NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

May 5, 2022

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

RE: Tower Share Application
17 Cottage Road, Madison, CT 06443
Latitude: 41.276011
Longitude: -72.561527
Site #: CT13615-A_BOHVN00048A_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 17 Cottage Road, Madison, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 90-foot level of the existing 130-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 fenced compound. Included are plans by B+T, dated March 25, 2022, Exhibit C. Also included is a structural analysis prepared by TES, dated November 15, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was approved by the Connecticut Siting Council, Docket No. 333 on September 25, 2007. 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 Peggy Lyons, First Selectwoman and Erin Mannix, Town Planner for the Town of Madison, as well as the tower owner (SBA) and property owner (Paul Stonehart).

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 130-feet and the Dish Wireless LLC antennas will be located at a center line height of 90-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 35.85% 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 monopole 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 monopole tower in Madison. 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 90-foot level of the existing 130-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 Madison.

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: Peggy Lyons, First Selectwoman
Town of Madison
8 Campus Drive
Madison, CT 06443

Erin Mannix, Town Planner
Town of Madison
8 Campus Drive
Madison, CT 06443

Paul Stonehart – Property Owner
17 Cottage Road
Madison, CT 06443

SBA - Tower Owner

Exhibit A

Original Facility Approval

DOCKET NO. 333 – National Grid Wireless, Inc. (now Lightower) application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located at 17 Cottage Road, Madison, Connecticut.	}	Connecticut Siting Council September 25, 2007

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 Lightower, hereinafter referred to as the Certificate Holder, for a telecommunications facility at 17 Cottage Road, Madison, 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 T-Mobile and other entities, both public and private, but such tower shall not exceed a height of 130 feet above ground level. The height at the top of the antennas shall not exceed 130 feet above ground level. The monopole shall be designed with a yield point to minimize the tower setback radius.

2. The tower and foundation shall be designed to accommodate a future 20-foot extension for a total tower height of 150 feet above ground level.

3. 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 Town of Madison 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; and
    b) construction plans for site clearing, grading, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

4. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of 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 electromagnetic radio frequency power density is 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.

5. 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.

6. 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.

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

8. 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.

9. Any request for extension of the time period referred to in Condition 7 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 Town of Madison. Any proposed modifications to this Decision and Order shall likewise be so served.

10. If the facility ceases to provide wireless services for a period of six consecutive months, 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.

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

12. 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 Source and The Shoreline 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**
Lightower (formerly National Grid Wireless, Inc.)	Lucia Chiocchio, Esq. Cuddy & Feder, LLP 445 Hamilton Avenue, 14th Floor White Plains, NY 10601
Intervenor	**Its Representative**
Omnipoint Communications, Inc., a subsidiary of T-Mobile USA, Inc.	Julie D. Kohler, Esq. Carrie L. Larson, Esq. Cohen and Wolf, P.C. 1115 Broad Street Bridgeport, CT 06604

Exhibit B

Property Card

17 COTTAGE RD

Location	17 COTTAGE RD	**MBLU**	30/ 34/ / /
Acct#	00167700	**Owner**	STONEHART PAUL
Assessment	$414,900	**Appraisal**	$592,700
PID	1691	**Building Count**	2

Current Value

Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2018	$282,800	$0	$1,800	$308,100	$592,700
Assessment					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2018	$197,900	$0	$1,300	$215,700	$414,900

Parcel Addreses

Additional Addresses		
Address	**City, State Zip**	**Type**
17 COTTAGE RD		Primary

Owner of Record

Owner	STONEHART PAUL	**Sale Price**	$0
Co-Owner		**Book & Page**	239/ 105
Care Of		**Sale Date**	

Ownership History

Ownership History			
Owner	**Sale Price**	**Book & Page**	**Sale Date**
STONEHART PAUL	$0	239/ 105	

Building Information

Building 1 : Section 1

Year Built: 1984
Living Area: 2,221

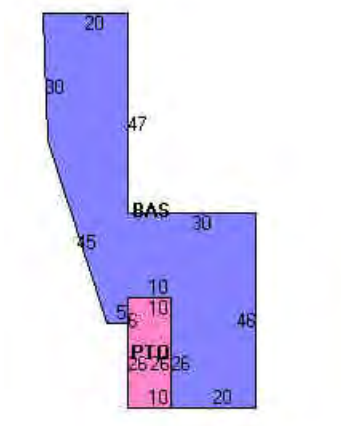
Building Attributes

Field	Description
STYLE	Office Bldg
MODEL	Commercial
Stories:	1
Exterior Wall 1	Wood on Sheath
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Asphalt Shngl.
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Forced Air-Duc
AC Type	Central
Bldg Use	Office Building
Total Rooms	
Total Bedrms	00
Total Baths	0
Fireplace	
Xtra Fireplaces	
Heat/AC	None
Frame Type	Wood Frame
Baths/Plumbing	Average
Ceiling/Wall	Ceil and Wall
Rooms/Prtns	Average
Wall Height	8

Building Photo

(http://images.vgsi.com/photos/MadisonCTPhotos//\01\00\90/70

Building Layout



(http://images.vgsi.com/photos/MadisonCTPhotos//Sketches/169

Building Sub-Areas (sq ft)			
Code	Description	Gross Area	Living Area
BAS	First Floor	2,221	2,221
PTO	Patio	260	0
		2,481	2,221

Building 2 : Section 1

Year Built: 1979
Living Area: 1,038

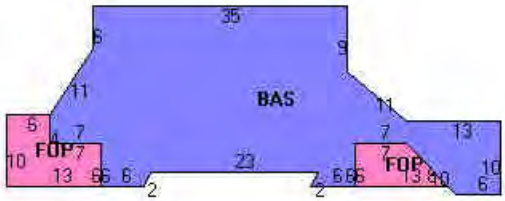
Building Attributes : Bldg 2 of 2	
Field	Description
STYLE	Office Bldg
MODEL	Commercial
Stories:	1
Exterior Wall 1	Wood on Sheath
Exterior Wall 2	

Roof Structure	Shed
Roof Cover	Asphalt Shngl.
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Forced Air-Duc
AC Type	None
Bldg Use	Office Building
Total Rooms	
Total Bedrms	00
Total Baths	0
Fireplace	
Xtra Fireplaces	
Heat/AC	None
Frame Type	Wood Frame
Baths/Plumbing	Average
Ceiling/Wall	Ceil and Wall
Rooms/Prtns	LIght
Wall Height	8

Building Photo

(http://images.vgsi.com/photos/MadisonCTPhotos//\01\00\90/71

Building Layout



(http://images.vgsi.com/photos/MadisonCTPhotos//Sketches/169

Building Sub-Areas (sq ft)			
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,038	1,038
FOP	Open Porch	162	0
		1,200	1,038

Extra Features

Extra Features
No Data for Extra Features

Land

Land Use

Use Code 3400
Description Office Building

Land Line Valuation

Size (Acres) 1.77

Zone C

Outbuildings

Outbuildings						
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	Paving Asphalt			2500 S.F.	$1,800	1

Google Maps 17 Cottage Rd

Map data ©2019 100 ft

17 Cottage Rd

Madison, CT 06443

Directions Save Nearby Send to your phone Share

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOHVN00048A

DISH Wireless L.L.C. SITE ADDRESS:

17 COTTAGE ROAD
MADISON, CT 06443

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 ANTENNA 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:	STONEHART PAUL
ADDRESS:	17 COTTAGE RD MADISON, CT 06443
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	CT13615-A
TOWER APP NUMBER:	169187
COUNTY:	NEW HAVEN
LATITUDE (NAD 83):	41° 16' 33.3" N 41.275916
LONGITUDE (NAD 83):	72° 33' 41.2" W -72.561444
ZONING JURISDICTION:	NEW HAVEN COUNTY
ZONING DISTRICT:	COMMERCIAL
PARCEL NUMBER:	30-34
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	AT&T

PROJECT DIRECTORY

APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
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:	DAVE EVANS devans@sbasite.com
CONST. MANAGER:	CHAD WILCOX chad.wilcox@dish.com
RF ENGINEER:	JARED ROBINSON jared.robinson@dish.com

CONNECTICUT CODE OF 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 BRADLEY INTERNATIONAL AIRPORT:
CONTINUE TO EAST GRANBY, HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT, KEEP RIGHT TO CONTINUE ON BRADLEY INTERNATIONAL AIRPORT, DRIVE FROM I-91 S AND CT-9 S TO HADDAM. TAKE EXIT 9 FROM CT-9 S, CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON, CONTINUE ONTO CT-20 E/BRADLEY INTERNATIONAL AIRPORT CON, TAKE THE EXIT ONTO I-91 S TOWARD HARTFORD, KEEP RIGHT TO STAY ON I-91 S, TAKE EXIT 22S ON THE LEFT TO MERGE WITH CT-9 S TOWARD MIDDLETOWN/OLD SAYBROOK, TAKE EXIT 9 FOR CT-81 TOWARD KILLINGWORTH/CLINTON, CONTINUE ON CT-81 S. DRIVE TO STATE HWY 450 IN MADISON, TURN RIGHT ONTO CT-81 S/KILLINGWORTH RD, CONTINUE TO FOLLOW CT-81 S AT THE ROUNDABOUT, TAKE THE 2ND EXIT AND STAY ON CT-81 S, TURN RIGHT ONTO N HIGH ST, TURN RIGHT ONTO US-1 S/W MAIN ST, CONTINUE TO FOLLOW US-1 S, TURN RIGHT ONTO STATE HWY 450, DESTINATION WILL BE ON THE RIGHT - ARRIVE AT BOHVN00048A.

SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
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

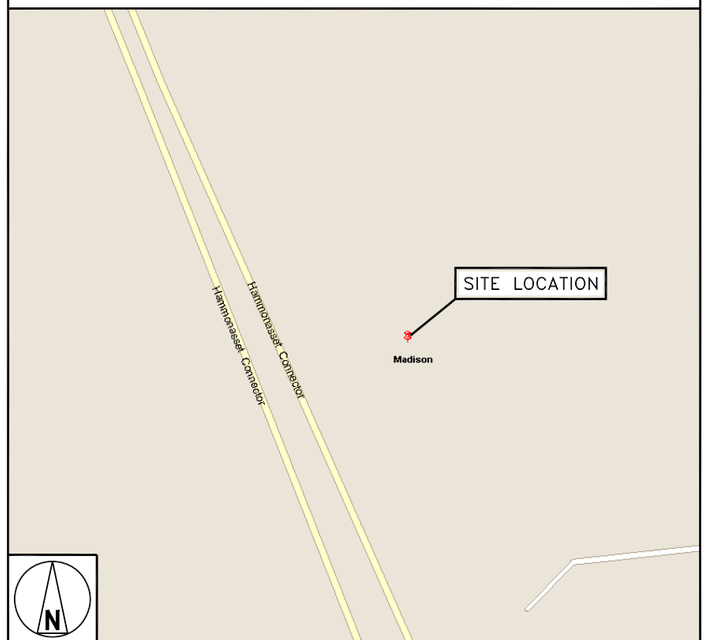
GENERAL NOTES

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 WILCOX
No. 23924
LICENSED
PROFESSIONAL ENGINEER
3/25/22
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
YN	RMC	RMC

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	11/11/21	ISSUED FOR REVIEW
0	3/25/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

BOHVN00048A

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00048A
17 COTTAGE ROAD
MADISON, CT 06443

SHEET TITLE

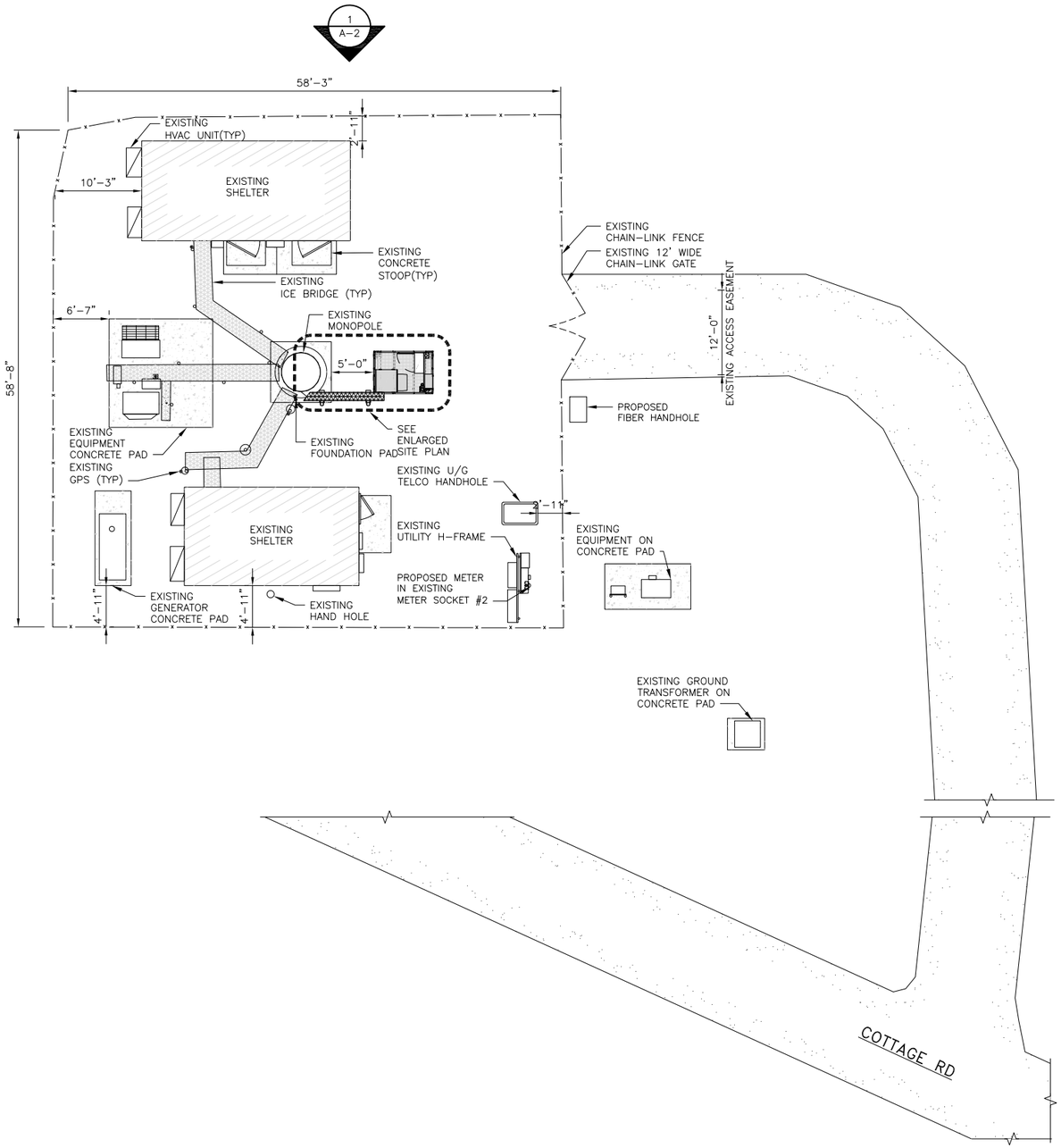
TITLE SHEET

SHEET NUMBER

T-1

NOTES

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



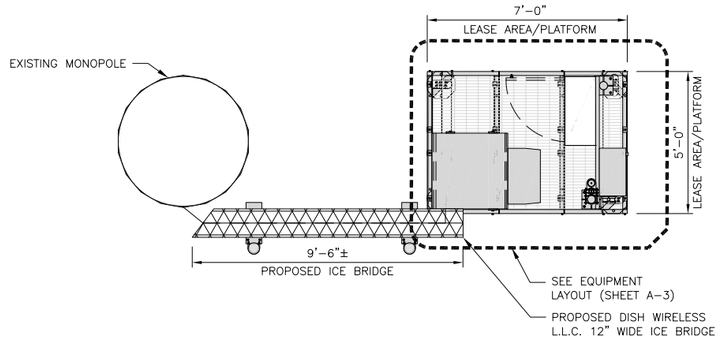
OVERALL SITE PLAN

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

NO SCALE

3

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 M. TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
3/25/22
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
YN	RMC	RMC

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	11/11/21	ISSUED FOR REVIEW
0	3/25/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

BOHVN00048A

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00048A
17 COTTAGE ROAD
MADISON, CT 06443

SHEET TITLE

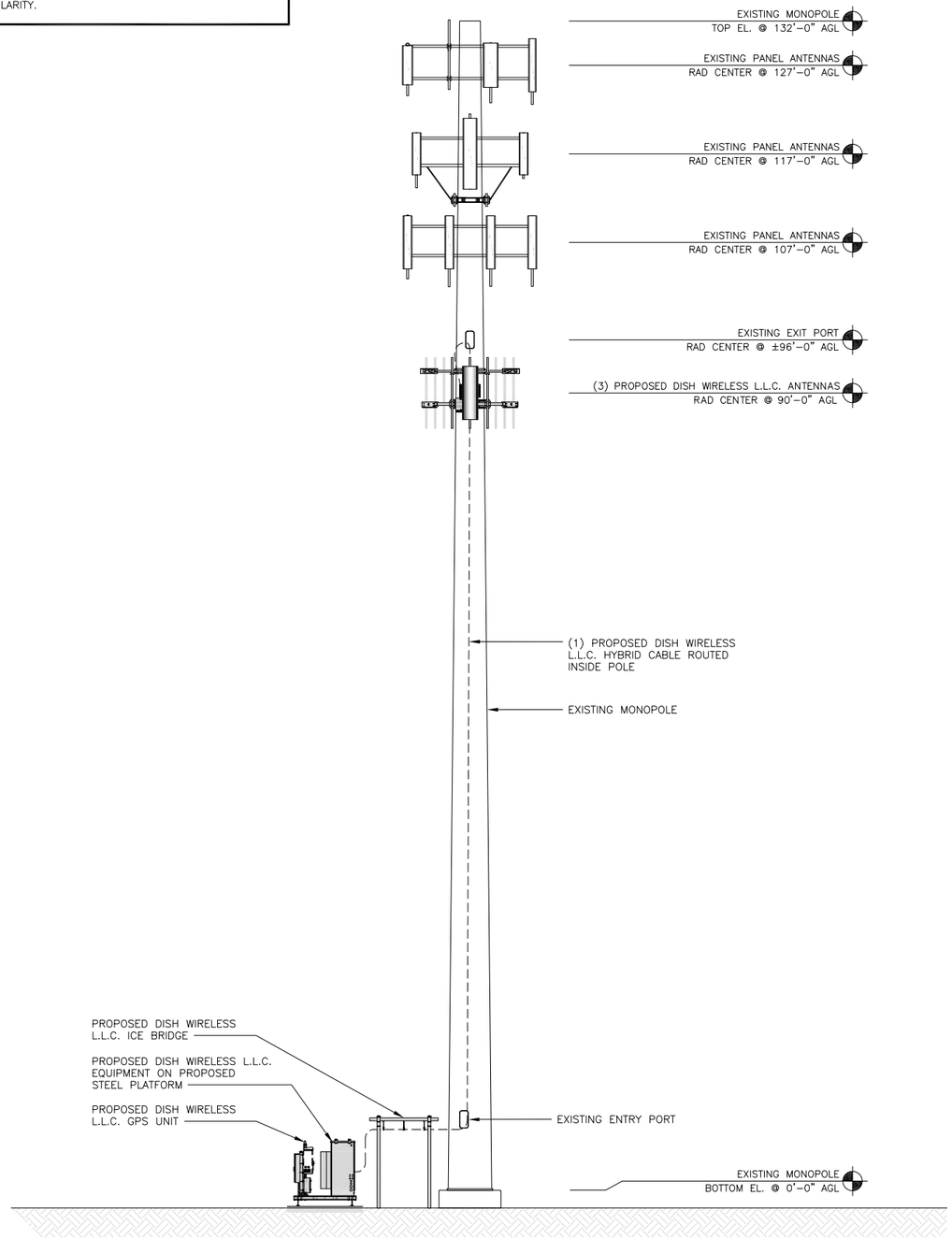
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

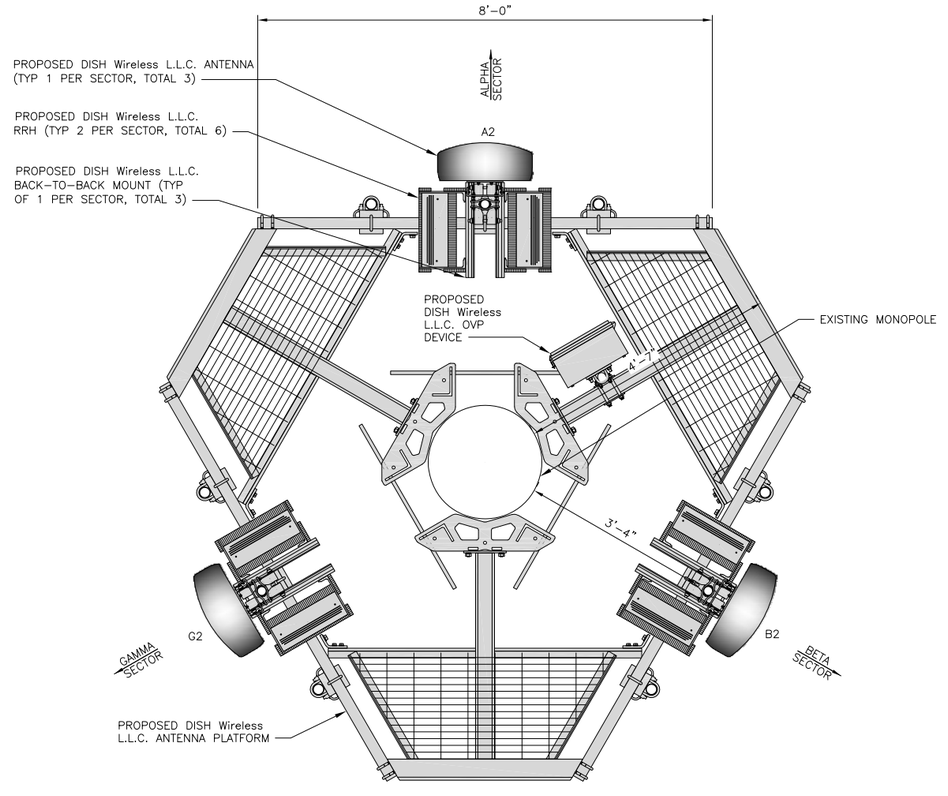
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED NORTH ELEVATION

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

1



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	A2	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	0°	90'-0"	(1) HIGH-CAPACITY HYBRID CABLE (130' LONG)
BETA	B2	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	120°	90'-0"	
GAMMA	G2	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	240°	90'-0"	

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A2	FUJITSU – TA08025-B605	5G
	A2	FUJITSU – TA08025-B604	5G
BETA	B2	FUJITSU – TA08025-B605	5G
	B2	FUJITSU – TA08025-B604	5G
GAMMA	G2	FUJITSU – TA08025-B605	5G
	G2	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.

ANTENNA SCHEDULE

NO SCALE

3

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STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
3/25/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
YN	RMC	RMC

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER

BOHVN00048A

DISH Wireless L.L.C.
PROJECT INFORMATION

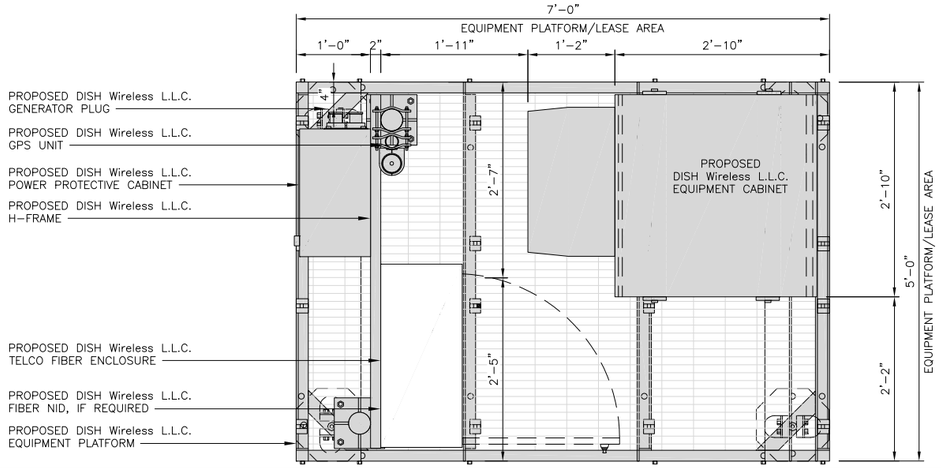
BOHVN00048A
17 COTTAGE ROAD
MADISON, CT 06443

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



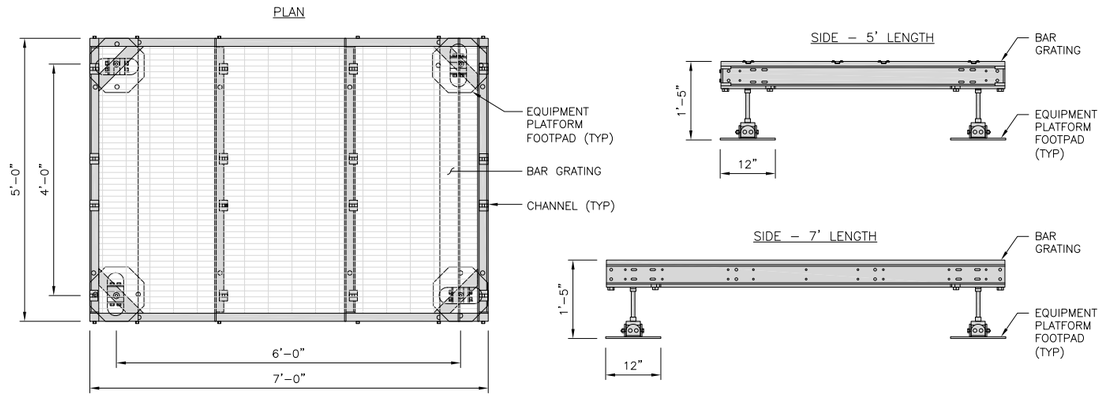
PLATFORM EQUIPMENT PLAN

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"

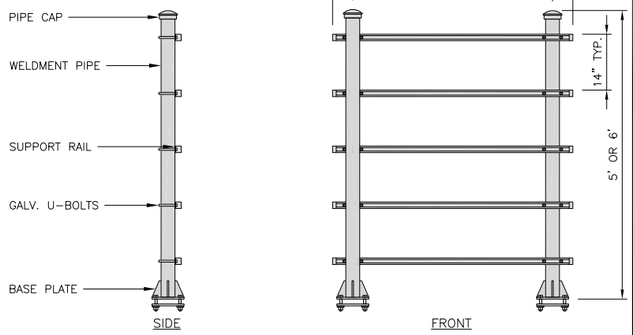


PLATFORM DETAIL

NO SCALE

2

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



H-FRAME DETAIL

NO SCALE

3

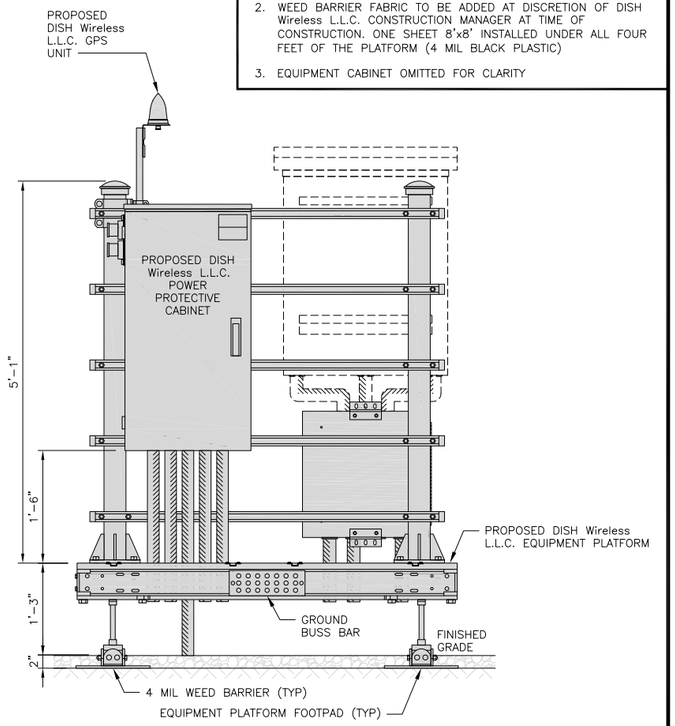
NOT USED

NO SCALE

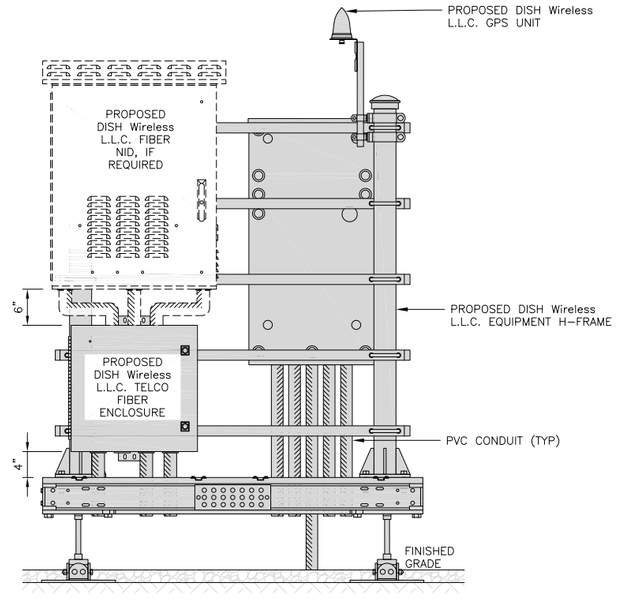
4

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

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

5

H-FRAME EQUIPMENT ELEVATION

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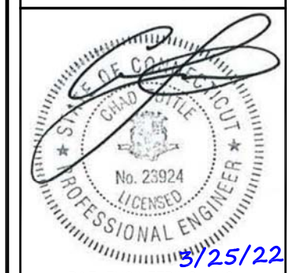

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00048A
17 COTTAGE ROAD
MADISON, CT 06443

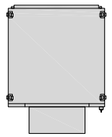
SHEET TITLE

EQUIPMENT PLATFORM AND H-FRAME DETAILS

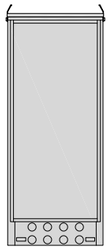
SHEET NUMBER

A-3

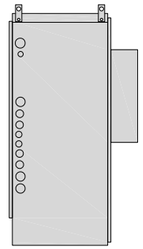
ENERSYS HVAC 2000005995	
DIMENSIONS (HxWxD)	73"x30"x32"
POWER SYSTEM	-48V ALPHA/600A
HVAC	600W
TOTAL WEIGHT (EMPTY)	371 lbs



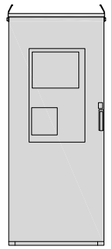
PLAN



BACK



SIDE

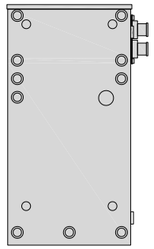


FRONT

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



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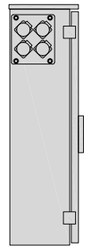
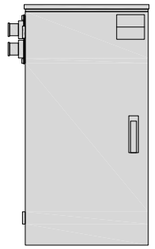
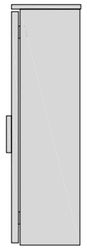


SIDE



FRONT



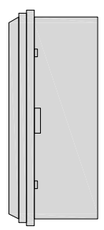
SIDE

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

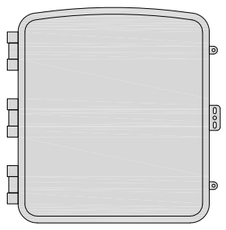
NOT USED | NO SCALE | 3

CIENA 3931 FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	17"x16.8"x7"
WEIGHT	28.6 lbs

TOP



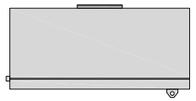
SIDE



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



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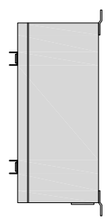
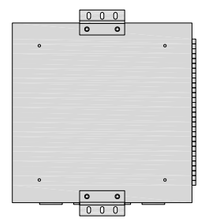


SIDE



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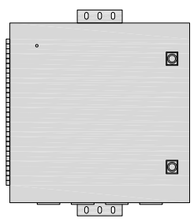


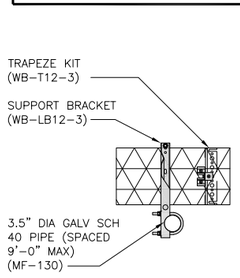
FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

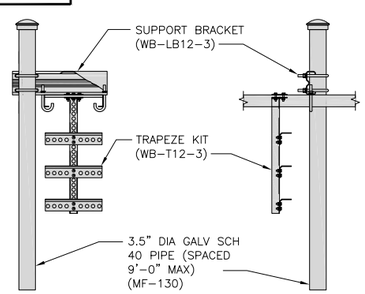
NOT USED | NO SCALE | 4

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"

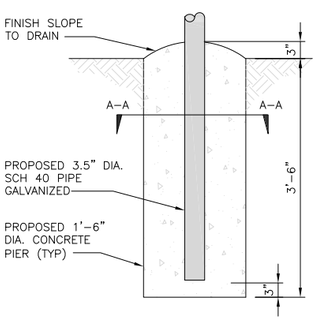


PLAN

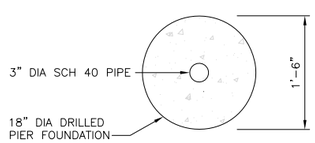


FRONT SIDE

ICE BRIDGE DETAIL | NO SCALE | 7

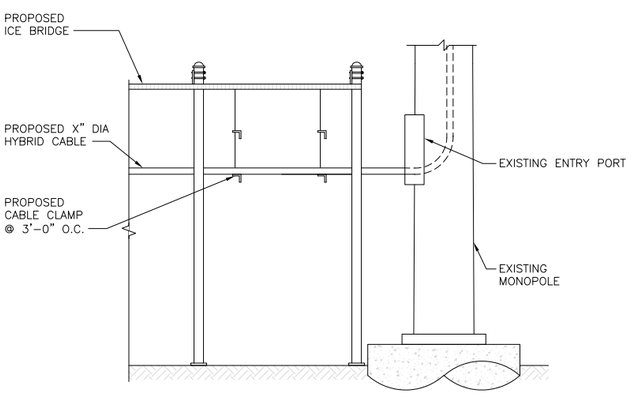


CONCRETE PIER



A-A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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A&E PROJECT NUMBER

BOHVN00048A

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00048A
17 COTTAGE ROAD
MADISON, CT 06443

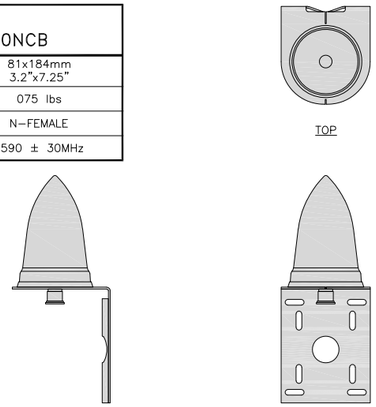
SHEET TITLE

EQUIPMENT DETAILS

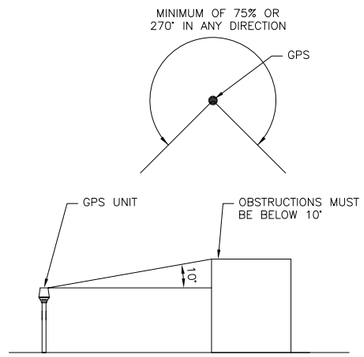
SHEET NUMBER

A-4

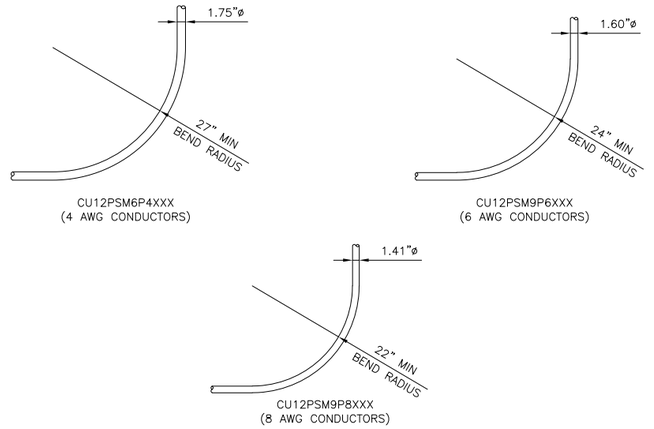
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



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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17 COTTAGE ROAD
MADISON, CT 06443

