Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Tectonic Engineering
Theresa Ranciato-Viele
63-3 N. Branford Road
Branford, CT 06405
Tranciato@Tectonicengineering.com
203-606-5127

March 2, 2022

Ms. Melanie Bachman, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: **Notice of Exempt Modification to an existing 112'monopole tower located at 48 Newtown Road, Danbury, Connecticut**

Latitude: 41° 24' 12.27 / Longitude: 73° 25' 27.98"

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless, LLC ("Dish"). Dish plans to install antennas and related equipment to the tower site at the existing 112'monopole tower facility located at 48 Newtown Road, Danbury, Connecticut (See Original Facility Approval attached as Exhibit A) ("Facility"). The property is owned by 48 Newtown Road Corporation (See Danbury Assessor Property Card attached hereto as Exhibit B).

Dish proposes to install three (3) 600/1900/2100 MHz JMA – MX08Fr0665-21 antennas and six (6) FUJITSU TA08025 RRUs on the tower at the two hundred twenty five foot (225') centerline AGL. Dish further proposes to install one (1) 1.5" Hybrid Cable. Dish will also install its equipment cabinets on a 5' X 7' platform within its 10' X 15' lease area. The installation is shown on plans completed by Tectonic Engineering, dated February 10, 2022, and attached hereto as Exhibit C.

Dish requests that the Connecticut Siting Council ("Council") find that the proposed shared use of this Facility satisfies the criteria of C.G.S. sec. 16-50aa and accordingly issue an order approving the proposed shared use. This proposed installation constitutes an exempt modification pursuant to R.C.S.A. 16-50j-89. Pursuant to R.C.S.A. 16-50j-73, Dish is providing notice to Dean Esposito, Mayor of the City of Danbury, Sharon B. Calitro, Director of Planning and Zoning for the City of Danbury and the property owner, 48 Newtown Road Corporation.

Under the Council's regulations, Dish's plans do not constitute a modification subject to the Council's review in that:

Dish will not change the existing 112' height of the Tower as the Dish antennas will be installed at a height of 80'.

The proposed installation will not extend the existing boundaries of the approved compound as depicted in Exhibit C;

The proposed installation will not increase the noise levels at the facility by six (6) decibels or more, or to levels that exceed local and state criteria; and

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 attached Exhibit F indicates that the combined site operations will result in a total power density of 3.7856%.

Tower

The Facility consists of a one hundred twelve (112') foot guy tower located at 48 Newtown Road, Danbury, Connecticut. As indicated above, the tower is owned by 48 Newtown Road Corporation. The tower currently supports AT&T at the one hundred foot (100') centerline, and Verizon Wireless at the ninety foot (90') centerline AGL. The antenna locations are set forth on Sheet A-2 of the attached drawings in Exhibit C.

A. TECHNICAL FEASIBILTY

The existing monopole has been deemed structurally capable of supporting the proposed Dish loading. The structural and mount analyses are attached hereto as Exhibits D and E respectively.

B. LEGAL FEASIBILITY

C.G.S. Se. 16-50aa authorizes the Council to issue orders approving the shared use of existing towers such as the above referenced tower. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish to obtain a building permit from the Town of Danbury to proceed with the proposed installation. Additionally, a Supplement to The Master Lease Agreement is attached as Exhibit G, granting Dish the authority from the tower owner to proceed with this application for shared use.

C. ENVIRONMENTAL FEASIBILITY

The proposed shared use of this Facility would have a minimal environmental impact. The installation of the Dish equipment at the 80' level of the existing tower would have an insignificant visual impact on the area surrounding the tower. The proposed Dish ground equipment would be installed within the existing Facility compound. The Dish installation would not cause any significant

alteration to the physical or environmental characteristics of the existing Facility. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase the radio frequency emissions to a level at or above the Federal Communications Commission safety standards.

D. ECONOMIC FEASIBILTY

Dish has entered into a Lease Agreement (Exhibit G) with the Facility owner for the proposed colocation. Therefore, this shared use is economically feasible.

E. PUBLIC SAFETY CONCERNS

As set forth above, the tower is structurally capable of supporting the proposed Dish loading. Dish is not aware of any public safety concerns relative to the proposed sharing of the existing tower.

For the reasons set forth herein, the proposed shared use of the existing tower at 48 Newttown Road, Danbury, satisfies the criteria stated in C.G.S. sec. 16-50aa, and supports the general goal of preventing the unnecessary proliferation of tower sites in Connecticut. Dish respectfully requests the Council issue an order approving the proposed shared use.

Respectfully submitted,
Dish Wireless, LLC

By _____
Theresa Ranciato-Viele, consultant
63-3 N. Branford Road
Branford, CT 06405
Tranciato@Tectonicengineering.com
203-606-5127

cc: Danbury Mayor, Honorable Dean Esposito
155 Deer Hill Ave.
Danbury, CT 06810

Danbury Director of Planning and Zoning, Sharon B. Calitro
155 Deer Hill Ave,
Danbury, CT 06810

Tower Owner: 48 Newtown Road Corporation
50 Newtown Road
Danbury, CT 06810

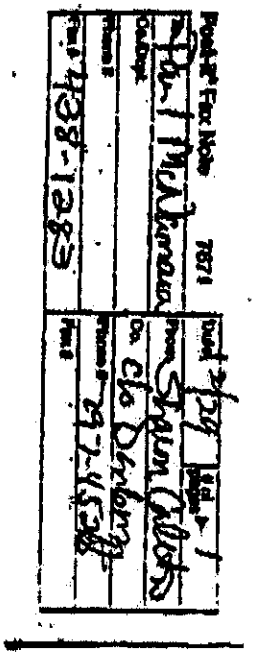
Exhibit A

Original Facility Approval

CITY OF DANBURY

155 DEER HILL AVENUE
DANBURY, CONNECTICUT 06810

PLANNING & ZONING DEPARTMENT
(203) 797-4525
(203) 797-4586 (FAX)



December 29, 1998

Mr. Paul S. McNamara
Donnelly, McNamara & Gustafson, P.C.
150 Danbury Road
PO Box 2006
Ridgefield, CT 06877

RE: Waiver No. 98-49
48 Newtown Road – Telephone Tower and Equipment Storage
Assessor's Lot Numbers K12265, K12266

Dear Mr. McNamara:

Your application for a Waiver to Site Plan Requirements for the construction of a Telephone Tower and Equipment Storage on the above-referenced site is approved as follows:

1. The existing telephone tower on the adjacent site identified as 50 Newtown Road will be removed in lieu of the construction of the tower and equipment storage facility to be located at 48 Newtown Road.
2. There shall be no exterior changes to the building façade other than the addition of the tower in the location as shown on the Site Plan prepared for 48 Newtown Road Corporation by New England Land Surveying, dated August 21, 1989 as revised to September 9, 1994 as submitted in support of this Waiver Application.
3. This approval does not waive any other departmental approvals, requirements or permits that may be necessary to complete this proposed project.

A Zoning Permit may now be required. Please contact the Zoning Department for further information regarding this process. Upon completion of construction, a Zoning Certificate of Compliance will be issued by this Office prior to the issuance if a Certificate of Occupancy by the Building Department, provided work was completed in accordance with the Waiver to Site Plan Requirements approved December 29, 1998.

Respectfully,

Sharon B. Calitro
Assistant Planning Director

C: Wayne Skelly, Zoning Enforcement Officer
Mario Ricozzi, P.E., Director of Dept. of Permit Coordination

No 010144

Telephone 797-4525 CITY OF DANBURY PLANNING & ZONING DEPARTMENT

ZONING PERMIT DATE Jan. 6, 1999

Property Owner's Name & Address 48 Newtown Road Corporation, 48 Newtown Rd. Danbury

Applicant's Name & Address Same

Property Located At 48 NEWTOWN RD.

Current Use of Property Commercial Proposed Use of Property Same

Zone CG-20 Lot Area or Dimensions 25,998 sq.ft. Assessor's Lot No. K-12265 K-12266

THIS PERMIT IS FOR THE FOLLOWING ACTIVITY:

____New Construction ____Change of Use ____Interior Alterations
____Addition ____Exterior Alterations ____Excavation
____Sign (Give linear measure of exterior building wall)_____ [Proposed Sign Area_____
[Maximum Sign Allowed_____

x Other (Specify)_____

DESCRIPTION OF WORK PROPOSED: Construction of telephone tower

Dimensions of Proposed Structure: Width 5'± X Length 4'± X Height 90'±

Distance from Front Property Line 125' Adjacent Property Lines 38'-58' Rear Line 50'

NOTE: COMPLY WITH WAIVER AS APPROVED.

FOR OFFICE USE ONLY: Required Permits & Approvals:	Conditions Yes	Conditions No	Effective Date	Permit No. Or Expiration Date
____Plot Plan	___	___		
x Site Plan or Waiver	___	___	12/29/98	98-49
____Special Exception	___	___		
____Special Permit	___	___		
____Variance	___	___		
____Subdivision/Resubdivision	___	___		
____E.I.C. Approval	___	___		
____Sewer Permit (Engineering Dept.)	___	___		
____Water Permit (Engineering Dept.)	___	___		
____Septic Permit/Approval (Health Dept.)	___	___		
____Well Permit/Approval (Health Dept.)	___	___		
____Erosion & Sedimentation Permit (Health)	___	___		
____Driveway Permit (Public Works Dept.)	___	___		
____State Traffic Comm. Certification (D.O.T.)	___	___		
____Flood Plain Zone Permit	___	___		
____Airport Protection District	___	___		
____Health Dept.	___	___		
____Fire Marshal's Approval	___	___		
____Other_____	___	___		

This Zoning Permit, if issued, is based upon the plot plan submitted. Falsification, by misrepresentation or omission, or failure to comply with conditions of approval of this permit, shall constitute a violation of the Zoning Regulations of the City of Danbury. CALL 797-4525 WHEN JOB IS COMPLETED TO ARRANGE ZONING COMPLIANCE INSPECTION.

ESTIMATED COST $75,000.00

FEE $200.00 + $10.00 = $210.00

Signature of Owner or Authorized Agent

Total includes $10 State Fee

POST THIS PERMIT CONSPICUOUSLY

DEPARTMENT OF BUILDINGS, DANBURY, CONNECTICUT

Phone 797-4581

BUILDING PERMIT

№ 029204

Issued 10/13/99 Expires 10/13/00

Owner 48 Newtown Rd Corp.

