13.48	-21.02	0.00	-1119.4	0.00	1119.41	1799.82	899.91	2487.54	1245.62	22.04	-3.709	0.000	0.907
65.00	-12.80	-20.68	0.00	-1014.3	0.00	1014.32	1760.21	880.10	2348.61	1176.05	26.14	-4.107	0.000	0.870
70.00	-12.14	-20.34	0.00	-910.91	0.00	910.91	1719.02	859.51	2211.45	1107.37	30.65	-4.506	0.000	0.830
75.00	-11.50	-20.00	0.00	-809.21	0.00	809.21	1676.25	838.13	2076.26	1039.67	35.58	-4.904	0.000	0.786
80.00	-10.88	-19.66	0.00	-709.20	0.00	709.20	1631.90	815.95	1943.29	973.09	40.92	-5.297	0.000	0.736
85.00	-10.28	-19.33	0.00	-610.88	0.00	610.88	1585.97	792.99	1812.75	907.72	46.67	-5.681	0.000	0.680
90.00	-9.70	-18.99	0.00	-514.24	0.00	514.24	1538.46	769.23	1684.87	843.69	52.81	-6.050	0.000	0.616
95.00	-9.18	-18.65	0.00	-419.27	0.00	419.27	1489.37	744.69	1559.88	781.10	59.32	-6.398	0.000	0.544
97.00	-7.51	-14.90	0.00	-381.98	0.00	381.98	1469.29	734.65	1510.75	756.50	62.03	-6.535	0.000	0.510
98.75	-7.36	-14.79	0.00	-355.90	0.00	355.90	1451.52	725.76	1468.18	735.18	64.44	-6.651	0.000	0.490
100.00	-7.18	-14.70	0.00	-337.42	0.00	337.42	1437.39	718.70	1436.71	719.42	66.19	-6.733	0.000	0.474
102.00	-6.91	-14.56	0.00	-308.02	0.00	308.02	990.34	495.17	991.38	496.43	69.03	-6.859	0.000	0.628
105.00	-6.71	-14.37	0.00	-264.33	0.00	264.33	971.88	485.94	945.01	473.21	73.39	-7.037	0.000	0.566
107.00	-4.95	-9.81	0.00	-235.59	0.00	235.59	959.26	479.63	914.39	457.88	76.36	-7.180	0.000	0.520
110.00	-4.76	-9.63	0.00	-206.15	0.00	206.15	939.85	469.93	868.93	435.11	80.93	-7.381	0.000	0.479
115.00	-4.48	-9.33	0.00	-158.00	0.00	158.00	906.24	453.12	794.52	397.85	88.80	-7.683	0.000	0.402
120.00	-4.21	-9.03	0.00	-111.37	0.00	111.37	871.06	435.53	722.01	361.54	96.97	-7.944	0.000	0.313
125.00	-3.98	-8.74	0.00	-66.22	0.00	66.22	834.29	417.15	651.64	326.30	105.38	-8.148	0.000	0.208
127.00	-2.25	-5.02	0.00	-48.75	0.00	48.75	819.14	409.57	624.14	312.53	108.80	-8.211	0.000	0.159
130.00	-2.12	-4.86	0.00	-33.68	0.00	33.68	791.03	395.51	580.02	290.44	113.96	-8.284	0.000	0.119
135.00	-1.93	-4.59	0.00	-9.41	0.00	9.41	739.97	369.98	507.20	253.97	122.65	-8.355	0.000	0.040
137.00	-0.05	-0.12	0.00	-0.23	0.00	0.23	719.55	359.77	479.43	240.07	126.14	-8.363	0.000	0.001
139.00	0.00	-0.11	0.00	0.00	0.00	0.00	699.12	349.56	452.45	226.56	129.63	-8.363	0.000	0.000

Wind Loading - Shaft

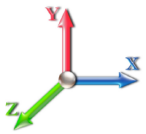
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 26

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.242	5.00	20.773	24.93	141.7	368.1	1306.5
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	20.359	24.43	138.9	385.7	1300.7
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	19.916	23.90	135.9	392.1	1283.7
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	19.462	23.35	140.9	393.5	1261.8
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	19.000	22.80	144.1	392.1	1237.0
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	18.534	22.24	146.1	388.9	1210.3
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	18.064	21.68	147.1	384.2	1182.3
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	17.592	21.11	147.3	378.5	1153.2
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	5.00	17.119	20.54	147.0	371.9	1123.2
48.50	Bot - Section 2	1.00	1.09	6.608	7.27	0.00	1.200	1.559	3.50	11.699	14.04	102.0	256.9	768.9
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	1.50	5.005	6.01	43.9	110.9	502.3
53.25	Top - Section 1	1.00	1.11	6.739	7.41	0.00	1.200	1.574	3.25	10.699	12.84	95.2	237.0	1072.0
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	1.75	5.677	6.81	50.8	126.7	325.0
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	15.902	19.08	145.1	353.7	907.7
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	15.424	18.51	143.1	345.0	880.3
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	14.946	17.93	140.8	336.0	852.6
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	14.466	17.36	138.3	326.6	824.5
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	13.987	16.78	135.5	317.0	796.2
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	13.506	16.21	132.6	307.1	767.6
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	5.00	13.025	15.63	129.4	297.0	738.7
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	5.00	12.544	15.05	126.0	286.6	709.7
97.00	Appurtenance(s)	1.00	1.26	7.646	8.41	0.00	1.200	1.671	2.00	4.882	5.86	49.3	113.0	276.9
98.75	Bot - Section 3	1.00	1.26	7.675	8.44	0.00	1.200	1.674	1.75	4.209	5.05	42.6	97.5	238.6
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	1.25	3.010	3.61	30.6	70.0	245.2
102.00	Top - Section 2	1.00	1.27	7.727	8.50	0.00	1.200	1.679	2.00	4.753	5.70	48.5	110.3	386.3
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	3.00	6.985	8.38	71.7	161.5	336.6
107.00	Appurtenance(s)	1.00	1.28	7.805	8.59	0.00	1.200	1.687	2.00	4.560	5.47	47.0	106.0	219.8
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	3.00	6.696	8.04	69.4	155.0	321.6
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	10.775	12.93	112.7	247.3	513.7
120.00		1.00	1.32	7.996	8.80	0.00	1.200	1.707	5.00	10.293	12.35	108.6	236.0	488.5
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	5.00	9.810	11.77	104.4	224.7	463.1
127.00	Appurtenance(s)	1.00	1.33	8.092	8.90	0.00	1.200	1.716	2.00	3.788	4.55	40.5	88.0	179.5
130.00		1.00	1.34	8.132	8.95	0.00	1.200	1.720	3.00	5.538	6.65	59.4	127.9	260.9
135.00		1.00	1.35	8.197	9.02	0.00	1.200	1.727	5.00	8.844	10.61	95.7	201.6	411.9
137.00	Appurtenance(s)	1.00	1.35	8.222	9.04	0.00	1.200	1.729	2.00	3.402	4.08	36.9	78.7	159.0
139.00	Appurtenance(s)	1.00	1.36	8.247	9.07	0.00	1.200	1.732	2.00	3.324	3.99	36.2	76.9	154.8
								Totals:	**139.00**			**3,625.3**		**24,860.6**

Discrete Appurtenance Forces

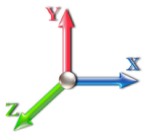
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	139.00	6' Lightning rod	1	8.247	9.072	1.00	1.00	1.46	38.53	0.000	0.000	13.24	0.00	0.00
2	137.00	RFS	3	8.222	9.044	0.56	0.80	37.17	1701.86	0.000	0.000	336.14	0.00	0.00
3	137.00	AIR6449 B41	3	8.222	9.044	0.57	0.80	11.23	683.34	0.000	0.000	101.59	0.00	0.00
4	137.00	4415 B25	3	8.222	9.044	0.54	0.80	3.89	346.89	0.000	0.000	35.18	0.00	0.00
5	137.00	KRY 112 144/1	3	8.222	9.044	0.54	0.80	1.42	62.35	0.000	0.000	12.81	0.00	0.00
6	137.00	4449 B71+B85	3	8.222	9.044	0.54	0.80	3.51	454.42	0.000	0.000	31.74	0.00	0.00
7	137.00	RDS-272	3	8.222	9.044	0.56	0.75	31.47	2030.14	0.000	0.000	284.61	0.00	0.00
8	137.00	SDX1926Q-43	3	8.222	9.044	0.54	0.80	1.34	45.61	0.000	0.000	12.10	0.00	0.00
9	137.00	Air 32	3	8.222	9.044	0.70	0.80	16.03	1023.15	0.000	0.000	145.02	0.00	0.00
10	127.00	TA08025-B604	3	8.092	8.901	0.54	0.80	4.04	343.12	0.000	0.000	35.95	0.00	0.00
11	127.00	Commscope	3	8.092	8.901	0.59	0.80	24.28	688.85	0.000	0.000	216.08	0.00	0.00
12	127.00	RDIDC-9181-OF-48	1	8.092	8.901	0.80	0.80	2.06	65.95	0.000	0.000	18.29	0.00	0.00
13	127.00	TA08025-B605	3	8.092	8.901	0.54	0.80	4.04	386.52	0.000	0.000	35.95	0.00	0.00
14	127.00	MC-PK8-DSH	1	8.092	8.901	1.00	1.00	84.04	3359.37	0.000	0.000	748.10	0.00	0.00
15	107.00	RRUS 4449 B5/B12	3	7.805	8.586	0.54	0.80	6.85	647.28	0.000	0.000	58.82	0.00	0.00
16	107.00	RRUS-E2	3	7.805	8.586	0.54	0.80	3.55	416.30	0.000	0.000	30.49	0.00	0.00
17	107.00	DTMABP7819VG12A	3	7.805	8.586	0.54	0.80	3.03	121.24	0.000	0.000	26.01	0.00	0.00
18	107.00	RRUS A2	3	7.805	8.586	0.54	0.80	4.50	150.45	0.000	0.000	38.68	0.00	0.00
19	107.00	Collar Mount Commscope	1	7.805	8.586	1.00	1.00	13.44	398.01	0.000	0.000	115.36	0.00	0.00
20	107.00	T-Arm Commscope	3	7.805	8.586	0.56	0.75	31.11	875.20	0.000	0.000	267.12	0.00	0.00
21	107.00	RRUS-11 700MHz	3	7.805	8.586	0.54	0.80	5.06	439.28	0.000	0.000	43.46	0.00	0.00
22	107.00	RRUS 12	3	7.805	8.586	0.54	0.80	6.17	483.44	0.000	0.000	52.99	0.00	0.00
23	107.00	DBC20056F1V1	3	7.805	8.586	0.54	0.80	1.16	55.05	0.000	0.000	9.94	0.00	0.00
24	107.00	RRUS-32	3	7.805	8.586	0.54	0.80	6.56	604.39	0.000	0.000	56.30	0.00	0.00
25	107.00	DC6-48-60-18-8F	3	7.805	8.586	0.54	0.80	3.45	240.69	0.000	0.000	29.64	0.00	0.00
26	107.00	OPA-65R-LCUU-H6	3	7.805	8.586	0.63	0.80	20.81	956.35	0.000	0.000	178.71	0.00	0.00
27	107.00	EPBQ-652L8H6-L2	3	7.805	8.586	0.68	0.80	30.00	1074.08	0.000	0.000	257.55	0.00	0.00
28	97.00	Commscope	1	7.646	8.410	1.00	1.00	7.19	101.14	0.000	0.000	60.48	0.00	0.00
29	97.00	Samsung B2/B66A	3	7.646	8.410	0.54	0.80	3.87	357.96	0.000	0.000	32.56	0.00	0.00
30	97.00	Samsung B5/B13	3	7.646	8.410	0.54	0.80	3.87	345.46	0.000	0.000	32.56	0.00	0.00
31	97.00	Samsung VZS01	3	7.646	8.410	0.60	0.80	9.26	629.50	0.000	0.000	77.87	0.00	0.00
32	97.00	JMA MX06FRO660-03	6	7.646	8.410	0.70	0.80	46.70	1866.12	0.000	0.000	392.80	0.00	0.00
33	97.00	T-Arms	3	7.646	8.410	0.56	0.75	24.78	1751.72	0.000	0.000	208.39	0.00	0.00
							Totals:		**22,743.74**			**3,996.54**		

Total Applied Force Summary

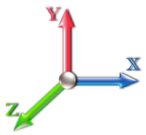
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		141.71	1548.14	0.00	0.00
10.00		138.89	1545.42	0.00	0.00
15.00		135.87	1530.48	0.00	0.00
20.00		140.87	1510.11	0.00	0.00
25.00		144.14	1486.60	0.00	0.00
30.00		146.10	1460.99	0.00	0.00
35.00		147.10	1433.87	0.00	0.00
40.00		147.34	1405.61	0.00	0.00
45.00		146.98	1376.43	0.00	0.00
48.50		102.04	946.44	0.00	0.00
50.00		43.94	578.44	0.00	0.00
53.25		95.18	1237.33	0.00	0.00
55.00		50.85	414.07	0.00	0.00
60.00		145.06	1162.78	0.00	0.00
65.00		143.09	1135.98	0.00	0.00
70.00		140.83	1108.77	0.00	0.00
75.00		138.30	1081.20	0.00	0.00
80.00		135.55	1053.31	0.00	0.00
85.00		132.57	1025.14	0.00	0.00
90.00		129.40	996.71	0.00	0.00
95.00		126.05	968.03	0.00	0.00
97.00	(19) attachments	853.94	5432.26	0.00	0.00
98.75		42.63	300.59	0.00	0.00
100.00		30.57	289.48	0.00	0.00
102.00		48.48	457.26	0.00	0.00
105.00		71.68	443.17	0.00	0.00
107.00	(37) attachments	1212.06	6752.71	0.00	0.00
110.00		69.39	408.12	0.00	0.00
115.00		112.72	658.25	0.00	0.00
120.00		108.64	633.33	0.00	0.00
125.00		104.44	608.25	0.00	0.00
127.00	(11) attachments	1094.84	5081.40	0.00	0.00
130.00		59.44	340.97	0.00	0.00
135.00		95.69	545.73	0.00	0.00
137.00	(24) attachments	996.11	6560.30	0.00	0.00
139.00	(1) attachments	49.43	213.96	0.00	0.00
	Totals:	**7,621.89**	**53,731.60**	**0.00**	**0.00**

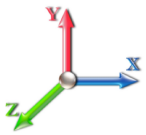
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	12.93
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	18.85
10.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	14.46
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	20.46
15.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	15.46
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	21.51
20.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.483	0.00	16.21
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.483	0.00	22.31
25.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.747	0.00	16.83
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.747	0.00	22.95
30.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.972	0.00	17.35
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.972	0.00	23.50
35.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.169	0.00	17.80
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.169	0.00	23.98
40.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.345	0.00	18.21
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.345	0.00	24.40
45.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.504	0.00	18.58
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.504	0.00	24.79
48.50	Safety Cable	Yes	3.50	0.000	0.00	0.00	0.00	0.000	0.000	6.608	0.00	13.17
48.50	Step bolts (ladder)	Yes	3.50	0.000	0.00	0.00	0.00	0.000	0.000	6.608	0.00	17.53
50.00	Safety Cable	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	6.650	0.00	5.67
50.00	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	6.650	0.00	7.54
53.25	Safety Cable	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	6.739	0.00	12.43
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	6.739	0.00	16.48
55.00	Safety Cable	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	6.785	0.00	6.73
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	6.785	0.00	8.91
60.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.910	0.00	19.51
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.910	0.00	25.76
65.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.028	0.00	19.78
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.028	0.00	26.04
70.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.138	0.00	20.03
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.138	0.00	26.31
75.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.243	0.00	20.27
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.243	0.00	26.56
80.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.342	0.00	20.49
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.342	0.00	26.79
85.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.436	0.00	20.71
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.436	0.00	27.02
90.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.526	0.00	20.91
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.526	0.00	27.23
95.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.612	0.00	21.11
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.612	0.00	27.44
97.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	7.646	0.00	8.47
97.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	7.646	0.00	11.01
98.75	Safety Cable	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	7.675	0.00	7.44
98.75	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	7.675	0.00	9.65
100.00	Safety Cable	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	7.695	0.00	5.32

Linear Appurtenance Segment Forces (Factored)

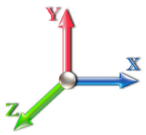
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	7.695	0.00	6.91
102.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	7.727	0.00	8.55
102.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	7.727	0.00	11.08
105.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	7.774	0.00	12.89
105.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	7.774	0.00	16.69
107.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	7.805	0.00	8.62
107.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	7.805	0.00	11.16
110.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	7.851	0.00	12.99
110.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	7.851	0.00	16.80
115.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.925	0.00	21.82
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.925	0.00	28.18
120.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.996	0.00	21.98
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.996	0.00	28.34
125.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.065	0.00	22.14
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.065	0.00	28.51
127.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	8.092	0.00	8.88
127.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	8.092	0.00	11.43
130.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	8.132	0.00	13.37
130.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	8.132	0.00	17.20
135.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.197	0.00	22.43
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.197	0.00	28.82
137.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	8.222	0.00	9.00
137.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	8.222	0.00	11.55
139.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	8.247	0.00	9.02
139.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	8.247	0.00	11.57
									Totals:		**0.0**	**1,256.8**

Calculated Forces

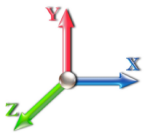
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 26

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-53.73	-7.66	0.00	-797.14	0.00	797.14	3003.53	1501.76	5797.25	2902.93	0.00	0.000	0.000	0.293
5.00	-52.17	-7.60	0.00	-758.83	0.00	758.83	2960.91	1480.45	5573.38	2790.83	0.05	-0.086	0.000	0.290
10.00	-50.61	-7.53	0.00	-720.84	0.00	720.84	2916.70	1458.35	5350.68	2679.32	0.18	-0.173	0.000	0.286
15.00	-49.07	-7.47	0.00	-683.17	0.00	683.17	2870.92	1435.46	5129.40	2568.51	0.41	-0.263	0.000	0.283
20.00	-47.55	-7.40	0.00	-645.82	0.00	645.82	2823.56	1411.78	4909.74	2458.52	0.74	-0.355	0.000	0.280
25.00	-46.05	-7.32	0.00	-608.83	0.00	608.83	2774.61	1387.31	4691.94	2349.46	1.16	-0.449	0.000	0.276
30.00	-44.58	-7.24	0.00	-572.23	0.00	572.23	2724.09	1362.04	4476.23	2241.44	1.68	-0.545	0.000	0.272
35.00	-43.13	-7.15	0.00	-536.04	0.00	536.04	2671.99	1335.99	4262.83	2134.58	2.30	-0.644	0.000	0.267
40.00	-41.72	-7.06	0.00	-500.29	0.00	500.29	2618.30	1309.15	4051.97	2029.00	3.03	-0.744	0.000	0.263
45.00	-40.33	-6.96	0.00	-465.00	0.00	465.00	2563.04	1281.52	3843.87	1924.79	3.87	-0.846	0.000	0.257
48.50	-39.38	-6.88	0.00	-440.65	0.00	440.65	2523.41	1261.71	3699.97	1852.74	4.51	-0.920	0.000	0.253
50.00	-38.80	-6.86	0.00	-430.34	0.00	430.34	2506.19	1253.10	3638.77	1822.09	4.81	-0.953	0.000	0.252
53.25	-37.55	-6.78	0.00	-408.06	0.00	408.06	1850.79	925.39	2677.47	1340.72	5.48	-1.023	0.000	0.325
55.00	-37.13	-6.77	0.00	-396.20	0.00	396.20	1837.85	918.92	2627.99	1315.95	5.86	-1.061	0.000	0.321
60.00	-35.96	-6.68	0.00	-362.34	0.00	362.34	1799.82	899.91	2487.54	1245.62	7.04	-1.189	0.000	0.311
65.00	-34.81	-6.60	0.00	-328.92	0.00	328.92	1760.21	880.10	2348.61	1176.05	8.36	-1.318	0.000	0.300
70.00	-33.69	-6.50	0.00	-295.94	0.00	295.94	1719.02	859.51	2211.45	1107.37	9.81	-1.448	0.000	0.287
75.00	-32.60	-6.41	0.00	-263.42	0.00	263.42	1676.25	838.13	2076.26	1039.67	11.40	-1.577	0.000	0.273
80.00	-31.54	-6.31	0.00	-231.37	0.00	231.37	1631.90	815.95	1943.29	973.09	13.12	-1.705	0.000	0.257
85.00	-30.50	-6.22	0.00	-199.80	0.00	199.80	1585.97	792.99	1812.75	907.72	14.97	-1.830	0.000	0.239
90.00	-29.50	-6.11	0.00	-168.72	0.00	168.72	1538.46	769.23	1684.87	843.69	16.95	-1.952	0.000	0.219
95.00	-28.53	-5.99	0.00	-138.15	0.00	138.15	1489.37	744.69	1559.88	781.10	19.06	-2.066	0.000	0.196
97.00	-23.13	-4.96	0.00	-126.16	0.00	126.16	1469.29	734.65	1510.75	756.50	19.93	-2.111	0.000	0.183
98.75	-22.82	-4.92	0.00	-117.48	0.00	117.48	1451.52	725.76	1468.18	735.18	20.72	-2.149	0.000	0.176
100.00	-22.53	-4.89	0.00	-111.33	0.00	111.33	1437.39	718.70	1436.71	719.42	21.28	-2.176	0.000	0.170
102.00	-22.07	-4.84	0.00	-101.55	0.00	101.55	990.34	495.17	991.38	496.43	22.20	-2.218	0.000	0.227
105.00	-21.63	-4.78	0.00	-87.02	0.00	87.02	971.88	485.94	945.01	473.21	23.62	-2.277	0.000	0.206
107.00	-14.93	-3.31	0.00	-77.47	0.00	77.47	959.26	479.63	914.39	457.88	24.58	-2.324	0.000	0.185
110.00	-14.52	-3.24	0.00	-67.55	0.00	67.55	939.85	469.93	868.93	435.11	26.06	-2.390	0.000	0.171
115.00	-13.86	-3.12	0.00	-51.34	0.00	51.34	906.24	453.12	794.52	397.85	28.62	-2.488	0.000	0.144
120.00	-13.23	-3.00	0.00	-35.72	0.00	35.72	871.06	435.53	722.01	361.54	31.27	-2.573	0.000	0.114
125.00	-12.62	-2.88	0.00	-20.70	0.00	20.70	834.29	417.15	651.64	326.30	34.00	-2.638	0.000	0.079
127.00	-7.60	-1.56	0.00	-14.93	0.00	14.93	819.14	409.57	624.14	312.53	35.11	-2.657	0.000	0.057
130.00	-7.26	-1.48	0.00	-10.26	0.00	10.26	791.03	395.51	580.02	290.44	36.79	-2.679	0.000	0.045
135.00	-6.72	-1.36	0.00	-2.85	0.00	2.85	739.97	369.98	507.20	253.97	39.61	-2.701	0.000	0.020
137.00	-0.21	-0.06	0.00	-0.12	0.00	0.12	719.55	359.77	479.43	240.07	40.74	-2.703	0.000	0.001
139.00	0.00	-0.05	0.00	0.00	0.00	0.00	699.12	349.56	452.45	226.56	41.87	-2.703	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT13549-S-SBA		**Code:**	EIA/TIA-222-G	10/13/2021
Site Name:	Danbury 1		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 27

IES Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	24
Gust Response Factor	1.10				**Sds**	0.23		**Ss**	0.22
Dead Load Factor	1.20	**Seismic Load Factor**		1.00	**Sd1**	0.11		**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency (f1)**		0.31	**SA**	0.03	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		781.99	0.00	0.03	0.02	20.99	
10.00		762.50	0.01	0.05	0.03	28.27	
15.00		743.01	0.02	0.07	0.04	30.96	
20.00		723.53	0.04	0.07	0.04	31.77	
25.00		704.04	0.06	0.07	0.04	31.87	
30.00		684.55	0.09	0.07	0.04	31.81	
35.00		665.06	0.12	0.07	0.03	31.74	
40.00		645.57	0.16	0.07	0.03	31.56	
45.00		626.08	0.20	0.06	0.02	30.94	
48.50	Bot - Section 2	426.66	0.23	0.06	0.02	20.88	
50.00		326.16	0.24	0.06	0.02	15.78	
53.25	Top - Section 1	695.84	0.28	0.05	0.01	32.17	
55.00		165.27	0.30	0.05	0.01	7.34	
60.00		461.69	0.35	0.03	0.01	16.50	
65.00		446.10	0.41	0.01	0.01	9.41	
70.00		430.51	0.48	-0.01	0.01	0.45	
75.00		414.92	0.55	-0.03	0.01	-8.61	
80.00		399.33	0.63	-0.06	0.02	-15.63	
85.00		383.74	0.71	-0.09	0.03	-19.43	
90.00		368.15	0.79	-0.11	0.05	-19.96	
95.00		352.56	0.88	-0.12	0.08	-17.68	
97.00	Appurtenance(s)	2208.0	0.92	-0.12	0.10	-102.64	
98.75	Bot - Section 3	117.53	0.95	-0.12	0.11	-4.98	
100.00		145.97	0.98	-0.11	0.12	-5.68	
102.00	Top - Section 2	230.01	1.02	-0.11	0.14	-7.46	
105.00		145.87	1.08	-0.08	0.17	-3.02	
107.00	Appurtenance(s)	2489.2	1.12	-0.06	0.20	-28.81	
110.00		138.86	1.18	-0.01	0.24	0.59	
115.00		222.07	1.29	0.11	0.33	8.00	
120.00		210.38	1.41	0.30	0.44	15.73	
125.00		198.69	1.53	0.57	0.58	23.99	
127.00	Appurtenance(s)	2454.2	1.58	0.71	0.64	346.39	
130.00		110.79	1.65	0.95	0.74	19.28	
135.00		175.30	1.78	1.46	0.95	41.17	
137.00	Appurtenance(s)	2759.3	1.84	1.71	1.04	721.26	
139.00	Appurtenance(s)	71.48	1.89	1.98	1.14	20.67	
	Totals:	**22,885.0**				**1,335.6**	**Total Wind:** **24,875.1**

