NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

June 29, 2022

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

RE: Tower Share Application
1233 Wolcott Road, Wolcott, CT 06716
Latitude: 41.621575
Longitude: -72.973647
Site #: CT20021-A_BOHVN00050A_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 1233 Wolcott Road, Wolcott, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 148-foot level of the existing 350-foot Self -Support 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 May 23, 2022, Exhibit C. Also included is a structural analysis prepared by ALLPRO, dated June 9, 2022, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was approved by the Town of Wolcott on November 21, 1991. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Mayor Thomas Dunn and David Kalinowski, Zoning Inspector for the Town of Wolcott, as well as the tower owner (SBA) and property owner (Edward Cleary).

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 350-feet and the Dish Wireless LLC antennas will be located at a center line height of 148-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 9.79% 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 tower in Wolcott. 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 148-foot level of the existing 350-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 Wolcott.

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
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Attachments

Cc: Mayor Thomas Dunn
Town of Wolcott
10 Kenea Ave.
Wolcott, CT 06716

David Kalinowski, Zoning Inspector
Town of Wolcott
10 Kenea Ave.
Wolcott, CT 06716

Edward Cleary – Property Owner
50 Beach Road
Wolcott, CT 06716

SBA - Tower Owner

Exhibit A

Original Facility Approval

DATE November 22, 1991

ZONING PERMIT FEE.....$25.00
WOLCOTT PLANNING AND ZONING COMMISSION

DATE November 22, 1991 PERMIT NO. 3024

A zoning permit is hereby granted to AAT CommunicationsCorp. Lessee
(Edward Cleary owner)
1233 ~~1235~~ Wolcott Rd. To install a radio communications equipement storage building and antenna support structure.
authorizing building construction and site development activities in accordance with Application for Zoning Permit# 3024
approved by the Zoning Enforcement Officer on November 22,1991

Signed: L. P. Lyon

NOTE: 1. Site plan and Special Permits approved by the Planning and Zoning Commission and Variances granted by the Zoniing Board of Appeals may have been approved or granted subject to conditions, which conditions are also conditions of approval of the Zoning Permit.

2. After completion of any construction and improvements and Prior to the use or occupancy of the premises, a Certificate of Zoning Compliance must be obtained. Such a Certificate of Zoning Compliance must also be obtained prior to a change of use of an existing premises.

OWNER EDWARD CLEARY DATE September 4, 1991

ADDRESS 50 Beach Road, Wolcott, CT TELEPHONE 879-4987

APPLICANT AAT Communications Corporation

ADDRESS 1854 Hylan Blvd., Staten Island, NY 10305 TELEPHONE 1-718-979-6600

The undersigned hereby makes application for a Zoning Permit under the Zoning Regulations of the Town of Wolcott for one or more of the following:

X Use of Land ____ Sign ____ Parking Area

____ Change of use of existing building or structure

____ Outside storage area

X Proposed building or structure and use thereof

____ Change of existing building or storage & use thereof

Zoning District Industrial Address 1235 Wolcott Road, Wolcott

Location: On North side of Wolcott (Street) between Boundline

and Idlewood Town Road: Accepted ____ Unaccepted ____

Description of Proposal Erection and use of antenna support structure (tower) and communication equipment storage building

____ Plan Drawing Attached

*** I attest to the accuracy of information submitted on this application and agree t comply with all regulations of the Town c Wolcott

Date ____ Sign ____

Date September 4, 1991 Authorized Agent William F. Tynan

Sanitation Approval

Chesprocott Health District

by ____

Application Approved ____ Date ____

Sewer & Water Department Approval ____ Date ____

Comments ____

By ____ Date 9/5/91

____ Decision of Zoning Enforcement Officer ____ Site Plan Approval ✓

____ Special Permit Approval ____ Variance or other Approval ____

Zoning Permit # ____ Issued on ____

Application disapproved on ____ because of the following ____

Assessor's Map # 119 Parcel # 7-A

Subdivision, if any: Title _____ Lot # _____

Inland Wetland Area: Yes: _____ No: _____ Flood Hazard Area: Yes _____

Proposed Use Buildings and Structures

Proposed Use: (Cite from Article 3) Relay towers and facilities - Section 3.1; Part B; B.3

The proposed use is permitted

_____ As matter of right

_____ With Site Plan approval

_____ By Special Permit

_____ Other (describe)

Proposed buildings and structures (for proposals with several buildings, attach appropriat tabulation.

Total floor area for each dwelling unit _____

Total ground coverage of buildings as % of lot _____

Total floor area of all buildings _____

Number of stories _____

Maximum height _____

*****SETBACKS***** Front Yard _____ Rear Yard _____ Side Yard _____ ***** Side Yard _____

If applicable, do plan drawings show off-street parking and loading, outside yard _____

Site development and landscaping, signs, driveway locations?

Parking _____ Yes _____ No

Outside Storage _____ Yes _____ No

Landscaping, etc. _____ Yes _____ No

Signs _____ Yes _____ No

Driveway Location _____ Yes _____ No

As per Article 7, Section 3, Paragraph 3.6.1., Staking is required prior to issuing Zoning Permit.

STATEMENT OF USE

Antenna Support Structure (350 feet in height) and accessory radio communication equipment storage building (15 x 40) for the location of one way and two way radio equipment and related antenna.

APPLICATION FOR PLAN EXAMINATION AND BUILDING PERMIT

NO. 1233 STREET WILLOUTT ROAD

IMPORTANT – Applicant to complete all items in sections: I, II, III, IV, and IX.

I. LOCATION OF BUILDING

AT (LOCATION) 1235 (NO.) Wolcott Road 1233 (STREET) ZONING DISTRICT Ind.

BETWEEN Boundline (CROSS STREET) AND Idlewood (CROSS STREET)

SUBDIVISION _____ LOT 119 BLOCK 7-A LOT SIZE 3.970 acres

II. TYPE AND COST OF BUILDING – *All applicants complete Parts A – D*

A. TYPE OF IMPROVEMENT

1 [X] New building
2 [ ] Addition *(If residential, enter number of new housing units added, if any, in Part D, 13)*
3 [ ] Alteration *(See 2 above)*
4 [ ] Repair, replacement
5 [ ] Wrecking *(If multifamily residential, enter number of units in building in Part D, 13)*
6 [ ] Moving (relocation)
7 [ ] Foundation only

B. OWNERSHIP

8 [X] Private (individual, corporation, nonprofit institution, etc.)
9 [ ] Public (Federal, State, or local government)

D. PROPOSED USE – *For "Wrecking" most recent use*

Residential

12 [ ] One family
13 [ ] Two or more family – *Enter number of units* → _____
14 [ ] Transient hotel; motel, or dormitory – *Enter number of units* → _____
15 [ ] Garage
16 [ ] Carport
17 [ ] Other – *Specify* _____

Nonresidential

18 [ ] Amusement, recreational
19 [ ] Church, other religious
20 [ ] Industrial
21 [ ] Parking garage
22 [ ] Service station, repair garage
23 [ ] Hospital, institutional
24 [ ] Office, bank, professional
25 [ ] Public utility
26 [ ] School, library, other educational
27 [ ] Stores, mercantile
28 [XX] Tanks, towers
29 [ ] Other – *Specify* _____

C. COST

	(Omit cents)
10. Cost of improvement	$ 93,000
To be installed but not included in the above cost	
a. Electrical	5,000
b. Plumbing	N/A
c. Heating, air conditioning	N/A
d. Other (elevator, etc.)	N/A
11. TOTAL COST OF IMPROVEMENT	$ 98,000

Nonresidential – Describe in detail proposed use of buildings, e.g., food processing plant, machine shop, laundry building at hospital, elementary school, secondary school, college, parochial school, parking garage for, department store, rental office building, office building at industrial plant. If use of existing building is being changed, enter proposed use.

Radio Communications Equipment Storage Buildings and Antenna Support Structure

470.00
5.00
475.00

III. SELECTED CHARACTERISTICS OF BUILDING – *For new buildings and additions, complete Parts E – L; for wrecking, complete only Part J, for all others skip to IV.*

E. PRINCIPAL TYPE OF FRAME

30 [ ] Masonry (wall bearing)
31 [ ] Wood frame
32 [XX] Structural steel
33 [ ] Reinforced concrete
34 [ ] Other – *Specify* _____

F. PRINCIPAL TYPE OF HEATING FUEL

35 [ ] Gas
36 [ ] Oil
37 [X] Electricity
38 [ ] Coal
39 [ ] Other – *Specify* _____

G. TYPE OF SEWAGE DISPOSAL N/A

40 [ ] Public or private company
41 [ ] Private (septic tank, etc.)

H. TYPE OF WATER SUPPLY N/A

42 [ ] Public or private company
43 [ ] Private (well, cistern)

I. TYPE OF MECHANICAL

Will there be central air conditioning?
44 [ ] Yes 45 [XX] No

Will there be an elevator?
46 [ ] Yes 47 [XX] No

J. DIMENSIONS

48. Number of stories	35
49. Total square feet of floor area, all floors, based on exterior dimensions	1225
50. Total land area, sq. ft.	172,938

K. NUMBER OF OFF-STREET PARKING SPACES

51. Enclosed	
52. Outdoors	4

L. RESIDENTIAL BUILDINGS ONLY

53. Number of bedrooms	
54. Number of bathrooms – Full	
54. Number of bathrooms – Partial	

0 7 09

IV. IDENTIFICATION – *To be completed by all applicants*

	Name	Mailing address – *Number, street, city, and State*	ZIP code	Tel. No.
1. Owner or Lessee	AAT Communications	1854 Hylan Boulevard		(718)
	Corporation	Staten Island, NY	10305	979-6600
2. Contractor	Francisco Tower	431 East Ellis Street, P.O. Box 249	Builder's License No.	
	Incorporated	East Syracuse, NY	13057	(315) 437-3059
3. Architect or Engineer	Charles L. Burns	431 East Ellist Street, P.O. Box 249	13057	(315)
		East Syracuse, NY		446-3114

I hereby certify that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and we agree to conform to all applicable laws of this jurisdiction.

Signature of applicant	Address	Application date
Gary Bowman	1854 Hylan Blvd SI. NY 10305	11/6/91

DO NOT WRITE BELOW THIS LINE

V. PLAN REVIEW RECORD – *For office use*

Plans Review Required	Check	Plan Review Fee	Date Plans Started	By	Date Plans Approved	By	Notes
BUILDING		$					
PLUMBING		$					
MECHANICAL		$					
ELECTRICAL		$					
OTHER _____		$					

VI. ADDITIONAL PERMITS REQUIRED OR OTHER JURISDICTION APPROVALS

Permit or Approval	Check	Date Obtained	Number	By	Permit or Approval	Check	Date Obtained	Number	By
BOILER					PLUMBING				
CURB OR SIDEWALK CUT					ROOFING				
ELEVATOR					SEWER				
ELECTRICAL					SIGN OR BILLBOARD				
FURNACE					STREET GRADES				
GRADING					USE OF PUBLIC AREAS				
OIL BURNER					WRECKING				
OTHER _____					OTHER _____				

VII. VALIDATION

David.BarBagallo@smartlink LLC.com

Building Permit number _____

Building Permit issued _____ 19 ____

Building Permit Fee $ _____

Certificate of Occupancy $ _____

Drain Tile $ _____

Plan Review Fee $ _____

FOR DEPARTMENT USE ONLY

Use Group _____

Fire Grading _____

Live Loading _____

Occupancy Load _____

Approved by: Kenneth Smoil

TITLE

TOWN OF WOLCOTT BUILDING PERMIT
OFFICE OF THE BUILDING INSPECTOR

BUILDING PERMIT

DEPT. FILE COPY

AMOUNT PAID

VALIDATION

DATE November 22, 19 91 PERMIT NO. 6969

APPLICANT AAT Communications Inc. ADDRESS 1854 Hylan Boulevard, Staten Island, NY
(NO.) (STREET) (CONTR'S LICENSE)

PERMIT TO install radio tower etc/) STORY NUMBER OF DWELLING UNITS
(TYPE OF IMPROVEMENT) NO. (PROPOSED USE)

AT (LOCATION) 1235 ~~Wolcott~~ Wolcott Road #1233 ZONING DISTRICT
(NO.) (STREET)

BETWEEN (CROSS STREET) AND (CROSS STREET)

SUBDIVISION LOT BLOCK LOT SIZE

BUILDING IS TO BE FT. WIDE BY FT. LONG BY FT. IN HEIGHT AND SHALL CONFORM IN CONSTRUCTION

TO TYPE 1-8 USE GROUP 22 BASEMENT WALLS OR FOUNDATION
(TYPE)

REMARKS: radio communications equipement storage buildings and antenna support structure

AREA OR VOLUME (CUBIC/SQUARE FEET) ESTIMATED COST $ 98,000.00 PERMIT FEE $ 475.00

OWNER AAT Communications Inc. Lessee (Edward Cleary) (Owner)

ADDRESS 1235 Wolcott Road Wolcott, CT 06716 BUILDING DEPT. BY

see address abive.

(Affidavit on reverse side of application to be completed by authorized agent of owner)

FORM NO. BOCA - BP. 1969

Exhibit B

Property Card

1233 WOLCOTT RD

Location	1233 WOLCOTT RD	**Mblu**	119/ 3/ 7/ /
Acct#	C0109000	**Owner**	CLEARY EDWARD F
Assessment	$421,000	**Appraisal**	$601,400
PID	1226	**Building Count**	2

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$258,370	$343,030	$601,400
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$180,870	$240,130	$421,000

Owner of Record

Owner	CLEARY EDWARD F	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	50 BEACH RD WOLCOTT, CT 06716	**Book & Page**	0192/0018

Sale Date	02/28/1990
Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CLEARY EDWARD F	$0		0192/0018	25	02/28/1990

Building Information

Building 1 : Section 1

Year Built:	1999
Living Area:	4,000
Replacement Cost:	$161,820
Building Percent Good:	87
Replacement Cost Less Depreciation:	$140,780

Building Attributes	
Field	**Description**
Style:	Comm Garage
Model	Comm/Ind
Grade	D
Stories:	1
Occupancy	3.00
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	

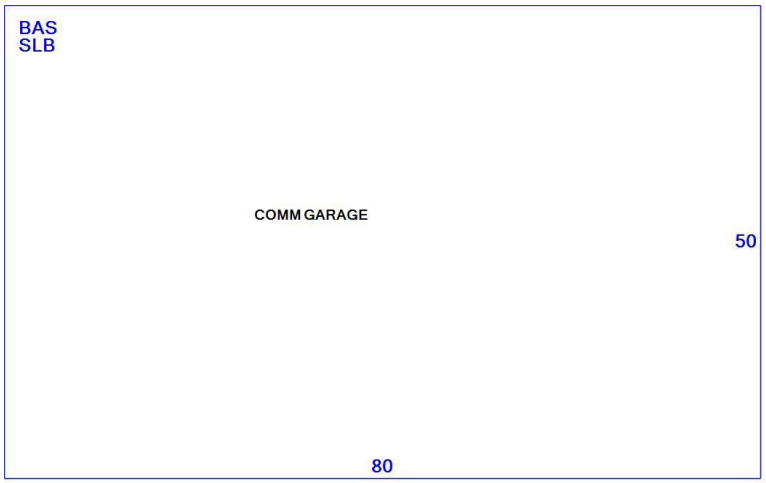
Building Photo

(https://images.vgsi.com/photos/WolcottCTPhotos//\00\01\12\49.jpg)

Roof Structure	Gable
Roof Cover	Metal
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Forced Hot Air
AC %	0
Foundation	Poured Conc
Bldg Use	Commercial
Total Rooms	0
Total Bedrms	0
Total Fixtures	0
Perimeter	260
SF Fin Bsmt	0
1st Floor Use:	
Heat/AC	NONE
Frame Type	STEEL
Baths/Plumbing	LIGHT
Ceiling/Wall	NONE
Rooms/Prtns	LIGHT
Wall Height	14.00
% Comn Wall	

Building 2 : Section 1

Building Layout



(ParcelSketch.ashx?pid=1226&bid=1226)

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	4,000	4,000
SLB	Slab	4,000	0
		8,000	4,000

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost
Less Depreciation: $0

Building Attributes : Bldg 2 of 2	
Field	**Description**
Style	Outbuildings
Model	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Percent	
Total Bedrooms:	

Building Photo

(https://images.vgsi.com/photos/WolcottCTPhotos//\00\01\12\50.jpg)

Building Layout

Building Layout (ParcelSketch.ashx?pid=1226&bid=20020)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Fireplace(s)	
% Attic Fin	
LF Dormer	
Foundation	
Bsmt Gar(s)	
Bsmt %	
SF FBM	
SF Rec Rm	
Fin Bsmt Qual	
Bsmt Access	
Fndtn Cndtn	
Basement	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	201
Description	Commercial
Zone	GC
Neighborhood	C150
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	7.04
Frontage	
Depth	
Assessed Value	$240,130
Appraised Value	$343,030

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CELL	Cell	SH	Cell Shed	450.00 S.F.	$60,750	2
CELL	Cell	SH	Cell Shed	200.00 S.F.	$27,000	2
PAV1	Paving	AS	Asphalt	31500.00 S.F.	$27,560	1
FN4	FENCE-8' CHAIN			240.00 L.F.	$2,280	2

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$255,360	$332,280	$587,640
2019	$255,360	$332,280	$587,640
2018	$255,360	$332,280	$587,640

Assessment

Valuation Year	Improvements	Land	Total
2020	$178,760	$232,600	$411,360
2019	$178,760	$232,600	$411,360
2018	$178,760	$232,600	$411,360

Google Maps 1233 Wolcott Rd

Imagery ©2022 Maxar Technologies, U.S. Geological Survey, USDA/FPAC/GEO, Map data ©2022 100 ft

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOHVN00050A

DISH Wireless L.L.C. SITE ADDRESS:

1233 WOLCOTT ROAD (RT-69)
WOLCOTT, CT 06716

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

SHEET INDEX

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:
- REMOVE (3) EXISTING PANEL ANTENNAS
- REMOVE (2) EXISTING RRUs
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- 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:
- REMOVE (1) EXISTING EQUIPMENT ON EXISTING PLATFORM
- 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 PHOTO

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.

SITE INFORMATION

PROPERTY OWNER:	CLEARY EDWARD F
ADDRESS:	50 BEACH RD WOLCOTT, CT 06716
TOWER TYPE:	SELF-SUPPORT TOWER
TOWER CO SITE ID:	CT20021-A
TOWER APP NUMBER:	169199
COUNTY:	NEW HAVEN
LATITUDE (NAD 83):	41° 37' 17.69" N 41.62157989
LONGITUDE (NAD 83):	72° 58' 25.08" W -72.97363267
ZONING JURISDICTION:	NEW HAVEN COUNTY
ZONING DISTRICT:	GC
PARCEL NUMBER:	119-3-7
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	VERIZON

PROJECT DIRECTORY

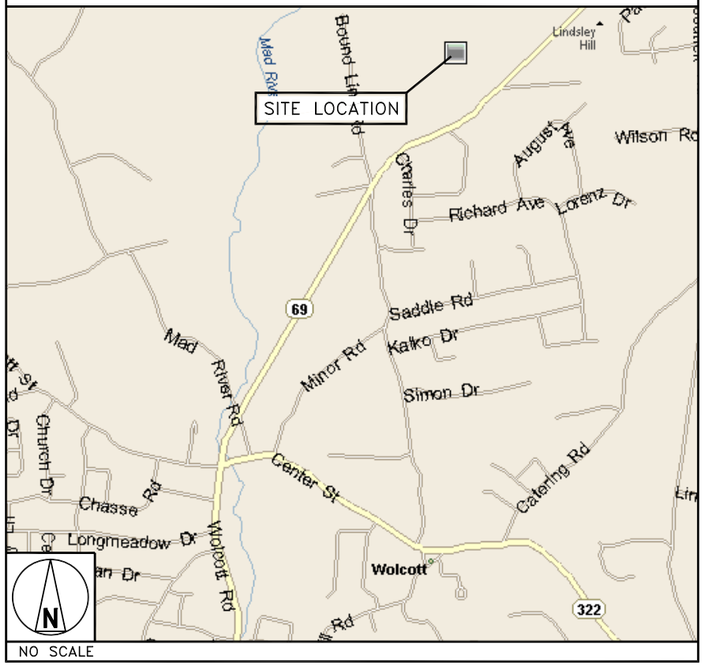
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	SBA COMMUNICATAIONS CORP. 8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800) 487-7483
SITE DESIGNER:	B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
SITE ACQUISITION:	APRIL PARROTT APRIL.PARROTT@DISH.COM
CONST. MANAGER:	CHAD WILCOX CHAD.WILCOX@DISH.COM
RF ENGINEER:	JARED ROBINSON JARED.ROBINSON@DISH.COM

DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:

CONTINUE TO EAST GRANBY, HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT, SLIGHT LEFT ONTO BRADLEY INTERNATIONAL AIRPORT, CONTINUE STRAIGHT, TAKE I-91 S AND I-84 TO CT-72 W IN PLAINVILLE. TAKE EXIT 33 FROM I-84, CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON, CONTINUE ONTO CT-20 E/BRADLEY INTERNATIONAL AIRPORT CON, TAKE THE EXIT ONTO I-91 S TOWARD HARTFORD, TAKE EXIT 32A-32B FOR I-84 W TOWARD WATERBURY, MERGE WITH I-84, TAKE EXIT 33 FOR CT-72 W TOWARD BRISTOL, CONTINUE ON CT-72 W. TAKE WILLIS ST TO CT-69 S IN WOLCOTT, CONTINUE ONTO CT-72 W, CONTINUE ONTO PINE ST, CONTINUE STRAIGHT ONTO MOUNTAIN RD, CONTINUE STRAIGHT ONTO SOUTH ST, TURN LEFT ONTO WILLIS ST, WILLIS ST TURNS SLIGHTLY RIGHT AND BECOMES BEECHER RD, TURN RIGHT ONTO LONG SWAMP RD, TURN LEFT ONTO CT-69 S, TURN RIGHT, ARRIVING AT BOHVN00050A.

VICINITY MAP



NO SCALE

dish wireless
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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BOCA RATON, FL 33487

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STATE OF CONNECTICUT
CHAD WILCOX
No. 23924
LICENSED
PROFESSIONAL ENGINEER

5/23/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RY	SA	BLJ

RFDS REV #: 2

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	11/16/21	ISSUED FOR REVIEW
0	5/23/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149478.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00050A
1233 WOLCOTT ROAD
(RT-69)
WOLCOTT, CT 06716

SHEET TITLE

TITLE SHEET

SHEET NUMBER

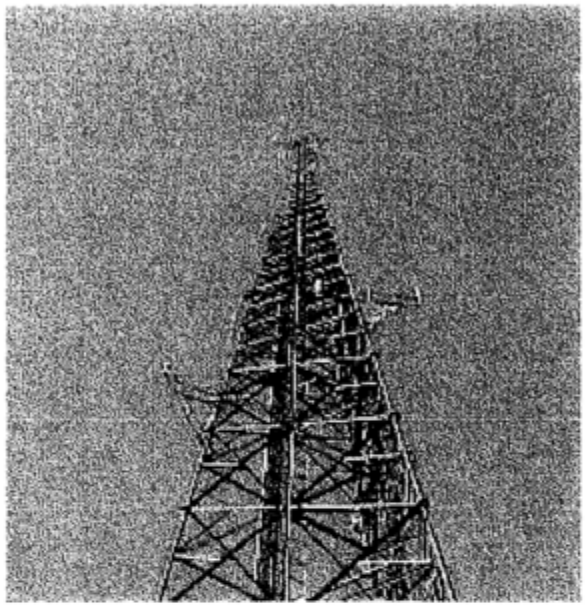
T-1

AAT COMMUNICATIONS CORPORATION

Cleary Tower

Wolcott Road, Wolcott, CT 06716

AAT FID NUMBER	480
Latitude:	41 37 18
Longitude:	72 58 26
AMSL:	1310'
Ground Elevation:	960'
AGL (Structure Height):	350'
Structure Type:	Tower, Self-Support
Nearest City:	Waterbury
County:	New Haven
State:	Connecticut
Area:	Northeast



Driving Instructions

Rt. 90 W. (Mass Pike) to 84 W. to exit 25. Rt. off exit ramp. Go to 2nd light, take lft. (approx. 200 yards). Follow approx. 3m to intersection of Rt. 69. Take right. Follow Rt. 69 (Wolcott Rd.) approx. 8 m. Tower on left.

- **350' Self Support Tower**
- **Available Heights: 190' to 320'**
- **Access Year Round**
- **Indoor Space Available**
- **Available Power and Telco**

For More Information Call:

Rick Ripley
Sales Account Manager
Northeast Region
Tel: 978-988-1182, x24
Mobile: 781-424-1206

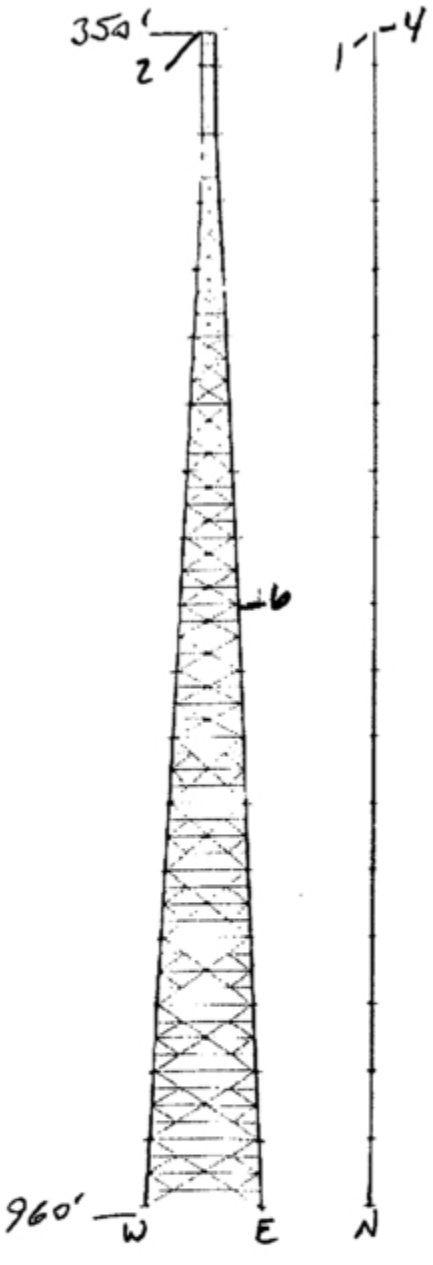
Additional Contacts:

Site Acquisition: Michelle Wiley
860-257-3510
Facilities: Mark Bellerose
978-988-1182, x-23

AAT TOWER SURVEY

SITE NAME: CLEARY TOWER

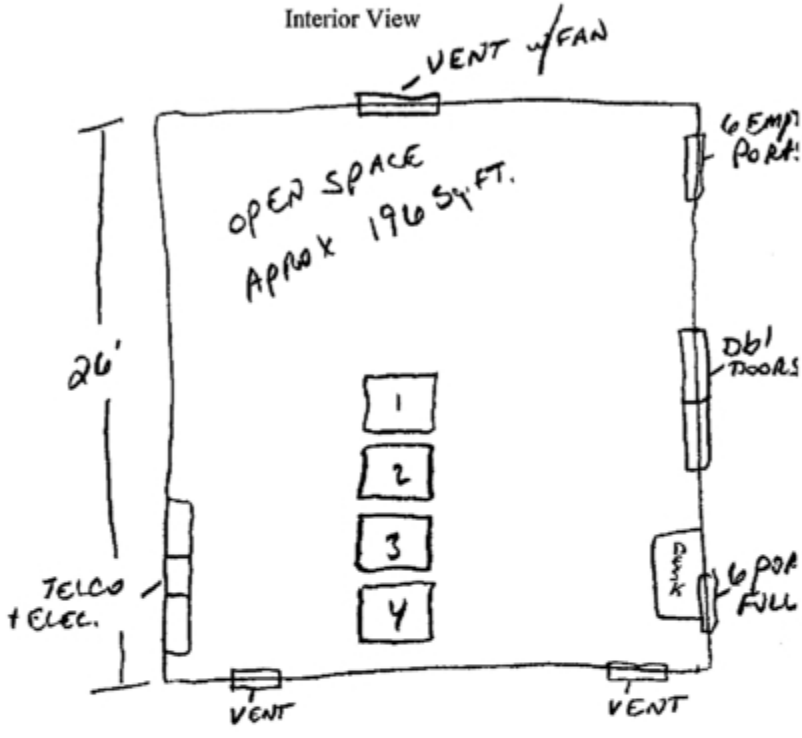
FID: 480



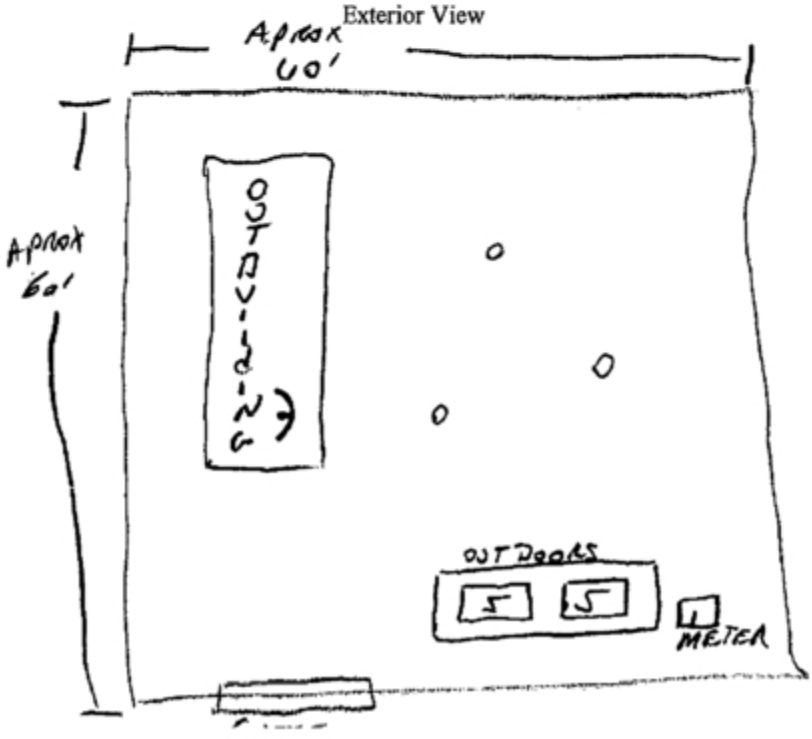
1. TRI STATE ft. 350
2. LOJACK ft. 350
3. WEB UNK ft. ___
4. PAGE MART ft. 350
5. SPRINT ft. ___
6. URGENT AMB. ft. 350

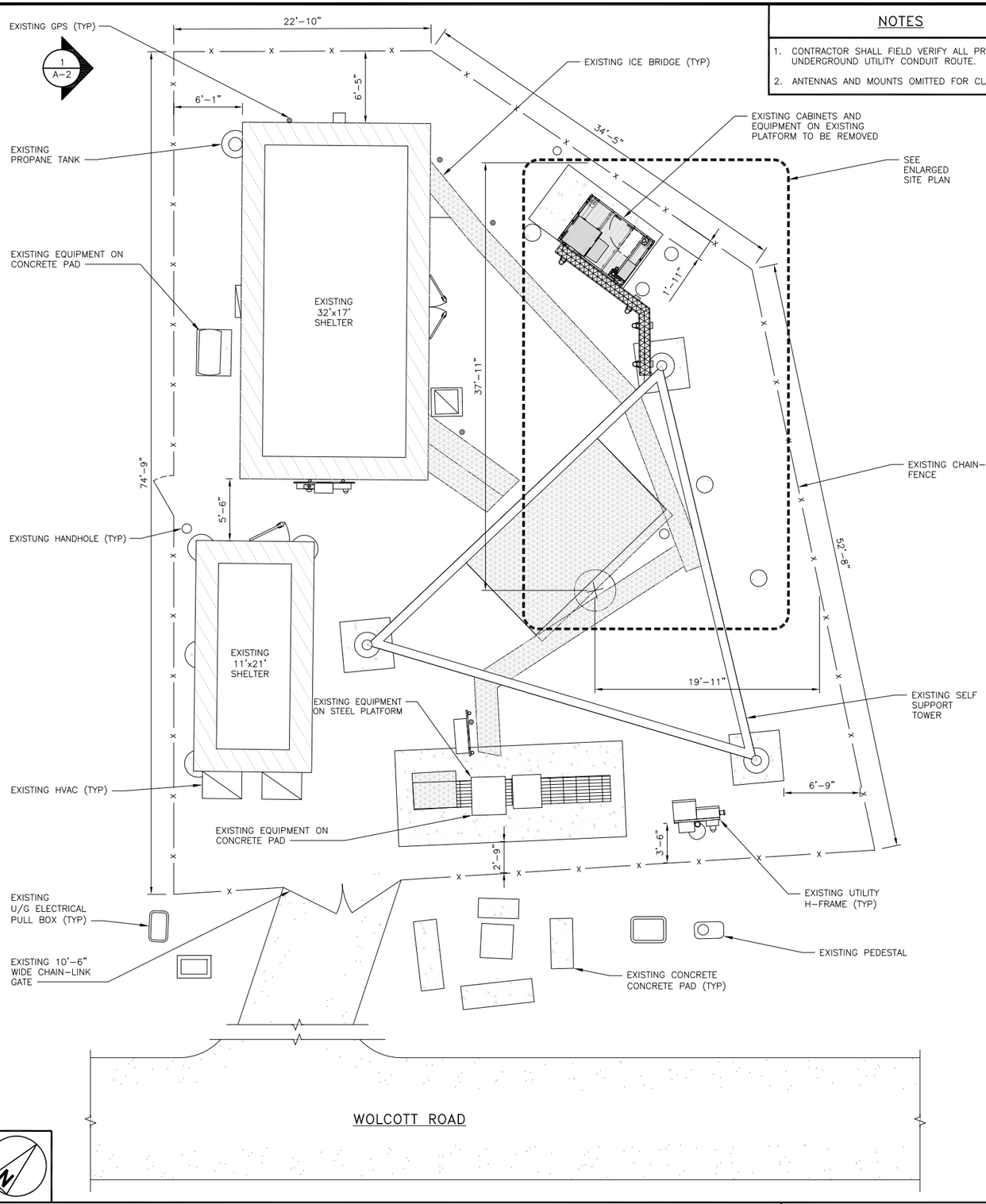
NEXTEL - 2/01

Interior View



Exterior View





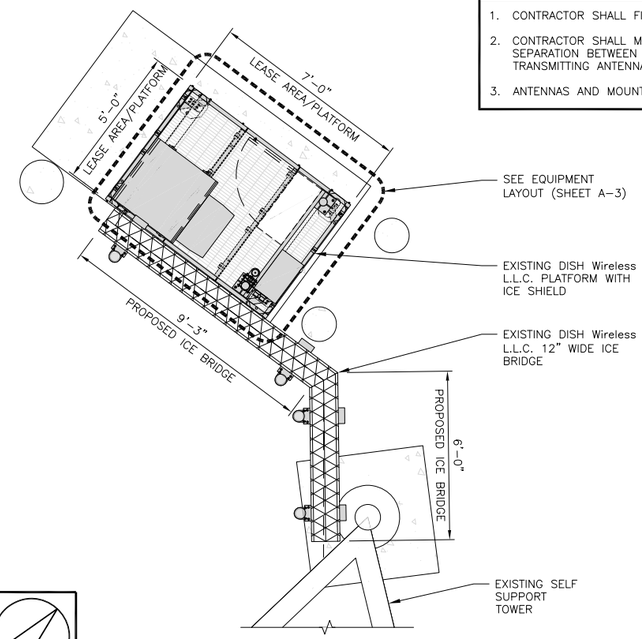
NOTES

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

OVERALL SITE PLAN

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

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STATE OF CONNECTICUT
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DISH Wireless L.L.C.
PROJECT INFORMATION

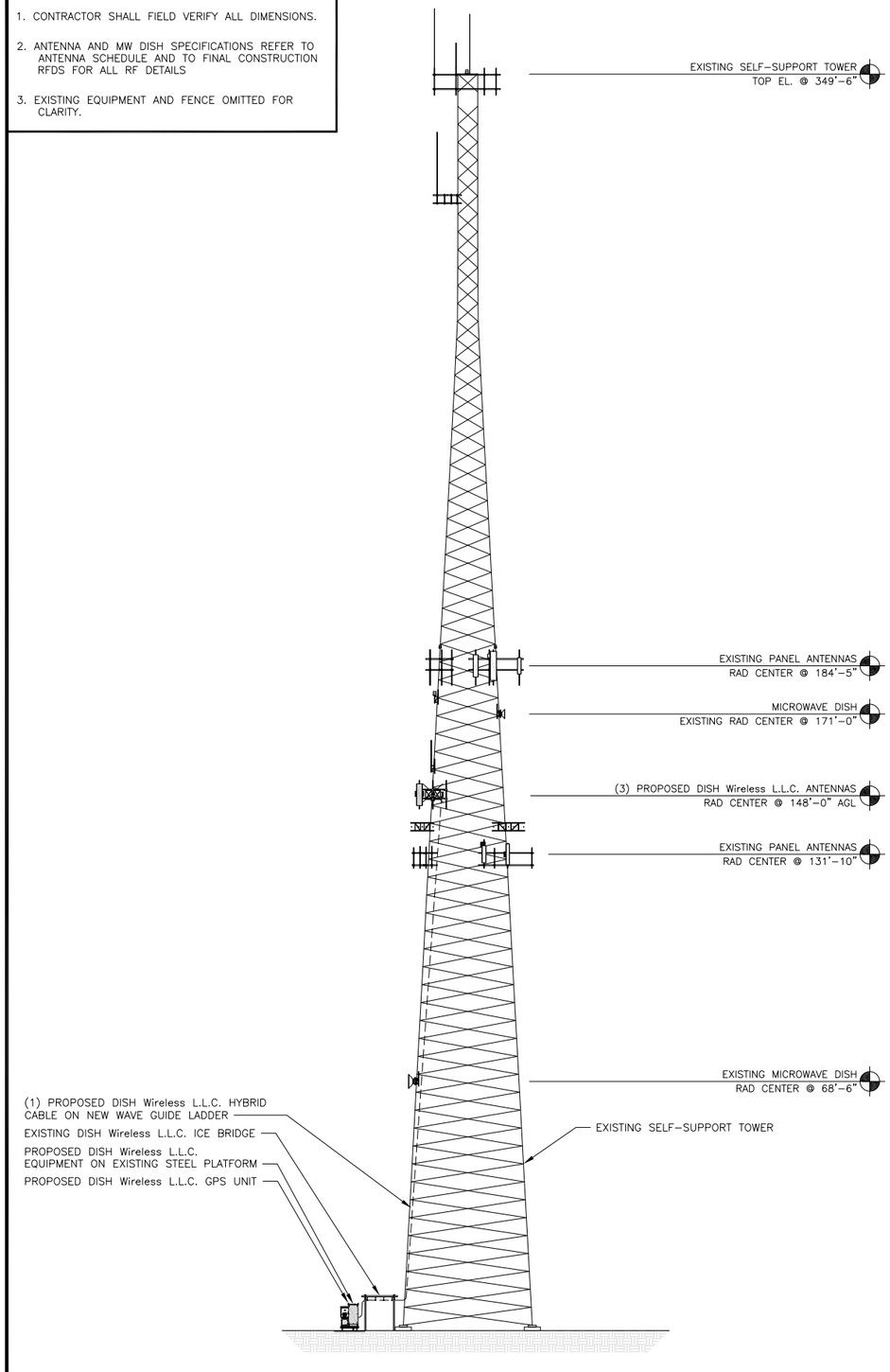
BOHVN00050A
1233 WOLCOTT ROAD
(RT-69)
WOLCOTT, CT 06716

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER
A-1

NOTES

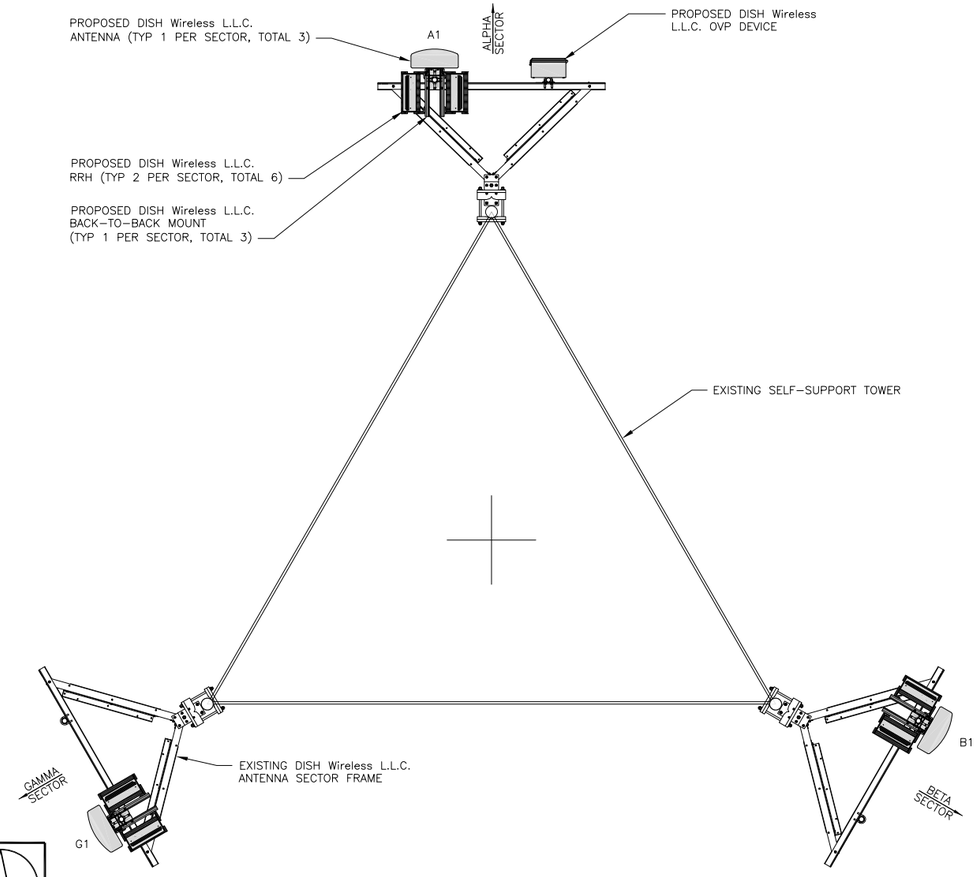
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED WEST ELEVATION

20' 10' 0 20' 40'
1"=20'

1



ANTENNA LAYOUT

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" X 20.0"	0°	148'-0"	(1) HIGH-CAPACITY HYBRID CABLE (190' LONG)
BETA	B1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" X 20.0"	120°	148'-0"	
GAMMA	G1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" X 20.0"	240°	148'-0"	

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	FUJITSU – TA08025-B604	5G
	A1	FUJITSU – TA08025-B605	5G
BETA	B1	FUJITSU – TA08025-B605	5G
	B1	FUJITSU – TA08025-B605	5G
GAMMA	G1	FUJITSU – TA08025-B604	5G
	G1	FUJITSU – TA08025-B605	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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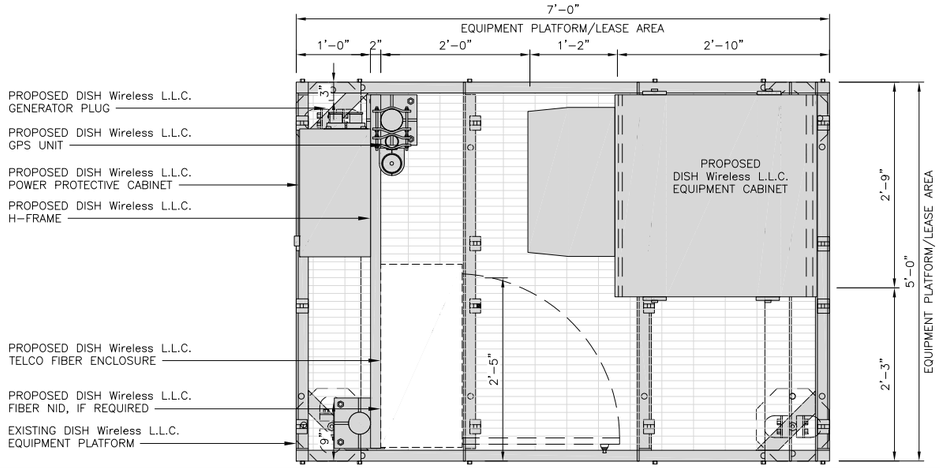
DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00050A
1233 WOLCOTT ROAD
(RT-69)
WOLCOTT, CT 06716