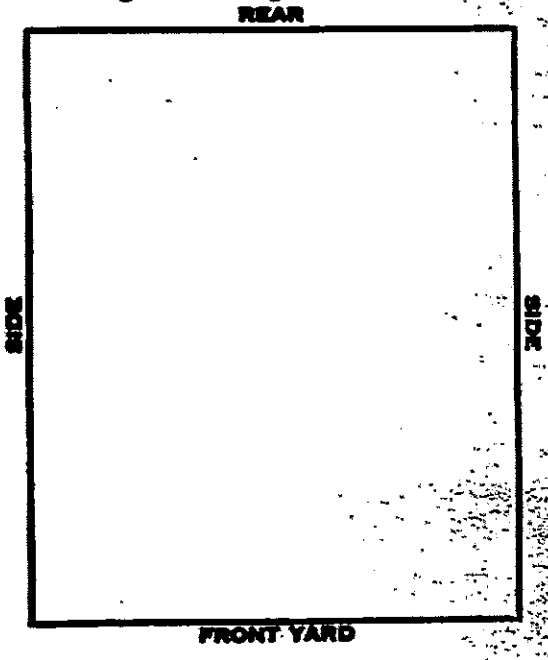
Building 100' monopole tower & equip. room; 47' retaining wall

Located 48 Newtown Rd Zone CG-20

Builder BRT General Corp.

Electrical Contractor Take out own License No. ~

Plumbing & Heating Contractor Take out own License No. ~



In accordance with application, plans and specifications on file, and subject to ordinances and Building Code of the City of Danbury, otherwise this permit is void. Occupancy of this new building or addition prior to issuance of a Certificate of Occupancy will be considered a violation of the Building Code Regulations.

Leo P Null (mas)
Building Inspector

NOTICE:

Changes, regardless of size, from stamped approved plans must be submitted to Building Inspector before they are made.

Prompt notification by the Plumbing, Electrical, and General contractors of completion of their respective portions of the work will avoid delay in issuance of the Certificate of Occupancy.

This Application is null and void if the building is not completed in one year from the date of issue, except by extension of application.

INSPECTIONS:
Normally there are nine or more required inspections of a new building, and as many as apply on alterations and additions:

1. ZONING
2. SOIL CONDITIONS—before foundation footings
3. FOOTING—drain inspection
4. ELECTRICAL—wiring roughing
5. PLUMBING—roughing
6. FRAMING—before insulation or lathing
7. INSULATION—inspection
8. GAS OR OIL BURNER—installation and wiring
9. ELECTRICAL—final when fixtures have been hung
10. PLUMBING—final when fixtures have been set
11. FINAL—fire divisions, exits, etc.

Exhibit B

Property Card

48 NEWTOWN

Location	48 NEWTOWN	**Mblu**	K12/ / 265/ /
Acct#		**Owner**	48 NEWTOWN ROAD CORPORATION
Assessment	$909,000	**Appraisal**	$1,298,500
PID	7333	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$904,400	$394,100	$1,298,500

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$633,100	$275,900	$909,000

Owner of Record

Owner	48 NEWTOWN ROAD CORPORATION	**Sale Price**	$0
Co-Owner		**Book & Page**	1706/ 908
Address	50 NEWTOWN RD DANBURY, CT 06810	**Sale Date**	11/08/2004
		Instrument	29

Ownership History

Ownership History				
Owner	**Sale Price**	**Book & Page**	**Instrument**	**Sale Date**
48 NEWTOWN ROAD CORPORATION	$0	1706/ 908	29	11/08/2004
MORRIS JULIA B NOMINEE	$0	1706/ 906	29	11/08/2004
FORTY EIGHT NEWTOWN ROAD	$0	1041/0377		03/04/1993

Building Information

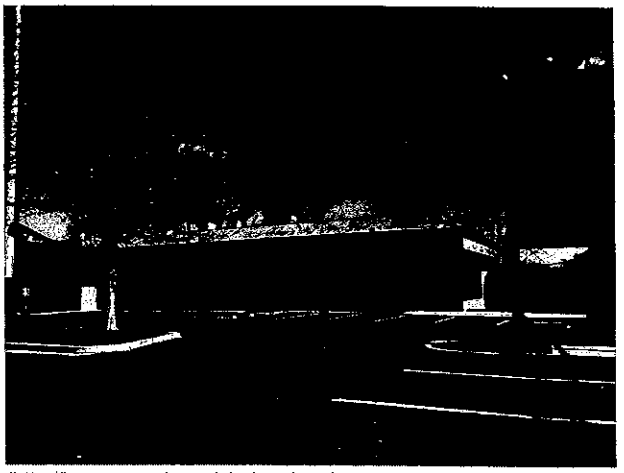
Building 1 : Section 1

Year Built:	1988
Living Area:	5,680
Replacement Cost:	$725,793
Building Percent Good:	81

Replacement Cost
Less Depreciation: $587,900

Building Attributes	
Field	**Description**
STYLE	Restaurant
MODEL	Commercial
Grade	Average
Stories:	2
Occupancy	4
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	Glass/Thermo.
Roof Structure	Gable/Hip
Roof Cover	Metal/Tin
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Ceram Clay Til
Interior Floor 2	Carpet
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Bldg Use	Comm/Res MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	201
Heat/AC	HEAT/AC SPLIT
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL & WL
Rooms/Prtns	AVERAGE
Wall Height	12
% Comn Wall	0

Building Photo



(http://images.vgsi.com/photos2/DanburyCTPhotos/\00\03\05/58.jpg)

Building Layout

(http://images.vgsi.com/photos2/DanburyCTPhotos//Sketches/7333_7333.j

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	4,180	4,180
AOF	Office, (Average)	1,500	1,500
CAN	Canopy	528	0
FGR	Garage	930	0
FOP	Open Porch	42	0
PTO	Patio	925	0
		8,105	5,680

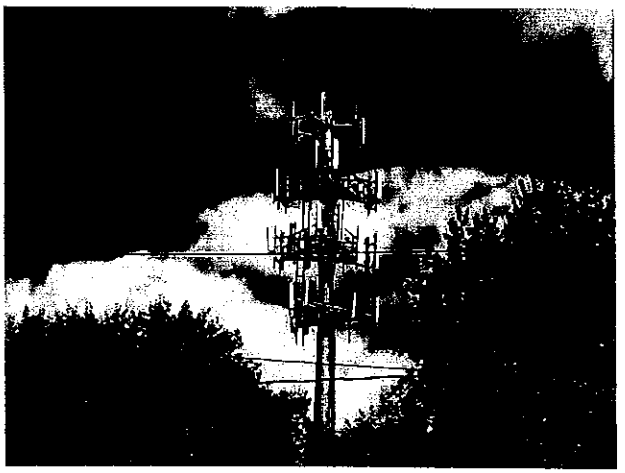
Building 1 : Section 1

Year Built: 1988
Living Area: 0
Replacement Cost: $725,793
Building Percent Good: 81
Replacement Cost
Less Depreciation: $587,900

Building Attributes

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 Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fireplaces	
Whirlpool	
Addn'l Kitchen	
Bsm Gar	
Fin Bsm Area	
Fin Bsm Qual	
Nhbd	
MH Park	

Building Photo



(http://images.vgsi.com/photos2/DanburyCTPhotos/\00\02\70/15.jpg)

Building Layout

Building Layout

(http://images.vgsi.com/photos2/DanburyCTPhotos//Sketches/7333_10498

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Land Line Valuation

Use Code	201	**Size (Acres)**	0.6
Description	Comm/Res MDL-94	**Frontage**	0
Zone	CG20	**Depth**	0
Neighborhood	6000	**Assessed Value**	$275,900
Alt Land Appr	No	**Appraised Value**	$394,100
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CEL	Cell Tower			1 UNITS	$300,000	1
PAV1	Paving-Asphalt			10500 S.F.	$16,500	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$904,400	$394,100	$1,298,500
2018	$900,700	$394,100	$1,294,800
2017	$900,700	$394,100	$1,294,800

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$633,100	$275,900	$909,000
2018	$630,500	$275,900	$906,400
2017	$630,500	$275,900	$906,400

Exhibit C

Project Plans

dish wireless.

DISH WIRELESS SITE ID:

NJJER01128B

DISH WIRELESS SITE ADDRESS:

48 NEWTOWN ROAD
DANBURY, CT 06810

SITE INFORMATION

PROPERTY OWNER:	48 NEWTON RD CORPORATION
ADDRESS:	48 NEWTOWN ROAD DANBURY, CT 06810
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	N/A
TOWER APP NUMBER:	N/A
COUNTY:	FAIRFIELD
LATITUDE (NAD 83):	41° 24' 12.27" N 41.403408 N
LONGITUDE (NAD 83):	73° 25' 27.98" W 73.424439 W
ZONING JURISDICTION:	CITY OF DANBURY/ CT SITING COUNCIL
ZONING DISTRICT:	OG-20
PARCEL NUMBER:	M122650000
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	T.B.D

PROJECT DIRECTORY

APPLICANT:	DISH WIRELESS 5701 S SANTA FE DRIVE LITTLETON, CO 80120
SITE DESIGNER:	TECTONIC ENGINEERING CONSULTANTS, GEOLOGISTS & LAND SURVEYORS, D.P.C. 1279 ROUTE 300 NEWBURGH, NY 12553 (845) 567-4656
SITE ACQUISITION:	TECTONIC ENGINEERING CONSULTANTS, GEOLOGISTS & LAND SURVEYORS, D.P.C. (845) 567-4656
CONSTRUCTION MANAGER:	JOSEPH DIPIAZZA JOSEPH.DIPIAZZA@DISH.COM
RF ENGINEER:	PAWAN MADAHAR PAWAN.MADAHAR@DISH.COM

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:

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

EQUIPMENT SCOPE OF WORK:
- REUSE EXISTING CONCRETE PAD
- 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 SAFETY SWITCH (IF REQUIRED)

CONNECTICUT CODE COMPLIANCE

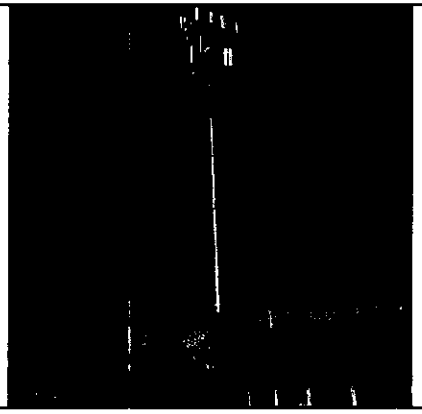
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

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

SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
SP-1	OVERALL SITE PLAN
A-1	ENLARGED SITE PLAN
A-2	MONOPOLE ELEVATION
A-3	EQUIPMENT DETAILS
A-4	EQUIPMENT DETAILS
GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES