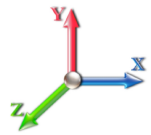
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E



Gust Response Factor	1.10			**Sds**	0.23			**Iterations**	24
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.11			**Ss**	0.22
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.31	**SA**	0.03			**S1**	0.07
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-32.55	-1.57	0.00	-183.95	0.00	183.95	3003.53	1501.76	5797.25	2902.93		0.00	0.00	0.074
5.00	-31.39	-1.56	0.00	-176.08	0.00	176.08	2960.91	1480.45	5573.38	2790.83		0.01	-0.02	0.074
10.00	-30.26	-1.55	0.00	-168.26	0.00	168.26	2916.70	1458.35	5350.68	2679.32		0.04	-0.04	0.073
15.00	-29.15	-1.52	0.00	-160.53	0.00	160.53	2870.92	1435.46	5129.40	2568.51		0.10	-0.06	0.073
20.00	-28.06	-1.50	0.00	-152.91	0.00	152.91	2823.56	1411.78	4909.74	2458.52		0.17	-0.08	0.072
25.00	-27.00	-1.48	0.00	-145.40	0.00	145.40	2774.61	1387.31	4691.94	2349.46		0.27	-0.11	0.072
30.00	-25.96	-1.46	0.00	-138.00	0.00	138.00	2724.09	1362.04	4476.23	2241.44		0.39	-0.13	0.071
35.00	-24.95	-1.43	0.00	-130.72	0.00	130.72	2671.99	1335.99	4262.83	2134.58		0.54	-0.15	0.071
40.00	-23.95	-1.41	0.00	-123.55	0.00	123.55	2618.30	1309.15	4051.97	2029.00		0.71	-0.18	0.070
45.00	-22.98	-1.38	0.00	-116.51	0.00	116.51	2563.04	1281.52	3843.87	1924.79		0.91	-0.20	0.069
48.50	-22.32	-1.37	0.00	-111.67	0.00	111.67	2523.41	1261.71	3699.97	1852.74		1.07	-0.22	0.069
50.00	-21.86	-1.35	0.00	-109.62	0.00	109.62	2506.19	1253.10	3638.77	1822.09		1.14	-0.23	0.069
53.25	-20.89	-1.32	0.00	-105.22	0.00	105.22	1850.79	925.39	2677.47	1340.72		1.30	-0.25	0.090
55.00	-20.61	-1.32	0.00	-102.91	0.00	102.91	1837.85	918.92	2627.99	1315.95		1.39	-0.26	0.089
60.00	-19.84	-1.31	0.00	-96.30	0.00	96.30	1799.82	899.91	2487.54	1245.62		1.68	-0.29	0.088
65.00	-19.08	-1.31	0.00	-89.74	0.00	89.74	1760.21	880.10	2348.61	1176.05		2.00	-0.33	0.087
70.00	-18.35	-1.32	0.00	-83.18	0.00	83.18	1719.02	859.51	2211.45	1107.37		2.36	-0.36	0.086
75.00	-17.63	-1.32	0.00	-76.60	0.00	76.60	1676.25	838.13	2076.26	1039.67		2.76	-0.40	0.084
80.00	-16.93	-1.33	0.00	-69.97	0.00	69.97	1631.90	815.95	1943.29	973.09		3.20	-0.44	0.082
85.00	-16.26	-1.34	0.00	-63.32	0.00	63.32	1585.97	792.99	1812.75	907.72		3.68	-0.47	0.080
90.00	-15.60	-1.34	0.00	-56.63	0.00	56.63	1538.46	769.23	1684.87	843.69		4.19	-0.51	0.077
95.00	-14.95	-1.34	0.00	-49.93	0.00	49.93	1489.37	744.69	1559.88	781.10		4.75	-0.55	0.074
97.00	-12.22	-1.32	0.00	-47.24	0.00	47.24	1469.29	734.65	1510.75	756.50		4.99	-0.57	0.071
98.75	-12.03	-1.32	0.00	-44.93	0.00	44.93	1451.52	725.76	1468.18	735.18		5.20	-0.59	0.069
100.00	-11.82	-1.32	0.00	-43.28	0.00	43.28	1437.39	718.70	1436.71	719.42		5.36	-0.60	0.068
102.00	-11.49	-1.32	0.00	-40.64	0.00	40.64	990.34	495.17	991.38	496.43		5.61	-0.61	0.093
105.00	-11.23	-1.32	0.00	-36.67	0.00	36.67	971.88	485.94	945.01	473.21		6.00	-0.64	0.089
107.00	-8.19	-1.29	0.00	-34.03	0.00	34.03	959.26	479.63	914.39	457.88		6.27	-0.66	0.083
110.00	-7.96	-1.29	0.00	-30.15	0.00	30.15	939.85	469.93	868.93	435.11		6.69	-0.69	0.078
115.00	-7.59	-1.29	0.00	-23.68	0.00	23.68	906.24	453.12	794.52	397.85		7.44	-0.73	0.068
120.00	-7.23	-1.27	0.00	-17.24	0.00	17.24	871.06	435.53	722.01	361.54		8.22	-0.77	0.056
125.00	-6.89	-1.25	0.00	-10.88	0.00	10.88	834.29	417.15	651.64	326.30		9.05	-0.80	0.042
127.00	-3.91	-0.86	0.00	-8.39	0.00	8.39	819.14	409.57	624.14	312.53		9.39	-0.81	0.032
130.00	-3.73	-0.84	0.00	-5.81	0.00	5.81	791.03	395.51	580.02	290.44		9.90	-0.83	0.025
135.00	-3.43	-0.79	0.00	-1.63	0.00	1.63	739.97	369.98	507.20	253.97		10.77	-0.84	0.011
137.00	-0.09	-0.02	0.00	-0.04	0.00	0.04	719.55	359.77	479.43	240.07		11.12	-0.84	0.000
139.00	0.00	-0.02	0.00	0.00	0.00	0.00	699.12	349.56	452.45	226.56		11.48	-0.84	0.000

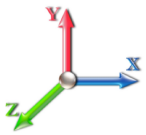
Seismic Segment Forces (Factored)

Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 29	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E

Gust Response Factor	1.10			**Sds**	0.23	**Iterations**	24
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.11	**Ss**	0.22
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.31	**SA**	0.03	**S1**	0.07
						Seismic Importance Factor	1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		781.99	0.00	0.03	0.02	20.99	
10.00		762.50	0.01	0.05	0.03	28.27	
15.00		743.01	0.02	0.07	0.04	30.96	
20.00		723.53	0.04	0.07	0.04	31.77	
25.00		704.04	0.06	0.07	0.04	31.87	
30.00		684.55	0.09	0.07	0.04	31.81	
35.00		665.06	0.12	0.07	0.03	31.74	
40.00		645.57	0.16	0.07	0.03	31.56	
45.00		626.08	0.20	0.06	0.02	30.94	
48.50	Bot - Section 2	426.66	0.23	0.06	0.02	20.88	
50.00		326.16	0.24	0.06	0.02	15.78	
53.25	Top - Section 1	695.84	0.28	0.05	0.01	32.17	
55.00		165.27	0.30	0.05	0.01	7.34	
60.00		461.69	0.35	0.03	0.01	16.50	
65.00		446.10	0.41	0.01	0.01	9.41	
70.00		430.51	0.48	-0.01	0.01	0.45	
75.00		414.92	0.55	-0.03	0.01	-8.61	
80.00		399.33	0.63	-0.06	0.02	-15.63	
85.00		383.74	0.71	-0.09	0.03	-19.43	
90.00		368.15	0.79	-0.11	0.05	-19.96	
95.00		352.56	0.88	-0.12	0.08	-17.68	
97.00	Appurtenance(s)	2208.0	0.92	-0.12	0.10	-102.64	
98.75	Bot - Section 3	117.53	0.95	-0.12	0.11	-4.98	
100.00		145.97	0.98	-0.11	0.12	-5.68	
102.00	Top - Section 2	230.01	1.02	-0.11	0.14	-7.46	
105.00		145.87	1.08	-0.08	0.17	-3.02	
107.00	Appurtenance(s)	2489.2	1.12	-0.06	0.20	-28.81	
110.00		138.86	1.18	-0.01	0.24	0.59	
115.00		222.07	1.29	0.11	0.33	8.00	
120.00		210.38	1.41	0.30	0.44	15.73	
125.00		198.69	1.53	0.57	0.58	23.99	
127.00	Appurtenance(s)	2454.2	1.58	0.71	0.64	346.39	
130.00		110.79	1.65	0.95	0.74	19.28	
135.00		175.30	1.78	1.46	0.95	41.17	
137.00	Appurtenance(s)	2759.3	1.84	1.71	1.04	721.26	
139.00	Appurtenance(s)	71.48	1.89	1.98	1.14	20.67	
	Totals:	**22,885.0**				**1,335.6**	**Total Wind:** **24,875.1**

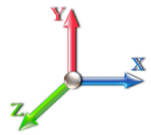
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 30	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.23			**Iterations**	24
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.11			**Ss**	0.22
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.31	**SA**	0.03			**S1**	0.07
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-24.41	-1.57	0.00	-180.80	0.00	180.80	3003.53	1501.76	5797.25	2902.93		0.00	0.00	0.070
5.00	-23.55	-1.56	0.00	-172.94	0.00	172.94	2960.91	1480.45	5573.38	2790.83		0.01	-0.02	0.070
10.00	-22.70	-1.54	0.00	-165.14	0.00	165.14	2916.70	1458.35	5350.68	2679.32		0.04	-0.04	0.069
15.00	-21.86	-1.52	0.00	-157.44	0.00	157.44	2870.92	1435.46	5129.40	2568.51		0.09	-0.06	0.069
20.00	-21.05	-1.49	0.00	-149.87	0.00	149.87	2823.56	1411.78	4909.74	2458.52		0.17	-0.08	0.068
25.00	-20.25	-1.47	0.00	-142.41	0.00	142.41	2774.61	1387.31	4691.94	2349.46		0.27	-0.10	0.068
30.00	-19.47	-1.44	0.00	-135.09	0.00	135.09	2724.09	1362.04	4476.23	2241.44		0.39	-0.13	0.067
35.00	-18.71	-1.41	0.00	-127.89	0.00	127.89	2671.99	1335.99	4262.83	2134.58		0.53	-0.15	0.067
40.00	-17.96	-1.39	0.00	-120.82	0.00	120.82	2618.30	1309.15	4051.97	2029.00		0.70	-0.17	0.066
45.00	-17.24	-1.36	0.00	-113.88	0.00	113.88	2563.04	1281.52	3843.87	1924.79		0.89	-0.20	0.066
48.50	-16.74	-1.34	0.00	-109.12	0.00	109.12	2523.41	1261.71	3699.97	1852.74		1.05	-0.22	0.066
50.00	-16.40	-1.33	0.00	-107.10	0.00	107.10	2506.19	1253.10	3638.77	1822.09		1.12	-0.22	0.065
53.25	-15.66	-1.30	0.00	-102.78	0.00	102.78	1850.79	925.39	2677.47	1340.72		1.27	-0.24	0.085
55.00	-15.46	-1.29	0.00	-100.51	0.00	100.51	1837.85	918.92	2627.99	1315.95		1.36	-0.25	0.085
60.00	-14.88	-1.28	0.00	-94.04	0.00	94.04	1799.82	899.91	2487.54	1245.62		1.65	-0.28	0.084
65.00	-14.31	-1.28	0.00	-87.62	0.00	87.62	1760.21	880.10	2348.61	1176.05		1.96	-0.32	0.083
70.00	-13.76	-1.29	0.00	-81.21	0.00	81.21	1719.02	859.51	2211.45	1107.37		2.31	-0.35	0.081
75.00	-13.22	-1.29	0.00	-74.79	0.00	74.79	1676.25	838.13	2076.26	1039.67		2.70	-0.39	0.080
80.00	-12.70	-1.30	0.00	-68.33	0.00	68.33	1631.90	815.95	1943.29	973.09		3.13	-0.43	0.078
85.00	-12.19	-1.30	0.00	-61.86	0.00	61.86	1585.97	792.99	1812.75	907.72		3.60	-0.46	0.076
90.00	-11.69	-1.30	0.00	-55.36	0.00	55.36	1538.46	769.23	1684.87	843.69		4.11	-0.50	0.073
95.00	-11.21	-1.30	0.00	-48.85	0.00	48.85	1489.37	744.69	1559.88	781.10		4.65	-0.54	0.070
97.00	-9.16	-1.29	0.00	-46.24	0.00	46.24	1469.29	734.65	1510.75	756.50		4.88	-0.56	0.067
98.75	-9.02	-1.29	0.00	-43.99	0.00	43.99	1451.52	725.76	1468.18	735.18		5.09	-0.57	0.066
100.00	-8.86	-1.29	0.00	-42.38	0.00	42.38	1437.39	718.70	1436.71	719.42		5.24	-0.58	0.065
102.00	-8.61	-1.29	0.00	-39.80	0.00	39.80	990.34	495.17	991.38	496.43		5.49	-0.60	0.089
105.00	-8.42	-1.29	0.00	-35.94	0.00	35.94	971.88	485.94	945.01	473.21		5.87	-0.62	0.085
107.00	-6.14	-1.27	0.00	-33.36	0.00	33.36	959.26	479.63	914.39	457.88		6.14	-0.64	0.079
110.00	-5.97	-1.27	0.00	-29.56	0.00	29.56	939.85	469.93	868.93	435.11		6.55	-0.67	0.074
115.00	-5.69	-1.26	0.00	-23.22	0.00	23.22	906.24	453.12	794.52	397.85		7.28	-0.71	0.065
120.00	-5.42	-1.25	0.00	-16.91	0.00	16.91	871.06	435.53	722.01	361.54		8.05	-0.75	0.053
125.00	-5.17	-1.22	0.00	-10.68	0.00	10.68	834.29	417.15	651.64	326.30		8.85	-0.78	0.039
127.00	-2.93	-0.84	0.00	-8.24	0.00	8.24	819.14	409.57	624.14	312.53		9.18	-0.80	0.030
130.00	-2.79	-0.82	0.00	-5.71	0.00	5.71	791.03	395.51	580.02	290.44		9.69	-0.81	0.023
135.00	-2.57	-0.78	0.00	-1.60	0.00	1.60	739.97	369.98	507.20	253.97		10.54	-0.82	0.010
137.00	-0.07	-0.02	0.00	-0.04	0.00	0.04	719.55	359.77	479.43	240.07		10.89	-0.82	0.000
139.00	0.00	-0.02	0.00	0.00	0.00	0.00	699.12	349.56	452.45	226.56		11.23	-0.82	0.000

Wind Loading - Shaft

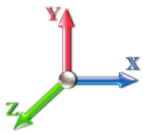
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 31	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	221.08	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	215.67	0.650	0.000	5.00	19.738	12.83	105.0	0.0	782.0
10.00		1.00	0.85	7.442	8.19	210.27	0.650	0.000	5.00	19.250	12.51	102.4	0.0	762.5
15.00		1.00	0.85	7.442	8.19	204.86	0.650	0.000	5.00	18.761	12.19	99.8	0.0	743.0
20.00		1.00	0.90	7.896	8.69	205.45	0.650	0.000	5.00	18.273	11.88	103.2	0.0	723.5
25.00		1.00	0.95	8.276	9.10	204.63	0.650	0.000	5.00	17.784	11.56	105.2	0.0	704.0
30.00		1.00	0.98	8.600	9.46	202.79	0.650	0.000	5.00	17.295	11.24	106.3	0.0	684.5
35.00		1.00	1.01	8.883	9.77	200.20	0.650	0.000	5.00	16.807	10.92	106.8	0.0	665.1
40.00		1.00	1.04	9.137	10.05	197.04	0.650	0.000	5.00	16.318	10.61	106.6	0.0	645.6
45.00		1.00	1.07	9.366	10.30	193.44	0.650	0.000	5.00	15.830	10.29	106.0	0.0	626.1
48.50	Bot - Section 2	1.00	1.09	9.515	10.47	190.69	0.650	0.000	3.50	10.790	7.01	73.4	0.0	426.7
50.00		1.00	1.09	9.576	10.53	189.46	0.650	0.000	1.50	4.614	3.00	31.6	0.0	326.2
53.25	Top - Section 1	1.00	1.11	9.704	10.67	186.71	0.650	0.000	3.25	9.847	6.40	68.3	0.0	695.8
55.00		1.00	1.12	9.770	10.75	187.86	0.650	0.000	1.75	5.217	3.39	36.4	0.0	165.3
60.00		1.00	1.14	9.951	10.95	183.34	0.650	0.000	5.00	14.575	9.47	103.7	0.0	461.7
65.00		1.00	1.16	10.120	11.13	178.59	0.650	0.000	5.00	14.087	9.16	101.9	0.0	446.1
70.00		1.00	1.17	10.279	11.31	173.63	0.650	0.000	5.00	13.598	8.84	99.9	0.0	430.5
75.00		1.00	1.19	10.430	11.47	168.50	0.650	0.000	5.00	13.109	8.52	97.8	0.0	414.9
80.00		1.00	1.21	10.572	11.63	163.20	0.650	0.000	5.00	12.621	8.20	95.4	0.0	399.3
85.00		1.00	1.22	10.708	11.78	157.76	0.650	0.000	5.00	12.132	7.89	92.9	0.0	383.7
90.00		1.00	1.24	10.838	11.92	152.19	0.650	0.000	5.00	11.644	7.57	90.2	0.0	368.1
95.00		1.00	1.25	10.962	12.06	146.50	0.650	0.000	5.00	11.155	7.25	87.4	0.0	352.6
97.00	Appurtenance(s)	1.00	1.26	11.010	12.11	144.19	0.650	0.000	2.00	4.325	2.81	34.0	0.0	136.7
98.75	Bot - Section 3	1.00	1.26	11.051	12.16	142.16	0.650	0.000	1.75	3.720	2.42	29.4	0.0	117.5
100.00		1.00	1.27	11.081	12.19	140.70	0.650	0.000	1.25	2.660	1.73	21.1	0.0	146.0
102.00	Top - Section 2	1.00	1.27	11.127	12.24	138.35	0.650	0.000	2.00	4.193	2.73	33.4	0.0	230.0
105.00		1.00	1.28	11.195	12.31	136.94	0.650	0.000	3.00	6.143	3.99	49.2	0.0	145.9
107.00	Appurtenance(s)	1.00	1.28	11.240	12.36	134.56	0.650	0.000	2.00	3.998	2.60	32.1	0.0	94.9
110.00		1.00	1.29	11.305	12.44	130.95	0.650	0.000	3.00	5.850	3.80	47.3	0.0	138.9
115.00		1.00	1.30	11.412	12.55	124.87	0.650	0.000	5.00	9.359	6.08	76.4	0.0	222.1
120.00		1.00	1.32	11.514	12.67	118.71	0.650	0.000	5.00	8.871	5.77	73.0	0.0	210.4
125.00		1.00	1.33	11.614	12.78	112.47	0.650	0.000	5.00	8.382	5.45	69.6	0.0	198.7
127.00	Appurtenance(s)	1.00	1.33	11.653	12.82	109.95	0.650	0.000	2.00	3.216	2.09	26.8	0.0	76.2
130.00		1.00	1.34	11.710	12.88	106.15	0.650	0.000	3.00	4.677	3.04	39.2	0.0	110.8
135.00		1.00	1.35	11.803	12.98	99.77	0.650	0.000	5.00	7.405	4.81	62.5	0.0	175.3
137.00	Appurtenance(s)	1.00	1.35	11.840	13.02	97.19	0.650	0.000	2.00	2.825	1.84	23.9	0.0	66.8
139.00	Appurtenance(s)	1.00	1.36	11.876	13.06	94.61	0.650	0.000	2.00	2.747	1.79	23.3	0.0	65.0
								Totals:	**139.00**			**2,561.6**		**13,342.3**

Discrete Appurtenance Forces

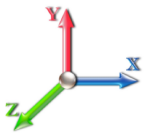
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 32	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	139.00	6' Lightning rod	1	11.876	13.064	1.00	1.00	0.38	6.50	0.000	0.000	4.96	0.00	0.00
2	137.00	RFS	3	11.840	13.024	0.56	0.80	34.00	384.00	0.000	0.000	442.86	0.00	0.00
3	137.00	AIR6449 B41	3	11.840	13.024	0.57	0.80	9.63	309.00	0.000	0.000	125.39	0.00	0.00
4	137.00	4415 B25	3	11.840	13.024	0.54	0.80	2.99	138.90	0.000	0.000	38.95	0.00	0.00
5	137.00	KRY 112 144/1	3	11.840	13.024	0.54	0.80	0.66	33.00	0.000	0.000	8.59	0.00	0.00
6	137.00	4449 B71+B85	3	11.840	13.024	0.54	0.80	2.65	210.00	0.000	0.000	34.56	0.00	0.00
7	137.00	RDS-272	3	11.840	13.024	0.56	0.75	16.88	1200.00	0.000	0.000	219.78	0.00	0.00
8	137.00	SDX1926Q-43	3	11.840	13.024	0.54	0.80	0.61	21.00	0.000	0.000	7.96	0.00	0.00
9	137.00	Air 32	3	11.840	13.024	0.70	0.80	13.59	396.60	0.000	0.000	177.03	0.00	0.00
10	127.00	TA08025-B604	3	11.653	12.818	0.54	0.80	3.15	191.70	0.000	0.000	40.40	0.00	0.00
11	127.00	Commscope	3	11.653	12.818	0.59	0.80	21.74	212.40	0.000	0.000	278.64	0.00	0.00
12	127.00	RDIDC-9181-OF-48	1	11.653	12.818	0.80	0.80	1.61	21.90	0.000	0.000	20.61	0.00	0.00
13	127.00	TA08025-B605	3	11.653	12.818	0.60	0.80	3.53	225.00	0.000	0.000	45.22	0.00	0.00
14	127.00	MC-PK8-DSH	1	11.653	12.818	1.00	1.00	37.59	1727.00	0.000	0.000	481.82	0.00	0.00
15	107.00	RRUS 4449 B5/B12	3	11.240	12.364	0.54	0.80	2.65	255.00	0.000	0.000	32.80	0.00	0.00
16	107.00	RRUS-E2	3	11.240	12.364	0.54	0.80	2.65	231.00	0.000	0.000	32.80	0.00	0.00
17	107.00	DTMABP7819VG12A	3	11.240	12.364	0.54	0.80	1.83	57.60	0.000	0.000	22.66	0.00	0.00
18	107.00	RRUS A2	3	11.240	12.364	0.54	0.80	2.99	63.60	0.000	0.000	36.98	0.00	0.00
19	107.00	Collar Mount Commscope	1	11.240	12.364	1.00	1.00	5.00	122.40	0.000	0.000	61.82	0.00	0.00
20	107.00	T-Arm Commscope	3	11.240	12.364	0.56	0.75	16.88	534.00	0.000	0.000	208.64	0.00	0.00
21	107.00	RRUS-11 700MHz	3	11.240	12.364	0.54	0.80	4.05	152.10	0.000	0.000	50.10	0.00	0.00
22	107.00	RRUS 12	3	11.240	12.364	0.54	0.80	5.07	174.00	0.000	0.000	62.62	0.00	0.00
23	107.00	DBC20056F1V1	3	11.240	12.364	0.54	0.80	0.66	19.80	0.000	0.000	8.15	0.00	0.00
24	107.00	RRUS-32	3	11.240	12.364	0.54	0.80	6.22	231.00	0.000	0.000	76.94	0.00	0.00
25	107.00	DC6-48-60-18-8F	3	11.240	12.364	0.54	0.80	2.36	95.40	0.000	0.000	29.22	0.00	0.00
26	107.00	OPA-65R-LCUU-H6	3	11.240	12.364	0.63	0.80	18.32	240.00	0.000	0.000	226.45	0.00	0.00
27	107.00	EPBQ-652L8H6-L2	3	11.240	12.364	0.68	0.80	19.71	218.40	0.000	0.000	243.64	0.00	0.00
28	97.00	Commscope	1	11.010	12.111	1.00	1.00	5.60	20.00	0.000	0.000	67.82	0.00	0.00
29	97.00	Samsung B2/B66A	3	11.010	12.111	0.54	0.80	3.02	210.90	0.000	0.000	36.61	0.00	0.00
30	97.00	Samsung B5/B13	3	11.010	12.111	0.54	0.80	3.02	253.20	0.000	0.000	36.61	0.00	0.00
31	97.00	Samsung VZS01	3	11.010	12.111	0.55	0.80	7.12	261.30	0.000	0.000	86.24	0.00	0.00
32	97.00	JMA MX06FRO660-03	6	11.010	12.111	0.70	0.80	41.22	276.00	0.000	0.000	499.18	0.00	0.00
33	97.00	T-Arms	3	11.010	12.111	0.56	0.75	13.50	1050.00	0.000	0.000	163.50	0.00	0.00
							Totals:		**9,542.70**			**3,909.56**		

Total Applied Force Summary

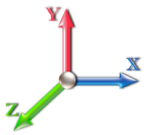
Structure:	CT13549-S-SBA		**Code:**	EIA/TIA-222-G	10/13/2021
Site Name:	Danbury 1		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 33