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



PLATFORM EQUIPMENT PLAN

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

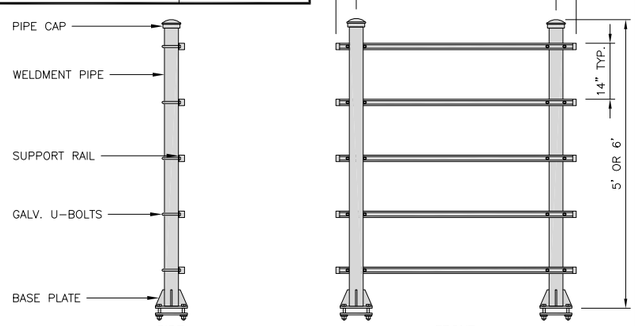
1

NOT USED

NO SCALE

2

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



H-FRAME DETAIL

NO SCALE

3

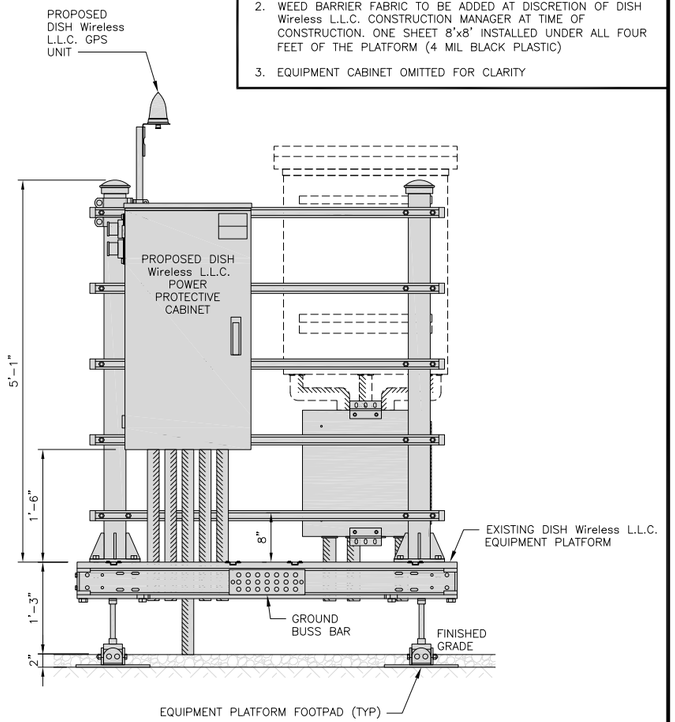
NOT USED

NO SCALE

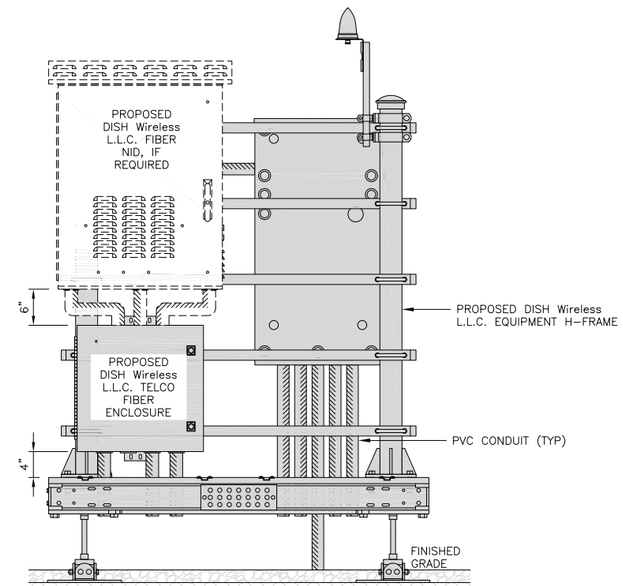
4

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

H-FRAME EQUIPMENT ELEVATION

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

5

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STATE OF CONNECTICUT
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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00050A
1233 WOLCOTT ROAD
(RT-69)
WOLCOTT, CT 06716

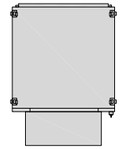
SHEET TITLE

EQUIPMENT PLATFORM AND H-FRAME DETAILS

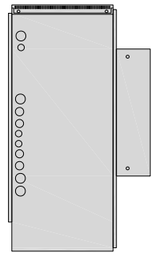
SHEET NUMBER

A-3

ENERSYS HEX 20000059996	
DIMENSIONS (HxWxD)	73"x30"x32"
POWER SYSTEM	-48V ALPHA/600A
HEATER	800W
TOTAL WEIGHT (EMPTY)	376 lbs


PLAN


BACK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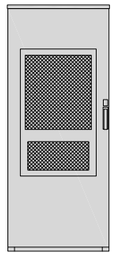
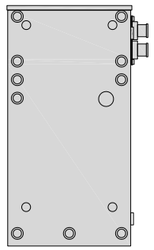

FRONT

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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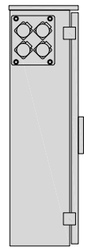
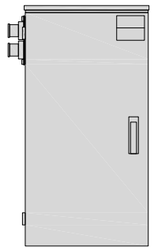

SIDE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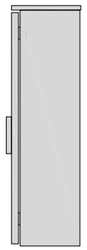
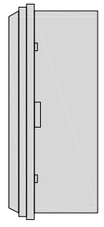

SIDE

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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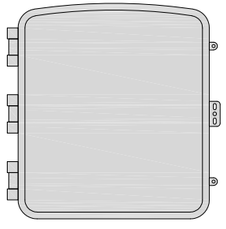
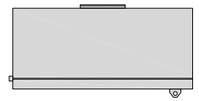

FRONT

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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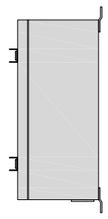
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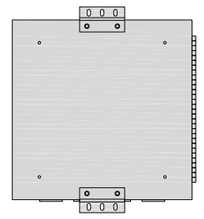
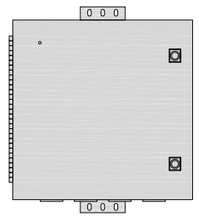

BACK

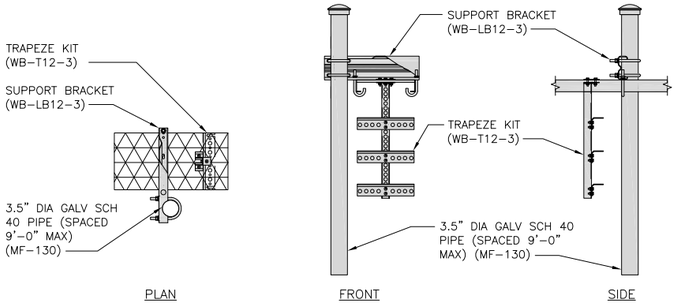

FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

NOT USED | NO SCALE | 4

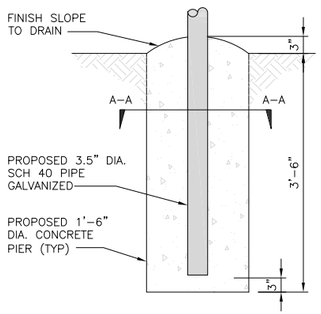
COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

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

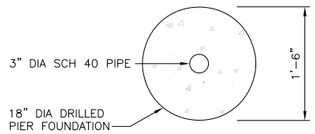


PLAN FRONT SIDE

ICE BRIDGE DETAIL | NO SCALE | 7

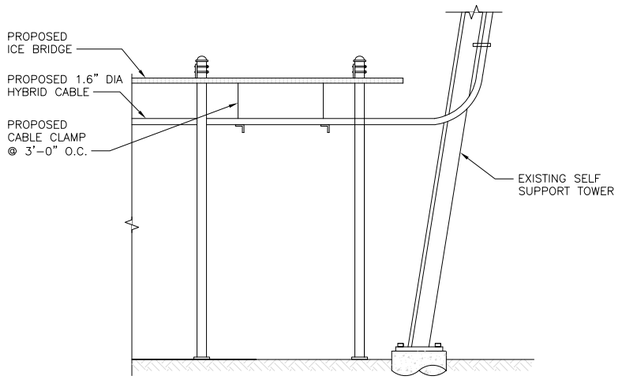


CONCRETE PIER



A-A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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5/23/22

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Expires 3/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RY	SA	BLJ

RFDS REV #: 2

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	11/16/21	ISSUED FOR REVIEW
0	5/23/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149478.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00050A
1233 WOLCOTT ROAD
(RT-69)
WOLCOTT, CT 06716

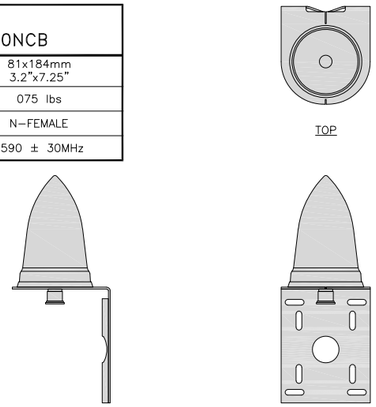
SHEET TITLE

EQUIPMENT DETAILS

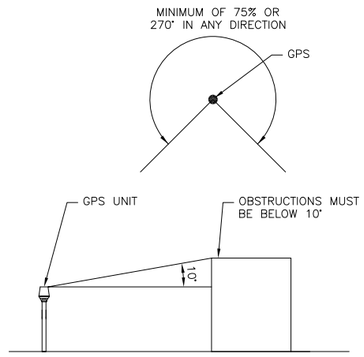
SHEET NUMBER

A-4

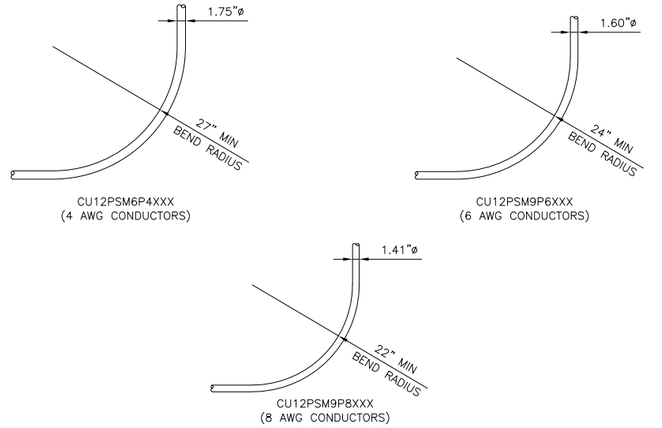
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2

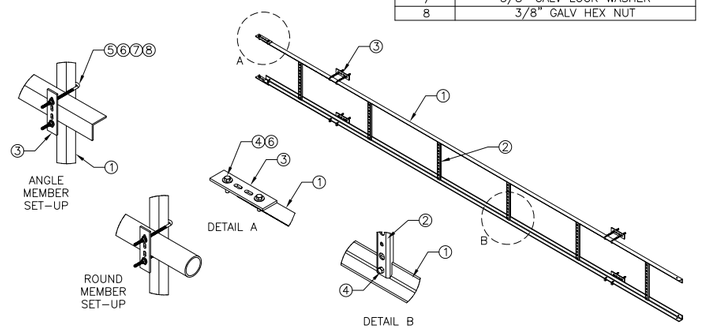


CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADIUSES | NO SCALE | 3

NOT USED | NO SCALE | 4

COMMSCOPE 20' CABLE LADDER 6 HOLE RUNGS	
DIMENSIONS (WxL)	20.5"x240"
WEIGHT	84.94 lbs

ITEM#	DESCRIPTION
1	20' ANGLE SIDE RAIL
2	20" LADDER RUNG
3	BACKING PLATE
4	3/8"x1-1/2" GALV BOLT KIT
5	8" GALV J-BOLT KIT
6	3/8" GALV FLAT WASHER
7	3/8" GALV LOCK WASHER
8	3/8" GALV HEX NUT



CABLE LADDER DETAIL | 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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CHAD J. TUTTLE
No. 23924
LICENSED PROFESSIONAL ENGINEER
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WOLCOTT, CT 06716

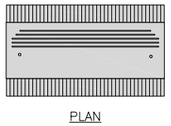
SHEET TITLE

EQUIPMENT DETAILS

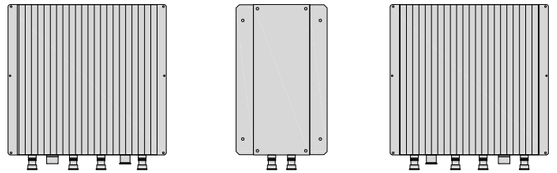
SHEET NUMBER

A-5

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



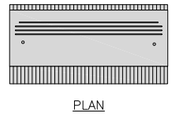
PLAN



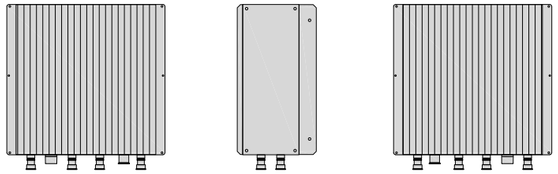
BACK SIDE FRONT

RRH DETAIL | NO SCALE | 1

FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



PLAN

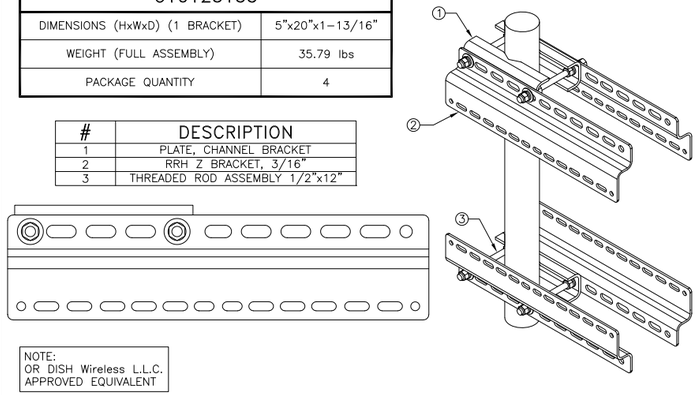


BACK SIDE FRONT

RRH DETAIL | NO SCALE | 2

SABRE DOUBLE Z-BRACKET C10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

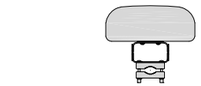
#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



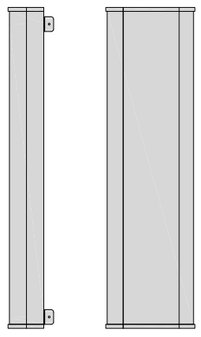
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

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



SIDE FRONT

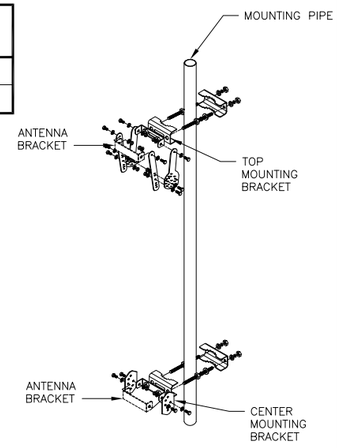
ANTENNA DETAIL | NO SCALE | 4

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

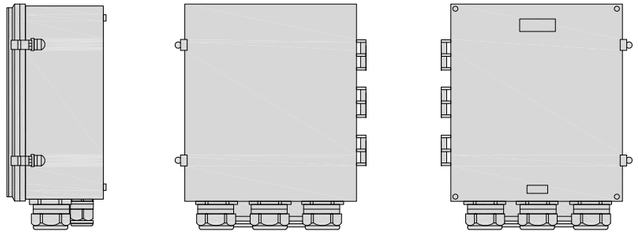


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

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

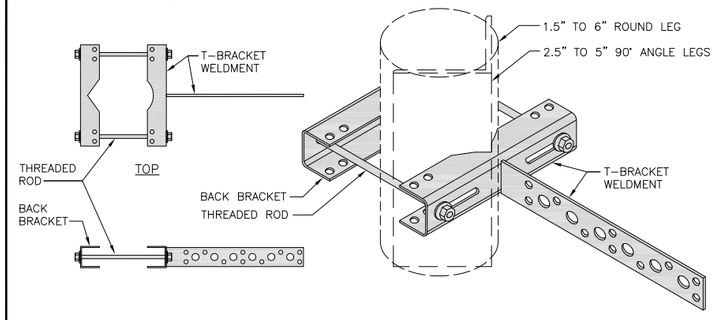
PLAN



SIDE BACK FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

SITEPRO1 T600 UNIVERSAL T-BRACKET	
DIMENSIONS (HxWxL)	2.25"x10.0"x15.25"
WEIGHT/ VOLUME	5.60 LBS



SIDE ISOMETRIC

VERTICAL CABLE SUPPORT DETAIL | NO SCALE | 8

NOT USED | NO SCALE | 9

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PROJECT INFORMATION

BOHVN00050A
1233 WOLCOTT ROAD
(RT-69)
WOLCOTT, CT 06716

SHEET TITLE

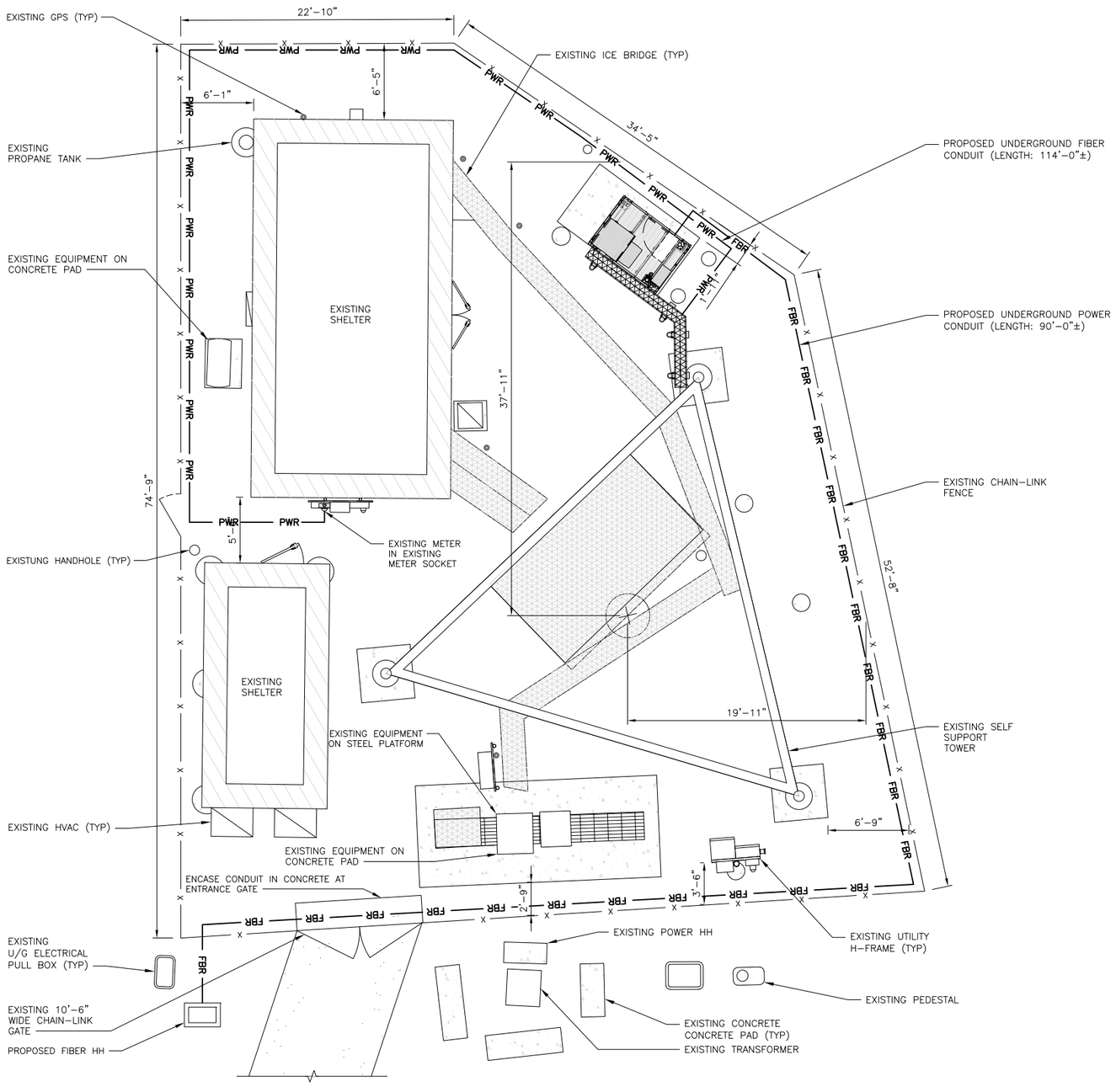
EQUIPMENT DETAILS

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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SHEET TITLE

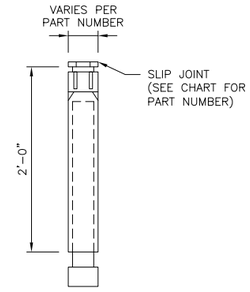
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

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"

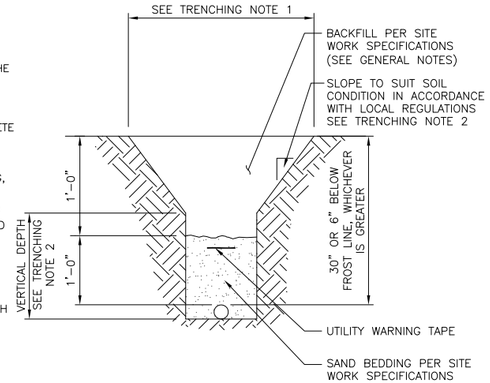


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

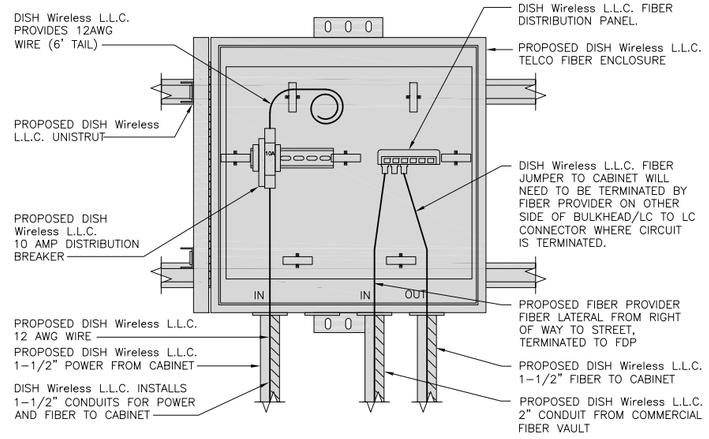
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

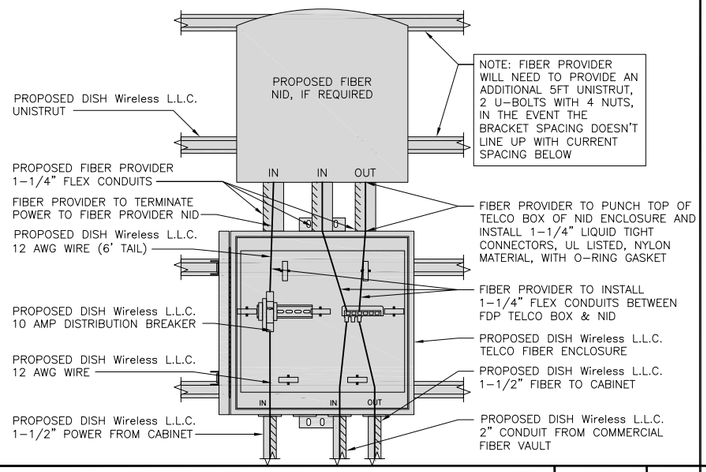
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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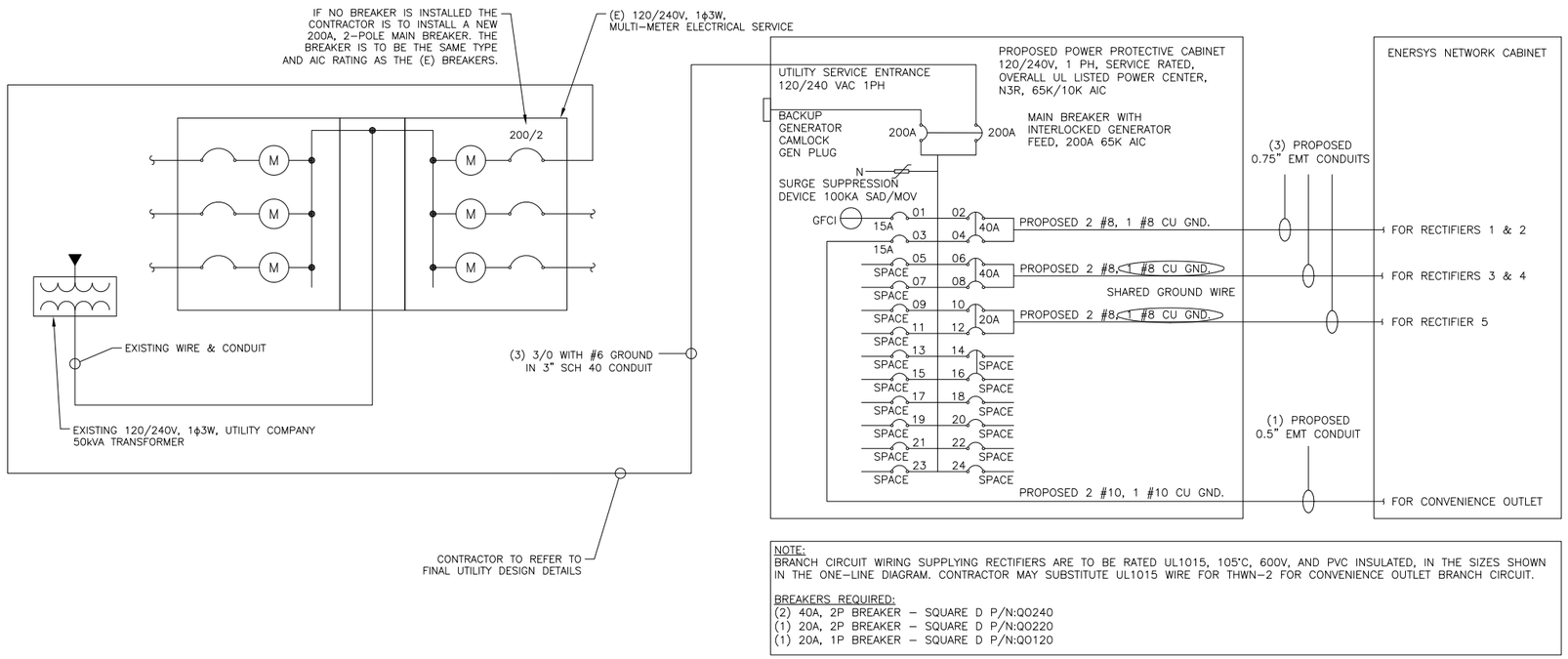
ELECTRICAL DETAILS

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
ENERSYS GFCI OUTLET		180	15A	3	B	4			3840	RECTIFIERS 1 & 2
-SPACE-				5	A	6	40A	3840		ENERSYS ALPHA CORDEX
-SPACE-				7	B	8			3840	RECTIFIER 3 & 4
-SPACE-				9	A	10	20A	1920		ENERSYS ALPHA CORDEX
-SPACE-				11	B	12			1920	RECTIFIER 5
-SPACE-				13	A	14				-SPACE-
-SPACE-				15	B	16				-SPACE-
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						9500	9500	

200A MCB, 1ϕ, 24 SPACE, 120/240V	L1	L2	
MB RATING: 65,000 AIC	9680	9680	VOLTAGE AMPS
	81	81	AMPS
	81		MAX AMPS
	102		MAX 125%

PANEL SCHEDULE

NO SCALE | 2

NOT USED

NO SCALE | 3

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RY	SA	BLJ

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DISH Wireless L.L.C.
PROJECT INFORMATION

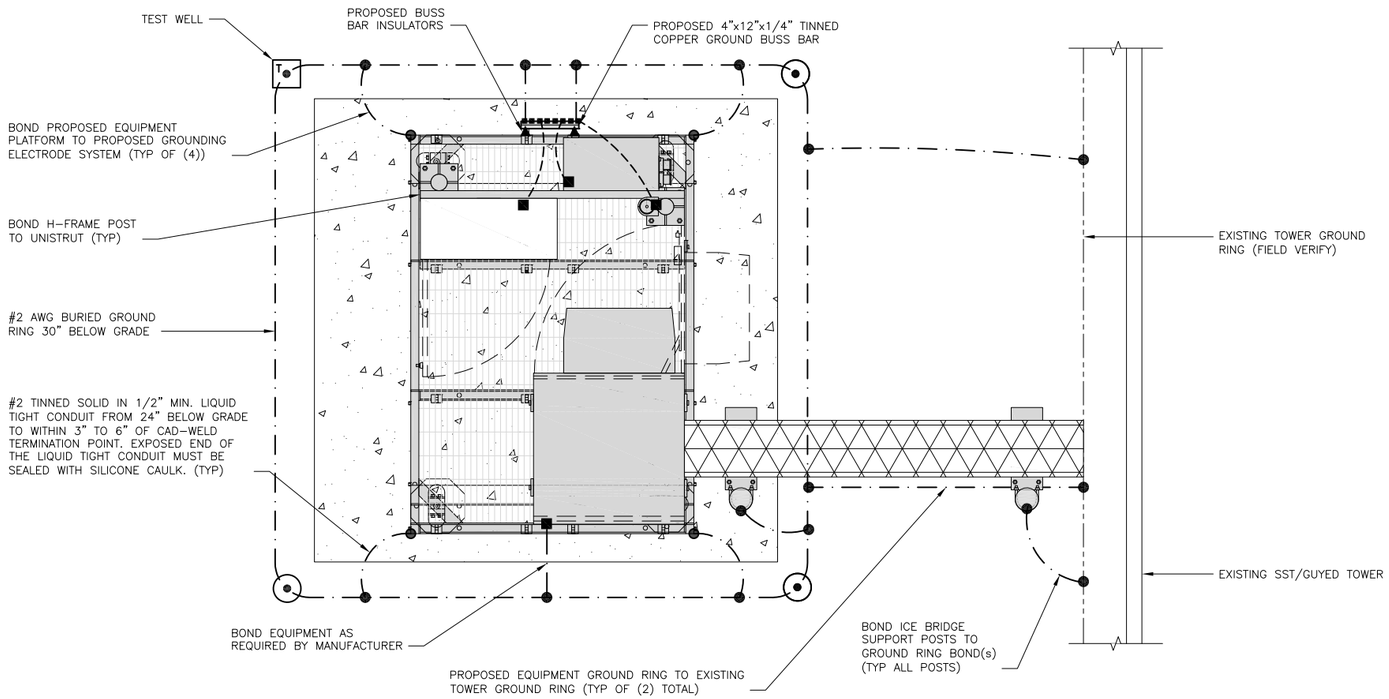
BOHVN00050A
1233 WOLCOTT ROAD
(RT-69)
WOLCOTT, CT 06716

SHEET TITLE

ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER

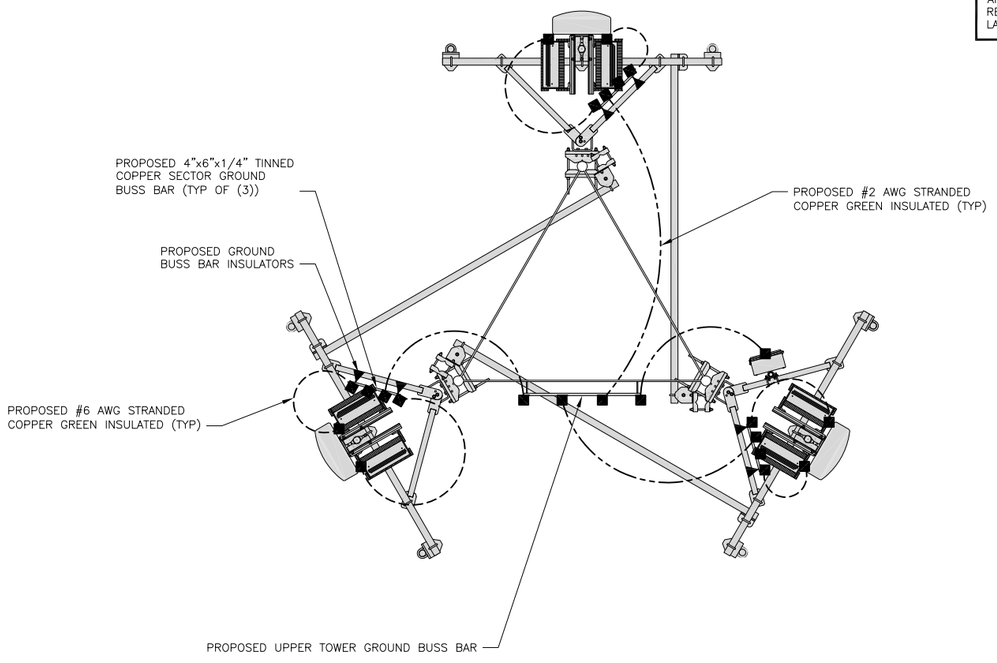
E-3



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 TOWER STEEL.

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

GROUNDING KEY NOTES | NO SCALE | 3

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PROJECT INFORMATION

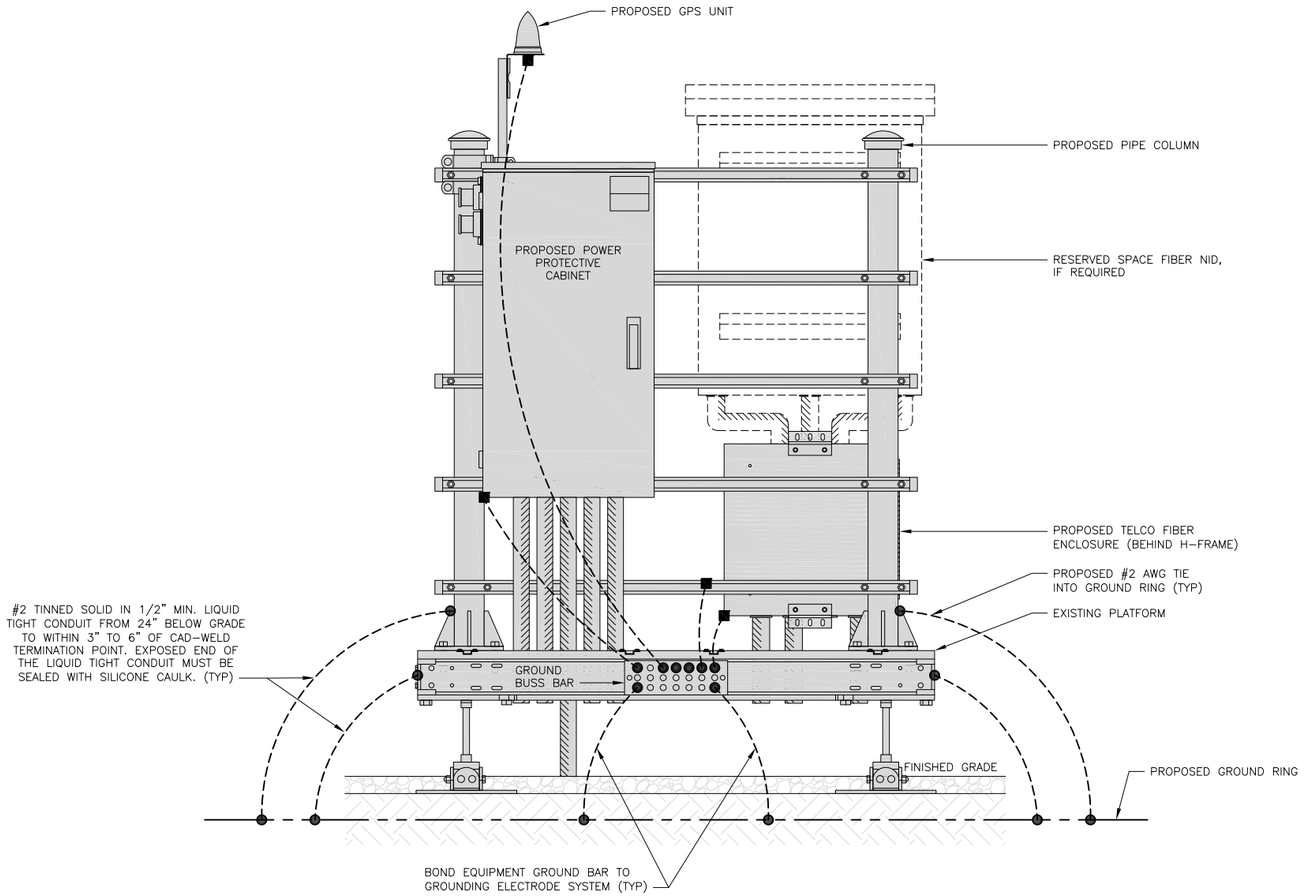
BOHVN00050A
1233 WOLCOTT ROAD
(RT-69)
WOLCOTT, CT 06716

SHEET TITLE
GROUNDING PLANS AND NOTES

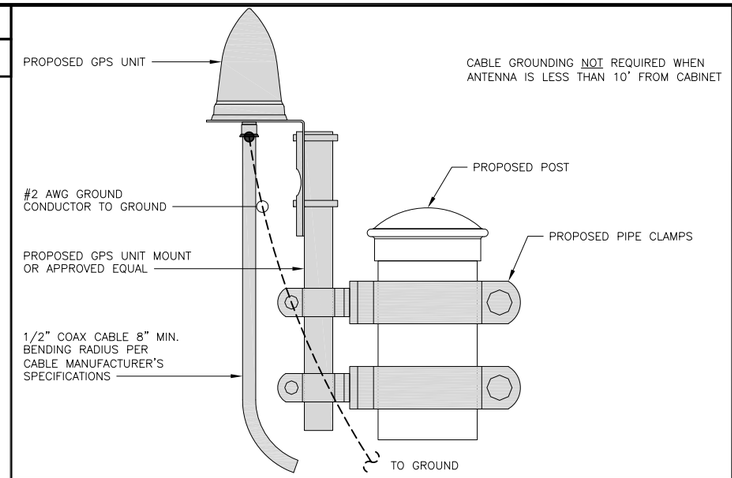
SHEET NUMBER
G-1

NOTES

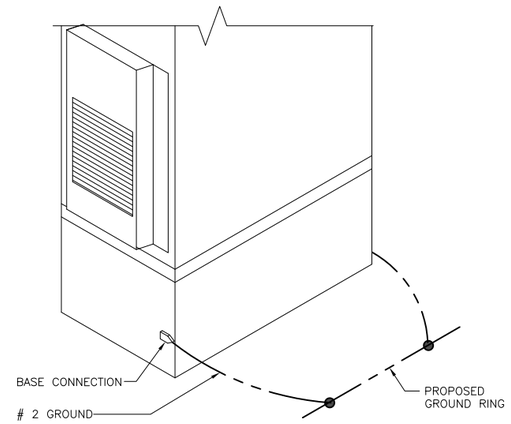
EQUIPMENT CABINET OMITTED FOR CLARITY



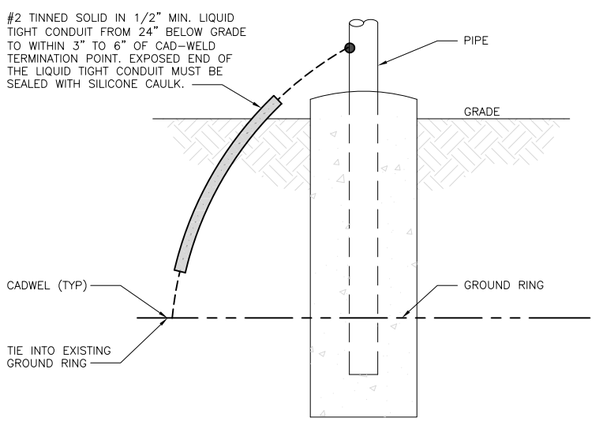
H-FRAME GROUNDING DETAIL | NO SCALE | 1



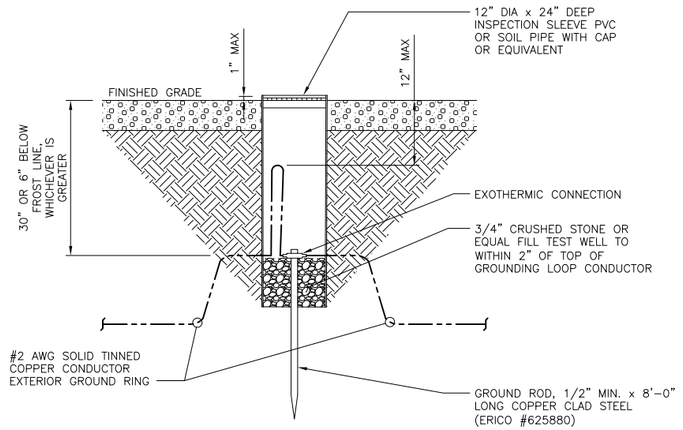
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



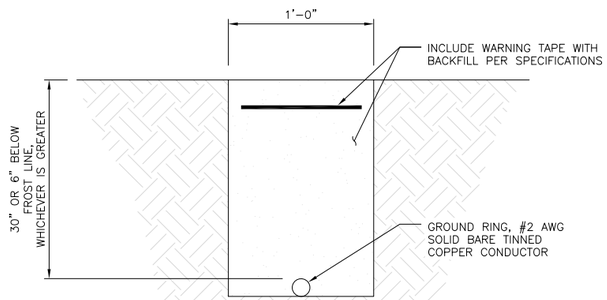
OUTDOOR CABINET GROUNDING | NO SCALE | 3



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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1233 WOLCOTT ROAD
(RT-69)
WOLCOTT, CT 06716

SHEET TITLE

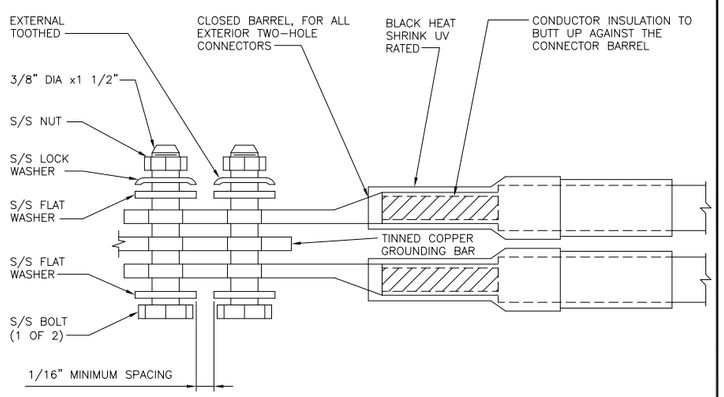
GROUNDING DETAILS

SHEET NUMBER

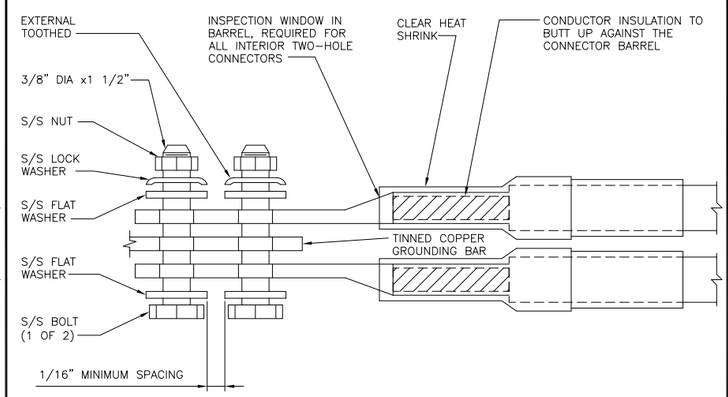
G-2

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

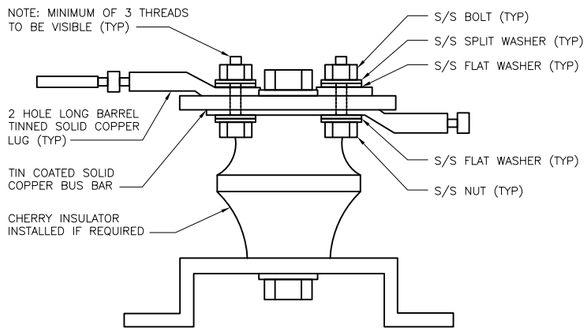
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

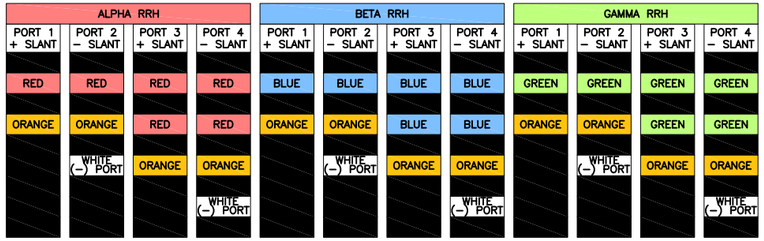
G-3

HYBRID/DISCREET CABLES

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

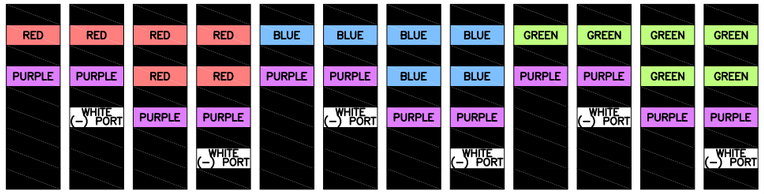
LOW–BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

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



MID–BAND RRH
(AWS BANDS N66+N70)

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



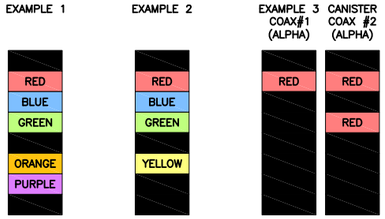
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

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

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

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.