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

811

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

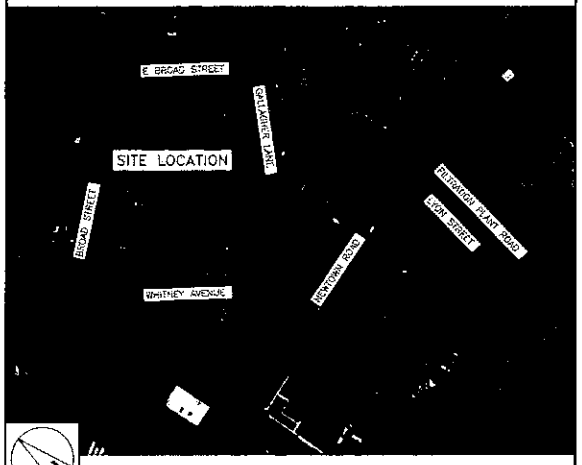
CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

DIRECTIONS

DIRECTIONS FROM 3 ADP BOULEVARD, ROSELAND, NJ:

GET ON I-280 E FROM LIVINGSTON AVE (0.5 MI) NORTH-WEST TOWARD ADP BLVD, TURN LEFT, TURN LEFT TOWARD SIT TO BLVD, TURN RIGHT TOWARD CHICOPEE WAY, USE THE LEFT LANE TO TURN RIGHT ONTO LIVINGSTON AVE, USE RAC RIGHT LANE TO MERGE ONTO I-280E AND I-95N TOWARD GEORGE WASHINGTON BRIDGE, CONTINUE ONTO I-95 UPPER LEVEL (CROSS TO NJ), MERGE ONTO I-80W TOWARD N.JERSEY TAKE EXIT 1 TOWARD GEORGE COUSEY TWAY EXIT AND MERGE ONTO CENTRAL AVENUE, KEEP LEFT TO STAY ON AND MERGE ONTO HUDSON RIVER PKWY, KEEP LEFT AT THE FORK TOWARDS I-84W, FOLLOWING SIGNS TO BREWSTER, TAKE EXIT 9E TO MERGE ONTO I-84 TOWARDS DANBURY, TAKE EXIT 8 FOR US-6E/NEWTOWN ROAD, TURN RIGHT ONTO NEWTOWN ROAD.

VICINITY MAP



NO SCALE

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

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.
Tectonic Engineering Consultants, Geologists, & Land Surveyors, D.P.C. inc
Project Surveyor, Inc
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-4656
(800) 528-4657
www.tectonicengineering.com

STATE OF CONNECTICUT
MANOJKUMAR PATEL
PEN.0022038
LICENSED
PROFESSIONAL ENGINEER
2/28/22

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	JQ	MP

RFDS REV #: -

ZONING DOCUMENTS

SUBMITTALS

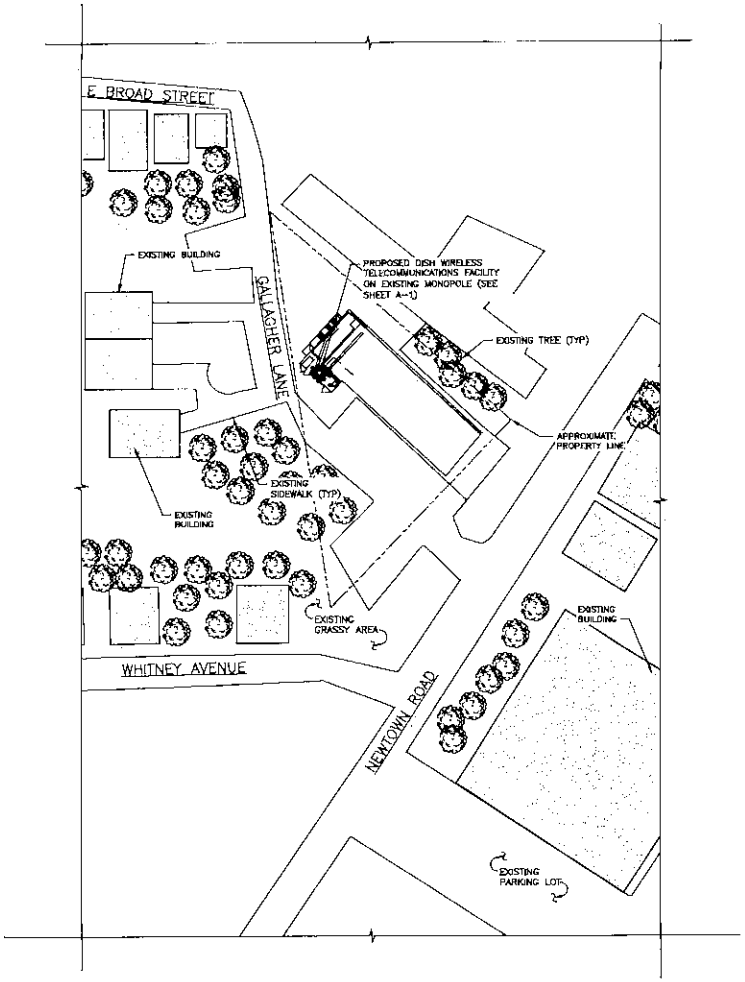
REV	DATE	DESCRIPTION
0	02/28/22	ISSUED FOR RUNS

A&E PROJECT NUMBER
10710.NJJER011288

DISH WIRELESS PROJECT INFORMATION
NJJER01128B
48 NEWTOWN RD
DANBURY, CT 06810

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1



NOTE: THE PROPERTY LINE SHOWN IS BASED ON GIS AND AERIAL IMAGING AND IS NOT FROM AN ACTUAL SURVEY.

OVERALL SITE PLAN

200' 100' 0 200' 400'
1"=200'

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

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.
Tectonic Engineering Consultants, Surveyors & Land Surveyors, D.P.C., Inc.
Project Contact Info
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-4656
(800) 829-8031
www.tectonic-engineering.com

STATE OF CONNECTICUT
MANOJKUMAR PATEL
PEN.0022038
LICENSED
PROFESSIONAL ENGINEER
2/28/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	JQ	MP

RFDS REV #: -

ZONING DOCUMENTS

SUBMITTALS

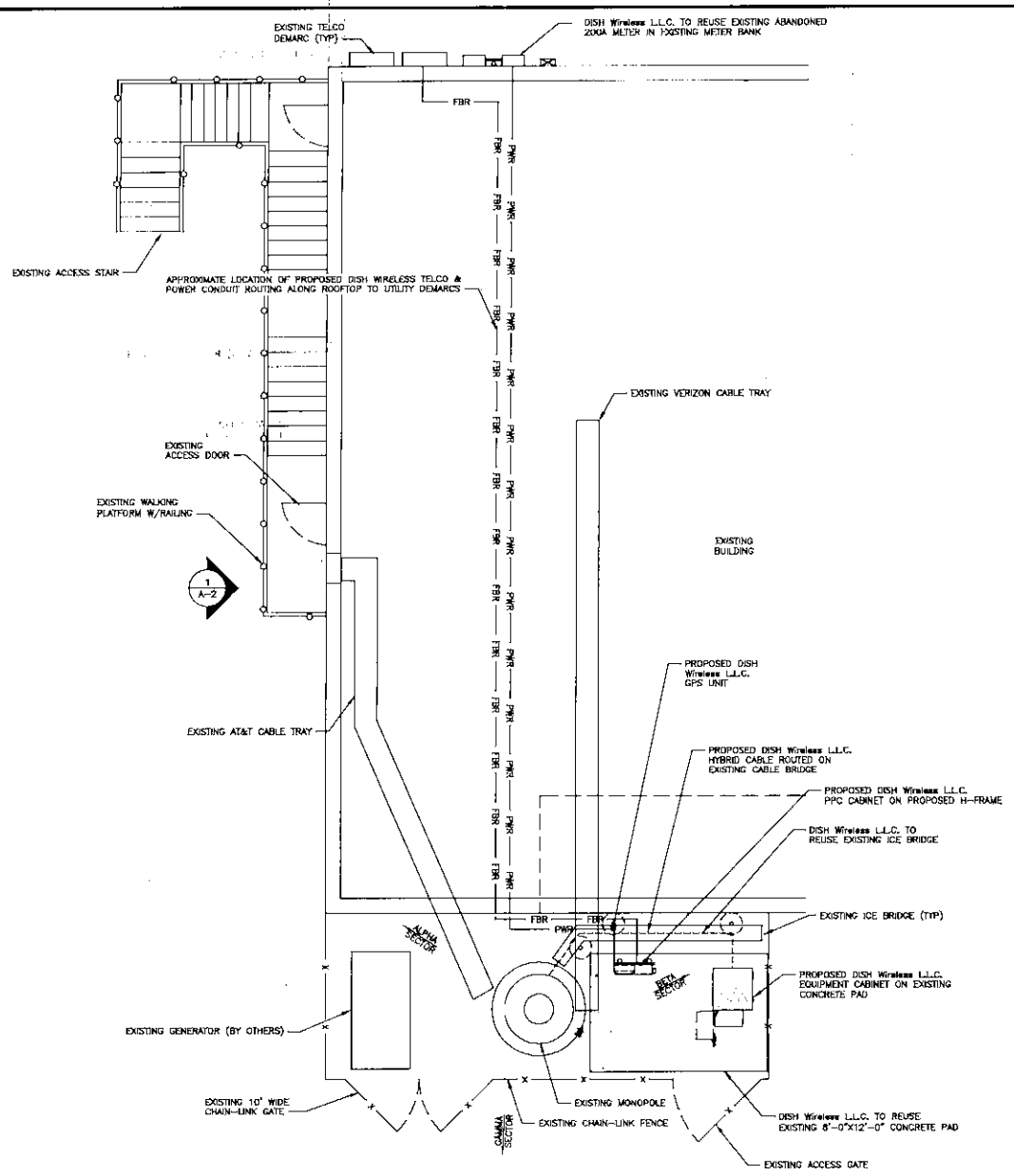
REV	DATE	DESCRIPTION
0	02/28/22	ISSUED FOR FILING

A&E PROJECT NUMBER
10710.NJJER01128B

DISH WIRELESS PROJECT INFORMATION
NJJER01128B
48 NEWTOWN RD
DANBURY, CT 06810

SHEET TITLE
OVERALL SITE PLAN

SHEET NUMBER
SP-1



ENLARGED SITE PLAN

4' 2' 0 4' 8'
1/4"=1'-0"

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. REFER TO STRUCTURAL ANALYSIS REPORT BY TECTONIC ENGINEERING DATED 01/25/22.
4. REFER TO MOUNT ANALYSIS REPORT BY TECTONIC ENGINEERING DATED 02/23/22.