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		105.03	963.41	0.00	0.00
10.00		102.43	943.92	0.00	0.00
15.00		99.83	924.43	0.00	0.00
20.00		103.16	904.95	0.00	0.00
25.00		105.23	885.46	0.00	0.00
30.00		106.35	865.97	0.00	0.00
35.00		106.75	846.48	0.00	0.00
40.00		106.60	826.99	0.00	0.00
45.00		106.01	807.50	0.00	0.00
48.50		73.41	553.66	0.00	0.00
50.00		31.60	380.58	0.00	0.00
53.25		68.32	813.77	0.00	0.00
55.00		36.44	228.77	0.00	0.00
60.00		103.70	643.11	0.00	0.00
65.00		101.93	627.52	0.00	0.00
70.00		99.94	611.93	0.00	0.00
75.00		97.76	596.34	0.00	0.00
80.00		95.40	580.75	0.00	0.00
85.00		92.89	565.16	0.00	0.00
90.00		90.23	549.57	0.00	0.00
95.00		87.43	533.98	0.00	0.00
97.00	(19) attachments	924.01	2280.62	0.00	0.00
98.75		29.40	157.26	0.00	0.00
100.00		21.08	174.35	0.00	0.00
102.00		33.36	275.42	0.00	0.00
105.00		49.17	213.99	0.00	0.00
107.00	(37) attachments	1124.96	2534.62	0.00	0.00
110.00		47.29	190.05	0.00	0.00
115.00		76.36	307.39	0.00	0.00
120.00		73.03	295.70	0.00	0.00
125.00		69.60	284.01	0.00	0.00
127.00	(11) attachments	893.48	2488.33	0.00	0.00
130.00		39.16	156.01	0.00	0.00
135.00		62.49	250.67	0.00	0.00
137.00	(24) attachments	1079.03	2789.49	0.00	0.00
139.00	(1) attachments	28.29	74.10	0.00	0.00
	Totals:	**6,471.15**	**27,126.26**	**0.00**	**0.00**

Linear Appurtenance Segment Forces (Factored)

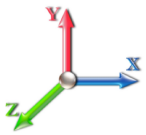
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 34	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	1.37
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	5.20
10.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	1.37
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	5.20
15.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	1.37
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	5.20
20.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.896	0.00	1.37
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.896	0.00	5.20
25.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.276	0.00	1.37
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.276	0.00	5.20
30.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.600	0.00	1.37
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.600	0.00	5.20
35.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.883	0.00	1.37
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.883	0.00	5.20
40.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.137	0.00	1.37
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.137	0.00	5.20
45.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.366	0.00	1.37
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.366	0.00	5.20
48.50	Safety Cable	Yes	3.50	0.000	0.00	0.00	0.00	0.000	0.000	9.515	0.00	0.96
48.50	Step bolts (ladder)	Yes	3.50	0.000	0.00	0.00	0.00	0.000	0.000	9.515	0.00	3.64
50.00	Safety Cable	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	9.576	0.00	0.41
50.00	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.000	0.000	9.576	0.00	1.56
53.25	Safety Cable	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	9.704	0.00	0.89
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	9.704	0.00	3.38
55.00	Safety Cable	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	9.770	0.00	0.48
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	9.770	0.00	1.82
60.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.951	0.00	1.37
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.951	0.00	5.20
65.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.120	0.00	1.37
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.120	0.00	5.20
70.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.279	0.00	1.37
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.279	0.00	5.20
75.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.430	0.00	1.37
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.430	0.00	5.20
80.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.572	0.00	1.37
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.572	0.00	5.20
85.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.708	0.00	1.37
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.708	0.00	5.20
90.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.838	0.00	1.37
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.838	0.00	5.20
95.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.962	0.00	1.37
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.962	0.00	5.20
97.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.010	0.00	0.55
97.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.010	0.00	2.08
98.75	Safety Cable	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	11.051	0.00	0.48
98.75	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	11.051	0.00	1.82
100.00	Safety Cable	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	11.081	0.00	0.34

Linear Appurtenance Segment Forces (Factored)

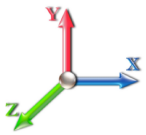
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 35	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	11.081	0.00	1.30
102.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.127	0.00	0.55
102.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.127	0.00	2.08
105.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	11.195	0.00	0.82
105.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	11.195	0.00	3.12
107.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.240	0.00	0.55
107.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.240	0.00	2.08
110.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	11.305	0.00	0.82
110.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	11.305	0.00	3.12
115.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.412	0.00	1.37
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.412	0.00	5.20
120.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.514	0.00	1.37
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.514	0.00	5.20
125.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.614	0.00	1.37
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.614	0.00	5.20
127.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.653	0.00	0.55
127.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.653	0.00	2.08
130.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	11.710	0.00	0.82
130.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	11.710	0.00	3.12
135.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.803	0.00	1.37
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.803	0.00	5.20
137.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.840	0.00	0.55
137.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.840	0.00	2.08
139.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.876	0.00	0.55
139.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.876	0.00	2.08
										Totals:	**0.0**	**182.5**

Calculated Forces

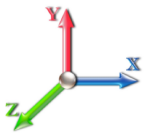
Structure:	CT13549-S-SBA	**Code:**	EIA/TIA-222-G	10/13/2021	
Site Name:	Danbury 1	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 36	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-27.12	-6.49	0.00	-658.36	0.00	658.36	3003.53	1501.76	5797.25	2902.93	0.00	0.000	0.000	0.236
5.00	-26.15	-6.41	0.00	-625.92	0.00	625.92	2960.91	1480.45	5573.38	2790.83	0.04	-0.071	0.000	0.233
10.00	-25.20	-6.34	0.00	-593.85	0.00	593.85	2916.70	1458.35	5350.68	2679.32	0.15	-0.143	0.000	0.230
15.00	-24.27	-6.27	0.00	-562.14	0.00	562.14	2870.92	1435.46	5129.40	2568.51	0.34	-0.217	0.000	0.227
20.00	-23.35	-6.20	0.00	-530.79	0.00	530.79	2823.56	1411.78	4909.74	2458.52	0.61	-0.292	0.000	0.224
25.00	-22.46	-6.12	0.00	-499.81	0.00	499.81	2774.61	1387.31	4691.94	2349.46	0.95	-0.370	0.000	0.221
30.00	-21.59	-6.03	0.00	-469.24	0.00	469.24	2724.09	1362.04	4476.23	2241.44	1.38	-0.449	0.000	0.217
35.00	-20.73	-5.95	0.00	-439.07	0.00	439.07	2671.99	1335.99	4262.83	2134.58	1.90	-0.529	0.000	0.213
40.00	-19.90	-5.86	0.00	-409.33	0.00	409.33	2618.30	1309.15	4051.97	2029.00	2.50	-0.611	0.000	0.209
45.00	-19.09	-5.77	0.00	-380.02	0.00	380.02	2563.04	1281.52	3843.87	1924.79	3.18	-0.695	0.000	0.205
48.50	-18.53	-5.70	0.00	-359.82	0.00	359.82	2523.41	1261.71	3699.97	1852.74	3.71	-0.756	0.000	0.202
50.00	-18.14	-5.68	0.00	-351.27	0.00	351.27	2506.19	1253.10	3638.77	1822.09	3.96	-0.782	0.000	0.200
53.25	-17.33	-5.61	0.00	-332.80	0.00	332.80	1850.79	925.39	2677.47	1340.72	4.51	-0.839	0.000	0.258
55.00	-17.09	-5.60	0.00	-322.98	0.00	322.98	1837.85	918.92	2627.99	1315.95	4.82	-0.871	0.000	0.255
60.00	-16.44	-5.51	0.00	-295.00	0.00	295.00	1799.82	899.91	2487.54	1245.62	5.79	-0.975	0.000	0.246
65.00	-15.81	-5.43	0.00	-267.45	0.00	267.45	1760.21	880.10	2348.61	1176.05	6.87	-1.080	0.000	0.236
70.00	-15.19	-5.34	0.00	-240.31	0.00	240.31	1719.02	859.51	2211.45	1107.37	8.05	-1.185	0.000	0.226
75.00	-14.58	-5.26	0.00	-213.59	0.00	213.59	1676.25	838.13	2076.26	1039.67	9.35	-1.290	0.000	0.214
80.00	-13.99	-5.18	0.00	-187.30	0.00	187.30	1631.90	815.95	1943.29	973.09	10.76	-1.394	0.000	0.201
85.00	-13.42	-5.09	0.00	-161.42	0.00	161.42	1585.97	792.99	1812.75	907.72	12.27	-1.495	0.000	0.186
90.00	-12.87	-5.01	0.00	-135.97	0.00	135.97	1538.46	769.23	1684.87	843.69	13.89	-1.593	0.000	0.170
95.00	-12.33	-4.92	0.00	-110.93	0.00	110.93	1489.37	744.69	1559.88	781.10	15.61	-1.685	0.000	0.150
97.00	-10.08	-3.93	0.00	-101.09	0.00	101.09	1469.29	734.65	1510.75	756.50	16.33	-1.721	0.000	0.141
98.75	-9.92	-3.90	0.00	-94.21	0.00	94.21	1451.52	725.76	1468.18	735.18	16.96	-1.752	0.000	0.135
100.00	-9.74	-3.88	0.00	-89.33	0.00	89.33	1437.39	718.70	1436.71	719.42	17.42	-1.773	0.000	0.131
102.00	-9.47	-3.85	0.00	-81.56	0.00	81.56	990.34	495.17	991.38	496.43	18.17	-1.807	0.000	0.174
105.00	-9.25	-3.80	0.00	-70.02	0.00	70.02	971.88	485.94	945.01	473.21	19.32	-1.854	0.000	0.158
107.00	-6.75	-2.60	0.00	-62.43	0.00	62.43	959.26	479.63	914.39	457.88	20.11	-1.892	0.000	0.143
110.00	-6.56	-2.55	0.00	-54.64	0.00	54.64	939.85	469.93	868.93	435.11	21.32	-1.945	0.000	0.133
115.00	-6.25	-2.47	0.00	-41.89	0.00	41.89	906.24	453.12	794.52	397.85	23.40	-2.025	0.000	0.112
120.00	-5.96	-2.39	0.00	-29.54	0.00	29.54	871.06	435.53	722.01	361.54	25.56	-2.095	0.000	0.089
125.00	-5.68	-2.32	0.00	-17.57	0.00	17.57	834.29	417.15	651.64	326.30	27.78	-2.149	0.000	0.061
127.00	-3.22	-1.33	0.00	-12.93	0.00	12.93	819.14	409.57	624.14	312.53	28.68	-2.165	0.000	0.045
130.00	-3.07	-1.29	0.00	-8.94	0.00	8.94	791.03	395.51	580.02	290.44	30.05	-2.185	0.000	0.035
135.00	-2.82	-1.22	0.00	-2.50	0.00	2.50	739.97	369.98	507.20	253.97	32.35	-2.203	0.000	0.014
137.00	-0.07	-0.03	0.00	-0.06	0.00	0.06	719.55	359.77	479.43	240.07	33.27	-2.206	0.000	0.000
139.00	0.00	-0.03	0.00	0.00	0.00	0.00	699.12	349.56	452.45	226.56	34.20	-2.206	0.000	0.000

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 93 mph Wind	25.0	0.00	32.49	0.00	0.00	2549.72
0.9D + 1.6W 93 mph Wind	24.9	0.00	24.35	0.00	0.00	2511.55
1.2D + 1.0Di + 1.0Wi 50 mph Wind	7.7	0.00	53.73	0.00	0.00	797.14
1.2D + 1.0E	1.6	0.00	32.55	0.00	0.00	183.95
0.9D + 1.0E	1.6	0.00	24.41	0.00	0.00	180.80
1.0D + 1.0W 60 mph Wind	6.5	0.00	27.12	0.00	0.00	658.36

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 93 mph Wind	-19.66	-21.76	0.00	-1292.2	0.00	-1292.2	1850.79	925.39	2677.47	1340.72	53.25	0.975
0.9D + 1.6W 93 mph Wind	-14.47	-21.45	0.00	-1263.7	0.00	-1263.7	1850.79	925.39	2677.47	1340.72	53.25	0.951
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-37.55	-6.78	0.00	-408.06	0.00	-408.06	1850.79	925.39	2677.47	1340.72	53.25	0.325
1.2D + 1.0E	-11.49	-1.32	0.00	-40.64	0.00	-40.64	990.34	495.17	991.38	496.43	102.00	0.093
0.9D + 1.0E	-8.61	-1.29	0.00	-39.80	0.00	-39.80	990.34	495.17	991.38	496.43	102.00	0.089
1.0D + 1.0W 60 mph Wind	-17.33	-5.61	0.00	-332.80	0.00	-332.80	1850.79	925.39	2677.47	1340.72	53.25	0.258

Base Plate Summary

Structure:	CT13549-S-SB		**Code:**	EIA/TIA-222-G	10/13/2021
Site Name:	Danbury 1		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 38

Tower Engineering Solutions

Reactions	
Original Design	
Moment (kip-ft):	2074.00
Axial (kip):	21.70
Shear (kip):	20.70
Analysis (1.2D + 1.6W)	
Moment (kip-ft):	2549.72
Axial (kip):	32.49
Shear (kip):	24.95

Base Plate	
Yield (ksi):	50.00
Width (in):	51.50
Style:	Clipped
Polygon Sides:	4.00
Clip Length (in):	9.00
Effective Len (in):	9.88
Moment (kip-in):	611.67
Allow Stress (ksi):	67.50
Applied Stress (ksi):	49.27
Stress Ratio:	0.73

Anchor Bolts	
Bolt Circle:	53.50
Number Bolts:	12.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Clustered
Cluster Dist (in):	6.00
Start Angle (deg):	45.00
Compression	
Force (kip):	195.11
Allowable (kip):	260.00
Ratio:	0.77
Tension	
Force (kip):	186.16
Allowable (kip):	260.00
Ratio:	0.73

Monopole Mat Foundation Design

			Date: 10/13/2021
Customer Name:	Dish Wireless	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	139
Site Number:	CT13549-S-SBA	**Engineer Name:**	J. Tibbetts
Engr. Number:	117445	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

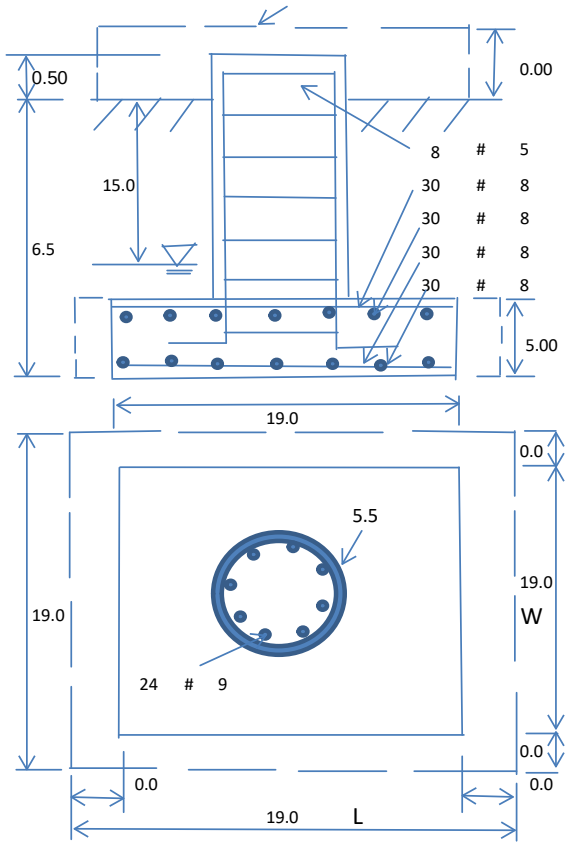
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	32.5	Shear Force (Kips):	25.0
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2549.7
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	5.5	Depth of Base BG (ft.):	6.5
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	5.00
Length of Pad (ft.):	19	Width of Pad (ft.):	19
Final Length of pad (ft)	19.0	Final width of pad (ft):	19.0



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	24	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):	30	Qty. of Rebar in Pad (W):	30

Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	30	Qty. of Rebar in Pad (W):	30
Apply 1.35 factor for e/w Per G:	1.35		

Soil Design Parameters:

Soil Unit Weight (pcf):	115.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	15.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	8600	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	505.86	Total Dry Soil Weight (Kips):	58.17
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	58.17	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1852.52	Total Dry Concrete Weight (Kips):	277.88
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	277.88	Total Vertical Load on Base (Kips):	368.55

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	4393	<	Allowable Factored Soil Bearing (psf):	6450	0.68	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	3182.0	>	Design Factored Momont (kips-ft):	2540	0.80	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.25	OK!				

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90		Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65		Wind Load Factor on Concrete Design:	1.00		
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	1.00		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	3146.1	>	Design Factored Moment (Mu, Kips-F	2599.7	0.83	OK!
Calculated Shear Capacity (Kips):	488.2	>	Design Factored Shear (Kips):	25.0	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	1296.0	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	6006.2	>	Design Factored Axial Load (Pu Kips):	32.5	0.01	OK!
Moment & Axial Strength Combination:	0.83	OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.007		Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	1222.1	>	One-Way Factored Shear (L-D. Kips):	107.4	0.09	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1222.1	>	One-Way Factored Shear (W-D., Kips)	107.4	0.09	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	768.9	>	One-Way Factored Shear (C-C, Kips):	114.5	0.15	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0018	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0018		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	5927.9	>	Moment at Bottom (L-Dir. K-Ft):	794.5	0.13	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	5927.9	>	Moment at Bottom (W-Dir. K-Ft):	794.5	0.13	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	8347.7	>	Moment at Bottom (C-C Dir. K-Ft):	1123.6	0.13	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0018	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0018		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	5927.9	>	Moment at the top (L-Dir K-Ft):	382.4	0.06	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	5927.9	>	Moment at the top (W-Dir K-Ft):	382.4	0.06	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	8347.7	>	Moment at the top (C-C Dir. K-Ft):	359.3	0.04	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	1019.9	k-ft.	Max. factored shear stress v_{u_CD}:		3.3	Psi
Max. factored shear stress v_{u_AB}:	5.3	Psi	Factored shear Strength ϕv_n:		189.7	Psi
Max. factored shear stress v_u:	5.3	Psi	Check Usage of Punching Shear Capacity:		0.03	OK!

Exhibit E

Mount Analysis

July 23, 2021

Sherri Knapik
SBA Network Services, LLC
134 Flanders Road, Suite 125
Westborough, MA 01581
(508) 251-0720 x 3805

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

Subject:	**Appurtenance Mount Analysis Report**	
Carrier Designation:	***Dish Wireless* Co-Locate**	
	Site Number:	NJJER01104B
	Site Name:	N/A
***SBA Network Services Designation*:**	**Site Number:**	CT13549-S
	Site Name:	Danbury 1
	Application Number:	163808, v1
Engineering Firm Designation:	**B+T Group Project Number:**	153448.003.01
Site Data:	**52 Stadley Rough Road, Danbury, CT, 06811, Fairfield County** **Latitude *41.433102*°, Longitude *-73.431916*°** **Monopole** **8' Platform Mount**	

Dear Ms. Knapik,

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:

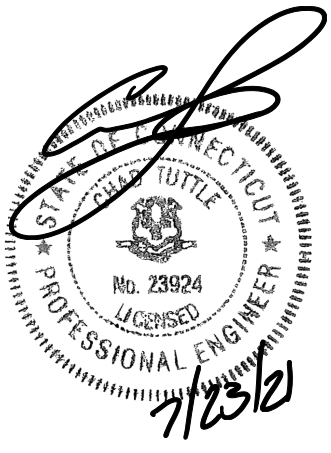
Proposed Equipment Note: See Table 1 for the final loading configuration	**Sufficient Capacity** **(Passing at 63.7%)**

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 2015 International Building Code. Exposure Category C and Risk Category II were used in this analysis.

We at *B+T Group* appreciate the opportunity of providing our continuing professional services to you and *SBA Network Services, LLC.* 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: Erika Ruiz

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2022



Chad E. Tuttle, P.E.

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1) INTRODUCTION

The mount consists of Commscope Platform mounts (Part #MC-PK8-DSH) at 127 ft., attached to monopole at 52 Stadley Rough Road, Danbury, CT, 06811, Fairfield County. The proposed antenna loading information was obtained from SBA Network Services, LLC. 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 wind speed of 93 mph with no ice and 50 mph with 0.75 inch escalated ice thickness. Exposure Category C, Topographic Category 1 and Risk Category II were used in this analysis. In addition, the platform 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 30 mph. The mount was analyzed under 30º increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 – Proposed Equipment Information

Loading	RAD Center Elev. (ft.)	Position	Qty.	Description	Note
Proposed	127	1	3	JMA Wireless MX08FRO665-21	1
			3	Fujitsu TA08025-B605	2
			3	Fujitsu TA08025-B604	
		--	1	Raycap RDIDC-9181-PF-48	3

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

Table 2 - Documents Provided

Documents	Remarks	Reference	Source
Colo App	Proposed Loading	Date: 06/29/2021	SBA Network Services, LLC
RFDS		Date: 06/04/2021	

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 19.0.4), 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. Selected output from the analysis is included in Appendix A.

Manufacturers 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 and weights 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 (ft.)	% Capacity	Pass / Fail
-	Main Horizontals	127	12.8	Pass
-	Support Rails	127	62.5	Pass
-	Support Tubes	127	63.7	Pass
-	Support Channels	127	40.5	Pass
-	Support Angles	127	37.5	Pass
-	Mount Pipes	127	47.0	Pass
-	Connection Plates	127	24.0	Pass
-	Connection Angles	127	31.8	Pass
-	Connection Bolts	127	32.9	Pass

5) RECOMMENDATIONS

The Commscope platform mounts (Part #MC-PK8-DSH) has sufficient capacity to carry the proposed loads and is in compliance with the ANSI/TIA-222-G standard for the proposed loading. (Refer to the RISA output for the specific members).

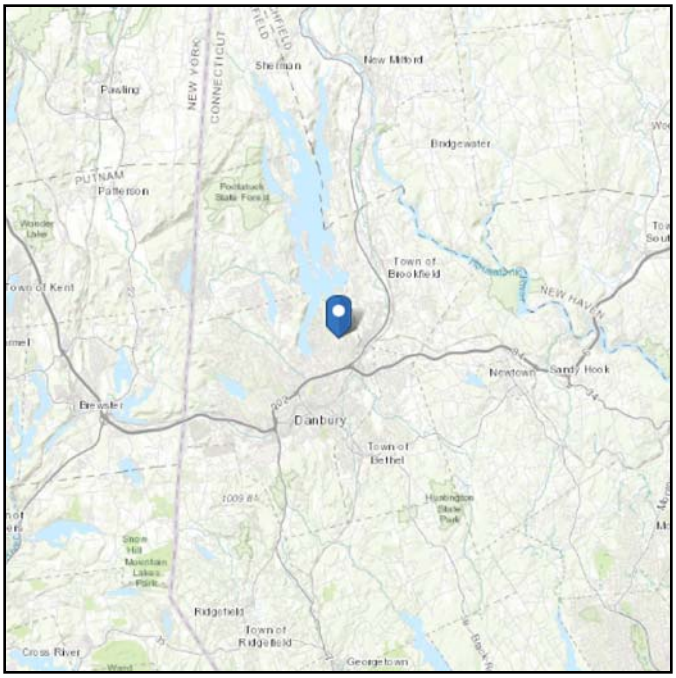
APPENDIX A

(RISA-3D Output)

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	547.79 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.433102
Soil Class:	D - Stiff Soil	**Longitude:**	-73.431916



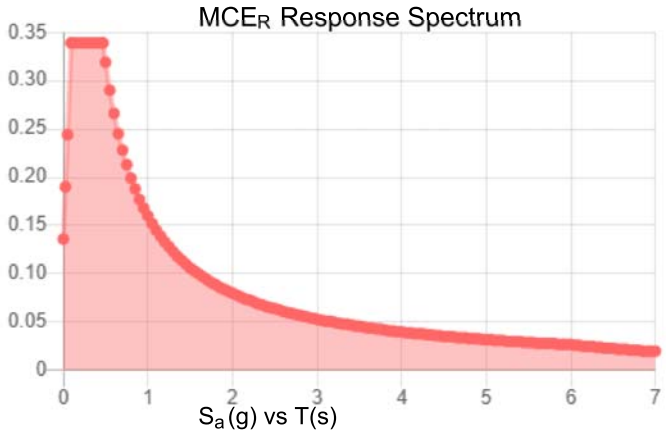
Seismic

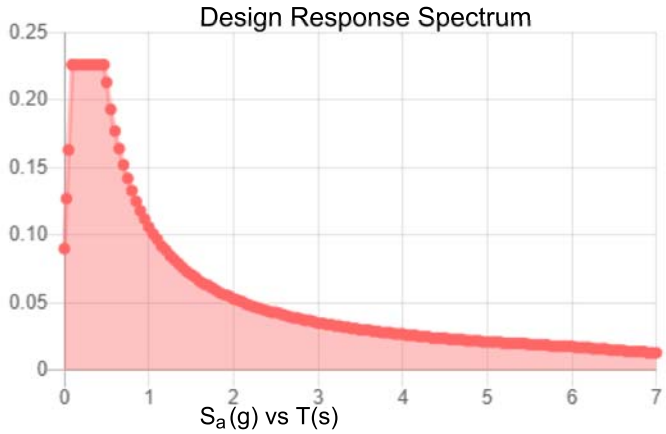
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.212	S_{DS} :	0.226
S_1 :	0.066	S_{D1} :	0.106
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.115
S_{MS} :	0.339	PGA_M :	0.18
S_{M1} :	0.16	F_{PGA} :	1.571
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Jul 21 2021

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:	Wed Jul 21 2021

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.