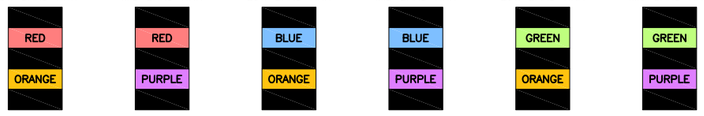
CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RD DETAILS. FINAL RFDS IS IN NEXSYSONE.

FIBER JUMPERS TO RRHs

LOW–BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.

POWER CABLES TO RRHs

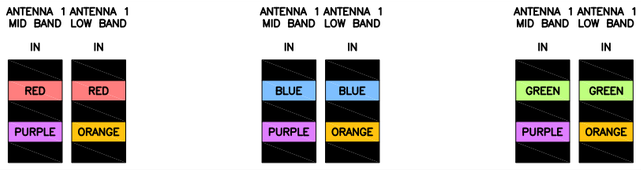
LOW–BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

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

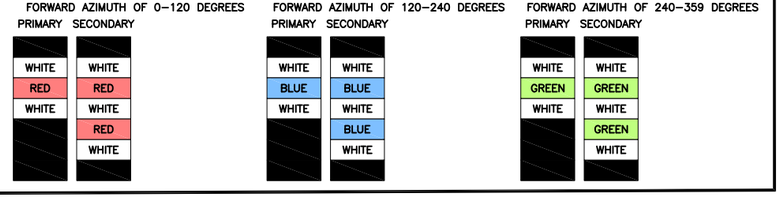
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



MICROWAVE RADIO LINKS

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

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



RF CABLE COLOR CODES | NO SCALE | 1

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

AWS (N66+N70+H–BLOCK): PURPLE

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED

BETA SECTOR: BLUE

GAMMA SECTOR: GREEN

COLOR IDENTIFIER | NO SCALE | 2

NOTES

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

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

W.P.

SECTION REFERENCE

XX
X–X

DETAIL REFERENCE

XX
X–X

LEGEND

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

ABBREVIATIONS

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CHAD W. TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER

5/23/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RY	SA	BLJ

RFDS REV #: 2

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	11/16/21	ISSUED FOR REVIEW
0	5/23/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149478.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00050A
1233 WOLCOTT ROAD
(RT–69)
WOLCOTT, CT 06716

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.

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CONSTRUCTION DOCUMENTS

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REV	DATE	DESCRIPTION
A	11/16/21	ISSUED FOR REVIEW
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A&E PROJECT NUMBER

149478.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00050A
1233 WOLCOTT ROAD
(RT–69)
WOLCOTT, CT 06716

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

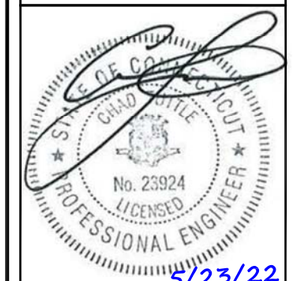
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".

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

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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

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



5/23/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RY	SA	BLJ

RFDS REV #: 2

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	11/16/21	ISSUED FOR REVIEW
0	5/23/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149478.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00050A
1233 WOLCOTT ROAD
(RT-69)
WOLCOTT, CT 06716

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

GROUNDING NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.
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DRAWN BY:	CHECKED BY:	APPROVED BY:
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A&E PROJECT NUMBER

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00050A
1233 WOLCOTT ROAD
(RT-69)
WOLCOTT, CT 06716

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

ALLPRO
CONSULTING GROUP, INC.
9221 Lyndon B. Johnson Freeway, #204, Dallas, TX 75243 ★ PHONE 972-231-8893 ★ FAX 1-866-364-8375
www.allprocgi.com ★ e-mail: info@allprocgi.com

Tower Structural Analysis Report for
SBA Network Services, Inc.

Existing 350' Self Support Tower

SBA Site Name: Cleary Tower (Edward)
SBA Site ID: CT20021-A-11
Carrier Name: Dish Network
Carrier Site ID/Name: CT0100001A/BOHVN00050A / 0
App # 169199, v1

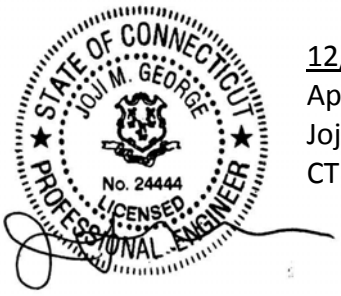
Site Location: 1233 Wolcott Road (Rt-69)
Wolcott, CT 06716
New Haven County

Latitude: 41.621581°
Longitude: -72.973633°

ACGI Job # 21-6467(Rev-1)
(Refer to Previous ACGI Job # 19-0642, dated 02/04/2019)

ANALYSIS RESULTS		
Tower Components	**73.6 %**	**Acceptable**
Foundation	**39.5 %**	**Pass**
Net change in tower stress	**-26.3 %**	**From previous SA by Allpro Consulting Group, Inc. ACGI # 19-0642 dated 02/04/2019.**

Prepared By:
Prashanth babu, EIT
Staff Engineer



12/09/2021
Approved By:
Joji M. George, P.E.
CT PE # 24444

TABLE OF CONTENTS

1. ANALYSIS SUMMARY

The existing 350' Self-Supported Tower located in Wolcott, Connecticut was analyzed by Allpro Consulting Group, Inc. (ACGI) for the existing loads and the proposed Dish Network antennas, dishes and coaxes per application # 169199, v1 as authorized by SBA Communication Corp. Based on the results of the analysis, the existing tower with below mentioned proposed and existing loading is found **in code compliance** with *TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and International Building Code 2018*.

2. SCOPE & SOURCE OF INFORMATION

The purpose of this structural analysis is to determine whether the existing structure is capable of supporting additional proposed loads.

SOURCE OF INFORMATION		
Tower Data:	Paul J. Ford & Co.	Structural analysis by Paul J. Ford & Co., Job No. A03-T143 dated 12/22/2003.
	FDH Engineering	Previous structural analysis by FDH Engineering, project #1462GQ1400, dated 04/09/2014.
	Allpro Consulting Group, Inc.	Previous structural analysis by Allpro Consulting Group, Inc., ACGI Job #16-4376, dated 12/14/2016.
		Previous modification design by Allpro Consulting Group, Inc., ACGI#17-0832 Rev.2 dated 07/14/2017.
		Previous structural analysis by Allpro Consulting Group, Inc., ACGI Job #18-5441, dated 08/22/2018
		Previous structural analysis by Allpro Consulting Group, Inc., ACGI Job # 19-0197, dated 01/15/2019.
		Previous structural analysis by Allpro Consulting Group, Inc., ACGI Job # 21-6467, dated 02/04/2019.
Foundation Data:	Paul J. Ford & Co.	Structural analysis by Paul J. Ford & Co., Job No. A03-T143 dated 12/22/2003.
Geotechnical Report:	Osman Pekin	Soil report by Osman Pekin, Ph.D., P.E. dated 12/12/1991.

Loading Data:	Allpro Consulting Group, Inc. SBA Communication Corp.	Existing Loading as per previous by Allpro Consulting Group, Inc., ACGI Job # 19-0642, dated 02/04/2019 Proposed final loading for Dish Network as per sbasite.com, App#169199, v1 downloaded from the SBA portal. Site summary dated 05/24/2021.
Authorization:	SBA Communication Corp.	

3. ANALYSIS METHODS & DATA

The analysis was performed in accordance with Telecommunication Industry Association specification TIA-222-G-Addendum 2. The tower was modeled using TNX Tower, a 3-D finite element program. TNX Tower is a general-purpose modeling, analysis, and design program created specifically for communication towers using the EIA-222-C, EIA-222-D, TIA/EIA-222-F or TIA-222-H standards. The 3-D model included the tower, with existing appurtenances and all proposed loads.

SITE DATA	
SBA Site Name:	Cleary Tower (Edward)
SBA Site Number:	CT20021-A-11
Carrier Site Name:	Dish Network: CT0100001A/BOHVN00050A / 0
City, State:	Wolcott, CT
County:	New Haven
Code Wind Load Requirement:	TIA-222-H (117 mph basic wind speed) & IBC 2018
Wind Load Used:	TIA-222-H Code: • Basic wind speed of 117 mph (3 second gust wind speed) • Structure Class II*. • Exposure Category B. • Ground Elevation 963.64 ft. • Topographic Category 1. • Crest Height 0.00 ft. • A wind speed of 50 mph is used in combination with ice. • Nominal ice thickness of 1.0 in.
Seismic Check:	S_s=0.19, Seismic check calculations are included as per TIA-222-H

*This structural analysis is based upon the tower being classified as a 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.

TOWER DATA	
Tower Type:	Self-Supported Tower
Height:	350'
Cross Section:	Triangular
Steel Strength:	Legs – 50 ksi, Braces – 36ksi
Type of Foundation:	Pad and Pier Foundation

TOWER HISTORY	
Tower Manufacturer / Model:	FWT, Inc.
Date of Original Design:	1992
Previous Modifications:	Previous modification design by Allpro Consulting Group, Inc., ACGI#17-0832 Rev.2 dated 07/14/2017.
Original Design Code Reqts:	EIA/TIA 222-E, 85mph basic wind speed without ice and 74 mph basic wind speed with 0.5" thick ice

4. APPURTENANCE LISTING

EXISTING LOAD DESCRIPTION					
ELEV (ft.)	***Qty.***	***Antenna Description***	***Mount Type & Qty.***	***TX. LINE (in)***	***TENANT***
350±	1	Celwave PD200 Omni	(1) Star Mount w/ (9) Standoffs	(1) 7/8"	LoJack
350±	1	101 Omni		(1) 1 1/4"	Marcus
341±	3	Comba ODI2-065R18K-GQ Antenna	(3) Commscope SF-SU7-2-96 Sector Frame	(1) 1-1/4" Hybrid	Dish Network
	2	Ericsson 4415 Radio			
	3	Ericsson 0208 Radio			
320±	2	101 Omni	(2) 6' Standoffs	(2) 1 1/4"	Marcus
186±	-	-	(2) Empty T-frames	-	-
186±	3	Powerwave 7770 Antenna	(3) sector Frame T-Frames (2) P/N SPTB Stiff Arm	(12) 1-5/8" (2) 1/2" Fiber (6) 3/4" DC Power	AT&T
	1	KMW AM-X-CD-16-65-00T-RET Antenna			
	2	Kathrein 800 10121 Antenna			
	3	CCI HPA-65R-BUU-H6 Antenna			
	3	KMW EPBQ-654L8H8-L2 Antenna			
	6	CCI DTMABP7819VG12A TMA			
	6	Powerwave LGP 13519 Diplexer			
	4	Kathrein 860 10025 RET			
	3	Ericsson RRUS 11 Remote Radio			
	3	Ericsson RRUS 32 Remote Radio			
	3	Ericsson RRUS 4478 B5 RRU			
	3	Ericsson RRUS 4426 B66 RRU			
	3	Ericsson RRUS 32 B66 RRU			
	1	Raycap DC6-48-60-18-8F Surge			
	2	Raycap DC6-48-60-18-8F Surge			
165±	3	SPD3-2.4 Radiowaves Dish	Pipe Mount	(6) 1/2"	Marcus
	3	SPD2-5.8 Radiowaves Dish	Pipe Mount		
158±	1	Decibel DB408 Omni	(1) 17" Standoff	(1) 7/8"	Wolcott
134±	3	APXVTM14-C-I20	(3) 15' T-Frames	(4) 1-1/4"	Sprint
	3	RFS APXVSPP18			
	3	RRH 1900 MHz			
	3	RRH 800 MHz			
	3	RRH TD-8x20-25			

	3	RRH 800 MHz Filter			
	4	RFS ACU-A20-N			

FINAL DISH NETWORK LOAD DESCRIPTION					
ELEV (ft.)	***Qty.***	***Antenna Description***	***Mount Type & Qty.***	***TX. LINE (in)***	***TENANT***
341±	**3**	**JMA Wireless MX08FRO665-20 Panel Antennas**	**(3) Commscope SF-SU7-2-96 Sector Frame**	**(1) 1.75" Hybrid**	Dish Network
	3	**Fujitsu TA08025-B605 RRUs**			
	3	**Fujitsu TA08025-B604 RRUs**			
	1	**Raycap RDIDC-9181-PF-48 DC Surge Suppressors**			

Notes:

1. ACGI should be notified of any discrepancies found in the data listed in this report.
2. Notify ACGI if any potential physical and other interference with existing antennas for a redesign.

5. CONCLUSIONS

RESULT SUMMARY		
MEMBER	*% Capacity*	*Pass/Fail*
Leg	**46.1 %**	**Pass**
Diagonal	**45.4 %**	**Pass**
Horizontal	**37.8 %**	**Pass**
Top Girt	**3.2 %**	**Pass**
Redundant Horizontal Bracing	**73.6 %**	**Pass**
Redundant Diagonal Bracing	**51.6 %**	**Pass**
Inner Bracing	**0.7 %**	**Pass**
Bolts	**45.4 %**	**Pass**
Anchor Bolts	**43.0%**	**Pass**
OVERALL TOWER RATING = 73.6 % (Pass)		

Foundation Type	*Reaction Direction*	*Current Analysis Reaction (TIA-222-H)*	*Original Design Reaction (EIA/TIA-222-E)*	*Original Design Reaction equivalent to TIA-222-G (multiply by 1.35)*	*% Capacity*
Individual Foundation	**Uplift**	**287 k**	**631 k**	**851.8 k**	**33.7 %**
	Compression	**400 k**	**751 k**	**1013.8 k**	**39.5 %**

**Note: Soil data available as per Soil report by Osman Pekin, Ph.D., P.E. dated 12/12/1991 is not sufficient for the detail analysis of the foundation. Therefore, reactions are compared based upon the original tower design. Foundation is estimated to be acceptable based on the tower member loads and stresses. However, it is recommended to provide detailed geotechnical investigation report for rigorous analysis of the tower foundation.*

MAXIMUM DISH ROTATION AT SERVICE WIND SPEED Twist and Sway (deg), 10 dB degradation limit*				
Elev. (ft)	*MW Dish*	*Tilt (deg)*	*Twist (deg)*	*Allowable (deg)*
165±	**SPD3-2.4**	**0.0695**	**0.0038**	**Carrier to verify**

As per the results of the analysis, the existing tower **is in code compliance** for the proposed and existing antenna loads.

Maximum tower member stress **is less than 100%, making** it **is in code complaince** under the TIA-222-H code and **2018 International Building Code (IBC 2018)** requirements.

Overall tower stress ratio decreased by -26.3% compared to previous SA by Allpro Consulting Group, Inc. ACGI # 19-0642 dated 02/04/2019 due to change in code from G-Code to H-Code.

6. ASSUMPTIONS

This analysis was completed based on the following assumptions:

- Tower has been properly maintained
- Tower erection was in accordance to manufacturer drawings
- Leg flanges have been properly designed by manufacturer to not be a limiting reaction
- Welds have been properly designed and installed by manufacturer to not be a limiting reaction
- Foundation was constructed in accordance to manufacturer drawings
- Foundation does not have structural damage
- Bolts have been properly tightened according to manufacturer specifications
- Appurtenance, mount and transmission line sizes and weights are best estimates using the tnxTower database and manufacturer information

7. DISCLAIMER

Installation procedures and related loading are not within the scope of this analysis. A contractor experienced in similar work should perform all installation work. The engineering services provided by Allpro Consulting Group, Inc. (ACGI) are limited to the computer analysis and calculations of the structure with the proposed and existing loads. This analysis is considered void if the loading mentioned in this report is changed or is different as installed. It is assumed that the existing structure is properly maintained and is in good condition free of any defects. Scope of this analysis does not include existing connections, except as noted in this report.

ACGI does not make any warranties, expressed or implied in connection with this engineering analysis report and disclaims any liability arising from deficiencies or any existing conditions of the original structure. ACGI will not be responsible for consequential or incidental damages sustained by any parties as a result of any data or conclusions included in this Report. The maximum liability of ACGI pursuant to this report shall be limited to the consulting fee received for the preparation of the report.

8. SUMMARY OF WORKING PERCENTAGE OF STRUCTURAL COMPONENTS

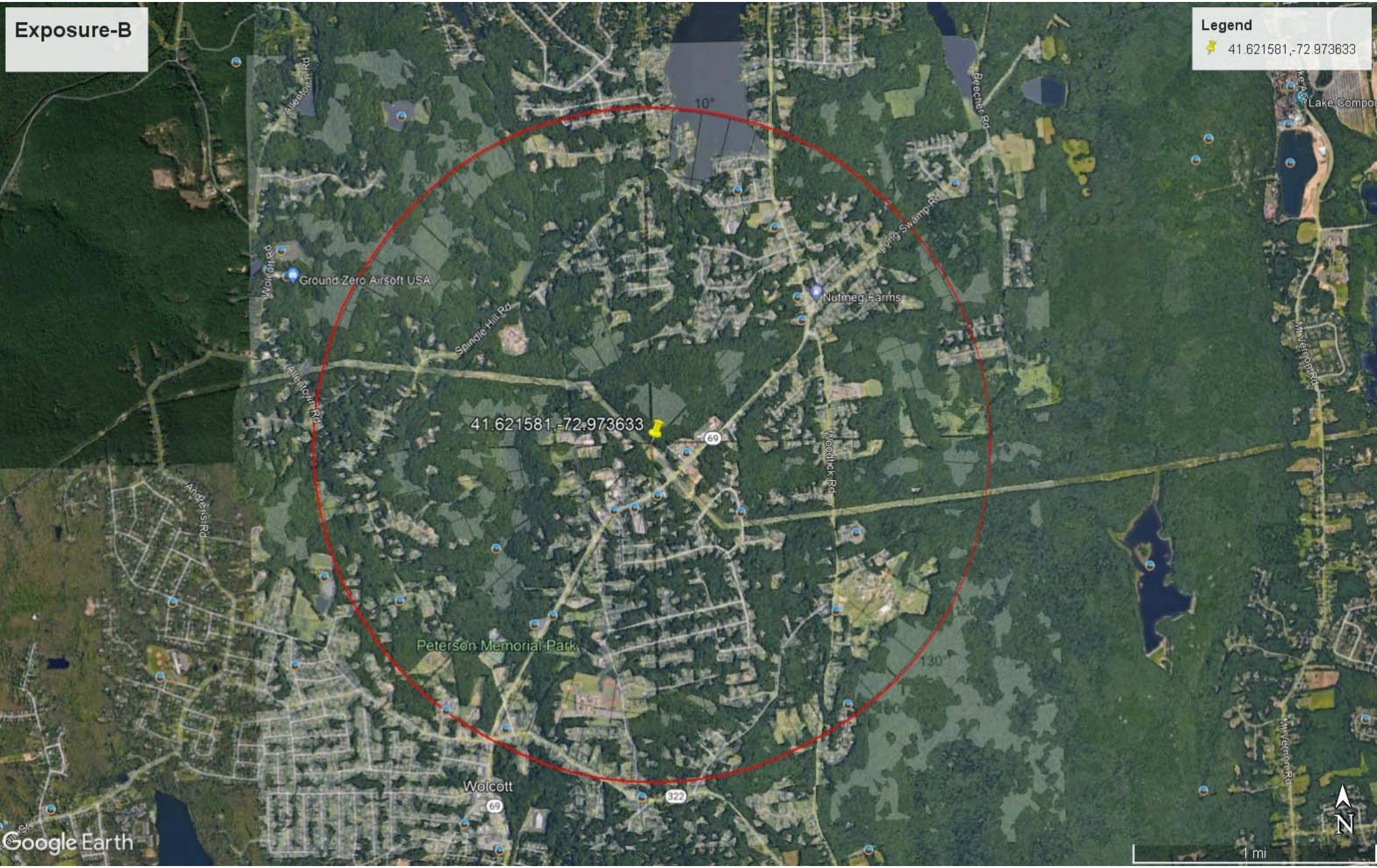
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	350 - 340	Leg	2	3	-5.41	49.29	11.0	Pass
		Diagonal	L2x1 1/2x3/16	9	-2.01	13.47	14.9	Pass
							29.4 (b)	
		Top Girt	L3x3x1/4	4	-0.33	36.68	0.9	Pass
							3.2 (b)	
T2	340 - 320	Leg	2	21	-33.20	72.06	46.1	Pass
		Diagonal	L2x1 1/2x3/16	24	-3.28	14.98	21.9	Pass
							45.4 (b)	
T3	320 - 300	Leg	2 1/2	54	-51.62	112.35	45.9	Pass
		Diagonal	L2x2x3/16	75	-2.62	17.06	15.3	Pass
							34.8 (b)	
T4	300 - 280	Leg	3 1/4	81	-65.33	183.31	35.6	Pass
		Diagonal	L2-1/2x2-1/2x3/16	84	-2.11	17.45	12.1	Pass
							25.9 (b)	
T5	280 - 260	Leg	3 1/4	102	-79.44	183.31	43.3	Pass
		Diagonal	L2-1/2x2-1/2x3/16	107	-2.26	13.10	17.3	Pass
							28.5 (b)	
T6	260 - 240	Leg	3 1/2	123	-94.17	234.48	40.2	Pass
		Diagonal	L3x3x3/16	128	-2.66	17.56	15.1	Pass
							33.8 (b)	
T7	240 - 220	Leg	3 1/2	144	-108.49	306.64	35.4	Pass
		Diagonal	2L2 1/2x2 1/2x3/16x3/8	152	-3.46	32.33	10.7	Pass
							21.7 (b)	
		Horizontal	L2 1/2x2 1/2x3/16	148	-2.06	10.45	19.7	Pass
							26.3 (b)	
		Inner Bracing	L2 1/2x2 1/2x3/16	156	-0.01	9.64	0.4	Pass
T8	220 - 200	Leg	3 3/4	183	-124.75	368.01	33.9	Pass
		Diagonal	2L2 1/2x2 1/2x3/16x3/8	191	-3.90	26.85	14.5	Pass
							21.3 (b)	
		Horizontal	L2 1/2x2 1/2x3/16	187	-2.26	7.86	28.8	Pass
							28.9 (b)	
		Inner Bracing	L2 1/2x2 1/2x3/16	195	-0.01	7.31	0.5	Pass
T9	200 - 180	Leg	4	222	-144.77	434.24	33.3	Pass
		Diagonal	2L3x3x3/16x3/8	230	-6.22	39.43	15.8	Pass
							31.7 (b)	
		Horizontal	L3x3x3/16	226	-2.51	10.75	23.4	Pass
							32.1 (b)	
		Inner Bracing	L3x3x3/16	233	-0.01	10.06	0.5	Pass
T10	180 - 160	Leg	4 1/4	261	-169.41	505.22	33.5	Pass
		Diagonal	2L3x3x3/16x3/8	269	-6.99	33.29	21.0	Pass
							35.6 (b)	
		Horizontal	L3x3x3/16	265	-2.94	8.62	34.1	Pass
							37.5 (b)	
		Inner Bracing	L3x3x3/16	271	-0.01	8.10	0.6	Pass
T11	160 - 140	Leg	4 1/4	300	-195.46	505.22	38.7	Pass
		Diagonal	2L3x3x3/16x3/8	308	-7.71	28.30	27.2	Pass
							40.8 (b)	
		Horizontal	L3 1/2x3 1/2x1/4	304	-3.39	14.81	22.9	Pass
							32.5 (b)	
		Inner Bracing	L3 1/2x3 1/2x1/4	310	-0.01	14.00	0.5	Pass
T12	140 - 120	Leg	4 1/2	339	-215.60	580.90	37.1	Pass
		Diagonal	2L3x3x1/4x3/8	358	-11.43	38.40	29.8	Pass
							40.4 (b)	
		Horizontal	2L2 1/2x2 1/2x3/16x3/8	347	-3.74	17.33	21.6	Pass
		Redund Horz 1 Bracing	L2x2x3/16	352	-3.74	7.12	52.5	Pass
		Redund Diag 1 Bracing	L2-1/2x2-1/2x3/16	375	-2.54	7.69	33.0	Pass
		Inner Bracing	L3 1/2x3 1/2x1/4	361	-0.02	12.23	0.5	Pass
T13	120 - 100	Leg	4 3/4	384	-245.00	661.23	37.1	Pass
		Diagonal	2L3x3x1/4x3/8	400	-11.25	35.46	31.7	Pass
							43.8 (b)	
		Horizontal	2L2 1/2x2 1/2x3/16x3/8	392	-4.25	14.63	29.0	Pass
		Redund Horz 1	L2x2x3/16	397	-4.25	6.02	70.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
		Bracing						
		Redund Diag 1	L2-1/2x2-1/2x3/16	420	-2.79	6.96	40.1	Pass
		Bracing						
		Inner Bracing	L4x4x1/4	406	-0.02	15.60	0.6	Pass
T14	100 - 80	Leg	4 3/4	429	-272.06	661.23	41.1	Pass
		Diagonal	2L3x3x1/4x3/8	448	-12.35	32.71	37.7	Pass
							44.2 (b)	
		Horizontal	2L2 1/2x2 1/2x3/16x3/8	437	-4.72	12.49	37.8	Pass
		Redund Horz 1	L2x2x3/8	442	-4.72	9.53	49.5	Pass
		Bracing						
		Redund Diag 1	L2-1/2x2-1/2x3/16	465	-3.01	6.29	47.8	Pass
		Bracing						
		Inner Bracing	L4x4x1/4	451	-0.02	13.37	0.6	Pass
T15	80 - 60	Leg	5	474	-301.11	746.17	40.4	Pass
		Diagonal	2L3 1/2x3 1/2x1/4x3/8	490	-12.28	45.63	26.9	Pass
							40.1 (b)	
		Horizontal	2L3x3x3/16x3/8	482	-5.22	19.06	27.4	Pass
							27.6 (b)	
		Redund Horz 1	L2-1/2x2-1/2x3/16	509	-5.22	8.86	58.9	Pass
		Bracing						
		Redund Diag 1	L3x3x3/16	513	-3.25	10.04	32.3	Pass
		Bracing						
		Inner Bracing	2L3x3x3/16x3/8	497	-0.03	18.17	0.6	Pass
T16	60 - 40	Leg	5 1/4	519	-328.80	835.68	39.3	Pass
		Diagonal	2L3 1/2x3 1/2x1/4x3/8	538	-13.50	42.29	31.9	Pass
							41.0 (b)	
		Horizontal	2L3x3x3/16x3/8	527	-5.70	16.65	34.2	Pass
		Redund Horz 1	L2-1/2x2-1/2x3/16	532	-5.70	7.74	73.6	Pass
		Bracing						
		Redund Diag 1	L3x3x3/16	555	-3.47	9.16	37.9	Pass
		Bracing						
		Inner Bracing	2L3x3x3/16x3/8	542	-0.03	15.90	0.7	Pass
T17	40 - 20	Leg	5 1/4	564	-358.01	835.68	42.8	Pass
		Diagonal	2L3 1/2x3 1/2x1/4x3/8	580	-13.37	39.18	34.1	Pass
							43.0 (b)	
		Horizontal	2L3 1/2x3 1/2x1/4x3/8	572	-6.21	30.62	20.3	Pass
							24.6 (b)	
		Redund Horz 1	L2.5x2.5x3/16 + L2.5x2.5x1/4	577	-6.21	14.96	41.5	Pass
		Bracing	(C-Shape) - Cleary Tower					
		Redund Diag 1	L3x3x3/16	600	-3.71	8.35	44.4	Pass
		Bracing						
		Inner Bracing	2L3 1/2x3 1/2x1/4x3/8	586	-0.03	29.32	0.6	Pass
T18	20 - 0	Leg	5 1/2	607	-386.93	929.74	41.6	Pass
		Diagonal	2L3 1/2x3 1/2x1/4x3/8	628	-14.24	36.38	39.1	Pass
							44.1 (b)	
		Horizontal	2L3 1/2x3 1/2x1/4x3/8	624	-6.71	27.18	24.7	Pass
							26.6 (b)	
		Redund Horz 1	L3x3x3/16	612	-6.71	10.61	63.2	Pass
		Bracing						
		Redund Diag 1	L3x3x3/16	651	-3.95	7.66	51.6	Pass
		Bracing						
		Inner Bracing	2L3 1/2x3 1/2x1/4x3/8	631	-0.03	26.06	0.6	Pass
							Summary	
						Leg (T2)	46.1	Pass
						Diagonal (T2)	45.4	Pass
						Horizontal (T14)	37.8	Pass
						Top Girt (T1)	3.2	Pass
						Redund Horz 1 Bracing (T16)	73.6	Pass
						Redund Diag 1 Bracing	51.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	øP$_{allow}$ K	% Capacity	Pass Fail
						(T18) Inner Bracing (T16)	0.7	Pass
						Bolt Checks	45.4	Pass
						RATING =	**73.6**	**Pass**

APPENDIX

TOWER DATA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Legend
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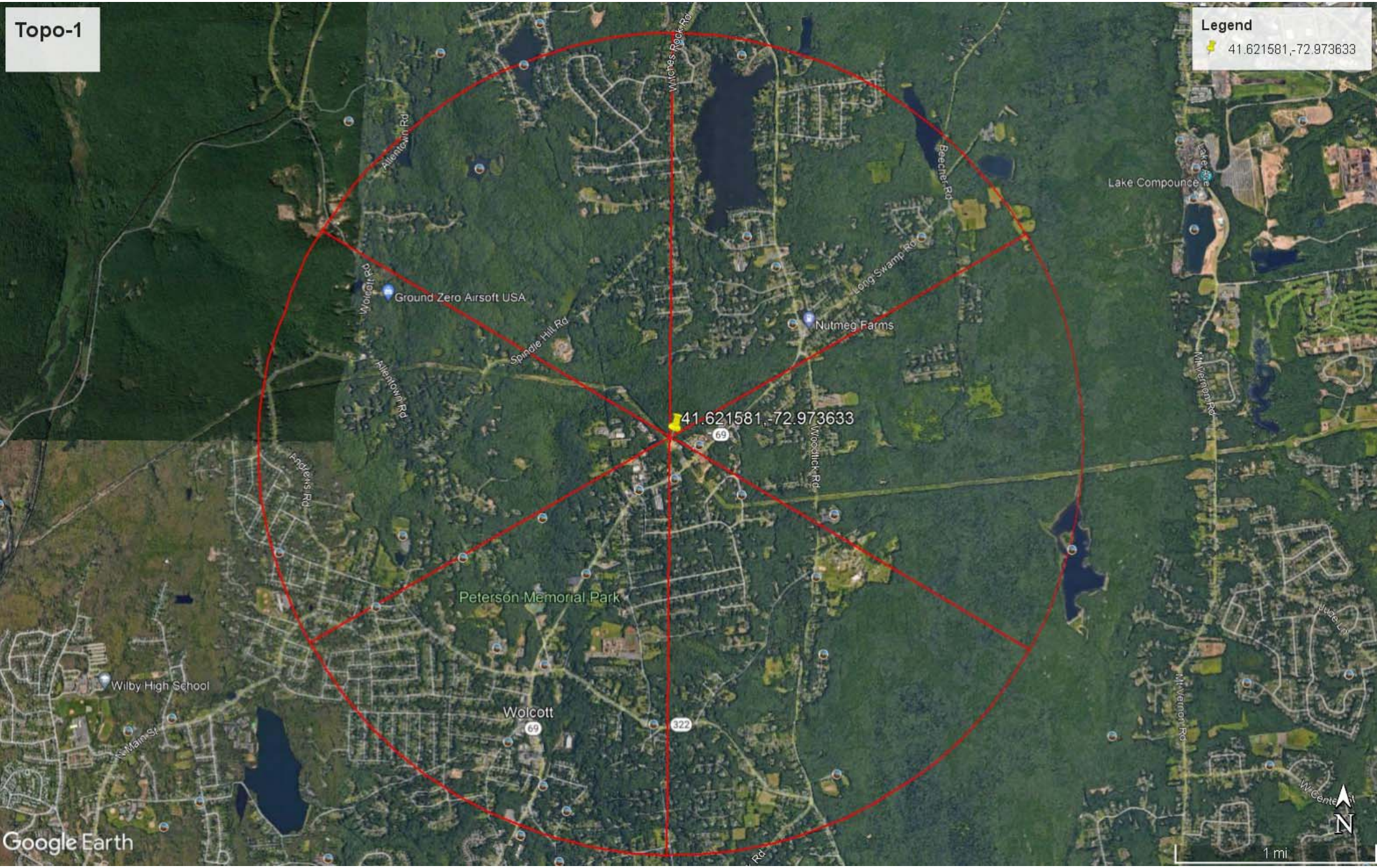
41.621581,-72.973633
Ground Zero Airsoft USA
Nutmeg Farms
Peterson Memorial Park
Wolcott
Saindle Hill Rd
Woodtick Rd
Beecher Rd
Long Swamp Rd
Mt Vernon Rd
Andrews Rd
Allentown Rd
Lake Compou
10°
69
322
1 mi
N
Google Earth

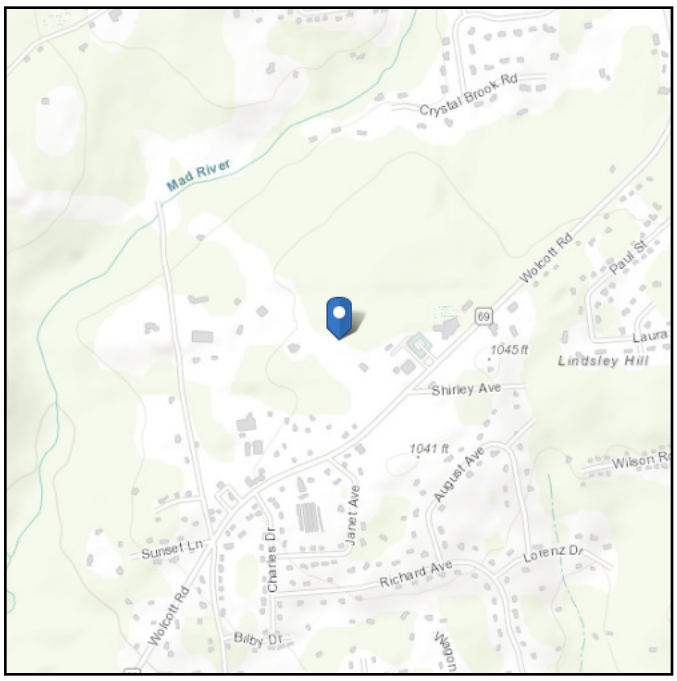

Topo-1
Legend
41.621581,-72.973633
Ground Zero Airsoft USA
Nutmeg Farms
41.621581,-72.973633
Peterson Memorial Park
Wilby High School
Wolcott
Lake Compounce
Google Earth
1 mi
N

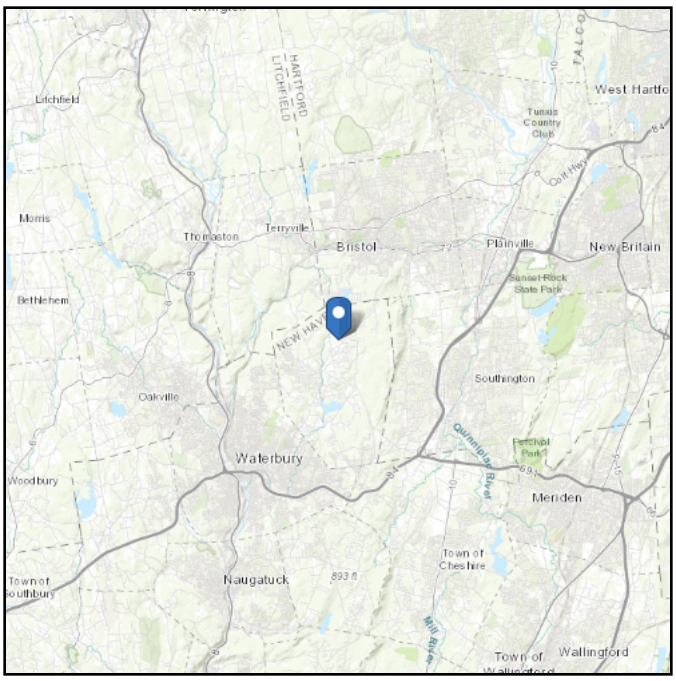
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 963.64 ft (NAVD 88)
Latitude: 41.621581
Longitude: -72.973633





Wind

Results:

Wind Speed	117 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Dec 08 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

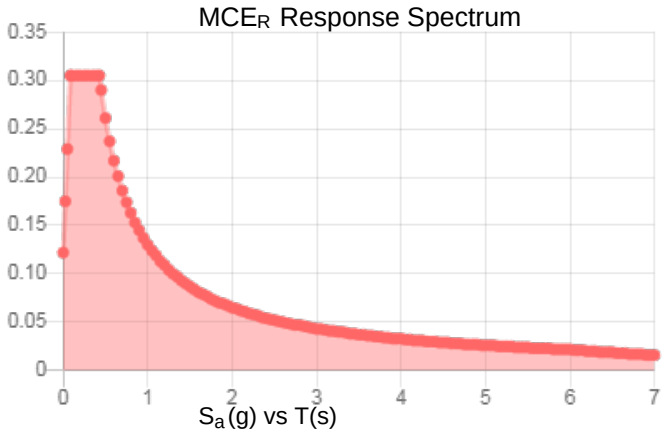
Seismic

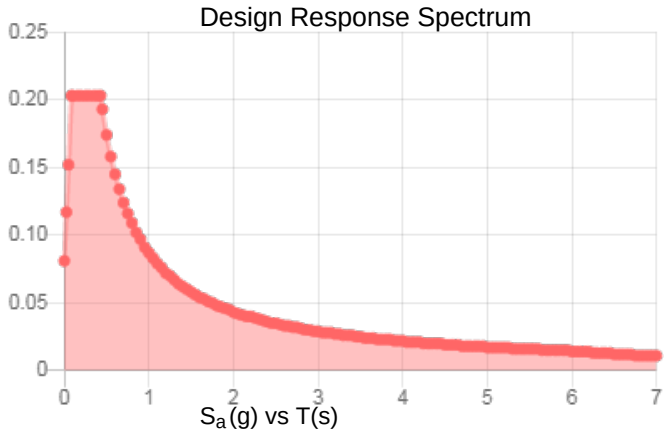
Site Soil Class: D - Stiff Soil

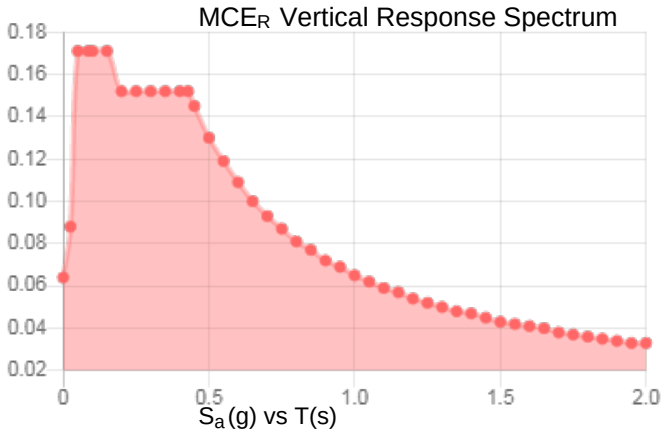
Results:

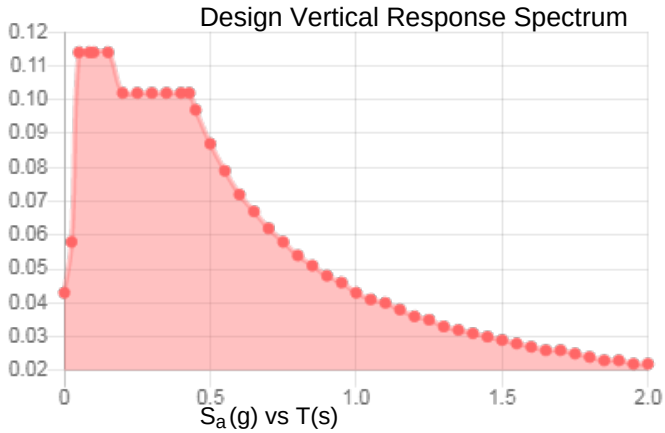
S_S :	0.19	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.104
F_v :	2.4	PGA_M :	0.166
S_{MS} :	0.305	F_{PGA} :	1.592
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.203	C_v :	0.7

Seismic Design Category B









Data Accessed: **Wed Dec 08 2021**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Wed Dec 08 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Snow

Results:

Ground Snow Load, p_g:	35 lb/ft^2
Elevation:	963.6 ft
Data Source:	ASCE/SEI 7-16, Table 7.2-8
Date Accessed:	Wed Dec 08 2021