ANTENNA AZIMUTHS	
ALPHA	0°
BETA	120°
GAMMA	240°

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

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.
Tectonic Engineering Consultants, Surveyors & Land Surveyors, P.C., Inc.
Project Control Office
1379 Route 300
Newburgh, NY 12550
Phone: (845) 567-0688
(800) 438-4521
www.tectonicengineering.com

STATE OF CONNECTICUT
MANOJKUMAR PATEL
PEN.0022038
LICENSED PROFESSIONAL ENGINEER
2/28/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	JQ	MP

RFDS REV #: –

ZONING DOCUMENTS

SUBMITTALS

REV.	DATE	DESCRIPTION
0	02/28/22	ISSUED FOR FILING

A&E PROJECT NUMBER
10710.NJJER01128B

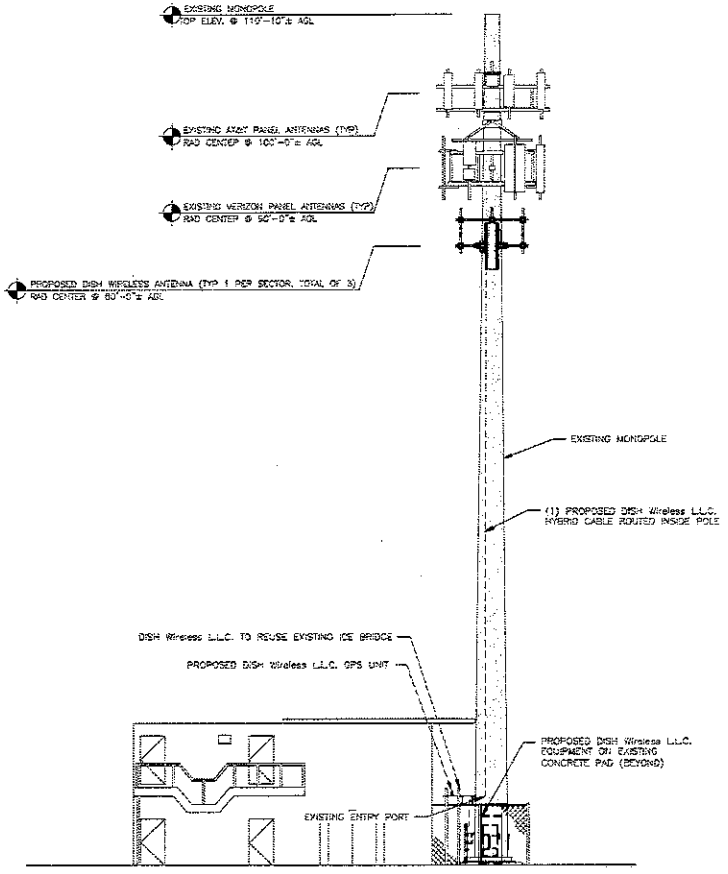
DISH WIRELESS PROJECT INFORMATION
NJJER01128B
48 NEWTOWN RD
DANBURY, CT 06810

SHEET TITLE
ENLARGED SITE PLAN

SHEET NUMBER
A-1

NOTES

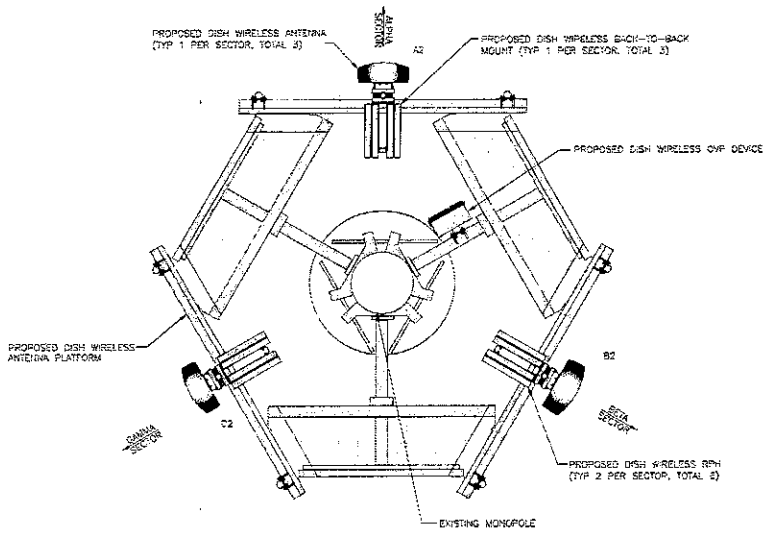
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. REFER TO STRUCTURAL ANALYSIS REPORT BY TECTONIC ENGINEERING DATED 01/26/22.
4. REFER TO MOUNT ANALYSIS REPORT BY TECTONIC ENGINEERING DATED 02/23/22.



PROPOSED ELEVATION

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

1



N

ENLARGED ANTENNA PLAN

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

2

SECTOR POS.	ANTENNA					TRANSMISSION CABLE	RRH			O/P
	EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECH	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH	MANUFACTURER - MODEL NUMBER	TECH	POS.	MANUFACTURER MODEL
A1						(1) HIGH CAPACITY HYBRID CABLE (100' LONG)	FUJITSU TA08025-B604	5G	A2	FD9DC -9181-PF-46
A2	PROPOSED	JMA MX08FRO665-21	5G	0°	80'-0"		FUJITSU TA08025-B605	5G	A2	
A3							--	--	--	
A1						SHARED W/ ALPHA	FUJITSU TA08025-B604	5G	B2	SHARED W/ ALPHA
B2	PROPOSED	JMA MX08FRO665-21	5G	120°	80'-0"		FUJITSU TA08025-B605	5G	B2	
B3							--	--	--	
C1						SHARED W/ ALPHA	FUJITSU TA08025-B604	5G	C2	SHARED W/ ALPHA
C2	PROPOSED	JMA MX08FRO665-21	5G	240°	80'-0"		FUJITSU TA08025-B605	5G	C2	
C3							--	--	--	

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.
3. AZIMUTHS ARE SUBJECT TO CHANGE AND NEED TO BE CONFIRMED WITH THE LATEST RFDS PRIOR TO THE START OF CONSTRUCTION.

ANTENNA SCHEDULE

NO SCALE

3

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

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.
Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C., PC
Project Delivery Firm
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-4620
(800) 724-1231
www.tectonicengineering.com

STATE OF CONNECTICUT
MANOJKUMAR PATEL
PEN.0022038
LICENSED PROFESSIONAL ENGINEER
2/28/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	JG	MP

PFDS REV #: --

ZONING DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	02/28/22	ISSUED FOR FILING

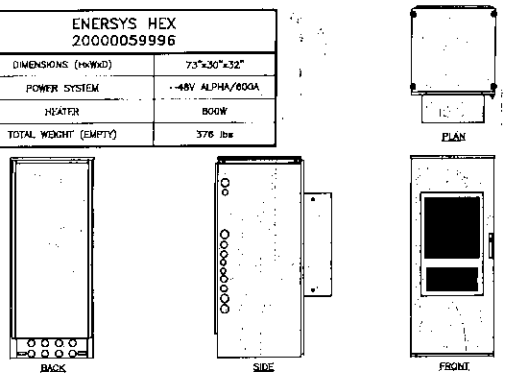
A&E PROJECT NUMBER
10710.NJJER01128B

DISH WIRELESS PROJECT INFORMATION
NJJER01128B
48 NEWTOWN RD
DANBURY, CT 06810

SHEET TITLE
MONOPOLE ELEVATION

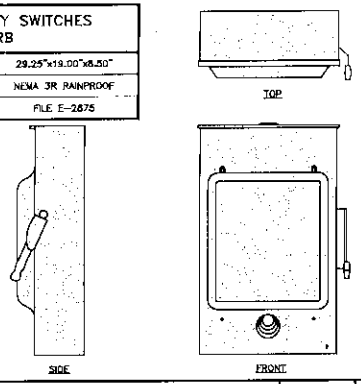
SHEET NUMBER
A-2

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



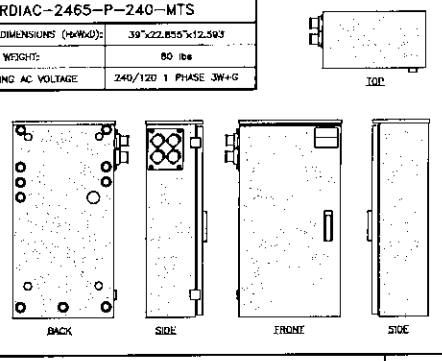
CABINET DETAIL | NO SCALE | 1

SQUARE D SAFETY SWITCHES D224NRB	
ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E-2875

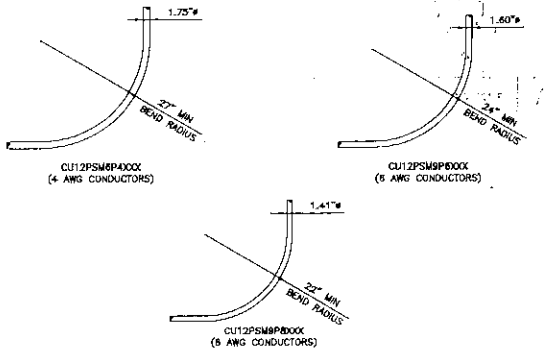


SAFETY SWITCH DETAIL | NO SCALE | 2

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

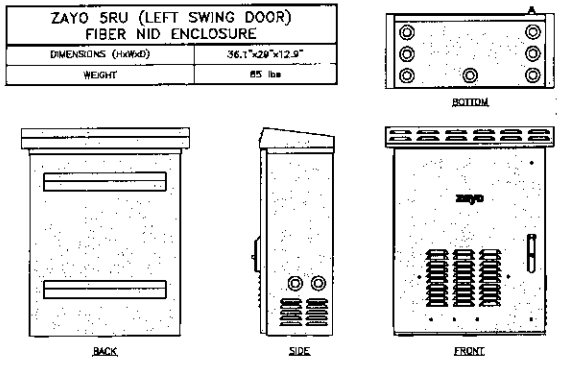


CABINET DETAIL | NO SCALE | 3



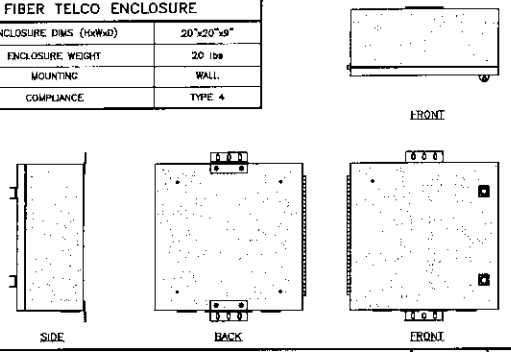
CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES | NO SCALE | 4