PROJECT	**153448.003.01 - Danbury 1, CT**				**KSC**
SUBJECT	**Platform- Mount Analysis**				
DATE	**07/23/21**	PAGE	1	OF	5

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

INPUT

[REF: ANSI/TIA-222-G2005]

Tower Type		:	Monopole		
Tower Height		:	139	ft	
Mount Elevation		:	127	ft	
Antenna Elevation		:	127	ft	
Crest Height		:	0	ft	
Structure Class		:	II		[Table 2-1]
Exposure Category		:	C		[Sec. 2.6.5]
Topography Category		:	1		[Sec. 2.6.6.2]
Wind Velocity	V	:	93	mph	[Annex B]
Ice wind Velocity	V_i	:	50	mph	[Annex B]
Service Velocity	V_s	:	30	mph	[Annex B]
Base Ice thickness	t_i	:	0.75	in	[Annex B]

ANTENNAS

	Manufacturer	Model	Height (in)	Front Width (in)	Side Width (in)	Weight (lbs)	Shape	Quantity	Location (%)
Mount Pipe **29**									
	JMA	MX08FRO665-21	72.00	20.00	8.00	64.50	Flat	0.5	15
	JMA	MX08FRO665-21	72.00	20.00	8.00	64.50	Flat	0.5	85
	Fujitsu	TA08025-B605	15.75	14.96	9.05	74.95	Flat	1	20
	Fujitsu	TA08025-B604	15.75	14.96	7.87	63.93	Flat	1	50
Mount Pipe **89**									
	JMA	MX08FRO665-21	72.00	20.00	8.00	64.50	Flat	0.5	15
	JMA	MX08FRO665-21	72.00	20.00	8.00	64.50	Flat	0.5	85
	Fujitsu	TA08025-B605	15.75	14.96	9.05	74.95	Flat	1	20
	Fujitsu	TA08025-B604	15.75	14.96	7.87	63.93	Flat	1	50
Mount Pipe **78**									
	JMA	MX08FRO665-21	72.00	20.00	8.00	64.50	Flat	0.5	15
	JMA	MX08FRO665-21	72.00	20.00	8.00	64.50	Flat	0.5	85
	Fujitsu	TA08025-B605	15.75	14.96	9.05	74.95	Flat	1	20
	Fujitsu	TA08025-B604	15.75	14.96	7.87	63.93	Flat	1	50
Mount Pipe **31**									
	Raycap	RDIDC-9181-PF-48	16.57	14.57	8.15	21.85	Flat	1	20
Mount Pipe									
Mount Pipe									

Envelope Only Solution

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VP		Jul 22, 2021
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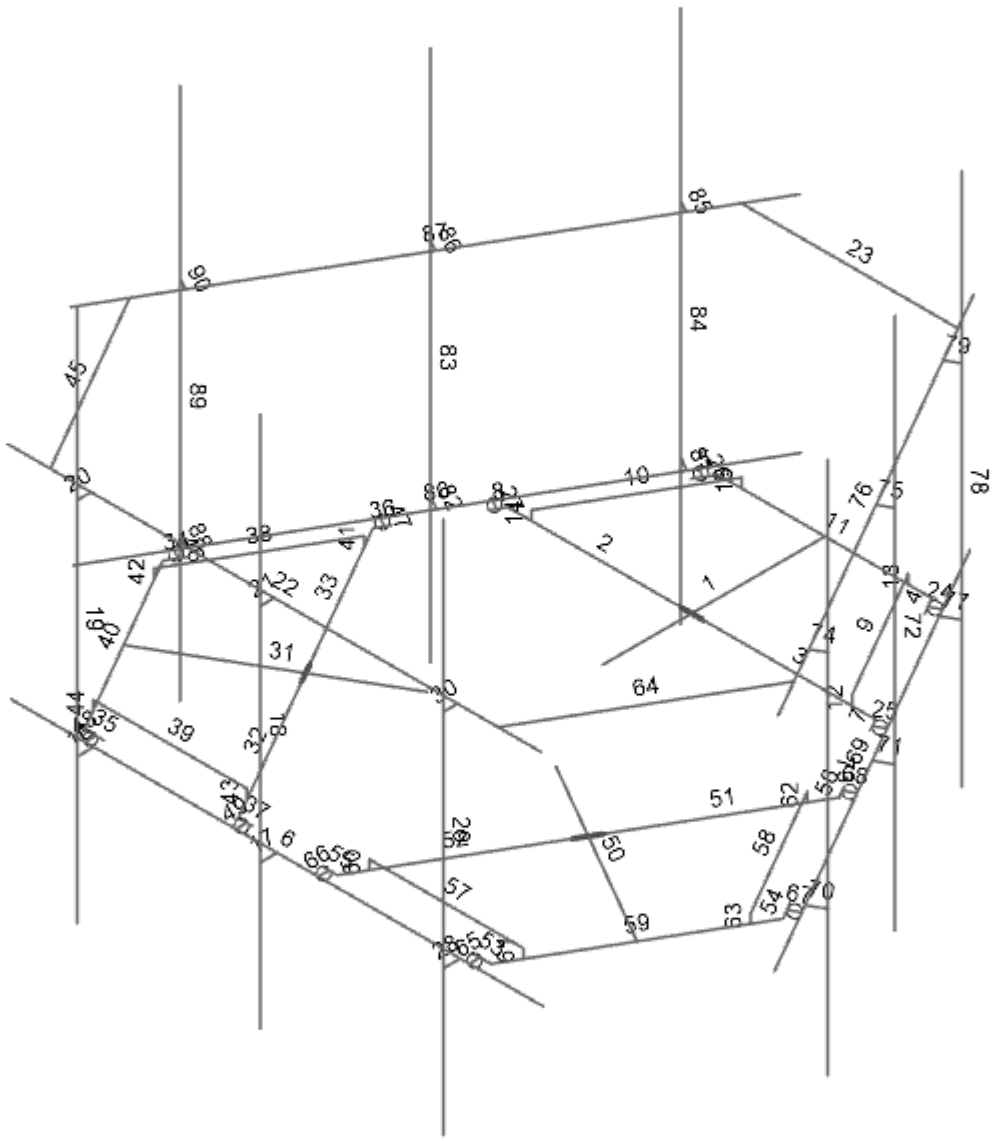

Envelope Only Solution

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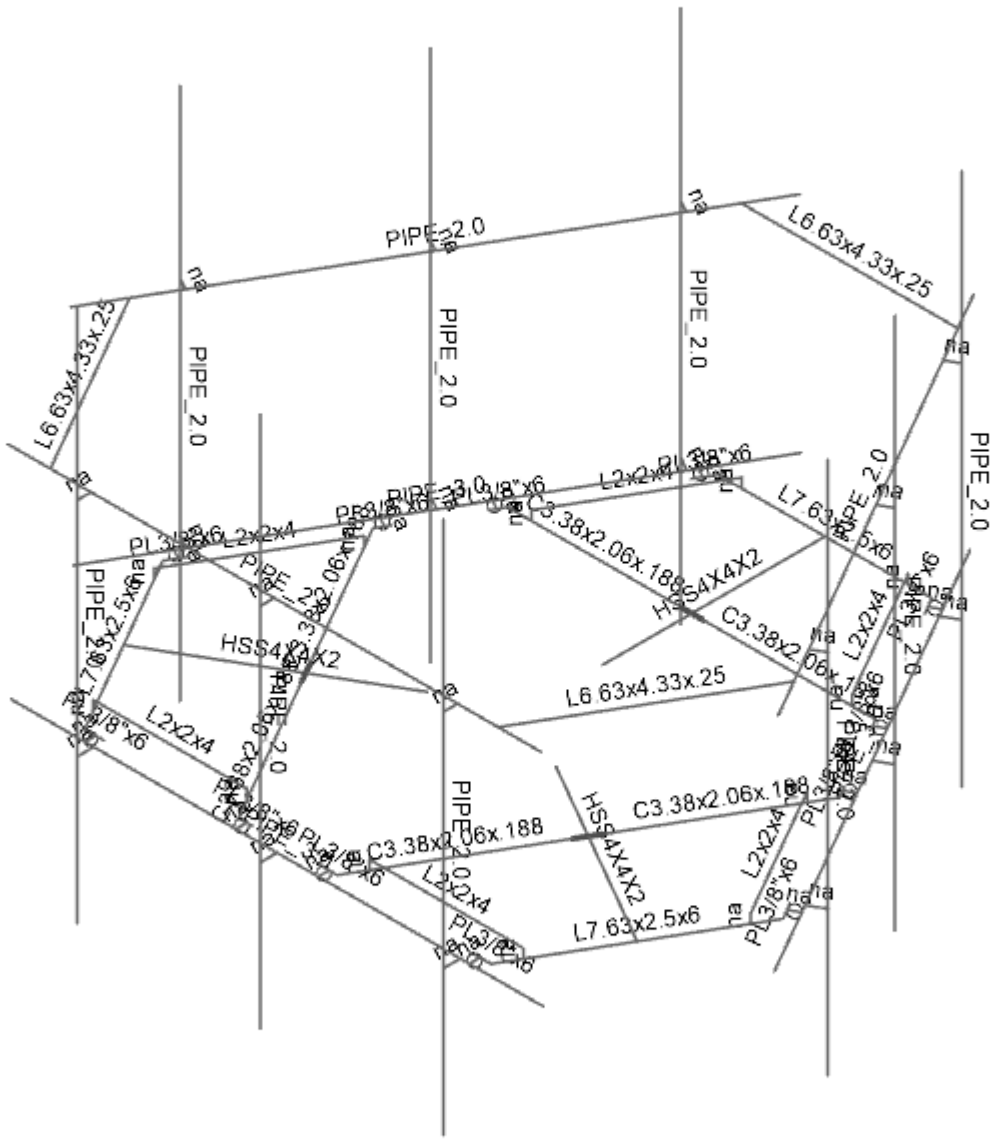

Envelope Only Solution

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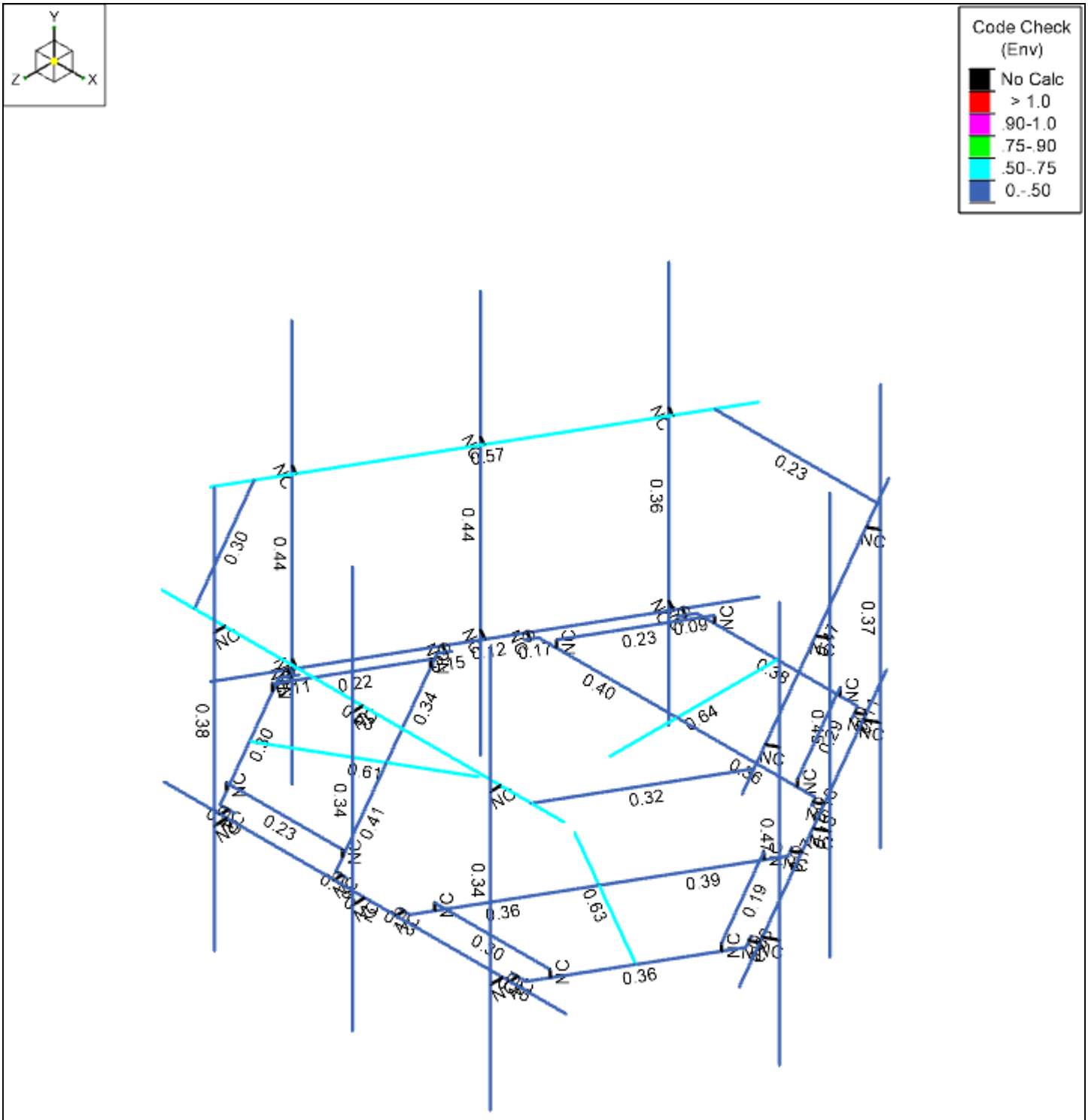

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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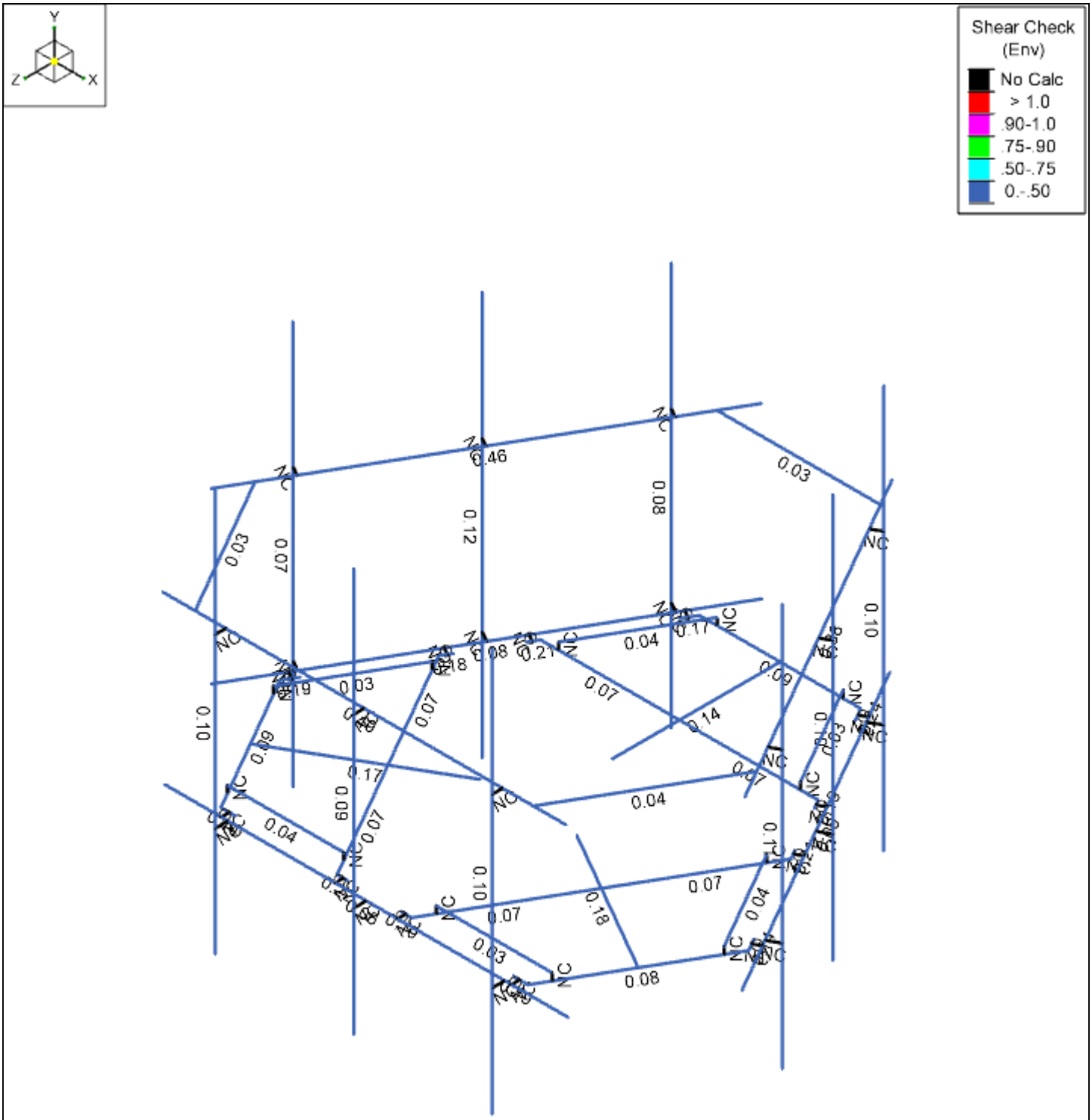

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	MF-H1	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	MF-H2	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
3	SF-H1	HSS4X4X2	Beam	Tube	A500 Gr.B Rect	Typical	1.77	4.4	4.4	6.91
4	SF-H2	C3.38x2.06x.188	Beam	Channel	A36 Gr.36	Typical	1.339	0.562	2.4	0.015
5	SF-H3	L2x2x4	Beam	Single Angle	A36 Gr.36	Typical	0.944	0.346	0.346	0.021
6	SF-H4	L7.63x2.5x6	Beam	Single Angle	A36 Gr.36	Typical	3.658	1.307	22.092	0.163
7	MF-P1	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
8	MF-CP1	PL3/8"x6	Beam	RECT	A36 Gr.36	Typical	2.25	0.026	6.75	0.101
9	MF-H3	L6.63x4.33x.25	Beam	Single Angle	A36 Gr.36	Typical	2.678	4.383	12.502	0.054

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
2	2	5	3	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
3	3	3	4	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
4	4	7	8		MF-CP1	Beam	RECT	A36 Gr.36	Typical
5	5	6	9		MF-CP1	Beam	RECT	A36 Gr.36	Typical
6	6	14	15		MF-H1	Beam	Pipe	A53 Gr.B	Typical
7	7	16	4		MF-CP1	Beam	RECT	A36 Gr.36	Typical
8	8	5	19		MF-CP1	Beam	RECT	A36 Gr.36	Typical
9	9	25	24		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
10	10	23	22		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
11	11	6	7		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
12	12	28	24		RIGID	None	None	RIGID	Typical
13	13	29	25		RIGID	None	None	RIGID	Typical
14	14	27	23		RIGID	None	None	RIGID	Typical
15	15	26	22		RIGID	None	None	RIGID	Typical
16	16	32	30		RIGID	None	None	RIGID	Typical
17	17	33	31		RIGID	None	None	RIGID	Typical
18	18	37	35		MF-P1	Column	Pipe	A53 Gr.B	Typical
19	19	36	34		MF-P1	Column	Pipe	A53 Gr.B	Typical
20	20	38	40		RIGID	None	None	RIGID	Typical
21	21	39	41		RIGID	None	None	RIGID	Typical
22	22	42	43		MF-H2	Beam	Pipe	A53 Gr.B	Typical
23	23	44	45	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
24	24	11	10		RIGID	None	None	RIGID	Typical
25	25	18	17		RIGID	None	None	RIGID	Typical
26	26	13	12		RIGID	None	None	RIGID	Typical
27	27	21	20		RIGID	None	None	RIGID	Typical
28	28	47	46		RIGID	None	None	RIGID	Typical
29	29	49	48		MF-P1	Column	Pipe	A53 Gr.B	Typical
30	30	50	51		RIGID	None	None	RIGID	Typical
31	31	53	54		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
32	32	57	55	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
33	33	55	56	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
34	34	59	60		MF-CP1	Beam	RECT	A36 Gr.36	Typical
35	35	58	61		MF-CP1	Beam	RECT	A36 Gr.36	Typical
36	36	66	56		MF-CP1	Beam	RECT	A36 Gr.36	Typical
37	37	57	69		MF-CP1	Beam	RECT	A36 Gr.36	Typical
38	38	75	74		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
39	39	73	72		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
40	40	58	59		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
41	41	78	74		RIGID	None	None	RIGID	Typical
42	42	79	75		RIGID	None	None	RIGID	Typical
43	43	77	73		RIGID	None	None	RIGID	Typical
44	44	76	72		RIGID	None	None	RIGID	Typical
45	45	80	81	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
46	46	63	62		RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
47	47	68	67		RIGID	None	None	RIGID	Typical
48	48	65	64		RIGID	None	None	RIGID	Typical
49	49	71	70		RIGID	None	None	RIGID	Typical
50	50	82	83		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
51	51	86	84	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
52	52	84	85	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
53	53	88	89		MF-CP1	Beam	RECT	A36 Gr.36	Typical
54	54	87	90		MF-CP1	Beam	RECT	A36 Gr.36	Typical
55	55	95	85		MF-CP1	Beam	RECT	A36 Gr.36	Typical
56	56	86	98		MF-CP1	Beam	RECT	A36 Gr.36	Typical
57	57	104	103		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
58	58	102	101		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
59	59	87	88		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
60	60	107	103		RIGID	None	None	RIGID	Typical
61	61	108	104		RIGID	None	None	RIGID	Typical
62	62	106	102		RIGID	None	None	RIGID	Typical
63	63	105	101		RIGID	None	None	RIGID	Typical
64	64	109	110	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
65	65	92	91		RIGID	None	None	RIGID	Typical
66	66	97	96		RIGID	None	None	RIGID	Typical
67	67	94	93		RIGID	None	None	RIGID	Typical
68	68	100	99		RIGID	None	None	RIGID	Typical
69	69	111	112		MF-H1	Beam	Pipe	A53 Gr.B	Typical
70	70	115	113		RIGID	None	None	RIGID	Typical
71	71	116	114		RIGID	None	None	RIGID	Typical
72	72	120	118		MF-P1	Column	Pipe	A53 Gr.B	Typical
73	73	119	117		MF-P1	Column	Pipe	A53 Gr.B	Typical
74	74	121	123		RIGID	None	None	RIGID	Typical
75	75	122	124		RIGID	None	None	RIGID	Typical
76	76	125	126		MF-H2	Beam	Pipe	A53 Gr.B	Typical
77	77	128	127		RIGID	None	None	RIGID	Typical
78	78	130	129		MF-P1	Column	Pipe	A53 Gr.B	Typical
79	79	131	132		RIGID	None	None	RIGID	Typical
80	80	133	134		MF-H1	Beam	Pipe	A53 Gr.B	Typical
81	81	137	135		RIGID	None	None	RIGID	Typical
82	82	138	136		RIGID	None	None	RIGID	Typical
83	83	142	140		MF-P1	Column	Pipe	A53 Gr.B	Typical
84	84	141	139		MF-P1	Column	Pipe	A53 Gr.B	Typical
85	85	143	145		RIGID	None	None	RIGID	Typical
86	86	144	146		RIGID	None	None	RIGID	Typical
87	87	147	148		MF-H2	Beam	Pipe	A53 Gr.B	Typical
88	88	150	149		RIGID	None	None	RIGID	Typical
89	89	152	151		MF-P1	Column	Pipe	A53 Gr.B	Typical
90	90	153	154		RIGID	None	None	RIGID	Typical

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
1	Dead	DL	-1		20		3
2	0 Wind - No Ice	WLZ			20	48	
3	90 Wind - No Ice	WLX			20	48	
4	0 Wind - Ice	WLZ			20	48	
5	90 Wind - Ice	WLX			20	48	
6	0 Wind - Service	WLZ			20	48	
7	90 Wind - Service	WLX			20	48	
8	Ice	OL1			20	48	3
9	Live Load a	LL		3			
10	Live Load b	LL		3			
11	Live Load c	LL		3			

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
12	Live Load d	LL					
13	Maint LL 1	LL			1		
14	Maint LL 2	LL			1		
15	Maint LL 3	LL			1		
16	Maint LL 4	LL			1		
17	Maint LL 5	LL			1		
18	Maint LL 6	LL			1		
19	Maint LL 7	LL			1		
20	Maint LL 8	LL			1		
21	Maint LL 9	LL			1		
22	Maint LL 10	LL			1		
23	Maint LL 11	LL			1		
24	Maint LL 12	LL			1		
25	Maint LL 13	LL			1		
26	Maint LL 14	LL			1		
27	Maint LL 15	LL			1		
31	BLC 1 Transient Area Loads	None				9	
32	BLC 8 Transient Area Loads	None				9	