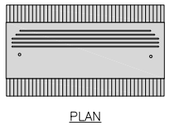
SHEET TITLE

EQUIPMENT DETAILS

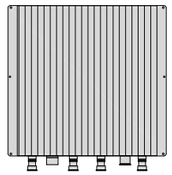
SHEET NUMBER

A-5

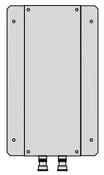
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



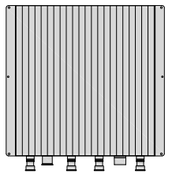
PLAN



BACK



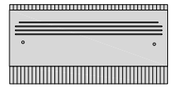
SIDE



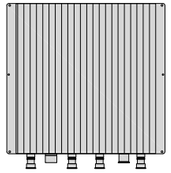
FRONT

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



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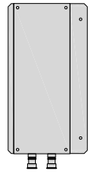
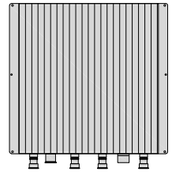


SIDE

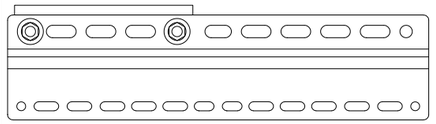


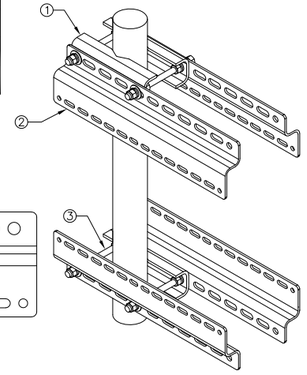
FRONT

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"



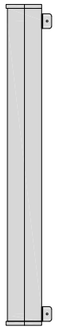


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs

PLAN



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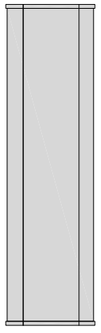


FRONT

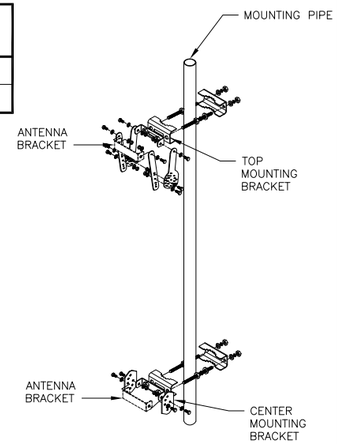
ANTENNA DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

JMA ANTENNA MOUNT BRACKET #91900318	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS

ANTENNA BRACKET NOT PART OF KIT

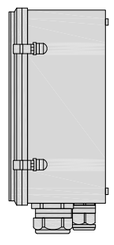


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

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



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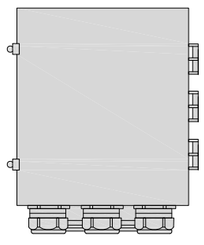

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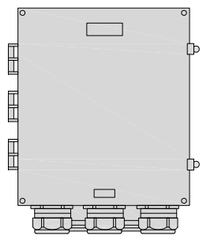
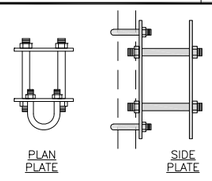


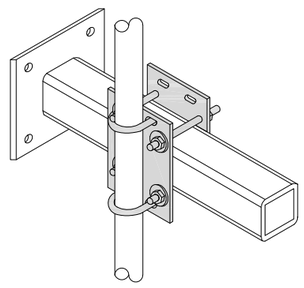
FRONT

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

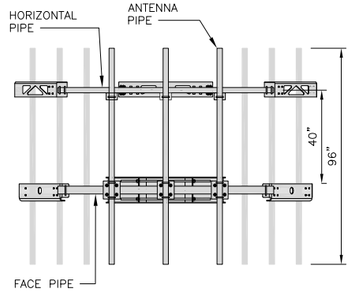


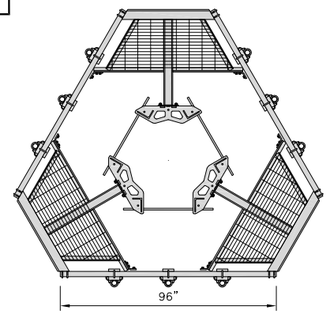


RRH/OVP MOUNT DETAIL | NO SCALE | 8

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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A&E PROJECT NUMBER

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00048A
17 COTTAGE ROAD
MADISON, CT 06443

SHEET TITLE

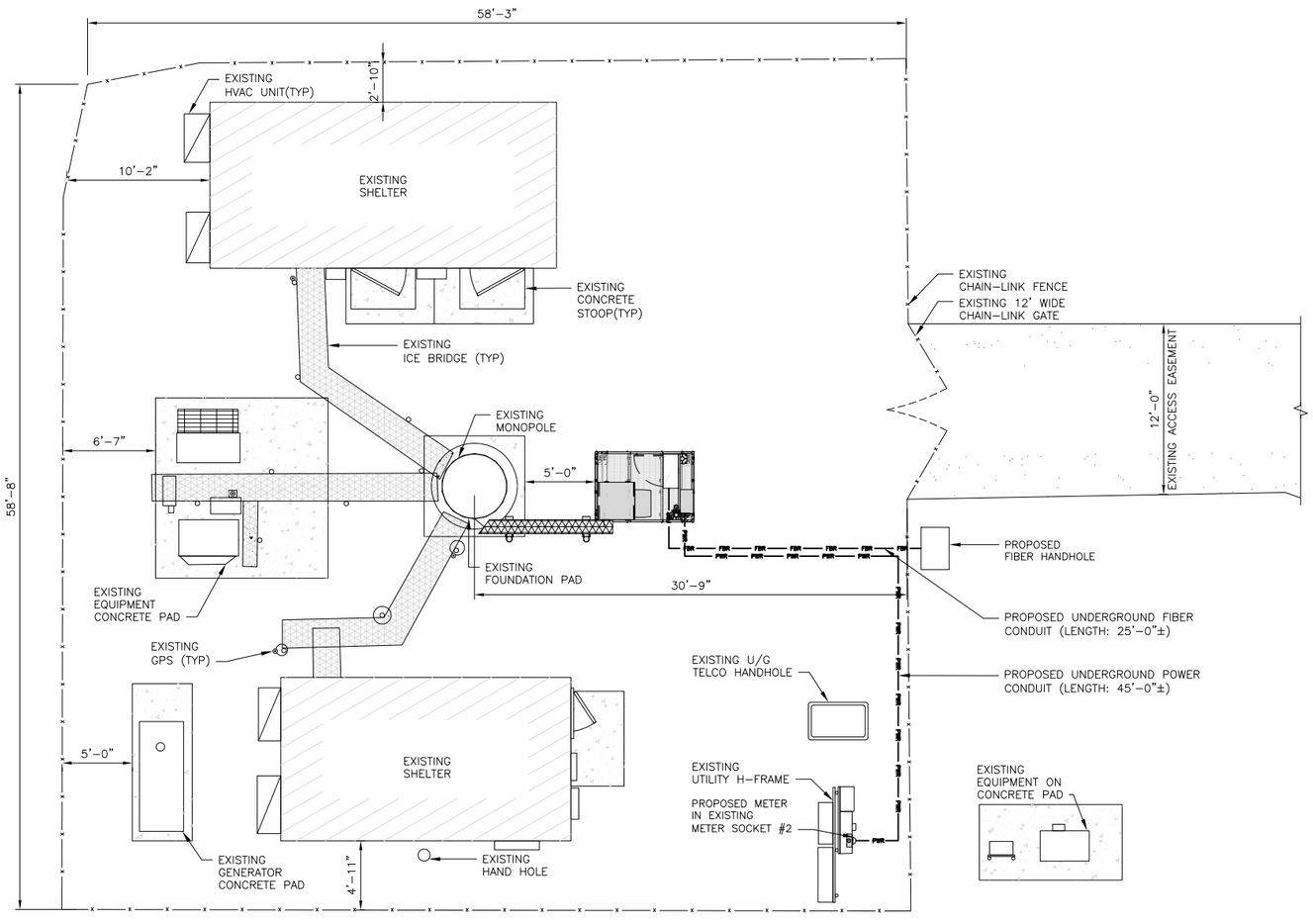
EQUIPMENT DETAILS

SHEET NUMBER

A-6

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE PROVIDES BROAD/BLANKET UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS NOT AN OPTION, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.



UTILITY ROUTE PLAN

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

1

ELECTRICAL NOTES

NO SCALE

2

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

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PROJECT INFORMATION

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MADISON, CT 06443

SHEET TITLE

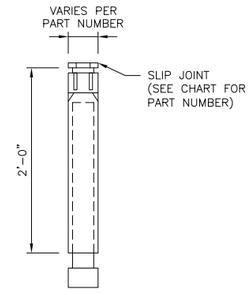
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

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"

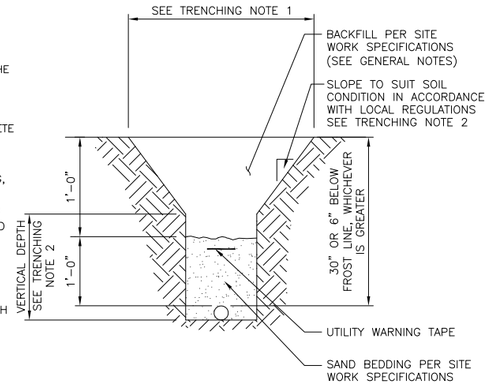


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

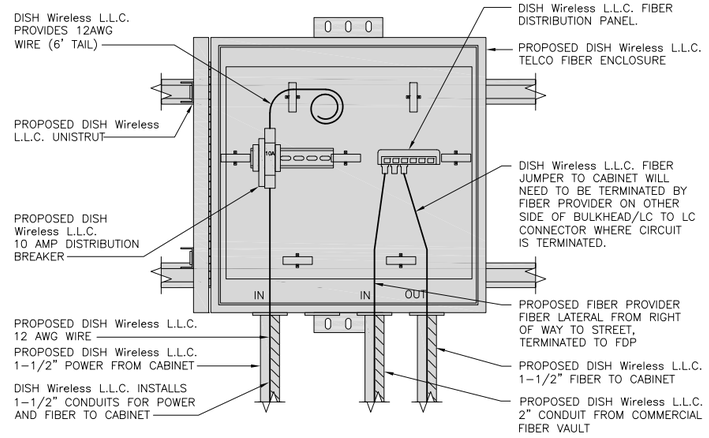
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

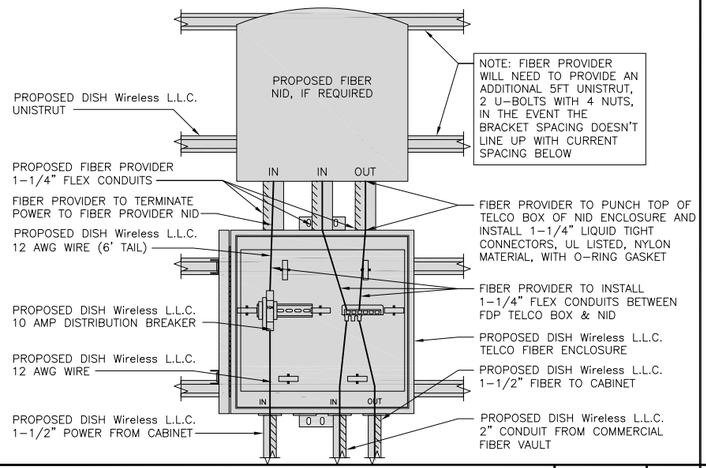
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT 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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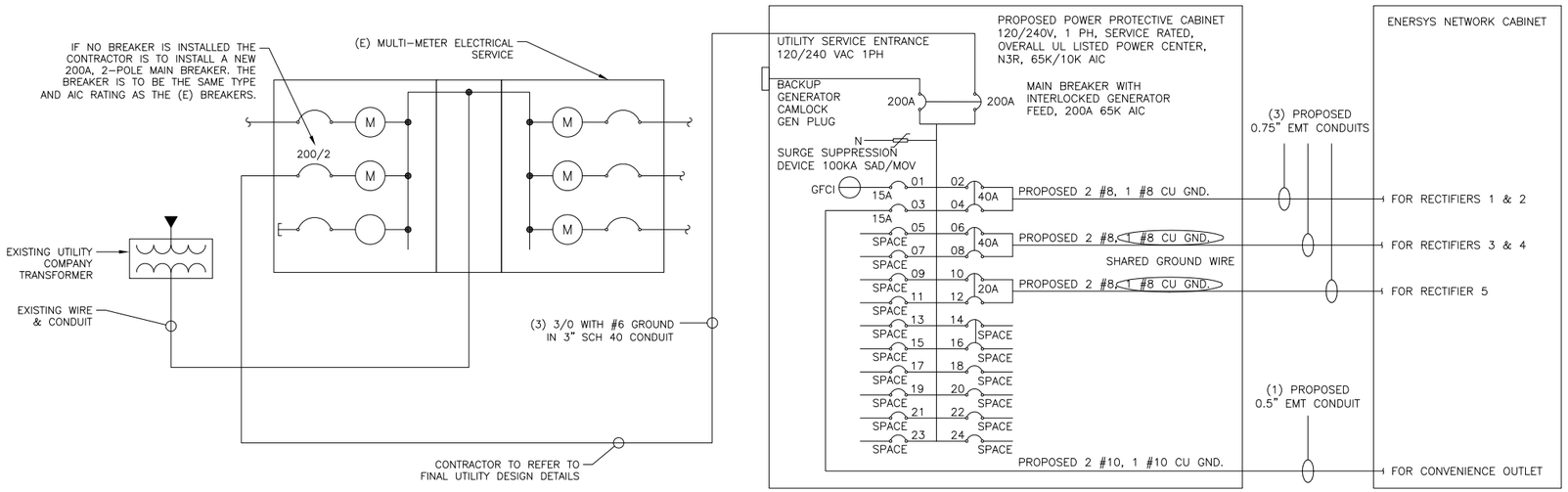
MADISON, CT 06443

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

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUIT AND FEEDERS COMPLY WITH THE NEC (LISTED ON T-1) ARTICLE 210.19(A)(1) FPN NO. 4.

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 RECTIFIERS 1 & 2
ENERSYS GFCI OUTLET		180	15A	3	B	4			3840	
-SPACE-				5	A	6	40A	3840		ENERSYS ALPHA CORDEX RECTIFIER 3 & 4
-SPACE-				7	B	8			3840	
-SPACE-				9	A	10	20A	1920		ENERSYS ALPHA CORDEX RECTIFIER 5
-SPACE-				11	B	12			1920	
-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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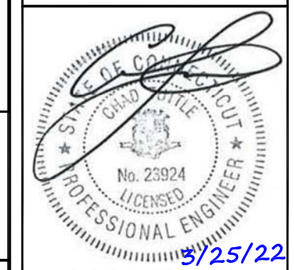

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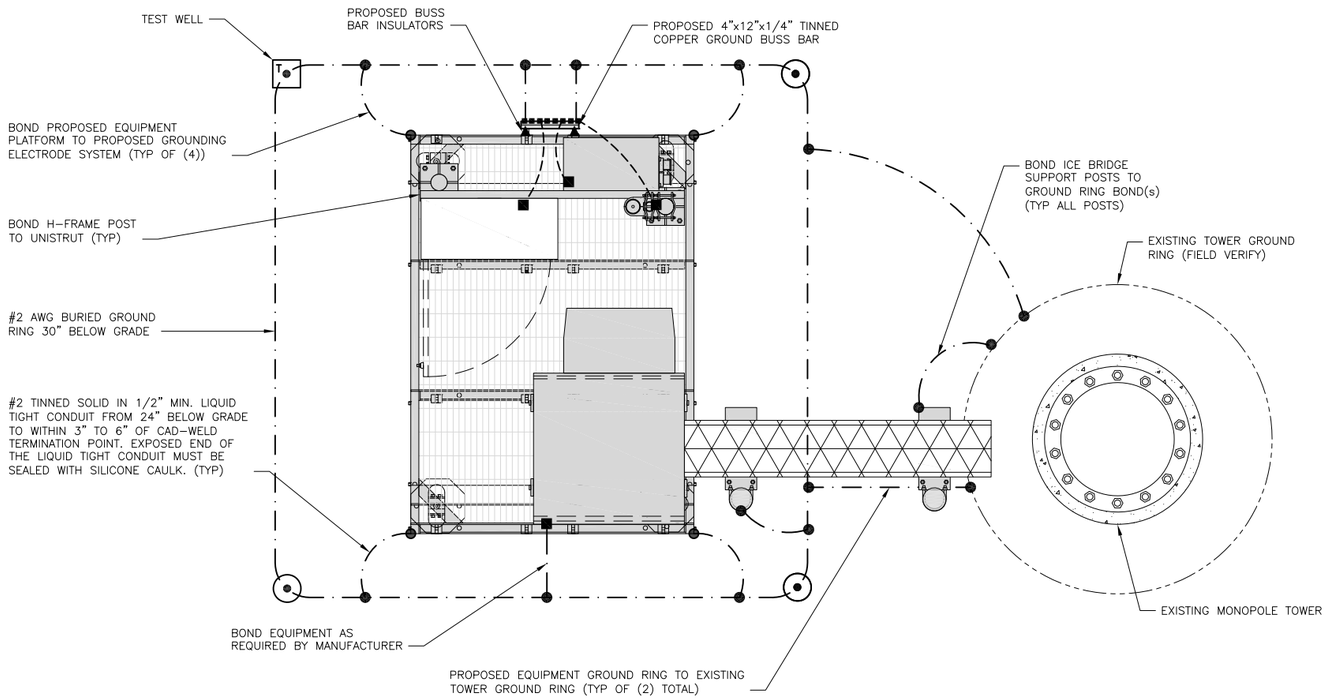
17 COTTAGE ROAD
MADISON, CT 06443

SHEET TITLE

ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER

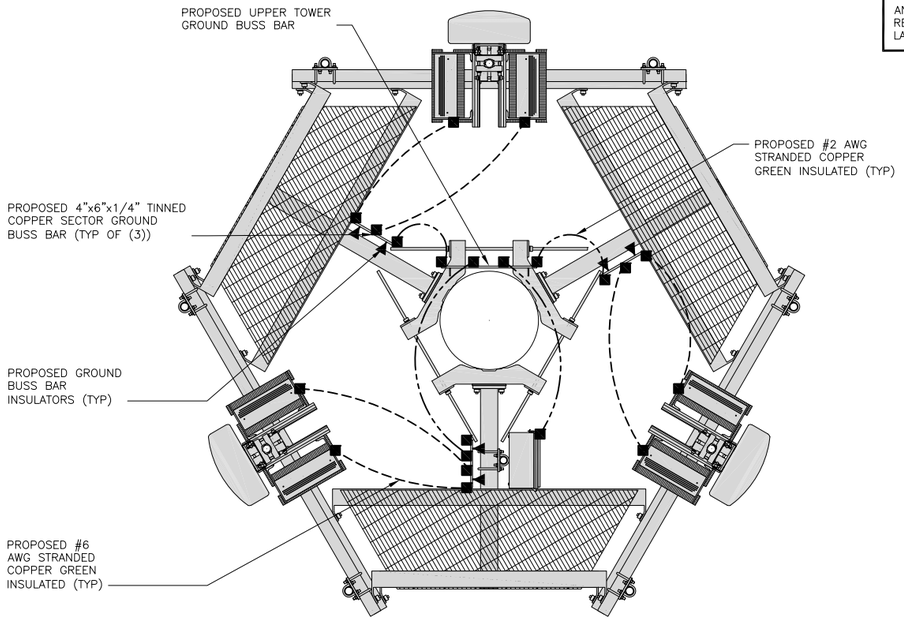
E-3



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
#2 AWG STRANDED & INSULATED
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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LITTLETON, CO 80120

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

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1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
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YN	RMC	RMC

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

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A&E PROJECT NUMBER

BOHVN00048A

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00048A
17 COTTAGE ROAD
MADISON, CT 06443

SHEET TITLE

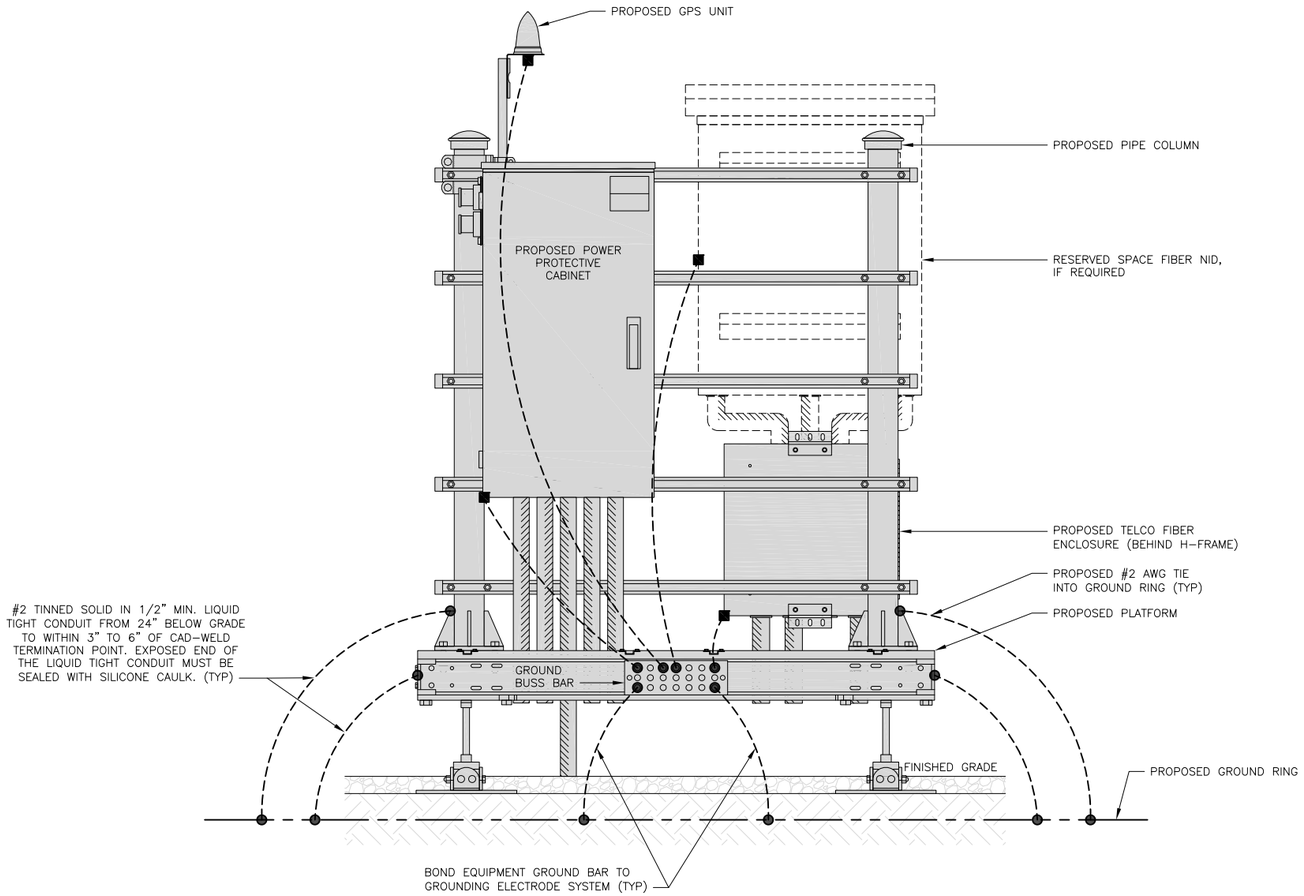
GROUNDING PLANS AND NOTES

SHEET NUMBER

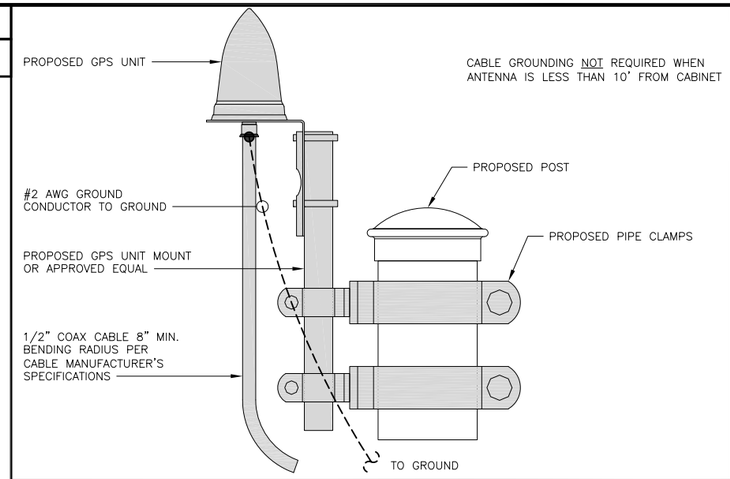
G-1

NOTES

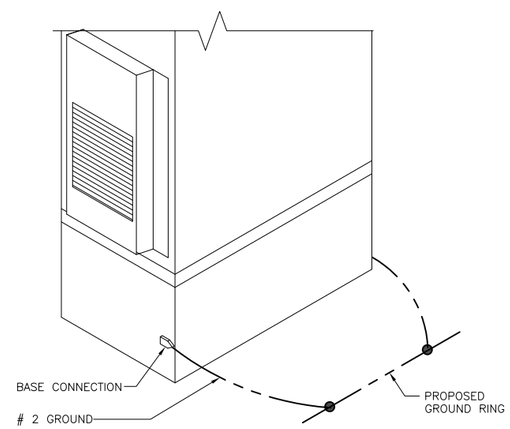
EQUIPMENT CABINET OMITTED FOR CLARITY



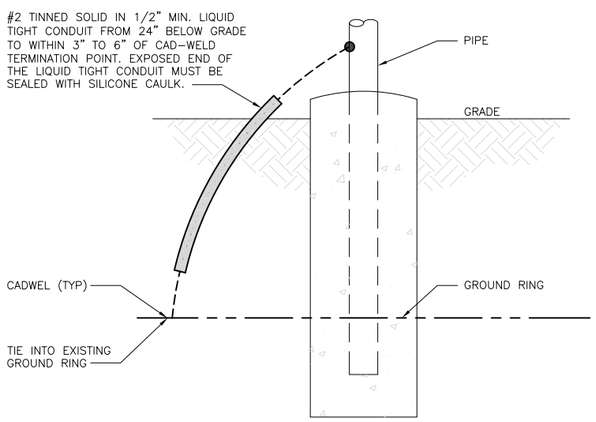
H-FRAME GROUNDING DETAIL | NO SCALE | 1



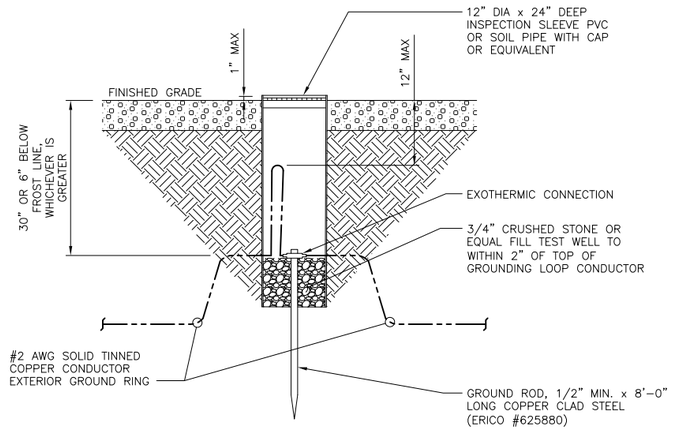
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



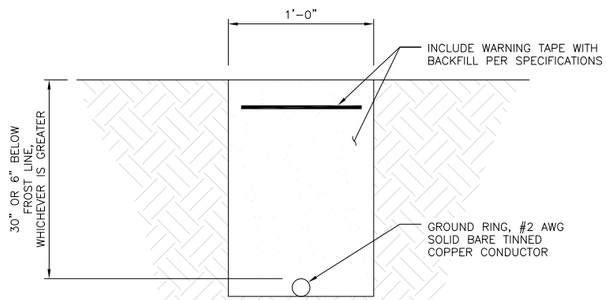
OUTDOOR CABINET GROUNDING | NO SCALE | 3



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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SBA
8051 CONGRESS AVENUE
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SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

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SHEET TITLE

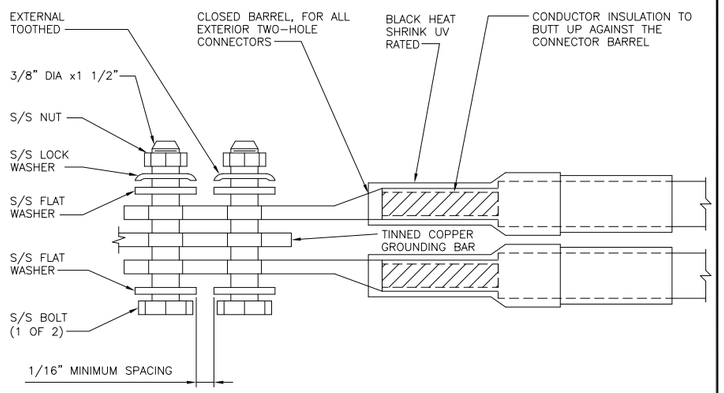
GROUNDING DETAILS

SHEET NUMBER

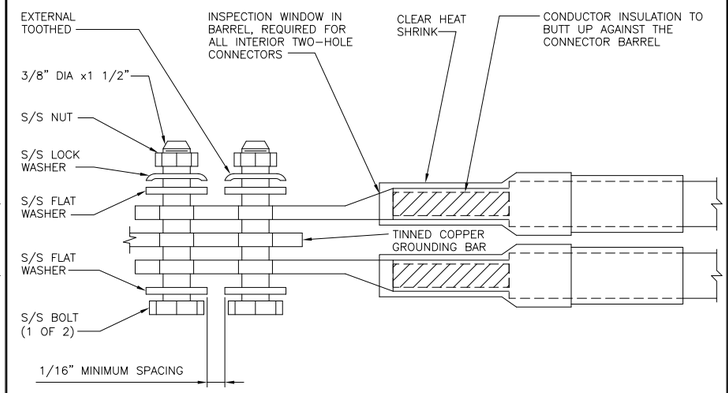
G-2

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).

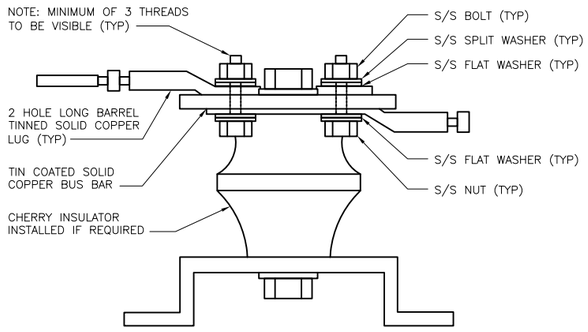
TYPICAL GROUNDING NOTES | NO SCALE | 1



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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MADISON, CT 06443

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

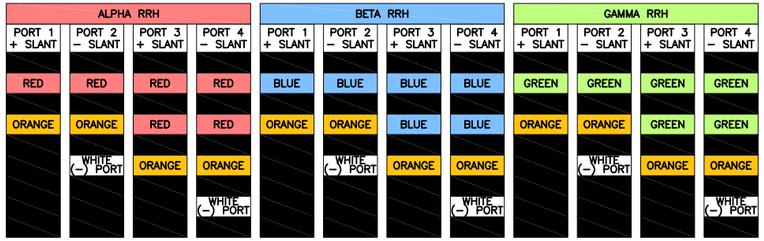
G-3

HYBRID/DISCREET CABLES

3/4" TAPE WIDTHS WITH 3/4" SPACING

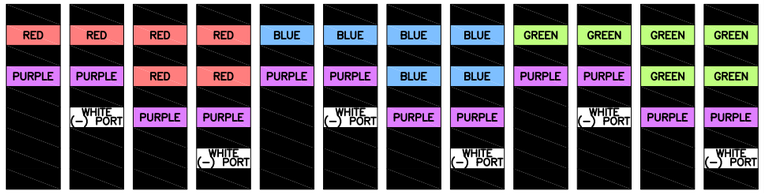
LOW-BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

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)



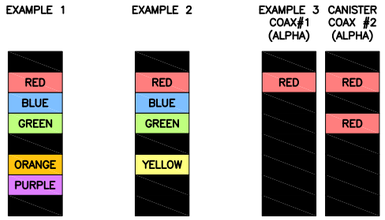
HYBRID/DISCREET CABLES

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.

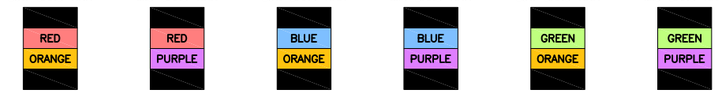
EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.



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

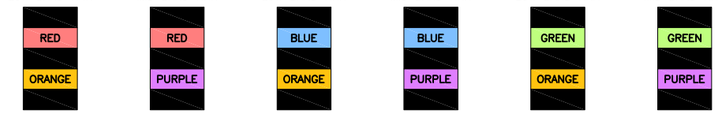
FIBER JUMPERS TO RRHs

LOW-BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.



POWER CABLES TO RRHs

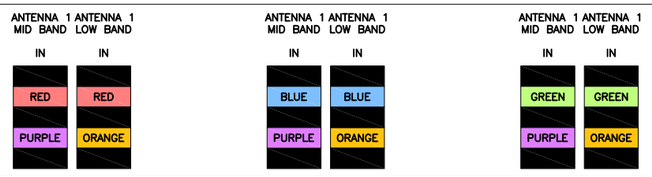
LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

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

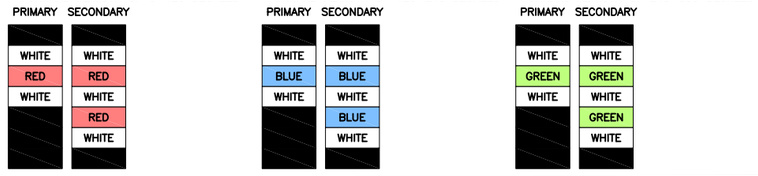
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



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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17 COTTAGE ROAD
MADISON, CT 06443

SHEET TITLE

RF
CABLE COLOR CODES

SHEET NUMBER

RF-1

149473.00101_CT13515-A BOHVN00048A SBA Dish CDs.dwg – Sheet:RF-1 (Color) – User: rconsor – Mar 25, 2022 – 8:44am

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

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

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
3/25/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
YN	RMC	RMC

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	11/11/21	ISSUED FOR REVIEW
0	3/25/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

BOHVN00048A

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00048A
17 COTTAGE ROAD
MADISON, CT 06443

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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LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00048A
17 COTTAGE ROAD
MADISON, CT 06443

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
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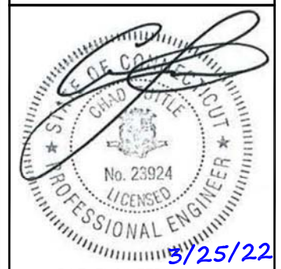

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SHEET TITLE

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.

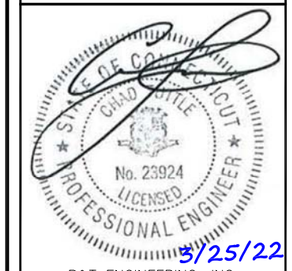
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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



3/25/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
YN	RMC	RMC

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	11/11/21	ISSUED FOR REVIEW
0	3/25/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

BOHVN00048A

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00048A
17 COTTAGE ROAD
MADISON, CT 06443

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 130 ft Rohn Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13615-A

Customer Site Name: Madison 7, CT

Carrier Name: Dish Wireless (App#: 169187, V1)

Carrier Site ID / Name: BOHVN00048A / 0

Site Location: 17 Cottage Road

Madison, Connecticut

New Haven County

Latitude: 41.275916

Longitude: -72.561444

Analysis Result:

Max Structural Usage: 83.3% [Pass]

Max Foundation Usage: 66.0% [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

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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 130 ft Rohn 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	Radian Communication Services, Drawing No. A070592 1-3 dated 10/1/2007.
Foundation Drawing	Radian Communication Services, Drawing No. A070593 1-3 dated 10/1/2007.
Geotechnical Report	JGI, Project No. J2075395 dated 9/10/2007.
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} =130.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 101.0 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 = 0.173, S_1 = 0.06

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	127.0	3	Powerwave P90-15-XLH-RR - Panel	Platform (Valmont LWRM) w/ Hand Rail and Mods	(12) 1 5/8" (1) 1/2" (2) 1/2" Fiber (2) 3" Flex Conduit* (6) 3/4" DC Power	AT&T
2		3	Kathrein 800-10964 - Panel			
3		3	Quintel QS46512-2 - Panel			
4		6	Powerwave TT19-08BP111-001 - TMA			
5		6	Kaelus DBC0061F1V51-2 - Diplexer			
6		3	Ericsson RRUS 8843 B2 B66A - RRU			
7		3	Ericsson RRUS 32 - RRU			
8		3	Ericsson 4449 B5/B12 - RRU			
9		3	Raycap DC6-48-60-18-8F			
10	117.0	3	Ericsson Air 21 B2A/B4P - Panel	12.5' Low Profile Platform w/ Hand Rail and Mods	(9) 1 5/8" (4) 1 5/8" Fiber	T-Mobile
11		3	RFS APXVAARR24_43-U-NA20 - Panel			
12		3	Ericsson Air 21 B4A/B2P - Panel			
13		3	Ericsson KRY 112 144/1 - TMA			
14		3	Ericsson Radio 4449 B71+B12 - RRU			
15	107.0	9	Commscope SBNHH-1D65B - Panel	Low Profile Platform	(10) 1 5/8" (2) 1 5/8" Fiber	Verizon
16		3	Antel BXA-70063-6CF-2 - Panel			
17		3	Alcatel Lucent RRH2x60-700 - RRU			
18		3	Alcatel Lucent RRH2X60-PCS - RRU			
19		3	Alcatel Lucent RRH4x45AWS - RRU			
20		2	RFS DB-T1-6Z-8AB-0Z - ODU			

* (2) 3" flex conduit housing (2) 3/4" and (1) 1/2" cables

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
21	90.0	3	JMA Wireless MX08FRO665-21- Panel	(1) Commscope MC-PK8-DSH (Platform w/HRK)	(1) 1.411" Fiber	Dish Wireless
22		3	Fujitsu TA08025-B605-RRH			
23		3	Fujitsu TA08025-B604-RRH			
24		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:	**53.7%**	**74.7%**	**83.3%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	3399.5	35.8	75.2

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 0.5719 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.