Values provided are ground snow loads. In areas designated "case study required," extreme local variations in ground snow loads preclude mapping at this scale. Site-specific case studies are required to establish ground snow loads at elevations not covered.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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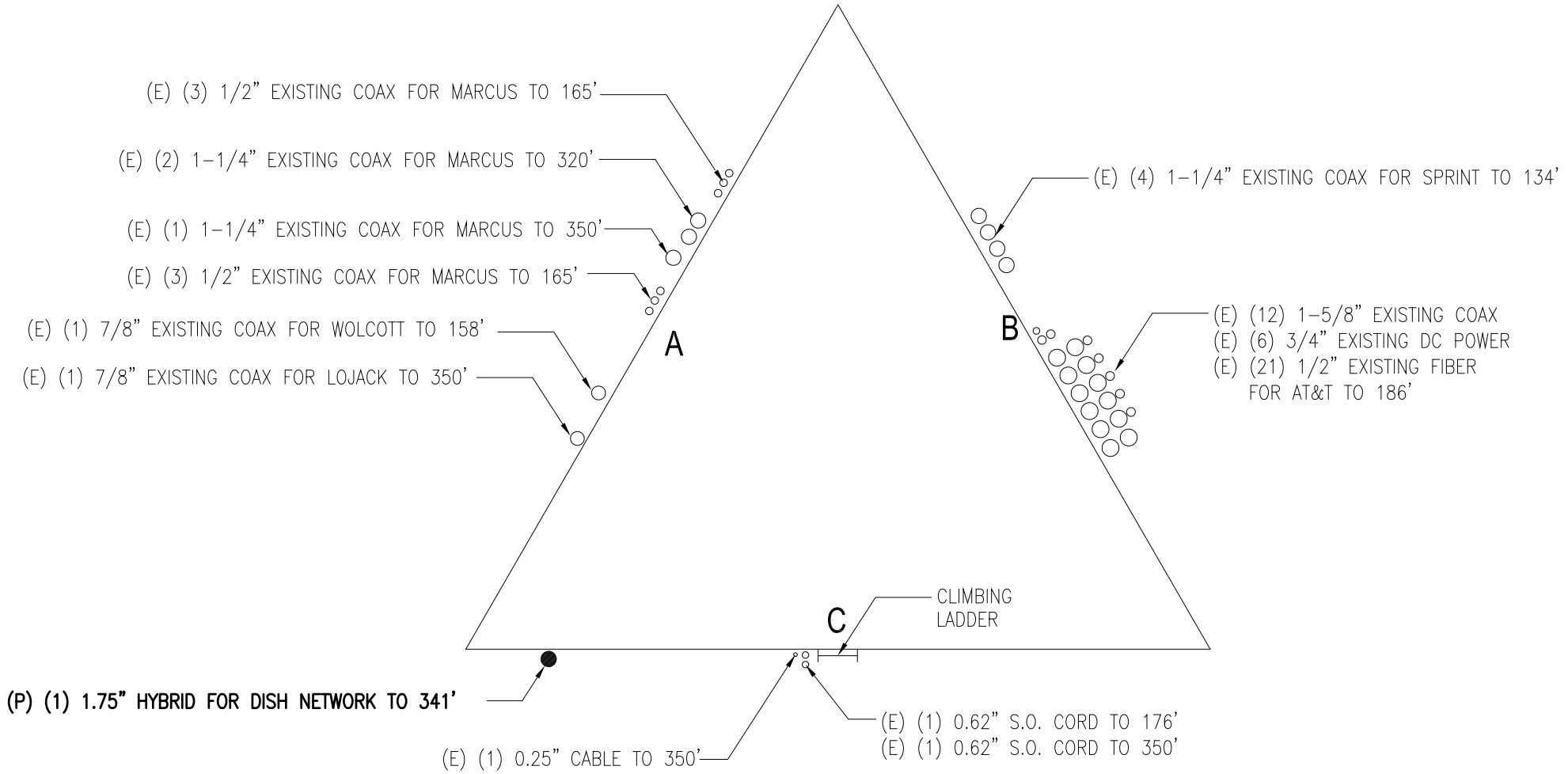
COAX LAYOUT



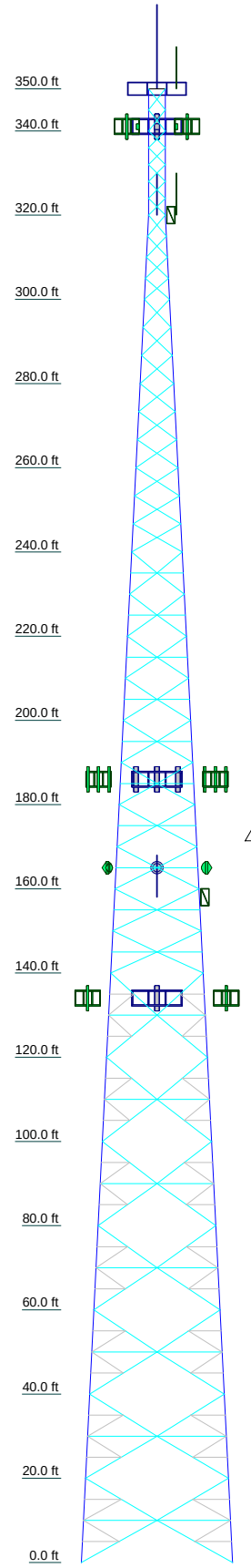
COAX LAYOUT

N.T.S

TOWER ELEVATION DRAWING

Section		T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18
Legs		0.6	1.1	1.5	2.3	2.4	3.0	3.7	4.2	5.1	5.7	6.4	6.4	7.0	7.4	8.5	9.1	10.1	10.8
Leg Grade											A572-50								
Diagonals		2 @ 5	5 @ 4	4 @ 5	9 @ 6.66667					20 @ 5						14 @ 10			
Diagonal Grade											A36								
Top Girts											N.A.								
Horizontals		4	6	N.A.								B							
Red. Horizontals							N.A.												
Red. Diagonals																			
Inner Bracing																			
Face Width (ft)	36					8	10	12	14	16	18	20	22	24	26	28	30	32	34
# Panels @ (ft)																			
Weight (K)	95.3																		

	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18
Legs		SR 2	SR 2 1/2	SR 3 1/4		SR 3 1/2		SR 3 3/4	SR 4	SR 4 1/4		SR 4 1/2	SR 4 3/4		SR 5	SR 5 1/4		SR 5 1/2
Diagonals		L2x1 1/2x3/16	L2x2x3/16	L2-1/2x2-1/2x3/16		L3x3x3/16	2L2 1/2x2 1/2x3/16x3/8		2L3x3x1/4x3/8	2L3x3x16x3/8				L2x2x3/16	L2-1/2x2-1/2x3/16	2L3x3x3/16x3/8	C	L3x3x3/16	2L3 1/2x3 1/2x1/4x3/8
Horizontals								L2 1/2x2 1/2x3/16		L3x3x3/16	B	L3 1/2x3 1/2x1/4		L2x2x3/8	L4x4x1/4	2L3x3x3/16x3/8	L2-1/2x2-1/2x3/16	2L3 1/2x3 1/2x1/4x3/8	



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L3x3x1/4	C	L2.5x2.5x3/16 + L2.5x2.5x1/4 (C-Shape) - Cleary Tower
B	L3 1/2x3 1/2x1/4		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-H Standard.
2. Tower designed for a 117 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 73.6%

△ *ALL REACTIONS ARE FACTORED*

MAX. CORNER REACTIONS AT BASE:
DOWN: 400 K
SHEAR: 44 K

UPLIFT: -287 K
SHEAR: 34 K

AXIAL 144 K
SHEAR 2 K *MOMENT 484 kip-ft*
TORQUE 0 kip-ft
SEISMIC

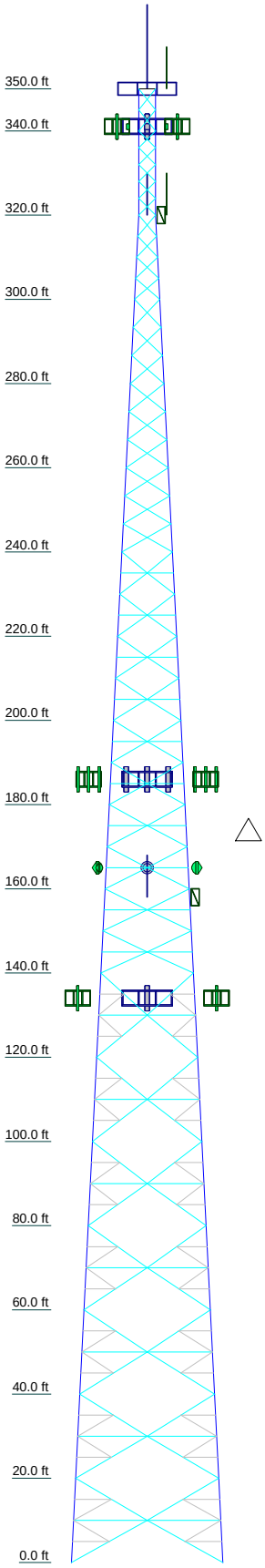
AXIAL 239 K
SHEAR 20 K *MOMENT 3377 kip-ft*
TORQUE 8 kip-ft
50 mph WIND - 1.0000 in ICE

AXIAL 139 K
SHEAR 69 K *MOMENT 11036 kip-ft*
TORQUE 30 kip-ft
REACTIONS - 117 mph WIND

Allpro Consulting Group,Inc.
9221 Lyndon B.Johnson Fwy,Suite#204
Dallas,TX,75243
Phone: 972-231-8893
FAX: 866-364-8375

Job: ***21-6467 (Rev-1)***		
Project: ***CT20021-A-11 Cleary Tower (Edward)***		
Client: SBA	Drawn by: Pbabu	App'd:
Code: TIA-222-H	Date: 12/09/21	Scale: NTS
Path:		Dwg No. E-1

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18
Legs	T1	SR 2	SR 2 1/2	SR 3 1/4	SR 3 1/2	SR 3 3/4	SR 4	SR 4 1/4	SR 4 1/2	SR 4 3/4	SR 5	SR 5 1/4	SR 5 1/2					
Leg Grade	A	A572-50																
Diagonals	2L3 1/2x3 1/2x1/4x3/8																	
Diagonal Grade	A36																	
Top Girts	A	N.A.																
Horizontals	2L3 1/2x3 1/2x1/4x3/8																	
Red. Horizontals	C	L2-1/2x2-1/2x3/16																
Red. Diagonals	L3x3x3/16	L2-1/2x2-1/2x3/16																
Inner Bracing	2L3 1/2x3 1/2x1/4x3/8	2L3x3x3/16x3/8																
Face Width (ft)	36	34	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	
# Panels @ (ft)		14 @ 10				9 @ 6.66667			20 @ 5							4 @ 5	5 @ 4	2 @ 5
Weight (K)	95.3	10.8	10.1	9.1	8.5	7.4	7.0	6.4	5.1	5.7	6.4	6.4	4.2	3.7	3.0	2.4	2.3	1.5	1.1	0.6



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION
Celwave PD200 Omni (LoJack)	350
101 Omni (Marcus)	350
Star Mount w/ (9) Standoffs (Marcus/LoJack)	350
T1	350
MX08FRO665-20 (Dish Network)	341
MX08FRO665-20 (Dish Network)	341
MX08FRO665-20 (Dish Network)	341
RDIDC-9181-PF-48 (Dish Network)	341
TA08025-B605 (Dish Network)	341
TA08025-B605 (Dish Network)	341
TA08025-B605 (Dish Network)	341
TA08025-B604 (Dish Network)	341
TA08025-B604 (Dish Network)	341
TA08025-B604 (Dish Network)	341
Commscope SF-SU7-2-96 Sector Frame (Dish Network)	341
Commscope SF-SU7-2-96 Sector Frame (Dish Network)	341
Commscope SF-SU7-2-96 Sector Frame (Dish Network)	341
Antenna Mount Pipes (2x2.375x96) (Dish Network)	341
Antenna Mount Pipes (2x2.375x96) (Dish Network)	341
Antenna Mount Pipes (2x2.375x96) (Dish Network)	341
T2	340
101 Omni (Marcus)	320
101 Omni (Marcus)	320
6' Standoff (Marcus)	320
6' Standoff (Marcus)	320
T3	320
T4	300
T5	280
T6	260
T7	240
T8	220
Empty T-frames	200
Empty T-frames	200
Antenna Mount Pipes	200
Antenna Mount Pipes	200
T9	200
DC6-48-60-18-8F (ATI)	186
DC6-48-60-18-8F (ATI)	186
DC6-48-60-18-8F (ATI)	186
13.5' T-Frames (ATI)	186
13.5' T-Frames (ATI)	186
13.5' T-Frames (ATI)	186
(2) Site Pro SPTB Tie Back (ATI)	186
(2) Site Pro SPTB Tie Back (ATI)	186
(2) Site Pro SPTB Tie Back (ATI)	186
7770 (ATI)	186
7770 (ATI)	186
7770 (ATI)	186
RRUS 11 (ATI)	186
RRUS 11 (ATI)	186
RRUS 11 (ATI)	186
RRUS 32 (ATI)	186
800-10121 (ATI)	186
800-10121 (ATI)	186
HPA-65R-BUU-H6 (ATI)	186
HPA-65R-BUU-H6 (ATI)	186
HPA-65R-BUU-H6 (ATI)	186
EPBQ-654L8-H8-L2 (ATI)	186
EPBQ-654L8-H8-L2 (ATI)	186
EPBQ-654L8-H8-L2 (ATI)	186
(2) CCI DTMA-BP7819VG12A (ATI)	186
(2) CCI DTMA-BP7819VG12A (ATI)	186
(2) CCI DTMA-BP7819VG12A (ATI)	186

TYPE	ELEVATION
(2) LGP13519 Diplexer (ATI)	186
(2) LGP13519 Diplexer (ATI)	186
(2) LGP13519 Diplexer (ATI)	186
860 10025 RET (ATI)	186
(2) 860 10025 RET (ATI)	186
4426 B66 (ATI)	186
4426 B66 (ATI)	186
RRUS 32 B66 (ATI)	186
RRUS 32 B66 (ATI)	186
AM-X-CD-16-65-00T-RET (ATI)	186
860 10025 RET (ATI)	186
RRUS 32 (ATI)	186
RRUS 32 (ATI)	186
RRUS 4478 B5 (ATI)	186
RRUS 4478 B5 (ATI)	186
RRUS 4478 B5 (ATI)	186
4426 B66 (ATI)	186
RRUS 32 B66 (ATI)	186
T10	180
(2) Pipe Mounts (5.25' x 4.5") (Marcus)	165
(2) Pipe Mounts (5.25' x 4.5") (Marcus)	165
(2) Pipe Mounts (5.25' x 4.5") (Marcus)	165
Radiowaves SPD3-2.4 Dish (Marcus)	165
Radiowaves SPD3-2.4 Dish (Marcus)	165
Radiowaves SPD3-2.4 Dish (Marcus)	165
Radiowaves SPD2-5.8 Dish (Marcus)	165
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800 MHz Filter (Sprint)	134
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ACU-A20-N (Sprint)	134
APXVTM14-C-I20 (Sprint)	134
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APXVTM14-C-I20 (Sprint)	134
RFS APXVSPP18 (Sprint)	134
RFS APXVSPP18 (Sprint)	134
RFS APXVSPP18 (Sprint)	134
1900 MHz RRH (Sprint)	134
1900 MHz RRH (Sprint)	134
1900 MHz RRH (Sprint)	134
(2) ACU-A20-N (Sprint)	134
15' T-Frames (Sprint)	134
T13	120
T14	100
T15	80
T16	60
T17	40
T18	20

SYMBOL LIST

MARK	SIZE
A	L3x3x1/4
B	L3 1/2x3 1/2x1/4

MARK	SIZE
C	L2.5x2.5x3/16 + L2.5x2.5x1/4 (C-Shape) - Cleary Tower

MATERIAL STRENGTH

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

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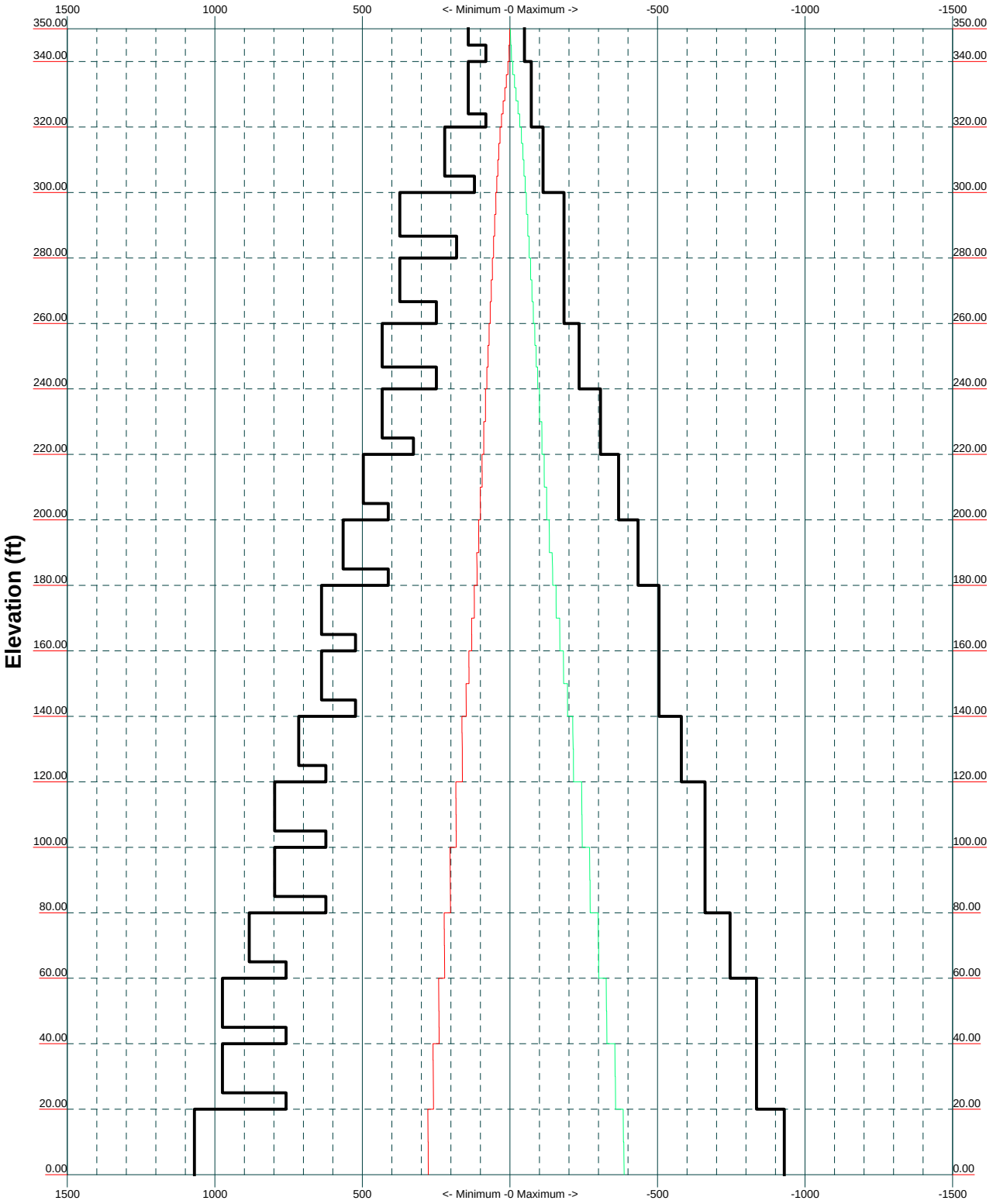
Job: 21.6467 (Rev 1)
TOWER DESIGN NOTES
Project: CT20021-A-11 Cleary Tower (Edward)

Client: SBA	Drawn by: Pbabu	App'd:
Code: TIA-222-H	Date: 12/09/21	Scale: NTS
Path:		Dwg No. E-1

MISCELLANEOUS PLOTS

TIA-222-H - 117 mph/50 mph 1.0000 in Ice Exposure B

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



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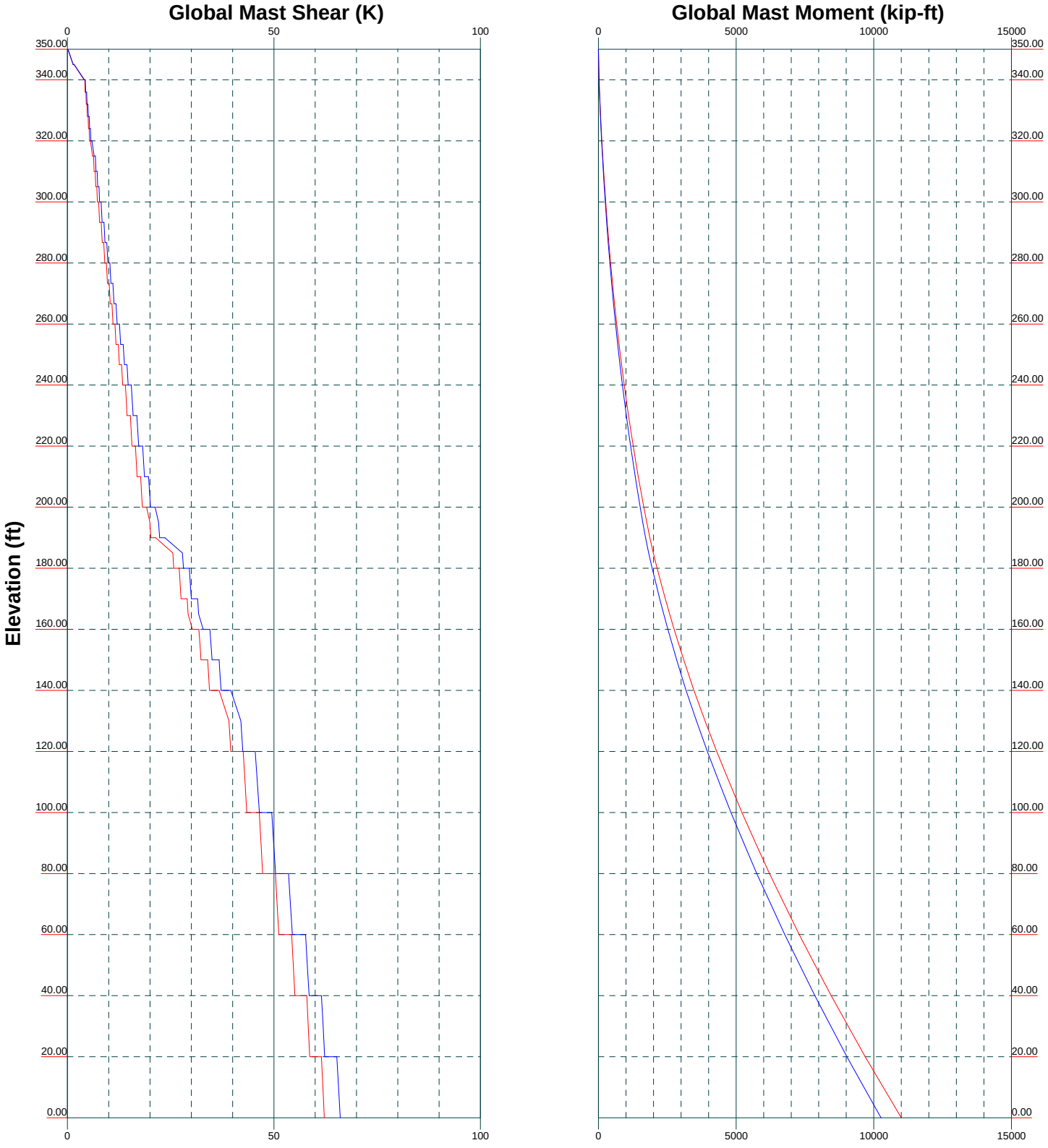
Job: ***21-6467 (Rev-1)***		
Project: ***CT20021-A-11 Cleary Tower (Edward)***		
Client: SBA	Drawn by: Pbabu	App'd:
Code: TIA-222-H	Date: 12/09/21	Scale: NTS
Path:		Dwg No. E-3

TIA-222-H - 117 mph/50 mph 1.0000 in Ice Exposure B

Maximum Values

Vx Vz Mx Mz



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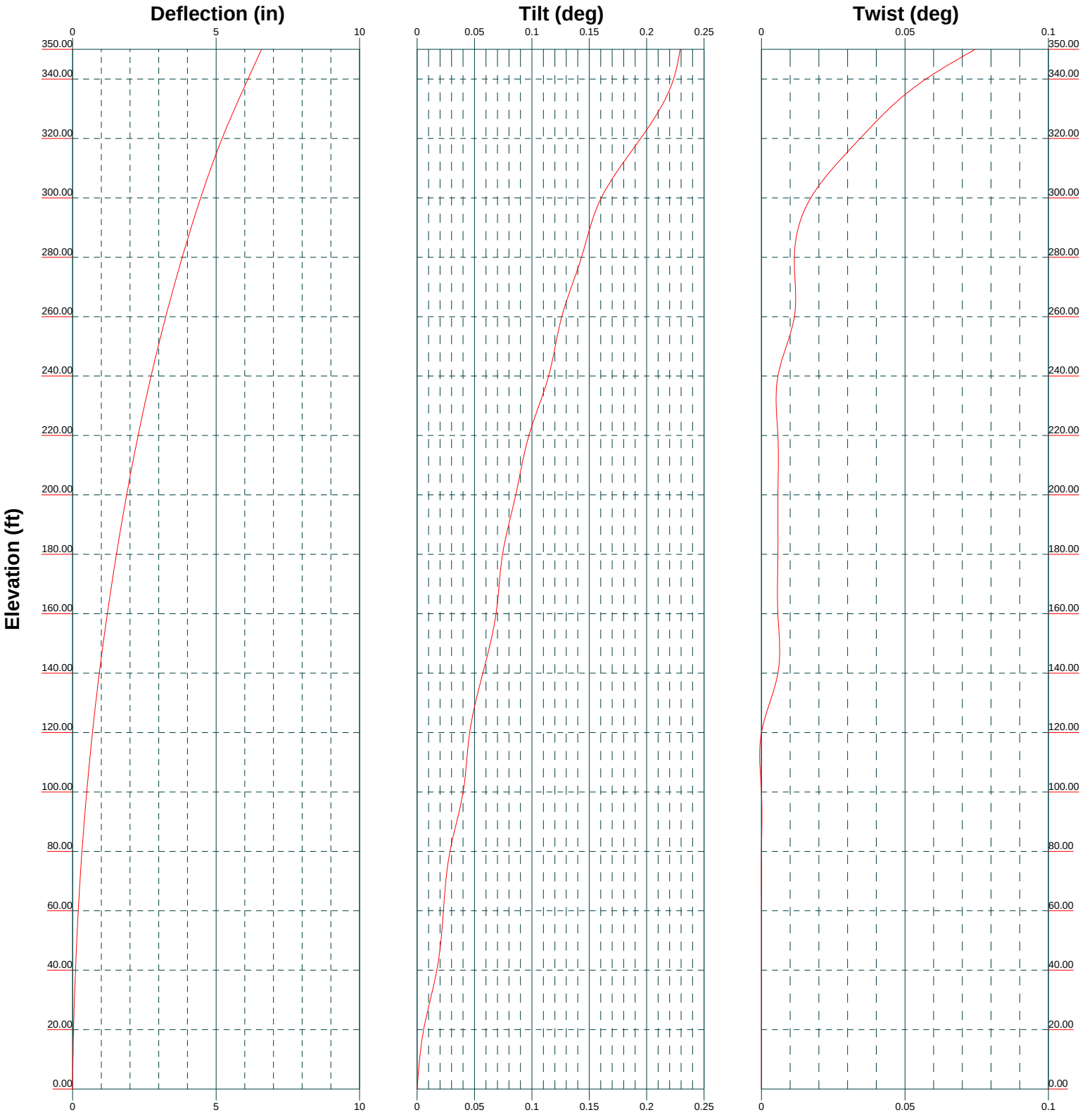
Job: ***21-6467 (Rev-1)***		
Project: ***CT20021-A-11 Cleary Tower (Edward)***		
Client: SBA	Drawn by: Pbabu	App'd:
Code: TIA-222-H	Date: 12/09/21	Scale: NTS
Path:		Dwg No. E-4

TIA-222-H - Service - 60 mph

Maximum Values



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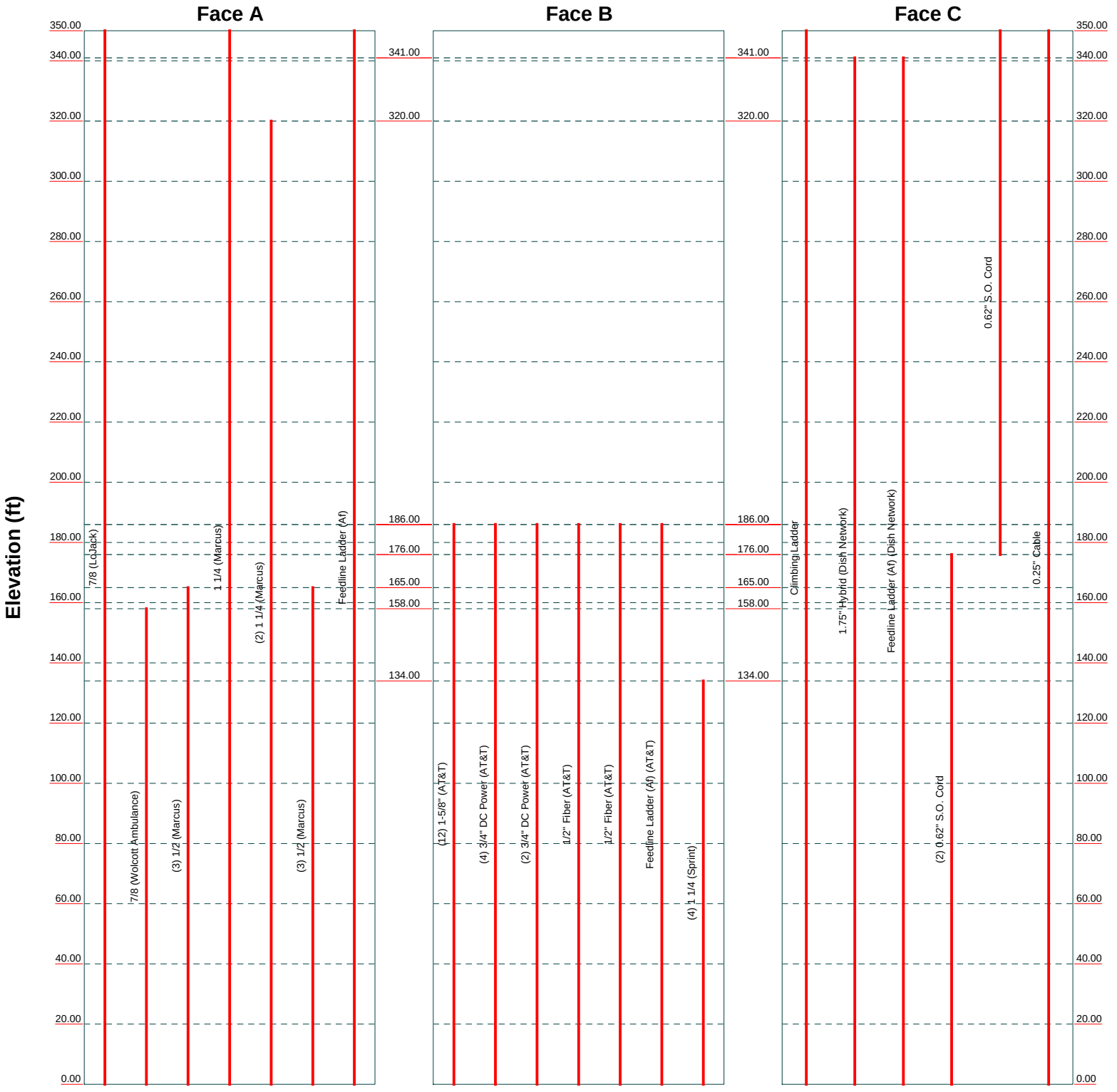
FAX: 866-364-8375

Job: ***21-6467 (Rev-1)***		
Project: ***CT20021-A-11 Cleary Tower (Edward)***		
Client: SBA	Drawn by: Pbabu	App'd:
Code: TIA-222-H	Date: 12/09/21	Scale: NTS
Path:		Dwg No. E-5

Feed Line Distribution Chart
0' - 350'

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



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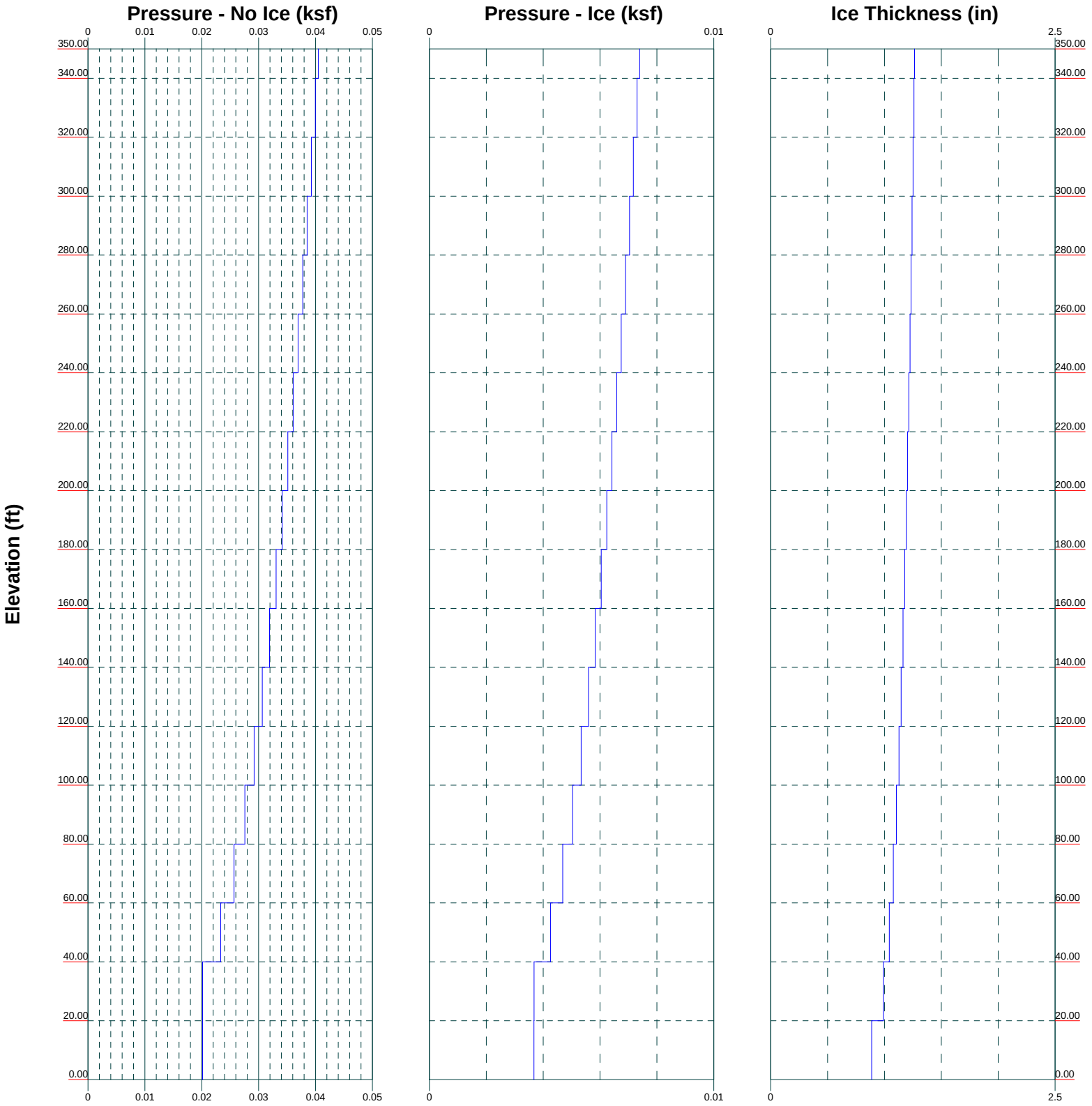
Job: ***21-6467 (Rev-1)***		
Project: ***CT20021-A-11 Cleary Tower (Edward)***		
Client: SBA	Drawn by: Pbabu	App'd:
Code: TIA-222-H	Date: 12/09/21	Scale: NTS
Path:		Dwg No. E-7

Wind Pressures and Ice Thickness

TIA-222-H - 117 mph/50 mph 1.0000 in Ice Exposure B



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Job: ***21-6467 (Rev-1)***		
Project: ***CT20021-A-11 Cleary Tower (Edward)***		
Client: SBA	Drawn by: Pbabu	App'd:
Code: TIA-222-H	Date: 12/09/21	Scale: NTS
Path:		Dwg No. E-9

CALCULATION PRINTOUT

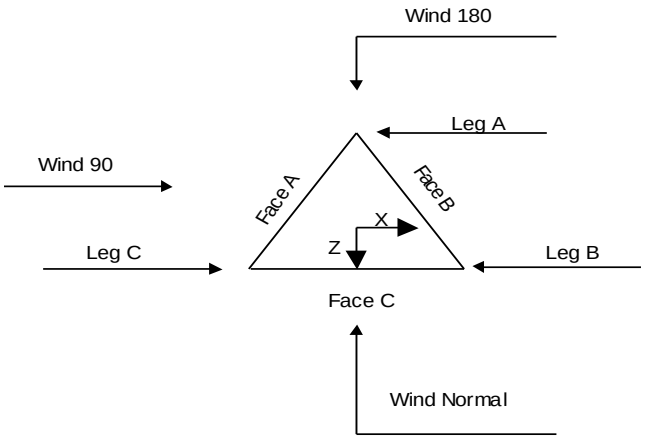
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 350.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 4.00 ft at the top and 36.00 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower base elevation above sea level: 963.64 ft.
Basic wind speed of 117 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys	√	Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)	√	Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	350.00-340.00			4.00	1	10.00
T2	340.00-320.00			4.00	1	20.00
T3	320.00-300.00			4.00	1	20.00
T4	300.00-280.00			6.00	1	20.00
T5	280.00-260.00			8.00	1	20.00
T6	260.00-240.00			10.00	1	20.00
T7	240.00-220.00			12.00	1	20.00
T8	220.00-200.00			14.00	1	20.00
T9	200.00-180.00			16.00	1	20.00
T10	180.00-160.00			18.00	1	20.00
T11	160.00-140.00			20.00	1	20.00
T12	140.00-120.00			22.00	1	20.00
T13	120.00-100.00			24.00	1	20.00
T14	100.00-80.00			26.00	1	20.00
T15	80.00-60.00			28.00	1	20.00
T16	60.00-40.00			30.00	1	20.00
T17	40.00-20.00			32.00	1	20.00
T18	20.00-0.00			34.00	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	350.00-340.00	5.00	X Brace	No	No	0.0000	0.0000
T2	340.00-320.00	4.00	X Brace	No	No	0.0000	0.0000
T3	320.00-300.00	5.00	X Brace	No	No	0.0000	0.0000
T4	300.00-280.00	6.67	X Brace	No	No	0.0000	0.0000
T5	280.00-260.00	6.67	X Brace	No	No	0.0000	0.0000
T6	260.00-240.00	6.67	X Brace	No	No	0.0000	0.0000
T7	240.00-220.00	5.00	Double K	No	Yes	0.0000	0.0000
T8	220.00-200.00	5.00	Double K	No	Yes	0.0000	0.0000
T9	200.00-180.00	5.00	Double K	No	Yes	0.0000	0.0000
T10	180.00-160.00	5.00	Double K	No	Yes	0.0000	0.0000
T11	160.00-140.00	5.00	Double K	No	Yes	0.0000	0.0000
T12	140.00-120.00	10.00	Double K1	No	Yes	0.0000	0.0000
T13	120.00-100.00	10.00	Double K1	No	Yes	0.0000	0.0000
T14	100.00-80.00	10.00	Double K1	No	Yes	0.0000	0.0000
T15	80.00-60.00	10.00	Double K1	No	Yes	0.0000	0.0000
T16	60.00-40.00	10.00	Double K1	No	Yes	0.0000	0.0000
T17	40.00-20.00	10.00	Double K1	No	Yes	0.0000	0.0000
T18	20.00-0.00	10.00	Double K1	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 350.00-340.00	Solid Round	2	A572-50 (50 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T2 340.00-320.00	Solid Round	2	A572-50 (50 ksi)	Single Angle	L2x1 1/2x3/16	A36 (36 ksi)
T3 320.00-300.00	Solid Round	2 1/2	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T4 300.00-280.00	Solid Round	3 1/4	A572-50 (50 ksi)	Equal Angle	L2-1/2x2-1/2x3/16	A36 (36 ksi)
T5 280.00-260.00	Solid Round	3 1/4	A572-50 (50 ksi)	Equal Angle	L2-1/2x2-1/2x3/16	A36 (36 ksi)
T6 260.00-240.00	Solid Round	3 1/2	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T7 240.00-220.00	Solid Round	3 1/2	A572-50 (50 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/16x3/8	A36 (36 ksi)
T8 220.00-200.00	Solid Round	3 3/4	A572-50 (50 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/16x3/8	A36 (36 ksi)
T9 200.00-180.00	Solid Round	4	A572-50 (50 ksi)	Double Equal Angle	2L3x3x3/16x3/8	A36 (36 ksi)
T10 180.00-160.00	Solid Round	4 1/4	A572-50 (50 ksi)	Double Equal Angle	2L3x3x3/16x3/8	A36 (36 ksi)
T11 160.00-140.00	Solid Round	4 1/4	A572-50 (50 ksi)	Double Equal Angle	2L3x3x3/16x3/8	A36 (36 ksi)
T12 140.00-120.00	Solid Round	4 1/2	A572-50 (50 ksi)	Double Equal Angle	2L3x3x1/4x3/8	A36 (36 ksi)
T13 120.00-100.00	Solid Round	4 3/4	A572-50 (50 ksi)	Double Equal Angle	2L3x3x1/4x3/8	A36 (36 ksi)
T14 100.00-80.00	Solid Round	4 3/4	A572-50 (50 ksi)	Double Equal Angle	2L3x3x1/4x3/8	A36 (36 ksi)
T15 80.00-60.00	Solid Round	5	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4x3/8	A36 (36 ksi)
T16 60.00-40.00	Solid Round	5 1/4	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4x3/8	A36 (36 ksi)
T17 40.00-20.00	Solid Round	5 1/4	A572-50	Double Equal	2L3 1/2x3 1/2x1/4x3/8	A36

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T18 20.00-0.00	Solid Round	5 1/2	(50 ksi) A572-50 (50 ksi)	Angle Double Equal Angle	2L3 1/2x3 1/2x1/4x3/8	(36 ksi) A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T7 240.00-220.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T8 220.00-200.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T9 200.00-180.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T10 180.00-160.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T11 160.00-140.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)
T12 140.00-120.00	None	Flat Bar		A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/16x3/8	A36 (36 ksi)
T13 120.00-100.00	None	Flat Bar		A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/16x3/8	A36 (36 ksi)
T14 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/16x3/8	A36 (36 ksi)
T15 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Double Equal Angle	2L3x3x3/16x3/8	A36 (36 ksi)
T16 60.00-40.00	None	Flat Bar		A36 (36 ksi)	Double Equal Angle	2L3x3x3/16x3/8	A36 (36 ksi)
T17 40.00-20.00	None	Flat Bar		A36 (36 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4x3/8	A36 (36 ksi)
T18 20.00-0.00	None	Flat Bar		A36 (36 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T7 240.00-220.00	Equal Angle		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T8 220.00-200.00	Equal Angle		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T9 200.00-180.00	Equal Angle		A36 (36 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T10 180.00-160.00	Equal Angle		A36 (36 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T11 160.00-140.00	Equal Angle		A36 (36 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T12 140.00-120.00	Equal Angle		A36 (36 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)
T13 120.00-100.00	Equal Angle		A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)
T14 100.00-80.00	Equal Angle		A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)
T15 80.00-60.00	Equal Angle		A36 (36 ksi)	Double Equal Angle	2L3x3x3/16x3/8	A36 (36 ksi)
T16 60.00-40.00	Equal Angle		A36 (36 ksi)	Double Equal Angle	2L3x3x3/16x3/8	A36 (36 ksi)
T17 40.00-20.00	Equal Angle		A36 (36 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4x3/8	A36 (36 ksi)
T18 20.00-0.00	Equal Angle		A36 (36 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T12 140.00-120.00	A36 (36 ksi)	Horizontal (1) Diagonal (1)	Equal Angle Equal Angle	L2x2x3/16 L2-1/2x2-1/2x3/16	1 1
T13 120.00-100.00	A36 (36 ksi)	Horizontal (1) Diagonal (1)	Equal Angle Equal Angle	L2x2x3/16 L2-1/2x2-1/2x3/16	1 1
T14 100.00-80.00	A36 (36 ksi)	Horizontal (1) Diagonal (1)	Equal Angle Equal Angle	L2x2x3/8 L2-1/2x2-1/2x3/16	1 1
T15 80.00-60.00	A36 (36 ksi)	Horizontal (1) Diagonal (1)	Equal Angle Equal Angle	L2-1/2x2-1/2x3/16 L3x3x3/16	1 1
T16 60.00-40.00	A36 (36 ksi)	Horizontal (1) Diagonal (1)	Equal Angle Equal Angle	L2-1/2x2-1/2x3/16 L3x3x3/16	1 1
T17 40.00-20.00	A36 (36 ksi)	Horizontal (1) Diagonal (1)	Arbitrary Shape Equal Angle	L2.5x2.5x3/16 + L2.5x2.5x1/4 (C-Shape) - Cleary Tower L3x3x3/16	1 1
T18 20.00-0.00	A36 (36 ksi)	Horizontal (1) Diagonal (1)	Equal Angle Equal Angle	L3x3x3/16 L3x3x3/16	1 1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 350.00-340.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T2 340.00-320.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T3 320.00-300.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T4	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
300.00-280.00			(36 ksi)						
T5	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
280.00-260.00			(36 ksi)						
T6	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
260.00-240.00			(36 ksi)						
T7	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
240.00-220.00			(36 ksi)						
T8	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
220.00-200.00			(36 ksi)						
T9	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
200.00-180.00			(36 ksi)						
T10	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
180.00-160.00			(36 ksi)						
T11	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
160.00-140.00			(36 ksi)						
T12	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
140.00-120.00			(36 ksi)						
T13	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
120.00-100.00			(36 ksi)						
T14	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
100.00-80.00			(36 ksi)						
T15	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
80.00-60.00			(36 ksi)						
T16	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
60.00-40.00			(36 ksi)						
T17	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
40.00-20.00			(36 ksi)						
T18 20.00-0.00	0.00	0.0000	A36	1	1	1.05	36.0000	36.0000	36.0000
			(36 ksi)						