Load Combinations

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	0.9 D + 1.6 - 0 W	Yes	Y	1	0.9	2	1.6				
3	0.9 D + 1.6 - 30 W	Yes	Y	1	0.9	2	1.386	3	0.8		
4	0.9 D + 1.6 - 60 W	Yes	Y	1	0.9	3	1.386	2	0.8		
5	0.9 D + 1.6 - 90 W	Yes	Y	1	0.9	3	1.6				
6	0.9 D + 1.6 - 120 W	Yes	Y	1	0.9	3	1.386	2	-0.8		
7	0.9 D + 1.6 - 150 W	Yes	Y	1	0.9	2	-1.386	3	0.8		
8	0.9 D + 1.6 - 180 W	Yes	Y	1	0.9	2	-1.6				
9	0.9 D + 1.6 - 210 W	Yes	Y	1	0.9	2	-1.386	3	-0.8		
10	0.9 D + 1.6 - 240 W	Yes	Y	1	0.9	3	-1.386	2	-0.8		
11	0.9 D + 1.6 - 270 W	Yes	Y	1	0.9	3	-1.6				
12	0.9 D + 1.6 - 300 W	Yes	Y	1	0.9	3	-1.386	2	0.8		
13	0.9 D + 1.6 - 330 W	Yes	Y	1	0.9	2	1.386	3	-0.8		
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	1.386	3	0.8		
16	1.2 D + 1.6 - 60 W	Yes	Y	1	1.2	3	1.386	2	0.8		
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	1.386	2	-0.8		
19	1.2 D + 1.6 - 150 W	Yes	Y	1	1.2	2	-1.386	3	0.8		
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	-1.386	3	-0.8		
22	1.2 D + 1.6 - 240 W	Yes	Y	1	1.2	3	-1.386	2	-0.8		
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	-1.386	2	0.8		
25	1.2 D + 1.6 - 330 W	Yes	Y	1	1.2	2	1.386	3	-0.8		
26	0.9 D + 1.6 - 0 W/Ice	Yes	Y	1	0.9	4	1.6			8	1
27	0.9 D + 1.6 - 30 W/Ice	Yes	Y	1	0.9	4	1.386	5	0.8	8	1
28	0.9 D + 1.6 - 60 W/Ice	Yes	Y	1	0.9	5	1.386	4	0.8	8	1
29	0.9 D + 1.6 - 90 W/Ice	Yes	Y	1	0.9	5	1.6			8	1
30	0.9 D + 1.6 - 120 W/Ice	Yes	Y	1	0.9	5	1.386	4	-0.8	8	1
31	0.9 D + 1.6 - 150 W/Ice	Yes	Y	1	0.9	4	-1.386	5	0.8	8	1
32	0.9 D + 1.6 - 180 W/Ice	Yes	Y	1	0.9	4	-1.6			8	1
33	0.9 D + 1.6 - 210 W/Ice	Yes	Y	1	0.9	4	-1.386	5	-0.8	8	1
34	0.9 D + 1.6 - 240 W/Ice	Yes	Y	1	0.9	5	-1.386	4	-0.8	8	1
35	0.9 D + 1.6 - 270 W/Ice	Yes	Y	1	0.9	5	-1.6			8	1
36	0.9 D + 1.6 - 300 W/Ice	Yes	Y	1	0.9	5	-1.386	4	0.8	8	1
37	0.9 D + 1.6 - 330 W/Ice	Yes	Y	1	0.9	4	1.386	5	-0.8	8	1

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
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	0.866	5	0.5	8	1
40	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	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	0.866	4	-0.5	8	1
43	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	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	-0.866	5	-0.5	8	1
46	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	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	-0.866	4	0.5	8	1
49	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
50	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			9	1.5
51	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	9	1.5
52	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	9	1.5
53	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			9	1.5
54	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	9	1.5
55	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	9	1.5
56	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			9	1.5
57	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	9	1.5
58	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	9	1.5
59	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			9	1.5
60	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	9	1.5
61	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	9	1.5
62	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			10	1.5
63	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	10	1.5
64	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	10	1.5
65	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			10	1.5
66	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	10	1.5
67	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	10	1.5
68	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			10	1.5
69	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	10	1.5
70	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	10	1.5
71	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			10	1.5
72	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	10	1.5
73	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	10	1.5
74	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
75	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
76	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
77	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
78	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
79	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
80	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
81	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
82	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
83	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
84	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
85	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
86	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
87	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
88	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
89	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
90	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
91	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
92	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
93	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
94	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
95	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
96	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
97	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	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)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Y	-0.032	%15
2	29	Y	-0.032	%85
3	29	Y	-0.075	%20
4	29	Y	-0.064	%50
5	29	Y	0	0
6	89	Y	-0.032	%15
7	89	Y	-0.032	%85
8	89	Y	-0.075	%20
9	89	Y	-0.064	%50
10	89	Y	0	0
11	78	Y	-0.032	%15
12	78	Y	-0.032	%85
13	78	Y	-0.075	%20
14	78	Y	-0.064	%50
15	78	Y	0	0
16	31	Y	-0.022	%20
17	31	Y	0	0
18	31	Y	0	0
19	31	Y	0	0
20	31	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Z	-0.175	%15
2	29	Z	-0.175	%85
3	29	Z	-0.055	%20
4	29	Z	-0.055	%50
5	29	Z	0	0
6	89	Z	-0.175	%15
7	89	Z	-0.175	%85
8	89	Z	-0.055	%20
9	89	Z	-0.055	%50
10	89	Z	0	0
11	78	Z	-0.175	%15

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
12	78	Z	-0.175	%85
13	78	Z	-0.055	%20
14	78	Z	-0.055	%50
15	78	Z	0	0
16	31	Z	-0.056	%20
17	31	Z	0	0
18	31	Z	0	0
19	31	Z	0	0
20	31	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	X	-0.07	%15
2	29	X	-0.07	%85
3	29	X	-0.033	%20
4	29	X	-0.029	%50
5	29	X	0	0
6	89	X	-0.07	%15
7	89	X	-0.07	%85
8	89	X	-0.033	%20
9	89	X	-0.029	%50
10	89	X	0	0
11	78	X	-0.07	%15
12	78	X	-0.07	%85
13	78	X	-0.033	%20
14	78	X	-0.029	%50
15	78	X	0	0
16	31	X	-0.032	%20
17	31	X	0	0
18	31	X	0	0
19	31	X	0	0
20	31	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Z	-0.062	%15
2	29	Z	-0.062	%85
3	29	Z	-0.024	%20
4	29	Z	-0.024	%50
5	29	Z	0	0
6	89	Z	-0.062	%15
7	89	Z	-0.062	%85
8	89	Z	-0.024	%20
9	89	Z	-0.024	%50
10	89	Z	0	0
11	78	Z	-0.062	%15
12	78	Z	-0.062	%85
13	78	Z	-0.024	%20
14	78	Z	-0.024	%50
15	78	Z	0	0
16	31	Z	-0.024	%20
17	31	Z	0	0
18	31	Z	0	0
19	31	Z	0	0
20	31	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	X	-0.03	%15
2	29	X	-0.03	%85
3	29	X	-0.016	%20
4	29	X	-0.015	%50
5	29	X	0	0
6	89	X	-0.03	%15
7	89	X	-0.03	%85
8	89	X	-0.016	%20
9	89	X	-0.015	%50
10	89	X	0	0
11	78	X	-0.03	%15
12	78	X	-0.03	%85
13	78	X	-0.016	%20
14	78	X	-0.015	%50
15	78	X	0	0
16	31	X	-0.016	%20
17	31	X	0	0
18	31	X	0	0
19	31	X	0	0
20	31	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Z	-0.018	%15
2	29	Z	-0.018	%85
3	29	Z	-0.006	%20
4	29	Z	-0.006	%50
5	29	Z	0	0
6	89	Z	-0.018	%15
7	89	Z	-0.018	%85
8	89	Z	-0.006	%20
9	89	Z	-0.006	%50
10	89	Z	0	0
11	78	Z	-0.018	%15
12	78	Z	-0.018	%85
13	78	Z	-0.006	%20
14	78	Z	-0.006	%50
15	78	Z	0	0
16	31	Z	-0.006	%20
17	31	Z	0	0
18	31	Z	0	0
19	31	Z	0	0
20	31	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	X	-0.007	%15
2	29	X	-0.007	%85
3	29	X	-0.004	%20
4	29	X	-0.003	%50
5	29	X	0	0
6	89	X	-0.007	%15
7	89	X	-0.007	%85
8	89	X	-0.004	%20
9	89	X	-0.003	%50
10	89	X	0	0
11	78	X	-0.007	%15

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
12	78	X	-0.007	%85
13	78	X	-0.004	%20
14	78	X	-0.003	%50
15	78	X	0	0
16	31	X	-0.003	%20
17	31	X	0	0
18	31	X	0	0
19	31	X	0	0
20	31	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Y	-0.146	%15
2	29	Y	-0.146	%85
3	29	Y	-0.053	%20
4	29	Y	-0.051	%50
5	29	Y	0	0
6	89	Y	-0.146	%15
7	89	Y	-0.146	%85
8	89	Y	-0.053	%20
9	89	Y	-0.051	%50
10	89	Y	0	0
11	78	Y	-0.146	%15
12	78	Y	-0.146	%85
13	78	Y	-0.053	%20
14	78	Y	-0.051	%50
15	78	Y	0	0
16	31	Y	-0.053	%20
17	31	Y	0	0
18	31	Y	0	0
19	31	Y	0	0
20	31	Y	0	0

Member Point Loads (BLC 13 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	22	Y	-0.25	%5

Member Point Loads (BLC 14 : Maint LL 2)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.25	%5

Member Point Loads (BLC 15 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	87	Y	-0.25	%5

Member Point Loads (BLC 16 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	80	Y	-0.25	%5

Member Point Loads (BLC 17 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	76	Y	-0.25	%5

Member Point Loads (BLC 18 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	69	Y	-0.25	%5

Member Point Loads (BLC 19 : Maint LL 7)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	22	Y	-0.25	%95

Member Point Loads (BLC 20 : Maint LL 8)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.25	%95

Member Point Loads (BLC 21 : Maint LL 9)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	87	Y	-0.25	%95

Member Point Loads (BLC 22 : Maint LL 10)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	80	Y	-0.25	%95

Member Point Loads (BLC 23 : Maint LL 11)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	76	Y	-0.25	%95

Member Point Loads (BLC 24 : Maint LL 12)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	69	Y	-0.25	%95

Member Point Loads (BLC 25 : Maint LL 13)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	31	Y	-0.25	%95

Member Point Loads (BLC 26 : Maint LL 14)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%95

Member Point Loads (BLC 27 : Maint LL 15)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	Y	-0.25	%95

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.014	-0.014	0	%100
2	2	Z	-0.012	-0.012	0	%100
3	3	Z	-0.012	-0.012	0	%100
4	4	Z	-0.017	-0.017	0	%100
5	5	Z	-0.017	-0.017	0	%100
6	6	Z	-0.01	-0.01	0	%100
7	7	Z	-0.017	-0.017	0	%100
8	8	Z	-0.017	-0.017	0	%100
9	9	Z	-0.008	-0.008	0	%100
10	10	Z	-0.008	-0.008	0	%100
11	11	Z	-0.023	-0.023	0	%100
12	18	Z	-0.007	-0.007	0	%100
13	19	Z	-0.007	-0.007	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
14	22	Z	-0.007	-0.007	0	%100
15	23	Z	-0.02	-0.02	0	%100
16	29	Z	-0.007	-0.007	0	%100
17	31	Z	-0.014	-0.014	0	%100
18	32	Z	-0.012	-0.012	0	%100
19	33	Z	-0.012	-0.012	0	%100
20	34	Z	-0.017	-0.017	0	%100
21	35	Z	-0.017	-0.017	0	%100
22	36	Z	-0.017	-0.017	0	%100
23	37	Z	-0.017	-0.017	0	%100
24	38	Z	-0.008	-0.008	0	%100
25	39	Z	-0.008	-0.008	0	%100
26	40	Z	-0.023	-0.023	0	%100
27	45	Z	-0.02	-0.02	0	%100
28	50	Z	-0.014	-0.014	0	%100
29	51	Z	-0.012	-0.012	0	%100
30	52	Z	-0.012	-0.012	0	%100
31	53	Z	-0.017	-0.017	0	%100
32	54	Z	-0.017	-0.017	0	%100
33	55	Z	-0.017	-0.017	0	%100
34	56	Z	-0.017	-0.017	0	%100
35	57	Z	-0.008	-0.008	0	%100
36	58	Z	-0.008	-0.008	0	%100
37	59	Z	-0.023	-0.023	0	%100
38	64	Z	-0.02	-0.02	0	%100
39	69	Z	-0.01	-0.01	0	%100
40	72	Z	-0.007	-0.007	0	%100
41	73	Z	-0.007	-0.007	0	%100
42	76	Z	-0.007	-0.007	0	%100
43	78	Z	-0.007	-0.007	0	%100
44	80	Z	-0.01	-0.01	0	%100
45	83	Z	-0.007	-0.007	0	%100
46	84	Z	-0.007	-0.007	0	%100
47	87	Z	-0.007	-0.007	0	%100
48	89	Z	-0.007	-0.007	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.014	-0.014	0	%100
2	2	X	-0.012	-0.012	0	%100
3	3	X	-0.012	-0.012	0	%100
4	4	X	-0.017	-0.017	0	%100
5	5	X	-0.017	-0.017	0	%100
6	6	X	-0.01	-0.01	0	%100
7	7	X	-0.017	-0.017	0	%100
8	8	X	-0.017	-0.017	0	%100
9	9	X	-0.008	-0.008	0	%100
10	10	X	-0.008	-0.008	0	%100
11	11	X	-0.023	-0.023	0	%100
12	18	X	-0.007	-0.007	0	%100
13	19	X	-0.007	-0.007	0	%100
14	22	X	-0.007	-0.007	0	%100
15	23	X	-0.02	-0.02	0	%100
16	29	X	-0.007	-0.007	0	%100
17	31	X	-0.014	-0.014	0	%100
18	32	X	-0.012	-0.012	0	%100
19	33	X	-0.012	-0.012	0	%100
20	34	X	-0.017	-0.017	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
21	35	X	-0.017	-0.017	0	%100
22	36	X	-0.017	-0.017	0	%100
23	37	X	-0.017	-0.017	0	%100
24	38	X	-0.008	-0.008	0	%100
25	39	X	-0.008	-0.008	0	%100
26	40	X	-0.023	-0.023	0	%100
27	45	X	-0.02	-0.02	0	%100
28	50	X	-0.014	-0.014	0	%100
29	51	X	-0.012	-0.012	0	%100
30	52	X	-0.012	-0.012	0	%100
31	53	X	-0.017	-0.017	0	%100
32	54	X	-0.017	-0.017	0	%100
33	55	X	-0.017	-0.017	0	%100
34	56	X	-0.017	-0.017	0	%100
35	57	X	-0.008	-0.008	0	%100
36	58	X	-0.008	-0.008	0	%100
37	59	X	-0.023	-0.023	0	%100
38	64	X	-0.02	-0.02	0	%100
39	69	X	-0.01	-0.01	0	%100
40	72	X	-0.007	-0.007	0	%100
41	73	X	-0.007	-0.007	0	%100
42	76	X	-0.007	-0.007	0	%100
43	78	X	-0.007	-0.007	0	%100
44	80	X	-0.01	-0.01	0	%100
45	83	X	-0.007	-0.007	0	%100
46	84	X	-0.007	-0.007	0	%100
47	87	X	-0.007	-0.007	0	%100
48	89	X	-0.007	-0.007	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.008	-0.008	0	%100
2	2	Z	-0.007	-0.007	0	%100
3	3	Z	-0.007	-0.007	0	%100
4	4	Z	-0.015	-0.015	0	%100
5	5	Z	-0.015	-0.015	0	%100
6	6	Z	-0.003	-0.003	0	%100
7	7	Z	-0.018	-0.018	0	%100
8	8	Z	-0.018	-0.018	0	%100
9	9	Z	-0.007	-0.007	0	%100
10	10	Z	-0.007	-0.007	0	%100
11	11	Z	-0.011	-0.011	0	%100
12	18	Z	-0.002	-0.002	0	%100
13	19	Z	-0.002	-0.002	0	%100
14	22	Z	-0.002	-0.002	0	%100
15	23	Z	-0.01	-0.01	0	%100
16	29	Z	-0.002	-0.002	0	%100
17	31	Z	-0.008	-0.008	0	%100
18	32	Z	-0.007	-0.007	0	%100
19	33	Z	-0.007	-0.007	0	%100
20	34	Z	-0.015	-0.015	0	%100
21	35	Z	-0.015	-0.015	0	%100
22	36	Z	-0.018	-0.018	0	%100
23	37	Z	-0.018	-0.018	0	%100
24	38	Z	-0.007	-0.007	0	%100
25	39	Z	-0.007	-0.007	0	%100
26	40	Z	-0.011	-0.011	0	%100
27	45	Z	-0.01	-0.01	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
28	50	Z	-0.008	-0.008	0	%100
29	51	Z	-0.007	-0.007	0	%100
30	52	Z	-0.007	-0.007	0	%100
31	53	Z	-0.015	-0.015	0	%100
32	54	Z	-0.015	-0.015	0	%100
33	55	Z	-0.018	-0.018	0	%100
34	56	Z	-0.018	-0.018	0	%100
35	57	Z	-0.007	-0.007	0	%100
36	58	Z	-0.007	-0.007	0	%100
37	59	Z	-0.011	-0.011	0	%100
38	64	Z	-0.01	-0.01	0	%100
39	69	Z	-0.003	-0.003	0	%100
40	72	Z	-0.002	-0.002	0	%100
41	73	Z	-0.002	-0.002	0	%100
42	76	Z	-0.002	-0.002	0	%100
43	78	Z	-0.002	-0.002	0	%100
44	80	Z	-0.003	-0.003	0	%100
45	83	Z	-0.002	-0.002	0	%100
46	84	Z	-0.002	-0.002	0	%100
47	87	Z	-0.002	-0.002	0	%100
48	89	Z	-0.002	-0.002	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.008	-0.008	0	%100
2	2	X	-0.007	-0.007	0	%100
3	3	X	-0.007	-0.007	0	%100
4	4	X	-0.015	-0.015	0	%100
5	5	X	-0.015	-0.015	0	%100
6	6	X	-0.003	-0.003	0	%100
7	7	X	-0.018	-0.018	0	%100
8	8	X	-0.018	-0.018	0	%100
9	9	X	-0.007	-0.007	0	%100
10	10	X	-0.007	-0.007	0	%100
11	11	X	-0.011	-0.011	0	%100
12	18	X	-0.002	-0.002	0	%100
13	19	X	-0.002	-0.002	0	%100
14	22	X	-0.002	-0.002	0	%100
15	23	X	-0.01	-0.01	0	%100
16	29	X	-0.002	-0.002	0	%100
17	31	X	-0.008	-0.008	0	%100
18	32	X	-0.007	-0.007	0	%100
19	33	X	-0.007	-0.007	0	%100
20	34	X	-0.015	-0.015	0	%100
21	35	X	-0.015	-0.015	0	%100
22	36	X	-0.018	-0.018	0	%100
23	37	X	-0.018	-0.018	0	%100
24	38	X	-0.007	-0.007	0	%100
25	39	X	-0.007	-0.007	0	%100
26	40	X	-0.011	-0.011	0	%100
27	45	X	-0.01	-0.01	0	%100
28	50	X	-0.008	-0.008	0	%100
29	51	X	-0.007	-0.007	0	%100
30	52	X	-0.007	-0.007	0	%100
31	53	X	-0.015	-0.015	0	%100
32	54	X	-0.015	-0.015	0	%100
33	55	X	-0.018	-0.018	0	%100
34	56	X	-0.018	-0.018	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
35	57	X	-0.007	-0.007	0	%100
36	58	X	-0.007	-0.007	0	%100
37	59	X	-0.011	-0.011	0	%100
38	64	X	-0.01	-0.01	0	%100
39	69	X	-0.003	-0.003	0	%100
40	72	X	-0.002	-0.002	0	%100
41	73	X	-0.002	-0.002	0	%100
42	76	X	-0.002	-0.002	0	%100
43	78	X	-0.002	-0.002	0	%100
44	80	X	-0.003	-0.003	0	%100
45	83	X	-0.002	-0.002	0	%100
46	84	X	-0.002	-0.002	0	%100
47	87	X	-0.002	-0.002	0	%100
48	89	X	-0.002	-0.002	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0	%100
2	2	Z	-0.001	-0.001	0	%100
3	3	Z	-0.001	-0.001	0	%100
4	4	Z	-0.002	-0.002	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	6	Z	-0.0005	-0.0005	0	%100
7	7	Z	-0.002	-0.002	0	%100
8	8	Z	-0.002	-0.002	0	%100
9	9	Z	-0.0008	-0.0008	0	%100
10	10	Z	-0.0008	-0.0008	0	%100
11	11	Z	-0.002	-0.002	0	%100
12	18	Z	-0.0003	-0.0003	0	%100
13	19	Z	-0.0003	-0.0003	0	%100
14	22	Z	-0.0003	-0.0003	0	%100
15	23	Z	-0.002	-0.002	0	%100
16	29	Z	-0.0003	-0.0003	0	%100
17	31	Z	-0.001	-0.001	0	%100
18	32	Z	-0.001	-0.001	0	%100
19	33	Z	-0.001	-0.001	0	%100
20	34	Z	-0.002	-0.002	0	%100
21	35	Z	-0.002	-0.002	0	%100
22	36	Z	-0.002	-0.002	0	%100
23	37	Z	-0.002	-0.002	0	%100
24	38	Z	-0.0008	-0.0008	0	%100
25	39	Z	-0.0008	-0.0008	0	%100
26	40	Z	-0.002	-0.002	0	%100
27	45	Z	-0.002	-0.002	0	%100
28	50	Z	-0.001	-0.001	0	%100
29	51	Z	-0.001	-0.001	0	%100
30	52	Z	-0.001	-0.001	0	%100
31	53	Z	-0.002	-0.002	0	%100
32	54	Z	-0.002	-0.002	0	%100
33	55	Z	-0.002	-0.002	0	%100
34	56	Z	-0.002	-0.002	0	%100
35	57	Z	-0.0008	-0.0008	0	%100
36	58	Z	-0.0008	-0.0008	0	%100
37	59	Z	-0.002	-0.002	0	%100
38	64	Z	-0.002	-0.002	0	%100
39	69	Z	-0.0005	-0.0005	0	%100
40	72	Z	-0.0003	-0.0003	0	%100
41	73	Z	-0.0003	-0.0003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
42	76	Z	-0.0003	-0.0003	0	%100
43	78	Z	-0.0003	-0.0003	0	%100
44	80	Z	-0.0005	-0.0005	0	%100
45	83	Z	-0.0003	-0.0003	0	%100
46	84	Z	-0.0003	-0.0003	0	%100
47	87	Z	-0.0003	-0.0003	0	%100
48	89	Z	-0.0003	-0.0003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.001	-0.001	0	%100
3	3	X	-0.001	-0.001	0	%100
4	4	X	-0.002	-0.002	0	%100
5	5	X	-0.002	-0.002	0	%100
6	6	X	-0.0005	-0.0005	0	%100
7	7	X	-0.002	-0.002	0	%100
8	8	X	-0.002	-0.002	0	%100
9	9	X	-0.0008	-0.0008	0	%100
10	10	X	-0.0008	-0.0008	0	%100
11	11	X	-0.002	-0.002	0	%100
12	18	X	-0.0003	-0.0003	0	%100
13	19	X	-0.0003	-0.0003	0	%100
14	22	X	-0.0003	-0.0003	0	%100
15	23	X	-0.002	-0.002	0	%100
16	29	X	-0.0003	-0.0003	0	%100
17	31	X	-0.001	-0.001	0	%100
18	32	X	-0.001	-0.001	0	%100
19	33	X	-0.001	-0.001	0	%100
20	34	X	-0.002	-0.002	0	%100
21	35	X	-0.002	-0.002	0	%100
22	36	X	-0.002	-0.002	0	%100
23	37	X	-0.002	-0.002	0	%100
24	38	X	-0.0008	-0.0008	0	%100
25	39	X	-0.0008	-0.0008	0	%100
26	40	X	-0.002	-0.002	0	%100
27	45	X	-0.002	-0.002	0	%100
28	50	X	-0.001	-0.001	0	%100
29	51	X	-0.001	-0.001	0	%100
30	52	X	-0.001	-0.001	0	%100
31	53	X	-0.002	-0.002	0	%100
32	54	X	-0.002	-0.002	0	%100
33	55	X	-0.002	-0.002	0	%100
34	56	X	-0.002	-0.002	0	%100
35	57	X	-0.0008	-0.0008	0	%100
36	58	X	-0.0008	-0.0008	0	%100
37	59	X	-0.002	-0.002	0	%100
38	64	X	-0.002	-0.002	0	%100
39	69	X	-0.0005	-0.0005	0	%100
40	72	X	-0.0003	-0.0003	0	%100
41	73	X	-0.0003	-0.0003	0	%100
42	76	X	-0.0003	-0.0003	0	%100
43	78	X	-0.0003	-0.0003	0	%100
44	80	X	-0.0005	-0.0005	0	%100
45	83	X	-0.0003	-0.0003	0	%100
46	84	X	-0.0003	-0.0003	0	%100
47	87	X	-0.0003	-0.0003	0	%100
48	89	X	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.015	-0.015	0	%100
2	2	Y	-0.012	-0.012	0	%100
3	3	Y	-0.012	-0.012	0	%100
4	4	Y	-0.016	-0.016	0	%100
5	5	Y	-0.016	-0.016	0	%100
6	6	Y	-0.011	-0.011	0	%100
7	7	Y	-0.016	-0.016	0	%100
8	8	Y	-0.016	-0.016	0	%100
9	9	Y	-0.01	-0.01	0	%100
10	10	Y	-0.01	-0.01	0	%100
11	11	Y	-0.02	-0.02	0	%100
12	18	Y	-0.009	-0.009	0	%100
13	19	Y	-0.009	-0.009	0	%100
14	22	Y	-0.009	-0.009	0	%100
15	23	Y	-0.02	-0.02	0	%100
16	29	Y	-0.009	-0.009	0	%100
17	31	Y	-0.015	-0.015	0	%100
18	32	Y	-0.012	-0.012	0	%100
19	33	Y	-0.012	-0.012	0	%100
20	34	Y	-0.016	-0.016	0	%100
21	35	Y	-0.016	-0.016	0	%100
22	36	Y	-0.016	-0.016	0	%100
23	37	Y	-0.016	-0.016	0	%100
24	38	Y	-0.01	-0.01	0	%100
25	39	Y	-0.01	-0.01	0	%100
26	40	Y	-0.02	-0.02	0	%100
27	45	Y	-0.02	-0.02	0	%100
28	50	Y	-0.015	-0.015	0	%100
29	51	Y	-0.012	-0.012	0	%100
30	52	Y	-0.012	-0.012	0	%100
31	53	Y	-0.016	-0.016	0	%100
32	54	Y	-0.016	-0.016	0	%100
33	55	Y	-0.016	-0.016	0	%100
34	56	Y	-0.016	-0.016	0	%100
35	57	Y	-0.01	-0.01	0	%100
36	58	Y	-0.01	-0.01	0	%100
37	59	Y	-0.02	-0.02	0	%100
38	64	Y	-0.02	-0.02	0	%100
39	69	Y	-0.011	-0.011	0	%100
40	72	Y	-0.009	-0.009	0	%100
41	73	Y	-0.009	-0.009	0	%100
42	76	Y	-0.009	-0.009	0	%100
43	78	Y	-0.009	-0.009	0	%100
44	80	Y	-0.011	-0.011	0	%100
45	83	Y	-0.009	-0.009	0	%100
46	84	Y	-0.009	-0.009	0	%100
47	87	Y	-0.009	-0.009	0	%100
48	89	Y	-0.009	-0.009	0	%100