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



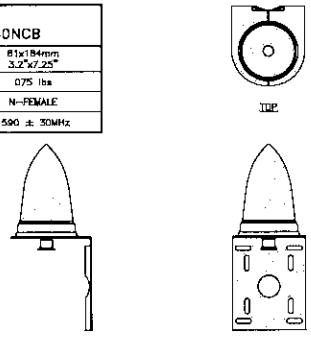
FIBER NID ENCLOSURE DETAIL | NO SCALE | 5

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

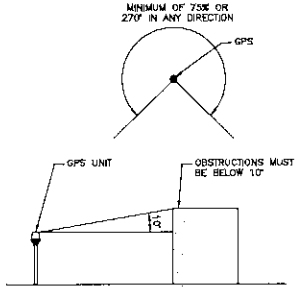


FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

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 | 7



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 8

NO SCALE | 9

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

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.
Tectonic Engineering Consultants, Surveyors & Land Surveyors, D.P.C., etc.
Project Counsel Zone
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-4656
(800) 528-6031
www.tectonic-engineering.com

STATE OF CONNECTICUT
MANOJKUMAR PATEL
PEN.0022038
LICENSED PROFESSIONAL ENGINEER
12/28/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	JQ	MP

RFDS REV #: –

ZONING DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	02/28/22	ISSUED FOR FILING

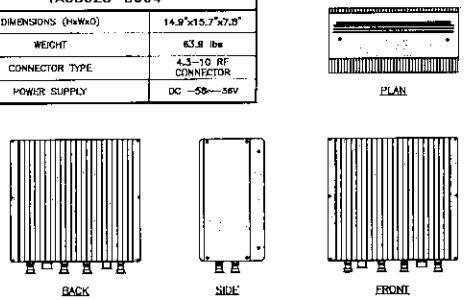
A&E PROJECT NUMBER
10710.NJJER01128B

DISH WIRELESS PROJECT INFORMATION
NJJER01128B
48 NEWTOWN RD
DANBURY, CT 06810

SHEET TITLE
EQUIPMENT DETAILS

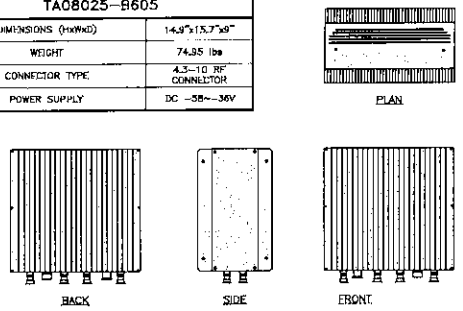
SHEET NUMBER
A-3

FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.9"
WEIGHT	63.8 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



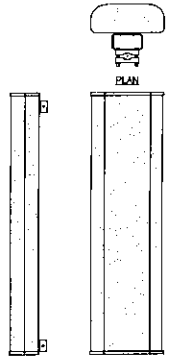
RRH DETAIL | NO SCALE | 1

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



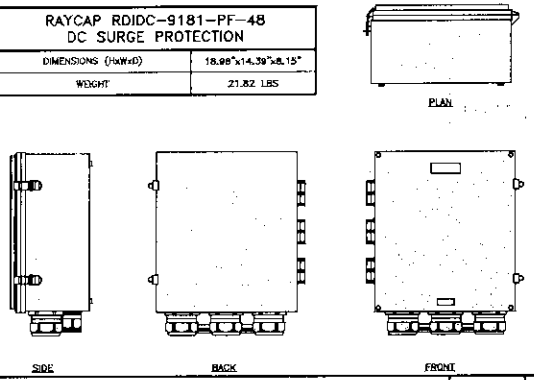
RRH DETAIL | NO SCALE | 2

JMA MX08FR0665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.4 lbs



ANTENNA DETAIL | NO SCALE | 3

RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



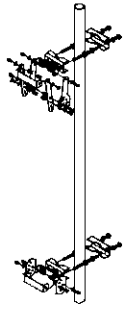
SURGE SUPPRESSION DETAIL | NO SCALE | 4

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

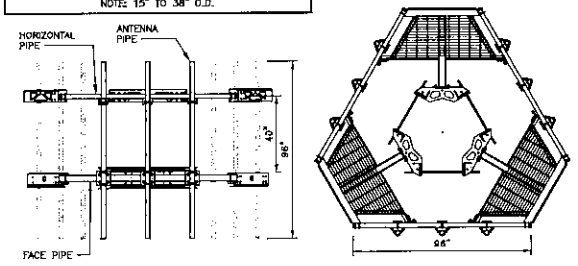
NOTE:
OR DISH Wireless L.L.C. APPROVED EQUIVALENT



ANTENNA BRACKET DETAIL | NO SCALE | 5

COMMSCOPE MC-PK8-DSH	
FACE WIDTH	96"
WEIGHT	1373.06 lbs
NOTE: 15" TO 38" O.D.	

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



ANTENNA PLATFORM DETAIL | NO SCALE | 6

NO SCALE | 7

NO SCALE | 8

NO SCALE | 9

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

Tectonic
ENGINEERING CONSULTANTS, GEOSPATIAL SERVICES
Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C. Inc.
Project Control Info
1379 Route 300
Newburgh, NY 12550
Phone: (845) 567-4666
(800) 428-8631
www.tectonicengineering.com

STATE OF CONNECTICUT
MANOJKUMAR PATEL
PEN.0022038
LICENSED PROFESSIONAL ENGINEER
12/28/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	JC	MP

RFDS REV #: -

ZONING DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	02/28/22	ISSUED FOR FILING

A&E PROJECT NUMBER
10710.NJJER01128B

DISH WIRELESS PROJECT INFORMATION
NJJER01128B
48 NEWTOWN RD
DANBURY, CT 06810

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

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

SECTION REFERENCE

DETAIL REFERENCE

ABBREVIATIONS

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	UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Tectonic

PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C., PC
Project Counsel Suite
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-4668
(800) 928-6531
www.tectonic-engineering.com

STATE OF CONNECTICUT
MANOJKUMAR PATEL
PEN.0022038
LICENSED
PROFESSIONAL ENGINEER
12/28/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	JQ	MP

RFDS REV #: –

ZONING DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	02/28/22	ISSUED FOR FILING

A&E PROJECT NUMBER

10710.NJJER01128B

DISH WIRELESS PROJECT INFORMATION

NJJER01128B

48 NEWTOWN RD
DANBURY, CT 06810

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 AND TOWER OWNER NOC & THE DISH WIRELESS AND TOWER OWNER CONSTRUCTION MANAGER.

2. "LOOK UP" – DISH WIRELESS 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 AND DISH WIRELESS 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 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 AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH WIRELESS 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 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 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

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 AND TOWER OWNER

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

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Tectonic

PRACTICAL SOLUTIONS. EXCEPTIONAL RESULTS.

Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C. PC
Project Delivery Solutions
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-4666
(800) 438-4631
www.tectonicengineering.com

STATE OF CONNECTICUT
MANOJKUMAR PATEL
PEN.0022038
LICENSED
PROFESSIONAL ENGINEER
2/23/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	JQ	MP

RFDS REV #: –

ZONING DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	02/28/22	ISSUED FOR FILING

A&E PROJECT NUMBER

10710.NJJER01128B

DISH WIRELESS PROJECT INFORMATION

NJJER01128B

48 NEWTOWN RD
DANBURY, CT 06810

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

Exhibit D

Structural Analysis

Tectonic

PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Date: **January 26, 2022**

Structural Analysis Report

Carrier: Dish Wireless

Site Number: NJJER01128B
Site Data: 48 Newton Road, Danbury, Fairfield County, CT 06810
Latitude *41° 24' 12.32"*, Longitude *-73° 25' 27.97"*
112 ft Monopole

Tectonic Project Number: 10710.NJJER01128B

Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

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

Structure: **Sufficient Capacity – 93.8%**
Foundation: **Sufficient Capacity – 83.3%**

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 120 mph converted to a nominal 3-second gust wind speed of 93 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B with a maximum topographic factor, Kzt, of 1.0 and Risk Category II were used in this analysis.

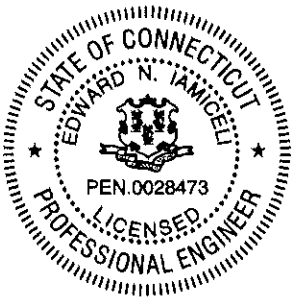
All modifications and equipment proposed in this report shall be installed in accordance with this analysis for the determined available structural capacity to be effective.

We at Tectonic appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: John-Fritz Julien / Ian Marinaccio

Respectfully submitted by:
Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C.

Edward N. Iamiceli, P.E.
Managing Director - Structural



Project Contact Info

1279 Route 300 | Newburgh, NY 12550
845.567.6656 Tel | 845.567.8703 Fax

tectonicengineering.com
Equal Opportunity Employer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 112 ft Monopole tower originally designed to 100 ft by Engineered Endeavors, Inc. in July of 1999. The tower was extended to its final height and has been reinforced multiple times in the past.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-G
Risk Category:	II
Wind Speed:	93 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Carrier Designation	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Notes
80.0	Dish Wireless	3	JMA Wireless	MX08FRO665-21	1	Hybrid	-
		1	CommScope	8' Platform Mount w/ Top Rail (MC-PK8-DSH)			
		3	Fujitsu	TA08025-B604			
		3	Fujitsu	TA08025-B605			
		1	Raycap	RDIDC-9181-PF-48			

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Carrier Designation	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Notes
100.0	AT&T	3	Powerwave Technologies	7770.00	12 3	1-5/8 2-1/4	1
		1	CCI Antennas	OPA-65R-LCUU-H6			
		2	CCI Antennas	OPA-65R-LCUU-H4			
		1	CCI Antennas	HPA-65R-BUU-H6			
		2	CommScope	SBNHH-1D65A			
		1	Kathrein	80010965			
		2	Kathrein	80010964			
		3	Ericsson	RRUS 11			
		9	Ericsson	RRUS 32			
		3	Ericsson	RRUS 4478 B14			
		6	Powerwave Technologies	LGP21401			
		6	CCI Antennas	TPX-070821			
		3	-	Squid Surge Arrestor			
		3	Sabre	12' V-Boom Mount			

Mounting Level (ft)	Carrier Designation	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Notes
90.0	Verizon Wireless	1	Amphenol	BXA-80063-6BF-EDIN-4	6 2	1-5/8 6x12	1
		2	Amphenol	BXA-80080/6CF			
		3	CommScope	JAHH-65B-R3B			
		3	Samsung Telecommunications	XXDWMM-12.5-65-8T-CBRS			
		3	Samsung Telecommunications	B2/B66 RRH-BR049			
		3	Samsung Telecommunications	B5/B13 RRH-BR04C			
		3	CommScope	CBC78T-DS-43			
		2	-	Junction Box			
		3	Samsung Telecommunications	MT6407-77A			
		1	Tower Mounts	Reinforced Platform			

Note:
1) Existing equipment

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Dated
Structural Analysis Report	Hudson Design Group LLC	04/27/21
RFDS	Dish Wireless	11/16/21
Site Visit	Tectonic	01/21/22

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix B.