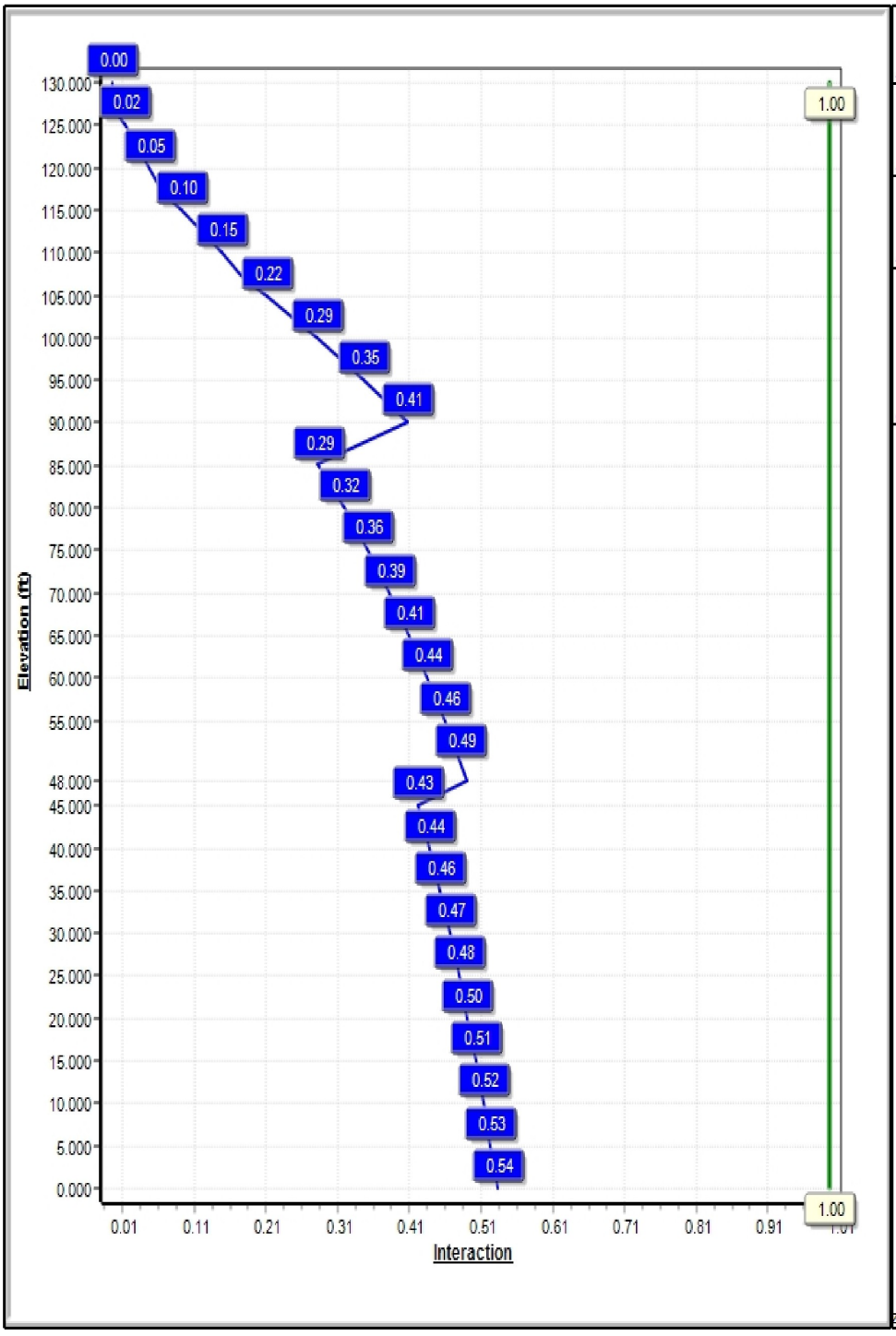
Usage Diagram - Max Ratio 53.73% at 0.0ft

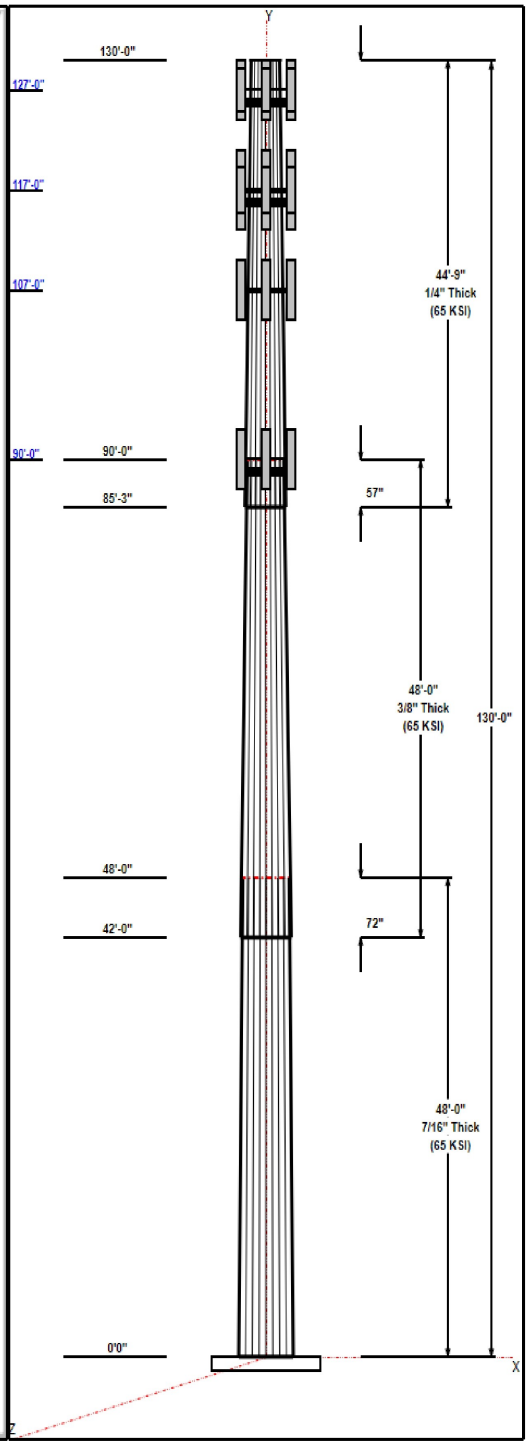
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Gh:**	1.1		
Base Elev:	0.000 (ft)			Page: 1	

Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	20
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 101 mph Wind





Structure: CT13615-A-SBA

Type: Tapered
Site Name: Madison 7, CT
Height: 130.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.24800

11/15/2021

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	48.00	46.10	58.00	0.438		0.24800	65
2	48.00	36.43	48.33	0.375	Slip	0.24800	65
3	44.75	27.01	38.11	0.250	Slip	0.24800	65

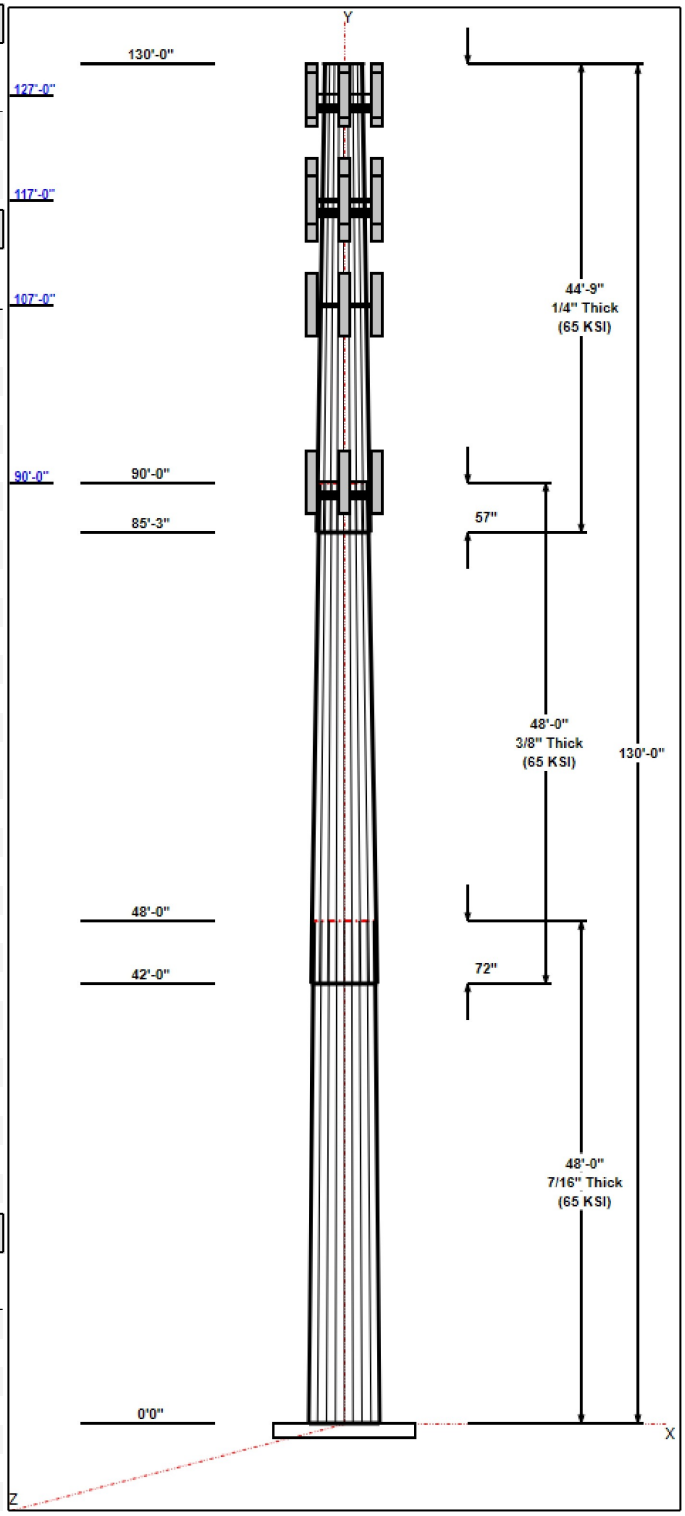
Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
127.00	127.00	1	Platform w/ Hand Rail	AT&T
127.00	127.00	3	Powerwave	AT&T
127.00	127.00	6	Powerwave	AT&T
127.00	127.00	3	Raycap DC6-48-60-18-8F	AT&T
127.00	127.00	3	800-10964	AT&T
127.00	127.00	6	DBC0061F1V51-2	AT&T
127.00	127.00	3	RRUS 8843 B2 B66A	AT&T
127.00	127.00	3	4449 B5/B12	AT&T
127.00	127.00	3	Quintel QS46512-2	AT&T
127.00	127.00	3	Ericsson RRUS 32	AT&T
127.00	127.00	1	HRK14	AT&T
117.00	117.00	3	Ericsson Air 21 B2A/B4P	T-Mobile
117.00	117.00	3	APXVAARR24_43-U-NA20	T-Mobile
117.00	117.00	3	Ericsson Air 21 B4A/B2P	T-Mobile
117.00	117.00	1	Sitepro PRK-1245	T-Mobile
117.00	117.00	1	Sitepro HRK12-U	T-Mobile
117.00	117.00	3	Ericsson KRY 112 144/1	T-Mobile
117.00	117.00	3	Ericsson Radio 4449	T-Mobile
117.00	117.00	1	12.5' Low Profile Platform	T-Mobile
107.00	107.00	1	Low Profile Platform	Verizon
107.00	107.00	3	BXA-70063-6CF-2	Verizon
107.00	107.00	9	SBNHH-1D65B	Verizon
107.00	107.00	3	RRH2x60-700	Verizon
107.00	107.00	3	RRH2X60-PCS	Verizon
107.00	107.00	3	RRH4x45AWS	Verizon
107.00	107.00	2	DB-T1-6Z-8AB-0Z	Verizon
90.00	90.00	3	MX08FRO665-21	Dish Wireless
90.00	90.00	3	TA08025-B604	Dish Wireless
90.00	90.00	3	TA08025-B605	Dish Wireless
90.00	90.00	1	RDIDC-9181-OF-48	Dish Wireless
90.00	90.00	1	MC-PK8-DSH	Dish Wireless

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	127.00	Inside	1 5/8"	AT&T
0.00	127.00	Inside	1/2" Coax	AT&T
0.00	127.00	Inside	1/2" Fiber	AT&T
0.00	127.00	Inside	3" Flex Conduit	AT&T
0.00	127.00	Inside	3/4" DC Power	AT&T
0.00	117.00	Inside	1 5/8" Coax	T-Mobile
0.00	117.00	Inside	1 5/8" Fiber	T-Mobile
0.00	107.00	Inside	1 5/8" Coax	Verizon
0.00	107.00	Inside	1 5/8" Fiber	Verizon
0.00	90.00	Outside	1.411" Fiber	Dish Wireless

Anchor Bolts



Qty	Specifications	Grade (ksi)	Arrangement
26	1.5" F1554 105	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.7500	67.0	50.0	Round

Reactions

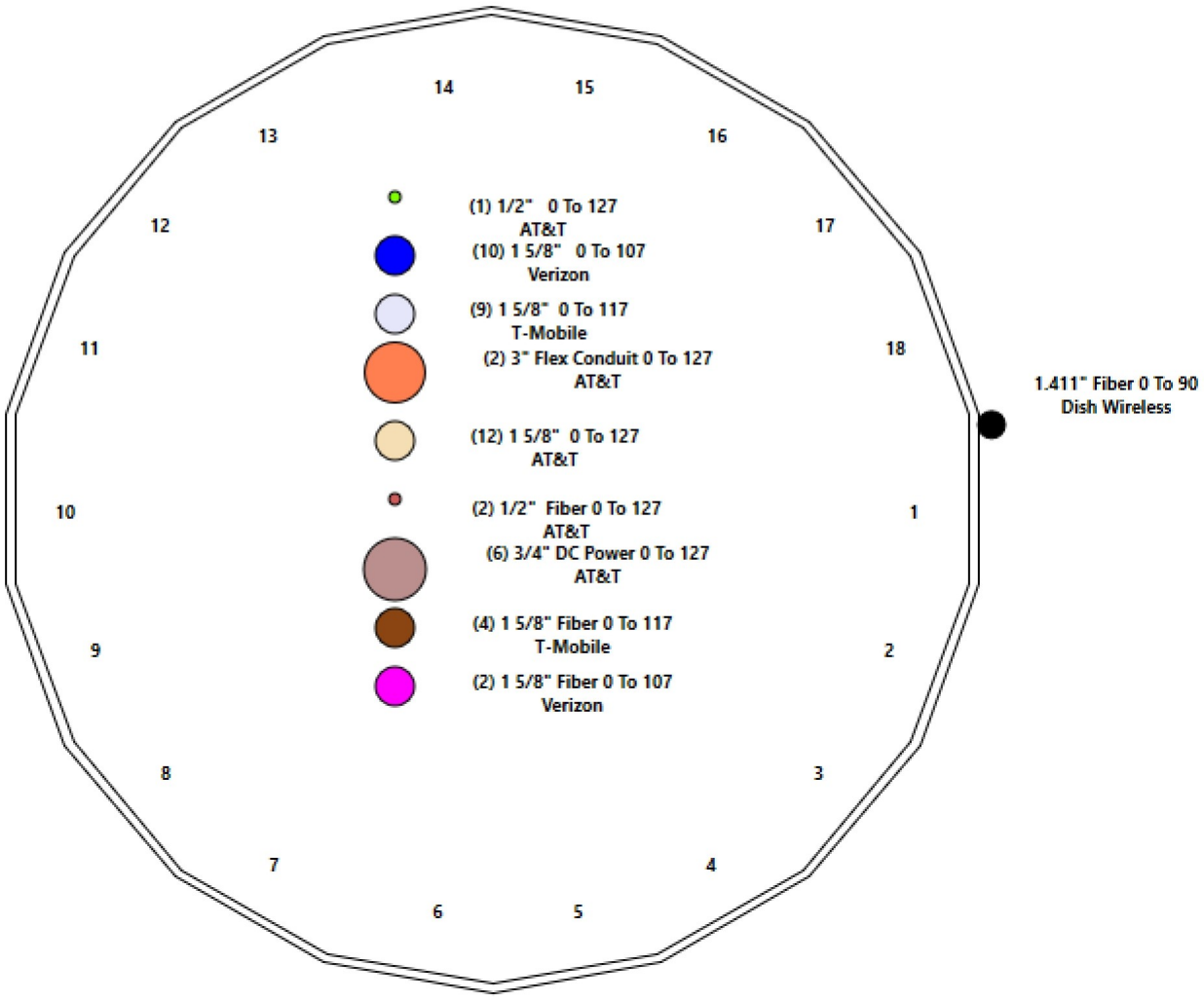
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 101 mph Wind	3399.5	35.8	50.1
0.9D + 1.6W 101 mph Wind	3378.2	35.8	37.6
1.2D + 1.0Di + 1.0Wi 50 mph Wind	855.1	9.2	75.4
1.2D + 1.0E	190.1	1.8	50.2
0.9D + 1.0E	188.8	1.8	37.6
1.0D + 1.0W 60 mph Wind	747.0	7.9	41.8

Structure: CT13615-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Madison 7, CT
Height: 130.00 (ft)

11/15/2021

Tower Engineering Solutions



Shaft Properties

Structure:	CT13615-A-SBA		**Code:**	EIA/TIA-222-G	11/15/2021
Site Name:	Madison 7, CT		**Exposure:**	C	
Height:	130.00 (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

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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	48.000	0.4375	65		0.00	11,705
2	18	48.000	0.3750	65	Slip	72.00	8,166
3	18	44.750	0.2500	65	Slip	57.00	3,904
					Total Shaft Weight:		**23,775**

	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	58.00	0.00	79.93	33461.19	21.97	132.57	46.10	48.00	63.40	16698.8	17.17	105.3	0.248000
2	48.33	42.00	57.08	16587.69	21.32	128.89	36.43	90.00	42.91	7048.10	15.72	97.15	0.248000
3	38.11	85.25	30.04	5439.48	25.47	152.43	27.01	130.00	21.23	1921.07	17.64	108.0	0.248000

Load Summary

Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (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	127.00	Platform w/ Hand Rail	1	1600.00	32.00	1.00	3665.18	59.462	1.00	0.00	0.00
2	127.00	Powerwave P90-15-XLH-RR	3	53.00	8.16	0.75	215.33	10.916	0.75	0.00	0.00
3	127.00	Powerwave TT19-08BP111-001 TMA	6	16.00	0.64	0.67	35.90	1.223	0.67	0.00	0.00
4	127.00	Raycap DC6-48-60-18-8F	3	32.80	1.47	0.67	93.60	2.158	0.67	0.00	0.00
5	127.00	800-10964	3	83.80	10.00	0.72	309.83	11.276	0.72	0.00	0.00
6	127.00	DBC0061F1V51-2	6	26.00	0.43	0.67	40.64	0.711	0.67	0.00	0.00
7	127.00	RRUS 8843 B2 B66A	3	72.00	1.64	0.67	118.07	2.129	0.67	0.00	0.00
8	127.00	4449 B5/B12	3	73.00	1.97	0.67	126.98	2.508	0.67	0.00	0.00
9	127.00	Quintel QS46512-2	3	75.00	5.55	0.96	232.82	6.552	0.96	0.00	0.00
10	127.00	Ericsson RRUS 32	3	53.00	2.74	0.67	139.21	3.456	0.67	0.00	0.00
11	127.00	HRK14	1	302.36	8.13	1.00	655.26	15.944	1.00	0.00	0.00
12	117.00	Ericsson Air 21 B2A/B4P	3	91.50	6.09	0.86	255.46	7.159	0.86	0.00	0.00
13	117.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	546.65	22.092	0.70	0.00	0.00
14	117.00	Ericsson Air 21 B4A/B2P	3	91.00	6.09	0.86	254.96	7.159	0.86	0.00	0.00
15	117.00	Sitepro PRK-1245	1	228.00	9.50	1.00	383.26	19.204	1.00	0.00	0.00
16	117.00	Sitepro HRK12-U	1	418.00	9.85	1.00	816.49	21.923	1.00	0.00	0.00
17	117.00	Ericsson KRY 112 144/1	3	11.00	0.41	0.67	21.52	0.874	0.67	0.00	0.00
18	117.00	Ericsson Radio 4449 B71+B12	3	74.00	1.65	0.67	140.15	2.173	0.67	0.00	0.00
19	117.00	12.5' Low Profile Platform	1	1600.00	25.55	1.00	3302.39	31.576	1.00	0.00	0.00
20	107.00	Low Profile Platform	1	1200.00	25.00	1.00	2212.35	45.247	1.00	0.00	0.00
21	107.00	BXA-70063-6CF-2	3	17.00	7.57	0.73	160.37	10.242	0.73	0.00	0.00
22	107.00	SBNHH-1D65B	9	40.60	8.08	0.83	234.27	9.326	0.83	0.00	0.00
23	107.00	RRH2x60-700	3	60.00	3.50	0.67	144.39	4.263	0.67	0.00	0.00
24	107.00	RRH2X60-PCS	3	55.00	2.20	0.67	136.08	2.813	0.67	0.00	0.00
25	107.00	RRH4x45AWS	3	60.00	2.71	0.67	138.07	3.932	0.67	0.00	0.00
26	107.00	DB-T1-6Z-8AB-0Z	2	18.90	4.80	1.00	157.03	5.643	1.00	0.00	0.00
27	90.00	MX08FRO665-21	3	64.50	12.49	0.74	340.89	13.882	0.74	0.00	0.00
28	90.00	TA08025-B604	3	63.90	1.96	0.76	112.01	2.493	0.76	0.00	0.00
29	90.00	TA08025-B605	3	75.00	1.96	0.67	124.70	2.493	0.67	0.00	0.00
30	90.00	RDIDC-9181-OF-48	1	21.90	2.01	0.67	72.50	2.550	0.67	0.00	0.00
31	90.00	MC-PK8-DSH	1	1727.00	37.59	1.00	3330.78	82.472	1.00	0.00	0.00
		Totals:	**88**	**11,452.96**			**28,153.21**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	127.00	(12) 1 5/8"	0.00	Inside
0.00	127.00	(1) 1/2" Coax	0.00	Inside
0.00	127.00	(2) 1/2" Fiber	0.00	Inside
0.00	127.00	(2) 3" Flex Conduit	0.00	Inside
0.00	127.00	(6) 3/4" DC Power	0.00	Inside
0.00	117.00	(9) 1 5/8" Coax	0.00	Inside
0.00	117.00	(4) 1 5/8" Fiber	0.00	Inside
0.00	107.00	(10) 1 5/8" Coax	0.00	Inside
0.00	107.00	(2) 1 5/8" Fiber	0.00	Inside
0.00	90.00	(1) 1.411" Fiber	1.41	Outside

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)

Shaft Section Properties

Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (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		0.4375	58.000	79.930	33461.2	21.97	132.57	75.6	1136.	0.0
5.00		0.4375	56.760	78.208	31345.0	21.47	129.74	76.2	1087.	1345.3
10.00		0.4375	55.520	76.486	29320.0	20.97	126.90	76.7	1040.	1316.0
15.00		0.4375	54.280	74.764	27384.1	20.47	124.07	77.3	993.7	1286.7
20.00		0.4375	53.040	73.043	25535.3	19.97	121.23	77.9	948.2	1257.4
25.00		0.4375	51.800	71.321	23771.7	19.47	118.40	78.5	903.9	1228.1
30.00		0.4375	50.560	69.599	22091.3	18.97	115.57	79.1	860.6	1198.8
35.00		0.4375	49.320	67.877	20491.9	18.47	112.73	79.7	818.4	1169.5
40.00		0.4375	48.080	66.155	18971.7	17.97	109.90	80.3	777.2	1140.2
42.00	Bot - Section 2	0.4375	47.584	65.466	18385.3	17.77	108.76	80.5	761.0	447.9
45.00		0.4375	46.840	64.433	17528.6	17.47	107.06	80.9	737.1	1241.2
48.00	Top - Section 1	0.3750	46.846	55.310	15091.1	20.62	124.92	0.0	0.0	1221.6
50.00		0.3750	46.350	54.720	14613.0	20.38	123.60	77.4	621.0	374.4
55.00		0.3750	45.110	53.244	13462.3	19.80	120.29	78.1	587.8	918.4
60.00		0.3750	43.870	51.768	12373.5	19.22	116.99	78.8	555.5	893.3
65.00		0.3750	42.630	50.292	11345.1	18.63	113.68	79.5	524.2	868.2
70.00		0.3750	41.390	48.816	10375.4	18.05	110.37	80.2	493.7	843.1
75.00		0.3750	40.150	47.340	9462.5	17.47	107.07	80.9	464.2	818.0
80.00		0.3750	38.910	45.865	8604.8	16.89	103.76	81.5	435.6	792.9
85.00		0.3750	37.670	44.389	7800.6	16.30	100.45	82.2	407.9	767.8
85.25	Bot - Section 3	0.3750	37.608	44.315	7761.8	16.27	100.29	82.3	406.5	37.7
90.00	Top - Section 2	0.2500	36.930	29.105	4947.3	24.64	147.72	0.0	0.0	1182.9
95.00		0.2500	35.690	28.121	4462.4	23.76	142.76	73.5	246.3	486.8
100.00		0.2500	34.450	27.137	4010.2	22.89	137.80	74.5	229.3	470.1
105.00		0.2500	33.210	26.153	3589.6	22.01	132.84	75.5	212.9	453.3
107.00		0.2500	32.714	25.759	3430.0	21.66	130.86	75.9	206.5	176.6
110.00		0.2500	31.970	25.169	3199.5	21.14	127.88	76.5	197.1	259.9
115.00		0.2500	30.730	24.185	2838.8	20.26	122.92	77.6	181.9	419.9
117.00		0.2500	30.234	23.791	2702.4	19.91	120.94	78.0	176.1	163.3
120.00		0.2500	29.490	23.201	2506.2	19.39	117.96	78.6	167.4	239.9
125.00		0.2500	28.250	22.217	2200.7	18.51	113.00	79.6	153.4	386.4
127.00		0.2500	27.754	21.824	2085.8	18.16	111.02	80.0	148.0	149.9
130.00		0.2500	27.010	21.233	1921.1	17.64	108.04	80.7	140.1	219.8
										23775.2

Wind Loading - Shaft

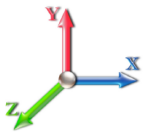
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 20

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	21.088	23.20	457.01	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	447.24	0.650	0.000	5.00	24.277	15.78	585.7	0.0	1614.3
10.00		1.00	0.85	21.088	23.20	437.47	0.650	0.000	5.00	23.753	15.44	573.0	0.0	1579.2
15.00		1.00	0.85	21.088	23.20	427.70	0.650	0.000	5.00	23.228	15.10	560.4	0.0	1544.0
20.00		1.00	0.90	22.375	24.61	430.49	0.650	0.000	5.00	22.703	14.76	581.1	0.0	1508.9
25.00		1.00	0.95	23.451	25.80	430.42	0.650	0.000	5.00	22.179	14.42	595.0	0.0	1473.7
30.00		1.00	0.98	24.369	26.81	428.26	0.650	0.000	5.00	21.654	14.08	603.7	0.0	1438.6
35.00		1.00	1.01	25.172	27.69	424.59	0.650	0.000	5.00	21.129	13.73	608.5	0.0	1403.4
40.00		1.00	1.04	25.890	28.48	419.77	0.650	0.000	5.00	20.605	13.39	610.3	0.0	1368.2
42.00	Bot - Section 2	1.00	1.05	26.157	28.77	417.58	0.650	0.000	2.00	8.095	5.26	242.2	0.0	537.5
45.00		1.00	1.07	26.540	29.19	414.05	0.650	0.000	3.00	12.175	7.91	369.7	0.0	1489.5
48.00	Top - Section 1	1.00	1.08	26.903	29.59	410.25	0.650	0.000	3.00	11.987	7.79	368.9	0.0	1466.0
50.00		1.00	1.09	27.135	29.85	414.29	0.650	0.000	2.00	7.886	5.13	244.8	0.0	449.3
55.00		1.00	1.12	27.685	30.45	407.27	0.650	0.000	5.00	19.348	12.58	612.8	0.0	1102.1
60.00		1.00	1.14	28.197	31.02	399.72	0.650	0.000	5.00	18.823	12.24	607.2	0.0	1072.0
65.00		1.00	1.16	28.676	31.54	391.71	0.650	0.000	5.00	18.299	11.89	600.3	0.0	1041.9
70.00		1.00	1.17	29.127	32.04	383.29	0.650	0.000	5.00	17.774	11.55	592.3	0.0	1011.7
75.00		1.00	1.19	29.553	32.51	374.52	0.650	0.000	5.00	17.250	11.21	583.2	0.0	981.6
80.00		1.00	1.21	29.958	32.95	365.43	0.650	0.000	5.00	16.725	10.87	573.2	0.0	951.5
85.00		1.00	1.22	30.342	33.38	356.05	0.650	0.000	5.00	16.200	10.53	562.3	0.0	921.3
85.25	Bot - Section 3	1.00	1.22	30.361	33.40	355.57	0.650	0.000	0.25	0.796	0.52	27.7	0.0	45.3
90.00	Top - Section 2	1.00	1.24	30.710	33.78	346.40	0.650	0.000	4.75	15.080	9.80	529.8	0.0	1419.5
95.00		1.00	1.25	31.061	34.17	341.30	0.650	0.000	5.00	15.363	9.99	545.9	0.0	584.2
100.00		1.00	1.27	31.399	34.54	331.23	0.650	0.000	5.00	14.838	9.64	533.0	0.0	564.1
105.00		1.00	1.28	31.723	34.89	320.95	0.650	0.000	5.00	14.313	9.30	519.4	0.0	544.0
107.00	Appurtenance(s)	1.00	1.28	31.849	35.03	316.79	0.650	0.000	2.00	5.578	3.63	203.3	0.0	212.0
110.00		1.00	1.29	32.035	35.24	310.48	0.650	0.000	3.00	8.210	5.34	300.9	0.0	311.9
115.00		1.00	1.30	32.336	35.57	299.84	0.650	0.000	5.00	13.264	8.62	490.7	0.0	503.8
117.00	Appurtenance(s)	1.00	1.31	32.454	35.70	295.54	0.650	0.000	2.00	5.159	3.35	191.5	0.0	195.9
120.00		1.00	1.32	32.627	35.89	289.03	0.650	0.000	3.00	7.581	4.93	283.0	0.0	287.8
125.00		1.00	1.33	32.909	36.20	278.07	0.650	0.000	5.00	12.215	7.94	459.9	0.0	463.6
127.00	Appurtenance(s)	1.00	1.33	33.019	36.32	273.65	0.650	0.000	2.00	4.739	3.08	179.0	0.0	179.8
130.00		1.00	1.34	33.182	36.50	266.97	0.650	0.000	3.00	6.951	4.52	263.9	0.0	263.7
								Totals:	**130.00**			**14,602.2**		**28,530.3**

Discrete Appurtenance Forces

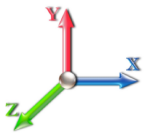
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 20

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	127.00	800-10964	3	33.019	36.321	0.54	0.75	16.20	301.68	0.000	0.000	941.43	0.00	0.00
2	127.00	Platform w/ Hand Rail	1	33.019	36.321	1.00	1.00	32.00	1920.00	0.000	0.000	1859.62	0.00	0.00
3	127.00	Powerwave	3	33.019	36.321	0.56	0.75	13.77	190.80	0.000	0.000	800.22	0.00	0.00
4	127.00	Powerwave	6	33.019	36.321	0.50	0.75	1.93	115.20	0.000	0.000	112.14	0.00	0.00
5	127.00	Raycap DC6-48-60-18-8F	3	33.019	36.321	0.50	0.75	2.22	118.08	0.000	0.000	128.78	0.00	0.00
6	127.00	HRK14	1	33.019	36.321	1.00	1.00	8.13	362.83	0.000	0.000	472.46	0.00	0.00
7	127.00	DBC0061F1V51-2	6	33.019	36.321	0.50	0.75	1.30	187.20	0.000	0.000	75.34	0.00	0.00
8	127.00	RRUS 8843 B2 B66A	3	33.019	36.321	0.50	0.75	2.47	259.20	0.000	0.000	143.67	0.00	0.00
9	127.00	4449 B5/B12	3	33.019	36.321	0.50	0.75	2.97	262.80	0.000	0.000	172.58	0.00	0.00
10	127.00	Quintel QS46512-2	3	33.019	36.321	0.72	0.75	11.99	270.00	0.000	0.000	696.66	0.00	0.00
11	127.00	Ericsson RRUS 32	3	33.019	36.321	0.50	0.75	4.13	190.80	0.000	0.000	240.04	0.00	0.00
12	117.00	12.5' Low Profile Platform	1	32.454	35.699	1.00	1.00	25.55	1920.00	0.000	0.000	1459.38	0.00	0.00
13	117.00	Ericsson Radio 4449	3	32.454	35.699	0.50	0.75	2.49	266.40	0.000	0.000	142.08	0.00	0.00
14	117.00	Ericsson KRY 112 144/1	3	32.454	35.699	0.50	0.75	0.62	39.60	0.000	0.000	35.30	0.00	0.00
15	117.00	Sitepro HRK12-U	1	32.454	35.699	1.00	1.00	9.85	501.60	0.000	0.000	562.62	0.00	0.00
16	117.00	Sitepro PRK-1245	1	32.454	35.699	1.00	1.00	9.50	273.60	0.000	0.000	542.63	0.00	0.00
17	117.00	APXVAARR24_43-U-NA2	3	32.454	35.699	0.52	0.75	31.88	460.80	0.000	0.000	1820.82	0.00	0.00
18	117.00	Ericsson Air 21 B2A/B4P	3	32.454	35.699	0.65	0.75	11.78	329.40	0.000	0.000	673.09	0.00	0.00
19	117.00	Ericsson Air 21 B4A/B2P	3	32.454	35.699	0.65	0.75	11.78	327.60	0.000	0.000	673.09	0.00	0.00
20	107.00	RRH2x60-700	3	31.849	35.034	0.54	0.80	5.63	216.00	0.000	0.000	315.47	0.00	0.00
21	107.00	Low Profile Platform	1	31.849	35.034	1.00	1.00	25.00	1440.00	0.000	0.000	1401.35	0.00	0.00
22	107.00	BXA-70063-6CF-2	3	31.849	35.034	0.58	0.80	13.26	61.20	0.000	0.000	743.43	0.00	0.00
23	107.00	SBNHH-1D65B	9	31.849	35.034	0.66	0.80	48.29	438.48	0.000	0.000	2706.64	0.00	0.00
24	107.00	RRH2X60-PCS	3	31.849	35.034	0.54	0.80	3.54	198.00	0.000	0.000	198.30	0.00	0.00
25	107.00	RRH4x45AWS	3	31.849	35.034	0.54	0.80	4.36	216.00	0.000	0.000	244.27	0.00	0.00
26	107.00	DB-T1-6Z-8AB-0Z	2	31.849	35.034	0.80	0.80	7.68	45.36	0.000	0.000	430.50	0.00	0.00
27	90.00	MC-PK8-DSH	1	30.710	33.781	1.00	1.00	37.59	2072.40	0.000	0.000	2031.71	0.00	0.00
28	90.00	RDIDC-9181-OF-48	1	30.710	33.781	0.50	0.75	1.01	26.28	0.000	0.000	54.59	0.00	0.00
29	90.00	TA08025-B605	3	30.710	33.781	0.50	0.75	2.95	270.00	0.000	0.000	159.70	0.00	0.00
30	90.00	TA08025-B604	3	30.710	33.781	0.57	0.75	3.35	230.04	0.000	0.000	181.15	0.00	0.00
31	90.00	MX08FRO665-21	3	30.710	33.781	0.55	0.75	20.80	232.20	0.000	0.000	1124.00	0.00	0.00
							Totals:		**13,743.55**			**21,143.06**		