Member Distributed Loads (BLC 31 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	9	Y	-0.015	-0.015	0	2.078
2	10	Y	-0.014	-0.02	0.231	1.27
3	10	Y	-0.02	-0.026	1.27	2.309
4	38	Y	-0.014	-0.02	0	2.078
5	39	Y	0.0006164	-0.016	0	1.155
6	39	Y	-0.016	-0.035	1.155	2.309
7	57	Y	-0.035	-0.016	0	1.155

Member Distributed Loads (BLC 31 : BLC 1 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
8	57	Y	-0.016	0.0006163	1.155	2.309
9	58	Y	-0.018	-0.016	0.231	2.309

Member Distributed Loads (BLC 32 : BLC 8 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	9	Y	-0.012	-0.012	0	2.078
2	10	Y	-0.012	-0.016	0.231	1.27
3	10	Y	-0.016	-0.021	1.27	2.309
4	38	Y	-0.011	-0.016	0	2.078
5	39	Y	0.0005054	-0.013	0	1.155
6	39	Y	-0.013	-0.028	1.155	2.309
7	57	Y	-0.028	-0.013	0	1.155
8	57	Y	-0.013	0.0005053	1.155	2.309
9	58	Y	-0.015	-0.013	0.231	2.309

Member Area Loads (BLC 1 : Dead)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	23	22	25	24	Y	Two Way	-0.01
2	73	72	75	74	Y	Two Way	-0.01
3	102	101	104	103	Y	Two Way	-0.01

Member Area Loads (BLC 8 : Ice)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	23	22	25	24	Y	Two Way	-0.008
2	73	72	75	74	Y	Two Way	-0.008
3	102	101	104	103	Y	Two Way	-0.008

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	30	L	Y	-0.5
2	113	L	Y	-0.5
3	135	L	Y	-0.5

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	31	L	Y	-0.5
2	114	L	Y	-0.5
3	136	L	Y	-0.5

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	46	L	Y	-0.5
2	127	L	Y	-0.5
3	149	L	Y	-0.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	1	max	1.516	5	2.139	26	1.259	2	4.797	14	1.497	11	0.461	24
2		min	-1.527	23	-0.707	8	-1.356	20	-2.346	8	-1.506	17	-0.337	6
3	53	max	1.193	4	2.159	42	1.923	14	0.946	13	1.926	3	1.276	12
4		min	-1.268	22	-0.394	12	-1.863	8	-2.108	31	-1.932	21	-3.964	30
5	82	max	1.157	17	2.074	46	1.942	14	1.066	3	1.916	7	3.711	34
6		min	-1.069	11	-0.421	4	-1.904	8	-2.491	33	-1.924	25	-1.321	4
7	Totals:	max	3.835	17	5.58	39	5.111	14						
8		min	-3.835	23	1.589	9	-5.111	8						

Envelope AISC 13TH (360-05): LRFD Member Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	HSS4X4X2	0.637	0	25	0.139	0	y	37	70.173	73.278	8.24	8.24	1.897	H1-1b
2	2	C3.38x2.06x.188	0.4	2.592	27	0.07	0.351	y	40	38.433	43.394	1.694	4.483	1.627	H1-1b
3	3	C3.38x2.06x.188	0.356	0	37	0.07	2.241	z	20	38.433	43.394	1.694	4.483	1.628	H1-1b
4	4	PL3/8"x6	0.106	0.164	19	0.24	0	y	14	68.802	72.9	0.57	9.113	2.153	H1-1b
5	5	PL3/8"x6	0.089	0	15	0.171	0	y	14	68.802	72.9	0.57	9.113	2.439	H1-1b
6	6	PIPE_3.0	0.118	3.333	21	0.062	4		17	46.291	65.205	5.749	5.749	1.729	H1-1b
7	7	PL3/8"x6	0.177	0.208	20	0.186	0.208	y	49	70.705	72.9	0.57	9.113	1.379	H1-1b
8	8	PL3/8"x6	0.167	0	25	0.214	0	y	39	70.705	72.9	0.57	9.113	3	H1-1b
9	9	L2x2x4	0.288	0	19	0.03	2.309	y	58	23.349	30.586	0.691	1.577	1.5	H2-1
10	10	L2x2x4	0.232	2.309	21	0.041	2.309	y	40	23.349	30.586	0.691	1.577	1.5	H2-1
11	11	L7.63x2.5x6	0.375	1.604	8	0.085	1.604	y	39	73.845	118.523	1.798	13.718	1.241	H2-1
12	18	PIPE_2.0	0.337	5.833	17	0.089	5.833		18	14.916	32.13	1.872	1.872	3	H1-1b
13	19	PIPE_2.0	0.382	2.5	21	0.096	5.833		21	14.916	32.13	1.872	1.872	3	H1-1b
14	22	PIPE_2.0	0.625	6.75	14	0.493	7.333		14	14.916	32.13	1.872	1.872	2.711	H3-6
15	23	L6.63x4.33x.25	0.232	3.25	6	0.033	3.25	z	25	49.975	86.751	2.311	6.976	1.5	H2-1
16	29	PIPE_2.0	0.339	5.833	18	0.096	5.833		20	14.916	32.13	1.872	1.872	3	H1-1b
17	31	HSS4X4X2	0.61	0	19	0.173	0	z	15	70.173	73.278	8.24	8.24	1.934	H1-1b
18	32	C3.38x2.06x.188	0.405	2.592	32	0.071	0.351	y	44	38.433	43.394	1.694	4.483	1.626	H1-1b
19	33	C3.38x2.06x.188	0.339	0	29	0.066	2.241	y	61	38.433	43.394	1.694	4.483	1.632	H1-1b
20	34	PL3/8"x6	0.107	0.164	22	0.19	0	y	18	68.802	72.9	0.57	9.113	1.34	H1-1b
21	35	PL3/8"x6	0.102	0	20	0.14	0	y	54	68.802	72.9	0.57	9.113	1.888	H1-1b
22	36	PL3/8"x6	0.147	0.208	25	0.182	0.208	y	41	70.705	72.9	0.57	9.113	1.777	H1-1b
23	37	PL3/8"x6	0.131	0	17	0.218	0	y	43	70.705	72.9	0.57	9.113	3	H1-1b
24	38	L2x2x4	0.221	0	23	0.03	2.309	y	50	23.349	30.586	0.691	1.577	1.5	H2-1
25	39	L2x2x4	0.233	2.309	25	0.042	2.309	y	44	23.349	30.586	0.691	1.577	1.5	H2-1
26	40	L7.63x2.5x6	0.295	1.604	13	0.086	1.604	y	44	73.845	118.523	1.798	13.706	1.239	H2-1
27	45	L6.63x4.33x.25	0.302	0	3	0.032	0	y	15	49.975	86.751	2.311	6.976	1.5	H2-1
28	50	HSS4X4X2	0.633	0	21	0.18	0	z	19	70.173	73.278	8.24	8.24	1.897	H1-1b
29	51	C3.38x2.06x.188	0.387	2.592	47	0.07	0.351	y	49	38.433	43.394	1.694	4.483	1.634	H1-1b
30	52	C3.38x2.06x.188	0.356	0	32	0.066	2.241	y	52	38.433	43.394	1.694	4.483	1.627	H1-1b
31	53	PL3/8"x6	0.146	0.164	14	0.193	0	y	22	68.802	72.9	0.57	9.113	1.934	H1-1b
32	54	PL3/8"x6	0.076	0	24	0.142	0	y	57	68.802	72.9	0.57	9.113	1.691	H1-1b
33	55	PL3/8"x6	0.133	0.208	16	0.187	0.208	y	45	70.705	72.9	0.57	9.113	1.406	H1-1b
34	56	PL3/8"x6	0.171	0	21	0.209	0	y	47	70.705	72.9	0.57	9.113	3	H1-1b
35	57	L2x2x4	0.296	0	15	0.03	0	y	55	23.349	30.586	0.691	1.577	1.5	H2-1
36	58	L2x2x4	0.19	2.309	17	0.04	0	y	49	23.349	30.586	0.691	1.577	1.5	H2-1
37	59	L7.63x2.5x6	0.357	1.604	3	0.084	1.604	y	83	73.845	118.523	1.798	13.921	1.287	H2-1
38	64	L6.63x4.33x.25	0.318	0	7	0.043	0	y	20	49.975	86.751	2.311	6.976	1.5	H2-1
39	69	PIPE_3.0	0.128	4	14	0.085	4		21	46.291	65.205	5.749	5.749	1.535	H1-1b
40	72	PIPE_2.0	0.446	5.833	21	0.096	5.833		21	14.916	32.13	1.872	1.872	3	H1-1b
41	73	PIPE_2.0	0.47	2.5	14	0.11	5.833		14	14.916	32.13	1.872	1.872	2.992	H1-1b
42	76	PIPE_2.0	0.472	1.25	25	0.38	1.25		25	14.916	32.13	1.872	1.872	2.242	H3-6
43	78	PIPE_2.0	0.374	5.833	21	0.098	5.833		25	14.916	32.13	1.872	1.872	3	H1-1b
44	80	PIPE_3.0	0.118	4	14	0.08	3.417		25	46.291	65.205	5.749	5.749	1.425	H1-1b
45	83	PIPE_2.0	0.441	5.833	25	0.116	5.833		14	14.916	32.13	1.872	1.872	3	H1-1b
46	84	PIPE_2.0	0.362	2.5	18	0.079	5.833		18	14.916	32.13	1.872	1.872	3	H1-1b
47	87	PIPE_2.0	0.565	6.75	21	0.457	7.333		21	14.916	32.13	1.872	1.872	2.586	H3-6
48	89	PIPE_2.0	0.441	5.833	14	0.072	5.833		15	14.916	32.13	1.872	1.872	3	H1-1b

APPENDIX B

(Additional Calculations)

PROJECT	**153448.003.01 -Danbury 1, CT**				**###**
SUBJECT	**Platform- Mount Analysis**				
DATE	**07/23/21**	PAGE	1	OF	1

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

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	1.346	k
Vertical Shear	:	2.216	k
Horizontal Shear	:	1.565	k
Torsion	:	0.469	k.ft
Moment from Horizontal Forces	:	1.524	k.ft
Moment from Vertical Forces	:	4.818	k.ft

Bolt Parameters

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in^2
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	2.71	k
Force from Horz. Moment	:	2.76	k
Force from Vert. Moment	:	8.73	k
Shear Load / Bolt	:	0.68	k
Tension Load / Bolt	:	0.34	k
Resultant from Moments / Bolt	:	4.58	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**23.71%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**9.18%**		**OKAY**
Unity Check, Combined	:	**32.89%**		**OKAY**
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	**1.96%**		**OKAY**

PROJECT	**153448.003.01 - Danbury 1, CT**				**###**
SUBJECT	**Platform Mount Analysis**				
DATE	**07/23/21**	PAGE	1	OF	1

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

[REF: AISC 360-05]

Connecting Member Parameters

Plate Yield Strength, F_y	:	36.00	ksi	[AISC Table 2-5]
Plate Tensile Strength, F_u	:	58.00	ksi	[AISC Table 2-5]
Plate Height	:	9.00	in	
Plate Width	:	9.00	in	
Plate Thickness	:	0.50	in	
Edge Distance	:	1.06	in	
Gross Tension Area, A_{gt}	:	4.50	in^2	
Gross Shear Area, A_{gv}	:	0.75	in^2	
Net Area for tension, A_{nv}	:	4.16	in^2	
Net Area for shear, A_{nt}	:	3.00	in^2	

Plate Check

Available Tensile Yield	:	145.80	k	[Eq. J4-1]
Available Tensile Rupture	:	180.80	k	[Eq. J4-2]
Unity Check, Plate Tension	:	**3.37%**		**OKAY**
Available Shear Yield	:	16.20	k	[Eq. J4-3]
Available Shear Rupture	:	104.40	k	[Eq. J4-4]
Unity Check, Plate Shear	:	**16.75%**		**OKAY**
Available Block Shear, ΦRn	:	77.40	k	[Eq. J4-5]
Unity Check, Block Shear	:	**3.51%**		**OKAY**

Exhibit F

Power Density/RF Emissions Report

Pinnacle Telecom Group

Professional and Technical Services

Antenna Site FCC RF Compliance Assessment and Report for Municipal Submission

Prepared for:	DISH Wireless, LLC
Site ID:	NJJER01104B
Site Address:	52 Stadley Rough Road Danbury, CT
Latitude:	N 41.43310211
Longitude:	W 73.43191600
Structure type:	Monopole
Report date:	August 25, 2022
Compliance Conclusion:	DISH Wireless, LLC will be in compliance with the rules and regulations as described in OET Bulletin 65, following the implementation of the proposed mitigation as detailed in the report.

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Contents

Introduction and Summary

At the request of DISH Wireless, LLC ("DISH"), Pinnacle Telecom Group has performed an independent expert assessment of radiofrequency (RF) levels and related FCC compliance for proposed wireless base station antenna operations on an existing monopole located at 52 Stadley Rough Road in Danbury CT. DISH refers to the antenna site by the code "NJJER01104B", and its proposed operation involves directional panel antennas and transmission in the 600 MHz, 2000 MHz and 2100 MHz frequency bands licensed to it by the FCC.

The FCC requires all wireless antenna operators to perform an assessment of potential human exposure to radiofrequency (RF) fields emanating from all the transmitting antennas at a site whenever antenna operations are added or modified, and to ensure compliance with the Maximum Permissible Exposure (MPE) limit in the FCC's regulations. In this case, the compliance assessment needs to take into account the RF effects of other existing antenna operations at the site by T-Mobile, AT&T, and Verizon Wireless. Note that FCC regulations require any future antenna collocators to assess and assure continuing compliance based on the cumulative effects of all then-proposed and then-existing antennas at the site.

This report describes a mathematical analysis of RF levels resulting around the site in areas of unrestricted public access, that is, at street level around the site. The compliance analysis employs a standard FCC formula for calculating the effects of the antennas in a very conservative manner, in order to overstate the RF levels and to ensure "safe-side" conclusions regarding compliance with the FCC limit for safe continuous exposure of the general public.

The results of a compliance assessment can be described in layman's terms by expressing the calculated RF levels as simple percentages of the FCC MPE limit. If the normalized reference for that limit is 100 percent, then calculated RF levels higher than 100 percent indicate the MPE limit is exceeded and there is a need to mitigate the potential exposure. On the other hand, calculated RF levels consistently below 100 percent serve as a clear and sufficient demonstration of

compliance with the MPE limit. We can (and will) also describe the overall worst-case result via the “plain-English” equivalent “times-below-the-limit” factor.
The result of the RF compliance assessment in this case is as follows:

- At street level, the conservatively calculated maximum RF level from the combination of proposed and existing antenna operations at the site is 5.9680 percent of the FCC general population MPE limit – well below the 100-percent reference for compliance. In other words, the worst-case calculated RF level – intentionally and significantly overstated by the calculations – is still more than 16 times below the FCC limit for safe, continuous exposure of the general public.
- A supplemental analysis of the RF levels at the same height as the DISH antennas indicate that the FCC MPE limit is potentially exceeded. Therefore, it is recommended that two Caution signs and NOC Information signs are to be installed at the base of the monopole.
- The results of the calculations, along with the proposed mitigation, combine to satisfy the FCC requirements and associated guidelines on RF compliance at street level around the site and on the subject roof. Moreover, because of the significant conservatism incorporated in the analysis, RF levels actually caused by the antennas will be lower than these calculations indicate.

The remainder of this report provides the following:

- relevant technical data on the proposed DISH antenna operations at the site, as well as on the other existing antenna operations;
- a description of the applicable FCC mathematical model for calculating RF levels, and application of the relevant technical data to that model;
- analysis of the results of the calculations against the FCC MPE limit, and the compliance conclusion for the site.

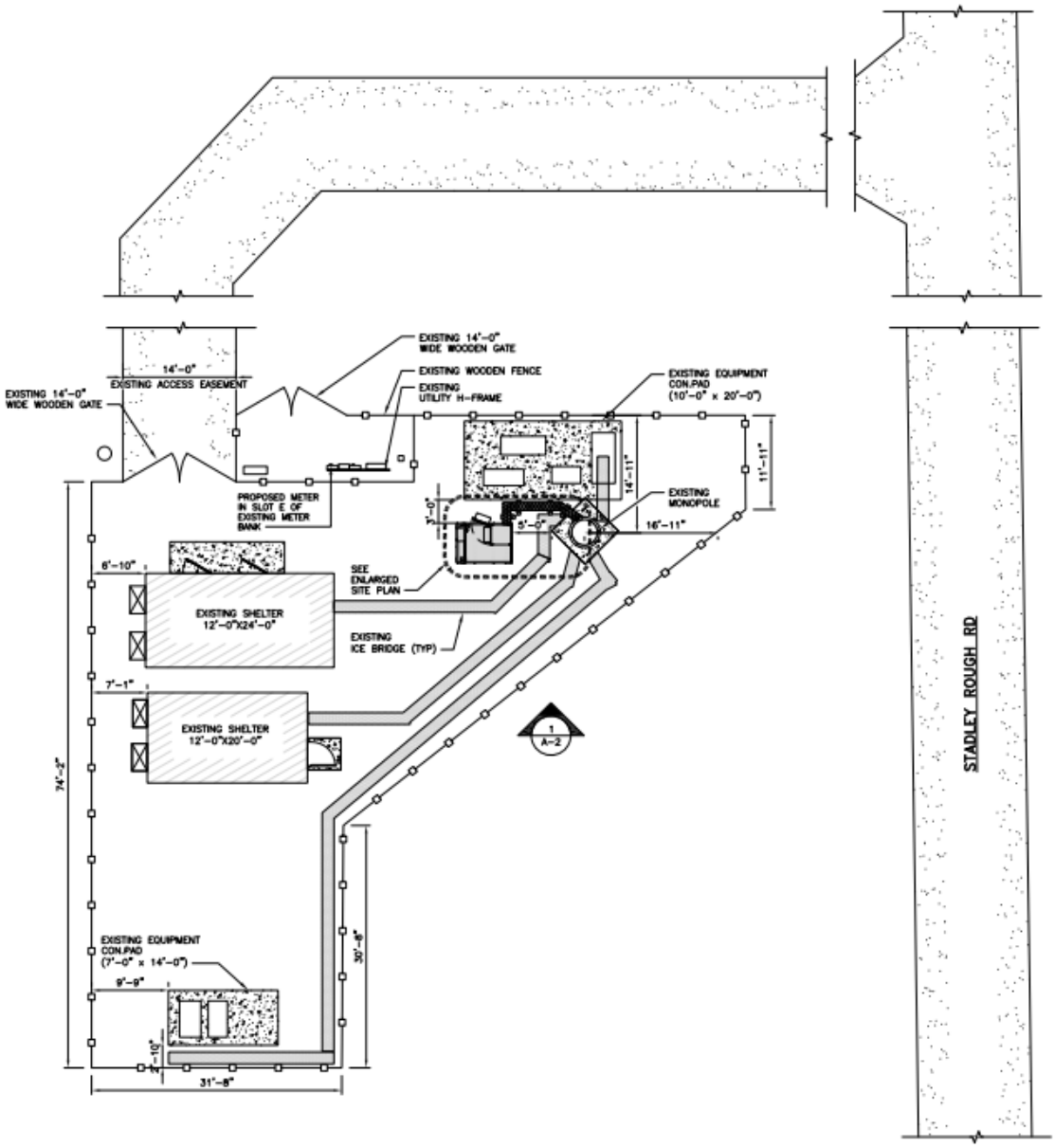
In addition, four Appendices are included. Appendix A provides information on the documents used to prepare the analysis. Appendix B provides background on the FCC MPE limit. Appendix C details the proposed mitigation to satisfy the FCC

requirements and associated guidelines on RF compliance. Appendix D provides a summary of the qualifications of the expert certifying FCC compliance for this site.

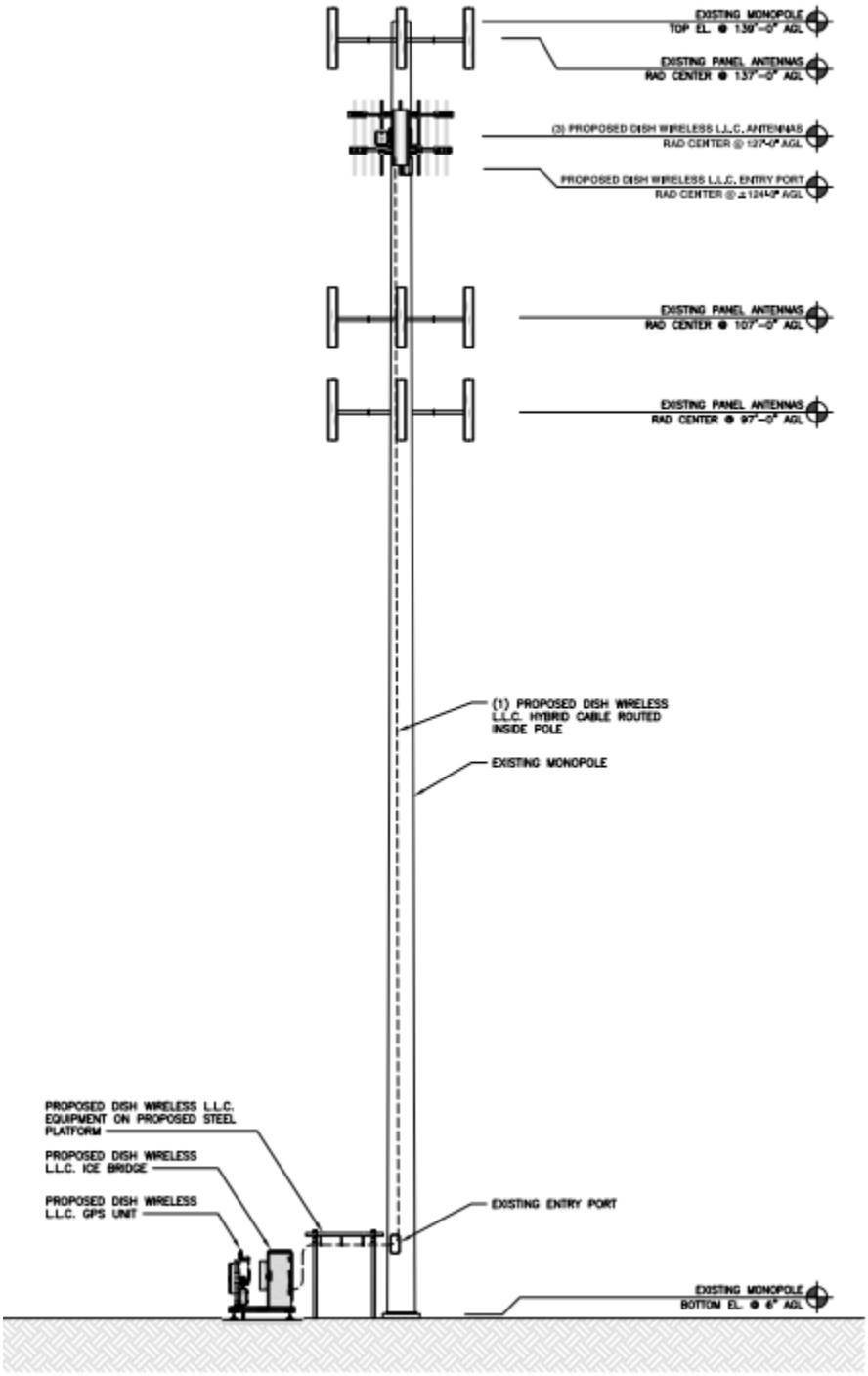
Antenna and Transmission Data

The plan and elevation views that follow, extracted from the site drawings, illustrate the mounting positions of the DISH antennas at the site.

Plan View:



Elevation View:



The table that follows summarizes the relevant data for the proposed DISH antenna operations. Note that the "Z" height references the centerline of the antenna.