3.2) Assumptions

1) Tower and structures were built and maintained in accordance with the manufacturer's specifications.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2.
3) Original design information of the existing modifications at the base of the tower was not available at the time of this analysis. The existing flat plate shaft reinforcement by others from 0 – 20 ft are based solely on the site inspection by Tectonic referenced above.

This analysis is solely for the supporting tower structure, and it may be affected if any assumptions are not valid or have been made in error. Tectonic should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	110 - 105	Pole	TP15.5714x14.5x0.375	1	-0.369	744.267	0.3	Pass
L2	105 - 100	Pole	TP16.6429x15.5714x0.375	2	-0.763	796.741	0.9	Pass
L3	100 - 96	Pole	TP17.5x16.6429x0.375	3	-4.869	838.721	9.3	Pass
L4	96 - 91	Pole	TP18.548x17.5x0.25	4	-5.218	1078.720	14.6	Pass
L5	91 - 86	Pole	TP19.596x18.548x0.25	5	-10.453	1140.510	26.6	Pass
L6	86 - 81	Pole	TP20.644x19.596x0.25	6	-10.932	1202.290	37.4	Pass
L7	81 - 76	Pole	TP21.692x20.644x0.25	7	-14.048	1264.070	48.7	Pass
L8	76 - 71	Pole	TP22.74x21.692x0.25	8	-14.660	1325.850	58.5	Pass
L9	71 - 66	Pole	TP23.788x22.74x0.25	9	-15.423	1387.640	66.8	Pass
L10	66 - 61	Pole	TP24.836x23.788x0.25	10	-16.224	1449.420	73.9	Pass
L11	61 - 56	Pole	TP25.884x24.836x0.25	11	-17.060	1501.830	80.4	Pass
L12	56 - 51	Pole	TP26.932x25.884x0.25	12	-17.930	1546.690	86.6	Pass
L13	51 - 46	Pole	TP27.98x26.932x0.25	13	-18.108	1555.510	87.8	Pass
L14	46 - 45	Pole	TP27.6774x26.6416x0.3125	14	-19.382	2016.560	75.6	Pass
L15	45 - 40	Pole	TP28.7133x27.6774x0.3125	15	-20.392	2092.890	78.8	Pass
L16	40 - 35	Pole	TP29.7491x28.7133x0.3125	16	-21.434	2169.220	81.5	Pass
L17	35 - 30	Pole	TP30.785x29.7491x0.3125	17	-22.505	2245.560	83.8	Pass
L18	30 - 25	Pole	TP31.8208x30.785x0.3125	18	-23.604	2317.440	85.9	Pass
L19	25 - 20	Pole	TP32.8566x31.8208x0.3125	19	-24.703	2373.690	88.4	Pass
L20	20 - 19.75	Pole	TP32.9084x32.8566x0.3438	20	-24.769	2639.710	79.8	Pass
L21	19.75 - 14.75	Pole	TP33.9443x32.9084x0.3438	21	-25.807	2723.670	81.1	Pass
L22	14.75 - 10	Pole	TP34.9283x33.9443x0.3438	22	-26.826	2799.590	82.3	Pass
L23	10 - 9.75	Pole	TP34.9801x34.9283x0.45	23	-26.900	3664.180	63.4	Pass
L24	9.75 - 5	Pole	TP35.9642x34.9801x0.4438	24	-27.975	3716.920	65.0	Pass
L25	5 - 4.75	Pole	TP36.016x35.9642x0.4438	25	-28.044	3722.340	65.0	Pass
L26	4.75 - 0	Pole	TP37x36.016x0.4375	26	-29.113	3772.080	66.5	Pass
							Summary*	
						Pole (L19)	88.4	Pass
						Rating =	88.4	Pass

***NOTE: Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix B.**

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	41.7	Pass
1	Base Plate	0	57.0	Pass
1	Base Foundation (Soil Interaction)	0	53.1	Pass
1	Base Foundation (Structure)	0	83.3	Pass

Structure Rating (max from all components) =	93.8 %

Note:
1) See additional documentation in "Appendix B – Additional Calculations" for calculations supporting the % capacity consumed.

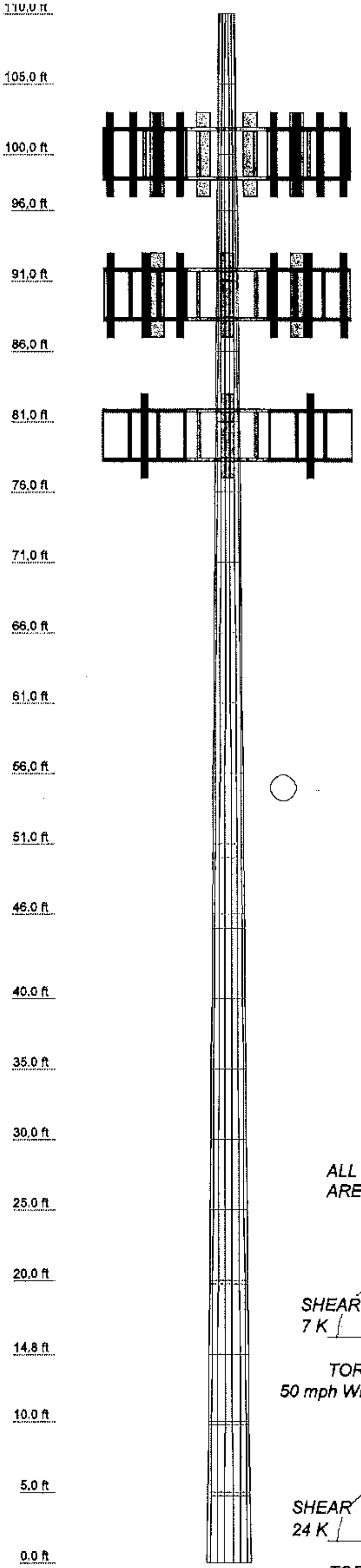
4.1) Result / Conclusions

The tower and foundation have sufficient capacity to support the proposed load configuration. No modification is required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	18	0.3750		14.5000	15.5714	A36	0.3
2	5.00	18	0.3750		15.5714	16.6429	A36	0.3
3	4.00	18	0.3750		16.6429	17.5000	A36	0.3
4	5.00	18	0.2500		17.5000	18.5480	A572-65	0.2
5	5.00	18	0.2500		18.5480	19.5960	A572-65	0.3
6	5.00	18	0.2500		19.5960	20.6440	A572-65	0.3
7	5.00	18	0.2500		20.6440	21.6920	A572-65	0.3
8	5.00	18	0.2500		21.6920	22.7400	A572-65	0.3
9	5.00	18	0.2500		22.7400	23.7880	A572-65	0.3
10	5.00	18	0.2500		23.7880	24.8360	A572-65	0.3
11	5.00	18	0.2500		24.8360	25.8840	A572-65	0.3
12	5.00	18	0.2500		25.8840	26.9320	A572-65	0.4
13	5.0000	18	0.2500	4.00	26.9320	27.9800	A572-65	0.4
14	[illegible]	18	0.3125		[illegible]	[illegible]	A572-65	0.5
15	5.00	18	0.3125		27.6774	28.7133	A572-65	0.5
16	5.00	18	0.3125		28.7133	29.7491	A572-65	0.5
17	5.00	18	0.3125		29.7491	30.7850	A572-65	0.5
18	5.00	18	0.3125		30.7850	31.8208	A572-65	0.5
19	5.00	18	0.3125		31.8208	[illegible]	A572-65	0.5
20	0.25	18	[illegible]		[illegible]	[illegible]	A572-65	0.0
21	5.00	18	[illegible]		[illegible]	[illegible]	A572-65	0.7
22	4.75	18	0.3438		[illegible]	[illegible]	A572-65	0.7
23	0.25	18	[illegible]		[illegible]	[illegible]	A572-65	0.0
24	4.75	18	[illegible]		[illegible]	[illegible]	A572-65	0.8
25	0.25	18	[illegible]		[illegible]	[illegible]	A572-65	0.0
26	4.75	18	0.4375		36.0160	37.0000	A572-65	0.8
								10.0



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
7770.00 w/ Mount Pipe	100	(2) JAHH-65B-R3B_TIA w/ Mount Pipe	90
7770.00 w/ Mount Pipe	100	(2) JAHH-65B-R3B_TIA w/ Mount Pipe	90
7770.00 w/ Mount Pipe	100	XXDWMM-12.5-65-8T-CBRS	90
80010965_TIA w/ Mount Pipe	100	XXDWMM-12.5-65-8T-CBRS	90
80010964_TIA w/ Mount Pipe	100	XXDWMM-12.5-65-8T-CBRS	90
80010964_TIA w/ Mount Pipe	100	B2/B66 RRH-BR049	90
OPA-65R-LCUU-H6_TIA w/ Mount Pipe	100	B2/B66 RRH-BR049	90
		B2/B66 RRH-BR049	90
OPA-65R-LCUU-H6_TIA w/ Mount Pipe	100	B5/B13 RRH-BR04C	90
		B5/B13 RRH-BR04C	90
OPA-65R-LCUU-H6_TIA w/ Mount Pipe	100	B5/B13 RRH-BR04C	90
		(2) CBC78T-DS-43	90
HPA-65R-BUU-H6_TIA w/ Mount Pipe	100	CBC78T-DS-43	90
SBNHH-1D65A_TIA w/ Mount Pipe	100	CBC78T-DS-43	90
SBNHH-1D65A_TIA w/ Mount Pipe	100	RRFDC-3315-PF-48	90
RRUS 11	100	RRFDC-3315-PF-48	90
RRUS 11	100	MT6407-77A	90
RRUS 11	100	MT6407-77A	90
(3) RRUS 32	100	MT6407-77A	90
(3) RRUS 32	100	Empty Mount Pipe	90
(3) RRUS 32	100	Empty Mount Pipe	90
RRUS 4478 B14	100	Empty Mount Pipe	90
RRUS 4478 B14	100	Platform Mount	90
RRUS 4478 B14	100	Mount Reinforcement	90
(2) LGP21401	100	MX08FRO665-21 w/ Mount Pipe	80
(2) LGP21401	100	MX08FRO665-21 w/ Mount Pipe	80
(2) LGP21401	100	MX08FRO665-21 w/ Mount Pipe	80
(2) TPX-070821	100	TA08025-B605	80
(2) TPX-070821	100	TA08025-B605	80
(2) TPX-070821	100	TA08025-B605	80
Squid Surge Arrestor	100	TA08025-B604	80
Squid Surge Arrestor	100	TA08025-B604	80
Squid Surge Arrestor	100	TA08025-B604	80
Sabre 12' V-Boom	100	RDIDC-9181-PF-48	80
BXA-80063-6BF-EDIN-4 w/ Mount Pipe	90	(2) Empty Pipe	80
BXA-80080/6CF W/ Mount Pipe	90	(2) Empty Pipe	80
BXA-80080/6CF W/ Mount Pipe	90	(2) Empty Pipe	80
(2) JAHH-65B-R3B_TIA w/ Mount Pipe	90	Platform Mount	80