Total Applied Force Summary

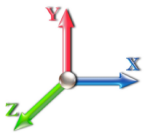
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 20

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		585.66	1944.62	0.00	0.00
10.00		573.01	1909.47	0.00	0.00
15.00		560.35	1874.32	0.00	0.00
20.00		581.13	1839.16	0.00	0.00
25.00		595.00	1804.01	0.00	0.00
30.00		603.66	1768.85	0.00	0.00
35.00		608.46	1733.70	0.00	0.00
40.00		610.27	1698.55	0.00	0.00
42.00		242.23	669.58	0.00	0.00
45.00		369.67	1687.64	0.00	0.00
48.00		368.91	1664.13	0.00	0.00
50.00		244.81	581.41	0.00	0.00
55.00		612.79	1432.43	0.00	0.00
60.00		607.20	1402.30	0.00	0.00
65.00		600.31	1372.17	0.00	0.00
70.00		592.26	1342.03	0.00	0.00
75.00		583.19	1311.90	0.00	0.00
80.00		573.19	1281.77	0.00	0.00
85.00		562.34	1251.64	0.00	0.00
85.25		27.66	61.79	0.00	0.00
90.00	(11) attachments	4080.95	4564.21	0.00	0.00
95.00		545.89	914.17	0.00	0.00
100.00		532.98	894.09	0.00	0.00
105.00		519.44	874.00	0.00	0.00
107.00	(24) attachments	6243.20	2959.01	0.00	0.00
110.00		300.89	464.58	0.00	0.00
115.00		490.67	758.22	0.00	0.00
117.00	(18) attachments	6100.54	4416.66	0.00	0.00
120.00		282.95	390.93	0.00	0.00
125.00		459.86	635.49	0.00	0.00
127.00	(35) attachments	5821.96	4427.16	0.00	0.00
130.00		263.86	263.72	0.00	0.00
	Totals:	**35,745.30**	**50,193.69**	**0.00**	**0.00**

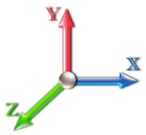
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (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	

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 20

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	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.024	0.000	21.088	0.00	0.30
10.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.025	0.000	21.088	0.00	0.30
15.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.025	0.000	21.088	0.00	0.30
20.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.026	0.000	22.375	0.00	0.30
25.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.026	0.000	23.451	0.00	0.30
30.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.027	0.000	24.369	0.00	0.30
35.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.028	0.000	25.172	0.00	0.30
40.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.029	0.000	25.890	0.00	0.30
42.00	1.411" Fiber	Yes	2.00	0.000	1.41	0.23	0.00	0.029	0.000	26.157	0.00	0.12
45.00	1.411" Fiber	Yes	3.00	0.000	1.41	0.35	0.00	0.029	0.000	26.540	0.00	0.18
48.00	1.411" Fiber	Yes	3.00	0.000	1.41	0.35	0.00	0.030	0.000	26.903	0.00	0.18
50.00	1.411" Fiber	Yes	2.00	0.000	1.41	0.23	0.00	0.030	0.000	27.135	0.00	0.12
55.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.030	0.000	27.685	0.00	0.30
60.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.031	0.000	28.197	0.00	0.30
65.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.032	0.000	28.676	0.00	0.30
70.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.033	0.000	29.127	0.00	0.30
75.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.034	0.000	29.553	0.00	0.30
80.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.035	0.000	29.958	0.00	0.30
85.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.036	0.000	30.342	0.00	0.30
85.25	1.411" Fiber	Yes	0.25	0.000	1.41	0.03	0.00	0.037	0.000	30.361	0.00	0.01
90.00	1.411" Fiber	Yes	4.75	0.000	1.41	0.56	0.00	0.038	0.000	30.710	0.00	0.28
										Totals:	**0.0**	**5.4**

Calculated Forces

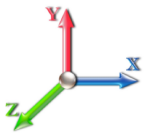
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 20

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	-50.15	-35.81	0.00	-3399.4	0.00	3399.49	5435.95	2717.97	12860.7	6439.91	0.00	0.000	0.000	0.537
5.00	-48.12	-35.34	0.00	-3220.4	0.00	3220.45	5360.22	2680.11	12406.3	6212.37	0.08	-0.141	0.000	0.528
10.00	-46.12	-34.87	0.00	-3043.7	0.00	3043.76	5282.67	2641.34	11955.5	5986.66	0.30	-0.283	0.000	0.517
15.00	-44.17	-34.41	0.00	-2869.3	0.00	2869.39	5203.30	2601.65	11508.7	5762.93	0.67	-0.426	0.000	0.507
20.00	-42.25	-33.92	0.00	-2697.3	0.00	2697.33	5122.11	2561.06	11066.1	5541.30	1.20	-0.571	0.000	0.495
25.00	-40.36	-33.41	0.00	-2527.7	0.00	2527.71	5039.10	2519.55	10628.0	5321.92	1.88	-0.716	0.000	0.483
30.00	-38.52	-32.88	0.00	-2360.6	0.00	2360.66	4954.26	2477.13	10194.7	5104.94	2.71	-0.863	0.000	0.470
35.00	-36.71	-32.34	0.00	-2196.2	0.00	2196.25	4867.60	2433.80	9766.46	4890.49	3.69	-1.009	0.000	0.457
40.00	-34.97	-31.76	0.00	-2034.5	0.00	2034.56	4779.12	2389.56	9343.53	4678.71	4.83	-1.156	0.000	0.442
42.00	-34.26	-31.55	0.00	-1971.0	0.00	1971.04	4743.22	2371.61	9175.92	4594.78	5.32	-1.216	0.000	0.436
45.00	-32.54	-31.19	0.00	-1876.4	0.00	1876.40	4688.82	2344.41	8926.23	4469.75	6.12	-1.306	0.000	0.427
48.00	-30.84	-30.82	0.00	-1782.8	0.00	1782.83	3840.55	1920.27	7332.01	3671.45	6.97	-1.395	0.000	0.494
50.00	-30.21	-30.62	0.00	-1721.1	0.00	1721.18	3813.07	1906.53	7201.22	3605.96	7.56	-1.454	0.000	0.485
55.00	-28.71	-30.05	0.00	-1568.0	0.00	1568.06	3743.08	1871.54	6876.85	3443.54	9.17	-1.615	0.000	0.463
60.00	-27.24	-29.48	0.00	-1417.8	0.00	1417.80	3671.28	1835.64	6556.42	3283.08	10.95	-1.772	0.000	0.440
65.00	-25.82	-28.90	0.00	-1270.4	0.00	1270.42	3597.66	1798.83	6240.20	3124.74	12.89	-1.927	0.000	0.414
70.00	-24.42	-28.33	0.00	-1125.9	0.00	1125.90	3522.21	1761.10	5928.48	2968.65	14.99	-2.077	0.000	0.386
75.00	-23.06	-27.75	0.00	-984.27	0.00	984.27	3444.94	1722.47	5621.53	2814.94	17.25	-2.222	0.000	0.357
80.00	-21.74	-27.18	0.00	-845.52	0.00	845.52	3365.85	1682.92	5319.64	2663.77	19.65	-2.359	0.000	0.324
85.00	-20.49	-26.59	0.00	-709.63	0.00	709.63	3284.94	1642.47	5023.09	2515.28	22.19	-2.488	0.000	0.289
85.25	-20.40	-26.58	0.00	-702.98	0.00	702.98	3280.84	1640.42	5008.41	2507.93	22.32	-2.494	0.000	0.287
90.00	-15.98	-22.33	0.00	-576.73	0.00	576.73	1897.08	948.54	2862.22	1433.24	24.86	-2.606	0.000	0.411
95.00	-15.04	-21.77	0.00	-465.09	0.00	465.09	1858.98	929.49	2709.28	1356.65	27.65	-2.711	0.000	0.351
100.00	-14.13	-21.23	0.00	-356.24	0.00	356.24	1819.06	909.53	2557.69	1280.75	30.56	-2.842	0.000	0.286
105.00	-13.26	-20.68	0.00	-250.11	0.00	250.11	1777.32	888.66	2407.73	1205.66	33.60	-2.949	0.000	0.215
107.00	-10.62	-14.30	0.00	-208.75	0.00	208.75	1760.11	880.05	2348.27	1175.88	34.84	-2.986	0.000	0.184
110.00	-10.16	-13.98	0.00	-165.86	0.00	165.86	1733.75	866.88	2259.69	1131.52	36.73	-3.032	0.000	0.153
115.00	-9.42	-13.46	0.00	-95.94	0.00	95.94	1688.37	844.18	2113.84	1058.49	39.94	-3.090	0.000	0.096
117.00	-5.34	-7.13	0.00	-69.03	0.00	69.03	1669.70	834.85	2056.18	1029.62	41.24	-3.107	0.000	0.070
120.00	-4.96	-6.83	0.00	-47.64	0.00	47.64	1641.16	820.58	1970.46	986.70	43.20	-3.125	0.000	0.051
125.00	-4.35	-6.33	0.00	-13.50	0.00	13.50	1592.13	796.06	1829.84	916.28	46.48	-3.143	0.000	0.018
127.00	-0.25	-0.28	0.00	-0.83	0.00	0.83	1572.01	786.00	1774.43	888.53	47.80	-3.145	0.000	0.001
130.00	0.00	-0.26	0.00	0.00	0.00	0.00	1541.28	770.64	1692.26	847.39	49.77	-3.145	0.000	0.000

Wind Loading - Shaft

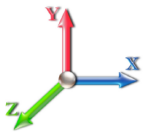
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 20

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	21.088	23.20	457.01	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	447.24	0.650	0.000	5.00	24.277	15.78	585.7	0.0	1210.7
10.00		1.00	0.85	21.088	23.20	437.47	0.650	0.000	5.00	23.753	15.44	573.0	0.0	1184.4
15.00		1.00	0.85	21.088	23.20	427.70	0.650	0.000	5.00	23.228	15.10	560.4	0.0	1158.0
20.00		1.00	0.90	22.375	24.61	430.49	0.650	0.000	5.00	22.703	14.76	581.1	0.0	1131.6
25.00		1.00	0.95	23.451	25.80	430.42	0.650	0.000	5.00	22.179	14.42	595.0	0.0	1105.3
30.00		1.00	0.98	24.369	26.81	428.26	0.650	0.000	5.00	21.654	14.08	603.7	0.0	1078.9
35.00		1.00	1.01	25.172	27.69	424.59	0.650	0.000	5.00	21.129	13.73	608.5	0.0	1052.5
40.00		1.00	1.04	25.890	28.48	419.77	0.650	0.000	5.00	20.605	13.39	610.3	0.0	1026.2
42.00	Bot - Section 2	1.00	1.05	26.157	28.77	417.58	0.650	0.000	2.00	8.095	5.26	242.2	0.0	403.1
45.00		1.00	1.07	26.540	29.19	414.05	0.650	0.000	3.00	12.175	7.91	369.7	0.0	1117.1
48.00	Top - Section 1	1.00	1.08	26.903	29.59	410.25	0.650	0.000	3.00	11.987	7.79	368.9	0.0	1099.5
50.00		1.00	1.09	27.135	29.85	414.29	0.650	0.000	2.00	7.886	5.13	244.8	0.0	337.0
55.00		1.00	1.12	27.685	30.45	407.27	0.650	0.000	5.00	19.348	12.58	612.8	0.0	826.6
60.00		1.00	1.14	28.197	31.02	399.72	0.650	0.000	5.00	18.823	12.24	607.2	0.0	804.0
65.00		1.00	1.16	28.676	31.54	391.71	0.650	0.000	5.00	18.299	11.89	600.3	0.0	781.4
70.00		1.00	1.17	29.127	32.04	383.29	0.650	0.000	5.00	17.774	11.55	592.3	0.0	758.8
75.00		1.00	1.19	29.553	32.51	374.52	0.650	0.000	5.00	17.250	11.21	583.2	0.0	736.2
80.00		1.00	1.21	29.958	32.95	365.43	0.650	0.000	5.00	16.725	10.87	573.2	0.0	713.6
85.00		1.00	1.22	30.342	33.38	356.05	0.650	0.000	5.00	16.200	10.53	562.3	0.0	691.0
85.25	Bot - Section 3	1.00	1.22	30.361	33.40	355.57	0.650	0.000	0.25	0.796	0.52	27.7	0.0	34.0
90.00	Top - Section 2	1.00	1.24	30.710	33.78	346.40	0.650	0.000	4.75	15.080	9.80	529.8	0.0	1064.6
95.00		1.00	1.25	31.061	34.17	341.30	0.650	0.000	5.00	15.363	9.99	545.9	0.0	438.1
100.00		1.00	1.27	31.399	34.54	331.23	0.650	0.000	5.00	14.838	9.64	533.0	0.0	423.1
105.00		1.00	1.28	31.723	34.89	320.95	0.650	0.000	5.00	14.313	9.30	519.4	0.0	408.0
107.00	Appurtenance(s)	1.00	1.28	31.849	35.03	316.79	0.650	0.000	2.00	5.578	3.63	203.3	0.0	159.0
110.00		1.00	1.29	32.035	35.24	310.48	0.650	0.000	3.00	8.210	5.34	300.9	0.0	234.0
115.00		1.00	1.30	32.336	35.57	299.84	0.650	0.000	5.00	13.264	8.62	490.7	0.0	377.9
117.00	Appurtenance(s)	1.00	1.31	32.454	35.70	295.54	0.650	0.000	2.00	5.159	3.35	191.5	0.0	146.9
120.00		1.00	1.32	32.627	35.89	289.03	0.650	0.000	3.00	7.581	4.93	283.0	0.0	215.9
125.00		1.00	1.33	32.909	36.20	278.07	0.650	0.000	5.00	12.215	7.94	459.9	0.0	347.7
127.00	Appurtenance(s)	1.00	1.33	33.019	36.32	273.65	0.650	0.000	2.00	4.739	3.08	179.0	0.0	134.9
130.00		1.00	1.34	33.182	36.50	266.97	0.650	0.000	3.00	6.951	4.52	263.9	0.0	197.8
								Totals:	**130.00**			**14,602.2**		**21,397.7**

Discrete Appurtenance Forces

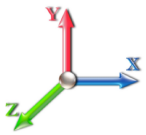
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 20

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	127.00	800-10964	3	33.019	36.321	0.54	0.75	16.20	226.26	0.000	0.000	941.43	0.00	0.00
2	127.00	Platform w/ Hand Rail	1	33.019	36.321	1.00	1.00	32.00	1440.00	0.000	0.000	1859.62	0.00	0.00
3	127.00	Powerwave	3	33.019	36.321	0.56	0.75	13.77	143.10	0.000	0.000	800.22	0.00	0.00
4	127.00	Powerwave	6	33.019	36.321	0.50	0.75	1.93	86.40	0.000	0.000	112.14	0.00	0.00
5	127.00	Raycap DC6-48-60-18-8F	3	33.019	36.321	0.50	0.75	2.22	88.56	0.000	0.000	128.78	0.00	0.00
6	127.00	HRK14	1	33.019	36.321	1.00	1.00	8.13	272.12	0.000	0.000	472.46	0.00	0.00
7	127.00	DBC0061F1V51-2	6	33.019	36.321	0.50	0.75	1.30	140.40	0.000	0.000	75.34	0.00	0.00
8	127.00	RRUS 8843 B2 B66A	3	33.019	36.321	0.50	0.75	2.47	194.40	0.000	0.000	143.67	0.00	0.00
9	127.00	4449 B5/B12	3	33.019	36.321	0.50	0.75	2.97	197.10	0.000	0.000	172.58	0.00	0.00
10	127.00	Quintel QS46512-2	3	33.019	36.321	0.72	0.75	11.99	202.50	0.000	0.000	696.66	0.00	0.00
11	127.00	Ericsson RRUS 32	3	33.019	36.321	0.50	0.75	4.13	143.10	0.000	0.000	240.04	0.00	0.00
12	117.00	12.5' Low Profile Platform	1	32.454	35.699	1.00	1.00	25.55	1440.00	0.000	0.000	1459.38	0.00	0.00
13	117.00	Ericsson Radio 4449	3	32.454	35.699	0.50	0.75	2.49	199.80	0.000	0.000	142.08	0.00	0.00
14	117.00	Ericsson KRY 112 144/1	3	32.454	35.699	0.50	0.75	0.62	29.70	0.000	0.000	35.30	0.00	0.00
15	117.00	Sitepro HRK12-U	1	32.454	35.699	1.00	1.00	9.85	376.20	0.000	0.000	562.62	0.00	0.00
16	117.00	Sitepro PRK-1245	1	32.454	35.699	1.00	1.00	9.50	205.20	0.000	0.000	542.63	0.00	0.00
17	117.00	APXVAARR24_43-U-NA2	3	32.454	35.699	0.52	0.75	31.88	345.60	0.000	0.000	1820.82	0.00	0.00
18	117.00	Ericsson Air 21 B2A/B4P	3	32.454	35.699	0.65	0.75	11.78	247.05	0.000	0.000	673.09	0.00	0.00
19	117.00	Ericsson Air 21 B4A/B2P	3	32.454	35.699	0.65	0.75	11.78	245.70	0.000	0.000	673.09	0.00	0.00
20	107.00	RRH2x60-700	3	31.849	35.034	0.54	0.80	5.63	162.00	0.000	0.000	315.47	0.00	0.00
21	107.00	Low Profile Platform	1	31.849	35.034	1.00	1.00	25.00	1080.00	0.000	0.000	1401.35	0.00	0.00
22	107.00	BXA-70063-6CF-2	3	31.849	35.034	0.58	0.80	13.26	45.90	0.000	0.000	743.43	0.00	0.00
23	107.00	SBNHH-1D65B	9	31.849	35.034	0.66	0.80	48.29	328.86	0.000	0.000	2706.64	0.00	0.00
24	107.00	RRH2X60-PCS	3	31.849	35.034	0.54	0.80	3.54	148.50	0.000	0.000	198.30	0.00	0.00
25	107.00	RRH4x45AWS	3	31.849	35.034	0.54	0.80	4.36	162.00	0.000	0.000	244.27	0.00	0.00
26	107.00	DB-T1-6Z-8AB-0Z	2	31.849	35.034	0.80	0.80	7.68	34.02	0.000	0.000	430.50	0.00	0.00
27	90.00	MC-PK8-DSH	1	30.710	33.781	1.00	1.00	37.59	1554.30	0.000	0.000	2031.71	0.00	0.00
28	90.00	RDIDC-9181-OF-48	1	30.710	33.781	0.50	0.75	1.01	19.71	0.000	0.000	54.59	0.00	0.00
29	90.00	TA08025-B605	3	30.710	33.781	0.50	0.75	2.95	202.50	0.000	0.000	159.70	0.00	0.00
30	90.00	TA08025-B604	3	30.710	33.781	0.57	0.75	3.35	172.53	0.000	0.000	181.15	0.00	0.00
31	90.00	MX08FRO665-21	3	30.710	33.781	0.55	0.75	20.80	174.15	0.000	0.000	1124.00	0.00	0.00
							Totals:		**10,307.66**			**21,143.06**		

Total Applied Force Summary

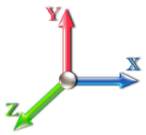
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 20

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		585.66	1458.47	0.00	0.00
10.00		573.01	1432.10	0.00	0.00
15.00		560.35	1405.74	0.00	0.00
20.00		581.13	1379.37	0.00	0.00
25.00		595.00	1353.01	0.00	0.00
30.00		603.66	1326.64	0.00	0.00
35.00		608.46	1300.27	0.00	0.00
40.00		610.27	1273.91	0.00	0.00
42.00		242.23	502.18	0.00	0.00
45.00		369.67	1265.73	0.00	0.00
48.00		368.91	1248.10	0.00	0.00
50.00		244.81	436.06	0.00	0.00
55.00		612.79	1074.32	0.00	0.00
60.00		607.20	1051.72	0.00	0.00
65.00		600.31	1029.12	0.00	0.00
70.00		592.26	1006.52	0.00	0.00
75.00		583.19	983.93	0.00	0.00
80.00		573.19	961.33	0.00	0.00
85.00		562.34	938.73	0.00	0.00
85.25		27.66	46.34	0.00	0.00
90.00	(11) attachments	4080.95	3423.15	0.00	0.00
95.00		545.89	685.63	0.00	0.00
100.00		532.98	670.56	0.00	0.00
105.00		519.44	655.50	0.00	0.00
107.00	(24) attachments	6243.20	2219.26	0.00	0.00
110.00		300.89	348.43	0.00	0.00
115.00		490.67	568.67	0.00	0.00
117.00	(18) attachments	6100.54	3312.50	0.00	0.00
120.00		282.95	293.20	0.00	0.00
125.00		459.86	476.61	0.00	0.00
127.00	(35) attachments	5821.96	3320.37	0.00	0.00
130.00		263.86	197.79	0.00	0.00
	Totals:	**35,745.30**	**37,645.27**	**0.00**	**0.00**

Linear Appurtenance Segment Forces (Factored)

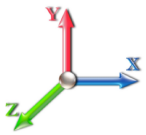
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 20

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	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.024	0.000	21.088	0.00	0.23
10.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.025	0.000	21.088	0.00	0.23
15.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.025	0.000	21.088	0.00	0.23
20.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.026	0.000	22.375	0.00	0.23
25.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.026	0.000	23.451	0.00	0.23
30.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.027	0.000	24.369	0.00	0.23
35.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.028	0.000	25.172	0.00	0.23
40.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.029	0.000	25.890	0.00	0.23
42.00	1.411" Fiber	Yes	2.00	0.000	1.41	0.23	0.00	0.029	0.000	26.157	0.00	0.09
45.00	1.411" Fiber	Yes	3.00	0.000	1.41	0.35	0.00	0.029	0.000	26.540	0.00	0.14
48.00	1.411" Fiber	Yes	3.00	0.000	1.41	0.35	0.00	0.030	0.000	26.903	0.00	0.14
50.00	1.411" Fiber	Yes	2.00	0.000	1.41	0.23	0.00	0.030	0.000	27.135	0.00	0.09
55.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.030	0.000	27.685	0.00	0.23
60.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.031	0.000	28.197	0.00	0.23
65.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.032	0.000	28.676	0.00	0.23
70.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.033	0.000	29.127	0.00	0.23
75.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.034	0.000	29.553	0.00	0.23
80.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.035	0.000	29.958	0.00	0.23
85.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.036	0.000	30.342	0.00	0.23
85.25	1.411" Fiber	Yes	0.25	0.000	1.41	0.03	0.00	0.037	0.000	30.361	0.00	0.01
90.00	1.411" Fiber	Yes	4.75	0.000	1.41	0.56	0.00	0.038	0.000	30.710	0.00	0.21
										Totals:	**0.0**	**4.1**

Calculated Forces

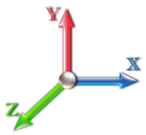
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 20

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	-37.60	-35.79	0.00	-3378.2	0.00	3378.22	5435.95	2717.97	12860.7	6439.91	0.00	0.000	0.000	0.532
5.00	-36.06	-35.29	0.00	-3199.2	0.00	3199.26	5360.22	2680.11	12406.3	6212.37	0.08	-0.140	0.000	0.522
10.00	-34.54	-34.80	0.00	-3022.8	0.00	3022.80	5282.67	2641.34	11955.5	5986.66	0.30	-0.281	0.000	0.512
15.00	-33.05	-34.31	0.00	-2848.8	0.00	2848.80	5203.30	2601.65	11508.7	5762.93	0.67	-0.423	0.000	0.501
20.00	-31.59	-33.80	0.00	-2677.2	0.00	2677.23	5122.11	2561.06	11066.1	5541.30	1.19	-0.567	0.000	0.489
25.00	-30.16	-33.27	0.00	-2508.2	0.00	2508.23	5039.10	2519.55	10628.0	5321.92	1.86	-0.711	0.000	0.477
30.00	-28.76	-32.72	0.00	-2341.8	0.00	2341.89	4954.26	2477.13	10194.7	5104.94	2.69	-0.857	0.000	0.465
35.00	-27.39	-32.16	0.00	-2178.3	0.00	2178.30	4867.60	2433.80	9766.46	4890.49	3.66	-1.002	0.000	0.451
40.00	-26.07	-31.57	0.00	-2017.5	0.00	2017.51	4779.12	2389.56	9343.53	4678.71	4.79	-1.148	0.000	0.437
42.00	-25.53	-31.35	0.00	-1954.3	0.00	1954.37	4743.22	2371.61	9175.92	4594.78	5.29	-1.207	0.000	0.431
45.00	-24.23	-30.99	0.00	-1860.3	0.00	1860.32	4688.82	2344.41	8926.23	4469.75	6.07	-1.296	0.000	0.422
48.00	-22.95	-30.62	0.00	-1767.3	0.00	1767.35	3840.55	1920.27	7332.01	3671.45	6.92	-1.384	0.000	0.488
50.00	-22.46	-30.41	0.00	-1706.1	0.00	1706.10	3813.07	1906.53	7201.22	3605.96	7.51	-1.443	0.000	0.479
55.00	-21.32	-29.83	0.00	-1554.0	0.00	1554.05	3743.08	1871.54	6876.85	3443.54	9.11	-1.602	0.000	0.457
60.00	-20.21	-29.25	0.00	-1404.9	0.00	1404.91	3671.28	1835.64	6556.42	3283.08	10.87	-1.758	0.000	0.434
65.00	-19.12	-28.66	0.00	-1258.6	0.00	1258.68	3597.66	1798.83	6240.20	3124.74	12.80	-1.911	0.000	0.408
70.00	-18.07	-28.08	0.00	-1115.3	0.00	1115.37	3522.21	1761.10	5928.48	2968.65	14.88	-2.060	0.000	0.381
75.00	-17.04	-27.50	0.00	-974.96	0.00	974.96	3444.94	1722.47	5621.53	2814.94	17.11	-2.204	0.000	0.352
80.00	-16.04	-26.93	0.00	-837.44	0.00	837.44	3365.85	1682.92	5319.64	2663.77	19.50	-2.340	0.000	0.319
85.00	-15.10	-26.35	0.00	-702.79	0.00	702.79	3284.94	1642.47	5023.09	2515.28	22.02	-2.467	0.000	0.284
85.25	-15.02	-26.33	0.00	-696.20	0.00	696.20	3280.84	1640.42	5008.41	2507.93	22.15	-2.473	0.000	0.282
90.00	-11.74	-22.13	0.00	-571.13	0.00	571.13	1897.08	948.54	2862.22	1433.24	24.67	-2.584	0.000	0.405
95.00	-11.04	-21.57	0.00	-460.50	0.00	460.50	1858.98	929.49	2709.28	1356.65	27.43	-2.688	0.000	0.346
100.00	-10.35	-21.03	0.00	-352.64	0.00	352.64	1819.06	909.53	2557.69	1280.75	30.32	-2.818	0.000	0.282
105.00	-9.70	-20.49	0.00	-247.49	0.00	247.49	1777.32	888.66	2407.73	1205.66	33.33	-2.924	0.000	0.211
107.00	-7.79	-14.15	0.00	-206.51	0.00	206.51	1760.11	880.05	2348.27	1175.88	34.56	-2.960	0.000	0.180
110.00	-7.45	-13.83	0.00	-164.08	0.00	164.08	1733.75	866.88	2259.69	1131.52	36.44	-3.006	0.000	0.150
115.00	-6.90	-13.32	0.00	-94.91	0.00	94.91	1688.37	844.18	2113.84	1058.49	39.62	-3.064	0.000	0.094
117.00	-3.91	-7.05	0.00	-68.27	0.00	68.27	1669.70	834.85	2056.18	1029.62	40.90	-3.080	0.000	0.069
120.00	-3.63	-6.75	0.00	-47.12	0.00	47.12	1641.16	820.58	1970.46	986.70	42.85	-3.098	0.000	0.050
125.00	-3.18	-6.27	0.00	-13.36	0.00	13.36	1592.13	796.06	1829.84	916.28	46.10	-3.115	0.000	0.017
127.00	-0.18	-0.27	0.00	-0.82	0.00	0.82	1572.01	786.00	1774.43	888.53	47.41	-3.117	0.000	0.001
130.00	0.00	-0.26	0.00	0.00	0.00	0.00	1541.28	770.64	1692.26	847.39	49.36	-3.117	0.000	0.000

Wind Loading - Shaft

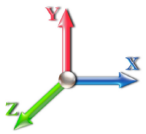
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 19

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	25.312	30.37	172.7	451.3	2065.6
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	24.862	29.83	169.6	474.1	2053.3
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	24.383	29.26	166.3	483.4	2027.4
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	23.892	28.67	172.9	486.8	1995.6
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	23.394	28.07	177.5	486.7	1960.4
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	22.892	27.47	180.5	484.4	1922.9
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	22.387	26.86	182.3	480.4	1883.8
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	21.879	26.25	183.2	475.2	1843.4
42.00	Bot - Section 2	1.00	1.05	6.410	7.05	0.00	1.200	1.537	2.00	8.607	10.33	72.8	189.1	726.6
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	3.00	12.949	15.54	111.2	285.7	1775.2
48.00	Top - Section 1	1.00	1.08	6.593	7.25	0.00	1.200	1.557	3.00	12.765	15.32	111.1	283.3	1749.2
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	2.00	8.407	10.09	73.8	187.7	637.0
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	5.00	20.664	24.80	185.1	461.6	1563.8
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	20.150	24.18	183.8	453.4	1525.4
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	19.637	23.56	182.2	444.7	1486.6
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	19.122	22.95	180.2	435.6	1447.3
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	18.607	22.33	177.9	426.1	1407.7
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	18.091	21.71	175.3	416.2	1367.7
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	17.574	21.09	172.5	406.0	1327.4
85.25	Bot - Section 3	1.00	1.22	7.441	8.18	0.00	1.200	1.649	0.25	0.865	1.04	8.5	20.3	65.6
90.00	Top - Section 2	1.00	1.24	7.526	8.28	0.00	1.200	1.658	4.75	16.393	19.67	162.9	380.7	1800.2
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	5.00	16.752	20.10	168.3	390.1	974.2
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	5.00	16.234	19.48	164.9	379.1	943.2
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	15.717	18.86	161.3	368.0	912.0
107.00	Appurtenance(s)	1.00	1.28	7.805	8.59	0.00	1.200	1.687	2.00	6.141	7.37	63.3	145.4	357.4
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	3.00	9.056	10.87	93.9	214.0	525.9
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	14.680	17.62	153.6	345.1	848.9
117.00	Appurtenance(s)	1.00	1.31	7.954	8.75	0.00	1.200	1.702	2.00	5.726	6.87	60.1	136.2	332.1
120.00		1.00	1.32	7.996	8.80	0.00	1.200	1.707	3.00	8.434	10.12	89.0	200.0	487.9
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	5.00	13.643	16.37	145.2	321.5	785.1
127.00	Appurtenance(s)	1.00	1.33	8.092	8.90	0.00	1.200	1.716	2.00	5.311	6.37	56.7	126.7	306.5
130.00		1.00	1.34	8.132	8.95	0.00	1.200	1.720	3.00	7.811	9.37	83.8	185.7	449.4
								Totals:	**130.00**			**4,442.4**		**39,554.7**

Discrete Appurtenance Forces

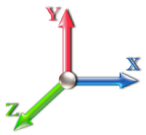
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 19

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	127.00	800-10964	3	8.092	8.901	0.54	0.75	18.27	979.77	0.000	0.000	162.60	0.00	0.00
2	127.00	Platform w/ Hand Rail	1	8.092	8.901	1.00	1.00	59.46	3385.18	0.000	0.000	529.29	0.00	0.00
3	127.00	Powerwave	3	8.092	8.901	0.56	0.75	18.42	536.18	0.000	0.000	163.97	0.00	0.00
4	127.00	Powerwave	6	8.092	8.901	0.50	0.75	3.69	199.83	0.000	0.000	32.82	0.00	0.00
5	127.00	Raycap DC6-48-60-18-8F	3	8.092	8.901	0.50	0.75	3.25	247.39	0.000	0.000	28.96	0.00	0.00
6	127.00	HRK14	1	8.092	8.901	1.00	1.00	15.94	1018.09	0.000	0.000	141.93	0.00	0.00
7	127.00	DBC0061F1V51-2	6	8.092	8.901	0.50	0.75	2.14	257.63	0.000	0.000	19.07	0.00	0.00
8	127.00	RRUS 8843 B2 B66A	3	8.092	8.901	0.50	0.75	3.21	361.41	0.000	0.000	28.56	0.00	0.00
9	127.00	4449 B5/B12	3	8.092	8.901	0.50	0.75	3.78	389.93	0.000	0.000	33.66	0.00	0.00
10	127.00	Quintel QS46512-2	3	8.092	8.901	0.72	0.75	14.15	624.07	0.000	0.000	125.98	0.00	0.00
11	127.00	Ericsson RRUS 32	3	8.092	8.901	0.50	0.75	5.21	449.43	0.000	0.000	46.37	0.00	0.00
12	117.00	12.5' Low Profile Platform	1	7.954	8.749	1.00	1.00	31.58	3122.39	0.000	0.000	276.26	0.00	0.00
13	117.00	Ericsson Radio 4449	3	7.954	8.749	0.50	0.75	3.28	464.86	0.000	0.000	28.66	0.00	0.00
14	117.00	Ericsson KRY 112 144/1	3	7.954	8.749	0.50	0.75	1.32	61.85	0.000	0.000	11.52	0.00	0.00
15	117.00	Sitepro HRK12-U	1	7.954	8.749	1.00	1.00	21.92	718.09	0.000	0.000	191.81	0.00	0.00
16	117.00	Sitepro PRK-1245	1	7.954	8.749	1.00	1.00	19.20	96.86	0.000	0.000	168.01	0.00	0.00
17	117.00	APXVAARR24_43-U-NA2	3	7.954	8.749	0.52	0.75	34.79	1716.75	0.000	0.000	304.41	0.00	0.00
18	117.00	Ericsson Air 21 B2A/B4P	3	7.954	8.749	0.65	0.75	13.85	821.28	0.000	0.000	121.19	0.00	0.00
19	117.00	Ericsson Air 21 B4A/B2P	3	7.954	8.749	0.65	0.75	13.85	819.48	0.000	0.000	121.19	0.00	0.00
20	107.00	RRH2x60-700	3	7.805	8.586	0.54	0.80	6.85	408.87	0.000	0.000	58.86	0.00	0.00
21	107.00	Low Profile Platform	1	7.805	8.586	1.00	1.00	45.25	2152.35	0.000	0.000	388.49	0.00	0.00
22	107.00	BXA-70063-6CF-2	3	7.805	8.586	0.58	0.80	17.94	363.81	0.000	0.000	154.06	0.00	0.00
23	107.00	SBNHH-1D65B	9	7.805	8.586	0.66	0.80	55.73	2181.50	0.000	0.000	478.52	0.00	0.00
24	107.00	RRH2X60-PCS	3	7.805	8.586	0.54	0.80	4.52	441.25	0.000	0.000	38.84	0.00	0.00
25	107.00	RRH4x45AWS	3	7.805	8.586	0.54	0.80	6.32	380.92	0.000	0.000	54.28	0.00	0.00
26	107.00	DB-T1-6Z-8AB-0Z	2	7.805	8.586	0.80	0.80	9.03	321.62	0.000	0.000	77.52	0.00	0.00
27	90.00	MC-PK8-DSH	1	7.526	8.279	1.00	1.00	82.47	3303.18	0.000	0.000	682.76	0.00	0.00
28	90.00	RDIDC-9181-OF-48	1	7.526	8.279	0.50	0.75	1.28	64.18	0.000	0.000	10.61	0.00	0.00
29	90.00	TA08025-B605	3	7.526	8.279	0.50	0.75	3.76	381.30	0.000	0.000	31.11	0.00	0.00
30	90.00	TA08025-B604	3	7.526	8.279	0.57	0.75	4.26	338.07	0.000	0.000	35.29	0.00	0.00
31	90.00	MX08FRO665-21	3	7.526	8.279	0.55	0.75	23.11	859.76	0.000	0.000	191.35	0.00	0.00
							Totals:		**27,467.26**			**4,737.95**		