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
350.00-340.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
340.00-320.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
320.00-300.00				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
300.00-280.00				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
280.00-260.00				1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1
260.00-240.00				1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1
240.00-220.00				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
220.00-200.00				1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
200.00-180.00				1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1
180.00-160.00				1	1	1	1	1	1	1
T11	Yes	Yes	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T12	Yes	Yes	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T13	Yes	Yes	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T14	Yes	Yes	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T15	Yes	Yes	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T16	Yes	Yes	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T17	Yes	Yes	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T18	Yes	Yes	1	1	1	1	1	1	1	1
20.00-0.00				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
350.00-340.00														
T2	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
340.00-320.00														
T3	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
320.00-300.00														
T4	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
300.00-280.00														
T5	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
280.00-260.00														
T6	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
260.00-240.00														
T7	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
240.00-220.00														
T8	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
220.00-200.00														
T9	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
200.00-180.00														
T10	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
180.00-160.00														
T11	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
160.00-140.00														

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T12 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T17 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T18 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 350.00-340.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 340.00-320.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 320.00-300.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 300.00-280.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 280.00-260.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 260.00-240.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 240.00-220.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 220.00-200.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 200.00-180.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 180.00-160.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 160.00-140.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 140.00-120.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 120.00-100.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 100.00-80.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 80.00-60.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 60.00-40.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T17 40.00-20.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T18 20.00-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1	Flange	0.6250	4	0.6250	1	0.6250	1	0.0000	0	0.6250	0	0.6250	0	0.6250	0
350.00-340.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2	Flange	0.6250	4	0.6250	1	0.6250	0	0.0000	0	0.6250	0	0.6250	0	0.6250	0
340.00-320.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3	Flange	0.7500	4	0.6250	1	0.6250	0	0.0000	0	0.6250	0	0.6250	0	0.6250	0
320.00-300.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T4	Flange	0.7500	6	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
300.00-280.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T5	Flange	0.8750	6	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
280.00-260.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T6	Flange	0.8750	6	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
260.00-240.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7	Flange	1.0000	6	0.6250	1	0.6250	0	0.0000	0	0.6250	0	0.6250	1	0.6250	0
240.00-220.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T8	Flange	1.1250	6	0.7500	1	0.6250	0	0.0000	0	0.6250	0	0.6250	1	0.6250	1
220.00-200.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T9	Flange	1.1250	6	0.7500	1	0.6250	0	0.0000	0	0.6250	0	0.6250	1	0.6250	1
200.00-180.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T10	Flange	1.2500	6	0.7500	1	0.6250	0	0.0000	0	0.6250	0	0.6250	1	0.6250	1
180.00-160.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T11	Flange	1.2500	6	0.7500	1	0.6250	0	0.0000	0	0.6250	0	0.6250	1	0.6250	1
160.00-140.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T12	Flange	1.3750	6	0.7500	1	0.6250	0	0.0000	0	0.6250	0	0.7500	1	0.6250	1
140.00-120.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T13	Flange	1.3750	6	0.7500	1	0.6250	0	0.0000	0	0.6250	0	0.7500	1	0.6250	1
120.00-100.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T14	Flange	1.3750	6	0.7500	1	0.6250	0	0.0000	0	0.6250	0	0.7500	1	0.6250	1
100.00-80.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T15	Flange	1.5000	6	0.8750	1	0.6250	0	0.0000	0	0.6250	0	0.7500	1	0.6250	1
80.00-60.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T16	Flange	1.5000	6	0.8750	1	0.6250	0	0.0000	0	0.6250	0	0.7500	1	0.6250	1
60.00-40.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T17	Flange	1.5000	6	0.8750	1	0.6250	0	0.0000	0	0.6250	0	0.7500	1	0.6250	1
40.00-20.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T18 20.00-0.00	Flange	2.5000	6	0.8750	1	0.6250	0	0.0000	0	0.6250	0	0.7500	1	0.6250	1
		A307		A325N		A325N		A325N		A325N		A325N		A325N	

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
7/8 (LoJack)	A	No	No	Ar (CaAa)	350.00 - 0.00	0.0000	-0.15	1	1	0.5000	1.1100		0.54
7/8 (Wolcott Ambulance)	A	No	No	Ar (CaAa)	158.00 - 0.00	0.0000	-0.1	1	1	0.5000	1.1100		0.54
1/2 (Marcus)	A	No	No	Ar (CaAa)	165.00 - 0.00	0.0000	0.05	3	3	0.5000	0.5800		0.25
1 1/4 (Marcus)	A	No	No	Ar (CaAa)	350.00 - 0.00	0.0000	0.1	1	1	0.5000	1.5500		0.66
1 1/4 (Marcus)	A	No	No	Ar (CaAa)	320.00 - 0.00	0.0000	0.12	2	2	0.5000	1.5500		0.66
1/2 (Marcus)	A	No	No	Ar (CaAa)	165.00 - 0.00	0.0000	0.15	3	3	0.5000	0.5800		0.25
Feedline Ladder (Af) ****	A	No	No	Af (CaAa)	350.00 - 0.00	0.0000	0	1	1	1.5000	1.5000		4.20
1-5/8" (AT&T)	B	No	No	Ar (CaAa)	186.00 - 0.00	0.0000	0.15	12	6	0.5000	1.9800		0.82
3/4" DC Power (AT&T)	B	No	No	Ar (CaAa)	186.00 - 0.00	4.5000	0.15	4	4	0.5000	0.8650		0.15
3/4" DC Power (AT&T)	B	No	No	Ar (CaAa)	186.00 - 0.00	0.0000	0.05	2	1	0.5000	0.8650		0.15
1/2" Fiber (AT&T)	B	No	No	Ar (CaAa)	186.00 - 0.00	0.0000	0.05	1	1	0.5000	0.6400		0.11
1/2" Fiber (AT&T)	B	No	No	Ar (CaAa)	186.00 - 0.00	4.5000	0.17	1	1	0.5000	0.6400		0.11
Feedline Ladder (Af) (AT&T) ****	B	No	No	Af (CaAa)	186.00 - 0.00	0.0000	0	1	1	1.5000	1.5000		4.20
1 1/4 (Sprint) ****	B	No	No	Ar (CaAa)	134.00 - 0.00	0.0000	-0.15	4	4	0.5000	1.5500		0.66
Climbing Ladder ****	C	No	No	Af (CaAa)	350.00 - 0.00	0.0000	0	1	1	0.5000	1.5000		7.90
1.75" Hybrid (Dish Network)	C	No	No	Ar (CaAa)	341.00 - 0.00	0.0000	0.4	1	1	0.5000	1.7500		2.72
Feedline Ladder (Af) (Dish Network) ****	C	No	No	Af (CaAa)	341.00 - 0.00	0.0000	0.4	1	1	1.5000	1.5000		4.20
0.62" S.O. Cord	C	No	No	Ar (CaAa)	176.00 - 0.00	0.0000	0	2	2	0.0000	0.6200		0.31
0.62" S.O. Cord	C	No	No	Ar (CaAa)	350.00 - 176.00	0.0000	0	1	1	0.0000	0.6200		0.31
0.25" Cable	C	No	No	Ar (CaAa)	350.00 - 0.00	0.0000	0	1	1	0.2500	0.2500		0.13

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	350.00-340.00	A	0.000	0.000	5.160	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	3.795	0.000	0.09
T2	340.00-320.00	A	0.000	0.000	10.320	0.000	0.11
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	15.240	0.000	0.31
T3	320.00-300.00	A	0.000	0.000	16.520	0.000	0.13
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	15.240	0.000	0.31
T4	300.00-280.00	A	0.000	0.000	16.520	0.000	0.13
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	15.240	0.000	0.31
T5	280.00-260.00	A	0.000	0.000	16.520	0.000	0.13
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	15.240	0.000	0.31
T6	260.00-240.00	A	0.000	0.000	16.520	0.000	0.13
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	15.240	0.000	0.31
T7	240.00-220.00	A	0.000	0.000	16.520	0.000	0.13
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	15.240	0.000	0.31
T8	220.00-200.00	A	0.000	0.000	16.520	0.000	0.13
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	15.240	0.000	0.31
T9	200.00-180.00	A	0.000	0.000	16.520	0.000	0.13
		B	0.000	0.000	19.638	0.000	0.09
		C	0.000	0.000	15.240	0.000	0.31
T10	180.00-160.00	A	0.000	0.000	18.260	0.000	0.14
		B	0.000	0.000	65.460	0.000	0.30
		C	0.000	0.000	16.232	0.000	0.31
T11	160.00-140.00	A	0.000	0.000	25.478	0.000	0.17
		B	0.000	0.000	65.460	0.000	0.30
		C	0.000	0.000	16.480	0.000	0.31
T12	140.00-120.00	A	0.000	0.000	25.700	0.000	0.18
		B	0.000	0.000	74.140	0.000	0.34
		C	0.000	0.000	16.480	0.000	0.31
T13	120.00-100.00	A	0.000	0.000	25.700	0.000	0.18
		B	0.000	0.000	77.860	0.000	0.36
		C	0.000	0.000	16.480	0.000	0.31
T14	100.00-80.00	A	0.000	0.000	25.700	0.000	0.18
		B	0.000	0.000	77.860	0.000	0.36
		C	0.000	0.000	16.480	0.000	0.31
T15	80.00-60.00	A	0.000	0.000	25.700	0.000	0.18
		B	0.000	0.000	77.860	0.000	0.36
		C	0.000	0.000	16.480	0.000	0.31
T16	60.00-40.00	A	0.000	0.000	25.700	0.000	0.18
		B	0.000	0.000	77.860	0.000	0.36
		C	0.000	0.000	16.480	0.000	0.31
T17	40.00-20.00	A	0.000	0.000	25.700	0.000	0.18
		B	0.000	0.000	77.860	0.000	0.36
		C	0.000	0.000	16.480	0.000	0.31
T18	20.00-0.00	A	0.000	0.000	25.700	0.000	0.18
		B	0.000	0.000	77.860	0.000	0.36
		C	0.000	0.000	16.480	0.000	0.31

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	350.00-340.00	A	1.265	0.000	0.000	12.747	0.000	0.17
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	11.888	0.000	0.19
T2	340.00-320.00	A	1.259	0.000	0.000	25.427	0.000	0.35
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	40.419	0.000	0.66
T3	320.00-300.00	A	1.251	0.000	0.000	43.646	0.000	0.51
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	40.262	0.000	0.66
T4	300.00-280.00	A	1.243	0.000	0.000	43.488	0.000	0.50
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	40.095	0.000	0.66
T5	280.00-260.00	A	1.234	0.000	0.000	43.321	0.000	0.50
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	39.918	0.000	0.65
T6	260.00-240.00	A	1.224	0.000	0.000	43.142	0.000	0.50
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	39.729	0.000	0.65
T7	240.00-220.00	A	1.214	0.000	0.000	42.949	0.000	0.49
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	39.526	0.000	0.64
T8	220.00-200.00	A	1.203	0.000	0.000	42.741	0.000	0.49
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	39.306	0.000	0.64
T9	200.00-180.00	A	1.191	0.000	0.000	42.514	0.000	0.48
		B		0.000	0.000	30.388	0.000	0.40
		C		0.000	0.000	39.066	0.000	0.63
T10	180.00-160.00	A	1.178	0.000	0.000	49.617	0.000	0.53
		B		0.000	0.000	100.872	0.000	1.31
		C		0.000	0.000	43.377	0.000	0.64
T11	160.00-140.00	A	1.163	0.000	0.000	77.382	0.000	0.76
		B		0.000	0.000	100.402	0.000	1.30
		C		0.000	0.000	44.183	0.000	0.64
T12	140.00-120.00	A	1.147	0.000	0.000	77.465	0.000	0.75
		B		0.000	0.000	118.610	0.000	1.48
		C		0.000	0.000	43.802	0.000	0.63
T13	120.00-100.00	A	1.128	0.000	0.000	76.770	0.000	0.74
		B		0.000	0.000	125.909	0.000	1.54
		C		0.000	0.000	43.364	0.000	0.62
T14	100.00-80.00	A	1.106	0.000	0.000	75.952	0.000	0.73
		B		0.000	0.000	125.047	0.000	1.51
		C		0.000	0.000	42.848	0.000	0.62
T15	80.00-60.00	A	1.078	0.000	0.000	74.949	0.000	0.71
		B		0.000	0.000	123.991	0.000	1.48
		C		0.000	0.000	42.216	0.000	0.60
T16	60.00-40.00	A	1.042	0.000	0.000	73.647	0.000	0.68
		B		0.000	0.000	122.620	0.000	1.45
		C		0.000	0.000	41.394	0.000	0.59
T17	40.00-20.00	A	0.991	0.000	0.000	71.754	0.000	0.65
		B		0.000	0.000	120.628	0.000	1.39
		C		0.000	0.000	40.198	0.000	0.57
T18	20.00-0.00	A	0.887	0.000	0.000	68.001	0.000	0.59
		B		0.000	0.000	116.680	0.000	1.29
		C		0.000	0.000	37.825	0.000	0.53

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	350.00-340.00	-1.3469	-0.2959	-2.2971	0.8845
T2	340.00-320.00	-2.9477	0.5381	-4.2490	2.2305
T3	320.00-300.00	-3.9227	-0.6642	-5.5442	1.1216
T4	300.00-280.00	-4.4673	-0.7552	-6.8631	1.3949
T5	280.00-260.00	-5.1584	-0.8758	-8.0642	1.6403
T6	260.00-240.00	-5.1427	-0.8782	-8.5962	1.7553
T7	240.00-220.00	-5.9576	-1.0175	-9.6735	1.9619
T8	220.00-200.00	-6.2867	-1.0747	-10.3348	2.0874
T9	200.00-180.00	-2.7899	-1.5120	-6.0946	1.0873
T10	180.00-160.00	3.0290	-2.7956	1.1794	-1.2784
T11	160.00-140.00	1.6202	-4.0276	-1.4590	-3.7304
T12	140.00-120.00	2.8354	-7.2253	-0.6146	-6.7255
T13	120.00-100.00	3.3524	-8.5612	-0.1438	-8.1063
T14	100.00-80.00	3.4654	-8.9129	-0.1157	-8.5138
T15	80.00-60.00	3.2270	-8.4491	-0.0657	-8.4758
T16	60.00-40.00	3.2947	-8.6736	0.0038	-8.7980
T17	40.00-20.00	3.3031	-8.7579	0.1194	-9.0507
T18	20.00-0.00	3.3072	-8.8251	0.3796	-9.3517

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	7/8	340.00 - 350.00	0.6000	0.5756
T1	4	1 1/4	340.00 - 350.00	0.6000	0.5756
T1	7	Feedline Ladder (Af)	340.00 - 350.00	0.6000	0.5756
T1	19	Climbing Ladder	340.00 - 350.00	0.6000	0.5756
T1	21	1.75" Hybrid	340.00 - 341.00	0.6000	0.5756
T1	22	Feedline Ladder (Af)	340.00 - 341.00	0.6000	0.5756
T1	25	0.62" S.O. Cord	340.00 - 350.00	0.6000	0.5756
T1	26	0.25" Cable	340.00 - 350.00	0.6000	0.5756
T2	1	7/8	320.00 - 340.00	0.6000	0.5948
T2	4	1 1/4	320.00 - 340.00	0.6000	0.5948
T2	7	Feedline Ladder (Af)	320.00 - 340.00	0.6000	0.5948
T2	19	Climbing Ladder	320.00 - 340.00	0.6000	0.5948
T2	21	1.75" Hybrid	320.00 - 340.00	0.6000	0.5948
T2	22	Feedline Ladder (Af)	320.00 - 340.00	0.6000	0.5948
T2	25	0.62" S.O. Cord	320.00 - 340.00	0.6000	0.5948
T2	26	0.25" Cable	320.00 - 340.00	0.6000	0.5948

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	1	7/8	300.00 - 320.00	0.6000	0.6000
T3	4	1 1/4	300.00 - 320.00	0.6000	0.6000
T3	5	1 1/4	300.00 - 320.00	0.6000	0.6000
T3	7	Feedline Ladder (Af)	300.00 - 320.00	0.6000	0.6000
T3	19	Climbing Ladder	300.00 - 320.00	0.6000	0.6000
T3	21	1.75" Hybrid	300.00 - 320.00	0.6000	0.6000
T3	22	Feedline Ladder (Af)	300.00 - 320.00	0.6000	0.6000
T3	25	0.62" S.O. Cord	300.00 - 320.00	0.6000	0.6000
T3	26	0.25" Cable	300.00 - 320.00	0.6000	0.6000
T4	1	7/8	280.00 - 300.00	0.6000	0.6000
T4	4	1 1/4	280.00 - 300.00	0.6000	0.6000
T4	5	1 1/4	280.00 - 300.00	0.6000	0.6000
T4	7	Feedline Ladder (Af)	280.00 - 300.00	0.6000	0.6000
T4	19	Climbing Ladder	280.00 - 300.00	0.6000	0.6000
T4	21	1.75" Hybrid	280.00 - 300.00	0.6000	0.6000
T4	22	Feedline Ladder (Af)	280.00 - 300.00	0.6000	0.6000
T4	25	0.62" S.O. Cord	280.00 - 300.00	0.6000	0.6000
T4	26	0.25" Cable	280.00 - 300.00	0.6000	0.6000
T5	1	7/8	260.00 - 280.00	0.6000	0.6000
T5	4	1 1/4	260.00 - 280.00	0.6000	0.6000
T5	5	1 1/4	260.00 - 280.00	0.6000	0.6000
T5	7	Feedline Ladder (Af)	260.00 - 280.00	0.6000	0.6000
T5	19	Climbing Ladder	260.00 - 280.00	0.6000	0.6000
T5	21	1.75" Hybrid	260.00 - 280.00	0.6000	0.6000
T5	22	Feedline Ladder (Af)	260.00 - 280.00	0.6000	0.6000
T5	25	0.62" S.O. Cord	260.00 - 280.00	0.6000	0.6000
T5	26	0.25" Cable	260.00 - 280.00	0.6000	0.6000
T6	1	7/8	240.00 - 260.00	0.6000	0.6000
T6	4	1 1/4	240.00 - 260.00	0.6000	0.6000
T6	5	1 1/4	240.00 - 260.00	0.6000	0.6000
T6	7	Feedline Ladder (Af)	240.00 - 260.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	19	Climbing Ladder	240.00 - 260.00	0.6000	0.6000
T6	21	1.75" Hybrid	240.00 - 260.00	0.6000	0.6000
T6	22	Feedline Ladder (Af)	240.00 - 260.00	0.6000	0.6000
T6	25	0.62" S.O. Cord	240.00 - 260.00	0.6000	0.6000
T6	26	0.25" Cable	240.00 - 260.00	0.6000	0.6000
T7	1	7/8	220.00 - 240.00	0.6000	0.6000
T7	4	1 1/4	220.00 - 240.00	0.6000	0.6000
T7	5	1 1/4	220.00 - 240.00	0.6000	0.6000
T7	7	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T7	19	Climbing Ladder	220.00 - 240.00	0.6000	0.6000
T7	21	1.75" Hybrid	220.00 - 240.00	0.6000	0.6000
T7	22	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T7	25	0.62" S.O. Cord	220.00 - 240.00	0.6000	0.6000
T7	26	0.25" Cable	220.00 - 240.00	0.6000	0.6000
T8	1	7/8	200.00 - 220.00	0.6000	0.6000
T8	4	1 1/4	200.00 - 220.00	0.6000	0.6000
T8	5	1 1/4	200.00 - 220.00	0.6000	0.6000
T8	7	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T8	19	Climbing Ladder	200.00 - 220.00	0.6000	0.6000
T8	21	1.75" Hybrid	200.00 - 220.00	0.6000	0.6000
T8	22	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T8	25	0.62" S.O. Cord	200.00 - 220.00	0.6000	0.6000
T8	26	0.25" Cable	200.00 - 220.00	0.6000	0.6000
T9	1	7/8	180.00 - 200.00	0.6000	0.6000
T9	4	1 1/4	180.00 - 200.00	0.6000	0.6000
T9	5	1 1/4	180.00 - 200.00	0.6000	0.6000
T9	7	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T9	9	1-5/8"	180.00 - 186.00	0.6000	0.6000
T9	10	3/4" DC Power	180.00 - 186.00	0.6000	0.6000
T9	11	3/4" DC Power	180.00 - 186.00	0.6000	0.6000
T9	12	1/2" Fiber	180.00 - 186.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	13	1/2" Fiber	180.00 - 186.00	0.0001	0.0001
T9	15	Feedline Ladder (Af)	180.00 - 186.00	0.6000	0.6000
T9	19	Climbing Ladder	180.00 - 200.00	0.6000	0.6000
T9	21	1.75" Hybrid	180.00 - 200.00	0.6000	0.6000
T9	22	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T9	25	0.62" S.O. Cord	180.00 - 200.00	0.6000	0.6000
T9	26	0.25" Cable	180.00 - 200.00	0.6000	0.6000
T10	1	7/8	160.00 - 180.00	0.6000	0.6000
T10	3	1/2	160.00 - 165.00	0.6000	0.6000
T10	4	1 1/4	160.00 - 180.00	0.6000	0.6000
T10	5	1 1/4	160.00 - 180.00	0.6000	0.6000
T10	6	1/2	160.00 - 165.00	0.6000	0.6000
T10	7	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T10	9	1-5/8"	160.00 - 180.00	0.6000	0.6000
T10	10	3/4" DC Power	160.00 - 180.00	0.6000	0.6000
T10	11	3/4" DC Power	160.00 - 180.00	0.6000	0.6000
T10	12	1/2" Fiber	160.00 - 180.00	0.6000	0.6000
T10	13	1/2" Fiber	160.00 - 180.00	0.0001	0.0001
T10	15	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T10	19	Climbing Ladder	160.00 - 180.00	0.6000	0.6000
T10	21	1.75" Hybrid	160.00 - 180.00	0.6000	0.6000
T10	22	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T10	24	0.62" S.O. Cord	160.00 - 176.00	0.6000	0.6000
T10	25	0.62" S.O. Cord	176.00 - 180.00	0.6000	0.6000
T10	26	0.25" Cable	160.00 - 180.00	0.6000	0.6000
T11	1	7/8	140.00 - 160.00	0.6000	0.6000
T11	2	7/8	140.00 - 158.00	0.6000	0.6000
T11	3	1/2	140.00 - 160.00	0.6000	0.6000
T11	4	1 1/4	140.00 - 160.00	0.6000	0.6000
T11	5	1 1/4	140.00 - 160.00	0.6000	0.6000
T11	6	1/2	140.00 - 160.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T11	7	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T11	9	1-5/8"	140.00 - 160.00	0.6000	0.6000
T11	10	3/4" DC Power	140.00 - 160.00	0.6000	0.6000
T11	11	3/4" DC Power	140.00 - 160.00	0.6000	0.6000
T11	12	1/2" Fiber	140.00 - 160.00	0.6000	0.6000
T11	13	1/2" Fiber	140.00 - 160.00	0.0001	0.0001
T11	15	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T11	19	Climbing Ladder	140.00 - 160.00	0.6000	0.6000
T11	21	1.75" Hybrid	140.00 - 160.00	0.6000	0.6000
T11	22	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T11	24	0.62" S.O. Cord	140.00 - 160.00	0.6000	0.6000
T11	26	0.25" Cable	140.00 - 160.00	0.6000	0.6000
T12	1	7/8	120.00 - 140.00	0.6000	0.6000
T12	2	7/8	120.00 - 140.00	0.6000	0.6000
T12	3	1/2	120.00 - 140.00	0.6000	0.6000
T12	4	1 1/4	120.00 - 140.00	0.6000	0.6000
T12	5	1 1/4	120.00 - 140.00	0.6000	0.6000
T12	6	1/2	120.00 - 140.00	0.6000	0.6000
T12	7	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T12	9	1-5/8"	120.00 - 140.00	0.6000	0.6000
T12	10	3/4" DC Power	120.00 - 140.00	0.6000	0.6000
T12	11	3/4" DC Power	120.00 - 140.00	0.6000	0.6000
T12	12	1/2" Fiber	120.00 - 140.00	0.6000	0.6000
T12	13	1/2" Fiber	120.00 - 140.00	0.0001	0.0001
T12	15	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T12	17	1 1/4	120.00 - 134.00	0.6000	0.6000
T12	19	Climbing Ladder	120.00 - 140.00	0.6000	0.6000
T12	21	1.75" Hybrid	120.00 - 140.00	0.6000	0.6000
T12	22	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T12	24	0.62" S.O. Cord	120.00 - 140.00	0.6000	0.6000
T12	26	0.25" Cable	120.00 - 140.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T13	1	7/8	100.00 - 120.00	0.6000	0.6000
T13	2	7/8	100.00 - 120.00	0.6000	0.6000
T13	3	1/2	100.00 - 120.00	0.6000	0.6000
T13	4	1 1/4	100.00 - 120.00	0.6000	0.6000
T13	5	1 1/4	100.00 - 120.00	0.6000	0.6000
T13	6	1/2	100.00 - 120.00	0.6000	0.6000
T13	7	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T13	9	1-5/8"	100.00 - 120.00	0.6000	0.6000
T13	10	3/4" DC Power	100.00 - 120.00	0.6000	0.6000
T13	11	3/4" DC Power	100.00 - 120.00	0.6000	0.6000
T13	12	1/2" Fiber	100.00 - 120.00	0.6000	0.6000
T13	13	1/2" Fiber	100.00 - 120.00	0.0001	0.0001
T13	15	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T13	17	1 1/4	100.00 - 120.00	0.6000	0.6000
T13	19	Climbing Ladder	100.00 - 120.00	0.6000	0.6000
T13	21	1.75" Hybrid	100.00 - 120.00	0.6000	0.6000
T13	22	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T13	24	0.62" S.O. Cord	100.00 - 120.00	0.6000	0.6000
T13	26	0.25" Cable	100.00 - 120.00	0.6000	0.6000
T14	1	7/8	80.00 - 100.00	0.6000	0.6000
T14	2	7/8	80.00 - 100.00	0.6000	0.6000
T14	3	1/2	80.00 - 100.00	0.6000	0.6000
T14	4	1 1/4	80.00 - 100.00	0.6000	0.6000
T14	5	1 1/4	80.00 - 100.00	0.6000	0.6000
T14	6	1/2	80.00 - 100.00	0.6000	0.6000
T14	7	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T14	9	1-5/8"	80.00 - 100.00	0.6000	0.6000
T14	10	3/4" DC Power	80.00 - 100.00	0.6000	0.6000
T14	11	3/4" DC Power	80.00 - 100.00	0.6000	0.6000
T14	12	1/2" Fiber	80.00 - 100.00	0.6000	0.6000
T14	13	1/2" Fiber	80.00 - 100.00	0.0001	0.0001
T14	15	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T14	17	1 1/4	80.00 - 100.00	0.6000	0.6000
T14	19	Climbing Ladder	80.00 - 100.00	0.6000	0.6000
T14	21	1.75" Hybrid	80.00 - 100.00	0.6000	0.6000
T14	22	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T14	24	0.62" S.O. Cord	80.00 - 100.00	0.6000	0.6000
T14	26	0.25" Cable	80.00 - 100.00	0.6000	0.6000
T15	1	7/8	60.00 - 80.00	0.6000	0.6000
T15	2	7/8	60.00 - 80.00	0.6000	0.6000
T15	3	1/2	60.00 - 80.00	0.6000	0.6000
T15	4	1 1/4	60.00 - 80.00	0.6000	0.6000
T15	5	1 1/4	60.00 - 80.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T15	6	1/2	60.00 - 80.00	0.6000	0.6000
T15	7	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T15	9	1-5/8"	60.00 - 80.00	0.6000	0.6000
T15	10	3/4" DC Power	60.00 - 80.00	0.6000	0.6000
T15	11	3/4" DC Power	60.00 - 80.00	0.6000	0.6000
T15	12	1/2" Fiber	60.00 - 80.00	0.6000	0.6000
T15	13	1/2" Fiber	60.00 - 80.00	0.0001	0.0001
T15	15	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T15	17	1 1/4	60.00 - 80.00	0.6000	0.6000
T15	19	Climbing Ladder	60.00 - 80.00	0.6000	0.6000
T15	21	1.75" Hybrid	60.00 - 80.00	0.6000	0.6000
T15	22	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T15	24	0.62" S.O. Cord	60.00 - 80.00	0.6000	0.6000
T15	26	0.25" Cable	60.00 - 80.00	0.6000	0.6000
T16	1	7/8	40.00 - 60.00	0.6000	0.6000
T16	2	7/8	40.00 - 60.00	0.6000	0.6000
T16	3	1/2	40.00 - 60.00	0.6000	0.6000
T16	4	1 1/4	40.00 - 60.00	0.6000	0.6000
T16	5	1 1/4	40.00 - 60.00	0.6000	0.6000
T16	6	1/2	40.00 - 60.00	0.6000	0.6000
T16	7	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T16	9	1-5/8"	40.00 - 60.00	0.6000	0.6000
T16	10	3/4" DC Power	40.00 - 60.00	0.6000	0.6000
T16	11	3/4" DC Power	40.00 - 60.00	0.6000	0.6000
T16	12	1/2" Fiber	40.00 - 60.00	0.6000	0.6000
T16	13	1/2" Fiber	40.00 - 60.00	0.0001	0.0001
T16	15	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T16	17	1 1/4	40.00 - 60.00	0.6000	0.6000
T16	19	Climbing Ladder	40.00 - 60.00	0.6000	0.6000
T16	21	1.75" Hybrid	40.00 - 60.00	0.6000	0.6000
T16	22	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T16	24	0.62" S.O. Cord	40.00 - 60.00	0.6000	0.6000
T16	26	0.25" Cable	40.00 - 60.00	0.6000	0.6000
T17	1	7/8	20.00 - 40.00	0.6000	0.6000
T17	2	7/8	20.00 - 40.00	0.6000	0.6000
T17	3	1/2	20.00 - 40.00	0.6000	0.6000
T17	4	1 1/4	20.00 - 40.00	0.6000	0.6000
T17	5	1 1/4	20.00 - 40.00	0.6000	0.6000
T17	6	1/2	20.00 - 40.00	0.6000	0.6000
T17	7	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T17	9	1-5/8"	20.00 - 40.00	0.6000	0.6000
T17	10	3/4" DC Power	20.00 - 40.00	0.6000	0.6000
T17	11	3/4" DC Power	20.00 - 40.00	0.6000	0.6000
T17	12	1/2" Fiber	20.00 - 40.00	0.6000	0.6000
T17	13	1/2" Fiber	20.00 - 40.00	0.0001	0.0001
T17	15	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T17	17	1 1/4	20.00 - 40.00	0.6000	0.6000
T17	19	Climbing Ladder	20.00 - 40.00	0.6000	0.6000
T17	21	1.75" Hybrid	20.00 - 40.00	0.6000	0.6000
T17	22	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T17	24	0.62" S.O. Cord	20.00 - 40.00	0.6000	0.6000
T17	26	0.25" Cable	20.00 - 40.00	0.6000	0.6000
T18	1	7/8	0.00 - 20.00	0.6000	0.6000
T18	2	7/8	0.00 - 20.00	0.6000	0.6000
T18	3	1/2	0.00 - 20.00	0.6000	0.6000
T18	4	1 1/4	0.00 - 20.00	0.6000	0.6000
T18	5	1 1/4	0.00 - 20.00	0.6000	0.6000
T18	6	1/2	0.00 - 20.00	0.6000	0.6000
T18	7	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T18	9	1-5/8"	0.00 - 20.00	0.6000	0.6000
T18	10	3/4" DC Power	0.00 - 20.00	0.6000	0.6000
T18	11	3/4" DC Power	0.00 - 20.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T18	12	1/2" Fiber	0.00 - 20.00	0.6000	0.6000
T18	13	1/2" Fiber	0.00 - 20.00	0.0001	0.0001
T18	15	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T18	17	1 1/4	0.00 - 20.00	0.6000	0.6000
T18	19	Climbing Ladder	0.00 - 20.00	0.6000	0.6000
T18	21	1.75" Hybrid	0.00 - 20.00	0.6000	0.6000
T18	22	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T18	24	0.62" S.O. Cord	0.00 - 20.00	0.6000	0.6000
T18	26	0.25" Cable	0.00 - 20.00	0.6000	0.6000

User Defined Loads - Seismic

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
T1	350.00	0.00	0.0000	0.13	0.00	0.00	0.16
T2	340.00	0.00	0.0000	0.06	0.00	0.00	0.07
T3	320.00	0.00	0.0000	0.08	0.00	0.00	0.10
T4	300.00	0.00	0.0000	0.11	0.00	0.00	0.12
T5	280.00	0.00	0.0000	0.12	0.00	0.00	0.12
T6	260.00	0.00	0.0000	0.14	0.00	0.00	0.13
T7	240.00	0.00	0.0000	0.17	0.00	0.00	0.15
T8	220.00	0.00	0.0000	0.19	0.00	0.00	0.15
T9	200.00	0.00	0.0000	0.39	0.00	0.00	0.28
T10	180.00	0.00	0.0000	0.28	0.00	0.00	0.19
T11	160.00	0.00	0.0000	0.29	0.00	0.00	0.17
T12	140.00	0.00	0.0000	0.39	0.00	0.00	0.20
T13	120.00	0.00	0.0000	0.32	0.00	0.00	0.14
T14	100.00	0.00	0.0000	0.34	0.00	0.00	0.12
T15	80.00	0.00	0.0000	0.38	0.00	0.00	0.11
T16	60.00	0.00	0.0000	0.41	0.00	0.00	0.09
T17	40.00	0.00	0.0000	0.44	0.00	0.00	0.06
T18	20.00	0.00	0.0000	0.47	0.00	0.00	0.03

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral / Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft / ft / ft	°	ft		ft^2	ft^2	K
7770	A	From Leg	3.00	0.0000	186.00	No Ice	5.51	2.93	0.04
(AT&T)			0.00			1/2" Ice	5.87	3.27	0.07
			0.00			1" Ice	6.23	3.63	0.11
7770	B	From Leg	3.00	0.0000	186.00	No Ice	5.51	2.93	0.04
(AT&T)			0.00			1/2" Ice	5.87	3.27	0.07
			0.00			1" Ice	6.23	3.63	0.11
7770	C	From Leg	3.00	0.0000	186.00	No Ice	5.51	2.93	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(AT&T)			0.00			1/2" Ice	5.87	3.27	0.07
			0.00			1" Ice	6.23	3.63	0.11
AM-X-CD-16-65-00T-RET	A	From Leg	3.00	0.0000	186.00	No Ice	6.04	4.11	0.03
(AT&T)			0.00			1/2" Ice	6.41	4.45	0.07
			0.00			1" Ice	6.77	4.80	0.12
800-10121	A	From Leg	3.00	0.0000	186.00	No Ice	5.16	3.29	0.05
(AT&T)			0.00			1/2" Ice	5.51	3.64	0.08
			0.00			1" Ice	5.87	3.99	0.12
800-10121	B	From Leg	3.00	0.0000	186.00	No Ice	5.16	3.29	0.05
(AT&T)			0.00			1/2" Ice	5.51	3.64	0.08
			0.00			1" Ice	5.87	3.99	0.12
HPA-65R-BUU-H6	A	From Leg	3.00	0.0000	186.00	No Ice	9.49	5.49	0.04
(AT&T)			0.00			1/2" Ice	9.96	5.94	0.10
			0.00			1" Ice	10.43	6.41	0.16
HPA-65R-BUU-H6	B	From Leg	3.00	0.0000	186.00	No Ice	9.49	5.49	0.04
(AT&T)			0.00			1/2" Ice	9.96	5.94	0.10
			0.00			1" Ice	10.43	6.41	0.16
HPA-65R-BUU-H6	C	From Leg	3.00	0.0000	186.00	No Ice	9.49	5.49	0.04
(AT&T)			0.00			1/2" Ice	9.96	5.94	0.10
			0.00			1" Ice	10.43	6.41	0.16
EPBQ-654L8-H8-L2	A	From Leg	3.00	0.0000	186.00	No Ice	18.09	7.03	0.09
(AT&T)			0.00			1/2" Ice	18.72	7.62	0.18
			0.00			1" Ice	19.36	8.21	0.28
EPBQ-654L8-H8-L2	B	From Leg	3.00	0.0000	186.00	No Ice	18.09	7.03	0.09
(AT&T)			0.00			1/2" Ice	18.72	7.62	0.18
			0.00			1" Ice	19.36	8.21	0.28
EPBQ-654L8-H8-L2	C	From Leg	3.00	0.0000	186.00	No Ice	18.09	7.03	0.09
(AT&T)			0.00			1/2" Ice	18.72	7.62	0.18
			0.00			1" Ice	19.36	8.21	0.28
(2) CCI	A	From Leg	3.00	0.0000	186.00	No Ice	0.56	0.34	0.02
DTMA-BP7819VG12A			0.00			1/2" Ice	0.66	0.43	0.03
(AT&T)			0.00			1" Ice	0.77	0.52	0.03
(2) CCI	B	From Leg	3.00	0.0000	186.00	No Ice	0.56	0.34	0.02
DTMA-BP7819VG12A			0.00			1/2" Ice	0.66	0.43	0.03
(AT&T)			0.00			1" Ice	0.77	0.52	0.03
(2) CCI	C	From Leg	3.00	0.0000	186.00	No Ice	0.56	0.34	0.02
DTMA-BP7819VG12A			0.00			1/2" Ice	0.66	0.43	0.03
(AT&T)			0.00			1" Ice	0.77	0.52	0.03
(2) LGP13519 Diplexer	A	From Leg	3.00	0.0000	186.00	No Ice	0.29	0.18	0.01
(AT&T)			0.00			1/2" Ice	0.36	0.24	0.01
			0.00			1" Ice	0.44	0.31	0.01
(2) LGP13519 Diplexer	B	From Leg	3.00	0.0000	186.00	No Ice	0.29	0.18	0.01
(AT&T)			0.00			1/2" Ice	0.36	0.24	0.01
			0.00			1" Ice	0.44	0.31	0.01
(2) LGP13519 Diplexer	C	From Leg	3.00	0.0000	186.00	No Ice	0.29	0.18	0.01
(AT&T)			0.00			1/2" Ice	0.36	0.24	0.01
			0.00			1" Ice	0.44	0.31	0.01
860 10025 RET	A	From Leg	3.00	0.0000	186.00	No Ice	0.14	0.12	0.00
(AT&T)			0.00			1/2" Ice	0.20	0.17	0.00
			0.00			1" Ice	0.26	0.23	0.01
(2) 860 10025 RET	A	From Leg	3.00	0.0000	186.00	No Ice	0.14	0.12	0.00
(AT&T)			0.00			1/2" Ice	0.20	0.17	0.00
			0.00			1" Ice	0.26	0.23	0.01
860 10025 RET	A	From Leg	3.00	0.0000	186.00	No Ice	0.14	0.12	0.00
(AT&T)			0.00			1/2" Ice	0.20	0.17	0.00
			0.00			1" Ice	0.26	0.23	0.01
RRUS 11	A	From Leg	3.00	0.0000	186.00	No Ice	1.26	1.02	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(AT&T)			0.00					1/2" Ice	1.36	1.16	0.07
			0.00					1" Ice	1.46	1.30	0.10
RRUS 11	B	From Leg	3.00			0.0000	186.00	No Ice	1.26	1.02	0.06
(AT&T)			0.00					1/2" Ice	1.36	1.16	0.07
			0.00					1" Ice	1.46	1.30	0.10
RRUS 11	C	From Leg	3.00			0.0000	186.00	No Ice	1.26	1.02	0.06
(AT&T)			0.00					1/2" Ice	1.36	1.16	0.07
			0.00					1" Ice	1.46	1.30	0.10
RRUS 32	A	From Leg	3.00			0.0000	186.00	No Ice	1.16	1.65	0.08
(AT&T)			0.00					1/2" Ice	1.26	1.83	0.10
			0.00					1" Ice	1.35	2.01	0.12
RRUS 32	B	From Leg	3.00			0.0000	186.00	No Ice	1.16	1.65	0.08
(AT&T)			0.00					1/2" Ice	1.26	1.83	0.10
			0.00					1" Ice	1.35	2.01	0.12
RRUS 32	C	From Leg	3.00			0.0000	186.00	No Ice	1.16	1.65	0.08
(AT&T)			0.00					1/2" Ice	1.26	1.83	0.10
			0.00					1" Ice	1.35	2.01	0.12
RRUS 4478 B5	A	From Leg	3.00			0.0000	186.00	No Ice	0.92	1.06	0.06
(AT&T)			0.00					1/2" Ice	1.01	1.20	0.08
			0.00					1" Ice	1.09	1.34	0.09
RRUS 4478 B5	B	From Leg	3.00			0.0000	186.00	No Ice	0.92	1.06	0.06
(AT&T)			0.00					1/2" Ice	1.01	1.20	0.08
			0.00					1" Ice	1.09	1.34	0.09
RRUS 4478 B5	C	From Leg	3.00			0.0000	186.00	No Ice	0.92	1.06	0.06
(AT&T)			0.00					1/2" Ice	1.01	1.20	0.08
			0.00					1" Ice	1.09	1.34	0.09
4426 B66	A	From Leg	3.00			0.0000	186.00	No Ice	0.82	0.73	0.05
(AT&T)			0.00					1/2" Ice	0.91	0.84	0.06
			0.00					1" Ice	0.99	0.97	0.08
4426 B66	B	From Leg	3.00			0.0000	186.00	No Ice	0.82	0.73	0.05
(AT&T)			0.00					1/2" Ice	0.91	0.84	0.06
			0.00					1" Ice	0.99	0.97	0.08
4426 B66	C	From Leg	3.00			0.0000	186.00	No Ice	0.82	0.73	0.05
(AT&T)			0.00					1/2" Ice	0.91	0.84	0.06
			0.00					1" Ice	0.99	0.97	0.08
RRUS 32 B66	A	From Leg	3.00			0.0000	186.00	No Ice	1.16	1.65	0.08
(AT&T)			0.00					1/2" Ice	1.26	1.83	0.10
			0.00					1" Ice	1.35	2.01	0.12
RRUS 32 B66	B	From Leg	3.00			0.0000	186.00	No Ice	1.16	1.65	0.08
(AT&T)			0.00					1/2" Ice	1.26	1.83	0.10
			0.00					1" Ice	1.35	2.01	0.12
RRUS 32 B66	C	From Leg	3.00			0.0000	186.00	No Ice	1.16	1.65	0.08
(AT&T)			0.00					1/2" Ice	1.26	1.83	0.10
			0.00					1" Ice	1.35	2.01	0.12
DC6-48-60-18-8F	A	From Leg	3.00			0.0000	186.00	No Ice	1.56	4.78	0.03
(AT&T)			0.00					1/2" Ice	1.72	5.06	0.06
			0.00					1" Ice	1.89	5.35	0.10
DC6-48-60-18-8F	B	From Leg	3.00			0.0000	186.00	No Ice	1.56	4.78	0.03
(AT&T)			0.00					1/2" Ice	1.72	5.06	0.06
			0.00					1" Ice	1.89	5.35	0.10
DC6-48-60-18-8F	C	From Leg	3.00			0.0000	186.00	No Ice	1.56	4.78	0.03
(AT&T)			0.00					1/2" Ice	1.72	5.06	0.06
			0.00					1" Ice	1.89	5.35	0.10
13.5' T-Frames	A	From Leg	1.50			0.0000	186.00	No Ice	10.12	9.05	0.24
(AT&T)			0.00					1/2" Ice	14.43	11.89	0.34
			0.00					1" Ice	18.74	14.73	0.44
13.5' T-Frames	B	From Leg	1.50			0.0000	186.00	No Ice	10.12	9.05	0.24