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 93 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 93.8%

ALL REA
ARE FAC

AXIAL 72 K
SHEAR 7 K
MOMENT 642 kip-ft
TORQUE 1 kip-ft
50 mph WIND - 1.0000 in ICE

AXIAL 29 K
SHEAR 24 K
MOMENT 1857 kip-ft
TORQUE 2 kip-ft
REACTIONS - 93 mph WIND

Tectonic
Tectonic
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
FAX: (845) 567-8703

Job: **10710.NJJER01128B**
Project: ***110 ft Monopole***
Client: Dish | Drawn by: John-Fritz Julien | App'd:
Code: TIA-222-G | Date: 01/26/22 | Scale: N
Path: | Dwg No.

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

- Tower is located in Fairfield County, Connecticut.
- Basic wind speed of 93 mph.
- Structure Class II.
- Exposure Category B.
- 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.
- TOWER RATING: 93.8%.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	*Elevation* ft	*Section Length* ft	*Splice Length* ft	*Number of Sides*	*Top Diameter* in	*Bottom Diameter* in	*Wall Thickness* in	*Bend Radius* in	*Pole Grade*
L1	110.00-105.00	5.00	0.000	18	14.5000	15.5714	0.3750	1.5000	A36 (36 ksi)
L2	105.00-100.00	5.00	0.000	18	15.5714	16.6429	0.3750	1.5000	A36 (36 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L3	100.00-96.00	4.00	0.000	18	16.6429	17.5000	0.3750	1.5000	A36 (36 ksi)
L4	96.00-91.00	5.00	0.000	18	17.5000	18.5480	0.2500	1.0000	A572-65 (65 ksi)
L5	91.00-86.00	5.00	0.000	18	18.5480	19.5960	0.2500	1.0000	A572-65 (65 ksi)
L6	86.00-81.00	5.00	0.000	18	19.5960	20.6440	0.2500	1.0000	A572-65 (65 ksi)
L7	81.00-76.00	5.00	0.000	18	20.6440	21.6920	0.2500	1.0000	A572-65 (65 ksi)
L8	76.00-71.00	5.00	0.000	18	21.6920	22.7400	0.2500	1.0000	A572-65 (65 ksi)
L9	71.00-66.00	5.00	0.000	18	22.7400	23.7880	0.2500	1.0000	A572-65 (65 ksi)
L10	66.00-61.00	5.00	0.000	18	23.7880	24.8360	0.2500	1.0000	A572-65 (65 ksi)
L11	61.00-56.00	5.00	0.000	18	24.8360	25.8840	0.2500	1.0000	A572-65 (65 ksi)
L12	56.00-51.00	5.00	0.000	18	25.8840	26.9320	0.2500	1.0000	A572-65 (65 ksi)
L13	51.00-46.00	5.00	4.000	18	26.9320	27.9800	0.2500	1.0000	A572-65 (65 ksi)
L14	46.00-45.00	5.00	0.000	18	26.6416	27.6774	0.3125	1.2500	A572-65 (65 ksi)
L15	45.00-40.00	5.00	0.000	18	27.6774	28.7133	0.3125	1.2500	A572-65 (65 ksi)
L16	40.00-35.00	5.00	0.000	18	28.7133	29.7491	0.3125	1.2500	A572-65 (65 ksi)
L17	35.00-30.00	5.00	0.000	18	29.7491	30.7850	0.3125	1.2500	A572-65 (65 ksi)
L18	30.00-25.00	5.00	0.000	18	30.7850	31.8208	0.3125	1.2500	A572-65 (65 ksi)
L19	25.00-20.00	5.00	0.000	18	31.8208	32.8566	0.3125	1.2500	A572-65 (65 ksi)
L20	20.00-19.75	0.25	0.000	18	32.8566	32.9084	0.3438	1.3750	A572-65 (65 ksi)
L21	19.75-14.75	5.00	0.000	18	32.9084	33.9443	0.3438	1.3750	A572-65 (65 ksi)
L22	14.75-10.00	4.75	0.000	18	33.9443	34.9283	0.3438	1.3750	A572-65 (65 ksi)
L23	10.00-9.75	0.25	0.000	18	34.9283	34.9801	0.4500	1.8000	A572-65 (65 ksi)
L24	9.75-5.00	4.75	0.000	18	34.9801	35.9642	0.4437	1.7750	A572-65 (65 ksi)
L25	5.00-4.75	0.25	0.000	18	35.9642	36.0160	0.4437	1.7750	A572-65 (65 ksi)
L26	4.75-0.00	4.75		18	36.0160	37.0000	0.4375	1.7500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	14.6658	16.8123	423.7805	5.0144	7.3660	57.5320	848.1187	8.4077	1.8920	5.045
	15.7538	18.0875	527.7160	5.3947	7.9103	66.7126	1056.1264	9.0455	2.0806	5.548
L2	15.7538	18.0875	527.7160	5.3947	7.9103	66.7126	1056.1264	9.0455	2.0806	5.548
	16.8418	19.3628	647.3910	5.7751	8.4546	76.5729	1295.6339	9.6832	2.2691	6.051
L3	16.8418	19.3628	647.3910	5.7751	8.4546	76.5729	1295.6339	9.6832	2.2691	6.051
	17.7121	20.3830	755.2094	6.0794	8.8900	84.9504	1511.4125	10.1935	2.4200	6.453
L4	17.7314	13.6879	514.5786	6.1238	8.8900	57.8829	1029.8342	6.8452	2.6400	10.56
	18.7956	14.5195	614.1794	6.4958	9.4224	65.1830	1229.1670	7.2611	2.8244	11.298
L5	18.7956	14.5195	614.1794	6.4958	9.4224	65.1830	1229.1670	7.2611	2.8244	11.298
	19.8597	15.3511	725.8685	6.8678	9.9548	72.9167	1452.6921	7.6770	3.0089	12.036
L6	19.8597	15.3511	725.8685	6.8678	9.9548	72.9167	1452.6921	7.6770	3.0089	12.036
	20.9239	16.1826	850.3381	7.2399	10.4872	81.0838	1701.7950	8.0929	3.1933	12.773

Section	Tip Dia. in	Area in^2	I in^4	r in	C In	I/C in^3	J in^4	It/Q in^2	w in	w/t
L7	20.9239	16.1826	850.3381	7.2399	10.4872	81.0838	1701.7950	8.0929	3.1933	12.773
	21.9881	17.0142	988.2806	7.6119	11.0195	89.6844	1977.8615	8.5087	3.3778	13.511
L8	21.9881	17.0142	988.2806	7.6119	11.0195	89.6844	1977.8615	8.5087	3.3778	13.511
	23.0522	17.8458	1140.3883	7.9840	11.5519	98.7185	2282.2771	8.9246	3.5622	14.249
L9	23.0522	17.8458	1140.3883	7.9840	11.5519	98.7185	2282.2771	8.9246	3.5622	14.249
	24.1164	18.6774	1307.3536	8.3560	12.0843	108.1861	2616.4274	9.3405	3.7467	14.987
L10	24.1164	18.6774	1307.3536	8.3560	12.0843	108.1861	2616.4274	9.3405	3.7467	14.987
	25.1806	19.5090	1489.8688	8.7280	12.6167	118.0872	2981.6979	9.7563	3.9311	15.725
L11	25.1806	19.5090	1489.8688	8.7280	12.6167	118.0872	2981.6979	9.7563	3.9311	15.725
	26.2447	20.3406	1688.6262	9.1001	13.1491	128.4217	3379.4743	10.1722	4.1156	16.462
L12	26.2447	20.3406	1688.6262	9.1001	13.1491	128.4217	3379.4743	10.1722	4.1156	16.462
	27.3089	21.1722	1904.3182	9.4721	13.6815	139.1897	3811.1422	10.5881	4.3000	17.2
L13	27.3089	21.1722	1904.3182	9.4721	13.6815	139.1897	3811.1422	10.5881	4.3000	17.2
	28.3731	22.0038	2137.6372	9.8442	14.2138	150.3912	4278.0871	11.0040	4.4845	17.938
L14	27.8458	26.1152	2287.1910	9.3468	13.5339	168.9968	4577.3916	13.0601	4.1389	13.245
	28.0562	27.1426	2567.8987	9.7146	14.0601	182.6368	5139.1764	13.5739	4.3212	13.828
L15	28.0562	27.1426	2567.8987	9.7146	14.0601	182.6368	5139.1764	13.5739	4.3212	13.828
	29.1080	28.1700	2870.6827	10.0823	14.5863	196.8062	5745.1428	14.0877	4.5035	14.411
L16	29.1080	28.1700	2870.6827	10.0823	14.5863	196.8062	5745.1428	14.0877	4.5035	14.411
	30.1598	29.1974	3196.3786	10.4500	15.1126	211.5049	6396.9631	14.6015	4.6858	14.995
L17	30.1598	29.1974	3196.3786	10.4500	15.1126	211.5049	6396.9631	14.6015	4.6858	14.995
	31.2117	30.2249	3545.8221	10.8177	15.6388	226.7329	7096.3099	15.1153	4.8682	15.578
L18	31.2117	30.2249	3545.8221	10.8177	15.6388	226.7329	7096.3099	15.1153	4.8682	15.578
	32.2635	31.2523	3919.8488	11.1854	16.1650	242.4904	7844.8553	15.6291	5.0505	16.161
L19	32.2635	31.2523	3919.8488	11.1854	16.1650	242.4904	7844.8553	15.6291	5.0505	16.161
	33.3153	32.2797	4319.2943	11.5532	16.6912	258.7772	8644.2720	16.1429	5.2328	16.745
L20	33.3105	35.4736	4737.5500	11.5421	16.6912	283.8356	9481.3337	17.7402	5.1778	15.063
	33.3631	35.5301	4760.2264	11.5605	16.7175	284.7454	9526.7163	17.7684	5.1869	15.089
L21	33.3631	35.5301	4760.2264	11.5605	16.7175	284.7454	9526.7163	17.7684	5.1869	15.089
	34.4149	36.6603	5229.0784	11.9282	17.2437	303.2459	10465.0373	18.3336	5.3692	15.619
L22	34.4149	36.6603	5229.0784	11.9282	17.2437	303.2459	10465.0373	18.3336	5.3692	15.619
	35.4141	37.7339	5702.0920	12.2775	17.7436	321.3607	11411.6870	18.8705	5.5424	16.123
L23	35.3977	49.2454	7395.9706	12.2398	17.7436	416.8250	14801.6730	24.6274	5.3554	11.901
	35.4503	49.3194	7429.3505	12.2582	17.7699	418.0863	14868.4767	24.6644	5.3645	11.921
L24	35.4513	48.6432	7330.1439	12.2604	17.7699	412.5035	14669.9330	24.3262	5.3755	12.114
	36.4505	50.0292	7974.7421	12.6097	18.2698	436.4988	15959.9776	25.0193	5.5487	12.504
L25	36.4505	50.0292	7974.7421	12.6097	18.2698	436.4988	15959.9776	25.0193	5.5487	12.504
	36.5031	50.1021	8009.6767	12.6281	18.2961	437.7805	16029.8928	25.0558	5.5578	12.525
L26	36.5041	49.4051	7901.0275	12.6304	18.2961	431.8421	15812.4514	24.7073	5.5688	12.729
	37.5033	50.7716	8574.9201	12.9797	18.7960	456.2098	17161.1232	25.3906	5.7420	13.125