Total Applied Force Summary

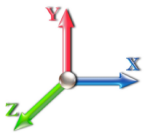
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

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 19

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		172.67	2413.00	0.00	0.00
10.00		169.60	2402.51	0.00	0.00
15.00		166.34	2377.89	0.00	0.00
20.00		172.94	2347.03	0.00	0.00
25.00		177.48	2312.56	0.00	0.00
30.00		180.46	2275.69	0.00	0.00
35.00		182.30	2237.10	0.00	0.00
40.00		183.24	2197.20	0.00	0.00
42.00		72.83	868.16	0.00	0.00
45.00		111.18	1987.73	0.00	0.00
48.00		111.10	1961.92	0.00	0.00
50.00		73.80	778.85	0.00	0.00
55.00		185.07	1918.77	0.00	0.00
60.00		183.81	1880.78	0.00	0.00
65.00		182.16	1842.27	0.00	0.00
70.00		180.18	1803.29	0.00	0.00
75.00		177.89	1763.92	0.00	0.00
80.00		175.32	1724.19	0.00	0.00
85.00		172.50	1684.13	0.00	0.00
85.25		8.50	83.39	0.00	0.00
90.00	(11) attachments	1113.99	7085.86	0.00	0.00
95.00		168.33	1304.23	0.00	0.00
100.00		164.90	1273.21	0.00	0.00
105.00		161.29	1241.98	0.00	0.00
107.00	(24) attachments	1313.83	6739.68	0.00	0.00
110.00		93.85	678.55	0.00	0.00
115.00		153.56	1103.32	0.00	0.00
117.00	(18) attachments	1283.17	8255.39	0.00	0.00
120.00		89.02	590.96	0.00	0.00
125.00		145.24	956.99	0.00	0.00
127.00	(35) attachments	1369.95	8824.17	0.00	0.00
130.00		83.85	449.40	0.00	0.00
	Totals:	**9,180.32**	**75,364.13**	**0.00**	**0.00**

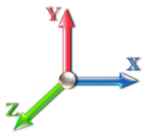
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (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	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 19

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	1.411" Fiber	Yes	5.00	0.000	1.41	1.62	0.00	0.024	0.000	5.168	0.00	17.36
10.00	1.411" Fiber	Yes	5.00	0.000	1.41	1.70	0.00	0.025	0.000	5.168	0.00	19.25
15.00	1.411" Fiber	Yes	5.00	0.000	1.41	1.74	0.00	0.025	0.000	5.168	0.00	20.47
20.00	1.411" Fiber	Yes	5.00	0.000	1.41	1.78	0.00	0.026	0.000	5.483	0.00	21.39
25.00	1.411" Fiber	Yes	5.00	0.000	1.41	1.80	0.00	0.026	0.000	5.747	0.00	22.13
30.00	1.411" Fiber	Yes	5.00	0.000	1.41	1.83	0.00	0.027	0.000	5.972	0.00	22.76
35.00	1.411" Fiber	Yes	5.00	0.000	1.41	1.84	0.00	0.028	0.000	6.169	0.00	23.31
40.00	1.411" Fiber	Yes	5.00	0.000	1.41	1.86	0.00	0.029	0.000	6.345	0.00	23.80
42.00	1.411" Fiber	Yes	2.00	0.000	1.41	0.75	0.00	0.029	0.000	6.410	0.00	9.59
45.00	1.411" Fiber	Yes	3.00	0.000	1.41	1.13	0.00	0.029	0.000	6.504	0.00	14.54
48.00	1.411" Fiber	Yes	3.00	0.000	1.41	1.13	0.00	0.030	0.000	6.593	0.00	14.69
50.00	1.411" Fiber	Yes	2.00	0.000	1.41	0.76	0.00	0.030	0.000	6.650	0.00	9.86
55.00	1.411" Fiber	Yes	5.00	0.000	1.41	1.90	0.00	0.030	0.000	6.785	0.00	25.01
60.00	1.411" Fiber	Yes	5.00	0.000	1.41	1.91	0.00	0.031	0.000	6.910	0.00	25.35
65.00	1.411" Fiber	Yes	5.00	0.000	1.41	1.93	0.00	0.032	0.000	7.028	0.00	25.67
70.00	1.411" Fiber	Yes	5.00	0.000	1.41	1.94	0.00	0.033	0.000	7.138	0.00	25.97
75.00	1.411" Fiber	Yes	5.00	0.000	1.41	1.94	0.00	0.034	0.000	7.243	0.00	26.26
80.00	1.411" Fiber	Yes	5.00	0.000	1.41	1.95	0.00	0.035	0.000	7.342	0.00	26.52
85.00	1.411" Fiber	Yes	5.00	0.000	1.41	1.96	0.00	0.036	0.000	7.436	0.00	26.78
85.25	1.411" Fiber	Yes	0.25	0.000	1.41	0.10	0.00	0.037	0.000	7.441	0.00	1.34
90.00	1.411" Fiber	Yes	4.75	0.000	1.41	1.87	0.00	0.038	0.000	7.526	0.00	25.67
										Totals:	**0.0**	**427.7**

Calculated Forces

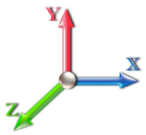
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

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 19

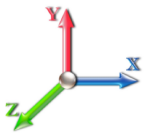
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-75.36	-9.20	0.00	-855.13	0.00	855.13	5435.95	2717.97	12860.7	6439.91	0.00	0.000	0.000	0.147
5.00	-72.94	-9.08	0.00	-809.11	0.00	809.11	5360.22	2680.11	12406.3	6212.37	0.02	-0.035	0.000	0.144
10.00	-70.53	-8.95	0.00	-763.73	0.00	763.73	5282.67	2641.34	11955.5	5986.66	0.08	-0.071	0.000	0.141
15.00	-68.15	-8.82	0.00	-718.99	0.00	718.99	5203.30	2601.65	11508.7	5762.93	0.17	-0.107	0.000	0.138
20.00	-65.80	-8.68	0.00	-674.89	0.00	674.89	5122.11	2561.06	11066.1	5541.30	0.30	-0.143	0.000	0.135
25.00	-63.48	-8.54	0.00	-631.47	0.00	631.47	5039.10	2519.55	10628.0	5321.92	0.47	-0.180	0.000	0.131
30.00	-61.20	-8.39	0.00	-588.76	0.00	588.76	4954.26	2477.13	10194.7	5104.94	0.68	-0.216	0.000	0.128
35.00	-58.96	-8.24	0.00	-546.81	0.00	546.81	4867.60	2433.80	9766.46	4890.49	0.93	-0.253	0.000	0.124
40.00	-56.76	-8.07	0.00	-505.62	0.00	505.62	4779.12	2389.56	9343.53	4678.71	1.21	-0.289	0.000	0.120
42.00	-55.89	-8.01	0.00	-489.48	0.00	489.48	4743.22	2371.61	9175.92	4594.78	1.33	-0.304	0.000	0.118
45.00	-53.90	-7.91	0.00	-465.45	0.00	465.45	4688.82	2344.41	8926.23	4469.75	1.53	-0.326	0.000	0.116
48.00	-51.94	-7.80	0.00	-441.72	0.00	441.72	3840.55	1920.27	7332.01	3671.45	1.74	-0.348	0.000	0.134
50.00	-51.15	-7.75	0.00	-426.12	0.00	426.12	3813.07	1906.53	7201.22	3605.96	1.89	-0.363	0.000	0.132
55.00	-49.23	-7.58	0.00	-387.38	0.00	387.38	3743.08	1871.54	6876.85	3443.54	2.30	-0.403	0.000	0.126
60.00	-47.35	-7.42	0.00	-349.45	0.00	349.45	3671.28	1835.64	6556.42	3283.08	2.74	-0.442	0.000	0.119
65.00	-45.50	-7.25	0.00	-312.36	0.00	312.36	3597.66	1798.83	6240.20	3124.74	3.22	-0.480	0.000	0.113
70.00	-43.70	-7.08	0.00	-276.10	0.00	276.10	3522.21	1761.10	5928.48	2968.65	3.75	-0.517	0.000	0.105
75.00	-41.93	-6.91	0.00	-240.69	0.00	240.69	3444.94	1722.47	5621.53	2814.94	4.31	-0.552	0.000	0.098
80.00	-40.20	-6.74	0.00	-206.12	0.00	206.12	3365.85	1682.92	5319.64	2663.77	4.90	-0.586	0.000	0.089
85.00	-38.52	-6.57	0.00	-172.39	0.00	172.39	3284.94	1642.47	5023.09	2515.28	5.53	-0.617	0.000	0.080
85.25	-38.43	-6.57	0.00	-170.75	0.00	170.75	3280.84	1640.42	5008.41	2507.93	5.57	-0.619	0.000	0.080
90.00	-31.36	-5.39	0.00	-139.57	0.00	139.57	1897.08	948.54	2862.22	1433.24	6.20	-0.646	0.000	0.114
95.00	-30.05	-5.22	0.00	-112.63	0.00	112.63	1858.98	929.49	2709.28	1356.65	6.89	-0.671	0.000	0.099
100.00	-28.78	-5.05	0.00	-86.53	0.00	86.53	1819.06	909.53	2557.69	1280.75	7.61	-0.703	0.000	0.083
105.00	-27.54	-4.89	0.00	-61.26	0.00	61.26	1777.32	888.66	2407.73	1205.66	8.36	-0.729	0.000	0.066
107.00	-20.82	-3.49	0.00	-51.49	0.00	51.49	1760.11	880.05	2348.27	1175.88	8.67	-0.738	0.000	0.056
110.00	-20.14	-3.39	0.00	-41.02	0.00	41.02	1733.75	866.88	2259.69	1131.52	9.13	-0.749	0.000	0.048
115.00	-19.04	-3.23	0.00	-24.07	0.00	24.07	1688.37	844.18	2113.84	1058.49	9.93	-0.764	0.000	0.034
117.00	-10.80	-1.83	0.00	-17.61	0.00	17.61	1669.70	834.85	2056.18	1029.62	10.25	-0.768	0.000	0.024
120.00	-10.21	-1.74	0.00	-12.11	0.00	12.11	1641.16	820.58	1970.46	986.70	10.73	-0.773	0.000	0.019
125.00	-9.25	-1.58	0.00	-3.43	0.00	3.43	1592.13	796.06	1829.84	916.28	11.54	-0.777	0.000	0.010
127.00	-0.45	-0.09	0.00	-0.27	0.00	0.27	1572.01	786.00	1774.43	888.53	11.87	-0.778	0.000	0.001
130.00	0.00	-0.08	0.00	0.00	0.00	0.00	1541.28	770.64	1692.26	847.39	12.36	-0.778	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (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	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E					**Iterations**	18
Gust Response Factor	1.10			**Sds**	0.18	**Ss**	0.17
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10	**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.48	**SA**	0.05	**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		1345.2	0.00	0.04	0.02	21.00	
10.00		1315.9	0.01	0.06	0.03	29.98	
15.00		1286.6	0.03	0.07	0.04	33.74	
20.00		1257.3	0.04	0.07	0.04	35.20	
25.00		1228.0	0.07	0.07	0.04	35.78	
30.00		1198.7	0.10	0.07	0.04	36.09	
35.00		1169.5	0.14	0.07	0.03	36.24	
40.00		1140.2	0.18	0.07	0.03	36.01	
42.00	Bot - Section 2	447.88	0.20	0.06	0.02	14.17	
45.00		1241.2	0.23	0.06	0.02	38.99	
48.00	Top - Section 1	1221.6	0.26	0.05	0.02	37.49	
50.00		374.41	0.28	0.05	0.01	11.18	
55.00		918.44	0.34	0.04	0.01	24.05	
60.00		893.33	0.40	0.02	0.01	17.76	
65.00		868.22	0.47	-0.01	0.01	9.49	
70.00		843.11	0.55	-0.03	0.01	0.18	
75.00		818.00	0.63	-0.06	0.02	-8.51	
80.00		792.89	0.72	-0.09	0.03	-14.77	
85.00		767.78	0.81	-0.11	0.06	-17.22	
85.25	Bot - Section 3	37.73	0.81	-0.11	0.06	-0.85	
90.00	Top - Section 2	3542.0	0.91	-0.12	0.09	-72.67	
95.00		486.81	1.01	-0.11	0.14	-5.96	
100.00		470.07	1.12	-0.06	0.20	1.24	
105.00		453.33	1.23	0.04	0.28	10.97	
107.00	Appurtenance(s)	2355.8	1.28	0.09	0.32	81.79	
110.00		259.95	1.35	0.20	0.39	13.66	
115.00		419.85	1.48	0.45	0.52	36.82	
117.00	Appurtenance(s)	3595.7	1.53	0.58	0.58	372.87	
120.00		239.86	1.61	0.81	0.68	31.13	
125.00		386.37	1.75	1.31	0.89	69.15	
127.00	Appurtenance(s)	3632.0	1.80	1.56	0.98	728.83	
130.00		219.77	1.89	1.98	1.14	51.73	
	Totals:	**35,228.2**				**1,695.6**	**Total Wind:** **35,745.3**

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

Calculated Forces

Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (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 + 1.0E							**Iterations**	18
Gust Response Factor	1.10			**Sds**	0.18			**Ss**	0.17
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.48	**SA**	0.05	**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	-50.19	-1.82	0.00	-190.07	0.00	190.07	5435.95	2717.97	12860.7	6439.91		0.00	0.00	0.039
5.00	-48.25	-1.80	0.00	-180.98	0.00	180.98	5360.22	2680.11	12406.3	6212.37		0.00	-0.01	0.038
10.00	-46.34	-1.78	0.00	-171.96	0.00	171.96	5282.67	2641.34	11955.5	5986.66		0.02	-0.02	0.037
15.00	-44.46	-1.75	0.00	-163.06	0.00	163.06	5203.30	2601.65	11508.7	5762.93		0.04	-0.02	0.037
20.00	-42.63	-1.72	0.00	-154.30	0.00	154.30	5122.11	2561.06	11066.1	5541.30		0.07	-0.03	0.036
25.00	-40.82	-1.69	0.00	-145.68	0.00	145.68	5039.10	2519.55	10628.0	5321.92		0.11	-0.04	0.035
30.00	-39.05	-1.66	0.00	-137.23	0.00	137.23	4954.26	2477.13	10194.7	5104.94		0.15	-0.05	0.035
35.00	-37.32	-1.63	0.00	-128.93	0.00	128.93	4867.60	2433.80	9766.46	4890.49		0.21	-0.06	0.034
40.00	-35.62	-1.59	0.00	-120.79	0.00	120.79	4779.12	2389.56	9343.53	4678.71		0.27	-0.07	0.033
42.00	-34.95	-1.58	0.00	-117.60	0.00	117.60	4743.22	2371.61	9175.92	4594.78		0.30	-0.07	0.033
45.00	-33.26	-1.54	0.00	-112.86	0.00	112.86	4688.82	2344.41	8926.23	4469.75		0.35	-0.08	0.032
48.00	-31.60	-1.51	0.00	-108.23	0.00	108.23	3840.55	1920.27	7332.01	3671.45		0.40	-0.08	0.038
50.00	-31.02	-1.50	0.00	-105.22	0.00	105.22	3813.07	1906.53	7201.22	3605.96		0.43	-0.08	0.037
55.00	-29.58	-1.48	0.00	-97.73	0.00	97.73	3743.08	1871.54	6876.85	3443.54		0.53	-0.09	0.036
60.00	-28.18	-1.46	0.00	-90.35	0.00	90.35	3671.28	1835.64	6556.42	3283.08		0.63	-0.10	0.035
65.00	-26.81	-1.45	0.00	-83.04	0.00	83.04	3597.66	1798.83	6240.20	3124.74		0.74	-0.11	0.034
70.00	-25.47	-1.46	0.00	-75.77	0.00	75.77	3522.21	1761.10	5928.48	2968.65		0.87	-0.12	0.033
75.00	-24.15	-1.46	0.00	-68.50	0.00	68.50	3444.94	1722.47	5621.53	2814.94		1.00	-0.13	0.031
80.00	-22.87	-1.46	0.00	-61.21	0.00	61.21	3365.85	1682.92	5319.64	2663.77		1.15	-0.14	0.030
85.00	-21.62	-1.46	0.00	-53.93	0.00	53.93	3284.94	1642.47	5023.09	2515.28		1.31	-0.15	0.028
85.25	-21.56	-1.46	0.00	-53.56	0.00	53.56	3280.84	1640.42	5008.41	2507.93		1.31	-0.15	0.028
90.00	-16.99	-1.45	0.00	-46.64	0.00	46.64	1897.08	948.54	2862.22	1433.24		1.47	-0.16	0.042
95.00	-16.08	-1.45	0.00	-39.40	0.00	39.40	1858.98	929.49	2709.28	1356.65		1.65	-0.17	0.038
100.00	-15.19	-1.45	0.00	-32.17	0.00	32.17	1819.06	909.53	2557.69	1280.75		1.83	-0.18	0.033
105.00	-14.31	-1.43	0.00	-24.93	0.00	24.93	1777.32	888.66	2407.73	1205.66		2.03	-0.19	0.029
107.00	-11.35	-1.34	0.00	-22.06	0.00	22.06	1760.11	880.05	2348.27	1175.88		2.11	-0.20	0.025
110.00	-10.89	-1.33	0.00	-18.03	0.00	18.03	1733.75	866.88	2259.69	1131.52		2.23	-0.20	0.022
115.00	-10.13	-1.29	0.00	-11.39	0.00	11.39	1688.37	844.18	2113.84	1058.49		2.45	-0.21	0.017
117.00	-5.71	-0.90	0.00	-8.81	0.00	8.81	1669.70	834.85	2056.18	1029.62		2.54	-0.21	0.012
120.00	-5.32	-0.87	0.00	-6.10	0.00	6.10	1641.16	820.58	1970.46	986.70		2.67	-0.21	0.009
125.00	-4.69	-0.80	0.00	-1.75	0.00	1.75	1592.13	796.06	1829.84	916.28		2.89	-0.21	0.005
127.00	-0.26	-0.05	0.00	-0.16	0.00	0.16	1572.01	786.00	1774.43	888.53		2.98	-0.21	0.000
130.00	0.00	-0.05	0.00	0.00	0.00	0.00	1541.28	770.64	1692.26	847.39		3.12	-0.21	0.000

Seismic Segment Forces (Factored)

Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (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:	0.9D + 1.0E							**Iterations**	18
Gust Response Factor	1.10				**Sds**	0.18		**Ss**	0.17
Dead Load Factor	0.90	**Seismic Load Factor**	1.00		**Sd1**	0.10		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.48		**SA**	0.05	**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		1345.2	0.00	0.04	0.02	21.00	
10.00		1315.9	0.01	0.06	0.03	29.98	
15.00		1286.6	0.03	0.07	0.04	33.74	
20.00		1257.3	0.04	0.07	0.04	35.20	
25.00		1228.0	0.07	0.07	0.04	35.78	
30.00		1198.7	0.10	0.07	0.04	36.09	
35.00		1169.5	0.14	0.07	0.03	36.24	
40.00		1140.2	0.18	0.07	0.03	36.01	
42.00	Bot - Section 2	447.88	0.20	0.06	0.02	14.17	
45.00		1241.2	0.23	0.06	0.02	38.99	
48.00	Top - Section 1	1221.6	0.26	0.05	0.02	37.49	
50.00		374.41	0.28	0.05	0.01	11.18	
55.00		918.44	0.34	0.04	0.01	24.05	
60.00		893.33	0.40	0.02	0.01	17.76	
65.00		868.22	0.47	-0.01	0.01	9.49	
70.00		843.11	0.55	-0.03	0.01	0.18	
75.00		818.00	0.63	-0.06	0.02	-8.51	
80.00		792.89	0.72	-0.09	0.03	-14.77	
85.00		767.78	0.81	-0.11	0.06	-17.22	
85.25	Bot - Section 3	37.73	0.81	-0.11	0.06	-0.85	
90.00	Top - Section 2	3542.0	0.91	-0.12	0.09	-72.67	
95.00		486.81	1.01	-0.11	0.14	-5.96	
100.00		470.07	1.12	-0.06	0.20	1.24	
105.00		453.33	1.23	0.04	0.28	10.97	
107.00	Appurtenance(s)	2355.8	1.28	0.09	0.32	81.79	
110.00		259.95	1.35	0.20	0.39	13.66	
115.00		419.85	1.48	0.45	0.52	36.82	
117.00	Appurtenance(s)	3595.7	1.53	0.58	0.58	372.87	
120.00		239.86	1.61	0.81	0.68	31.13	
125.00		386.37	1.75	1.31	0.89	69.15	
127.00	Appurtenance(s)	3632.0	1.80	1.56	0.98	728.83	
130.00		219.77	1.89	1.98	1.14	51.73	
	Totals:	**35,228.2**				**1,695.6**	**Total Wind:** **35,745.3**

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

Calculated Forces

Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (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	

Tower Engineering Solutions

Load Case:	0.9D + 1.0E							**Iterations**	18
Gust Response Factor	1.10			**Sds**	0.18			**Ss**	0.17
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.48	**SA**	0.05	**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	-37.65	-1.82	0.00	-188.79	0.00	188.79	5435.95	2717.97	12860.7	6439.91		0.00	0.00	0.036
5.00	-36.19	-1.80	0.00	-179.70	0.00	179.70	5360.22	2680.11	12406.3	6212.37		0.00	-0.01	0.036
10.00	-34.75	-1.78	0.00	-170.69	0.00	170.69	5282.67	2641.34	11955.5	5986.66		0.02	-0.02	0.035
15.00	-33.35	-1.75	0.00	-161.81	0.00	161.81	5203.30	2601.65	11508.7	5762.93		0.04	-0.02	0.034
20.00	-31.97	-1.72	0.00	-153.07	0.00	153.07	5122.11	2561.06	11066.1	5541.30		0.07	-0.03	0.034
25.00	-30.62	-1.68	0.00	-144.50	0.00	144.50	5039.10	2519.55	10628.0	5321.92		0.11	-0.04	0.033
30.00	-29.29	-1.65	0.00	-136.08	0.00	136.08	4954.26	2477.13	10194.7	5104.94		0.15	-0.05	0.033
35.00	-27.99	-1.62	0.00	-127.83	0.00	127.83	4867.60	2433.80	9766.46	4890.49		0.21	-0.06	0.032
40.00	-26.71	-1.58	0.00	-119.74	0.00	119.74	4779.12	2389.56	9343.53	4678.71		0.27	-0.07	0.031
42.00	-26.21	-1.57	0.00	-116.58	0.00	116.58	4743.22	2371.61	9175.92	4594.78		0.30	-0.07	0.031
45.00	-24.95	-1.53	0.00	-111.87	0.00	111.87	4688.82	2344.41	8926.23	4469.75		0.35	-0.07	0.030
48.00	-23.70	-1.49	0.00	-107.27	0.00	107.27	3840.55	1920.27	7332.01	3671.45		0.39	-0.08	0.035
50.00	-23.26	-1.49	0.00	-104.28	0.00	104.28	3813.07	1906.53	7201.22	3605.96		0.43	-0.08	0.035
55.00	-22.19	-1.46	0.00	-96.86	0.00	96.86	3743.08	1871.54	6876.85	3443.54		0.52	-0.09	0.034
60.00	-21.13	-1.45	0.00	-89.54	0.00	89.54	3671.28	1835.64	6556.42	3283.08		0.62	-0.10	0.033
65.00	-20.11	-1.44	0.00	-82.30	0.00	82.30	3597.66	1798.83	6240.20	3124.74		0.74	-0.11	0.032
70.00	-19.10	-1.44	0.00	-75.11	0.00	75.11	3522.21	1761.10	5928.48	2968.65		0.86	-0.12	0.031
75.00	-18.11	-1.44	0.00	-67.90	0.00	67.90	3444.94	1722.47	5621.53	2814.94		1.00	-0.13	0.029
80.00	-17.15	-1.44	0.00	-60.70	0.00	60.70	3365.85	1682.92	5319.64	2663.77		1.14	-0.14	0.028
85.00	-16.21	-1.44	0.00	-53.49	0.00	53.49	3284.94	1642.47	5023.09	2515.28		1.29	-0.15	0.026
85.25	-16.17	-1.44	0.00	-53.13	0.00	53.13	3280.84	1640.42	5008.41	2507.93		1.30	-0.15	0.026
90.00	-12.74	-1.43	0.00	-46.28	0.00	46.28	1897.08	948.54	2862.22	1433.24		1.46	-0.16	0.039
95.00	-12.06	-1.43	0.00	-39.10	0.00	39.10	1858.98	929.49	2709.28	1356.65		1.63	-0.17	0.035
100.00	-11.39	-1.43	0.00	-31.93	0.00	31.93	1819.06	909.53	2557.69	1280.75		1.82	-0.18	0.031
105.00	-10.73	-1.42	0.00	-24.76	0.00	24.76	1777.32	888.66	2407.73	1205.66		2.01	-0.19	0.027
107.00	-8.51	-1.33	0.00	-21.91	0.00	21.91	1760.11	880.05	2348.27	1175.88		2.09	-0.19	0.023
110.00	-8.16	-1.32	0.00	-17.91	0.00	17.91	1733.75	866.88	2259.69	1131.52		2.22	-0.20	0.021
115.00	-7.60	-1.28	0.00	-11.32	0.00	11.32	1688.37	844.18	2113.84	1058.49		2.43	-0.21	0.015
117.00	-4.28	-0.90	0.00	-8.76	0.00	8.76	1669.70	834.85	2056.18	1029.62		2.52	-0.21	0.011
120.00	-3.99	-0.86	0.00	-6.07	0.00	6.07	1641.16	820.58	1970.46	986.70		2.65	-0.21	0.009
125.00	-3.52	-0.79	0.00	-1.74	0.00	1.74	1592.13	796.06	1829.84	916.28		2.87	-0.21	0.004
127.00	-0.20	-0.05	0.00	-0.16	0.00	0.16	1572.01	786.00	1774.43	888.53		2.96	-0.21	0.000
130.00	0.00	-0.05	0.00	0.00	0.00	0.00	1541.28	770.64	1692.26	847.39		3.09	-0.21	0.000

Wind Loading - Shaft

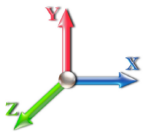
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

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	271.49	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	265.69	0.650	0.000	5.00	24.277	15.78	129.2	0.0	1345.3
10.00		1.00	0.85	7.442	8.19	259.88	0.650	0.000	5.00	23.753	15.44	126.4	0.0	1316.0
15.00		1.00	0.85	7.442	8.19	254.08	0.650	0.000	5.00	23.228	15.10	123.6	0.0	1286.7
20.00		1.00	0.90	7.896	8.69	255.74	0.650	0.000	5.00	22.703	14.76	128.2	0.0	1257.4
25.00		1.00	0.95	8.276	9.10	255.70	0.650	0.000	5.00	22.179	14.42	131.2	0.0	1228.1
30.00		1.00	0.98	8.600	9.46	254.41	0.650	0.000	5.00	21.654	14.08	133.1	0.0	1198.8
35.00		1.00	1.01	8.883	9.77	252.23	0.650	0.000	5.00	21.129	13.73	134.2	0.0	1169.5
40.00		1.00	1.04	9.137	10.05	249.37	0.650	0.000	5.00	20.605	13.39	134.6	0.0	1140.2
42.00	Bot - Section 2	1.00	1.05	9.231	10.15	248.07	0.650	0.000	2.00	8.095	5.26	53.4	0.0	447.9
45.00		1.00	1.07	9.366	10.30	245.97	0.650	0.000	3.00	12.175	7.91	81.5	0.0	1241.2
48.00	Top - Section 1	1.00	1.08	9.494	10.44	243.71	0.650	0.000	3.00	11.987	7.79	81.4	0.0	1221.6
50.00		1.00	1.09	9.576	10.53	246.11	0.650	0.000	2.00	7.886	5.13	54.0	0.0	374.4
55.00		1.00	1.12	9.770	10.75	241.94	0.650	0.000	5.00	19.348	12.58	135.2	0.0	918.4
60.00		1.00	1.14	9.951	10.95	237.46	0.650	0.000	5.00	18.823	12.24	133.9	0.0	893.3
65.00		1.00	1.16	10.120	11.13	232.70	0.650	0.000	5.00	18.299	11.89	132.4	0.0	868.2
70.00		1.00	1.17	10.279	11.31	227.70	0.650	0.000	5.00	17.774	11.55	130.6	0.0	843.1
75.00		1.00	1.19	10.430	11.47	222.49	0.650	0.000	5.00	17.250	11.21	128.6	0.0	818.0
80.00		1.00	1.21	10.572	11.63	217.09	0.650	0.000	5.00	16.725	10.87	126.4	0.0	792.9
85.00		1.00	1.22	10.708	11.78	211.51	0.650	0.000	5.00	16.200	10.53	124.0	0.0	767.8
85.25	Bot - Section 3	1.00	1.22	10.715	11.79	211.23	0.650	0.000	0.25	0.796	0.52	6.1	0.0	37.7
90.00	Top - Section 2	1.00	1.24	10.838	11.92	205.78	0.650	0.000	4.75	15.080	9.80	116.9	0.0	1182.9
95.00		1.00	1.25	10.962	12.06	202.76	0.650	0.000	5.00	15.363	9.99	120.4	0.0	486.8
100.00		1.00	1.27	11.081	12.19	196.77	0.650	0.000	5.00	14.838	9.64	117.6	0.0	470.1
105.00		1.00	1.28	11.195	12.31	190.66	0.650	0.000	5.00	14.313	9.30	114.6	0.0	453.3
107.00	Appurtenance(s)	1.00	1.28	11.240	12.36	188.19	0.650	0.000	2.00	5.578	3.63	44.8	0.0	176.6
110.00		1.00	1.29	11.305	12.44	184.45	0.650	0.000	3.00	8.210	5.34	66.4	0.0	259.9
115.00		1.00	1.30	11.412	12.55	178.12	0.650	0.000	5.00	13.264	8.62	108.2	0.0	419.9
117.00	Appurtenance(s)	1.00	1.31	11.453	12.60	175.57	0.650	0.000	2.00	5.159	3.35	42.2	0.0	163.3
120.00		1.00	1.32	11.514	12.67	171.70	0.650	0.000	3.00	7.581	4.93	62.4	0.0	239.9
125.00		1.00	1.33	11.614	12.78	165.19	0.650	0.000	5.00	12.215	7.94	101.4	0.0	386.4
127.00	Appurtenance(s)	1.00	1.33	11.653	12.82	162.56	0.650	0.000	2.00	4.739	3.08	39.5	0.0	149.9
130.00		1.00	1.34	11.710	12.88	158.59	0.650	0.000	3.00	6.951	4.52	58.2	0.0	219.8
								Totals:	**130.00**			**3,220.8**		**23,775.2**

Discrete Appurtenance Forces

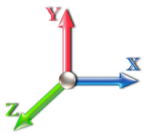
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 29	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

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	127.00	800-10964	3	11.653	12.818	0.54	0.75	16.20	251.40	0.000	0.000	207.65	0.00	0.00
2	127.00	Platform w/ Hand Rail	1	11.653	12.818	1.00	1.00	32.00	1600.00	0.000	0.000	410.17	0.00	0.00
3	127.00	Powerwave	3	11.653	12.818	0.56	0.75	13.77	159.00	0.000	0.000	176.50	0.00	0.00
4	127.00	Powerwave	6	11.653	12.818	0.50	0.75	1.93	96.00	0.000	0.000	24.73	0.00	0.00
5	127.00	Raycap DC6-48-60-18-8F	3	11.653	12.818	0.50	0.75	2.22	98.40	0.000	0.000	28.40	0.00	0.00
6	127.00	HRK14	1	11.653	12.818	1.00	1.00	8.13	302.36	0.000	0.000	104.21	0.00	0.00
7	127.00	DBC0061F1V51-2	6	11.653	12.818	0.50	0.75	1.30	156.00	0.000	0.000	16.62	0.00	0.00
8	127.00	RRUS 8843 B2 B66A	3	11.653	12.818	0.50	0.75	2.47	216.00	0.000	0.000	31.69	0.00	0.00
9	127.00	4449 B5/B12	3	11.653	12.818	0.50	0.75	2.97	219.00	0.000	0.000	38.07	0.00	0.00
10	127.00	Quintel QS46512-2	3	11.653	12.818	0.72	0.75	11.99	225.00	0.000	0.000	153.66	0.00	0.00
11	127.00	Ericsson RRUS 32	3	11.653	12.818	0.50	0.75	4.13	159.00	0.000	0.000	52.94	0.00	0.00
12	117.00	12.5' Low Profile Platform	1	11.453	12.598	1.00	1.00	25.55	1600.00	0.000	0.000	321.89	0.00	0.00
13	117.00	Ericsson Radio 4449	3	11.453	12.598	0.50	0.75	2.49	222.00	0.000	0.000	31.34	0.00	0.00
14	117.00	Ericsson KRY 112 144/1	3	11.453	12.598	0.50	0.75	0.62	33.00	0.000	0.000	7.79	0.00	0.00
15	117.00	Sitepro HRK12-U	1	11.453	12.598	1.00	1.00	9.85	418.00	0.000	0.000	124.09	0.00	0.00
16	117.00	Sitepro PRK-1245	1	11.453	12.598	1.00	1.00	9.50	228.00	0.000	0.000	119.69	0.00	0.00
17	117.00	APXVAARR24_43-U-NA2	3	11.453	12.598	0.52	0.75	31.88	384.00	0.000	0.000	401.61	0.00	0.00
18	117.00	Ericsson Air 21 B2A/B4P	3	11.453	12.598	0.65	0.75	11.78	274.50	0.000	0.000	148.46	0.00	0.00
19	117.00	Ericsson Air 21 B4A/B2P	3	11.453	12.598	0.65	0.75	11.78	273.00	0.000	0.000	148.46	0.00	0.00
20	107.00	RRH2x60-700	3	11.240	12.364	0.54	0.80	5.63	180.00	0.000	0.000	69.58	0.00	0.00
21	107.00	Low Profile Platform	1	11.240	12.364	1.00	1.00	25.00	1200.00	0.000	0.000	309.09	0.00	0.00
22	107.00	BXA-70063-6CF-2	3	11.240	12.364	0.58	0.80	13.26	51.00	0.000	0.000	163.98	0.00	0.00
23	107.00	SBNHH-1D65B	9	11.240	12.364	0.66	0.80	48.29	365.40	0.000	0.000	596.99	0.00	0.00
24	107.00	RRH2X60-PCS	3	11.240	12.364	0.54	0.80	3.54	165.00	0.000	0.000	43.74	0.00	0.00
25	107.00	RRH4x45AWS	3	11.240	12.364	0.54	0.80	4.36	180.00	0.000	0.000	53.88	0.00	0.00
26	107.00	DB-T1-6Z-8AB-0Z	2	11.240	12.364	0.80	0.80	7.68	37.80	0.000	0.000	94.95	0.00	0.00
27	90.00	MC-PK8-DSH	1	10.838	11.921	1.00	1.00	37.59	1727.00	0.000	0.000	448.13	0.00	0.00
28	90.00	RDIDC-9181-OF-48	1	10.838	11.921	0.50	0.75	1.01	21.90	0.000	0.000	12.04	0.00	0.00
29	90.00	TA08025-B605	3	10.838	11.921	0.50	0.75	2.95	225.00	0.000	0.000	35.22	0.00	0.00
30	90.00	TA08025-B604	3	10.838	11.921	0.57	0.75	3.35	191.70	0.000	0.000	39.96	0.00	0.00
31	90.00	MX08FRO665-21	3	10.838	11.921	0.55	0.75	20.80	193.50	0.000	0.000	247.92	0.00	0.00
							Totals:		**11,452.96**			**4,663.45**		

Total Applied Force Summary

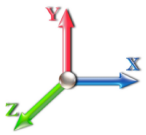
Structure:	CT13615-A-SBA		**Code:**	EIA/TIA-222-G	11/15/2021
Site Name:	Madison 7, CT		**Exposure:**	C	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 30