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(AT&T)			0.00			1/2" Ice	14.43	11.89	0.34
			0.00			1" Ice	18.74	14.73	0.44
13.5' T-Frames	C	From Leg	1.50	0.0000	186.00	No Ice	10.12	9.05	0.24
(AT&T)			0.00			1/2" Ice	14.43	11.89	0.34
			0.00			1" Ice	18.74	14.73	0.44
(2) Site Pro SPTB Tie Back	A	From Leg	1.50	0.0000	186.00	No Ice	1.45	2.49	0.09
(AT&T)			0.00			1/2" Ice	1.96	3.57	0.12
			0.00			1" Ice	2.48	4.65	0.16
(2) Site Pro SPTB Tie Back	B	From Leg	1.50	0.0000	186.00	No Ice	1.45	2.49	0.09
(AT&T)			0.00			1/2" Ice	1.96	3.57	0.12
			0.00			1" Ice	2.48	4.65	0.16
(2) Site Pro SPTB Tie Back	C	From Leg	1.50	0.0000	186.00	No Ice	1.45	2.49	0.09
(AT&T)			0.00			1/2" Ice	1.96	3.57	0.12
			0.00			1" Ice	2.48	4.65	0.16
*****									
Celwave PD200 Omni	A	From Leg	3.00	0.0000	350.00	No Ice	2.73	2.73	0.02
(LoJack)			0.00			1/2" Ice	3.91	3.91	0.04
			10.00			1" Ice	5.09	5.10	0.07
101 Omni	B	From Leg	3.00	0.0000	350.00	No Ice	2.14	2.14	0.02
(Marcus)			0.00			1/2" Ice	3.06	3.06	0.04
			5.00			1" Ice	5.10	3.99	0.07
Star Mount w/ (9) Standoffs	A	From Leg	1.50	0.0000	350.00	No Ice	28.57	28.57	0.57
(Marcus/LoJack)			0.00			1/2" Ice	35.34	35.34	0.86
			0.00			1" Ice	42.11	42.11	1.16
****									
101 Omni	A	From Leg	3.00	0.0000	320.00	No Ice	2.14	2.14	0.02
(Marcus)			0.00			1/2" Ice	3.06	3.06	0.04
			5.00			1" Ice	5.10	3.99	0.07
101 Omni	B	From Leg	3.00	0.0000	320.00	No Ice	2.14	2.14	0.02
(Marcus)			0.00			1/2" Ice	3.06	3.06	0.04
			5.00			1" Ice	5.10	3.99	0.07
6' Standoff	A	From Leg	1.50	0.0000	320.00	No Ice	4.97	3.20	0.07
(Marcus)			0.00			1/2" Ice	6.12	5.12	0.13
			0.00			1" Ice	7.27	7.04	0.19
6' Standoff	B	From Leg	1.50	0.0000	320.00	No Ice	4.97	3.20	0.07
(Marcus)			0.00			1/2" Ice	6.12	5.12	0.13
			0.00			1" Ice	7.27	7.04	0.19
*****									
Decibel DB408 Omni	A	From Leg	3.00	0.0000	158.00	No Ice	1.60	1.60	0.02
(Wolcott Ambulance)			0.00			1/2" Ice	2.42	2.42	0.03
			5.00			1" Ice	3.24	3.24	0.05
17" Standoff Mount	B	From Leg	1.50	0.0000	158.00	No Ice	0.73	0.73	0.03
(Wolcott)			0.00			1/2" Ice	0.91	0.91	0.04
			0.00			1" Ice	1.09	1.09	0.05
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*****									
(2) Pipe Mounts (5.25' x 4.5")	A	From Leg	0.50	0.0000	165.00	No Ice	1.69	1.69	0.06
(Marcus)			0.00			1/2" Ice	2.21	2.21	0.07
			0.00			1" Ice	2.54	2.54	0.09
(2) Pipe Mounts (5.25' x 4.5")	B	From Leg	0.50	0.0000	165.00	No Ice	1.69	1.69	0.06
(Marcus)			0.00			1/2" Ice	2.21	2.21	0.07
			0.00			1" Ice	2.54	2.54	0.09
(2) Pipe Mounts (5.25' x 4.5")	C	From Leg	0.50	0.0000	165.00	No Ice	1.69	1.69	0.06
(Marcus)			0.00			1/2" Ice	2.21	2.21	0.07
			0.00			1" Ice	2.54	2.54	0.09
****									
MX08FRO665-20	C	From Leg	3.00	0.0000	341.00	No Ice	12.49	5.87	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(Dish Network)			0.00			1/2" Ice	12.99	6.32	0.14
			0.00			1" Ice	13.49	6.79	0.22
MX08FRO665-20	B	From Leg	3.00	0.0000	341.00	No Ice	12.49	5.87	0.07
(Dish Network)			0.00			1/2" Ice	12.99	6.32	0.14
			0.00			1" Ice	13.49	6.79	0.22
MX08FRO665-20	A	From Leg	3.00	0.0000	341.00	No Ice	12.49	5.87	0.07
(Dish Network)			0.00			1/2" Ice	12.99	6.32	0.14
			0.00			1" Ice	13.49	6.79	0.22
RDIDC-9181-PF-48	A	From Leg	3.00	0.0000	341.00	No Ice	2.24	1.17	0.02
(Dish Network)			0.00			1/2" Ice	2.42	1.31	0.04
			0.00			1" Ice	2.62	1.46	0.06
TA08025-B605	A	From Leg	3.00	0.0000	341.00	No Ice	1.96	1.19	0.07
(Dish Network)			0.00			1/2" Ice	2.14	1.33	0.09
			0.00			1" Ice	2.32	1.48	0.11
TA08025-B605	B	From Leg	3.00	0.0000	341.00	No Ice	1.96	1.19	0.07
(Dish Network)			0.00			1/2" Ice	2.14	1.33	0.09
			0.00			1" Ice	2.32	1.48	0.11
TA08025-B605	C	From Leg	3.00	0.0000	341.00	No Ice	1.96	1.19	0.07
(Dish Network)			0.00			1/2" Ice	2.14	1.33	0.09
			0.00			1" Ice	2.32	1.48	0.11
TA08025-B604	A	From Leg	3.00	0.0000	341.00	No Ice	1.96	1.03	0.06
(Dish Network)			0.00			1/2" Ice	2.14	1.17	0.08
			0.00			1" Ice	2.32	1.31	0.10
TA08025-B604	B	From Leg	3.00	0.0000	341.00	No Ice	1.96	1.03	0.06
(Dish Network)			0.00			1/2" Ice	2.14	1.17	0.08
			0.00			1" Ice	2.32	1.31	0.10
TA08025-B604	C	From Leg	3.00	0.0000	341.00	No Ice	1.96	1.03	0.06
(Dish Network)			0.00			1/2" Ice	2.14	1.17	0.08
			0.00			1" Ice	2.32	1.31	0.10
Commscope SF-SU7-2-96	A	From Leg	1.50	0.0000	341.00	No Ice	15.15	10.77	0.33
Sector Frame			0.00			1/2" Ice	20.05	14.02	0.47
(Dish Network)			0.00			1" Ice	24.95	17.27	0.60
Commscope SF-SU7-2-96	B	From Leg	1.50	0.0000	341.00	No Ice	15.15	10.77	0.33
Sector Frame			0.00			1/2" Ice	20.05	14.02	0.47
(Dish Network)			0.00			1" Ice	24.95	17.27	0.60
Commscope SF-SU7-2-96	C	From Leg	1.50	0.0000	341.00	No Ice	15.15	10.77	0.33
Sector Frame			0.00			1/2" Ice	20.05	14.02	0.47
(Dish Network)			0.00			1" Ice	24.95	17.27	0.60
Antenna Mount Pipes	A	From Leg	3.00	0.0000	341.00	No Ice	2.38	3.80	0.06
(2x2.375x96)			0.00			1/2" Ice	3.38	5.40	0.08
(Dish Network)			0.00			1" Ice	4.38	7.00	0.11
Antenna Mount Pipes	B	From Leg	3.00	0.0000	341.00	No Ice	2.38	3.80	0.06
(2x2.375x96)			0.00			1/2" Ice	3.38	5.40	0.08
(Dish Network)			0.00			1" Ice	4.38	7.00	0.11
Antenna Mount Pipes	C	From Leg	3.00	0.0000	341.00	No Ice	2.38	3.80	0.06
(2x2.375x96)			0.00			1/2" Ice	3.38	5.40	0.08
(Dish Network)			0.00			1" Ice	4.38	7.00	0.11
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APXVTM14-C-I20	A	From Leg	3.00	0.0000	134.00	No Ice	6.34	3.61	0.06
(Sprint)			0.00			1/2" Ice	6.72	3.97	0.10
			0.00			1" Ice	7.10	4.33	0.14
APXVTM14-C-I20	B	From Leg	3.00	0.0000	134.00	No Ice	6.34	3.61	0.06
(Sprint)			0.00			1/2" Ice	6.72	3.97	0.10
			0.00			1" Ice	7.10	4.33	0.14
APXVTM14-C-I20	C	From Leg	3.00	0.0000	134.00	No Ice	6.34	3.61	0.06
(Sprint)			0.00			1/2" Ice	6.72	3.97	0.10
			0.00			1" Ice	7.10	4.33	0.14

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RFS APXVSPP18 (Sprint)	A	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.94	5.28 5.74 6.20	0.06 0.11 0.16
RFS APXVSPP18 (Sprint)	B	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.94	5.28 5.74 6.20	0.06 0.11 0.16
RFS APXVSPP18 (Sprint)	C	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.94	5.28 5.74 6.20	0.06 0.11 0.16
1900 MHz RRH (Sprint)	A	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	1.16 1.26 1.36	2.38 2.58 2.79	0.06 0.08 0.11
1900 MHz RRH (Sprint)	B	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	1.16 1.26 1.36	2.38 2.58 2.79	0.06 0.08 0.11
1900 MHz RRH (Sprint)	C	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	1.16 1.26 1.36	2.38 2.58 2.79	0.06 0.08 0.11
800 MHz RRH (Sprint)	A	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	1.07 1.16 1.25	1.77 1.95 2.13	0.05 0.07 0.10
800 MHz RRH (Sprint)	B	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	1.07 1.16 1.25	1.77 1.95 2.13	0.05 0.07 0.10
800 MHz RRH (Sprint)	C	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	1.07 1.16 1.25	1.77 1.95 2.13	0.05 0.07 0.10
TD-RRH8x20-25 (Sprint)	A	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	1.85 1.97 2.09	1.29 1.46 1.64	0.07 0.09 0.12
TD-RRH8x20-25 (Sprint)	B	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	1.85 1.97 2.09	1.29 1.46 1.64	0.07 0.09 0.12
TD-RRH8x20-25 (Sprint)	C	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	1.85 1.97 2.09	1.29 1.46 1.64	0.07 0.09 0.12
800 MHz Filter (Sprint)	A	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	0.30 0.37 0.45	0.15 0.20 0.26	0.01 0.01 0.02
800 MHz Filter (Sprint)	B	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	0.30 0.37 0.45	0.15 0.20 0.26	0.01 0.01 0.02
800 MHz Filter (Sprint)	C	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	0.30 0.37 0.45	0.15 0.20 0.26	0.01 0.01 0.02
(2) ACU-A20-N (Sprint)	A	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	0.07 0.10 0.15	0.12 0.16 0.21	0.00 0.00 0.00
ACU-A20-N (Sprint)	B	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	0.07 0.10 0.15	0.12 0.16 0.21	0.00 0.00 0.00
ACU-A20-N (Sprint)	C	From Leg	3.00 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	0.07 0.10 0.15	0.12 0.16 0.21	0.00 0.00 0.00
15' T-Frames (Sprint)	A	From Leg	1.50 0.00 0.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	12.67 18.10 23.53	8.47 12.52 16.57	0.38 0.53 0.69

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
15' T-Frames	B	From Leg	1.50	0.0000	134.00	No Ice	12.67	8.47	0.38
(Sprint)			0.00			1/2" Ice	18.10	12.52	0.53
			0.00			1" Ice	23.53	16.57	0.69
15' T-Frames	C	From Leg	1.50	0.0000	134.00	No Ice	12.67	8.47	0.38
(Sprint)			0.00			1/2" Ice	18.10	12.52	0.53
			0.00			1" Ice	23.53	16.57	0.69
Antenna mount Pipes	A	From Leg	3.00	0.0000	134.00	No Ice	1.85	4.28	0.07
(3x2.375x72)			0.00			1/2" Ice	2.63	6.08	0.09
(Sprint)			0.00			1" Ice	3.42	7.88	0.12
Antenna mount Pipes	B	From Leg	3.00	0.0000	134.00	No Ice	1.85	4.28	0.07
(3x2.375x72)			0.00			1/2" Ice	2.63	6.08	0.09
(Sprint)			0.00			1" Ice	3.42	7.88	0.12
Antenna mount Pipes	C	From Leg	3.00	0.0000	134.00	No Ice	1.85	4.28	0.07
(3x2.375x72)			0.00			1/2" Ice	2.63	6.08	0.09
(Sprint)			0.00			1" Ice	3.42	7.88	0.12
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Empty T-frames	A	From Leg	1.50	0.0000	200.00	No Ice	7.27	7.55	0.41
			0.00			1/2" Ice	11.34	10.68	0.57
			0.00			1" Ice	15.42	13.80	0.73
Empty T-frames	B	From Leg	1.50	0.0000	200.00	No Ice	7.27	7.55	0.41
			0.00			1/2" Ice	11.34	10.68	0.57
			0.00			1" Ice	15.42	13.80	0.73
Antenna Mount Pipes	A	From Leg	3.00	0.0000	200.00	No Ice	2.85	2.85	0.04
			0.00			1/2" Ice	4.05	4.05	0.06
			0.00			1" Ice	5.25	5.25	0.08
Antenna Mount Pipes	B	From Leg	3.00	0.0000	200.00	No Ice	2.85	2.85	0.04
			0.00			1/2" Ice	4.05	4.05	0.06
			0.00			1" Ice	5.25	5.25	0.08

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
Radiowaves	A	Paraboloid	From	1.00	0.0000		165.00	3.00	No Ice	7.10	0.04
SPD3-2.4 Dish		w/Radome	Leg	0.00					1/2" Ice	7.46	0.07
(Marcus)				0.00					1" Ice	7.83	0.11
Radiowaves	B	Paraboloid	From	1.00	0.0000		165.00	3.00	No Ice	7.10	0.04
SPD3-2.4 Dish		w/Radome	Leg	0.00					1/2" Ice	7.46	0.07
(Marcus)				0.00					1" Ice	7.83	0.11
Radiowaves	C	Paraboloid	From	1.00	0.0000		165.00	3.00	No Ice	7.10	0.04
SPD3-2.4 Dish		w/Radome	Leg	0.00					1/2" Ice	7.46	0.07
(Marcus)				0.00					1" Ice	7.83	0.11
Radiowaves	A	Paraboloid	From	1.00	0.0000		165.00	2.00	No Ice	3.14	0.02
SPD2-5.8 Dish		w/Radome	Leg	0.00					1/2" Ice	3.41	0.04
(Marcus)				0.00					1" Ice	3.67	0.06
Radiowaves	B	Paraboloid	From	1.00	0.0000		165.00	2.00	No Ice	3.14	0.02
SPD2-5.8 Dish		w/Radome	Leg	0.00					1/2" Ice	3.41	0.04
(Marcus)				0.00					1" Ice	3.67	0.06

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
Radiowaves SPD2-5.8 Dish (Marcus)	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		165.00	2.00	No Ice 1/2" Ice 1" Ice	3.14 3.41 3.67	0.02 0.04 0.06

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service

Comb. No.	Description
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service
51	1.2 Dead+1.0 Ev+1.0 Eh 0 deg
52	0.9 Dead-1.0 Ev+1.0 Eh 0 deg
53	1.2 Dead+1.0 Ev+1.0 Eh 30 deg
54	0.9 Dead-1.0 Ev+1.0 Eh 30 deg
55	1.2 Dead+1.0 Ev+1.0 Eh 60 deg
56	0.9 Dead-1.0 Ev+1.0 Eh 60 deg
57	1.2 Dead+1.0 Ev+1.0 Eh 90 deg
58	0.9 Dead-1.0 Ev+1.0 Eh 90 deg
59	1.2 Dead+1.0 Ev+1.0 Eh 120 deg
60	0.9 Dead-1.0 Ev+1.0 Eh 120 deg
61	1.2 Dead+1.0 Ev+1.0 Eh 150 deg
62	0.9 Dead-1.0 Ev+1.0 Eh 150 deg
63	1.2 Dead+1.0 Ev+1.0 Eh 180 deg
64	0.9 Dead-1.0 Ev+1.0 Eh 180 deg
65	1.2 Dead+1.0 Ev+1.0 Eh 210 deg
66	0.9 Dead-1.0 Ev+1.0 Eh 210 deg
67	1.2 Dead+1.0 Ev+1.0 Eh 240 deg
68	0.9 Dead-1.0 Ev+1.0 Eh 240 deg
69	1.2 Dead+1.0 Ev+1.0 Eh 270 deg
70	0.9 Dead-1.0 Ev+1.0 Eh 270 deg
71	1.2 Dead+1.0 Ev+1.0 Eh 300 deg
72	0.9 Dead-1.0 Ev+1.0 Eh 300 deg
73	1.2 Dead+1.0 Ev+1.0 Eh 330 deg
74	0.9 Dead-1.0 Ev+1.0 Eh 330 deg

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	350 - 340	6.585	39	0.2265	0.0737
T2	340 - 320	6.111	39	0.2231	0.0597
T3	320 - 300	5.210	39	0.1924	0.0348
T4	300 - 280	4.463	39	0.1604	0.0186
T5	280 - 260	3.820	39	0.1429	0.0123
T6	260 - 240	3.246	39	0.1263	0.0087
T7	240 - 220	2.734	39	0.1126	0.0066
T8	220 - 200	2.283	39	0.0988	0.0057
T9	200 - 180	1.883	39	0.0870	0.0050
T10	180 - 160	1.528	39	0.0766	0.0043
T11	160 - 140	1.210	39	0.0671	0.0036
T12	140 - 120	0.930	47	0.0573	0.0029
T13	120 - 100	0.692	47	0.0480	0.0025
T14	100 - 80	0.493	47	0.0395	0.0020
T15	80 - 60	0.326	47	0.0306	0.0016
T16	60 - 40	0.197	47	0.0224	0.0012
T17	40 - 20	0.101	47	0.0149	0.0008
T18	20 - 0	0.032	47	0.0071	0.0004

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
350.00	Celwave PD200 Omni	39	6.585	0.2265	0.0737	351546
341.00	MX08FRO665-20	39	6.158	0.2237	0.0611	177040
340.00	T2	39	6.111	0.2231	0.0597	148791
320.00	101 Omni	39	5.210	0.1924	0.0348	25410
300.00	T4	39	4.463	0.1604	0.0186	51640
280.00	T5	39	3.820	0.1429	0.0123	71035
260.00	T6	39	3.246	0.1263	0.0087	78415
240.00	T7	39	2.734	0.1126	0.0066	77623
220.00	T8	39	2.283	0.0988	0.0057	94153
200.00	Empty T-frames	39	1.883	0.0870	0.0050	105117
186.00	7770	39	1.631	0.0796	0.0045	126264
180.00	T10	39	1.528	0.0766	0.0043	136671
165.00	Radiowaves SPD3-2.4 Dish	39	1.287	0.0695	0.0038	136604
160.00	T11	39	1.210	0.0671	0.0036	134615
158.00	Decibel DB408 Omni	39	1.181	0.0662	0.0035	132281
140.00	T12	47	0.930	0.0573	0.0029	109666
134.00	APXVTM14-C-I20	47	0.854	0.0544	0.0028	111483
120.00	T13	47	0.692	0.0480	0.0025	120372
100.00	T14	47	0.493	0.0395	0.0020	153716
80.00	T15	47	0.326	0.0306	0.0016	120361
60.00	T16	47	0.197	0.0224	0.0012	139441
40.00	T17	47	0.101	0.0149	0.0008	220588
20.00	T18	47	0.032	0.0071	0.0004	103849

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	350 - 340	24.961	2	0.8434	0.2803
T2	340 - 320	23.191	2	0.8349	0.2271
T3	320 - 300	19.804	3	0.7269	0.1323
T4	300 - 280	16.972	3	0.6087	0.0709
T5	280 - 260	14.528	3	0.5431	0.0469
T6	260 - 240	12.345	3	0.4806	0.0332
T7	240 - 220	10.399	3	0.4283	0.0252
T8	220 - 200	8.681	3	0.3761	0.0217
T9	200 - 180	7.161	3	0.3311	0.0189
T10	180 - 160	5.812	3	0.2915	0.0163
T11	160 - 140	4.602	3	0.2554	0.0136
T12	140 - 120	3.531	3	0.2178	0.0111
T13	120 - 100	2.624	18	0.1827	0.0094
T14	100 - 80	1.867	18	0.1502	0.0076
T15	80 - 60	1.236	18	0.1165	0.0059
T16	60 - 40	0.747	18	0.0852	0.0044
T17	40 - 20	0.384	18	0.0564	0.0029
T18	20 - 0	0.123	19	0.0269	0.0015

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
350.00	Celwave PD200 Omni	2	24.961	0.8434	0.2803	159900
341.00	MX08FRO665-20	2	23.368	0.8371	0.2324	75628
340.00	T2	2	23.191	0.8349	0.2271	59524
320.00	101 Omni	3	19.804	0.7269	0.1323	6957
300.00	T4	3	16.972	0.6087	0.0709	13780
280.00	T5	3	14.528	0.5431	0.0469	18838
260.00	T6	3	12.345	0.4806	0.0332	20669
240.00	T7	3	10.399	0.4283	0.0252	20408
220.00	T8	3	8.681	0.3761	0.0217	24686
200.00	Empty T-frames	3	7.161	0.3311	0.0189	27624
186.00	7770	3	6.201	0.3028	0.0171	33208
180.00	T10	3	5.812	0.2915	0.0163	35953
165.00	Radiowaves SPD3-2.4 Dish	3	4.892	0.2645	0.0143	35884
160.00	T11	3	4.602	0.2554	0.0136	35348
158.00	Decibel DB408 Omni	3	4.488	0.2517	0.0133	34735
140.00	T12	3	3.531	0.2178	0.0111	28823
134.00	APXVTM14-C-I20	3	3.241	0.2069	0.0105	29296
120.00	T13	18	2.624	0.1827	0.0094	31615
100.00	T14	18	1.867	0.1502	0.0076	40347
80.00	T15	18	1.236	0.1165	0.0059	31648
60.00	T16	18	0.747	0.0852	0.0044	36624
40.00	T17	18	0.384	0.0564	0.0029	57980
20.00	T18	19	0.123	0.0269	0.0015	27339

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	350	Leg	A325N	0.6250	4	0.81	20.34	0.040 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	2.01	6.83	0.294 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.33	10.44	0.032 ✔	1	Member Bearing
T2	340	Leg	A325N	0.6250	4	7.15	20.34	0.352 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	3.10	6.83	0.454 ✔	1	Member Block Shear
T3	320	Leg	A325N	0.7500	4	11.11	30.10	0.369 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	2.38	6.83	0.348 ✔	1	Member Block Shear
T4	300	Leg	A325N	0.7500	6	9.29	30.10	0.309 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	2.03	7.83	0.259 ✔	1	Member Bearing
T5	280	Leg	A325N	0.8750	6	11.16	41.56	0.269 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	2.23	7.83	0.285 ✔	1	Member Bearing
T6	260	Leg	A325N	0.8750	6	13.04	41.56	0.314 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	2.65	7.83	0.338 ✔	1	Member Bearing
T7	240	Leg	A325N	1.0000	6	14.77	54.52	0.271 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	3.40	15.66	0.217 ✔	1	Member Bearing
		Horizontal	A325N	0.6250	1	2.06	7.83	0.263 ✔	1	Member Bearing

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T8	220	Leg	A325N	1.1250	6	16.71	68.69	0.243 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	3.82	17.94	0.213 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	2.26	7.83	0.289 ✔	1	Member Bearing
T9	200	Leg	A325N	1.1250	6	18.58	68.69	0.271 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	6.00	18.92	0.317 ✔	1	Member Bearing
		Horizontal	A325N	0.6250	1	2.51	7.83	0.321 ✔	1	Member Bearing
T10	180	Leg	A325N	1.2500	6	21.58	87.22	0.247 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	6.74	18.92	0.356 ✔	1	Member Bearing
		Horizontal	A325N	0.6250	1	2.94	7.83	0.375 ✔	1	Member Bearing
T11	160	Leg	A325N	1.2500	6	24.73	87.22	0.284 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	7.72	18.92	0.408 ✔	1	Member Bearing
		Horizontal	A325N	0.6250	1	3.39	10.44	0.325 ✔	1	Member Bearing
T12	140	Leg	A325N	1.3750	6	26.88	103.94	0.259 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	10.19	25.23	0.404 ✔	1	Member Bearing
		Horizontal	A325N	0.7500	1	3.74	17.94	0.208 ✔	1	Member Block Shear
T13	120	Leg	A325N	1.3750	6	30.37	103.94	0.292 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	11.05	25.23	0.438 ✔	1	Member Bearing
		Horizontal	A325N	0.7500	1	4.25	17.94	0.237 ✔	1	Member Block Shear
T14	100	Leg	A325N	1.3750	6	33.63	103.94	0.324 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	11.15	25.23	0.442 ✔	1	Member Bearing
		Horizontal	A325N	0.7500	1	4.72	17.94	0.263 ✔	1	Member Block Shear
T15	80	Leg	A325N	1.5000	6	36.93	126.47	0.292 ✔	1	Bolt Tension
		Diagonal	A325N	0.8750	1	11.86	29.58	0.401 ✔	1	Member Bearing
		Horizontal	A325N	0.7500	1	5.22	18.92	0.276 ✔	1	Member Bearing
T16	60	Leg	A325N	1.5000	6	40.03	126.47	0.317 ✔	1	Bolt Tension
		Diagonal	A325N	0.8750	1	12.12	29.58	0.410 ✔	1	Member Bearing
		Horizontal	A325N	0.7500	1	5.70	18.92	0.301 ✔	1	Member Bearing
T17	40	Leg	A325N	1.5000	6	43.19	126.47	0.342 ✔	1	Bolt Tension
		Diagonal	A325N	0.8750	1	12.73	29.58	0.430 ✔	1	Member Bearing
		Horizontal	A325N	0.7500	1	6.21	25.23	0.246 ✔	1	Member Bearing
T18	20	Leg	A307	2.5000	6	46.13	179.95	0.256 ✔	1	Bolt Tension
		Diagonal	A325N	0.8750	1	13.05	29.58	0.441 ✔	1	Member Bearing
		Horizontal	A325N	0.7500	1	6.71	25.23	0.266 ✔	1	Member Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	350 - 340	2	10.00	5.00	120.0 K=1.00	3.1416	-5.41	49.29	0.110 [1] ✔
T2	340 - 320	2	20.00	4.00	96.0 K=1.00	3.1416	-33.20	72.06	0.461 [1] ✔
T3	320 - 300	2 1/2	20.03	5.01	96.2 K=1.00	4.9087	-51.62	112.35	0.459 [1] ✔
T4	300 - 280	3 1/4	20.03	6.68	98.6 K=1.00	8.2958	-65.33	183.31	0.356 [1] ✔
T5	280 - 260	3 1/4	20.03	6.68	98.6 K=1.00	8.2958	-79.44	183.31	0.433 [1] ✔
T6	260 - 240	3 1/2	20.03	6.68	91.6 K=1.00	9.6211	-94.17	234.48	0.402 [1] ✔
T7	240 - 220	3 1/2	20.03	5.01	68.7 K=1.00	9.6211	-108.49	306.64	0.354 [1] ✔
T8	220 - 200	3 3/4	20.03	5.01	64.1 K=1.00	11.0447	-124.75	368.01	0.339 [1] ✔
T9	200 - 180	4	20.03	5.01	60.1 K=1.00	12.5664	-144.77	434.24	0.333 [1] ✔
T10	180 - 160	4 1/4	20.03	5.01	56.6 K=1.00	14.1863	-169.41	505.22	0.335 [1] ✔
T11	160 - 140	4 1/4	20.03	5.01	56.6 K=1.00	14.1863	-195.46	505.22	0.387 [1] ✔
T12	140 - 120	4 1/2	20.03	5.01	53.4 K=1.00	15.9043	-215.60	580.90	0.371 [1] ✔
T13	120 - 100	4 3/4	20.03	5.01	50.6 K=1.00	17.7205	-245.00	661.23	0.371 [1] ✔
T14	100 - 80	4 3/4	20.03	5.01	50.6 K=1.00	17.7205	-272.06	661.23	0.411 [1] ✔
T15	80 - 60	5	20.03	5.01	48.1 K=1.00	19.6350	-301.11	746.17	0.404 [1] ✔
T16	60 - 40	5 1/4	20.03	5.01	45.8 K=1.00	21.6475	-328.80	835.68	0.393 [1] ✔
T17	40 - 20	5 1/4	20.03	5.01	45.8 K=1.00	21.6475	-358.01	835.68	0.428 [1] ✔
T18	20 - 0	5 1/2	20.03	5.01	43.7 K=1.00	23.7583	-386.93	929.74	0.416 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	350 - 340	L2x1 1/2x3/16	6.40	2.95	112.4 K=1.02	0.6211	-2.01	13.47	0.149 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	340 - 320	L2x1 1/2x3/16	5.66	2.59	102.4 K=1.06	0.6211	-3.28	14.98	0.219 [1] ✔
T3	320 - 300	L2x2x3/16	6.56	3.22	103.5 K=1.06	0.7148	-2.62	17.06	0.153 [1] ✔
T4	300 - 280	L2-1/2x2-1/2x3/16	10.16	5.00	121.3 K=1.00	0.9023	-2.11	17.45	0.121 [1] ✔
T5	280 - 260	L2-1/2x2-1/2x3/16	11.74	5.79	140.4 K=1.00	0.9023	-2.26	13.10	0.173 [1] ✔
T6	260 - 240	L3x3x3/16	13.44	6.62	133.3 K=1.00	1.0898	-2.66	17.56	0.151 [1] ✔
T7	240 - 220	2L2 1/2x2 1/2x3/16x3/8	8.60	8.18	126.2 K=1.00	1.8000	-3.46	32.33	0.107 [1] ✔
T8	220 - 200	2L2 1/2x2 1/2x3/16x3/8	9.44	8.98	138.5 K=1.00	1.8000	-3.90	26.85	0.145 [1] ✔
T9	200 - 180	2L3x3x3/16x3/8	10.30	9.84	125.7 K=1.00	2.1800	-6.22	39.43	0.158 [1] ✔
T10	180 - 160	2L3x3x3/16x3/8	11.18	10.71	136.9 K=1.00	2.1800	-6.99	33.29	0.210 [1] ✔
T11	160 - 140	2L3x3x3/16x3/8	12.08	11.62	148.5 K=1.00	2.1800	-7.71	28.30	0.272 [1] ✔
T12	140 - 120	2L3x3x1/4x3/8	15.62	15.11	143.9 K=1.00	2.8800	-11.43	38.40	0.298 [1] ✔
T13	120 - 100	2L3x3x1/4x3/8	16.40	15.88	150.0 K=1.00	2.8800	-11.25	35.46	0.317 [1] ✔
T14	100 - 80	2L3x3x1/4x3/8	17.21	16.69	156.4 K=1.00	2.8800	-12.35	32.71	0.377 [1] ✔
T15	80 - 60	2L3 1/2x3 1/2x1/4x3/8	18.03	17.48	141.7 K=1.00	3.3800	-12.28	45.63	0.269 [1] ✔
T16	60 - 40	2L3 1/2x3 1/2x1/4x3/8	18.87	18.31	147.6 K=1.00	3.3800	-13.50	42.29	0.319 [1] ✔
T17	40 - 20	2L3 1/2x3 1/2x1/4x3/8	19.73	19.17	153.7 K=1.00	3.3800	-13.37	39.18	0.341 [1] ✔
T18	20 - 0	2L3 1/2x3 1/2x1/4x3/8	20.59	20.03	159.8 K=1.00	3.3800	-14.24	36.38	0.391 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T7	240 - 220	L2 1/2x2 1/2x3/16	13.50	6.48	157.2 K=1.00	0.9023	-2.06	10.45	0.197 [1] ✔
T8	220 - 200	L2 1/2x2 1/2x3/16	15.50	7.47	181.2 K=1.00	0.9023	-2.26	7.86	0.288 [1] ✔
T9	200 - 180	L3x3x3/16	17.50	8.46	170.3 K=1.00	1.0898	-2.51	10.75	0.234 [1] ✔
T10	180 - 160	L3x3x3/16	19.50	9.45	190.2 K=1.00	1.0898	-2.94	8.62	0.341 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	160 - 140	L3 1/2x3 1/2x1/4	21.50	10.45	180.7 K=1.00	1.6900	-3.39	14.81	0.229 [1]
T12	140 - 120	2L2 1/2x2 1/2x3/16x3/8	23.00	11.18	172.4 K=1.00	1.8000	-3.74	17.33	0.216 [1]
T13	120 - 100	2L2 1/2x2 1/2x3/16x3/8	25.00	12.17	187.7 K=1.00	1.8000	-4.25	14.63	0.290 [1]
T14	100 - 80	2L2 1/2x2 1/2x3/16x3/8	27.00	13.17	203.1 K=1.00	1.8000	-4.72	12.49	0.378 [1]
T15	80 - 60	2L3x3x3/16x3/8	29.00	14.16	180.9 K=1.00	2.1800	-5.22	19.06	0.274 [1]
T16	60 - 40	2L3x3x3/16x3/8	31.00	15.15	193.6 K=1.00	2.1800	-5.70	16.65	0.342 [1]
T17	40 - 20	2L3 1/2x3 1/2x1/4x3/8	33.00	16.15	177.8 K=1.00	3.3800	-6.21	30.62	0.203 [1]
T18	20 - 0	2L3 1/2x3 1/2x1/4x3/8	35.00	17.14	188.6 K=1.00	3.3800	-6.71	27.18	0.247 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	350 - 340	L3x3x1/4	4.00	3.59	96.4 K=1.32	1.4400	-0.33	36.68	0.009 [1]

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T12	140 - 120	L2x2x3/16	5.75	5.56	169.5 K=1.00	0.7148	-3.74	7.12	0.525 [1]
T13	120 - 100	L2x2x3/16	6.25	6.05	184.4 K=1.00	0.7148	-4.25	6.02	0.706 [1]
T14	100 - 80	L2x2x3/8	6.75	6.55	202.1 K=1.00	1.3600	-4.72	9.53	0.495 [1]
T15	80 - 60	L2-1/2x2-1/2x3/16	7.25	7.04	170.7 K=1.00	0.9023	-5.22	8.86	0.589 [1]
T16	60 - 40	L2-1/2x2-1/2x3/16	7.75	7.53	182.6 K=1.00	0.9023	-5.70	7.74	0.736 [1]
T17	40 - 20	L2.5x2.5x3/16 + L2.5x2.5x1/4 (C-Shape) -	8.25	8.03	125.4 K=1.00	1.0565	-6.21	14.96	0.415 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
		Cleary Tower							✔
T18	20 - 0	L3x3x3/16	8.75	8.52	171.5 K=1.00	1.0898	-6.71	10.61	0.632 [1] ✔

[1] $P_u / \phi P_n$ controls

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T12	140 - 120	L2-1/2x2-1/2x3/16	7.81	7.56	183.3 K=1.00	0.9023	-2.54	7.69	0.330 [1] ✔
T13	120 - 100	L2-1/2x2-1/2x3/16	8.20	7.94	192.6 K=1.00	0.9023	-2.79	6.96	0.401 [1] ✔
T14	100 - 80	L2-1/2x2-1/2x3/16	8.60	8.35	202.6 K=1.00	0.9023	-3.01	6.29	0.478 [1] ✔
T15	80 - 60	L3x3x3/16	9.02	8.76	176.3 K=1.00	1.0898	-3.25	10.04	0.323 [1] ✔
T16	60 - 40	L3x3x3/16	9.44	9.17	184.6 K=1.00	1.0898	-3.47	9.16	0.379 [1] ✔
T17	40 - 20	L3x3x3/16	9.86	9.60	193.3 K=1.00	1.0898	-3.71	8.35	0.444 [1] ✔
T18	20 - 0	L3x3x3/16	10.30	10.03	201.9 K=1.00	1.0898	-3.95	7.66	0.516 [1] ✔

[1] $P_u / \phi P_n$ controls

Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T7	240 - 220	L2 1/2x2 1/2x3/16	6.75	6.75	163.7 K=1.00	0.9023	-0.01	9.64	0.001 [1] ✔
T8	220 - 200	L2 1/2x2 1/2x3/16	7.75	7.75	187.9 K=1.00	0.9023	-0.01	7.31	0.001 [1] ✔
T9	200 - 180	L3x3x3/16	8.75	8.75	176.1 K=1.00	1.0898	-0.01	10.06	0.001 [1] ✔
T10	180 - 160	L3x3x3/16	9.75	9.75	196.2 K=1.00	1.0898	-0.01	8.10	0.001 [1] ✔
T11	160 - 140	L3 1/2x3 1/2x1/4	10.75	10.75	185.9 K=1.00	1.6900	-0.01	14.00	0.001 [1] ✔
T12	140 - 120	L3 1/2x3 1/2x1/4	11.50	11.50	198.8 K=1.00	1.6900	-0.02	12.23	0.002 [1] ✔
T13	120 - 100	L4x4x1/4	12.50	12.50	188.7 K=1.00	1.9400	-0.02	15.60	0.001 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T14	100 - 80	L4x4x1/4	13.50	13.50	203.8 K=1.00	1.9400	-0.02	13.37	0.002 [1]
T15	80 - 60	2L3x3x3/16x3/8	14.50	14.50	185.3 K=1.00	2.1800	-0.03	18.17	0.002 [1]
T16	60 - 40	2L3x3x3/16x3/8	15.50	15.50	198.1 K=1.00	2.1800	-0.03	15.90	0.002 [1]
T17	40 - 20	2L3 1/2x3 1/2x1/4x3/8	16.50	16.50	181.7 K=1.00	3.3800	-0.03	29.32	0.001 [1]
T18	20 - 0	2L3 1/2x3 1/2x1/4x3/8	17.50	17.50	192.7 K=1.00	3.3800	-0.03	26.06	0.001 [1]

[1] $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	350 - 340	2	10.00	5.00	120.0	3.1416	3.25	141.37	0.023 [1]
T2	340 - 320	2	20.00	4.00	96.0	3.1416	28.60	141.37	0.202 [1]
T3	320 - 300	2 1/2	20.03	5.01	96.2	4.9087	44.43	220.89	0.201 [1]
T4	300 - 280	3 1/4	20.03	6.68	98.6	8.2958	55.73	373.31	0.149 [1]
T5	280 - 260	3 1/4	20.03	6.68	98.6	8.2958	66.95	373.31	0.179 [1]
T6	260 - 240	3 1/2	20.03	6.68	91.6	9.6211	78.25	432.95	0.181 [1]
T7	240 - 220	3 1/2	20.03	5.01	68.7	9.6211	88.78	432.95	0.205 [1]
T8	220 - 200	3 3/4	20.03	5.01	64.1	11.0447	100.43	497.01	0.202 [1]
T9	200 - 180	4	20.03	5.01	60.1	12.5664	112.69	565.49	0.199 [1]
T10	180 - 160	4 1/4	20.03	5.01	56.6	14.1863	129.92	638.38	0.204 [1]
T11	160 - 140	4 1/4	20.03	5.01	56.6	14.1863	148.65	638.38	0.233 [1]
T12	140 - 120	4 1/2	20.03	5.01	53.4	15.9043	162.74	715.69	0.227 [1]
T13	120 - 100	4 3/4	20.03	5.01	50.6	17.7205	183.34	797.42	0.230 [1]
T14	100 - 80	4 3/4	20.03	5.01	50.6	17.7205	202.96	797.42	0.255 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T15	80 - 60	5	20.03	5.01	48.1	19.6350	222.89	883.57	0.252 [1]
T16	60 - 40	5 1/4	20.03	5.01	45.8	21.6475	241.64	974.14	0.248 [1]
T17	40 - 20	5 1/4	20.03	5.01	45.8	21.6475	260.70	974.14	0.268 [1]
T18	20 - 0	5 1/2	20.03	5.01	43.7	23.7583	278.19	1069.12	0.260 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	350 - 340	L2x1 1/2x3/16	6.40	2.95	83.8	0.3604	2.01	15.68	0.128 [1]
T2	340 - 320	L2x1 1/2x3/16	5.66	2.59	74.0	0.3604	3.10	15.68	0.198 [1]
T3	320 - 300	L2x2x3/16	6.56	3.22	64.9	0.4307	2.38	18.73	0.127 [1]
T4	300 - 280	L2-1/2x2-1/2x3/16	9.67	4.77	75.3	0.5713	2.03	24.85	0.082 [1]
T5	280 - 260	L2-1/2x2-1/2x3/16	11.74	5.79	91.1	0.5713	2.23	24.85	0.090 [1]
T6	260 - 240	L3x3x3/16	13.44	6.62	86.1	0.7119	2.65	30.97	0.086 [1]
T7	240 - 220	2L2 1/2x2 1/2x3/16x3/8	8.20	7.78	123.7	1.1391	3.40	49.55	0.069 [1]
T8	220 - 200	2L2 1/2x2 1/2x3/16x3/8	9.02	8.56	136.2	1.1039	3.82	48.02	0.079 [1]
T9	200 - 180	2L3x3x3/16x3/8	10.30	9.84	129.1	1.3889	6.00	60.42	0.099 [1]
T10	180 - 160	2L3x3x3/16x3/8	11.18	10.71	140.4	1.3889	6.74	60.42	0.112 [1]
T11	160 - 140	2L3x3x3/16x3/8	11.63	11.17	146.1	1.3889	7.72	60.42	0.128 [1]
T12	140 - 120	2L3x3x1/4x3/8	15.62	15.11	132.8	1.8319	10.19	79.69	0.128 [1]
T13	120 - 100	2L3x3x1/4x3/8	15.62	15.10	132.7	1.8319	11.05	79.69	0.139 [1]
T14	100 - 80	2L3x3x1/4x3/8	16.40	15.89	139.5	1.8319	11.15	79.69	0.140 [1]
T15	80 - 60	2L3 1/2x3 1/2x1/4x3/8	17.21	16.65	128.0	2.1600	11.86	93.96	0.126 [1]
T16	60 - 40	2L3 1/2x3 1/2x1/4x3/8	18.03	17.47	134.1	2.1600	12.12	93.96	0.129 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T17	40 - 20	2L3 1/2x3 1/2x1/4x3/8	18.87	18.31	140.5	2.1600	12.73	93.96	0.135 [1] ✔
T18	20 - 0	2L3 1/2x3 1/2x1/4x3/8	19.73	19.16	146.9	2.1600	13.05	93.96	0.139 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T7	240 - 220	L2 1/2x2 1/2x3/16	13.50	6.48	101.8	0.5713	2.06	24.85	0.083 [1] ✔
T8	220 - 200	L2 1/2x2 1/2x3/16	15.50	7.47	117.1	0.5713	2.26	24.85	0.091 [1] ✔
T9	200 - 180	L3x3x3/16	17.50	8.46	109.7	0.7119	2.51	30.97	0.081 [1] ✔
T10	180 - 160	L3x3x3/16	18.50	8.95	115.9	0.7119	2.94	30.97	0.095 [1] ✔
T11	160 - 140	L3 1/2x3 1/2x1/4	20.50	9.95	110.9	1.1269	3.39	49.02	0.069 [1] ✔
T12	140 - 120	2L2 1/2x2 1/2x3/16x3/8	23.00	11.18	174.5	1.1039	3.74	48.02	0.078 [1] ✔
T13	120 - 100	2L2 1/2x2 1/2x3/16x3/8	25.00	12.17	189.7	1.1039	4.25	48.02	0.088 [1] ✔
T14	100 - 80	2L2 1/2x2 1/2x3/16x3/8	27.00	13.17	205.2	1.1039	4.72	48.02	0.098 [1] ✔
T15	80 - 60	2L3x3x3/16x3/8	29.00	14.16	182.6	1.3889	5.22	60.42	0.086 [1] ✔
T16	60 - 40	2L3x3x3/16x3/8	31.00	15.15	195.3	1.3889	5.70	60.42	0.094 [1] ✔
T17	40 - 20	2L3 1/2x3 1/2x1/4x3/8	33.00	16.15	179.2	2.2069	6.21	96.00	0.065 [1] ✔
T18	20 - 0	2L3 1/2x3 1/2x1/4x3/8	35.00	17.14	190.1	2.2069	6.71	96.00	0.070 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	350 - 340	L3x3x1/4	4.00	3.59	49.5	0.9394	0.33	40.86	0.008 [1] ✔