Ant. ID	*Carrier*	*Antenna Manufacturer*	*Antenna Model*	*Type*	*Freq (MHz)*	*Ant. Dim. (ft.)*	*Total ERP (watts)*	*Z (ft)*	*Ant. Gain (dBd)*	*B/W*	*Azimuth*	*EDT*	*MDT*
❶	DISH	Commscope	FFVV-65B-R2	Panel	600	6	2110	127	12.46	64	0	2	0
❶	DISH	Commscope	FFVV-65B-R2	Panel	2000	6	7396	127	16.66	67	0	2	0
❶	DISH	Commscope	FFVV-65B-R2	Panel	2100	6	7396	127	16.66	67	0	2	0
❷	DISH	Commscope	FFVV-65B-R2	Panel	600	6	2110	127	12.46	64	120	2	0
❷	DISH	Commscope	FFVV-65B-R2	Panel	2000	6	7396	127	16.66	67	120	2	0
❷	DISH	Commscope	FFVV-65B-R2	Panel	2100	6	7396	127	16.66	67	120	2	0
❸	DISH	Commscope	FFVV-65B-R2	Panel	600	6	2110	127	12.46	64	240	2	0
❸	DISH	Commscope	FFVV-65B-R2	Panel	2000	6	7396	127	16.66	67	240	2	0
❸	DISH	Commscope	FFVV-65B-R2	Panel	2100	6	7396	127	16.66	67	240	2	0

The area below the antennas, at street level, is of interest in terms of potential "uncontrolled" exposure of the general public, so the antenna's vertical-plane emission characteristic is used in the calculations, as it is a key determinant of the relative amount of RF emissions in the "downward" direction.

By way of illustration, Figure 1 that follows shows the vertical-plane radiation pattern of the proposed antenna model in the 600 MHz frequency band. In this type of antenna radiation pattern diagram, the antenna is effectively pointed at the three o'clock position (the horizon) and the relative strength of the pattern at different angles is described using decibel units.

Note that the use of a decibel scale to describe the relative pattern at different angles actually serves to significantly understate the actual focusing effects of the antenna. Where the antenna pattern reads 20 dB the relative RF energy emitted at the corresponding downward angle is 1/100th of the maximum that occurs in the main beam (at 0 degrees); at 30 dB, the energy is only 1/1000th of the maximum.

Finally, note that the automatic pattern-scaling feature of our internal software may skew side-by-side visual comparisons of different antenna models, or even different parties' depictions of the same antenna model.

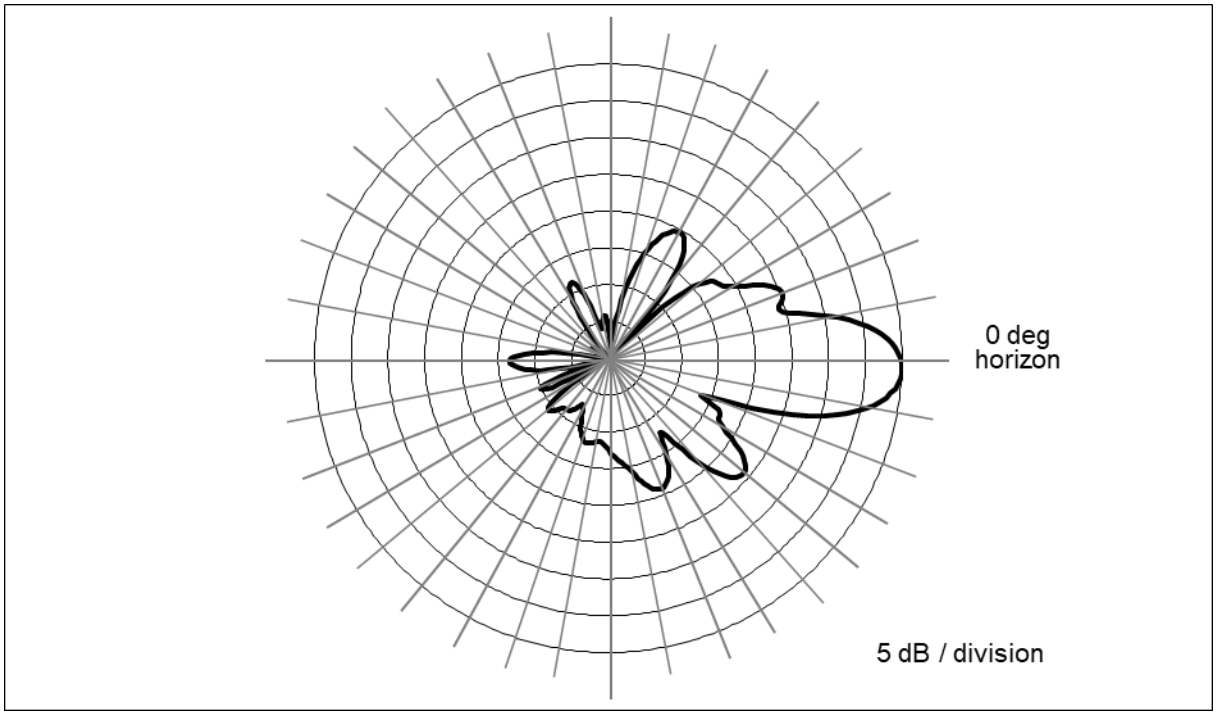


Figure 1. Commscope FFVV-65B-R2 – 600 MHz Vertical-plane Pattern

As noted at the outset, there are existing antenna operations to include in the compliance assessment. For T-Mobile, Verizon, and AT&T, we will conservatively assume operation with maximum channel capacity and at maximum transmitter power per channel to be used in each of its FCC-licensed frequency bands. For the other operator, we will rely on the transmission parameters in its associated FCC licenses.

The table that follows summarizes the relevant data for the collocated antenna operations.

Carrier	*Antenna Manufacturer*	*Antenna Model*	*Type*	*Freq (MHz)*	*Total ERP (watts)*	*Ant. Gain (dBd)*	*Azimuth*
AT&T	Generic	Generic	Panel	700	4945	11.26	N/A
AT&T	Generic	Generic	Panel	850	2400	11.76	N/A
AT&T	Generic	Generic	Panel	1900	5756	15.56	N/A
AT&T	Generic	Generic	Panel	2100	5890	15.66	N/A
AT&T	Generic	Generic	Panel	2300	4131	16.16	N/A
T-Mobile	Generic	Generic	Panel	600	3163	12.96	N/A
T-Mobile	Generic	Generic	Panel	700	867	13.36	N/A
T-Mobile	Generic	Generic	Panel	1900	4123	15.36	N/A
T-Mobile	Generic	Generic	Panel	1900	1452	15.60	N/A
T-Mobile	Generic	Generic	Panel	2100	4626	15.86	N/A
T-Mobile	Generic	Generic	Panel	1900	1419	15.50	N/A
T-Mobile	Generic	Generic	Panel	2500	12804	22.35	N/A
Verizon Wireless	Generic	Generic	Panel	746	2400	11.76	N/A
Verizon Wireless	Generic	Generic	Panel	869	5166	12.36	N/A
Verizon Wireless	Generic	Generic	Panel	1900	5372	15.26	N/A
Verizon Wireless	Generic	Generic	Panel	2100	5625	15.46	N/A

Compliance Analysis

FCC Office of Engineering and Technology Bulletin 65 ("OET Bulletin 65") provides guidelines for mathematical models to calculate the RF levels at various points around transmitting antennas. Different models apply in different areas around antennas, with a model applying to street level around a site. We will address each area of interest in turn in the subsections that follow.

Street Level Analysis

At street-level around an antenna site (in what is called the "far field" of the antennas), the RF levels are directly proportional to the total antenna input power and the relative antenna gain in the downward direction of interest – and the levels are otherwise inversely proportional to the square of the straight-line distance to the antenna.

Conservative calculations also assume the potential RF exposure is enhanced by reflection of the RF energy from the intervening ground. Our calculations will assume a 100% "perfect", mirror-like reflection, which is the absolute worst-case scenario.

The formula for street-level compliance assessment for any given wireless antenna operation is as follows:

$$MPE\% = (100 * Chans * TxPower * 10^{(Gmax-Vdisc/10)} * 4) / (MPE * 4\pi * R^2)$$

where

MPE%	=	RF level, expressed as a percentage of the MPE limit applicable to continuous exposure of the general public
100	=	factor to convert the raw result to a percentage
Chans	=	maximum number of RF channels per sector
TxPower	=	maximum transmitter power per channel, in milliwatts

$10^{(Gmax-Vdisc/10)}$	=	numeric equivalent of the relative antenna gain in the downward direction of interest; data on the antenna vertical-plane pattern is taken from manufacturer specifications
4	=	factor to account for a 100-percent-efficient energy reflection from the ground, and the squared relationship between RF field strength and power density ($2^2 = 4$)
MPE	=	FCC general population MPE limit
R	=	straight-line distance from the RF source to the point of interest, centimeters

The MPE% calculations are performed out to a distance of 500 feet from the facility to points 6.5 feet (approximately two meters, the FCC-recommended standing height) off the ground, as illustrated in Figure 2, below.

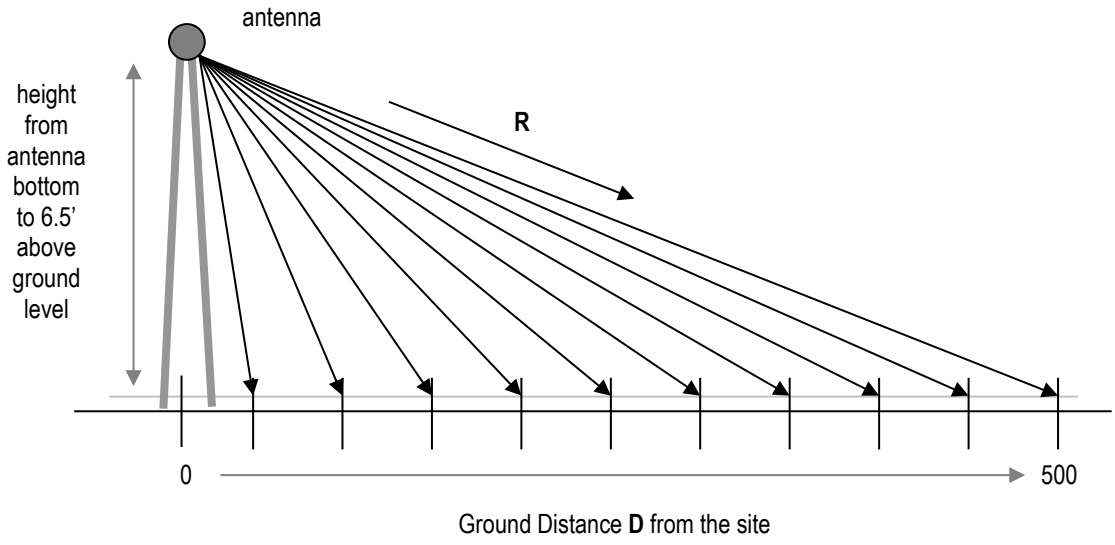


Figure 2. Street-level MPE% Calculation Geometry

It is popularly understood that the farther away one is from an antenna, the lower the RF level – which is generally but not universally correct. The results of MPE% calculations fairly close to the site will reflect the variations in the vertical-plane antenna pattern as well as the variation in straight-line distance to the antenna.

Therefore, RF levels may actually increase slightly with increasing distance within the range of zero to 500 feet from the site. As the distance approaches 500 feet and beyond, though, the antenna pattern factor becomes less significant, the RF levels become primarily distance-controlled and, as a result, the RF levels generally decrease with increasing distance. In any case, the RF levels more than 500 feet from a wireless antenna site are well understood to be sufficiently low to be comfortably in compliance.

According to the FCC, when directional antennas (such as panels) are used, compliance assessments are based on the RF effect of a single (facing) antenna sector, as the effects of directional antennas pointed away from the point(s) of interest are considered insignificant. If the different parameters apply in the different sectors, compliance is based on the worst-case parameters.

Street level FCC compliance for a collocated antenna site is assessed in the following manner. At each distance point along the ground, an MPE% calculation is made for each antenna operation (including each frequency band), and the sum of the individual MPE% contributions at each point is compared to 100 percent, the normalized reference for compliance with the MPE limit. We refer to the sum of the individual MPE% contributions as “total MPE%”, and any calculated total MPE% result exceeding 100 percent is, by definition, higher than the FCC limit and represents non-compliance and a need to mitigate the potential exposure. If all results are consistently below 100 percent, on the other hand, that set of results serves as a clear and sufficient demonstration of compliance with the MPE limit.

Note that the following conservative methodology and assumptions are incorporated into the MPE% calculations on a general basis:

1. The antennas are assumed to be operating continuously at maximum power and maximum channel capacity.
2. The power-attenuation effects of shadowing or other obstructions to the line-of-sight path from the antenna to the point of interest are ignored.
3. The calculations intentionally minimize the distance factor (R) by assuming a 6’6” human and performing the calculations from the bottom (rather than

the centerline) of each operator's lowest-mounted antenna, as applicable.

4. The calculations also conservatively take into account, when applicable, the different technical characteristics and related RF effects of the use of multiple antennas for transmission in the same frequency band.
5. The RF exposure at ground level is assumed to be 100-percent enhanced (increased) via a "perfect" field reflection from the intervening ground.

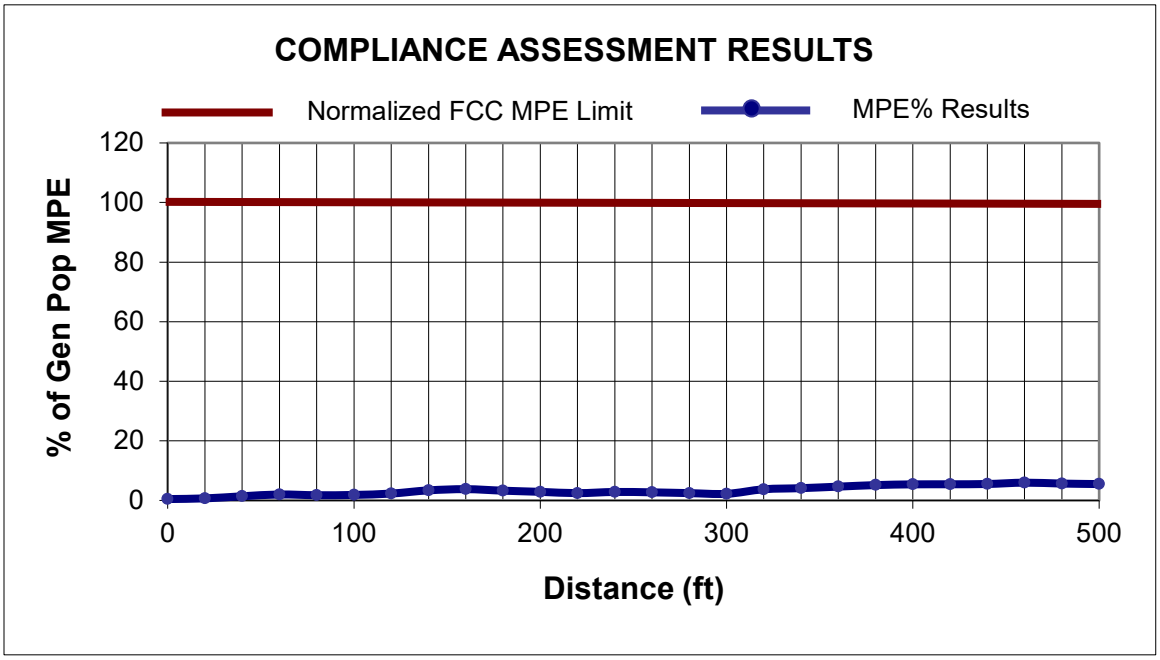
The net result of these assumptions is to intentionally and significantly overstate the calculated RF levels relative to the levels that will actually result from the antenna operations – and the purpose of this conservatism is to allow very "safe-side" conclusions about compliance.

The table that follows provides the results of the MPE% calculations for each antenna operation, with the overall worst-case calculated result highlighted in bold in the last column. Note that the transmission parameters for each DISH antenna sector are identical, and the calculations reflect the worst-case result for any/all sectors.

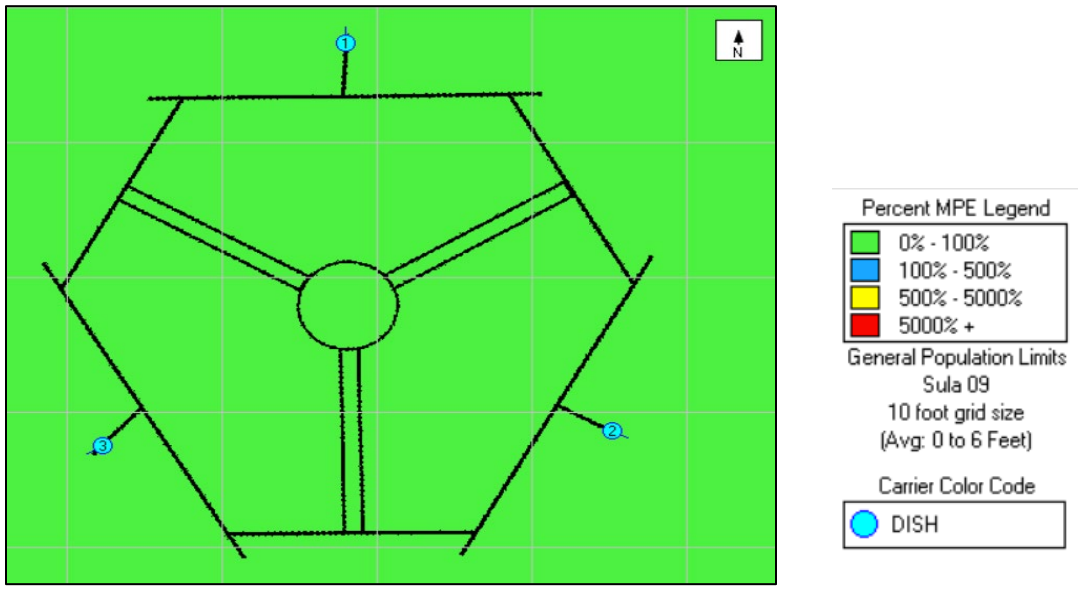
Ground Distance (ft)	DISH 600 MHz MPE%	DISH 2000 MHz MPE%	DISH 2100 MHz MPE%	AT&T MPE%	Verizon Wireless MPE%	T-Mobile MPE%	Total MPE%
0	0.0010	0.0013	0.0000	0.1661	0.0441	0.2521	0.4646
20	0.0032	0.0057	0.0019	0.2412	0.0747	0.3640	0.6907
40	0.0073	0.0205	0.0121	0.4868	0.2668	0.6063	1.3998
60	0.0024	0.0148	0.0148	0.7821	0.3258	0.8616	2.0015
80	0.0038	0.0024	0.0184	0.8102	0.2534	0.6671	1.7553
100	0.0497	0.0061	0.1007	0.7109	0.5947	0.3936	1.8557
120	0.1156	0.0170	0.2947	1.0455	0.4992	0.3421	2.3141
140	0.1201	0.2070	0.3597	1.4302	0.8079	0.4565	3.3814
160	0.0738	0.2781	0.1880	1.6796	0.9107	0.6599	3.7901
180	0.0379	0.0248	0.0065	1.7091	0.6097	0.8903	3.2783
200	0.0357	0.0085	0.0239	1.1762	0.3321	1.3140	2.8904
220	0.0512	0.0153	0.0018	0.6462	0.1108	1.6284	2.4537
240	0.0676	0.0752	0.0273	0.4232	0.0520	2.2064	2.8517
260	0.0729	0.0574	0.0397	0.2589	0.1034	2.1895	2.7218
280	0.0615	0.0025	0.0084	0.2491	0.1937	1.9428	2.4580
300	0.0487	0.0118	0.0164	0.2982	0.3191	1.5282	2.2224
320	0.0370	0.0305	0.0320	0.6885	0.4799	2.4819	3.7498
340	0.0283	0.0361	0.0345	0.6158	0.6640	2.7440	4.1227
360	0.0255	0.0271	0.0210	0.9107	0.8769	2.7754	4.6366
380	0.0305	0.0186	0.0115	1.2819	1.0941	2.7149	5.1515
400	0.0440	0.0229	0.0204	1.6941	0.9923	2.6270	5.4007
420	0.0683	0.0324	0.0390	1.5447	1.2082	2.5352	5.4278
440	0.1015	0.0297	0.0420	1.9153	1.1049	2.3274	5.5208
460	0.0934	0.0273	0.0386	2.2401	1.2994	2.2692	**5.9680**
480	0.1336	0.0121	0.0215	2.0645	1.1968	2.2335	5.6620
500	0.1236	0.0112	0.0199	1.9086	1.3631	2.0691	5.4955

As indicated, the maximum calculated overall RF level is 5.9680 percent of the FCC MPE limit – well below the 100-percent reference for compliance.

A graph of the overall calculation results, shown below, perhaps provides a clearer *visual* illustration of the relative compliance of the calculated RF levels. The line representing the overall calculation results shows an obviously clear, consistent margin to the FCC MPE limit.



The graphic output for the areas at street level surrounding the site is reproduced on the next page.

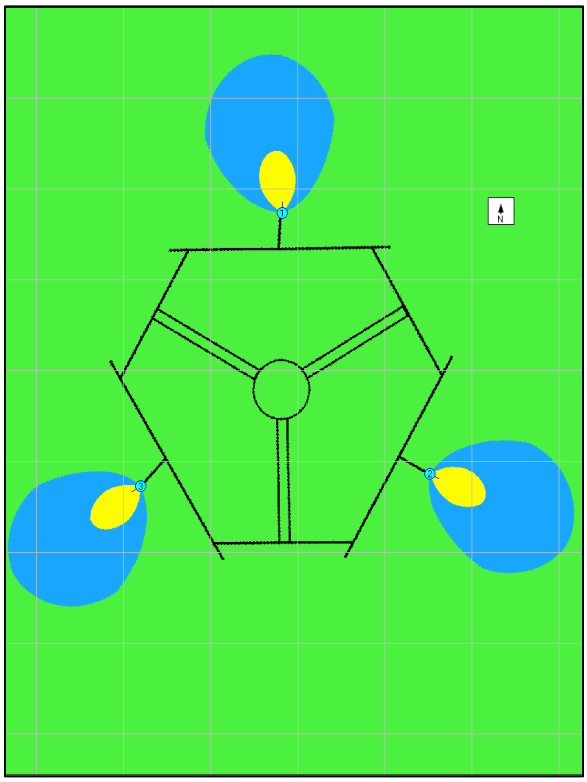


Near-field Analysis

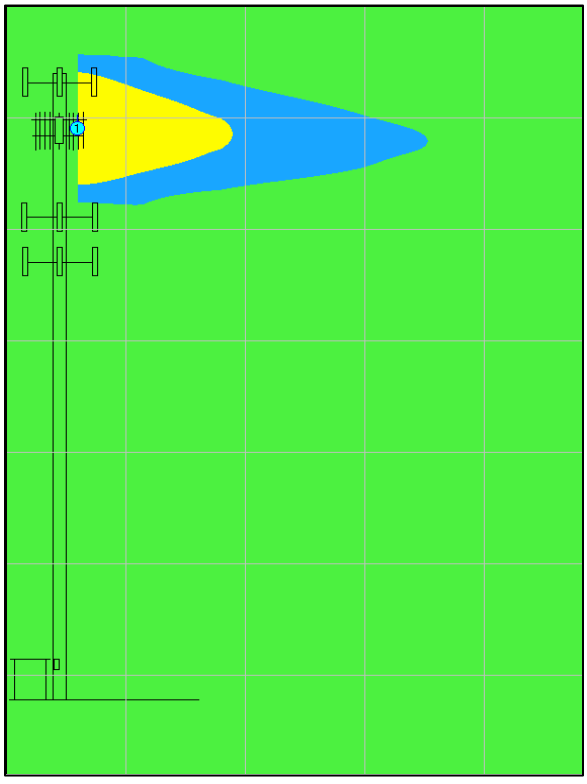
The compliance analysis for the same height as the antennas is performed using the RoofMaster program by Waterford Consultants.

RF levels in the near field of an antenna depend on the power input to the antenna, the antenna's length and horizontal beamwidth, the mounting height of the antenna above nearby roof, and one's position and distance from the antenna. RF levels in front of a directional antenna are higher than they are to the sides or rear, and in any given horizontal direction are inversely proportional to the straight-line distance to the antenna.

The RoofMaster graphic outputs for the same height as the DISH antennas are reproduced on the next page.



RoofMaster – Same Height as the Antennas – Alpha / Beta / Gamma sectors



RoofMaster – Same Height as the Antennas – Alpha / Beta / Gamma sectors

Compliance Conclusion

According to the FCC, the MPE limit has been constructed in such a manner that continuous human exposure to RF fields up to and including 100 percent of the MPE limit is acceptable and safe.

The conservative analysis in this case shows that the maximum calculated RF level from the combination of proposed and existing antenna operations at the site at the site is 5.9680 percent of the FCC general population MPE limit. At the same height as the antennas, the analysis shows that the calculated RF levels potentially exceed the FCC MPE limit. Per DISH guidelines, and consistent with FCC guidance on compliance, it is recommended that two Caution signs and NOC Information signs be installed at the base of the monopole.

The results of the calculations, along with the described RF mitigation, combine to satisfy the FCC's RF compliance requirements and associated guidelines on compliance.

Moreover, because of the extremely conservative calculation methodology and operational assumptions we applied in the analysis, RF levels actually caused by the antennas will be significantly lower than the calculation results here indicate.

Certification

It is the policy of Pinnacle Telecom Group that all FCC RF compliance assessments are reviewed, approved, and signed by the firm's Chief Technical Officer who certifies as follows:

1. I have read and fully understand the FCC regulations concerning RF safety and the control of human exposure to RF fields (47 CFR 1.1301 *et seq*).
2. To the best of my knowledge, the statements and information disclosed in this report are true, complete and accurate.
3. The analysis of site RF compliance provided herein is consistent with the applicable FCC regulations, additional guidelines issued by the FCC, and industry practice.
4. The results of the analysis indicate that the subject antenna operations will be in compliance with the FCC regulations concerning the control of potential human exposure to the RF emissions from antennas.