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

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		129.18	1620.52	0.00	0.00
10.00		126.39	1591.22	0.00	0.00
15.00		123.59	1561.93	0.00	0.00
20.00		128.18	1532.63	0.00	0.00
25.00		131.24	1503.34	0.00	0.00
30.00		133.15	1474.04	0.00	0.00
35.00		134.21	1444.75	0.00	0.00
40.00		134.61	1415.45	0.00	0.00
42.00		53.43	557.98	0.00	0.00
45.00		81.54	1406.36	0.00	0.00
48.00		81.37	1386.78	0.00	0.00
50.00		54.00	484.51	0.00	0.00
55.00		135.16	1193.69	0.00	0.00
60.00		133.93	1168.58	0.00	0.00
65.00		132.41	1143.47	0.00	0.00
70.00		130.63	1118.36	0.00	0.00
75.00		128.63	1093.25	0.00	0.00
80.00		126.43	1068.14	0.00	0.00
85.00		124.03	1043.03	0.00	0.00
85.25		6.10	51.49	0.00	0.00
90.00	(11) attachments	900.12	3803.50	0.00	0.00
95.00		120.41	761.81	0.00	0.00
100.00		117.56	745.07	0.00	0.00
105.00		114.57	728.33	0.00	0.00
107.00	(24) attachments	1377.04	2465.85	0.00	0.00
110.00		66.37	387.15	0.00	0.00
115.00		108.23	631.85	0.00	0.00
117.00	(18) attachments	1345.57	3680.55	0.00	0.00
120.00		62.41	325.78	0.00	0.00
125.00		101.43	529.57	0.00	0.00
127.00	(35) attachments	1284.13	3689.30	0.00	0.00
130.00		58.20	219.77	0.00	0.00
	Totals:	**7,884.22**	**41,828.08**	**0.00**	**0.00**

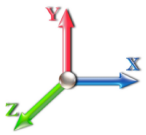
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (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	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

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	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.024	0.000	7.442	0.00	0.25
10.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.025	0.000	7.442	0.00	0.25
15.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.025	0.000	7.442	0.00	0.25
20.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.026	0.000	7.896	0.00	0.25
25.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.026	0.000	8.276	0.00	0.25
30.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.027	0.000	8.600	0.00	0.25
35.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.028	0.000	8.883	0.00	0.25
40.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.029	0.000	9.137	0.00	0.25
42.00	1.411" Fiber	Yes	2.00	0.000	1.41	0.23	0.00	0.029	0.000	9.231	0.00	0.10
45.00	1.411" Fiber	Yes	3.00	0.000	1.41	0.35	0.00	0.029	0.000	9.366	0.00	0.15
48.00	1.411" Fiber	Yes	3.00	0.000	1.41	0.35	0.00	0.030	0.000	9.494	0.00	0.15
50.00	1.411" Fiber	Yes	2.00	0.000	1.41	0.23	0.00	0.030	0.000	9.576	0.00	0.10
55.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.030	0.000	9.770	0.00	0.25
60.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.031	0.000	9.951	0.00	0.25
65.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.032	0.000	10.120	0.00	0.25
70.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.033	0.000	10.279	0.00	0.25
75.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.034	0.000	10.430	0.00	0.25
80.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.035	0.000	10.572	0.00	0.25
85.00	1.411" Fiber	Yes	5.00	0.000	1.41	0.59	0.00	0.036	0.000	10.708	0.00	0.25
85.25	1.411" Fiber	Yes	0.25	0.000	1.41	0.03	0.00	0.037	0.000	10.715	0.00	0.01
90.00	1.411" Fiber	Yes	4.75	0.000	1.41	0.56	0.00	0.038	0.000	10.838	0.00	0.24
										Totals:	**0.0**	**4.5**

Calculated Forces

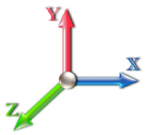
Structure:	CT13615-A-SBA	**Code:**	EIA/TIA-222-G	11/15/2021	
Site Name:	Madison 7, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 32	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

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	-41.83	-7.90	0.00	-747.00	0.00	747.00	5435.95	2717.97	12860.7	6439.91	0.00	0.000	0.000	0.124
5.00	-40.20	-7.79	0.00	-707.52	0.00	707.52	5360.22	2680.11	12406.3	6212.37	0.02	-0.031	0.000	0.121
10.00	-38.61	-7.68	0.00	-668.59	0.00	668.59	5282.67	2641.34	11955.5	5986.66	0.07	-0.062	0.000	0.119
15.00	-37.04	-7.58	0.00	-630.18	0.00	630.18	5203.30	2601.65	11508.7	5762.93	0.15	-0.094	0.000	0.116
20.00	-35.50	-7.46	0.00	-592.30	0.00	592.30	5122.11	2561.06	11066.1	5541.30	0.26	-0.125	0.000	0.114
25.00	-34.00	-7.35	0.00	-554.98	0.00	554.98	5039.10	2519.55	10628.0	5321.92	0.41	-0.157	0.000	0.111
30.00	-32.52	-7.23	0.00	-518.24	0.00	518.24	4954.26	2477.13	10194.7	5104.94	0.59	-0.189	0.000	0.108
35.00	-31.07	-7.11	0.00	-482.09	0.00	482.09	4867.60	2433.80	9766.46	4890.49	0.81	-0.222	0.000	0.105
40.00	-29.65	-6.98	0.00	-446.55	0.00	446.55	4779.12	2389.56	9343.53	4678.71	1.06	-0.254	0.000	0.102
42.00	-29.09	-6.93	0.00	-432.60	0.00	432.60	4743.22	2371.61	9175.92	4594.78	1.17	-0.267	0.000	0.100
45.00	-27.68	-6.85	0.00	-411.81	0.00	411.81	4688.82	2344.41	8926.23	4469.75	1.34	-0.287	0.000	0.098
48.00	-26.30	-6.77	0.00	-391.25	0.00	391.25	3840.55	1920.27	7332.01	3671.45	1.53	-0.306	0.000	0.113
50.00	-25.81	-6.73	0.00	-377.71	0.00	377.71	3813.07	1906.53	7201.22	3605.96	1.66	-0.319	0.000	0.112
55.00	-24.61	-6.60	0.00	-344.08	0.00	344.08	3743.08	1871.54	6876.85	3443.54	2.01	-0.354	0.000	0.107
60.00	-23.44	-6.47	0.00	-311.09	0.00	311.09	3671.28	1835.64	6556.42	3283.08	2.41	-0.389	0.000	0.101
65.00	-22.29	-6.34	0.00	-278.74	0.00	278.74	3597.66	1798.83	6240.20	3124.74	2.83	-0.423	0.000	0.095
70.00	-21.17	-6.22	0.00	-247.03	0.00	247.03	3522.21	1761.10	5928.48	2968.65	3.29	-0.456	0.000	0.089
75.00	-20.08	-6.09	0.00	-215.95	0.00	215.95	3444.94	1722.47	5621.53	2814.94	3.79	-0.488	0.000	0.083
80.00	-19.01	-5.96	0.00	-185.50	0.00	185.50	3365.85	1682.92	5319.64	2663.77	4.31	-0.518	0.000	0.075
85.00	-17.97	-5.83	0.00	-155.69	0.00	155.69	3284.94	1642.47	5023.09	2515.28	4.87	-0.546	0.000	0.067
85.25	-17.91	-5.83	0.00	-154.23	0.00	154.23	3280.84	1640.42	5008.41	2507.93	4.90	-0.547	0.000	0.067
90.00	-14.12	-4.90	0.00	-126.53	0.00	126.53	1897.08	948.54	2862.22	1433.24	5.46	-0.572	0.000	0.096
95.00	-13.35	-4.78	0.00	-102.03	0.00	102.03	1858.98	929.49	2709.28	1356.65	6.07	-0.595	0.000	0.082
100.00	-12.61	-4.66	0.00	-78.14	0.00	78.14	1819.06	909.53	2557.69	1280.75	6.71	-0.624	0.000	0.068
105.00	-11.88	-4.54	0.00	-54.85	0.00	54.85	1777.32	888.66	2407.73	1205.66	7.38	-0.647	0.000	0.052
107.00	-9.43	-3.14	0.00	-45.77	0.00	45.77	1760.11	880.05	2348.27	1175.88	7.65	-0.655	0.000	0.044
110.00	-9.04	-3.07	0.00	-36.37	0.00	36.37	1733.75	866.88	2259.69	1131.52	8.07	-0.665	0.000	0.037
115.00	-8.41	-2.95	0.00	-21.04	0.00	21.04	1688.37	844.18	2113.84	1058.49	8.77	-0.678	0.000	0.025
117.00	-4.75	-1.56	0.00	-15.13	0.00	15.13	1669.70	834.85	2056.18	1029.62	9.06	-0.682	0.000	0.018
120.00	-4.42	-1.50	0.00	-10.45	0.00	10.45	1641.16	820.58	1970.46	986.70	9.49	-0.686	0.000	0.013
125.00	-3.89	-1.39	0.00	-2.96	0.00	2.96	1592.13	796.06	1829.84	916.28	10.21	-0.690	0.000	0.006
127.00	-0.22	-0.06	0.00	-0.18	0.00	0.18	1572.01	786.00	1774.43	888.53	10.50	-0.690	0.000	0.000
130.00	0.00	-0.06	0.00	0.00	0.00	0.00	1541.28	770.64	1692.26	847.39	10.93	-0.690	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 101 mph Wind	35.8	0.00	50.15	0.00	0.00	3399.49
0.9D + 1.6W 101 mph Wind	35.8	0.00	37.60	0.00	0.00	3378.22
1.2D + 1.0Di + 1.0Wi 50 mph Wind	9.2	0.00	75.36	0.00	0.00	855.13
1.2D + 1.0E	1.8	0.00	50.19	0.00	0.00	190.07
0.9D + 1.0E	1.8	0.00	37.65	0.00	0.00	188.79
1.0D + 1.0W 60 mph Wind	7.9	0.00	41.83	0.00	0.00	747.00

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 101 mph Wind	-50.15	-35.81	0.00	-3399.4	0.00	-3399.4	5435.95	2717.9	12860.7	6439.91	0.00	0.537
0.9D + 1.6W 101 mph Wind	-37.60	-35.79	0.00	-3378.2	0.00	-3378.2	5435.95	2717.9	12860.7	6439.91	0.00	0.532
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-75.36	-9.20	0.00	-855.13	0.00	-855.13	5435.95	2717.9	12860.7	6439.91	0.00	0.147
1.2D + 1.0E	-16.99	-1.45	0.00	-46.64	0.00	-46.64	1897.08	948.54	2862.22	1433.24	90.00	0.042
0.9D + 1.0E	-12.74	-1.43	0.00	-46.28	0.00	-46.28	1897.08	948.54	2862.22	1433.24	90.00	0.039
1.0D + 1.0W 60 mph Wind	-41.83	-7.90	0.00	-747.00	0.00	-747.00	5435.95	2717.9	12860.7	6439.91	0.00	0.124

Base Plate Summary

Structure:	CT13615-A-SB		**Code:**	EIA/TIA-222-G	11/15/2021
Site Name:	Madison 7, CT		**Exposure:**	C	
Height:	130.00 (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

Reactions	
Original Design	
Moment (kip-ft):	5098.40
Axial (kip):	100.90
Shear (kip):	46.40
Analysis (1.2D + 1.6W)	
Moment (kip-ft):	3399.49
Axial (kip):	50.15
Shear (kip):	35.81

Base Plate	
Yield (ksi):	50.00
Width (in):	67.00
Style:	Round
Polygon Sides:	0.00
Clip Length (in):	0.00
Effective Len (in):	8.93
Moment (kip-in):	256.29
Allow Stress (ksi):	67.50
Applied Stress (ksi):	56.02
Stress Ratio:	0.83

Anchor Bolts	
Bolt Circle:	63.00
Number Bolts:	26.00
Bolt Type:	1.5" F1554 105
Bolt Diameter (in):	1.50
Yield (ksi):	105.00
Ultimate (ksi):	125.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	0.00
Compression	
Force (kip):	102.52
Allowable (kip):	141.00
Ratio:	0.75
Tension	
Force (kip):	96.72
Allowable (kip):	141.00
Ratio:	0.71

Monopole Mat Foundation Design

				Date
				11/15/2021
	Customer Name:	Dish Wireless	**EIA/TIA Standard:**	EIA-222-G
	Site Name:		**Structure Height (Ft.):**	130
	Site Number:	CT13615-A-SBA	**Engineer Name:**	J. Tibbetts
	Engr. Number:	119338	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

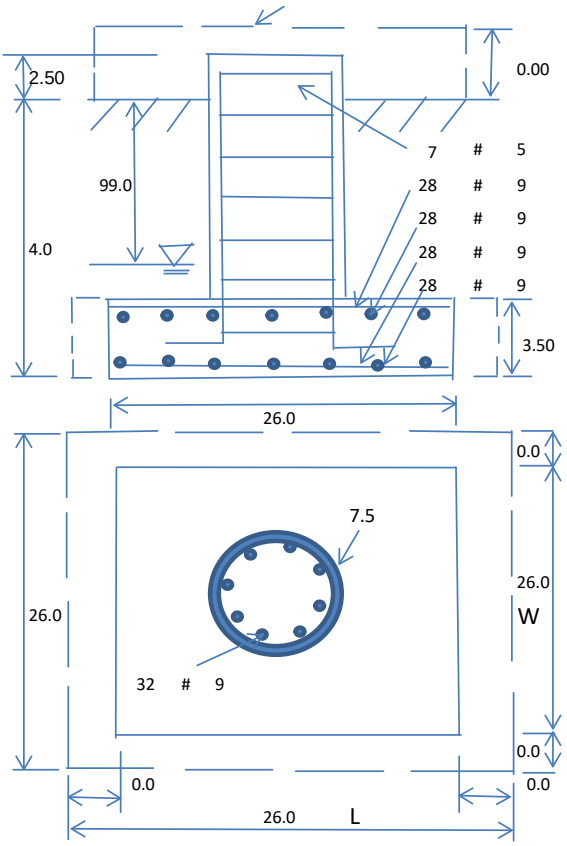
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	50.1	Shear Force (Kips):	35.8
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3399.5
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.5	Depth of Base BG (ft.):	4.0
Pier Height A. G. (ft.):	2.50	Thickness of Pad (ft):	3.50
Length of Pad (ft.):	26	Width of Pad (ft.):	26
Final Length of pad (ft)	26.0	Final width of pad (ft):	26.0



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:	32	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
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):	28	Qty. of Rebar in Pad (W):	28	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	28	Qty. of Rebar in Pad (W):	28	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	37.6	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	15000	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.:	No	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.):	315.91	Total Dry Soil Weight (Kips):	37.91
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	37.91	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2498.54	Total Dry Concrete Weight (Kips):	374.78
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	374.78	Total Vertical Load on Base (Kips):	462.79

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	2353	<	Allowable Factored Soil Bearing (psf):	11250	0.21	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	5479.8	>	Design Factored Momont (kips-ft):	3632	0.66	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.51	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):	5835.6	>	Design Factored Moment (Mu, Kips-F	3506.9	0.60	OK!
Calculated Shear Capacity (Kips):	826.7	>	Design Factored Shear (Kips):	35.8	0.04	OK!
Calculated Tension Capacity (Tn, Kips):	1728.0	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	11191.0	>	Design Factored Axial Load (Pu Kips):	50.1	0.00	OK!
Moment & Axial Strength Combination:	0.60	OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.005		Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	1137.7	>	One-Way Factored Shear (L-D. Kips):	206.1	0.18	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1137.7	>	One-Way Factored Shear (W-D., Kips)	206.1	0.18	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1000.5	>	One-Way Factored Shear (C-C, Kips):	201.1	0.20	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0023	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0023		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	4743.4	>	Moment at Bottom (L-Dir. K-Ft):	1215.2	0.26	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	4743.4	>	Moment at Bottom (W-Dir. K-Ft):	1215.2	0.26	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	6672.0	>	Moment at Bottom (C-C Dir. K-Ft):	1718.5	0.26	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0023	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0023		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	4743.4	>	Moment at the top (L-Dir K-Ft):	517.6	0.11	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	4743.4	>	Moment at the top (W-Dir K-Ft):	517.6	0.11	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	6672.0	>	Moment at the top (C-C Dir. K-Ft):	486.2	0.07	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	1359.8	k-ft.	Max. factored shear stress v_{u_CD}:		2.4	Psi
Max. factored shear stress v_{u_AB}:	7.4	Psi	Factored shear Strength ϕv_n:		189.7	Psi
Max. factored shear stress v_u:	7.4	Psi	Check Usage of Punching Shear Capacity:		0.04	OK!

Exhibit E

Mount Analysis

November 10, 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:	BOHVN00048A
	Site Name:	N/A
***SBA Network Services Designation*:**	**Site Number:**	CT13615-A
	Site Name:	Madison 7, CT
	Application Number:	169187, v1
Engineering Firm Designation:	**B+T Group Project Number:**	149473.003.01
Site Data:	**17 Cottage Road, Madison, CT, 06443, New Haven County** **Latitude *41.27591*°, Longitude *-72.56144*°** **Monopole** **8' Platform Mount**	

Dear Mr. 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:

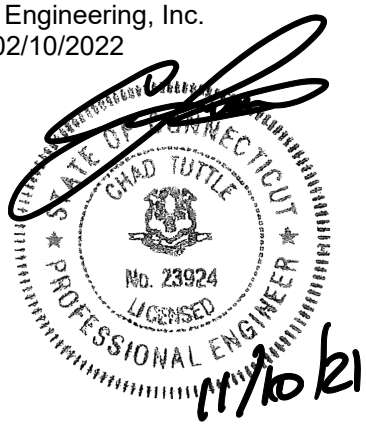
Proposed Equipment Note: See Table 1 for the final loading configuration	**Sufficient Capacity** **(Passing at 55.3%)**

This analysis utilizes an ultimate 3-second gust wind speed of 124 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

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: Anne Delice

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 mount (Part #MC-PK8-DSH) at 90 ft., attached to monopole at 17 Cottage Road, Madison, CT, 06443, New Haven 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-H-2017 Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures using a 3-second gust wind speed of 124 mph with no ice and 50 mph with 1 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	90	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 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
Collo App	Proposed Loading	Date: 08/10/2021	SBA Network Services, LLC.
RFDS		Date: 07/23/2021	

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 Face Horizontals	90	7.9	Pass
-	Support Rails	90	15.0	Pass
-	Support Tubes	90	52.7	Pass
-	Support Channels	90	37.3	Pass
-	Support Angles	90	40.3	Pass
-	Mount Pipes	90	16.4	Pass
-	Connection Plates	90	19.8	Pass
-	Connection Angles	90	25.2	Pass
-	Connection Bolts	90	55.3	Pass

5) RECOMMENDATIONS

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

APPENDIX A

(RISA-3D Output)

PROJECT	**149473.003.01 - Madison 7, C**		**KSC**
SUBJECT	**Platform Mount Analysis**		
DATE	**11/10/21**	PAGE	OF

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

Tower Type		:	Monopole		
Ground Elevation	z_s	:	29	ft	[ASCE7 Hazard Tool]
Tower Height		:	130.00	ft	
Mount Elevation		:	90.00	ft	
Antenna Elevation		:	90.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	C		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	124	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.00	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.20		
	S_1	:	0.05		
	S_{DS}	:	0.22		
	S_{D1}	:	0.09		

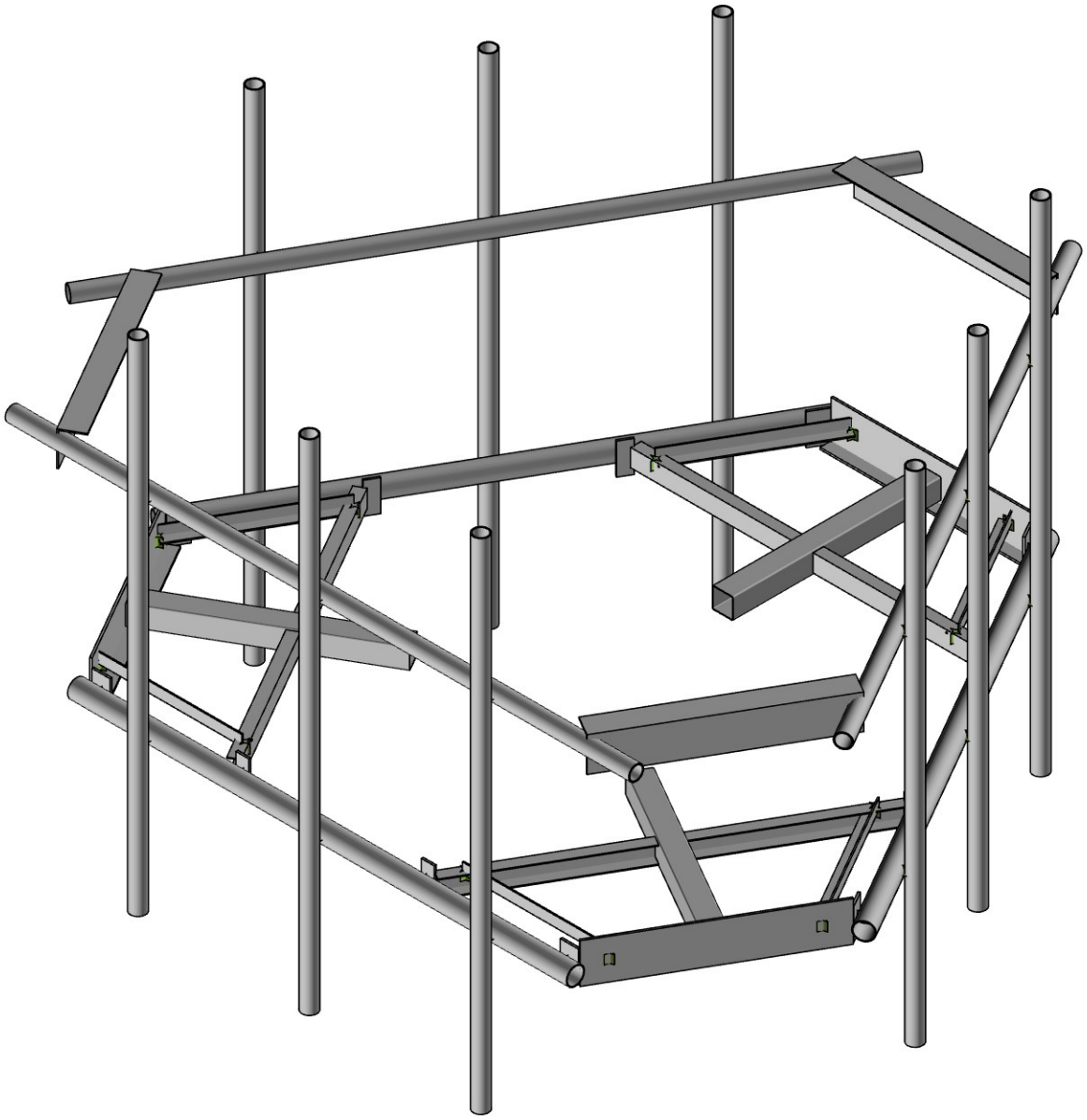
Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.24		[Sec. 2.6.5.2]
Topography Factor	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	1.00		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.11	in	[Sec. 2.6.10]

Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.109		[Sec. 2.7.7.1]
Amplification	A_s	:	1.769231		[Sec. 16.7]

	q_z	:	46.24	psf

PROJECT	**149473.003.01 - Madison 7, C**	**KSC**
SUBJECT	**Platform Mount Analysis**	
DATE	**11/10/21**	PAGE OF

Manufacturer	**Model**	**Qty**	**Aspect Ratio**	**C_a** flat/round	**EPA$_N$** (ft^2)	**EPA$_T$** (ft^2)	**EPA$_{N\text{-}Ice}$** (ft^2)	**EPA$_{T\text{-}Ice}$** (ft^2)	**F**$_{A\ No\ Ice}$ (N)	**F**$_{A\ No\ Ice}$ (T)	**F**$_{A\ Ice}$ (N)	**F**$_{A\ Ice}$ (T)
JMA Wireless	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.19	0.07	0.03	0.02
JMA Wireless	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.19	0.07	0.03	0.02
Fujitsu	TA08025-B605	1	1.05	1.20	1.64	0.99	2.14	1.40	0.08	0.05	0.01	0.01
Fujitsu	TA08025-B604	1	1.05	1.20	1.64	0.86	2.14	1.26	0.08	0.04	0.01	0.01
JMA Wireless	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.19	0.07	0.03	0.02
JMA Wireless	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.19	0.07	0.03	0.02
Fujitsu	TA08025-B605	1	1.05	1.20	1.64	0.99	2.14	1.40	0.08	0.05	0.01	0.01
Fujitsu	TA08025-B604	1	1.05	1.20	1.64	0.86	2.14	1.26	0.08	0.04	0.01	0.01
JMA Wireless	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.19	0.07	0.03	0.02
JMA Wireless	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.19	0.07	0.03	0.02
Fujitsu	TA08025-B605	1	1.05	1.20	1.64	0.99	2.14	1.40	0.08	0.05	0.01	0.01
Fujitsu	TA08025-B604	1	1.05	1.20	1.64	0.86	2.14	1.26	0.08	0.04	0.01	0.01
RAYCAP	RDIDC-9181-PF-48	1	1.14	1.20	1.68	0.94	2.19	1.35	0.08	0.05	0.01	0.01



Envelope Only Solution

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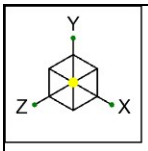

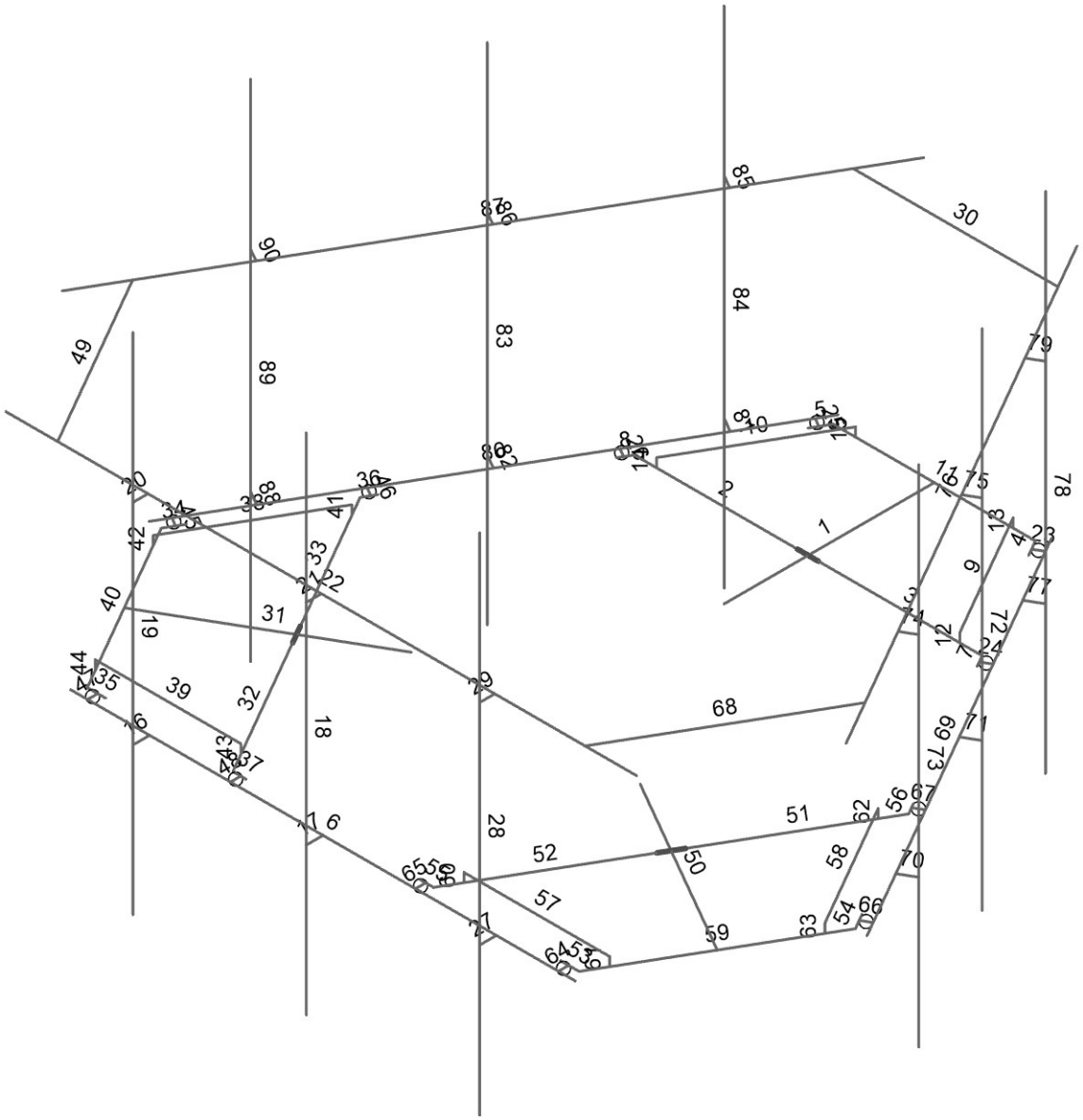

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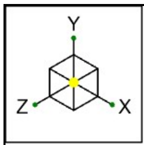

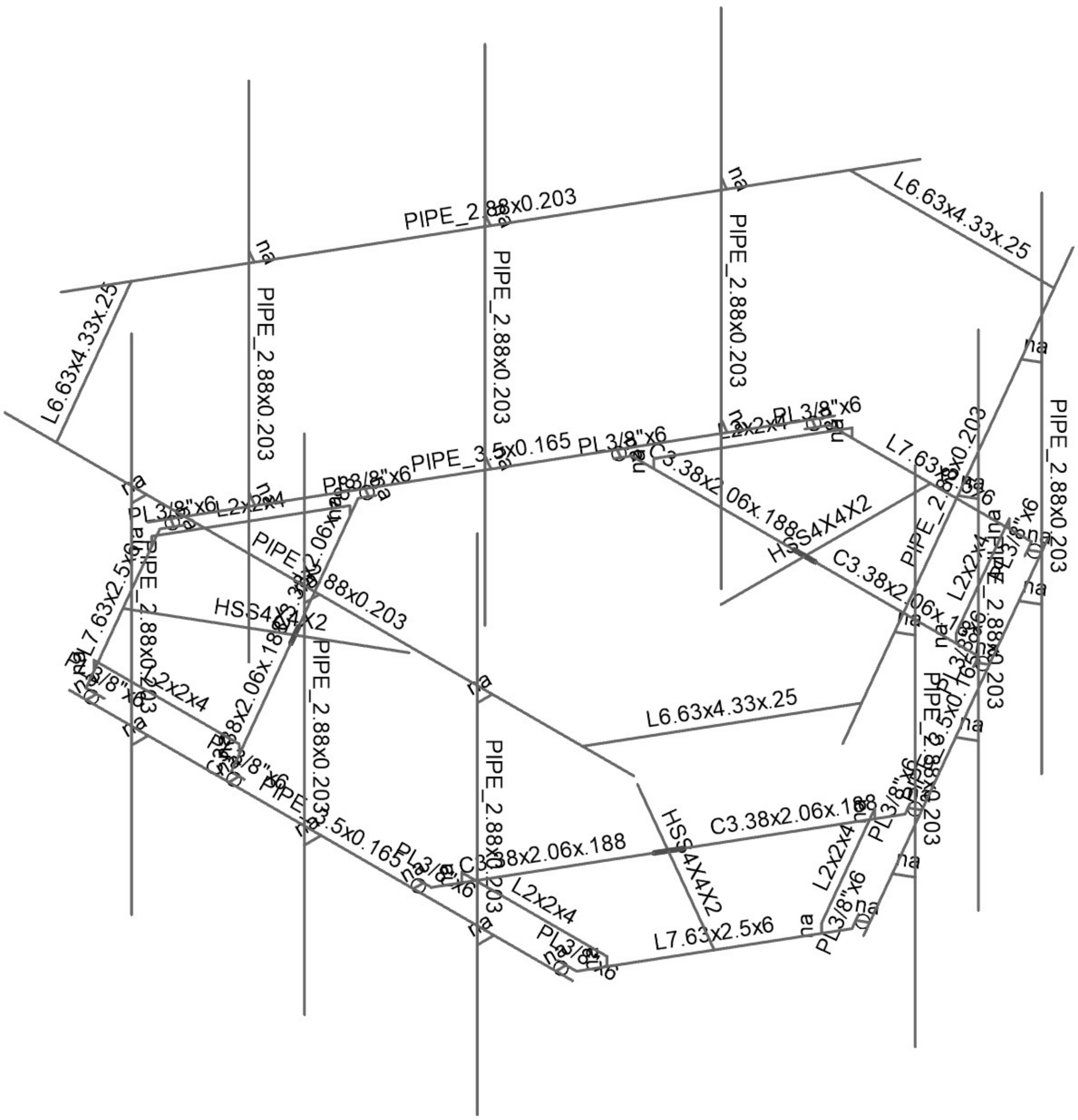

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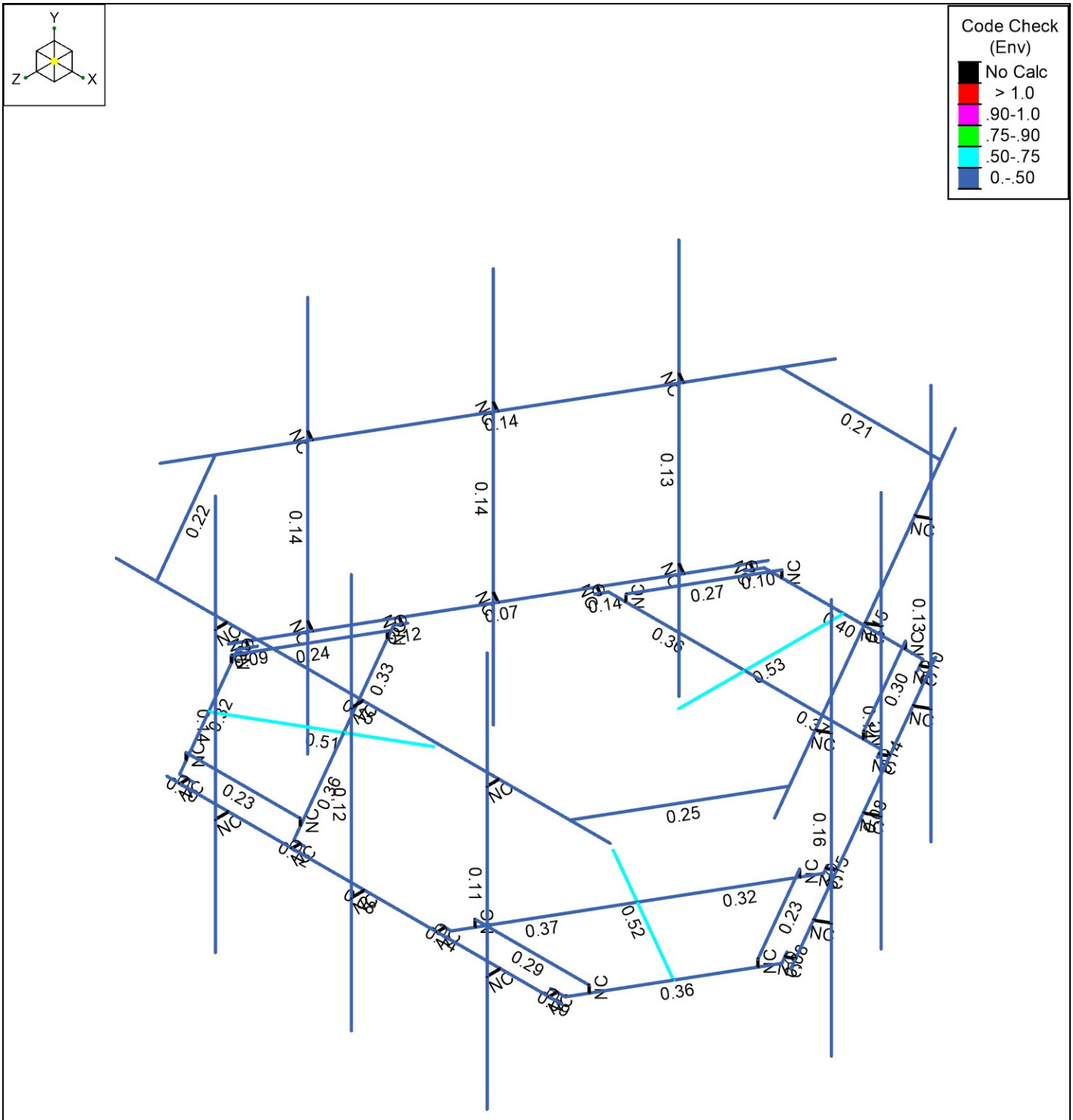