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

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T12	140 - 120	L2x2x3/16	5.75	5.56	108.1	0.7148	3.74	23.16	0.161 [1]
T13	120 - 100	L2x2x3/16	6.25	6.05	117.6	0.7148	4.25	23.16	0.183 [1]
T14	100 - 80	L2x2x3/8	6.75	6.55	132.4	1.3600	4.72	44.06	0.107 [1]
T15	80 - 60	L2-1/2x2-1/2x3/16	7.25	7.04	108.6	0.9023	5.22	29.24	0.179 [1]
T16	60 - 40	L2-1/2x2-1/2x3/16	7.75	7.53	116.1	0.9023	5.70	29.24	0.195 [1]
T17	40 - 20	L2.5x2.5x3/16 + L2.5x2.5x1/4 (C-Shape) - Cleary Tower	8.25	8.03	125.4	1.0565	6.21	34.23	0.181 [1]
T18	20 - 0	L3x3x3/16	8.75	8.52	108.9	1.0898	6.71	35.31	0.190 [1]

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T12	140 - 120	L2-1/2x2-1/2x3/16	7.81	7.56	116.5	0.9023	2.54	29.24	0.087 [1]
T13	120 - 100	L2-1/2x2-1/2x3/16	8.20	7.94	122.5	0.9023	2.79	29.24	0.095 [1]
T14	100 - 80	L2-1/2x2-1/2x3/16	8.60	8.35	128.8	0.9023	3.01	29.24	0.103 [1]
T15	80 - 60	L3x3x3/16	9.02	8.76	111.9	1.0898	3.25	35.31	0.092 [1]
T16	60 - 40	L3x3x3/16	9.44	9.17	117.2	1.0898	3.47	35.31	0.098 [1]
T17	40 - 20	L3x3x3/16	9.86	9.60	122.7	1.0898	3.71	35.31	0.105 [1]
T18	20 - 0	L3x3x3/16	10.30	10.03	128.1	1.0898	3.95	35.31	0.112 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	øP$_{allow}$ K	% Capacity	Pass Fail
T1	350 - 340	Leg	2	3	-5.41	49.29	11.0	Pass
		Diagonal	L2x1 1/2x3/16	9	-2.01	13.47	14.9	Pass
							29.4 (b)	
		Top Girt	L3x3x1/4	4	-0.33	36.68	0.9	Pass
							3.2 (b)	
T2	340 - 320	Leg	2	21	-33.20	72.06	46.1	Pass
		Diagonal	L2x1 1/2x3/16	24	-3.28	14.98	21.9	Pass
							45.4 (b)	
T3	320 - 300	Leg	2 1/2	54	-51.62	112.35	45.9	Pass
		Diagonal	L2x2x3/16	75	-2.62	17.06	15.3	Pass
							34.8 (b)	
T4	300 - 280	Leg	3 1/4	81	-65.33	183.31	35.6	Pass
		Diagonal	L2-1/2x2-1/2x3/16	84	-2.11	17.45	12.1	Pass
							25.9 (b)	
T5	280 - 260	Leg	3 1/4	102	-79.44	183.31	43.3	Pass
		Diagonal	L2-1/2x2-1/2x3/16	107	-2.26	13.10	17.3	Pass
							28.5 (b)	
T6	260 - 240	Leg	3 1/2	123	-94.17	234.48	40.2	Pass
		Diagonal	L3x3x3/16	128	-2.66	17.56	15.1	Pass
							33.8 (b)	
T7	240 - 220	Leg	3 1/2	144	-108.49	306.64	35.4	Pass
		Diagonal	2L2 1/2x2 1/2x3/16x3/8	152	-3.46	32.33	10.7	Pass
							21.7 (b)	
		Horizontal	L2 1/2x2 1/2x3/16	148	-2.06	10.45	19.7	Pass
							26.3 (b)	
		Inner Bracing	L2 1/2x2 1/2x3/16	156	-0.01	9.64	0.4	Pass
T8	220 - 200	Leg	3 3/4	183	-124.75	368.01	33.9	Pass
		Diagonal	2L2 1/2x2 1/2x3/16x3/8	191	-3.90	26.85	14.5	Pass
							21.3 (b)	
		Horizontal	L2 1/2x2 1/2x3/16	187	-2.26	7.86	28.8	Pass
							28.9 (b)	
		Inner Bracing	L2 1/2x2 1/2x3/16	195	-0.01	7.31	0.5	Pass
T9	200 - 180	Leg	4	222	-144.77	434.24	33.3	Pass
		Diagonal	2L3x3x3/16x3/8	230	-6.22	39.43	15.8	Pass
							31.7 (b)	
		Horizontal	L3x3x3/16	226	-2.51	10.75	23.4	Pass
							32.1 (b)	
		Inner Bracing	L3x3x3/16	233	-0.01	10.06	0.5	Pass
T10	180 - 160	Leg	4 1/4	261	-169.41	505.22	33.5	Pass
		Diagonal	2L3x3x3/16x3/8	269	-6.99	33.29	21.0	Pass
							35.6 (b)	
		Horizontal	L3x3x3/16	265	-2.94	8.62	34.1	Pass
							37.5 (b)	
		Inner Bracing	L3x3x3/16	271	-0.01	8.10	0.6	Pass
T11	160 - 140	Leg	4 1/4	300	-195.46	505.22	38.7	Pass
		Diagonal	2L3x3x3/16x3/8	308	-7.71	28.30	27.2	Pass
							40.8 (b)	
		Horizontal	L3 1/2x3 1/2x1/4	304	-3.39	14.81	22.9	Pass
							32.5 (b)	
		Inner Bracing	L3 1/2x3 1/2x1/4	310	-0.01	14.00	0.5	Pass
T12	140 - 120	Leg	4 1/2	339	-215.60	580.90	37.1	Pass
		Diagonal	2L3x3x1/4x3/8	358	-11.43	38.40	29.8	Pass
							40.4 (b)	
		Horizontal	2L2 1/2x2 1/2x3/16x3/8	347	-3.74	17.33	21.6	Pass
		Redund Horz 1	L2x2x3/16	352	-3.74	7.12	52.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
		Bracing						
		Redund Diag 1 Bracing	L2-1/2x2-1/2x3/16	375	-2.54	7.69	33.0	Pass
		Inner Bracing	L3 1/2x3 1/2x1/4	361	-0.02	12.23	0.5	Pass
T13	120 - 100	Leg	4 3/4	384	-245.00	661.23	37.1	Pass
		Diagonal	2L3x3x1/4x3/8	400	-11.25	35.46	31.7	Pass
							43.8 (b)	
		Horizontal	2L2 1/2x2 1/2x3/16x3/8	392	-4.25	14.63	29.0	Pass
		Redund Horz 1 Bracing	L2x2x3/16	397	-4.25	6.02	70.6	Pass
		Redund Diag 1 Bracing	L2-1/2x2-1/2x3/16	420	-2.79	6.96	40.1	Pass
		Inner Bracing	L4x4x1/4	406	-0.02	15.60	0.6	Pass
T14	100 - 80	Leg	4 3/4	429	-272.06	661.23	41.1	Pass
		Diagonal	2L3x3x1/4x3/8	448	-12.35	32.71	37.7	Pass
							44.2 (b)	
		Horizontal	2L2 1/2x2 1/2x3/16x3/8	437	-4.72	12.49	37.8	Pass
		Redund Horz 1 Bracing	L2x2x3/8	442	-4.72	9.53	49.5	Pass
		Redund Diag 1 Bracing	L2-1/2x2-1/2x3/16	465	-3.01	6.29	47.8	Pass
		Inner Bracing	L4x4x1/4	451	-0.02	13.37	0.6	Pass
T15	80 - 60	Leg	5	474	-301.11	746.17	40.4	Pass
		Diagonal	2L3 1/2x3 1/2x1/4x3/8	490	-12.28	45.63	26.9	Pass
							40.1 (b)	
		Horizontal	2L3x3x3/16x3/8	482	-5.22	19.06	27.4	Pass
							27.6 (b)	
		Redund Horz 1 Bracing	L2-1/2x2-1/2x3/16	509	-5.22	8.86	58.9	Pass
		Redund Diag 1 Bracing	L3x3x3/16	513	-3.25	10.04	32.3	Pass
		Inner Bracing	2L3x3x3/16x3/8	497	-0.03	18.17	0.6	Pass
T16	60 - 40	Leg	5 1/4	519	-328.80	835.68	39.3	Pass
		Diagonal	2L3 1/2x3 1/2x1/4x3/8	538	-13.50	42.29	31.9	Pass
							41.0 (b)	
		Horizontal	2L3x3x3/16x3/8	527	-5.70	16.65	34.2	Pass
		Redund Horz 1 Bracing	L2-1/2x2-1/2x3/16	532	-5.70	7.74	73.6	Pass
		Redund Diag 1 Bracing	L3x3x3/16	555	-3.47	9.16	37.9	Pass
		Inner Bracing	2L3x3x3/16x3/8	542	-0.03	15.90	0.7	Pass
T17	40 - 20	Leg	5 1/4	564	-358.01	835.68	42.8	Pass
		Diagonal	2L3 1/2x3 1/2x1/4x3/8	580	-13.37	39.18	34.1	Pass
							43.0 (b)	
		Horizontal	2L3 1/2x3 1/2x1/4x3/8	572	-6.21	30.62	20.3	Pass
							24.6 (b)	
		Redund Horz 1 Bracing	L2.5x2.5x3/16 + L2.5x2.5x1/4 (C-Shape) - Cleary Tower	577	-6.21	14.96	41.5	Pass
		Redund Diag 1 Bracing	L3x3x3/16	600	-3.71	8.35	44.4	Pass
		Inner Bracing	2L3 1/2x3 1/2x1/4x3/8	586	-0.03	29.32	0.6	Pass
T18	20 - 0	Leg	5 1/2	607	-386.93	929.74	41.6	Pass
		Diagonal	2L3 1/2x3 1/2x1/4x3/8	628	-14.24	36.38	39.1	Pass
							44.1 (b)	
		Horizontal	2L3 1/2x3 1/2x1/4x3/8	624	-6.71	27.18	24.7	Pass
							26.6 (b)	
		Redund Horz 1 Bracing	L3x3x3/16	612	-6.71	10.61	63.2	Pass
		Redund Diag 1 Bracing	L3x3x3/16	651	-3.95	7.66	51.6	Pass
		Inner Bracing	2L3 1/2x3 1/2x1/4x3/8	631	-0.03	26.06	0.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
							Summary	
						Leg (T2)	46.1	Pass
						Diagonal (T2)	45.4	Pass
						Horizontal (T14)	37.8	Pass
						Top Girt (T1)	3.2	Pass
						Redund Horz 1 Bracing (T16)	73.6	Pass
						Redund Diag 1 Bracing (T18)	51.6	Pass
						Inner Bracing (T16)	0.7	Pass
						Bolt Checks	45.4	Pass
						RATING =	**73.6**	**Pass**

Seismic Load Analysis Output

Project Data

ACGI#	21-6467
Site Name/ID	T20021-A-11 / Cleary Tower (Edward)
TIA Code	TIA-222-H
Type of Tower	SST
Risk Category	II

Output Result

Total Weight W	115.910	k
Fundamental Period (T)	1.406	s
Total Seimic Shear	2.390	k

Seismic Design Data

SDS	0.203
SD1	0.087
S1	0.054
TL(sec)	6

T1	350.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.126	0.160
T2	340.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.061	0.075
T3	320.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.084	0.097
T4	300.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.113	0.123
T5	280.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.117	0.118
T6	260.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.138	0.130
T7	240.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.168	0.146
T8	220.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.188	0.150
T9	200.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.394	0.285
T10	180.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.285	0.185
T11	160.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.292	0.169
T12	140.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.387	0.196
T13	120.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.320	0.139
T14	100.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.335	0.121
T15	80.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.378	0.110
T16	60.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.405	0.088
T17	40.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.443	0.064
T18	20.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.473	0.034

MATHCAD CALCULATION PRINTOUT

EXISTING 350' SELF SUPPORT TOWER ANCHOR BOLT CHECK

REACTIONS ON THE FOUNDATION

As per Tnx output (see attached)

Down load; $P_{uc} := 400 \cdot kips$ Shear; $V_{uc} := 44 \cdot kips$

Uplift load; $P_{ut} := 287 \cdot kips$ $V_{ut} := 34 \cdot kips$

Anchor Rod Data is as per Structural Analysis by Paul J. Ford & Co., Job No. A03-T143 dated 12/22/2003.

Number of Anchor Rods: $N_{anchors} := 6$

Diameter of Anchors: $D_{anchors} := 2.5in$ $n := 4in^{-1}$

Area of anchor bolts $A_g := \frac{\pi \cdot \left(D_{anchors}^{2}\right)}{4} = 4.909 \cdot in^2$

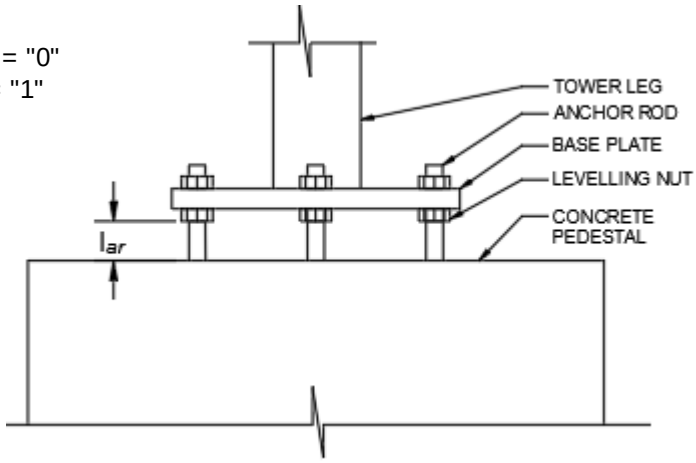
Net Tensile Area of Anchors: $A_n := \frac{\pi}{4} \cdot \left(D_{anchors} - \frac{0.9743}{n}\right)^2 = 3.999 \cdot in^2$

Minimum Yield Stress $F_{Yanchors} := 36ksi$

Ultimate Tensile Stress: $F_{Uanchors} := 58ksi$

The existing tower is originally designed based on TIA-222-G/F Code $code := 0$ YES = "0" NO = "1"

Is there a cementious grout existing in good condition (or) being proposed in between tower base plate and top of foundation $Grout := 1$ YES = "0" NO = "1"



Clear Distance: $l_{ar} := 2.5in$ (estimated)

Note: When the anchor rod projection, l_{ar}, for an installation exceeds 1(d) but is not more than 3 in. [75 mm], it shall be permitted to consider l_{ar} less than or equal to 1(d) when 5,000 psi [35 MPa] minimum 7-day strength non-shrink, non-metallic grout is properly installed between the supporting surface and a base plate with properly installed leveling nuts. Drainage is required for all grouted base plates for base plates supporting tubular sections.

Saftey Factor for Anchor: $\phi_t := 0.75$ $\phi_v := 0.75$ $\phi_c := 0.9$ $\phi_f := 0.9$ (Section 4.9.9, TIA-222-H Addendum 1)

Design Shear Strength of anchor rod

$\phi R_{nv} := \phi_v \cdot 0.5 \cdot F_{Uanchors} \cdot A_g = 106.765 \cdot kips$

$\phi R_{nvc} := \phi_c \cdot 0.6 \cdot F_{Yanchors} \cdot \left(0.75 A_g\right) = 71.569 \cdot kips$

Design Tensile Strength of anchor rod

$\phi R_{nt} := \phi_t \cdot F_{Uanchors} \cdot A_n = 173.949 \cdot kips$

Design Compression Strength of anchor rod

$\phi R_{nc} := \phi_c \cdot F_{Yanchors} \cdot A_g = 159.043 \cdot kips$

Interaction Equation for Anchor Rods as per Section 4.9.9, TIA-222-H Addendum 1

Design Flexural Strength of anchor rod

$Z := \frac{\left(D_{anchors}\right)^3}{6} = 1.507 \times 10^{-3} \cdot ft^3$

$M_n := F_{Yanchors} \cdot Z = 7.813 \cdot kips \cdot ft$

$M_{uc} := 0.65 \cdot I_{ar} \cdot V_{uc} = 5.958 \cdot kips \cdot ft$ $M_{ut} := 0.65 \cdot I_{ar} \cdot V_{ut} = 4.604 \cdot kips \cdot ft$

Design Buckling Strength of anchor rod

Unbraced length $L := 1.2 I_{ar}$ $k := 1$ $E := 29000 \cdot ksi$

Mom.of Inertia $I := \frac{\pi \cdot \left(D_{anchors}^4\right)}{64}$ $I = 1.917 \cdot in^4$

Radius of gyration $R := \sqrt{\frac{I}{A_g}}$ $R = 0.625 \cdot in$

$\lambda c := \frac{\frac{k \cdot L}{R}}{\pi} \cdot \sqrt{\frac{F_{Yanchors}}{E}}$ $\lambda c = 0.054$

$F_{cr} := \text{if}\left[\lambda c > 1.5, \left[\frac{0.877}{(\lambda c)^2}\right] \cdot F_{Yanchors}, \left[0.658^{(\lambda c)^2}\right] \cdot F_{Yanchors}\right] = 35.956 \cdot ksi$

$\phi R_{nb} := \phi_c \cdot F_{cr} \cdot A_g = 158.85 \cdot kips$

Anchor Rod Capacity in Tension:

$$T_t := \begin{cases} \left(\frac{\frac{V_{ut}}{N_{anchors}}}{\phi R_{nv}}\right)^2 + \left(\frac{\frac{P_{ut}}{N_{anchors}}}{\phi R_{nt}}\right)^2 & \text{if } I_{ar} \le D_{anchors} \\ \left(\frac{\frac{V_{ut}}{N_{anchors}}}{\phi R_{nv}}\right)^2 + \left(\frac{\frac{P_{ut}}{N_{anchors}} + \frac{M_{ut}}{N_{anchors}}}{\phi_f \cdot M_n}\right)^2 & \text{if } D_{anchors} < I_{ar} \le 4 \cdot D_{anchors} \\ \left(\frac{\frac{V_{ut}}{N_{anchors}}}{\phi R_{nv}}\right)^2 + \left(\frac{\frac{P_{ut}}{N_{anchors}} + \frac{M_{ut}}{N_{anchors}}}{\phi_f \cdot M_n}\right)^2 & \text{if } I_{ar} > 4 \cdot D_{anchors} \end{cases} = 7.843 \cdot \%$$

Anchor Rod Capacity in Compression:

$$P_{uc1} := \text{if}\left(\text{code} = 0, \text{if}\left(\text{Grout} < 1, 0, P_{uc}\right), P_{uc}\right) = 400 \cdot \text{kips}$$
$$V_{uc1} := \text{if}\left(\text{code} = 0, \text{if}\left(\text{Grout} < 1, 0, V_{uc}\right), V_{uc}\right) = 44 \cdot \text{kips}$$
$$M_{uc1} := \text{if}\left(\text{code} = 0, \text{if}\left(\text{Grout} < 1, 0, M_{uc}\right), M_{uc}\right) = 1.816 \cdot \text{m} \cdot \text{kips}$$

$$T_c := \begin{cases} \left(\frac{\frac{V_{uc1}}{N_{anchors}}}{\phi R_{nvc}}\right)^2 + \left(\frac{\frac{P_{uc1}}{N_{anchors}}}{\phi R_{nc}}\right) & \text{if } I_{ar} \le D_{anchors} \\ \left(\frac{\frac{V_{uc1}}{N_{anchors}}}{\phi R_{nvc}}\right)^2 + \left(\frac{\frac{P_{uc1}}{N_{anchors}}}{\phi R_{nc}} + \frac{\frac{M_{uc1}}{N_{anchors}}}{\phi_f \cdot M_n}\right) & \text{if } D_{anchors} < I_{ar} \le 4 \cdot D_{anchors} \\ \left(\frac{\frac{V_{uc1}}{N_{anchors}}}{\phi R_{nvc}}\right)^2 + \left(\frac{\frac{P_{uc1}}{N_{anchors}}}{\phi R_{nb}} + \frac{\frac{M_{uc1}}{N_{anchors}}}{\phi_f \cdot M_n}\right) & \text{if } I_{ar} > 4 \cdot D_{anchors} \end{cases} = 42.967 \cdot \%$$

Summary

-Foundation Reactions from Tower Base-

Shear	$V_{uc} = 44 \cdot \text{kips}$	$V_{ut} = 34 \cdot \text{kips}$
Down load	$P_{uc} = 400 \cdot \text{kips}$	
Uplift load	$P_{ut} = 287 \cdot \text{kips}$	

Anchor Rod Check $\quad T := \max\left(T_t, T_c\right) \quad T = 42.967 \cdot \%$

$\text{Anchor\_Rod\_Check} := \text{if}\left(T < 1, \text{"OK"}, \text{"Not OK"}\right)$

Anchor_Rod_Check = "OK"

Exhibit E

Mount Analysis

May 27, 2022

Dave Evans
SBA Network Services, LLC.
470 Davidson Rd & Commerce Dr
Pittsburgh, PA 15239
(412) 515-0111 x 2410

MTS Engineering, P.L.L.C.
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:	BOHVN00050A
	Site Name:	SBA - Wolcott Road
***SBA Network Services Designation*:**	**Site Number:**	CT20021-A
	Site Name:	Cleary Tower (Edward)
	Application Number:	169199, v2
Engineering Firm Designation:	**Project Number:**	149478.004.01
Site Data:	**1233 Wolcott Road (Rt-69), Wolcott, CT, 06716, New Haven County**	
	Latitude *41.62157*°, Longitude *-72.97363*°	
	Self-Support	
	(3) 7.948' Sector Mount	

Dear Mr. Evans,

We are 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 90.7%)**

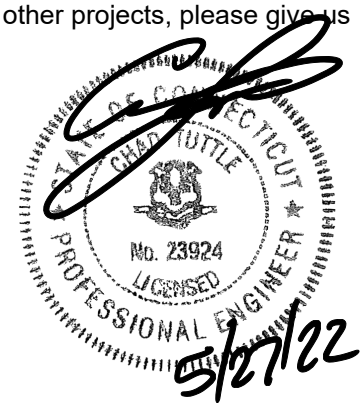
This analysis utilizes an ultimate 3-second gust wind speed of 117 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

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

We appreciate the opportunity of providing our continuing professional services to you and *SBA Network Services, LLC.* If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Erika Ruiz

Respectfully submitted by: MTS Engineering, P.L.L.C.
COA: BER:2386985 Expires: 03/31/2023



Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

The mount consists of proposed Commscope sector mount (Part #SF-SU7-2-96 with 2-1/2'' Std. x 25 ft. long tieback pipe) at 148 ft., attached to self-support tower at 1233 Wolcott Road (Rt-69), Wolcott, CT, 06716, New Haven County. The proposed antenna loading information was obtained from SBA Network Services, LLC. All information provided to us 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 117 mph with no ice and 50 mph with 1 inch escalated ice thickness. Exposure Category B, Topographic Category 1 and Risk Category II were used in this analysis. In addition, the sector 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	148	1	3	JMA Wireless MX08FRO665-21	1
			3	Fujitsu TA08025-B605	2
			3	Fujitsu TA08025-B604	
		2	1	Raycap RDIDC-9181-PF-48	3

Note:
(1) Proposed Antenna to be installed on the proposed Mount Pipe.
(2) Proposed Equipment to be installed side by side with RRUS Support, directly behind the Antenna.
(3) Proposed Equipment to be installed on the proposed Mount Pipe.

Table 2 - Documents Provided

Documents	Remarks	Reference	Source
SBA Application	Proposed Loading	Date: 05/18/2022	SBA Network Services, LLC.
RFDS		Date: 05/18/2022	
CDs	MTS Engineering, P.L.L.C.	Date: 05/23/2022	On file

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 20.0.1), 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. MTS Engineering, P.L.L.C. 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

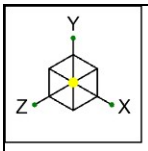
Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Mount Pipes	148	57.3	Pass
-	Tieback	148	54.8	Pass
-	Face Horizontals	148	90.7	Pass
-	Support Arms	148	49.9	Pass
-	Diagonals	148	11.5	Pass
-	Connection Plates	148	63.4	Pass
-	Mount to Tower Connection	148	32.6	Pass

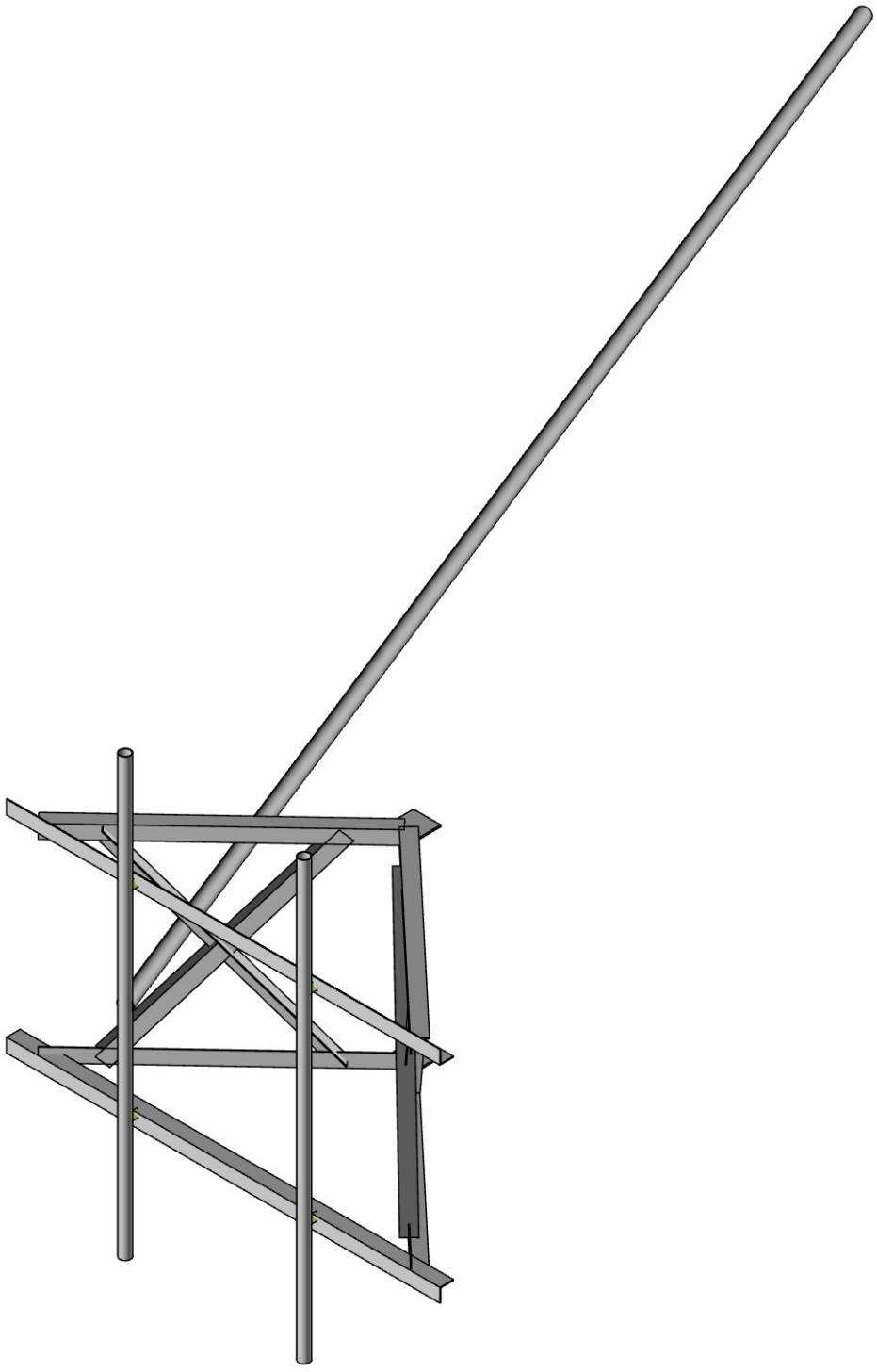
5) RECOMMENDATIONS

The Commscope sector mount, Part #SF-SU7-2-96 with 2-1/2'' Std. x 25 ft. long tieback pipe 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)





Envelope Only Solution

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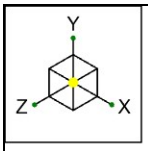
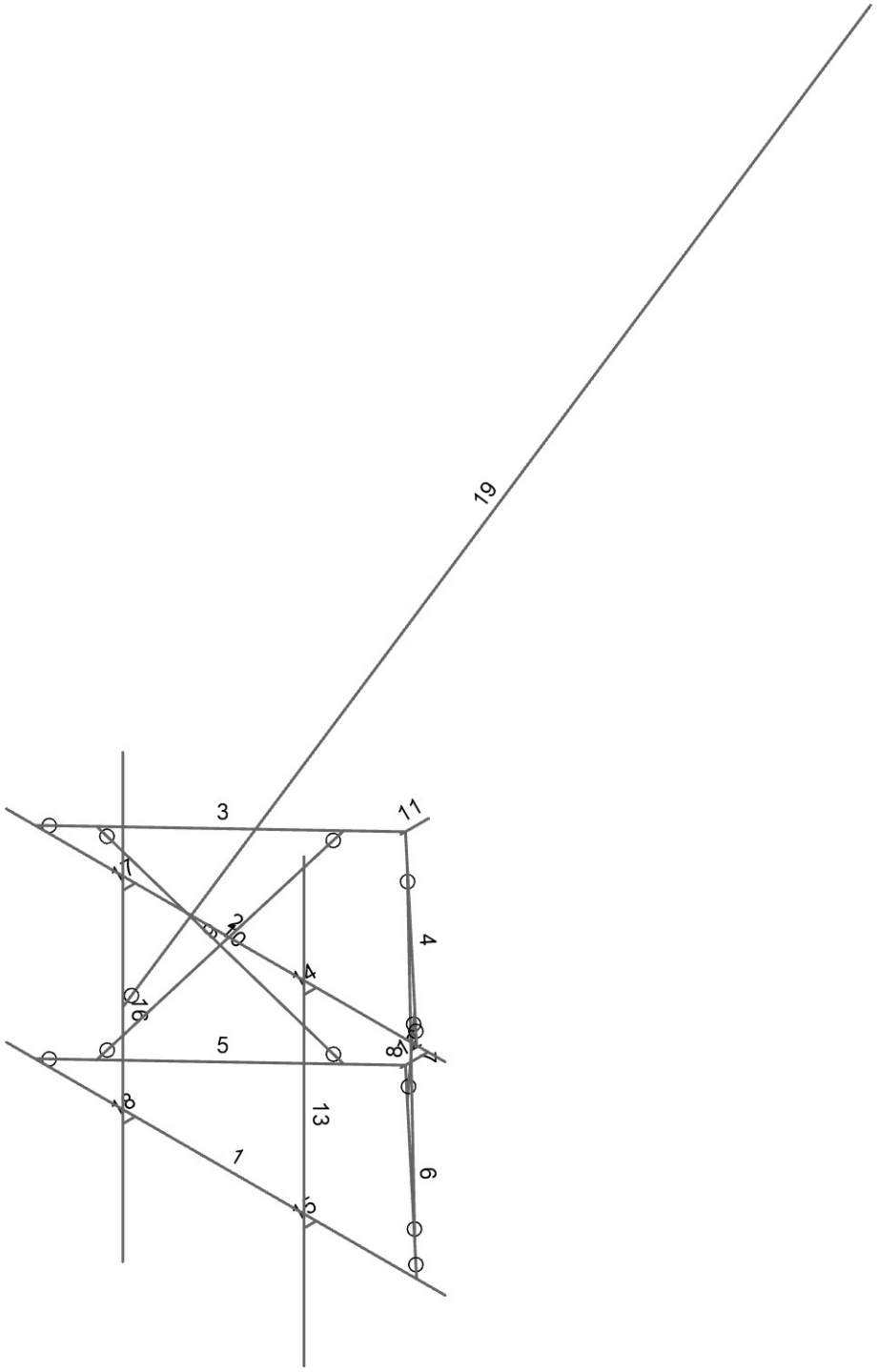
KR		May 27, 2022
149478.004.01		149478_004_01_Cleary Tower (E…





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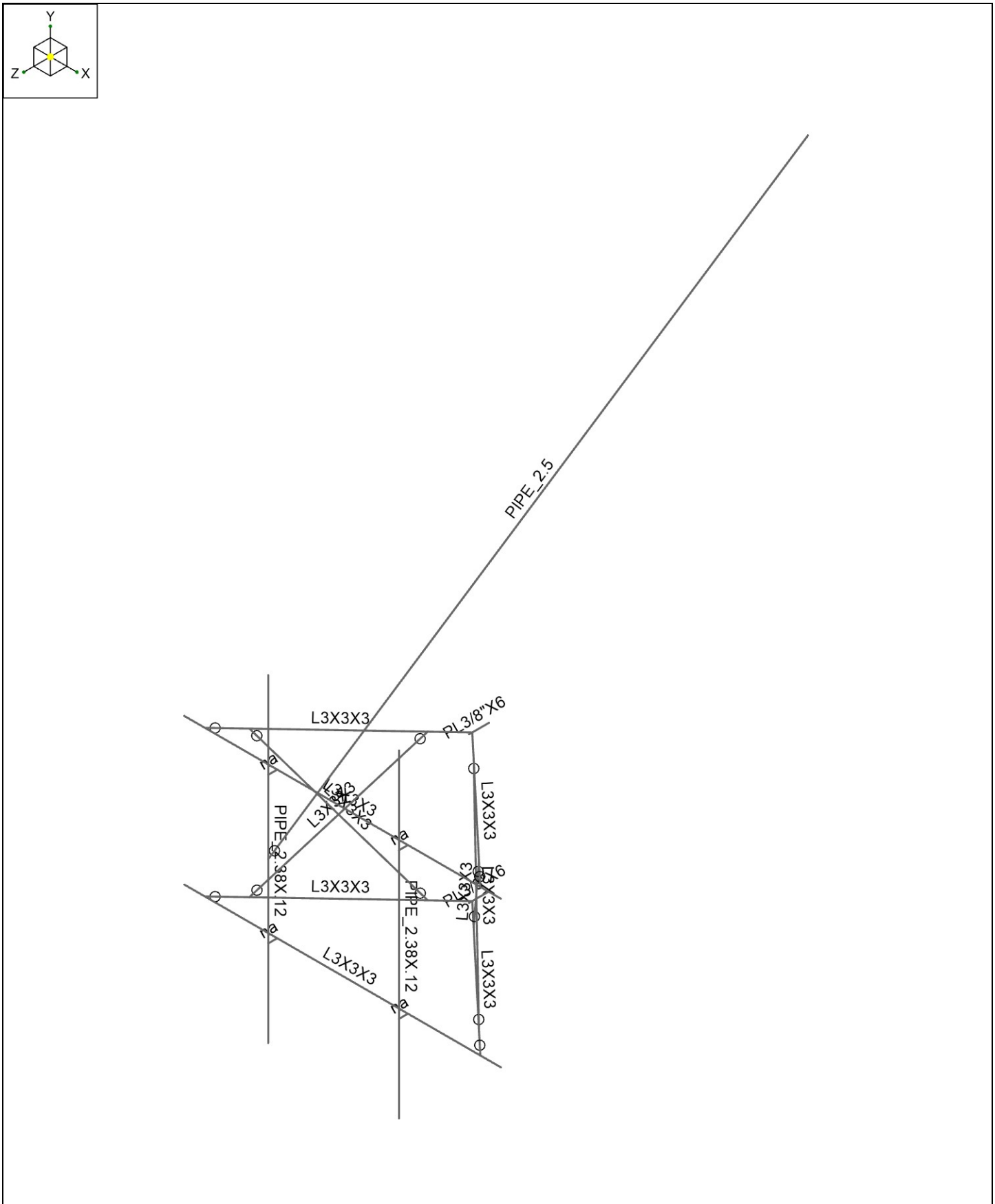

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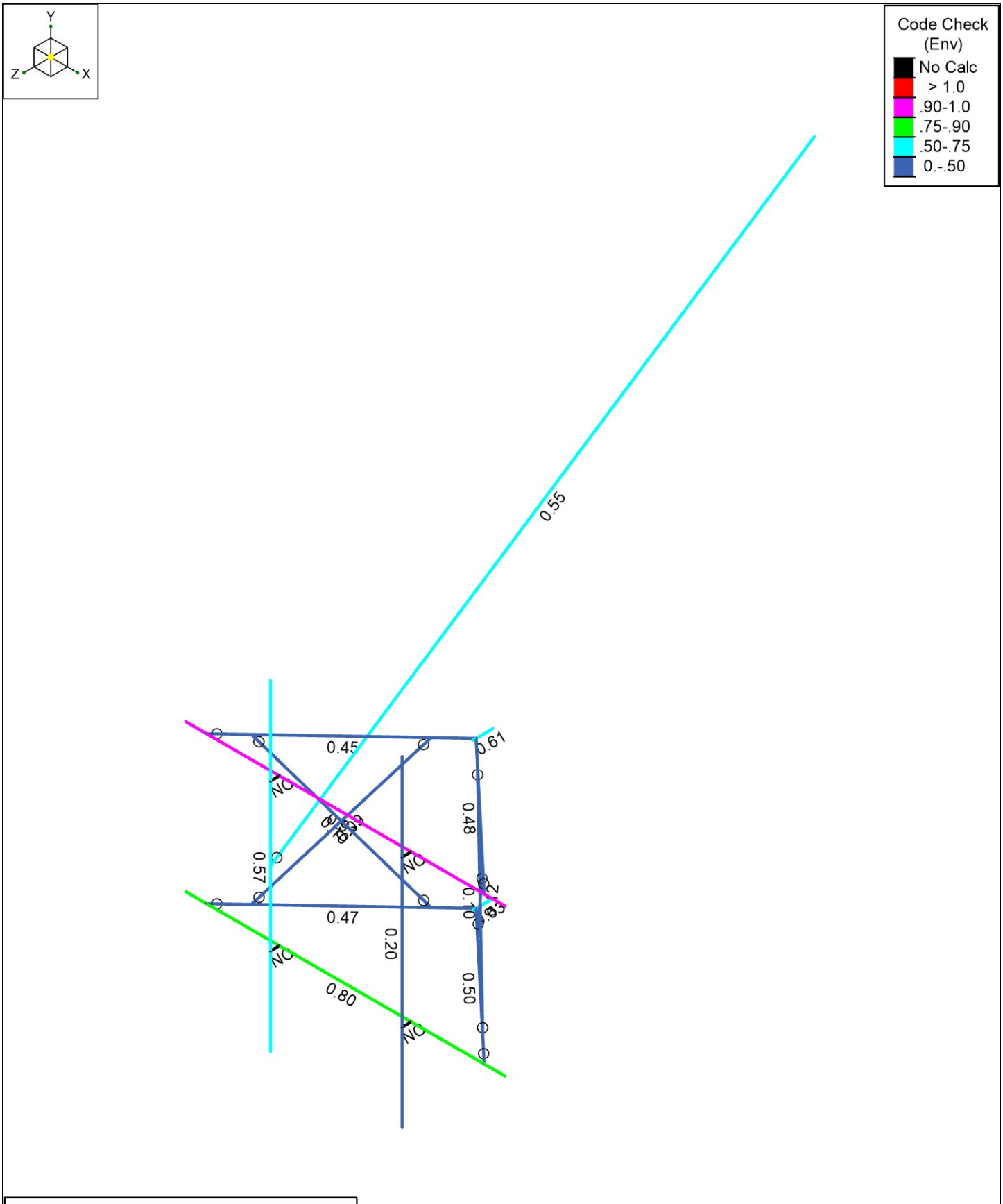

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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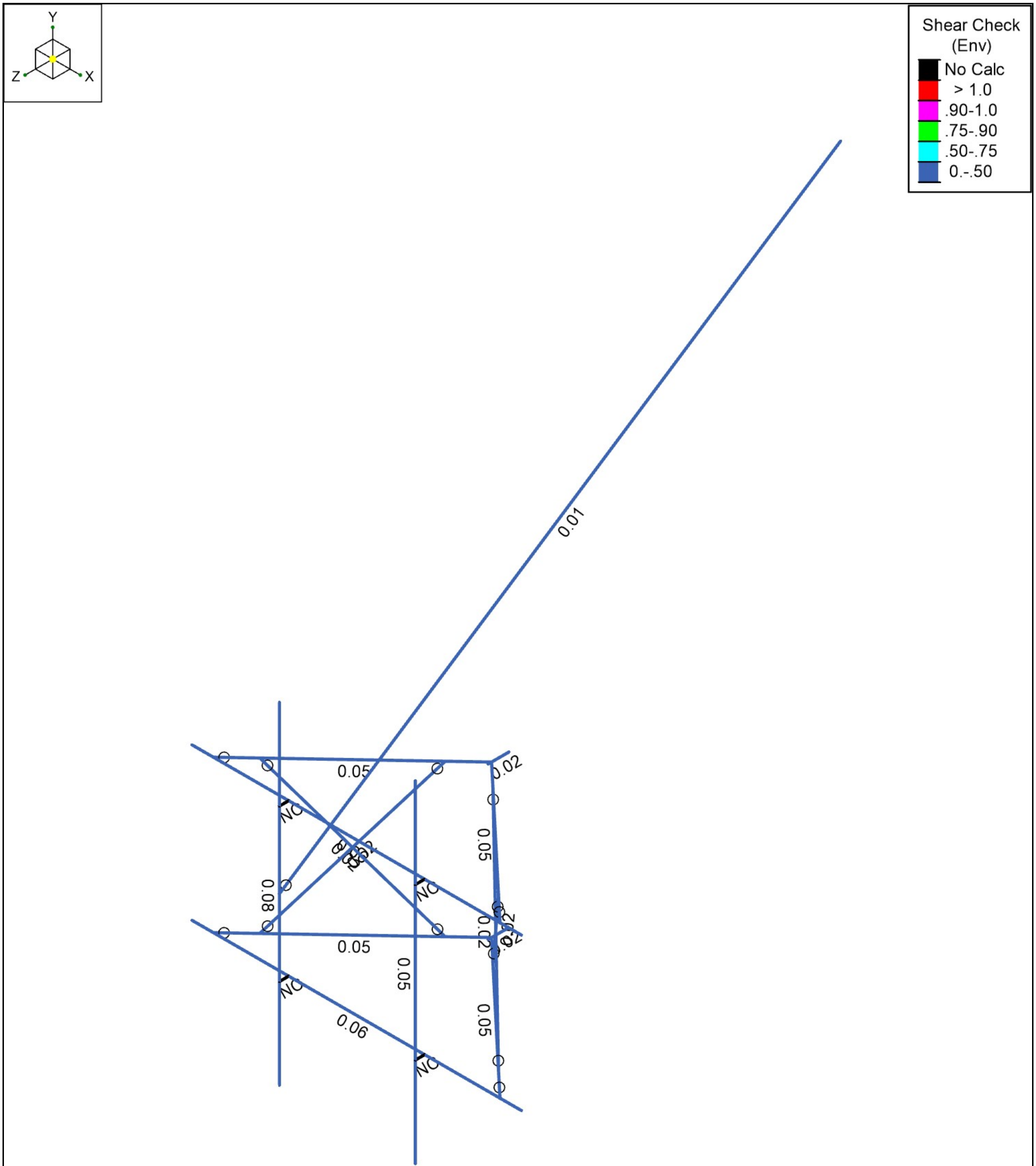