08/25//22

Daniel J. Collins
Chief Technical Officer
Pinnacle Telecom Group, LLC

Date

Appendix A. Documents Used to Prepare the Analysis

RFDS: RFDS-NJJER01104B-Final-20211029-v.0_20211029141739

CD: NJJER01104B_FinalStampedCDs_20211021073546

Appendix B. Background on the FCC MPE Limit

As directed by the Telecommunications Act of 1996, the FCC has established limits for maximum continuous human exposure to RF fields.

The FCC maximum permissible exposure (MPE) limits represent the consensus of federal agencies and independent experts responsible for RF safety matters. Those agencies include the National Council on Radiation Protection and Measurements (NCRP), the Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), the American National Standards Institute (ANSI), the Environmental Protection Agency (EPA), and the Food and Drug Administration (FDA). In formulating its guidelines, the FCC also considered input from the public and technical community – notably the Institute of Electrical and Electronics Engineers (IEEE).

The FCC's RF exposure guidelines are incorporated in Section 1.301 *et seq* of its Rules and Regulations (47 CFR 1.1301-1.1310). Those guidelines specify MPE limits for both occupational and general population exposure.

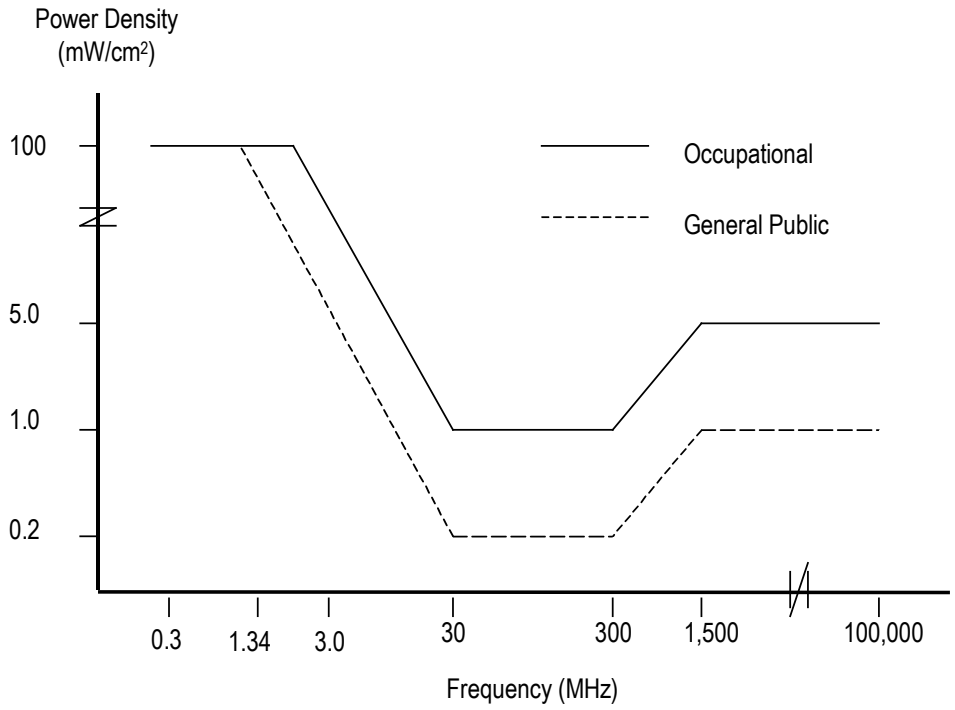
The specified continuous exposure MPE limits are based on known variation of human body susceptibility in different frequency ranges, and a Specific Absorption Rate (SAR) of 4 watts per kilogram, which is universally considered to accurately represent human capacity to dissipate incident RF energy (in the form of heat). The occupational MPE guidelines incorporate a safety factor of 10 or greater with respect to RF levels known to represent a health hazard, and an additional safety factor of five is applied to the MPE limits for general population exposure. Thus, the general population MPE limit has a built-in safety factor of more than 50. The limits were constructed to appropriately protect humans of both sexes and all ages and sizes and under all conditions – and continuous exposure at levels equal to or below the applicable MPE limits is considered to result in no adverse health effects or even health risk.

The reason for *two* tiers of MPE limits is based on an understanding and assumption that members of the general public are unlikely to have had appropriate RF safety training and may not be aware of the exposures they receive; occupational exposure in controlled environments, on the other hand, is assumed to involve individuals who have had such training, are aware of the exposures, and know how to maintain a safe personal work environment.

The FCC's RF exposure limits are expressed in two equivalent forms, using alternative units of field strength (expressed in volts per meter, or V/m), and power density (expressed in milliwatts per square centimeter, or mW/cm^2). The table on the next page lists the FCC limits for both occupational and general population exposures, using the mW/cm^2 reference, for the different radio frequency ranges.

Frequency Range (F) (MHz)	Occupational Exposure (mW/cm^2)	General Public Exposure (mW/cm^2)
0.3 - 1.34	100	100
1.34 - 3.0	100	$180 / F^2$
3.0 - 30	$900 / F^2$	$180 / F^2$
30 - 300	1.0	0.2
300 - 1,500	F / 300	F / 1500
1,500 - 100,000	5.0	1.0

The diagram below provides a graphical illustration of both the FCC's occupational and general population MPE limits.



Because the FCC's RF exposure limits are frequency-shaped, the exact MPE limits applicable to the instant situation depend on the frequency range used by the systems of interest.

The most appropriate method of determining RF compliance is to calculate the RF power density attributable to a particular system and compare that to the MPE limit applicable to the operating frequency in question. The result is usually expressed as a percentage of the MPE limit.

For potential exposure from multiple systems, the respective percentages of the MPE limits are added, and the total percentage compared to 100 (percent of the limit). If the result is less than 100, the total exposure is in compliance; if it is more than 100, exposure mitigation measures are necessary to achieve compliance.

Note that the FCC "categorically excludes" all "non-building-mounted" wireless antenna operations whose mounting heights are more than 10 meters (32.8 feet) from the routine requirement to demonstrate compliance with the MPE limit, because such operations "are deemed, individually and cumulatively, to have no significant effect on the human environment". The categorical exclusion also applies to *all* point-to-point antenna operations, regardless of the type of structure they're mounted on. Note that the FCC considers any facility qualifying for the categorical exclusion to be automatically in compliance.

In addition, FCC Rules and Regulations Section 1.1307(b)(3) describes a provision known in the industry as "the 5% rule". It describes that when a specific location – like a spot on a rooftop – is subject to an overall exposure level exceeding the applicable MPE limit, operators with antennas whose MPE% contributions at the point of interest are less than 5% are exempted from the obligation otherwise shared by all operators to bring the site into compliance, and those antennas are automatically deemed by the FCC to satisfy the rooftop compliance requirement.

FCC References on RF Compliance

47 CFR, FCC Rules and Regulations, Part 1 (Practice and Procedure), Section 1.1310 (Radiofrequency radiation exposure limits).

FCC Second Memorandum Opinion and Order and Notice of Proposed Rulemaking (FCC 97-303), *In the Matter of Procedures for Reviewing Requests for Relief From State and Local Regulations Pursuant to Section 332(c)(7)(B)(v) of the Communications Act of 1934 (WT Docket 97-192), Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation (ET Docket 93-62), and Petition for Rulemaking of the Cellular Telecommunications Industry Association Concerning Amendment of the Commission's Rules to Preempt State and Local Regulation of Commercial Mobile Radio Service Transmitting Facilities*, released August 25, 1997.

FCC First Memorandum Opinion and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released December 24, 1996.

FCC Report and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released August 1, 1996.

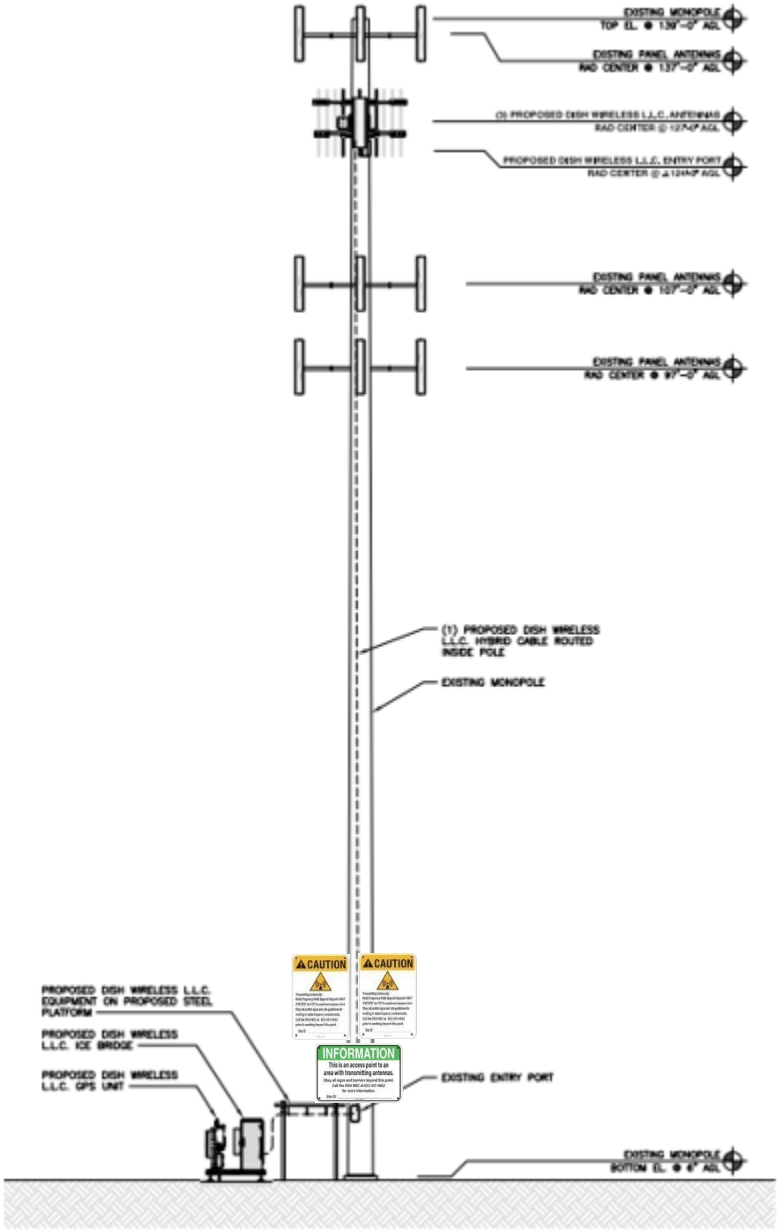
FCC Report and Order, Notice of Proposed Rulemaking, Memorandum Opinion and Order (FCC 19-126), *Proposed Changes in the Commission's Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields; Reassessment of Federal Communications Commission Radiofrequency Exposure Limits and Policies,* released December 4, 2019.

FCC Office of Engineering and Technology (OET) Bulletin 65, “Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields”, Edition 97-01, August 1997.

FCC Office of Engineering and Technology (OET) Bulletin 56, “Questions and Answers About Biological Effects and Potential Hazards of RF Radiation”, edition 4, August 1999.

Appendix C. Proposed Signage

Final Compliance Configuration							
	GUIDELINES	**NOTICE**	**CAUTION**	**WARNING**	**NOC INFO**	**BARRIER/MARKER**	
Access Point(s)	0	0	2	0	1	0	dimensions
Alpha	0	0	0	0	0	0	dimensions
Beta	0	0	0	0	0	0	dimensions
Gamma	0	0	0	0	0	0	dimensions



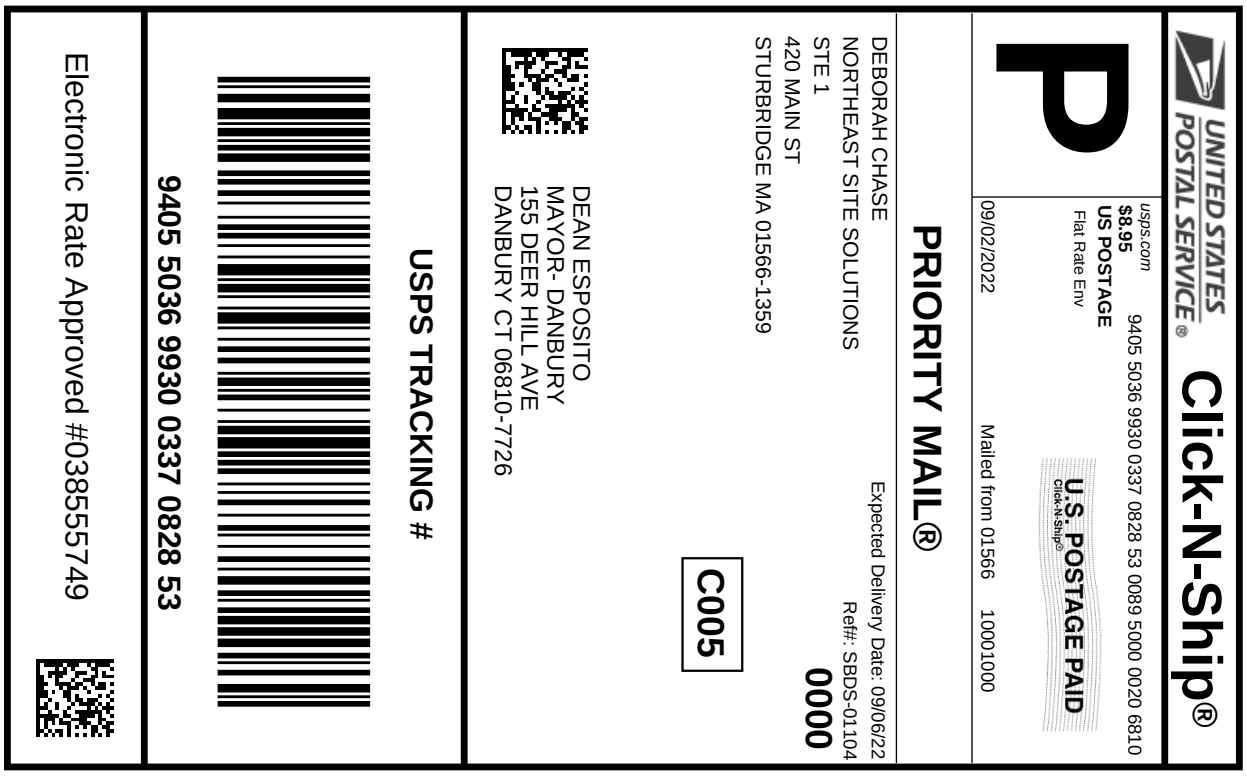
Appendix D. Summary of Expert Qualifications

Daniel J. Collins, Chief Technical Officer, Pinnacle Telecom Group, LLC

Synopsis:	• 40+ years of experience in all aspects of wireless system engineering, related regulation, and RF exposure • Has performed or led RF exposure compliance assessments on more than 20,000 antenna sites since the latest FCC regulations went into effect in 1997 • Has provided testimony as an RF compliance expert more than 1,500 times since 1997 • Have been accepted as an FCC compliance expert in New York, New Jersey, Connecticut, Pennsylvania and more than 40 other states, as well as by the FCC
Education:	• B.E.E., City College of New York (Sch. Of Eng.), 1971 • M.B.A., 1982, Fairleigh Dickinson University, 1982 • Bronx High School of Science, 1966
Current Responsibilities:	• Leads all PTG staff work involving RF safety and FCC compliance, microwave and satellite system engineering, and consulting on wireless technology and regulation
Prior Experience:	• Edwards & Kelcey, VP – RF Engineering and Chief Information Technology Officer, 1996-99 • Bellcore (a Bell Labs offshoot after AT&T's 1984 divestiture), Executive Director – Regulation and Public Policy, 1983-96 • AT&T (Corp. HQ), Division Manager – RF Engineering, and Director – Radio Spectrum Management, 1977-83 • AT&T Long Lines, Group Supervisor – Microwave Radio System Design, 1972-77
Specific RF Safety / Compliance Experience:	• Involved in RF exposure matters since 1972 • Have had lead corporate responsibility for RF safety and compliance at AT&T, Bellcore, Edwards & Kelcey, and PTG • While at AT&T, helped develop the mathematical models for calculating RF exposure levels • Have been relied on for compliance by all major wireless carriers, as well as by the federal government, several state and local governments, equipment manufacturers, system integrators, and other consulting / engineering firms
Other Background:	• Author, *Microwave System Engineering* (AT&T, 1974) • Co-author and executive editor, *A Guide to New Technologies and Services* (Bellcore, 1993) • National Spectrum Management Association (NSMA) – former three-term President and Chairman of the Board of Directors; was founding member, twice-elected Vice President, long-time member of the Board, and was named an NSMA Fellow in 1991 • Have published more than 35 articles in industry magazines

Exhibit G

Recipient Mailings



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4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

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Ship Date:	09/02/2022
Expected Delivery Date:	09/06/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: SBDS-01104

To: DEAN ESPOSITO
MAYOR- DANBURY
155 DEER HILL AVE
DANBURY CT 06810-7726

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DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

SHARON CALITRO
DIRECTOR OF PLANNING & ZONING
155 DEER HILL AVE
DANBURY CT 06810-7726

USPS TRACKING #

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Electronic Rate Approved #038555749

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Trans. #:	571010807
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Ship Date:	09/02/2022
Expected Delivery Date:	09/06/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: SBDS-00104

To: SHARON CALITRO
DIRECTOR OF PLANNING & ZONING
155 DEER HILL AVE
DANBURY CT 06810-7726

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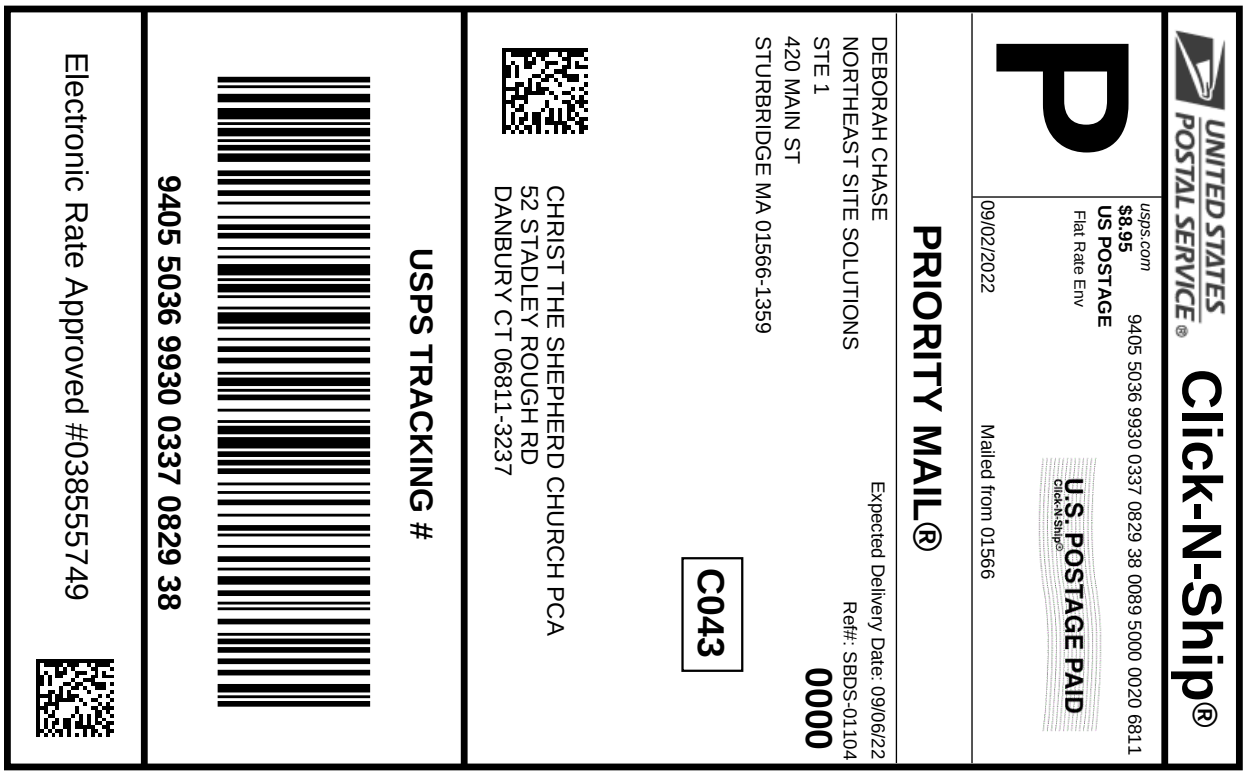

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0337 0829 38

Trans. #:	571010807
Print Date:	09/02/2022
Ship Date:	09/02/2022
Expected Delivery Date:	09/06/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

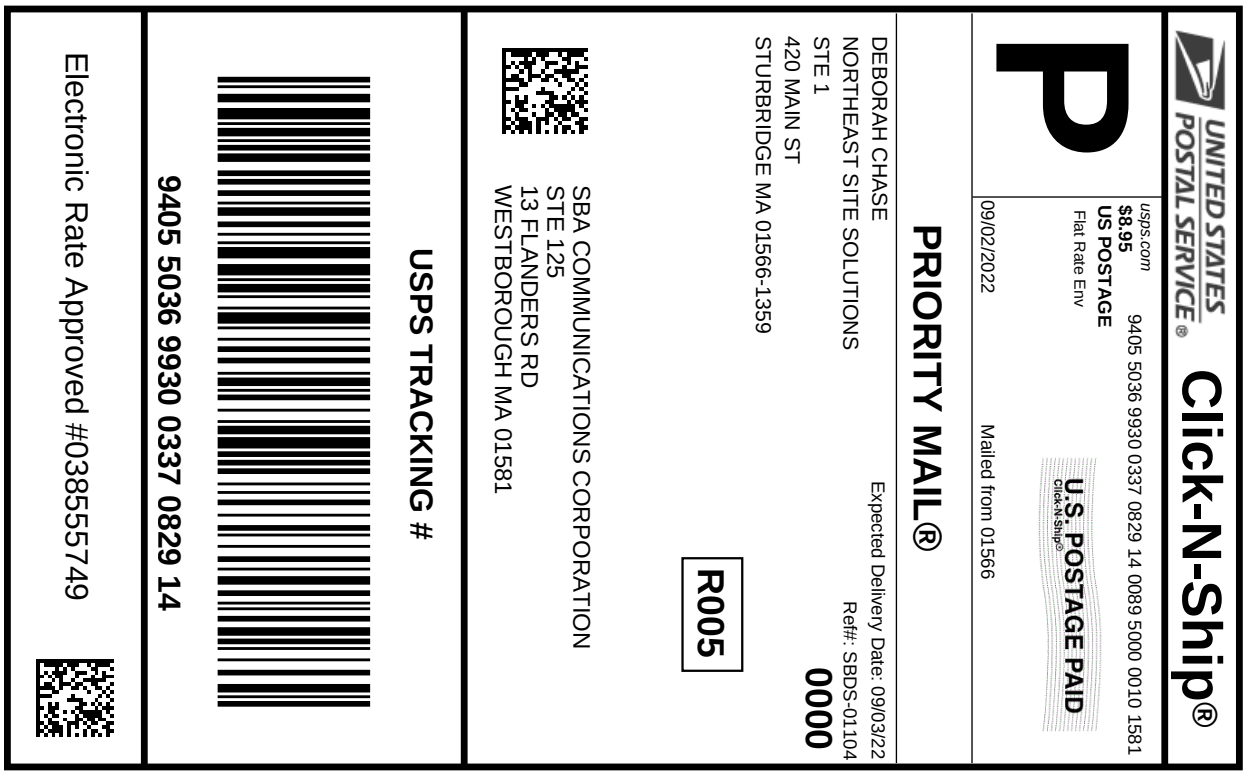
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: SBDS-01104

To: CHRIST THE SHEPHERD CHURCH PCA
52 STADLEY ROUGH RD
DANBURY CT 06811-3237

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

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



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0337 0829 14

Trans. #:	571010807
Print Date:	09/02/2022
Ship Date:	09/02/2022
Expected Delivery Date:	09/03/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: SBDS-01104

To: SBA COMMUNICATIONS CORPORATION
STE 125
13 FLANDERS RD
WESTBOROUGH MA 01581

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

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

NJJER0110418 SBA DISL

UNITED STATES POSTAL SERVICE.

FARMINGTON
210 MAIN ST
FARMINGTON, CT 06032-9998
(800)275-8777

09/07/2022 08:51 AM

Product	Qty	Unit Price	Price
Prepaid Mail Westborough, MA 01581 Weight: 0 lb 2.00 oz Acceptance Date: Wed 09/07/2022 Tracking #: 9405 5036 9930 0337 0829 14	1		$0.00
Prepaid Mail Danbury, CT 06811 Weight: 0 lb 9.00 oz Acceptance Date: Wed 09/07/2022 Tracking #: 9405 5036 9930 0337 0829 38	1		$0.00
Prepaid Mail Danbury, CT 06810 Weight: 0 lb 9.00 oz Acceptance Date: Wed 09/07/2022 Tracking #: 9405 5036 9930 0337 0828 53	1		$0.00
Prepaid Mail Danbury, CT 06810 Weight: 0 lb 9.00 oz Acceptance Date: Wed 09/07/2022 Tracking #: 9405 5036 9930 0337 0828 84	1		$0.00
Grand Total:			$0.00

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Every household in the U.S. is now
eligible to receive a third set
of 8 free test kits.
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Track your Packages
Sign up for FREE @
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All sales final on stamps and postage.
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Thank you for your business.

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or scan this code with your mobile device,

or call 1-800-410-7420.