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Envelope Only Solution

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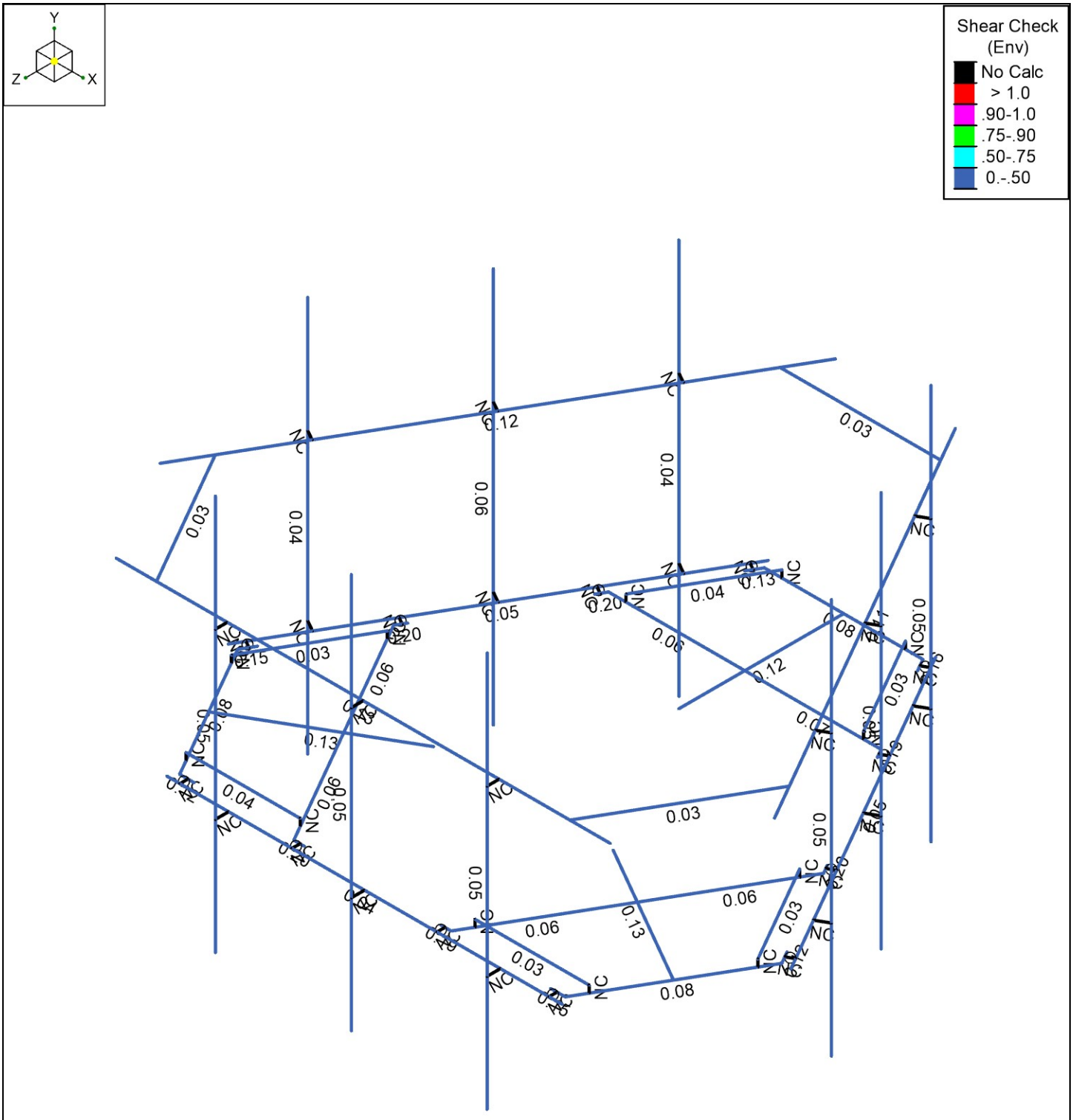

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	CT13615-A - Madison 7, CT	SK-5
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Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0	0	-2.097158	
2	2	0	0	-5.430492	
3	3	0	0	-3.430492	
4	4	2.758333	0	-3.430492	
5	5	-2.758333	0	-3.430492	
6	6	-1.603633	0	-5.430492	
7	7	1.603633	0	-5.430492	
8	8	1.749466	0	-5.177901	
9	9	-1.749466	0	-5.177901	
10	10	1.686966	0	-5.286154	
11	11	1.82682	0	-5.366899	
12	12	-1.686966	0	-5.286154	
13	13	-1.82682	0	-5.366899	
14	14	-3.999998	0	4.265522	
15	15	3.999998	0	4.265522	
16	16	2.8625	0	-3.25007	
17	17	2.820833	0	-3.322239	
18	18	2.960687	0	-3.402984	
19	19	-2.8625	0	-3.25007	
20	20	-2.820833	0	-3.322239	
21	21	-2.960687	0	-3.402984	
22	22	-1.25	0.140833	-5.430492	
23	23	-2.404701	0.140833	-3.430492	
24	24	2.404701	0.140833	-3.430492	
25	25	1.25	0.140833	-5.430492	
26	26	-1.25	0	-5.430492	
27	27	-2.404701	0	-3.430492	
28	28	2.404701	0	-3.430492	
29	29	1.25	0	-5.430492	
30	30	-2.749998	0	4.265522	
31	31	0.000002	0	4.265522	
32	32	-2.749998	0	4.531147	
33	33	0.000002	0	4.531147	
34	34	-2.749998	-2.333667	4.531147	
35	35	0.000002	-2.333667	4.531147	
36	36	-2.749998	5.666335	4.531147	
37	37	0.000002	5.666335	4.531147	
38	38	-2.749998	3.333337	4.531147	
39	39	0.000002	3.333337	4.531147	
40	40	-2.749998	3.333337	4.291563	
41	41	0.000002	3.333337	4.291563	
42	42	-5	3.333337	4.291563	
43	43	5	3.333337	4.291563	
44	44	2.749998	0	4.265522	
45	45	2.749998	0	4.531147	
46	46	2.749998	-2.333667	4.531147	
47	47	2.749998	5.666335	4.531147	
48	48	2.749998	3.333337	4.531147	
49	49	2.749998	3.333337	4.291563	
50	50	0	0	0	
51	51	1.625037	3.333337	-5.768481	
52	52	-1.625037	3.333337	-5.768481	
53	53	-1.816192	0	1.048579	
54	54	-4.702944	0	2.715246	
55	55	-2.970893	0	1.715246	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	-4.35006	0	-0.673541	
57	57	-1.591726	0	4.104033	
58	58	-3.901127	0	4.104033	
59	59	-5.50476	0	1.326459	
60	60	-5.358927	0	1.073868	
61	61	-3.609461	0	4.104033	
62	62	-5.421427	0	1.182121	
63	63	-5.56128	0	1.101377	
64	64	-3.734461	0	4.104033	
65	65	-3.734461	0	4.265522	
66	66	-4.245893	0	-0.853963	
67	67	-4.28756	0	-0.781793	
68	68	-4.427414	0	-0.862538	
69	69	-1.383393	0	4.104033	
70	70	-1.466727	0	4.104033	
71	71	-1.466727	0	4.265522	
72	72	-4.077944	0.140833	3.797778	
73	73	-1.768543	0.140833	3.797778	
74	74	-4.173243	0.140833	-0.367286	
75	75	-5.327944	0.140833	1.632714	
76	76	-4.077944	0	3.797778	
77	77	-1.768543	0	3.797778	
78	78	-4.173243	0	-0.367286	
79	79	-5.327944	0	1.632714	
80	80	-5.808169	3.333337	1.476917	
81	81	-4.183133	3.333337	4.291563	
82	82	1.816192	0	1.048579	
83	83	4.702944	0	2.715246	
84	84	2.970893	0	1.715246	
85	85	1.591726	0	4.104033	
86	86	4.35006	0	-0.673541	
87	87	5.50476	0	1.326459	
88	88	3.901127	0	4.104033	
89	89	3.609461	0	4.104033	
90	90	5.358927	0	1.073868	
91	91	3.734461	0	4.104033	
92	92	3.734461	0	4.265522	
93	93	5.421427	0	1.182121	
94	94	5.56128	0	1.101377	
95	95	1.383393	0	4.104033	
96	96	1.466727	0	4.104033	
97	97	1.466727	0	4.265522	
98	98	4.245893	0	-0.853963	
99	99	4.28756	0	-0.781793	
100	100	4.427414	0	-0.862538	
101	101	5.327944	0.140833	1.632714	
102	102	4.173243	0.140833	-0.367286	
103	103	1.768543	0.140833	3.797778	
104	104	4.077944	0.140833	3.797778	
105	105	5.327944	0	1.632714	
106	106	4.173243	0	-0.367286	
107	107	1.768543	0	3.797778	
108	108	4.077944	0	3.797778	
109	109	4.183133	3.333337	4.291563	
110	110	5.808169	3.333337	1.476917	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	111	5.694049	0	1.331339	
112	112	1.694051	0	-5.596861	
113	113	5.069049	0	0.248807	
114	114	3.694049	0	-2.132763	
115	115	5.299087	0	0.115995	
116	116	3.924087	0	-2.265575	
117	117	5.299087	-2.333667	0.115995	
118	118	3.924087	-2.333667	-2.265575	
119	119	5.299087	5.666335	0.115995	
120	120	3.924087	5.666335	-2.265575	
121	121	5.299087	3.333337	0.115995	
122	122	3.924087	3.333337	-2.265575	
123	123	5.091602	3.333337	0.235786	
124	124	3.716602	3.333337	-2.145783	
125	125	6.216603	3.333337	2.184345	
126	126	1.216603	3.333337	-6.475909	
127	127	2.319051	0	-4.514329	
128	128	2.549089	0	-4.647142	
129	129	2.549089	-2.333667	-4.647142	
130	130	2.549089	5.666335	-4.647142	
131	131	2.549089	3.333337	-4.647142	
132	132	2.341604	3.333337	-4.52735	
133	133	-1.694051	0	-5.596861	
134	134	-5.694049	0	1.331339	
135	135	-2.319051	0	-4.514329	
136	136	-3.694051	0	-2.132759	
137	137	-2.549089	0	-4.647142	
138	138	-3.924089	0	-2.265572	
139	139	-2.549089	-2.333667	-4.647142	
140	140	-3.924089	-2.333667	-2.265572	
141	141	-2.549089	5.666335	-4.647142	
142	142	-3.924089	5.666335	-2.265572	
143	143	-2.549089	3.333337	-4.647142	
144	144	-3.924089	3.333337	-2.265572	
145	145	-2.341604	3.333337	-4.52735	
146	146	-3.716604	3.333337	-2.14578	
147	147	-1.216603	3.333337	-6.475909	
148	148	-6.216603	3.333337	2.184345	
149	149	-5.069049	0	0.248807	
150	150	-5.299087	0	0.115995	
151	151	-5.299087	-2.333667	0.115995	
152	152	-5.299087	5.666335	0.115995	
153	153	-5.299087	3.333337	0.115995	
154	154	-5.091602	3.333337	0.235786	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	2						
3	3						
4	4						
5	5						
6	16						
7	17						
8	19						

Node Boundary Conditions (Continued)

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
9	20						
10	22						
11	25						
12	26						
13	29						
14	53	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
15	54						
16	55						
17	56						
18	57						
19	66						
20	67						
21	69						
22	70						
23	72						
24	75						
25	76						
26	79						
27	82	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
28	83						
29	84						
30	85						
31	86						
32	95						
33	96						
34	98						
35	99						
36	101						
37	104						
38	105						
39	108						

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
8	A500 Gr.C	29000	11154	0.3	0.65	0.49	46	1.4	62	1.3

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_3.5x0.165	Beam	Pipe	A500 Gr.C	Typical	1.729	2.409	2.409	4.819
2	MF-H2	PIPE_2.88x0.203	Beam	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
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_2.88x0.203	Column	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
8	MF-CP1	PL3/8"x6	Beam	RECT	A36 Gr.36	Typical	2.25	0.026	6.75	0.101

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
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	A500 Gr.C	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	A500 Gr.C	Typical
19	19	36	34		MF-P1	Column	Pipe	A500 Gr.C	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	A500 Gr.C	Typical
23	23	11	10		RIGID	None	None	RIGID	Typical
24	24	18	17		RIGID	None	None	RIGID	Typical
25	25	13	12		RIGID	None	None	RIGID	Typical
26	26	21	20		RIGID	None	None	RIGID	Typical
27	27	45	44		RIGID	None	None	RIGID	Typical
28	28	47	46		MF-P1	Column	Pipe	A500 Gr.C	Typical
29	29	48	49		RIGID	None	None	RIGID	Typical
30	30	51	52	180	MF-H3	Beam	Single Angle	A36 Gr.36	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	63	62		RIGID	None	None	RIGID	Typical
46	46	68	67		RIGID	None	None	RIGID	Typical
47	47	65	64		RIGID	None	None	RIGID	Typical
48	48	71	70		RIGID	None	None	RIGID	Typical
49	49	80	81	180	MF-H3	Beam	Single Angle	A36 Gr.36	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

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
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	92	91		RIGID	None	None	RIGID	Typical
65	65	97	96		RIGID	None	None	RIGID	Typical
66	66	94	93		RIGID	None	None	RIGID	Typical
67	67	100	99		RIGID	None	None	RIGID	Typical
68	68	109	110	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
69	69	111	112		MF-H1	Beam	Pipe	A500 Gr.C	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	A500 Gr.C	Typical
73	73	119	117		MF-P1	Column	Pipe	A500 Gr.C	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	A500 Gr.C	Typical
77	77	128	127		RIGID	None	None	RIGID	Typical
78	78	130	129		MF-P1	Column	Pipe	A500 Gr.C	Typical
79	79	131	132		RIGID	None	None	RIGID	Typical
80	80	133	134		MF-H1	Beam	Pipe	A500 Gr.C	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	A500 Gr.C	Typical
84	84	141	139		MF-P1	Column	Pipe	A500 Gr.C	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	A500 Gr.C	Typical
88	88	150	149		RIGID	None	None	RIGID	Typical
89	89	152	151		MF-P1	Column	Pipe	A500 Gr.C	Typical
90	90	153	154		RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
1	1				Yes	N/A	None
2	2			2	Yes	N/A	None
3	3		2		Yes	N/A	None
4	4				Yes	N/A	None
5	5				Yes	N/A	None
6	6				Yes	N/A	None
7	7				Yes	N/A	None
8	8				Yes	N/A	None
9	9				Yes	N/A	None
10	10				Yes	N/A	None
11	11				Yes	N/A	None
12	12				Yes	** NA **	None
13	13				Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
14	14				Yes	** NA **	None
15	15				Yes	** NA **	None
16	16				Yes	** NA **	None
17	17				Yes	** NA **	None
18	18				Yes	** NA **	None
19	19				Yes	** NA **	None
20	20				Yes	** NA **	None
21	21				Yes	** NA **	None
22	22				Yes	N/A	None
23	23	OOOOOX			Yes	** NA **	None
24	24	OOOOOX			Yes	** NA **	None
25	25	OOOOOX			Yes	** NA **	None
26	26	OOOOOX			Yes	** NA **	None
27	27				Yes	** NA **	None
28	28				Yes	** NA **	None
29	29				Yes	** NA **	None
30	30				Yes	N/A	None
31	31				Yes	N/A	None
32	32			2	Yes	N/A	None
33	33		2		Yes	N/A	None
34	34				Yes	N/A	None
35	35				Yes	N/A	None
36	36				Yes	N/A	None
37	37				Yes	N/A	None
38	38				Yes	N/A	None
39	39				Yes	N/A	None
40	40				Yes	N/A	None
41	41				Yes	** NA **	None
42	42				Yes	** NA **	None
43	43				Yes	** NA **	None
44	44				Yes	** NA **	None
45	45	OOOOOX			Yes	** NA **	None
46	46	OOOOOX			Yes	** NA **	None
47	47	OOOOOX			Yes	** NA **	None
48	48	OOOOOX			Yes	** NA **	None
49	49				Yes	N/A	None
50	50				Yes	N/A	None
51	51			2	Yes	N/A	None
52	52		2		Yes	N/A	None
53	53				Yes	N/A	None
54	54				Yes	N/A	None
55	55				Yes	N/A	None
56	56				Yes	N/A	None
57	57				Yes	N/A	None
58	58				Yes	N/A	None
59	59				Yes	N/A	None
60	60				Yes	** NA **	None
61	61				Yes	** NA **	None
62	62				Yes	** NA **	None
63	63				Yes	** NA **	None
64	64	OOOOOX			Yes	** NA **	None
65	65	OOOOOX			Yes	** NA **	None
66	66	OOOOOX			Yes	** NA **	None
67	67	OOOOOX			Yes	** NA **	None
68	68				Yes	N/A	None

Member Advanced Data (Continued)

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
69	69				Yes	N/A	None
70	70				Yes	** NA **	None
71	71				Yes	** NA **	None
72	72				Yes	** NA **	None
73	73				Yes	** NA **	None
74	74				Yes	** NA **	None
75	75				Yes	** NA **	None
76	76				Yes	N/A	None
77	77				Yes	** NA **	None
78	78				Yes	** NA **	None
79	79				Yes	** NA **	None
80	80				Yes	N/A	None
81	81				Yes	** NA **	None
82	82				Yes	** NA **	None
83	83				Yes	** NA **	None
84	84				Yes	** NA **	None
85	85				Yes	** NA **	None
86	86				Yes	** NA **	None
87	87				Yes	N/A	None
88	88				Yes	** NA **	None
89	89				Yes	** NA **	None
90	90				Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	SF-H1	3.333	Lbyy	Lateral
2	2	SF-H2	2.758	Lbyy	Lateral
3	3	SF-H2	2.758	Lbyy	Lateral
4	4	MF-CP1	0.292	Lbyy	Lateral
5	5	MF-CP1	0.292	Lbyy	Lateral
6	6	MF-H1	8	Lbyy	Lateral
7	7	MF-CP1	0.208	Lbyy	Lateral
8	8	MF-CP1	0.208	Lbyy	Lateral
9	9	SF-H3	2.309	Lbyy	Lateral
10	10	SF-H3	2.309	Lbyy	Lateral
11	11	SF-H4	3.207	Lbyy	Lateral
12	18	MF-P1	8	Lbyy	Lateral
13	19	MF-P1	8	Lbyy	Lateral
14	22	MF-H2	10	Lbyy	Lateral
15	28	MF-P1	8	Lbyy	Lateral
16	30	MF-H3	3.25	Lbyy	Lateral
17	31	SF-H1	3.333	Lbyy	Lateral
18	32	SF-H2	2.758	Lbyy	Lateral
19	33	SF-H2	2.758	Lbyy	Lateral
20	34	MF-CP1	0.292	Lbyy	Lateral
21	35	MF-CP1	0.292	Lbyy	Lateral
22	36	MF-CP1	0.208	Lbyy	Lateral
23	37	MF-CP1	0.208	Lbyy	Lateral
24	38	SF-H3	2.309	Lbyy	Lateral
25	39	SF-H3	2.309	Lbyy	Lateral
26	40	SF-H4	3.207	Lbyy	Lateral
27	49	MF-H3	3.25	Lbyy	Lateral
28	50	SF-H1	3.333	Lbyy	Lateral
29	51	SF-H2	2.758	Lbyy	Lateral
30	52	SF-H2	2.758	Lbyy	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
31	53	MF-CP1	0.292	Lbyy	Lateral
32	54	MF-CP1	0.292	Lbyy	Lateral
33	55	MF-CP1	0.208	Lbyy	Lateral
34	56	MF-CP1	0.208	Lbyy	Lateral
35	57	SF-H3	2.309	Lbyy	Lateral
36	58	SF-H3	2.309	Lbyy	Lateral
37	59	SF-H4	3.207	Lbyy	Lateral
38	68	MF-H3	3.25	Lbyy	Lateral
39	69	MF-H1	8	Lbyy	Lateral
40	72	MF-P1	8	Lbyy	Lateral
41	73	MF-P1	8	Lbyy	Lateral
42	76	MF-H2	10	Lbyy	Lateral
43	78	MF-P1	8	Lbyy	Lateral
44	80	MF-H1	8	Lbyy	Lateral
45	83	MF-P1	8	Lbyy	Lateral
46	84	MF-P1	8	Lbyy	Lateral
47	87	MF-H2	10	Lbyy	Lateral
48	89	MF-P1	8	Lbyy	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	Y	-0.032	%15
2	28	Y	-0.032	%85
3	28	Y	-0.075	%20
4	28	Y	-0.064	%50
5	28	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	28	Z	-0.185	%15
2	28	Z	-0.185	%85
3	28	Z	-0.082	%20
4	28	Z	-0.082	%50
5	28	Z	0	0
6	89	Z	-0.185	%15
7	89	Z	-0.185	%85
8	89	Z	-0.082	%20
9	89	Z	-0.082	%50

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
10	89	Z	0	0
11	78	Z	-0.185	%15
12	78	Z	-0.185	%85
13	78	Z	-0.082	%20
14	78	Z	-0.082	%50
15	78	Z	0	0
16	31	Z	-0.084	%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	28	X	-0.074	%15
2	28	X	-0.074	%85
3	28	X	-0.049	%20
4	28	X	-0.043	%50
5	28	X	0	0
6	89	X	-0.074	%15
7	89	X	-0.074	%85
8	89	X	-0.049	%20
9	89	X	-0.043	%50
10	89	X	0	0
11	78	X	-0.074	%15
12	78	X	-0.074	%85
13	78	X	-0.049	%20
14	78	X	-0.043	%50
15	78	X	0	0
16	31	X	-0.047	%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	28	Z	-0.034	%15
2	28	Z	-0.034	%85
3	28	Z	-0.013	%20
4	28	Z	-0.013	%50
5	28	Z	0	0
6	89	Z	-0.034	%15
7	89	Z	-0.034	%85
8	89	Z	-0.013	%20
9	89	Z	-0.013	%50
10	89	Z	0	0
11	78	Z	-0.034	%15
12	78	Z	-0.034	%85
13	78	Z	-0.013	%20
14	78	Z	-0.013	%50
15	78	Z	0	0
16	31	Z	-0.014	%20

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
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	28	X	-0.016	%15
2	28	X	-0.016	%85
3	28	X	-0.008	%20
4	28	X	-0.007	%50
5	28	X	0	0
6	89	X	-0.016	%15
7	89	X	-0.016	%85
8	89	X	-0.008	%20
9	89	X	-0.007	%50
10	89	X	0	0
11	78	X	-0.016	%15
12	78	X	-0.016	%85
13	78	X	-0.008	%20
14	78	X	-0.007	%50
15	78	X	0	0
16	31	X	-0.008	%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	28	Z	-0.011	%15
2	28	Z	-0.011	%85
3	28	Z	-0.005	%20
4	28	Z	-0.005	%50
5	28	Z	0	0
6	89	Z	-0.011	%15
7	89	Z	-0.011	%85
8	89	Z	-0.005	%20
9	89	Z	-0.005	%50
10	89	Z	0	0
11	78	Z	-0.011	%15
12	78	Z	-0.011	%85
13	78	Z	-0.005	%20
14	78	Z	-0.005	%50
15	78	Z	0	0
16	31	Z	-0.005	%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	28	X	-0.004	%15
2	28	X	-0.004	%85
3	28	X	-0.003	%20
4	28	X	-0.003	%50
5	28	X	0	0
6	89	X	-0.004	%15
7	89	X	-0.004	%85
8	89	X	-0.003	%20
9	89	X	-0.003	%50
10	89	X	0	0
11	78	X	-0.004	%15
12	78	X	-0.004	%85
13	78	X	-0.003	%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	28	Y	-0.118	%15
2	28	Y	-0.118	%85
3	28	Y	-0.033	%20
4	28	Y	-0.032	%50
5	28	Y	0	0
6	89	Y	-0.118	%15
7	89	Y	-0.118	%85
8	89	Y	-0.033	%20
9	89	Y	-0.032	%50
10	89	Y	0	0
11	78	Y	-0.118	%15
12	78	Y	-0.118	%85
13	78	Y	-0.033	%20
14	78	Y	-0.032	%50
15	78	Y	0	0
16	31	Y	-0.033	%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 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	Z	-0.012	%15
2	28	Z	-0.012	%85
3	28	Z	-0.014	%20
4	28	Z	-0.012	%50
5	28	Z	0	0
6	89	Z	-0.012	%15

Member Point Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
7	89	Z	-0.012	%85
8	89	Z	-0.014	%20
9	89	Z	-0.012	%50
10	89	Z	0	0
11	78	Z	-0.012	%15
12	78	Z	-0.012	%85
13	78	Z	-0.014	%20
14	78	Z	-0.012	%50
15	78	Z	0	0
16	31	Z	-0.004	%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 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	X	-0.012	%15
2	28	X	-0.012	%85
3	28	X	-0.014	%20
4	28	X	-0.012	%50
5	28	X	0	0
6	89	X	-0.012	%15
7	89	X	-0.012	%85
8	89	X	-0.014	%20
9	89	X	-0.012	%50
10	89	X	0	0
11	78	X	-0.012	%15
12	78	X	-0.012	%85
13	78	X	-0.014	%20
14	78	X	-0.012	%50
15	78	X	0	0
16	31	X	-0.004	%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 15 : Maint LL 1)

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

Member Point Loads (BLC 16 : Maint LL 2)

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

Member Point Loads (BLC 17 : Maint LL 3)

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

Member Point Loads (BLC 18 : Maint LL 4)

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

Member Point Loads (BLC 19 : Maint LL 5)

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

Member Point Loads (BLC 20 : Maint LL 6)

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

Member Point Loads (BLC 21 : Maint LL 7)

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

Member Point Loads (BLC 22 : Maint LL 8)

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

Member Point Loads (BLC 23 : Maint LL 9)

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

Member Point Loads (BLC 24 : Maint LL 10)

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

Member Point Loads (BLC 25 : Maint LL 11)

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

Member Point Loads (BLC 26 : Maint LL 12)

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

Member Point Loads (BLC 27 : Maint LL 13)

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

Member Point Loads (BLC 28 : Maint LL 14)

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

Member Point Loads (BLC 29 : Maint LL 15)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	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	-0.02	-0.02	0	%100
2	2	Z	-0.017	-0.017	0	%100
3	3	Z	-0.017	-0.017	0	%100
4	4	Z	-0.025	-0.025	0	%100
5	5	Z	-0.025	-0.025	0	%100
6	6	Z	-0.014	-0.014	0	%100
7	7	Z	-0.025	-0.025	0	%100
8	8	Z	-0.025	-0.025	0	%100
9	9	Z	-0.011	-0.011	0	%100
10	10	Z	-0.011	-0.011	0	%100
11	11	Z	-0.034	-0.034	0	%100
12	18	Z	-0.012	-0.012	0	%100
13	19	Z	-0.012	-0.012	0	%100
14	22	Z	-0.012	-0.012	0	%100
15	28	Z	-0.012	-0.012	0	%100
16	30	Z	-0.03	-0.03	0	%100
17	31	Z	-0.02	-0.02	0	%100
18	32	Z	-0.017	-0.017	0	%100
19	33	Z	-0.017	-0.017	0	%100
20	34	Z	-0.025	-0.025	0	%100
21	35	Z	-0.025	-0.025	0	%100
22	36	Z	-0.025	-0.025	0	%100
23	37	Z	-0.025	-0.025	0	%100
24	38	Z	-0.011	-0.011	0	%100
25	39	Z	-0.011	-0.011	0	%100
26	40	Z	-0.034	-0.034	0	%100
27	49	Z	-0.03	-0.03	0	%100
28	50	Z	-0.02	-0.02	0	%100
29	51	Z	-0.017	-0.017	0	%100
30	52	Z	-0.017	-0.017	0	%100
31	53	Z	-0.025	-0.025	0	%100
32	54	Z	-0.025	-0.025	0	%100
33	55	Z	-0.025	-0.025	0	%100
34	56	Z	-0.025	-0.025	0	%100
35	57	Z	-0.011	-0.011	0	%100
36	58	Z	-0.011	-0.011	0	%100
37	59	Z	-0.034	-0.034	0	%100
38	68	Z	-0.03	-0.03	0	%100
39	69	Z	-0.014	-0.014	0	%100
40	72	Z	-0.012	-0.012	0	%100
41	73	Z	-0.012	-0.012	0	%100
42	76	Z	-0.012	-0.012	0	%100
43	78	Z	-0.012	-0.012	0	%100
44	80	Z	-0.014	-0.014	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, %)]
45	83	Z	-0.012	-0.012	0	%100
46	84	Z	-0.012	-0.012	0	%100
47	87	Z	-0.012	-0.012	0	%100
48	89	Z	-0.012	-0.012	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	-0.02	-0.02	0	%100
2	2	X	-0.017	-0.017	0	%100
3	3	X	-0.017	-0.017	0	%100
4	4	X	-0.025	-0.025	0	%100
5	5	X	-0.025	-0.025	0	%100
6	6	X	-0.014	-0.014	0	%100
7	7	X	-0.025	-0.025	0	%100
8	8	X	-0.025	-0.025	0	%100
9	9	X	-0.011	-0.011	0	%100
10	10	X	-0.011	-0.011	0	%100
11	11	X	-0.034	-0.034	0	%100
12	18	X	-0.012	-0.012	0	%100
13	19	X	-0.012	-0.012	0	%100
14	22	X	-0.012	-0.012	0	%100
15	28	X	-0.012	-0.012	0	%100
16	30	X	-0.03	-0.03	0	%100
17	31	X	-0.02	-0.02	0	%100
18	32	X	-0.017	-0.017	0	%100
19	33	X	-0.017	-0.017	0	%100
20	34	X	-0.025	-0.025	0	%100
21	35	X	-0.025	-0.025	0	%100
22	36	X	-0.025	-0.025	0	%100
23	37	X	-0.025	-0.025	0	%100
24	38	X	-0.011	-0.011	0	%100
25	39	X	-0.011	-0.011	0	%100
26	40	X	-0.034	-0.034	0	%100
27	49	X	-0.03	-0.03	0	%100
28	50	X	-0.02	-0.02	0	%100
29	51	X	-0.017	-0.017	0	%100
30	52	X	-0.017	-0.017	0	%100
31	53	X	-0.025	-0.025	0	%100
32	54	X	-0.025	-0.025	0	%100
33	55	X	-0.025	-0.025	0	%100
34	56	X	-0.025	-0.025	0	%100
35	57	X	-0.011	-0.011	0	%100
36	58	X	-0.011	-0.011	0	%100
37	59	X	-0.034	-0.034	0	%100
38	68	X	-0.03	-0.03	0	%100
39	69	X	-0.014	-0.014	0	%100
40	72	X	-0.012	-0.012	0	%100
41	73	X	-0.012	-0.012	0	%100
42	76	X	-0.012	-0.012	0	%100
43	78	X	-0.012	-0.012	0	%100
44	80	X	-0.014	-0.014	0	%100
45	83	X	-0.012	-0.012	0	%100
46	84	X	-0.012	-0.012	0	%100
47	87	X	-0.012	-0.012	0	%100
48	89	X	-0.012	-0.012	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	-0.005	-0.005	0	%100
2	2	Z	-0.005	-0.005	0	%100
3	3	Z	-0.005	-0.005	0	%100
4	4	Z	-0.009	-0.009	0	%100
5	5	Z	-0.009	-0.009	0	%100
6	6	Z	-0.002	-0.002	0	%100
7	7	Z	-0.011	-0.011	0	%100
8	8	Z	-0.011	-0.011	0	%100
9	9	Z	-0.004	-0.004	0	%100
10	10	Z	-0.004	-0.004	0	%100
11	11	Z	-0.008	-0.008	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	28	Z	-0.002	-0.002	0	%100
16	30	Z	-0.007	-0.007	0	%100
17	31	Z	-0.005	-0.005	0	%100
18	32	Z	-0.005	-0.005	0	%100
19	33	Z	-0.005	-0.005	0	%100
20	34	Z	-0.009	-0.009	0	%100
21	35	Z	-0.009	-0.009	0	%100
22	36	Z	-0.011	-0.011	0	%100
23	37	Z	-0.011	-0.011	0	%100
24	38	Z	-0.004	-0.004	0	%100
25	39	Z	-0.004	-0.004	0	%100
26	40	Z	-0.008	-0.008	0	%100
27	49	Z	-0.007	-0.007	0	%100
28	50	Z	-0.005	-0.005	0	%100
29	51	Z	-0.005	-0.005	0	%100
30	52	Z	-0.005	-0.005	0	%100
31	53	Z	-0.009	-0.009	0	%100
32	54	Z	-0.009	-0.009	0	%100
33	55	Z	-0.011	-0.011	0	%100
34	56	Z	-0.011	-0.011	0	%100
35	57	Z	-0.004	-0.004	0	%100
36	58	Z	-0.004	-0.004	0	%100
37	59	Z	-0.008	-0.008	0	%100
38	68	Z	-0.007	-0.007	0	%100
39	69	Z	-0.002	-0.002	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	-0.002	-0.002	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	-0.005	-0.005	0	%100
2	2	X	-0.005	-0.005	0	%100
3	3	X	-0.005	-0.005	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, %)]
4	4	X	-0.009	-0.009	0	%100
5	5	X	-0.009	-0.009	0	%100
6	6	X	-0.002	-0.002	0	%100
7	7	X	-0.011	-0.011	0	%100
8	8	X	-0.011	-0.011	0	%100
9	9	X	-0.004	-0.004	0	%100
10	10	X	-0.004	-0.004	0	%100
11	11	X	-0.008	-0.008	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	28	X	-0.002	-0.002	0	%100
16	30	X	-0.007	-0.007	0	%100
17	31	X	-0.005	-0.005	0	%100
18	32	X	-0.005	-0.005	0	%100
19	33	X	-0.005	-0.005	0	%100
20	34	X	-0.009	-0.009	0	%100
21	35	X	-0.009	-0.009	0	%100
22	36	X	-0.011	-0.011	0	%100
23	37	X	-0.011	-0.011	0	%100
24	38	X	-0.004	-0.004	0	%100
25	39	X	-0.004	-0.004	0	%100
26	40	X	-0.008	-0.008	0	%100
27	49	X	-0.007	-0.007	0	%100
28	50	X	-0.005	-0.005	0	%100
29	51	X	-0.005	-0.005	0	%100
30	52	X	-0.005	-0.005	0	%100
31	53	X	-0.009	-0.009	0	%100
32	54	X	-0.009	-0.009	0	%100
33	55	X	-0.011	-0.011	0	%100
34	56	X	-0.011	-0.011	0	%100
35	57	X	-0.004	-0.004	0	%100
36	58	X	-0.004	-0.004	0	%100
37	59	X	-0.008	-0.008	0	%100
38	68	X	-0.007	-0.007	0	%100
39	69	X	-0.002	-0.002	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	-0.002	-0.002	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	-0.0004	-0.0004	0	%100
7	7	Z	-0.002	-0.002	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, %)]
8	8	Z	-0.002	-0.002	0	%100
9	9	Z	-0.0007	-0.0007	0	%100
10	10	Z	-0.0007	-0.0007	0	%100
11	11	Z	-0.002	-0.002	0	%100
12	18	Z	-0.0004	-0.0004	0	%100
13	19	Z	-0.0004	-0.0004	0	%100
14	22	Z	-0.0004	-0.0004	0	%100
15	28	Z	-0.0004	-0.0004	0	%100
16	30	Z	-0.002	-0.002	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	-0.0007	-0.0007	0	%100
25	39	Z	-0.0007	-0.0007	0	%100
26	40	Z	-0.002	-0.002	0	%100
27	49	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	-0.0007	-0.0007	0	%100
36	58	Z	-0.0007	-0.0007	0	%100
37	59	Z	-0.002	-0.002	0	%100
38	68	Z	-0.002	-0.002	0	%100
39	69	Z	-0.0004	-0.0004	0	%100
40	72	Z	-0.0004	-0.0004	0	%100
41	73	Z	-0.0004	-0.0004	0	%100
42	76	Z	-0.0004	-0.0004	0	%100
43	78	Z	-0.0004	-0.0004	0	%100
44	80	Z	-0.0004	-0.0004	0	%100
45	83	Z	-0.0004	-0.0004	0	%100
46	84	Z	-0.0004	-0.0004	0	%100
47	87	Z	-0.0004	-0.0004	0	%100
48	89	Z	-0.0004	-0.0004	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	-0.0004	-0.0004	0	%100
7	7	X	-0.002	-0.002	0	%100
8	8	X	-0.002	-0.002	0	%100
9	9	X	-0.0007	-0.0007	0	%100
10	10	X	-0.0007	-0.0007	0	%100
11	11	X	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 7 : 90 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, %)]
12	18	X	-0.0004	-0.0004	0	%100
13	19	X	-0.0004	-0.0004	0	%100
14	22	X	-0.0004	-0.0004	0	%100
15	28	X	-0.0004	-0.0004	0	%100
16	30	X	-0.002	-0.002	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	-0.0007	-0.0007	0	%100
25	39	X	-0.0007	-0.0007	0	%100
26	40	X	-0.002	-0.002	0	%100
27	49	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	-0.0007	-0.0007	0	%100
36	58	X	-0.0007	-0.0007	0	%100
37	59	X	-0.002	-0.002	0	%100
38	68	X	-0.002	-0.002	0	%100
39	69	X	-0.0004	-0.0004	0	%100
40	72	X	-0.0004	-0.0004	0	%100
41	73	X	-0.0004	-0.0004	0	%100
42	76	X	-0.0004	-0.0004	0	%100
43	78	X	-0.0004	-0.0004	0	%100
44	80	X	-0.0004	-0.0004	0	%100
45	83	X	-0.0004	-0.0004	0	%100
46	84	X	-0.0004	-0.0004	0	%100
47	87	X	-0.0004	-0.0004	0	%100
48	89	X	-0.0004	-0.0004	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	-0.009	-0.009	0	%100
2	2	Y	-0.007	-0.007	0	%100
3	3	Y	-0.007	-0.007	0	%100
4	4	Y	-0.01	-0.01	0	%100
5	5	Y	-0.01	-0.01	0	%100
6	6	Y	-0.006	-0.006	0	%100
7	7	Y	-0.01	-0.01	0	%100
8	8	Y	-0.01	-0.01	0	%100
9	9	Y	-0.005	-0.005	0	%100
10	10	Y	-0.005	-0.005	0	%100
11	11	Y	-0.012	-0.012	0	%100
12	18	Y	-0.005	-0.005	0	%100
13	19	Y	-0.005	-0.005	0	%100
14	22	Y	-0.005	-0.005	0	%100
15	28	Y	-0.005	-0.005	0	%100