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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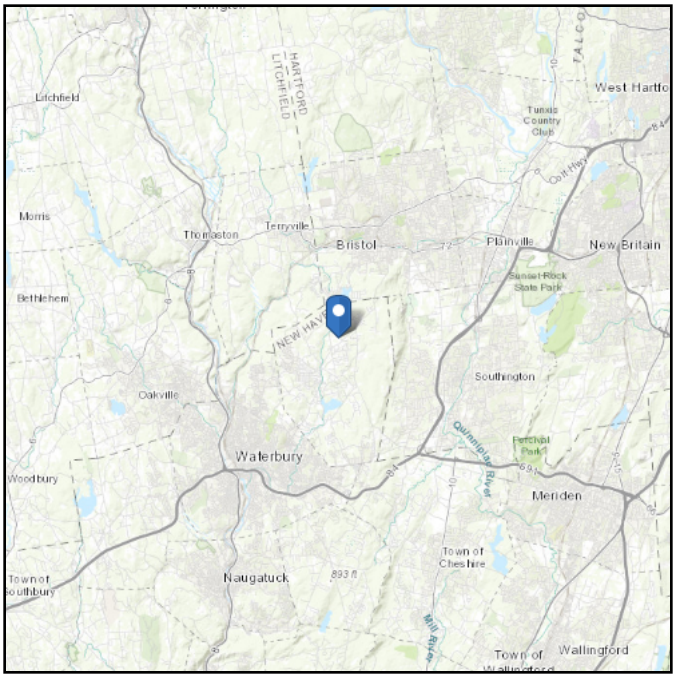
KR		May 27, 2022
149478.004.01		149478_004_01_Cleary Tower (E…

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 965.28 ft (NAVD 88)
Latitude: 41.62158
Longitude: -72.9736



Wind

Results:

Wind Speed:	117 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Tue Nov 09 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

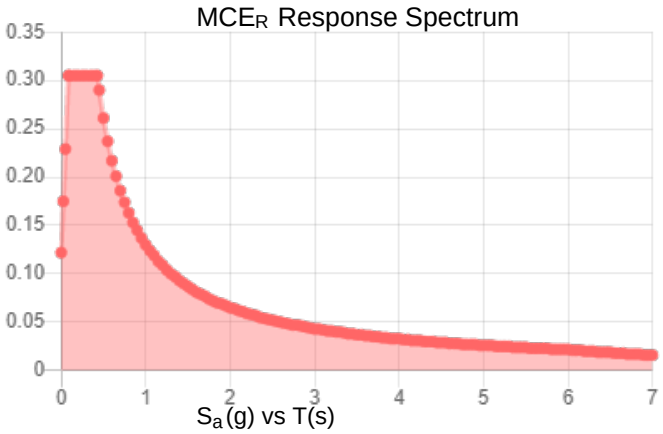
Seismic

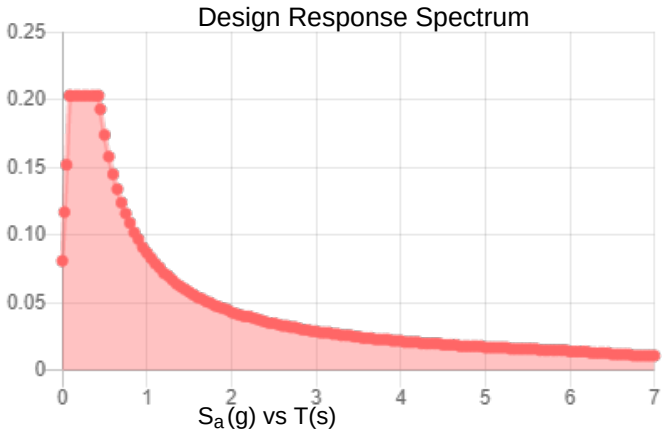
Site Soil Class: D - Default (see Section 11.4.3)

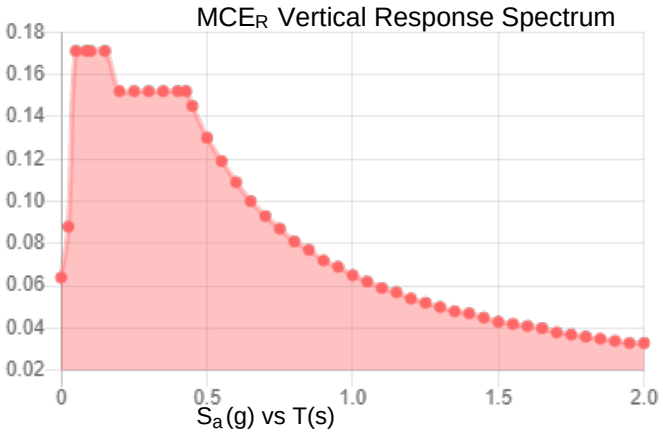
Results:

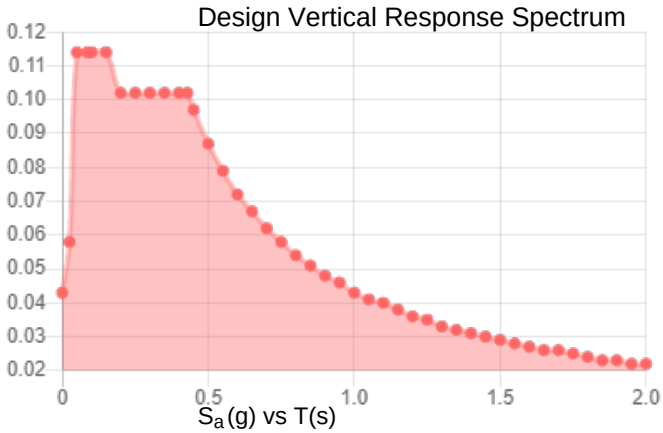
S_S :	0.19	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.104
F_v :	2.4	PGA_M :	0.166
S_{MS} :	0.305	F_{PGA} :	1.592
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.203	C_v :	0.7

Seismic Design Category B









Data Accessed: Tue Nov 09 2021

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Nov 09 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

PROJECT	**149478.004.01 - Cleary Tower (Edwa KSC**
SUBJECT	**Sector Mount Analysis**
DATE	**05/27/22**

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

Tower Type		:	SST		
Ground Elevation	z_s	:	965	ft	[ASCE7 Hazard Tool]
Tower Height		:	350.00	ft	
Mount Elevation		:	148.00	ft	
Antenna Elevation		:	148.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	B		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	117	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	:	0.19		
	S_1	:	0.05		
	S_{DS}	:	0.20		
	S_{D1}	:	0.09		
Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.11		[Sec. 2.6.5.2]
Topography Facto	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.97		[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}	:	1.16	in	[Sec. 2.6.10]
Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.102		[Sec. 2.7.7.1]
Amplification	A_s	:	1		[Sec. 16.7]
	q_z	:	35.54	psf	

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Manufacturer	Model	Qty	Height (in^2)	Width (in^2)	Depth (in^2)	Weight (lbs)	C_aA_a (N) (ft^2)	C_aA_a (T) (ft^2)	C_aA_a (N) Ice (ft^2)	C_aA_a (T) Ice (ft^2)	$F_{A\,(N)}$ (k)	$F_{A\,(T)}$ (k)	$F_{A\,(N)}$ Ice (k)	$F_{A\,(T)}$ Ice (k)
JMA Wireless	MX08FRO665-21	0.5	72.0	20.0	8.0	64.5	4.01	1.61	4.53	2.06	0.14	0.06	0.03	0.01
JMA Wireless	MX08FRO665-21	0.5					4.01	1.61	4.53	2.06	0.14	0.06	0.03	0.01
Fujitsu	TA08025-B605	1	15.8	9.1	15.0	75.0	1.19	1.96	1.71	2.60	0.04	0.06	0.01	0.01
Fujitsu	TA08025-B604	1	15.8	7.9	15.0	63.9	1.03	1.96	1.54	2.60	0.03	0.06	0.01	0.01
Raycap	RDIDC-9181-PF-48	1	19.0	16.2	9.6	21.9	2.56	1.52	3.29	2.12	0.08	0.05	0.01	0.01

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	-3.974	-3.666703	16.162693	
2	2	3.974	-3.666703	16.162693	
3	3	3.974	0	16.162693	
4	4	-3.974	0	16.162693	
5	5	-3.458333	0	16.162693	
6	6	3.458333	0	16.162693	
7	7	0	0	12.906493	
8	8	-3.458333	-3.666703	16.162693	
9	9	3.458333	-3.666703	16.162693	
10	10	0	-3.666703	12.906493	
11	11	0.576423	0	13.449225	
12	12	2.881945	0	15.619994	
13	13	-0.576423	0	13.449225	
14	14	-2.881945	0	15.619994	
15	15	0	0	12.989826	
16	16	0	-3.666667	12.989826	
17	17	0	0	12.489826	
18	18	0	-3.666667	12.489826	
19	19	0.576421	-3.666703	13.449223	
20	20	2.881947	-3.666703	15.619996	
21	21	-0.576421	-3.666703	13.449223	
22	22	-2.881947	-3.666703	15.619996	
23	23	1.729167	-1.875	14.53461	
24	24	1.640667	0	16.162693	
25	25	1.640667	-3.666703	16.162693	
26	26	1.640667	2.16665	16.386651	
27	27	1.640667	-5.833356	16.386651	
28	28	1.640667	-3.666703	16.386651	
29	29	1.640667	0	16.386651	
30	30	-1.640667	0	16.162693	
31	31	-1.640667	-3.666703	16.162693	
32	32	-1.640667	2.16665	16.386651	
33	33	-1.640667	-5.833356	16.386651	
34	34	-1.640667	-3.666703	16.386651	
35	35	-1.640667	0	16.386651	
36	36	1.729167	-1.83335	14.53461	
37	37	-1.729167	-1.83335	14.53461	
38	38	-1.640667	-1.833	16.386651	
39	39	-10.6	-1.833	-6.119913	
40	40	0	0	12.239826	
41	41	10.6	0	-6.119913	
42	42	-10.6	0	-6.119913	
43	43	0	0	0	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]
1	18	Reaction	Reaction	Reaction
2	17	Reaction	Reaction	Reaction
3	39	Reaction	Reaction	Reaction
4	40			

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-P1	PIPE_2.38X.12	Column	Pipe	A500 Gr.C	Typical	0.852	0.545	0.545	1.091
2	Tieback	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
3	MF-H1	L3X3X3	Beam	Single Angle	A36 Gr.36	Typical	1.09	0.948	0.948	0.014
4	F1-S1	L3X3X3	Beam	Single Angle	A36 Gr.36	Typical	1.09	0.948	0.948	0.014
5	F1-D1	L3X3X3	VBrace	Single Angle	A36 Gr.36	Typical	1.09	0.948	0.948	0.014
6	MF-C1	PL3/8"X6	Beam	RECT	A36 Gr.36	Typical	2.25	0.026	6.75	0.101

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2	180	MF-H1	Beam	Single Angle	A36 Gr.36	Typical
2	2	4	3	270	MF-H1	Beam	Single Angle	A36 Gr.36	Typical
3	3	5	7	180	F1-S1	Beam	Single Angle	A36 Gr.36	Typical
4	4	6	7	90	F1-S1	Beam	Single Angle	A36 Gr.36	Typical
5	5	8	10	270	F1-S1	Beam	Single Angle	A36 Gr.36	Typical
6	6	9	10		F1-S1	Beam	Single Angle	A36 Gr.36	Typical
7	7	11	20	90	F1-D1	VBrace	Single Angle	A36 Gr.36	Typical
8	8	12	19	90	F1-D1	VBrace	Single Angle	A36 Gr.36	Typical
9	9	13	22	90	F1-D1	VBrace	Single Angle	A36 Gr.36	Typical
10	10	14	21	90	F1-D1	VBrace	Single Angle	A36 Gr.36	Typical
11	11	15	17	90	MF-C1	Beam	RECT	A36 Gr.36	Typical
12	12	16	18	90	MF-C1	Beam	RECT	A36 Gr.36	Typical
13	13	26	27		MF-P1	Column	Pipe	A500 Gr.C	Typical
14	14	29	24		RIGID	None	None	RIGID	Typical
15	15	28	25		RIGID	None	None	RIGID	Typical
16	16	32	33		MF-P1	Column	Pipe	A500 Gr.C	Typical
17	17	35	30		RIGID	None	None	RIGID	Typical
18	18	34	31		RIGID	None	None	RIGID	Typical
19	19	38	39		Tieback	Beam	Pipe	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	1			Yes	N/A	None
2	2			Yes	N/A	None
3	3	BenPIN		Yes	N/A	None
4	4	BenPIN		Yes	N/A	None
5	5	BenPIN		Yes	N/A	None
6	6	BenPIN		Yes	N/A	None
7	7	BenPIN	BenPIN	Yes	** NA **	None
8	8	BenPIN	BenPIN	Yes	** NA **	None
9	9	BenPIN	BenPIN	Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
10	10	BenPIN	BenPIN	Yes	** NA **	None
11	11			Yes	N/A	None
12	12			Yes	N/A	None
13	13			Yes	** NA **	None
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	BenPIN		Yes	N/A	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	1	MF-H1	7.948	Lbyy	N/A	N/A	Lateral
2	2	MF-H1	7.948	Lbyy	N/A	N/A	Lateral
3	3	F1-S1	4.75	Lbyy	N/A	N/A	Lateral
4	4	F1-S1	4.75	Lbyy	N/A	N/A	Lateral
5	5	F1-S1	4.75	Lbyy	N/A	N/A	Lateral
6	6	F1-S1	4.75	Lbyy	N/A	N/A	Lateral
7	7	F1-D1	4.845	Lbyy	N/A	N/A	Lateral
8	8	F1-D1	4.845	Lbyy	N/A	N/A	Lateral
9	9	F1-D1	4.845	Lbyy	N/A	N/A	Lateral
10	10	F1-D1	4.845	Lbyy	N/A	N/A	Lateral
11	11	MF-C1	0.5	Lbyy	N/A	N/A	Lateral
12	12	MF-C1	0.5	Lbyy	N/A	N/A	Lateral
13	13	MF-P1	8	Lbyy	N/A	N/A	Lateral
14	16	MF-P1	8	Lbyy	N/A	N/A	Lateral
15	19	Tieback	24.224	Lbyy	N/A	N/A	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	13	Y	-0.032	%15
2	13	Y	-0.032	%85
3	13	Y	-0.075	%50
4	13	Y	-0.064	%50
5	13	Y	0	0
6	16	Y	-0.022	%20
7	16	Y	0	0
8	16	Y	0	0
9	16	Y	0	0
10	16	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	13	Z	-0.142	%15
2	13	Z	-0.142	%85
3	13	Z	-0.038	%50
4	13	Z	-0.033	%50
5	13	Z	0	0
6	16	Z	-0.082	%20
7	16	Z	0	0
8	16	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
9	16	Z	0	0
10	16	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	13	X	-0.057	%15
2	13	X	-0.057	%85
3	13	X	-0.063	%50
4	13	X	-0.063	%50
5	13	X	0	0
6	16	X	-0.049	%20
7	16	X	0	0
8	16	X	0	0
9	16	X	0	0
10	16	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	13	Z	-0.029	%15
2	13	Z	-0.029	%85
3	13	Z	-0.007	%50
4	13	Z	-0.006	%50
5	13	Z	0	0
6	16	Z	-0.015	%20
7	16	Z	0	0
8	16	Z	0	0
9	16	Z	0	0
10	16	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	13	X	-0.013	%15
2	13	X	-0.013	%85
3	13	X	-0.012	%50
4	13	X	-0.012	%50
5	13	X	0	0
6	16	X	-0.009	%20
7	16	X	0	0
8	16	X	0	0
9	16	X	0	0
10	16	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	13	Z	-0.009	%15
2	13	Z	-0.009	%85
3	13	Z	-0.003	%50
4	13	Z	-0.002	%50
5	13	Z	0	0
6	16	Z	-0.005	%20

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
7	16	Z	0	0
8	16	Z	0	0
9	16	Z	0	0
10	16	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	13	X	-0.004	%15
2	13	X	-0.004	%85
3	13	X	-0.004	%50
4	13	X	-0.004	%50
5	13	X	0	0
6	16	X	-0.003	%20
7	16	X	0	0
8	16	X	0	0
9	16	X	0	0
10	16	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	13	Y	-0.118	%15
2	13	Y	-0.118	%85
3	13	Y	-0.035	%50
4	13	Y	-0.034	%50
5	13	Y	0	0
6	16	Y	-0.045	%20
7	16	Y	0	0
8	16	Y	0	0
9	16	Y	0	0
10	16	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	13	Z	-0.007	%15
2	13	Z	-0.007	%85
3	13	Z	-0.008	%50
4	13	Z	-0.007	%50
5	13	Z	0	0
6	16	Z	-0.002	%20
7	16	Z	0	0
8	16	Z	0	0
9	16	Z	0	0
10	16	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	13	X	-0.007	%15
2	13	X	-0.007	%85
3	13	X	-0.008	%50
4	13	X	-0.007	%50

Member Point Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
5	13	X	0	0
6	16	X	-0.002	%20
7	16	X	0	0
8	16	X	0	0
9	16	X	0	0
10	16	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	2	Y	-0.25	%95

Member Point Loads (BLC 16 : Maint LL 2)

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

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	3	Y	-0.25	%50

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	5	Y	-0.25	%50

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	4	Y	-0.25	%50

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.25	%50

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	-0.016	-0.016	0	%100
2	2	Z	-0.016	-0.016	0	%100
3	3	Z	-0.014	-0.014	0	%100
4	4	Z	-0.014	-0.014	0	%100
5	5	Z	-0.014	-0.014	0	%100
6	6	Z	-0.014	-0.014	0	%100
7	7	Z	-0.014	-0.014	0	%100
8	8	Z	-0.014	-0.014	0	%100
9	9	Z	-0.014	-0.014	0	%100
10	10	Z	-0.014	-0.014	0	%100
11	11	Z	-0.002	-0.002	0	%100
12	12	Z	-0.002	-0.002	0	%100
13	13	Z	-0.008	-0.008	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
14	16	Z	-0.008	-0.008	0	%100
15	19	Z	-0.009	-0.009	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	-0.016	-0.016	0	%100
2	2	X	-0.016	-0.016	0	%100
3	3	X	-0.014	-0.014	0	%100
4	4	X	-0.014	-0.014	0	%100
5	5	X	-0.014	-0.014	0	%100
6	6	X	-0.014	-0.014	0	%100
7	7	X	-0.014	-0.014	0	%100
8	8	X	-0.014	-0.014	0	%100
9	9	X	-0.014	-0.014	0	%100
10	10	X	-0.014	-0.014	0	%100
11	11	X	-0.002	-0.002	0	%100
12	12	X	-0.002	-0.002	0	%100
13	13	X	-0.008	-0.008	0	%100
14	16	X	-0.008	-0.008	0	%100
15	19	X	-0.009	-0.009	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	-0.005	-0.005	0	%100
5	5	Z	-0.005	-0.005	0	%100
6	6	Z	-0.005	-0.005	0	%100
7	7	Z	-0.005	-0.005	0	%100
8	8	Z	-0.005	-0.005	0	%100
9	9	Z	-0.005	-0.005	0	%100
10	10	Z	-0.005	-0.005	0	%100
11	11	Z	-0.003	-0.003	0	%100
12	12	Z	-0.003	-0.003	0	%100
13	13	Z	-0.001	-0.001	0	%100
14	16	Z	-0.001	-0.001	0	%100
15	19	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
4	4	X	-0.005	-0.005	0	%100
5	5	X	-0.005	-0.005	0	%100
6	6	X	-0.005	-0.005	0	%100
7	7	X	-0.005	-0.005	0	%100
8	8	X	-0.005	-0.005	0	%100
9	9	X	-0.005	-0.005	0	%100
10	10	X	-0.005	-0.005	0	%100
11	11	X	-0.003	-0.003	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, %)]
12	12	X	-0.003	-0.003	0	%100
13	13	X	-0.001	-0.001	0	%100
14	16	X	-0.001	-0.001	0	%100
15	19	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	-0.0009	-0.0009	0	%100
4	4	Z	-0.0009	-0.0009	0	%100
5	5	Z	-0.0009	-0.0009	0	%100
6	6	Z	-0.0009	-0.0009	0	%100
7	7	Z	-0.0009	-0.0009	0	%100
8	8	Z	-0.0009	-0.0009	0	%100
9	9	Z	-0.0009	-0.0009	0	%100
10	10	Z	-0.0009	-0.0009	0	%100
11	11	Z	-1e-04	-1e-04	0	%100
12	12	Z	-1e-04	-1e-04	0	%100
13	13	Z	-0.0003	-0.0003	0	%100
14	16	Z	-0.0003	-0.0003	0	%100
15	19	Z	-0.0003	-0.0003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.001	-0.001	0	%100
3	3	X	-0.0009	-0.0009	0	%100
4	4	X	-0.0009	-0.0009	0	%100
5	5	X	-0.0009	-0.0009	0	%100
6	6	X	-0.0009	-0.0009	0	%100
7	7	X	-0.0009	-0.0009	0	%100
8	8	X	-0.0009	-0.0009	0	%100
9	9	X	-0.0009	-0.0009	0	%100
10	10	X	-0.0009	-0.0009	0	%100
11	11	X	-1e-04	-1e-04	0	%100
12	12	X	-1e-04	-1e-04	0	%100
13	13	X	-0.0003	-0.0003	0	%100
14	16	X	-0.0003	-0.0003	0	%100
15	19	X	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.008	-0.008	0	%100
2	2	Y	-0.008	-0.008	0	%100
3	3	Y	-0.008	-0.008	0	%100
4	4	Y	-0.008	-0.008	0	%100
5	5	Y	-0.008	-0.008	0	%100
6	6	Y	-0.008	-0.008	0	%100
7	7	Y	-0.008	-0.008	0	%100
8	8	Y	-0.008	-0.008	0	%100
9	9	Y	-0.008	-0.008	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, %)]
10	10	Y	-0.008	-0.008	0	%100
11	11	Y	-0.01	-0.01	0	%100
12	12	Y	-0.01	-0.01	0	%100
13	13	Y	-0.005	-0.005	0	%100
14	16	Y	-0.005	-0.005	0	%100
15	19	Y	-0.006	-0.006	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	-0.0004	-0.0004	0	%100
2	2	Z	-0.0004	-0.0004	0	%100
3	3	Z	-0.0004	-0.0004	0	%100
4	4	Z	-0.0004	-0.0004	0	%100
5	5	Z	-0.0004	-0.0004	0	%100
6	6	Z	-0.0004	-0.0004	0	%100
7	7	Z	-0.0004	-0.0004	0	%100
8	8	Z	-0.0004	-0.0004	0	%100
9	9	Z	-0.0004	-0.0004	0	%100
10	10	Z	-0.0004	-0.0004	0	%100
11	11	Z	-0.0007	-0.0007	0	%100
12	12	Z	-0.0007	-0.0007	0	%100
13	13	Z	-0.0003	-0.0003	0	%100
14	16	Z	-0.0003	-0.0003	0	%100
15	19	Z	-0.0006	-0.0006	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	-0.0004	-0.0004	0	%100
2	2	X	-0.0004	-0.0004	0	%100
3	3	X	-0.0004	-0.0004	0	%100
4	4	X	-0.0004	-0.0004	0	%100
5	5	X	-0.0004	-0.0004	0	%100
6	6	X	-0.0004	-0.0004	0	%100
7	7	X	-0.0004	-0.0004	0	%100
8	8	X	-0.0004	-0.0004	0	%100
9	9	X	-0.0004	-0.0004	0	%100
10	10	X	-0.0004	-0.0004	0	%100
11	11	X	-0.0007	-0.0007	0	%100
12	12	X	-0.0007	-0.0007	0	%100
13	13	X	-0.0003	-0.0003	0	%100
14	16	X	-0.0003	-0.0003	0	%100
15	19	X	-0.0006	-0.0006	0	%100

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	31	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	25	L	Y	-0.5

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	Dead	DL	-1		10	
2	0 Wind - No Ice	WLZ			10	15
3	90 Wind - No Ice	WLX			10	15
4	0 Wind - Ice	WLZ			10	15
5	90 Wind - Ice	WLX			10	15
6	0 Wind - Service	WLZ			10	15
7	90 Wind - Service	WLX			10	15
8	Ice	OL1			10	15
9	0 Seismic	ELZ			10	15
10	90 Seismic	ELX			10	15
11	Live Load a	LL		1		
12	Live Load b	LL		1		
13	Live Load c	LL				
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	
19	Maint LL 5	LL			1	
20	Maint LL 6	LL			1	
21	Maint LL 7	LL				
22	Maint LL 8	LL				
23	Maint LL 9	LL				
24	Maint LL 10	LL				
25	Maint LL 11	LL				
26	Maint LL 12	LL				
27	Maint LL 13	LL				
28	Maint LL 14	LL				
29	Maint LL 15	LL				

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

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
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
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

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
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
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	18	max	0.437	5	0.813	25	1.691	25	0	100	0	100	0	100
2		min	-0.305	11	0.215	7	-0.344	7	0	1	0	1	0	1
3	17	max	0.389	5	0.845	19	0.452	13	0	100	0	100	0	100
4		min	-0.505	11	0.223	13	-1.705	19	0	1	0	1	0	1
5	39	max	0.615	5	0.153	23	1.271	5	0	100	0	100	0	100
6		min	-0.629	11	0.079	5	-1.293	11	0	1	0	1	0	1
7	Totals:	max	1.44	5	1.756	15	1.589	2						
8		min	-1.44	11	0.736	8	-1.589	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	L3X3X3	0.798	2.318	12	0.056	0.58	z	6	9.296	35.316	1.32	2.227	1.451	H2-1
2	2	L3X3X3	0.907	2.318	6	0.058	0.58	y	12	9.296	35.316	1.32	2.225	1.448	H2-1
3	3	L3X3X3	0.449	3.958	43	0.05	0.792	y	48	21.461	35.316	1.32	2.585	1.5	H2-1
4	4	L3X3X3	0.478	3.958	56	0.054	0.792	z	60	21.461	35.316	1.32	2.585	1.5	H2-1
5	5	L3X3X3	0.469	3.958	49	0.048	0.792	z	42	21.461	35.316	1.32	2.585	1.5	H2-1
6	6	L3X3X3	0.499	3.958	61	0.052	0.792	y	54	21.461	35.316	1.32	2.585	1.5	H2-1
7	7	L3X3X3	0.095	2.422	7	0.015	2.422	z	18	21.034	35.316	1.32	2.474	1.27	H2-1
8	8	L3X3X3	0.115	2.422	86	0.017	2.422	y	55	21.034	35.316	1.32	2.504	1.333	H2-1
9	9	L3X3X3	0.091	2.372	12	0.019	4.845	z	5	21.034	35.316	1.32	2.477	1.275	H2-1
10	10	L3X3X3	0.097	2.422	12	0.018	0	z	11	21.034	35.316	1.32	2.461	1.243	H2-1

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
11	11	PL3/8"X6	0.607	0.083	20	0.019	0.5	z	19	62.014	72.9	0.57	9.113	1.471	H1-1b
12	12	PL3/8"X6	0.634	0.083	25	0.019	0.5	z	25	62.014	72.9	0.57	9.113	1.472	H1-1b
13	13	PIPE_2.38X.12	0.198	2.167	55	0.048	5.833		57	13.36	35.273	2.115	2.115	1	H1-1b
14	16	PIPE_2.38X.12	0.573	4	11	0.078	3.917		5	13.36	35.273	2.115	2.115	1	H1-1b
15	19	PIPE_2.5	0.548	12.364	5	0.01	24.224		24	3.877	50.715	3.596	3.596	1	H1-1a

APPENDIX B
(Additional Calculations)

PROJECT	**149478.004.01 - Cleary Tower (Edwa**				**KSC**
SUBJECT	**Sector Mount Analysis**				
DATE	**05/27/22**	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	:	1.705	k
Vertical Shear	:	0.845	k
Horizontal Shear	:	0.505	k
Torsion	:	0	k.ft
Moment from Horizontal Forces	:	0	k.ft
Moment from Vertical Forces	:	0	k.ft

Bolt Parameters

Bolt Grade	:	A307	
Bolt Diameter	:	0.75	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	:	2	bolts

Summary of Forces

Shear Resultant Force	:	0.98	k
Force from Horz. Moment	:	0.00	k
Force from Vert. Moment	:	0.00	k
Shear Load / Bolt	:	0.49	k
Tension Load / Bolt	:	0.85	k
Resultant from Moments / Bolt	:	0.00	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	:	**8.23%**		**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	:	**24.33%**		**OKAY**
Unity Check, Combined	:	**32.56%**		**OKAY**
Available Bearing Strength, ΦR_n	:	32.63	k/bolt	
Unity Check, Bolt Bearing	:	**1.51%**		**OKAY**

Exhibit F

Power Density/RF Emissions Report

Fox Hill Telecom

Radio Frequency Emissions Analysis Report

Site ID: BOHVN00050A

SBA - Wolcott Road
1233 Wolcott Road (rt 69)
Wolcott, CT 06716

June 28, 2022

Fox Hill Telecom Project Number: 221176

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**9.79 %**

Fox Hill Telecom

June 28, 2022

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOHVN00050A – SBA - Wolcott Road**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **1233 Wolcott Road (rt 69), Wolcott, 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 **1233 Wolcott Road (rt 69), Wolcott, 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	148
B	1	JMA MX08FRO665-21	148
C	1	JMA MX08FRO665-21	148

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	4.03
						Sector A Composite MPE%	**4.03**
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	4.03
						Sector B Composite MPE%	**4.03**
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	4.03
						Sector C Composite MPE%	**4.03**

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	**4.03 %**
LoJack	0.00 %
TSR Wireless	0.05 %
Weblink Wireless	0.29 %
Wolcott Ambulance	0.06 %
Nextel	0.15 %
Sprint	0.46 %
Clearwire	0.04 %
Marcus	2.64 %
AT&T	1.90 %
MetroPCS	0.17 %
Site Total MPE %:	**9.79 %**

Table 4: All Carrier MPE Contributions

Dish Sector A Total:	4.03 %
Dish Sector B Total:	4.03 %
Dish Sector C Total:	4.03 %
Site Total:	9.79 %

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	148	6.12	n71 (600 MHz)	400	1.53%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,648.39	148	11.76	n70 (AWS-4 / 1995-2020)	1000	1.18%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,849.52	148	13.19	n66 (AWS-4 / 2180-2200)	1000	1.32%
						Total:	**4.03%**

Table 6: Dish Maximum Sector MPE Power Values

Fox Hill Telecom

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:	4.03 %
Sector B:	4.03 %
Sector C:	4.03 %
Dish Maximum Total (per sector):	4.03 %
Site Total:	9.79 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **9.79 %** 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

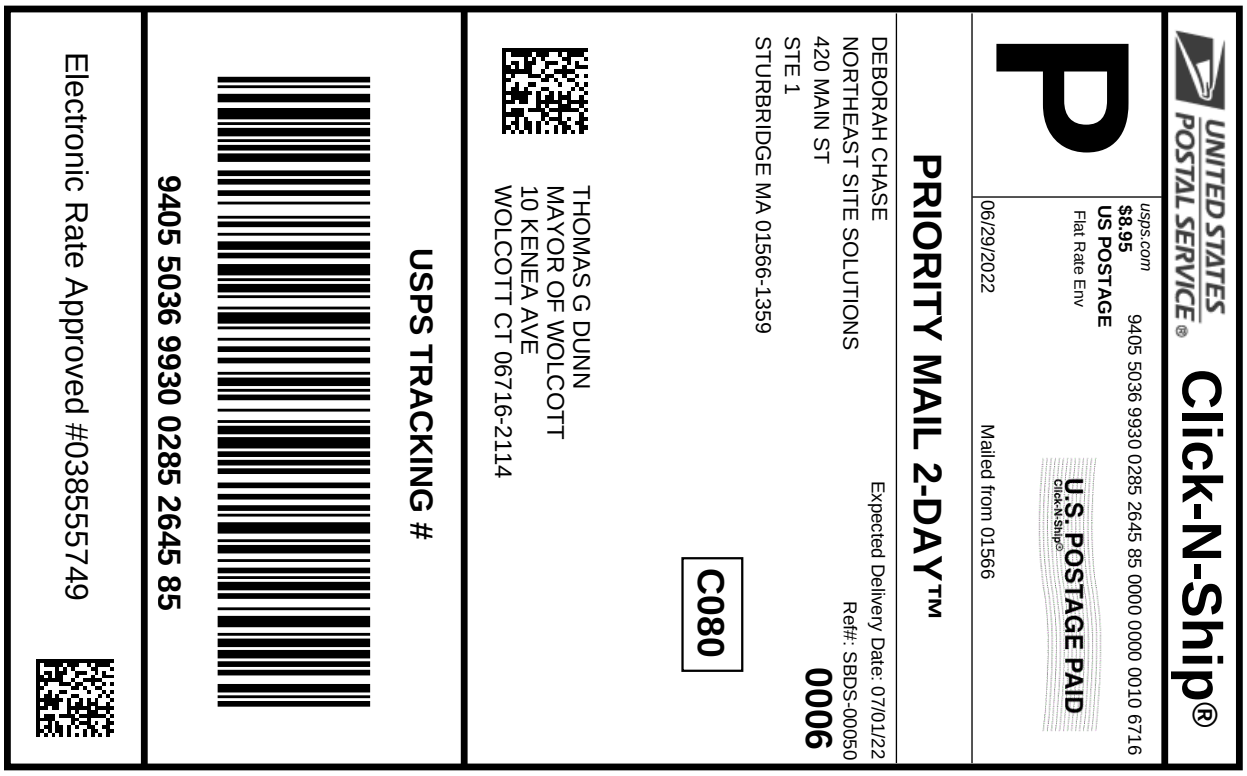
SBA COMMUNICATIONS CORPORATION hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CONNECTICUT SITING COUNCIL for existing wireless communications towers.

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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Expected Delivery Date:	07/01/2022

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-00050

To: THOMAS G DUNN
MAYOR OF WOLCOTT
10 KENEA AVE
WOLCOTT CT 06716-2114

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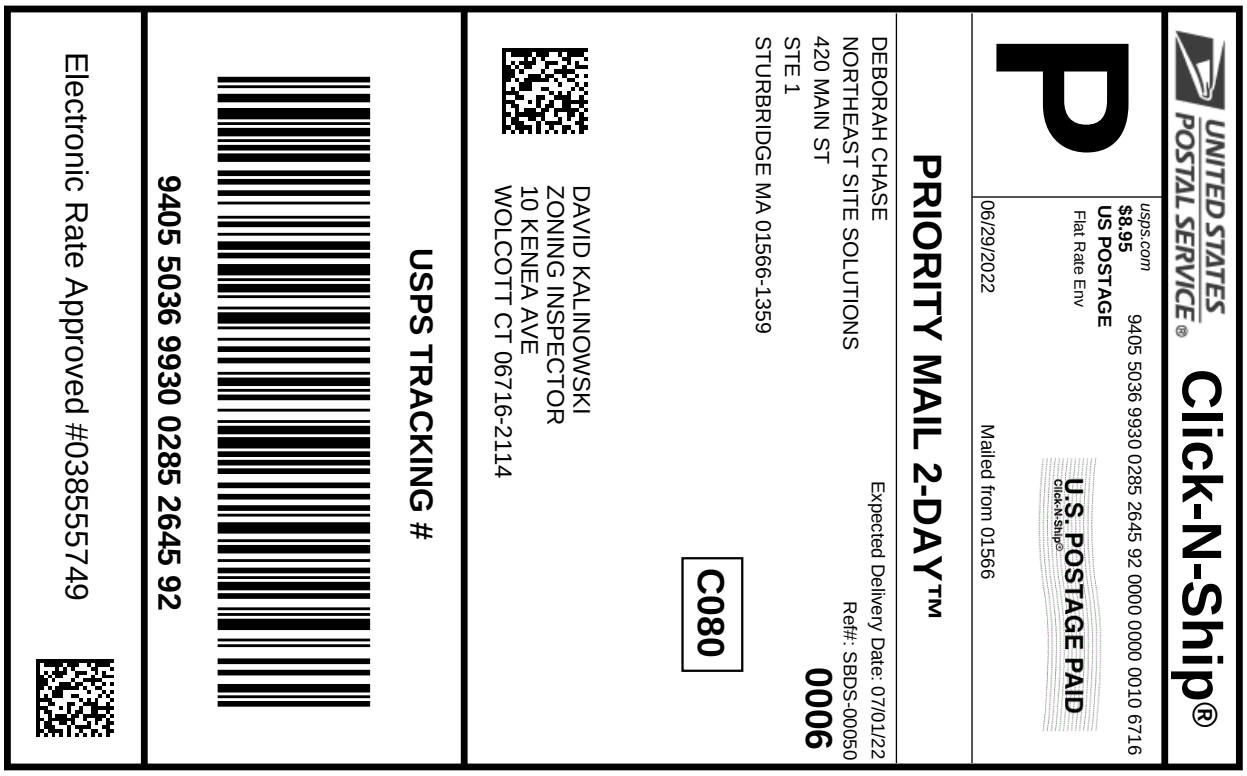

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NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: SBDS-00050

To: DAVID KALINOWSKI
ZONING INSPECTOR
10 KENEA AVE
WOLCOTT CT 06716-2114

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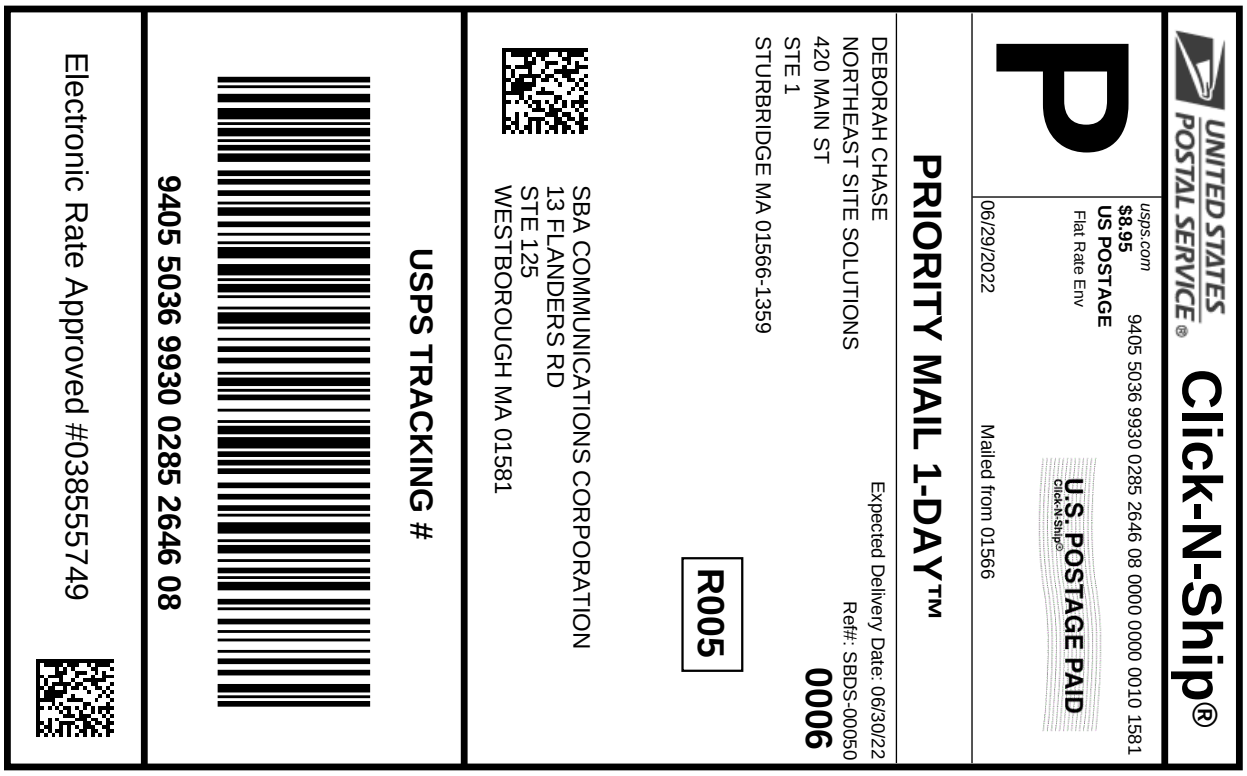

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Print Date:	06/29/2022
Ship Date:	06/29/2022
Expected Delivery Date:	06/30/2022

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-00050

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

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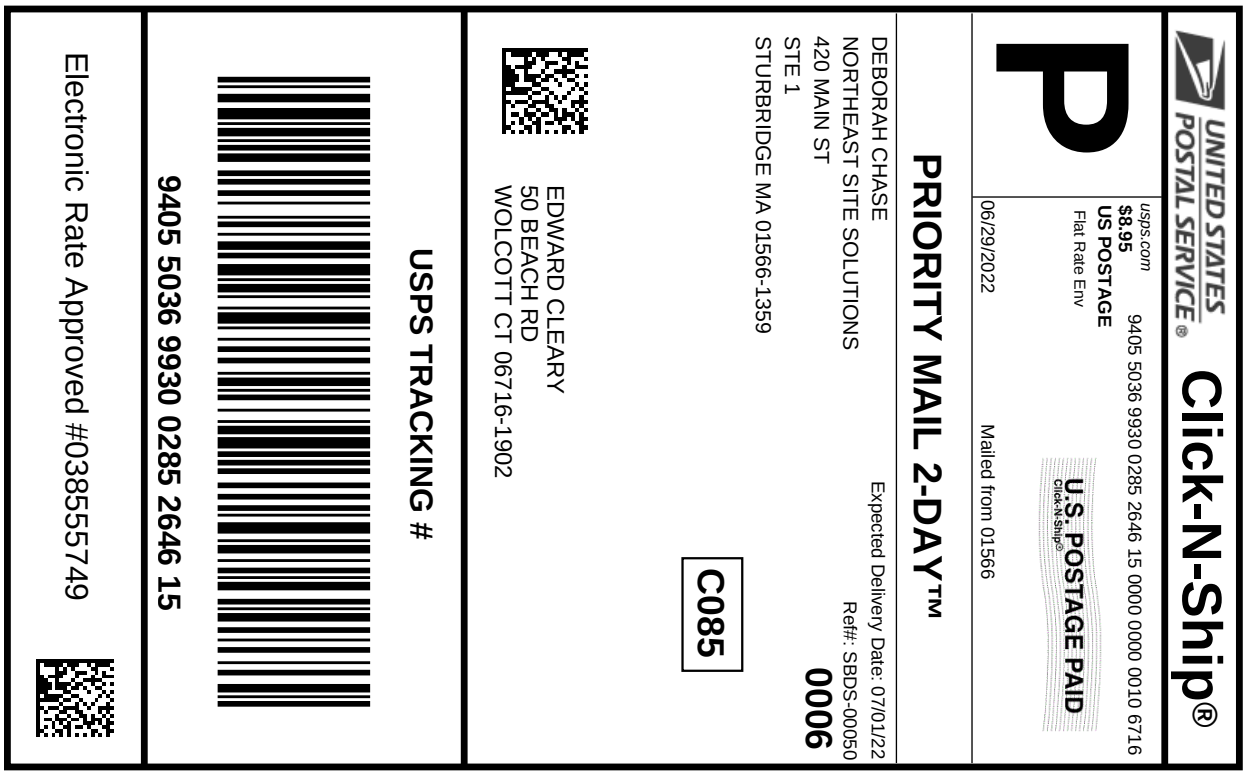

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STURBRIDGE MA 01566-1359

Ref#: SBDS-00050

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50 BEACH RD
WOLCOTT CT 06716-1902

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UNITED STATES POSTAL SERVICE.

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FARMINGTON, CT 06032-9998
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Product	Qty	Unit Price	Price
Prepaid Mail Wolcott, CT 06716 Weight: 0 lb 11.20 oz Acceptance Date: Fri 07/01/2022 Tracking #: 9405 5036 9930 0285 2646 15	1		$0.00
Prepaid Mail Westborough, MA 01581 Weight: 0 lb 2.00 oz Acceptance Date: Fri 07/01/2022 Tracking #: 9405 5036 9930 0285 2646 08	1		$0.00
Prepaid Mail Wolcott, CT 06716 Weight: 0 lb 11.20 oz Acceptance Date: Fri 07/01/2022 Tracking #: 9405 5036 9930 0285 2645 85	1		$0.00
Prepaid Mail Wolcott, CT 06716 Weight: 0 lb 11.10 oz Acceptance Date: Fri 07/01/2022 Tracking #: 9405 5036 9930 0285 2645 92	1		$0.00
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