Member Distributed Loads (BLC 8 : 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, %)]
16	30	Y	-0.012	-0.012	0	%100
17	31	Y	-0.009	-0.009	0	%100
18	32	Y	-0.007	-0.007	0	%100
19	33	Y	-0.007	-0.007	0	%100
20	34	Y	-0.01	-0.01	0	%100
21	35	Y	-0.01	-0.01	0	%100
22	36	Y	-0.01	-0.01	0	%100
23	37	Y	-0.01	-0.01	0	%100
24	38	Y	-0.005	-0.005	0	%100
25	39	Y	-0.005	-0.005	0	%100
26	40	Y	-0.012	-0.012	0	%100
27	49	Y	-0.012	-0.012	0	%100
28	50	Y	-0.009	-0.009	0	%100
29	51	Y	-0.007	-0.007	0	%100
30	52	Y	-0.007	-0.007	0	%100
31	53	Y	-0.01	-0.01	0	%100
32	54	Y	-0.01	-0.01	0	%100
33	55	Y	-0.01	-0.01	0	%100
34	56	Y	-0.01	-0.01	0	%100
35	57	Y	-0.005	-0.005	0	%100
36	58	Y	-0.005	-0.005	0	%100
37	59	Y	-0.012	-0.012	0	%100
38	68	Y	-0.012	-0.012	0	%100
39	69	Y	-0.006	-0.006	0	%100
40	72	Y	-0.005	-0.005	0	%100
41	73	Y	-0.005	-0.005	0	%100
42	76	Y	-0.005	-0.005	0	%100
43	78	Y	-0.005	-0.005	0	%100
44	80	Y	-0.006	-0.006	0	%100
45	83	Y	-0.005	-0.005	0	%100
46	84	Y	-0.005	-0.005	0	%100
47	87	Y	-0.005	-0.005	0	%100
48	89	Y	-0.005	-0.005	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

	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	-0.0008	-0.0008	0	%100
3	3	Z	-0.0008	-0.0008	0	%100
4	4	Z	-0.001	-0.001	0	%100
5	5	Z	-0.001	-0.001	0	%100
6	6	Z	-0.001	-0.001	0	%100
7	7	Z	-0.001	-0.001	0	%100
8	8	Z	-0.001	-0.001	0	%100
9	9	Z	-0.0006	-0.0006	0	%100
10	10	Z	-0.0006	-0.0006	0	%100
11	11	Z	-0.002	-0.002	0	%100
12	18	Z	-0.001	-0.001	0	%100
13	19	Z	-0.001	-0.001	0	%100
14	22	Z	-0.001	-0.001	0	%100
15	28	Z	-0.001	-0.001	0	%100
16	30	Z	-0.002	-0.002	0	%100
17	31	Z	-0.001	-0.001	0	%100
18	32	Z	-0.0008	-0.0008	0	%100
19	33	Z	-0.0008	-0.0008	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic) (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, %)]
20	34	Z	-0.001	-0.001	0	%100
21	35	Z	-0.001	-0.001	0	%100
22	36	Z	-0.001	-0.001	0	%100
23	37	Z	-0.001	-0.001	0	%100
24	38	Z	-0.0006	-0.0006	0	%100
25	39	Z	-0.0006	-0.0006	0	%100
26	40	Z	-0.002	-0.002	0	%100
27	49	Z	-0.002	-0.002	0	%100
28	50	Z	-0.001	-0.001	0	%100
29	51	Z	-0.0008	-0.0008	0	%100
30	52	Z	-0.0008	-0.0008	0	%100
31	53	Z	-0.001	-0.001	0	%100
32	54	Z	-0.001	-0.001	0	%100
33	55	Z	-0.001	-0.001	0	%100
34	56	Z	-0.001	-0.001	0	%100
35	57	Z	-0.0006	-0.0006	0	%100
36	58	Z	-0.0006	-0.0006	0	%100
37	59	Z	-0.002	-0.002	0	%100
38	68	Z	-0.002	-0.002	0	%100
39	69	Z	-0.001	-0.001	0	%100
40	72	Z	-0.001	-0.001	0	%100
41	73	Z	-0.001	-0.001	0	%100
42	76	Z	-0.001	-0.001	0	%100
43	78	Z	-0.001	-0.001	0	%100
44	80	Z	-0.001	-0.001	0	%100
45	83	Z	-0.001	-0.001	0	%100
46	84	Z	-0.001	-0.001	0	%100
47	87	Z	-0.001	-0.001	0	%100
48	89	Z	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

	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	-0.0008	-0.0008	0	%100
3	3	X	-0.0008	-0.0008	0	%100
4	4	X	-0.001	-0.001	0	%100
5	5	X	-0.001	-0.001	0	%100
6	6	X	-0.001	-0.001	0	%100
7	7	X	-0.001	-0.001	0	%100
8	8	X	-0.001	-0.001	0	%100
9	9	X	-0.0006	-0.0006	0	%100
10	10	X	-0.0006	-0.0006	0	%100
11	11	X	-0.002	-0.002	0	%100
12	18	X	-0.001	-0.001	0	%100
13	19	X	-0.001	-0.001	0	%100
14	22	X	-0.001	-0.001	0	%100
15	28	X	-0.001	-0.001	0	%100
16	30	X	-0.002	-0.002	0	%100
17	31	X	-0.001	-0.001	0	%100
18	32	X	-0.0008	-0.0008	0	%100
19	33	X	-0.0008	-0.0008	0	%100
20	34	X	-0.001	-0.001	0	%100
21	35	X	-0.001	-0.001	0	%100
22	36	X	-0.001	-0.001	0	%100
23	37	X	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic) (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, %)]
24	38	X	-0.0006	-0.0006	0	%100
25	39	X	-0.0006	-0.0006	0	%100
26	40	X	-0.002	-0.002	0	%100
27	49	X	-0.002	-0.002	0	%100
28	50	X	-0.001	-0.001	0	%100
29	51	X	-0.0008	-0.0008	0	%100
30	52	X	-0.0008	-0.0008	0	%100
31	53	X	-0.001	-0.001	0	%100
32	54	X	-0.001	-0.001	0	%100
33	55	X	-0.001	-0.001	0	%100
34	56	X	-0.001	-0.001	0	%100
35	57	X	-0.0006	-0.0006	0	%100
36	58	X	-0.0006	-0.0006	0	%100
37	59	X	-0.002	-0.002	0	%100
38	68	X	-0.002	-0.002	0	%100
39	69	X	-0.001	-0.001	0	%100
40	72	X	-0.001	-0.001	0	%100
41	73	X	-0.001	-0.001	0	%100
42	76	X	-0.001	-0.001	0	%100
43	78	X	-0.001	-0.001	0	%100
44	80	X	-0.001	-0.001	0	%100
45	83	X	-0.001	-0.001	0	%100
46	84	X	-0.001	-0.001	0	%100
47	87	X	-0.001	-0.001	0	%100
48	89	X	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 30 : 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	10	Y	-0.02	-0.026	1.27	2.309
2	38	Y	-0.035	-0.016	0	1.155
3	38	Y	-0.016	0.0006163	1.155	2.309
4	39	Y	-0.018	-0.016	0.231	2.309
5	57	Y	-0.018	-0.016	0	2.078
6	58	Y	0.0006164	-0.016	0	1.155
7	58	Y	-0.016	-0.035	1.155	2.309
8	9	Y	-0.015	-0.015	0	2.078
9	10	Y	-0.014	-0.02	0.231	1.27

Member Distributed Loads (BLC 31 : 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	-0.008	-0.008	0	2.078
2	10	Y	-0.008	-0.011	0.231	1.27
3	10	Y	-0.011	-0.014	1.27	2.309
4	38	Y	-0.017	-0.008	0	1.155
5	38	Y	-0.008	0.0003082	1.155	2.309
6	39	Y	-0.009	-0.008	0.231	2.309
7	57	Y	-0.009	-0.008	0	2.078
8	58	Y	0.0003082	-0.008	0	1.155
9	58	Y	-0.008	-0.017	1.155	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	-0.005
2	73	72	75	74	Y	Two Way	-0.005
3	102	101	104	103	Y	Two Way	-0.005

Node Loads and Enforced Displacements (BLC 11 : 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 12 : 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 13 : Live Load c)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	44	L	Y	-0.5
2	127	L	Y	-0.5
3	149	L	Y	-0.5

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	0 Seismic	ELZ			20	48	
10	90 Seismic	ELX			20	48	
11	Live Load a	LL		3			
12	Live Load b	LL		3			
13	Live Load c	LL		3			
14	Live Load d	LL					
15	Maint LL 1	LL			1		
16	Maint LL 2	LL			1		
17	Maint LL 3	LL			1		
18	Maint LL 4	LL			1		

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
19	Maint LL 5	LL			1		
20	Maint LL 6	LL			1		
21	Maint LL 7	LL			1		
22	Maint LL 8	LL			1		
23	Maint LL 9	LL			1		
24	Maint LL 10	LL			1		
25	Maint LL 11	LL			1		
26	Maint LL 12	LL			1		
27	Maint LL 13	LL			1		
28	Maint LL 14	LL			1		
29	Maint LL 15	LL			1		
30	BLC 1 Transient Area Loads	None				9	
31	BLC 8 Transient Area Loads	None				9	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5

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	1.157	5	1.732	2	1.486	2	3.899	2	1.176	11	0.372	95
2		min	-1.157	11	-0.153	8	-1.61	8	-0.849	8	-1.174	5	-0.218	91
3	53	max	1.267	5	1.72	18	1.471	2	0.28	13	1.418	3	0.288	12
4		min	-1.373	11	0.051	12	-1.409	8	-1.736	43	-1.415	9	-3.066	6
5	82	max	1.23	5	1.657	22	1.612	2	0.24	3	1.424	7	2.944	10
6		min	-1.123	11	0.019	4	-1.55	8	-1.923	9	-1.423	13	-0.374	4
7	Totals:	max	3.654	5	4.646	56	4.57	2						
8		min	-3.654	11	2.396	2	-4.57	8						

Envelope AISC 15TH (360-16): 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	0.527	0	13	0.124	0	y	73	70.173	73.278	8.24	8.24	2.014	H1-1b
2	2	C3.38x2.06x.188	0.361	2.592	3	0.06	0.351	y	64	35.676	43.394	1.694	4.483	1.599	H1-1b
3	3	C3.38x2.06x.188	0.373	0	13	0.072	2.241	z	8	35.676	43.394	1.694	4.483	1.595	H1-1b
4	4	PL3/8"x6	0.103	0	2	0.164	0	y	2	68.997	72.9	0.57	9.113	2.276	H1-1b
5	5	PL3/8"x6	0.104	0	3	0.126	0	y	2	68.997	72.9	0.57	9.113	1.874	H1-1b
6	6	PIPE_3.5x0.165	0.078	6.75	7	0.04	4		5	45.872	71.57	6.336	6.336	1.968	H1-1b
7	7	PL3/8"x6	0.137	0.208	8	0.195	0.208	y	50	70.882	72.9	0.57	9.113	1.4	H1-1b
8	8	PL3/8"x6	0.145	0	13	0.198	0	y	50	70.882	72.9	0.57	9.113	2.851	H1-1b
9	9	L2x2x4	0.304	0	8	0.031	2.309	y	48	23.349	30.586	0.691	1.577	1.5	H2-1
10	10	L2x2x4	0.272	2.309	8	0.035	0	y	64	23.349	30.586	0.691	1.577	1.5	H2-1
11	11	L7.63x2.5x6	0.403	1.604	8	0.079	1.604	z	2	75.414	118.523	1.798	13.747	1.242	H2-1
12	18	PIPE_2.88x0.203	0.116	5.583	5	0.045	5.583		6	35.519	70.68	5.029	5.029	3	H1-1b
13	19	PIPE_2.88x0.203	0.138	2.333	10	0.049	5.583		8	35.519	70.68	5.029	5.029	3	H1-1b
14	22	PIPE_2.88x0.203	0.15	7.812	13	0.13	9.167		2	24.131	70.68	5.029	5.029	2.463	H1-1b
15	28	PIPE_2.88x0.203	0.114	2.333	7	0.045	5.583		8	35.519	70.68	5.029	5.029	3	H1-1b
16	30	L6.63x4.33x.25	0.208	3.25	6	0.027	3.25	z	12	51.794	86.751	2.311	6.976	1.5	H2-1
17	31	HSS4X4X2	0.506	0	7	0.126	0	y	65	70.173	73.278	8.24	8.24	2.039	H1-1b
18	32	C3.38x2.06x.188	0.357	2.592	7	0.06	0.351	y	69	35.676	43.394	1.694	4.483	1.601	H1-1b
19	33	C3.38x2.06x.188	0.326	0	56	0.063	2.241	y	48	35.676	43.394	1.703	4.483	1.619	H1-1b
20	34	PL3/8"x6	0.088	0	6	0.147	0	y	67	68.997	72.9	0.57	9.113	2.273	H1-1b
21	35	PL3/8"x6	0.1	0	7	0.121	0	y	42	68.997	72.9	0.57	9.113	1.81	H1-1b
22	36	PL3/8"x6	0.124	0.208	13	0.195	0.208	y	54	70.882	72.9	0.57	9.113	1.906	H1-1b
23	37	PL3/8"x6	0.12	0	5	0.198	0	y	55	70.882	72.9	0.57	9.113	2.922	H1-1b
24	38	L2x2x4	0.242	0	12	0.03	2.309	y	40	23.349	30.586	0.691	1.577	1.5	H2-1
25	39	L2x2x4	0.23	2.309	12	0.036	0	y	68	23.349	30.586	0.691	1.577	1.5	H2-1
26	40	L7.63x2.5x6	0.319	1.604	12	0.079	0	z	66	75.414	118.523	1.798	13.844	1.263	H2-1
27	49	L6.63x4.33x.25	0.221	0	2	0.031	3.25	y	9	51.794	86.751	2.311	6.976	1.5	H2-1
28	50	HSS4X4X2	0.524	0	9	0.125	0	y	69	70.173	73.278	8.24	8.24	2.016	H1-1b
29	51	C3.38x2.06x.188	0.324	2.592	56	0.06	0.351	y	73	35.676	43.394	1.703	4.483	1.618	H1-1b
30	52	C3.38x2.06x.188	0.367	0	9	0.064	2.241	z	3	35.676	43.394	1.694	4.483	1.596	H1-1b
31	53	PL3/8"x6	0.09	0	9	0.149	0	y	70	68.997	72.9	0.57	9.113	2.135	H1-1b
32	54	PL3/8"x6	0.085	0	11	0.12	0	y	45	68.997	72.9	0.57	9.113	1.803	H1-1b
33	55	PL3/8"x6	0.136	0.085	3	0.194	0.208	y	57	70.882	72.9	0.57	9.113	1.481	H1-1b

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

	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
34	56	PL3/8"x6	0.146	0	9	0.198	0	y	59	70.882	72.9	0.57	9.113	2.857	H1-1b
35	57	L2x2x4	0.29	0	3	0.031	2.309	y	44	23.349	30.586	0.691	1.577	1.5	H2-1
36	58	L2x2x4	0.234	2.309	4	0.035	0	y	72	23.349	30.586	0.691	1.577	1.5	H2-1
37	59	L7.63x2.5x6	0.357	1.604	3	0.078	0	z	70	75.414	118.523	1.798	14.221	1.352	H2-1
38	68	L6.63x4.33x.25	0.252	3.25	2	0.034	3.25	z	8	51.794	86.751	2.311	6.976	1.5	H2-1
39	69	PIPE_3.5x0.165	0.079	1.25	2	0.051	4		9	45.872	71.57	6.336	6.336	1.76	H1-1b
40	72	PIPE_2.88x0.203	0.141	5.583	9	0.052	5.583		9	35.519	70.68	5.029	5.029	3	H1-1b
41	73	PIPE_2.88x0.203	0.164	2.333	2	0.048	5.583		13	35.519	70.68	5.029	5.029	3	H1-1b
42	76	PIPE_2.88x0.203	0.148	2.188	13	0.109	2.188		13	24.131	70.68	5.029	5.029	2.299	H1-1b
43	78	PIPE_2.88x0.203	0.127	5.583	9	0.047	5.583		2	35.519	70.68	5.029	5.029	3	H1-1b
44	80	PIPE_3.5x0.165	0.073	6.75	2	0.049	2.583		13	45.872	71.57	6.336	6.336	1.506	H1-1b
45	83	PIPE_2.88x0.203	0.14	5.583	13	0.057	5.583		13	35.519	70.68	5.029	5.029	3	H1-1b
46	84	PIPE_2.88x0.203	0.134	2.333	6	0.038	5.583		5	35.519	70.68	5.029	5.029	3	H1-1b
47	87	PIPE_2.88x0.203	0.14	7.813	9	0.117	9.167		9	24.131	70.68	5.029	5.029	2.52	H1-1b
48	89	PIPE_2.88x0.203	0.141	5.583	2	0.039	5.583		6	35.519	70.68	5.029	5.029	3	H1-1b

APPENDIX B

(Additional Calculations)

PROJECT	**149473.003.01 - Madison 7, CT, CT**				**KSC**
SUBJECT	**Platform Mount Analysis**				
DATE	**11/10/21**	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	:	1.486	k
Vertical Shear	:	1.732	k
Horizontal Shear	:	1.157	k
Torsion	:	0.372	k.ft
Moment from Horizontal Forces	:	1.176	k.ft
Moment from Vertical Forces	:	3.899	k.ft

Bolt Parameters

Bolt Grade	:	A307	
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	:	2.08	k
Force from Horz. Moment	:	2.13	k
Force from Vert. Moment	:	7.06	k
Shear Load / Bolt	:	0.52	k
Tension Load / Bolt	:	0.37	k
Resultant from Moments / Bolt	:	3.69	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	45.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	10.36	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**39.18%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	24.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	5.53	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**16.15%**		**OKAY**
Unity Check, Combined	:	**55.33%**		**OKAY**
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	**1.50%**		**OKAY**

PROJECT	**149473.003.01 - Madison 7, CT, CT**				**KSC**
SUBJECT	**Platform Mount Analysis**				
DATE	**11/10/21**	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	:	**2.78%**		**OKAY**
Available Shear Yield	:	16.20	k	[Eq. J4-3]
Available Shear Rupture	:	104.40	k	[Eq. J4-4]
Unity Check, Plate Shear	:	**12.86%**		**OKAY**
Available Block Shear, ΦRn	:	77.40	k	[Eq. J4-5]
Unity Check, Block Shear	:	**2.69%**		**OKAY**

Exhibit F

Power Density/RF Emissions Report

Fox Hill Telecom

Radio Frequency Emissions Analysis Report

Site ID: BOHVN00048A

SBA - Cottage Road
17 Cottage Road
Madison, CT 06443

May 2, 2022

Fox Hill Telecom Project Number: 220968

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**35.85 %**

Fox Hill Telecom

May 2, 2022

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOHVN00048A – SBA - Cottage Road**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **17 Cottage Road, Madison, CT**, for the purpose of determining whether the emissions from the Proposed Dish radio and antenna installation located on this property are within specified federal limits.

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

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz & 700 MHz bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS / AWS-4) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed radio system installation for **Dish** on the subject site located at **17 Cottage Road, Madison, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since **Dish** is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
5G	n71 (600 MHz)	4	61.5
5G	n70 (AWS-4 / 1995-2020)	4	40
5G	n66 (AWS-4 / 2180-2200)	4	40

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz (n71) frequency band, and the 2100 MHz (AWS 4) frequency bands at 1995-2020 MHz (n70) and 2180-2200 MHz (n66). This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	JMA MX08FRO665-21	90
B	1	JMA MX08FRO665-21	90
C	1	JMA MX08FRO665-21	90

Table 2: Antenna Data

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

RESULTS

Per the calculations completed for the proposed **Dish** configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	11.51
						Sector A Composite MPE%	**11.51**
Antenna B1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	11.51
						Sector B Composite MPE%	**11.51**
Antenna C1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	11.51
						Sector C Composite MPE%	**11.51**

Table 3: Dish Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum **Dish** MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each **Dish** Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
Dish – Max Per Sector Value	**11.51 %**
T-Mobile	4.00 %
AT&T	15.49 %
Verizon Wireless	4.85 %
Site Total MPE %:	**35.85 %**

Table 4: All Carrier MPE Contributions

Dish Sector A Total:	11.51 %
Dish Sector B Total:	11.51 %
Dish Sector C Total:	11.51 %
Site Total:	35.85 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated **Dish** sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

Dish _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Dish n71 (600 MHz) 5G	4	858.77	90	17.50	n71 (600 MHz)	400	4.38%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,648.39	90	33.59	n70 (AWS-4 / 1995-2020)	1000	3.36%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,849.52	90	37.69	n66 (AWS-4 / 2180-2200)	1000	3.77%
						Total:	**11.51%**

Table 6: Dish Maximum Sector MPE Power Values

Summary

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

The anticipated maximum composite contributions from the Dish facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

Dish Sector	Power Density Value (%)
Sector A:	11.51 %
Sector B:	11.51 %
Sector C:	11.51 %
Dish Maximum Total (per sector):	11.51 %
Site Total:	35.85 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **35.85 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Holden, MA 01520
(978)660-3998

Exhibit G

Letter of Authorization

SBA Letter of Authorization

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

Re: Tower Share Application

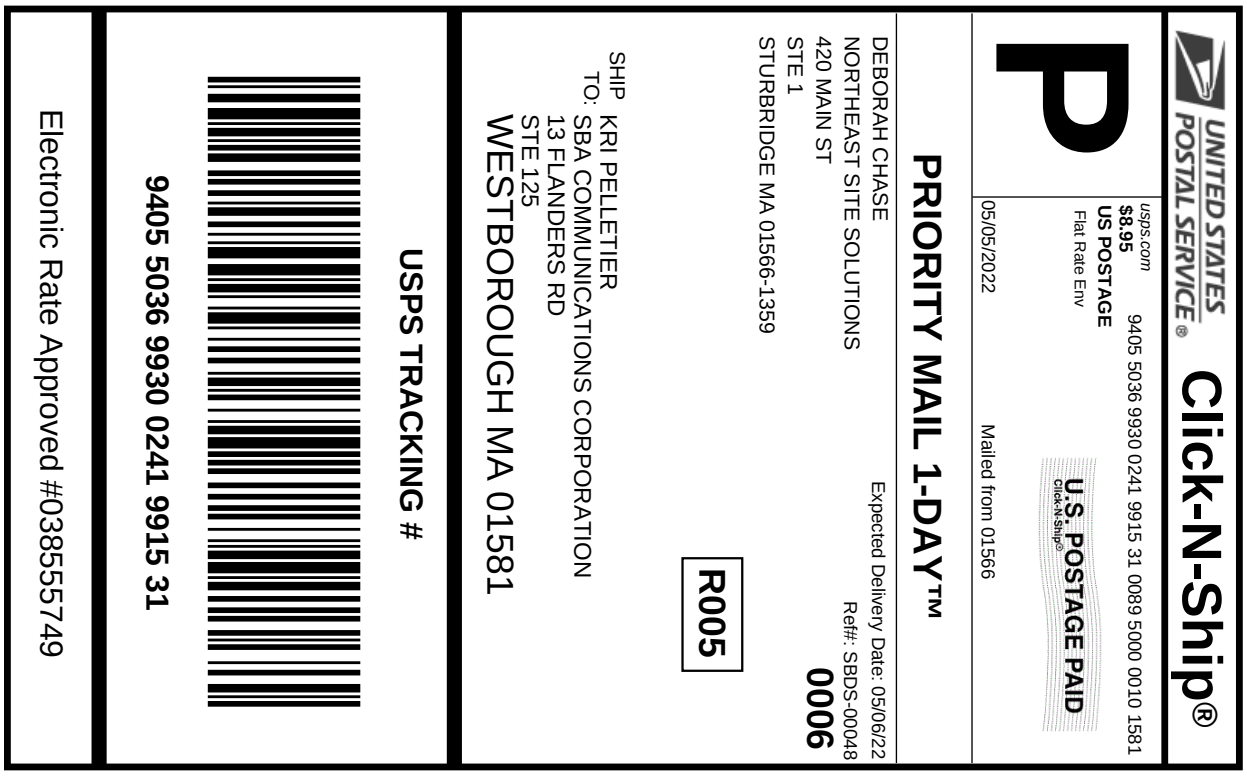
SBA COMMUNICATIONS CORPORATION hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CONNECTICUT SITING COUNCIL for existing wireless communications towers.

Kri Pelletier
Site Development Manager
SBA COMMUNICATIONS CORPORATION
134 Flanders Road, Suite 125
Westboro, MA 01581

SBA
By: _____ Date: _____

Exhibit H

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.**
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Ship Date:	05/05/2022
Expected Delivery Date:	05/06/2022

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

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

Ref#: SBDS-00048

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

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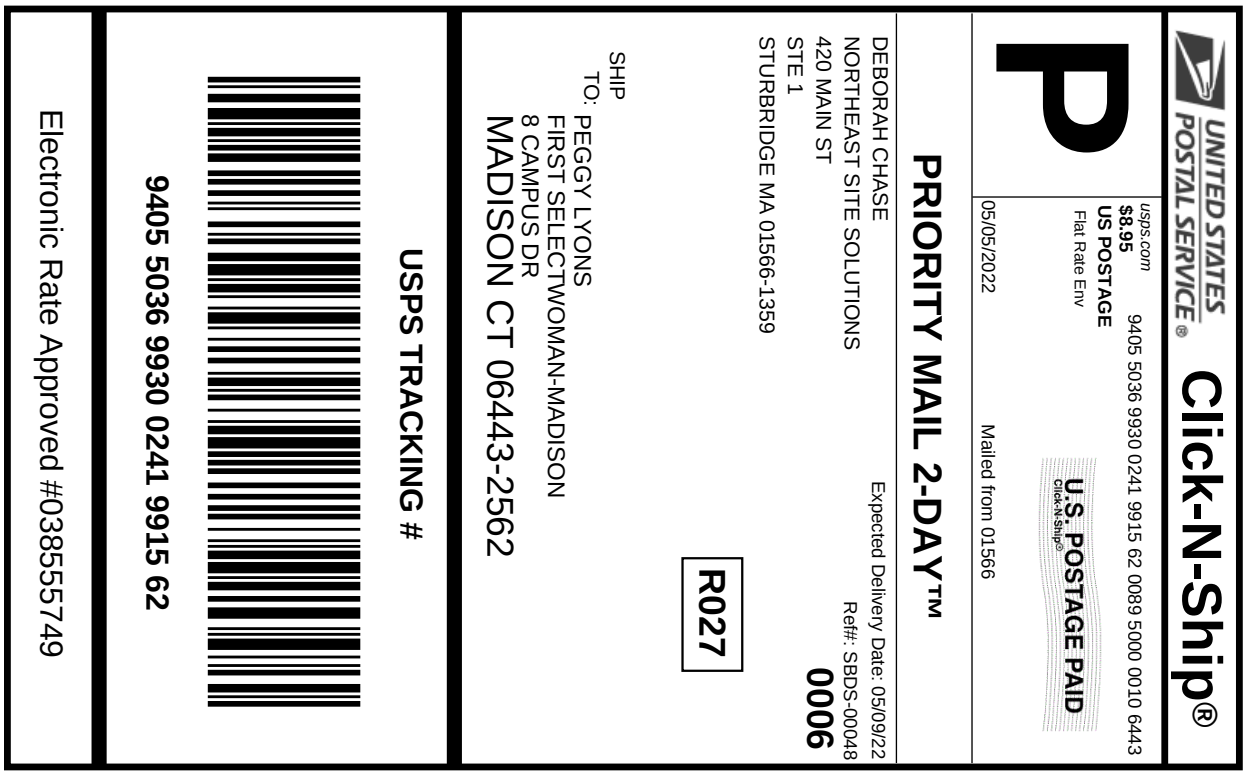

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Ship Date:	05/05/2022
Expected Delivery Date:	05/09/2022

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

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

Ref#: SBDS-00048

To: PEGGY LYONS
FIRST SELECTWOMAN-MADISON
8 CAMPUS DR
MADISON CT 06443-2562

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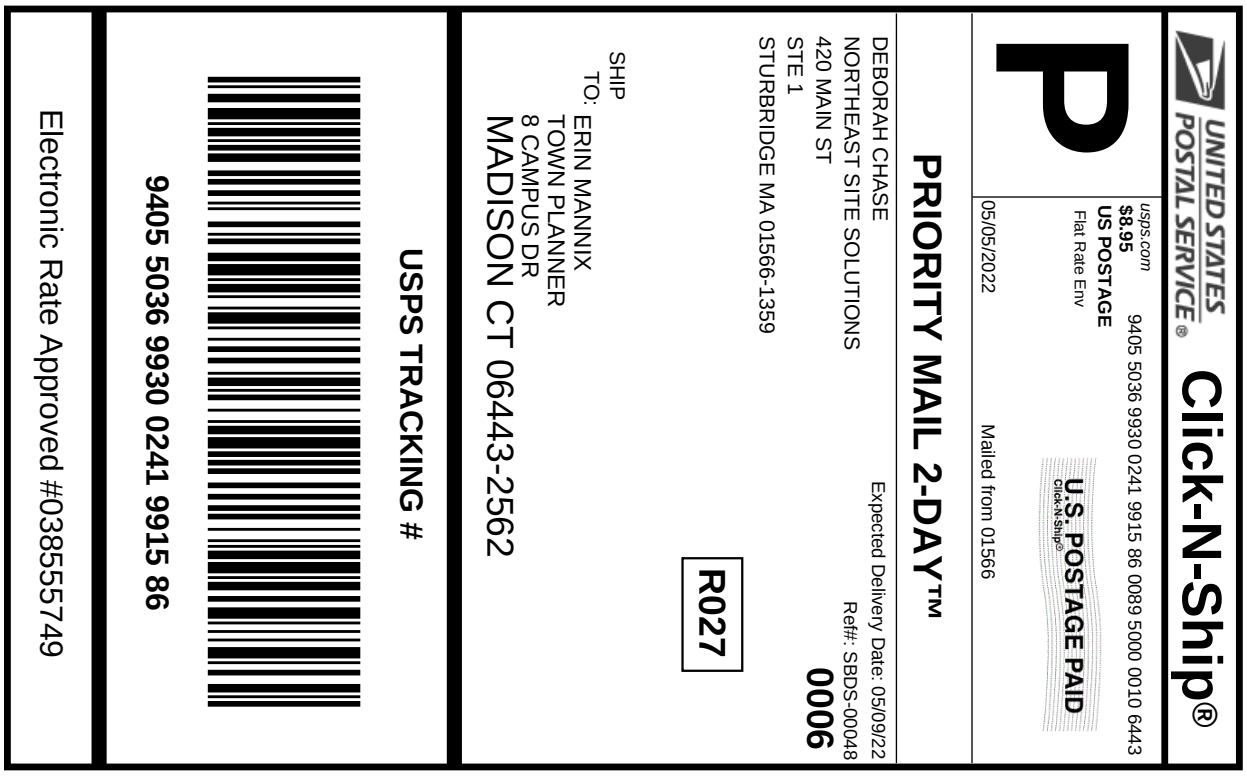

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Trans. #:	562911146
Print Date:	05/05/2022
Ship Date:	05/05/2022
Expected Delivery Date:	05/09/2022

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

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

Ref#: SBDS-00048

To: ERIN MANNIX
TOWN PLANNER
8 CAMPUS DR
MADISON CT 06443-2562

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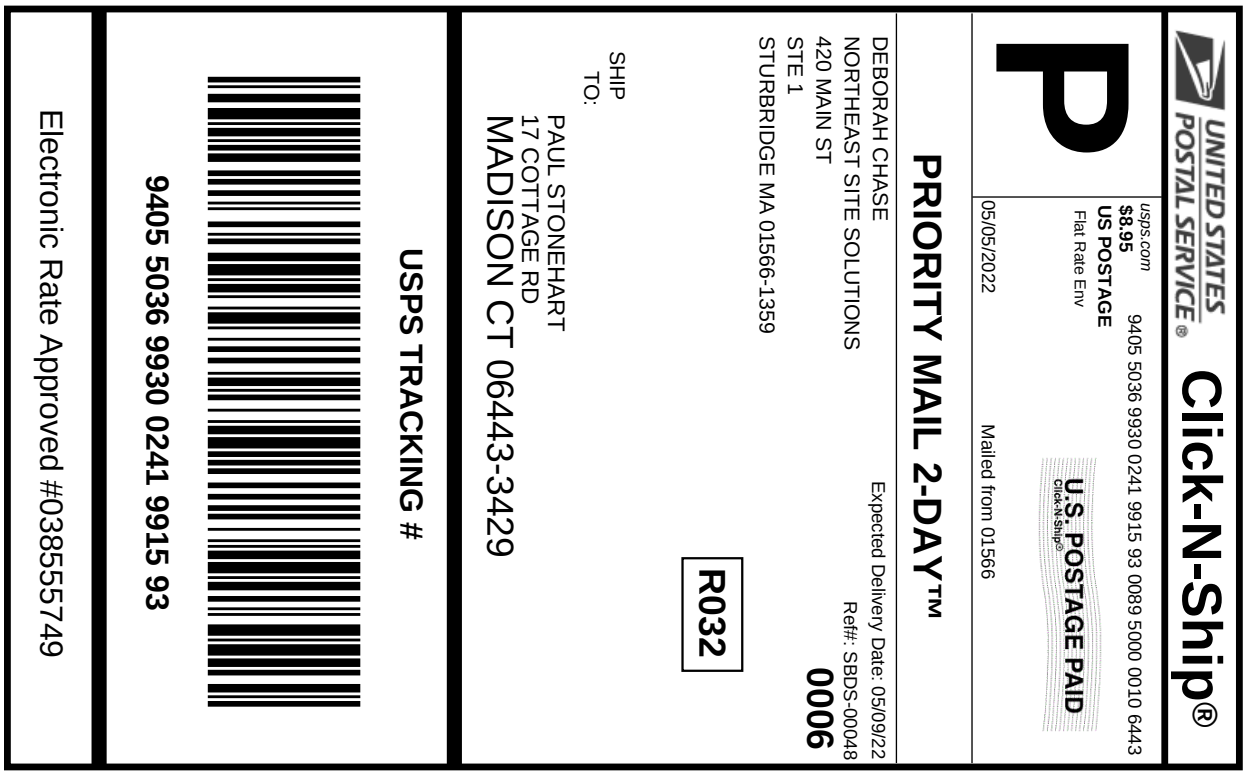

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Trans. #:	562911146
Print Date:	05/05/2022
Ship Date:	05/05/2022
Expected Delivery Date:	05/09/2022

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

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

Ref#: SBDS-00048

To: PAUL STONEHART
17 COTTAGE RD
MADISON CT 06443-3429

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UNITED STATES POSTAL SERVICE.

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Product	Qty	Unit Price	Price
Prepaid Mail Madison, CT 06443 Weight: 0 lb 10.00 oz Acceptance Date: Fri 05/20/2022 Tracking #: 9405 5036 9930 0241 9915 93	1		$0.00
Prepaid Mail Westborough, MA 01581 Weight: 0 lb 2.00 oz Acceptance Date: Fri 05/20/2022 Tracking #: 9405 5036 9930 0241 9915 31	1		$0.00
Prepaid Mail Madison, CT 06443 Weight: 0 lb 9.90 oz Acceptance Date: Fri 05/20/2022 Tracking #: 9405 5036 9930 0241 9915 62	1		$0.00
Prepaid Mail Madison, CT 06443 Weight: 0 lb 9.90 oz Acceptance Date: Fri 05/20/2022 Tracking #: 9405 5036 9930 0241 9915 86	1		$0.00
Grand Total:			$0.00

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