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
L1 110.00-105.00				1	1	1			
L2 105.00-100.00				1	1	1			
L3 100.00-96.00				1	1	1			
L4 96.00-91.00				1	1	1			
L5 91.00-86.00				1	1	1			
L6 86.00-81.00				1	1	1			

Tower Elevation ft	Gusset Area (per face) ft²	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
L7 81.00-76.00				1	1	1			
L8 76.00-71.00				1	1	1			
L9 71.00-66.00				1	1	1			
L10 66.00-61.00				1	1	1			
L11 61.00-56.00				1	1	1			
L12 56.00-51.00				1	1	1			
L13 51.00-46.00				1	1	1			
L14 46.00-45.00				1	1	1			
L15 45.00-40.00				1	1	1			
L16 40.00-35.00				1	1	1			
L17 35.00-30.00				1	1	1			
L18 30.00-25.00				1	1	1			
L19 25.00-20.00				1	1	1			
L20 20.00-19.75				1	1	1.16272			
L21 19.75-14.75				1	1	1.1549			
L22 14.75-10.00				1	1	1.1479			
L23 10.00-9.75				1	1	0.970337			
L24 9.75-5.00				1	1	0.97608			
L25 5.00-4.75				1	1	0.975684			
L26 4.75-0.00				1	1	0.982043			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
**										
LDF7-50A(1-5/8)	C	No	Surface Ar (CaAa)	100.00 - 20.00	12	6	0.000 0.000	1.9800		0.001
MLCH HYBRID 6X12(1-3/8)	C	No	Surface Ar (CaAa)	90.00 - 20.00	2	2	0.000 0.000	1.4300		0.002
**										
CU12PSM9P8XXX_8AWG	C	No	Surface Ar (CaAa)	80.00 - 3.00	1	1	0.000 0.000	1.5000		0.002
*										
Safety Line 3/8	C	No	Surface Ar (CaAa)	110.00 - 6.50	1	1	0.000 0.000	0.3750		0.002
Step Bolts	C	No	Surface Ar (CaAa)	110.00 - 6.50	2	2	0.000 0.000	0.3750		0.002
***										
Reinforcement PL1/2x4.5	A	No	Surface Af (CaAa)	72.00 - 47.00	1	1	0.000 0.000	4.5000	10.0000	0.008
Reinforcement PL1/2x4.5	B	No	Surface Af (CaAa)	72.00 - 47.00	1	1	0.000 0.000	4.5000	10.0000	0.008
Reinforcement	C	No	Surface Af	72.00 -	1	1	0.000	4.5000	10.0000	0.008

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
PL1/2x4.5			(CaAa)	47.00			0.000			
Reinforcement	A	No	Surface Af	47.00 -	1	1	0.000	4.5000	10.0000	0.008
PL1/2x4.5			(CaAa)	21.00			0.000			
Reinforcement	B	No	Surface Af	47.00 -	1	1	0.000	4.5000	10.0000	0.008
PL1/2x4.5			(CaAa)	21.00			0.000			
Reinforcement	C	No	Surface Af	47.00 -	1	1	0.000	4.5000	10.0000	0.008
PL1/2x4.5			(CaAa)	21.00			0.000			
Reinforcement C6	A	No	Surface Af	21.00 -	1	1	0.000	6.0000	26.0000	0.000
			(CaAa)	0.50			0.000			
Reinforcement C6	B	No	Surface Af	21.00 -	1	1	0.000	6.0000	26.0000	0.000
			(CaAa)	0.50			0.000			
Reinforcement C6	C	No	Surface Af	21.00 -	1	1	0.000	6.0000	26.0000	0.000
			(CaAa)	0.50			0.000			
**										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft²/ft	Weight klf
LDF12-50A(2-1/4)	C	No	No	Inside Pole	100.00 - 20.00	3	No Ice	0.00	0.001
							1/2" Ice	0.00	0.001
							1" Ice	0.00	0.001
**									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	90.00 - 20.00	6	No Ice	0.00	0.001
							1/2" Ice	0.00	0.001
							1" Ice	0.00	0.001
**									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
L1	110.00-105.00	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.563	0.000	0.031
L2	105.00-100.00	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.563	0.000	0.031
L3	100.00-96.00	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	5.202	0.000	0.079
L4	96.00-91.00	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	6.503	0.000	0.099
L5	91.00-86.00	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	7.646	0.000	0.132
L6	86.00-81.00	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	7.933	0.000	0.140
L7	81.00-76.00	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	8.533	0.000	0.147
L8	76.00-71.00	A	0.000	0.000	0.750	0.000	0.008
		B	0.000	0.000	0.750	0.000	0.008
		C	0.000	0.000	9.432	0.000	0.156
L9	71.00-66.00	A	0.000	0.000	3.750	0.000	0.038

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	3.750	0.000	0.038
		C	0.000	0.000	12.432	0.000	0.187
L10	66.00-61.00	A	0.000	0.000	3.750	0.000	0.038
		B	0.000	0.000	3.750	0.000	0.038
		C	0.000	0.000	12.432	0.000	0.187
L11	61.00-56.00	A	0.000	0.000	3.750	0.000	0.038
		B	0.000	0.000	3.750	0.000	0.038
		C	0.000	0.000	12.432	0.000	0.187
L12	56.00-51.00	A	0.000	0.000	3.750	0.000	0.038
		B	0.000	0.000	3.750	0.000	0.038
		C	0.000	0.000	12.432	0.000	0.187
L13	51.00-46.00	A	0.000	0.000	3.750	0.000	0.038
		B	0.000	0.000	3.750	0.000	0.038
		C	0.000	0.000	12.432	0.000	0.187
L14	46.00-45.00	A	0.000	0.000	0.750	0.000	0.008
		B	0.000	0.000	0.750	0.000	0.008
		C	0.000	0.000	2.486	0.000	0.037
L15	45.00-40.00	A	0.000	0.000	3.750	0.000	0.038
		B	0.000	0.000	3.750	0.000	0.038
		C	0.000	0.000	12.432	0.000	0.187
L16	40.00-35.00	A	0.000	0.000	3.750	0.000	0.038
		B	0.000	0.000	3.750	0.000	0.038
		C	0.000	0.000	12.432	0.000	0.187
L17	35.00-30.00	A	0.000	0.000	3.750	0.000	0.038
		B	0.000	0.000	3.750	0.000	0.038
		C	0.000	0.000	12.432	0.000	0.187
L18	30.00-25.00	A	0.000	0.000	3.750	0.000	0.038
		B	0.000	0.000	3.750	0.000	0.038
		C	0.000	0.000	12.432	0.000	0.187
L19	25.00-20.00	A	0.000	0.000	4.000	0.000	0.031
		B	0.000	0.000	4.000	0.000	0.031
		C	0.000	0.000	12.682	0.000	0.179
L20	20.00-19.75	A	0.000	0.000	0.250	0.000	0.000
		B	0.000	0.000	0.250	0.000	0.000
		C	0.000	0.000	0.316	0.000	0.002
L21	19.75-14.75	A	0.000	0.000	5.000	0.000	0.000
		B	0.000	0.000	5.000	0.000	0.000
		C	0.000	0.000	6.313	0.000	0.039
L22	14.75-10.00	A	0.000	0.000	4.750	0.000	0.000
		B	0.000	0.000	4.750	0.000	0.000
		C	0.000	0.000	5.997	0.000	0.037
L23	10.00-9.75	A	0.000	0.000	0.250	0.000	0.000
		B	0.000	0.000	0.250	0.000	0.000
		C	0.000	0.000	0.316	0.000	0.002
L24	9.75-5.00	A	0.000	0.000	4.750	0.000	0.000
		B	0.000	0.000	4.750	0.000	0.000
		C	0.000	0.000	5.828	0.000	0.028
L25	5.00-4.75	A	0.000	0.000	0.250	0.000	0.000
		B	0.000	0.000	0.250	0.000	0.000
		C	0.000	0.000	0.287	0.000	0.000
L26	4.75-0.00	A	0.000	0.000	4.250	0.000	0.000
		B	0.000	0.000	4.250	0.000	0.000
		C	0.000	0.000	4.513	0.000	0.003

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
L1	110.00-105.00	A	2.251	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	5.720	0.000	0.107
L2	105.00-100.00	A	2.240	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	5.696	0.000	0.106
L3	100.00-96.00	A	2.230	0.000	0.000	0.000	0.000	0.000

Tower Sectio n	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
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	12.709	0.000	0.331
L4	96.00-91.00	A	2.219	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	15.849	0.000	0.412
L5	91.00-86.00	A	2.207	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	19.444	0.000	0.494
L6	86.00-81.00	A	2.195	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	20.293	0.000	0.512
L7	81.00-76.00	A	2.181	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	22.573	0.000	0.555
L8	76.00-71.00	A	2.167	0.000	0.000	1.183	0.000	0.023
		B		0.000	0.000	1.183	0.000	0.023
		C		0.000	0.000	24.261	0.000	0.586
L9	71.00-66.00	A	2.151	0.000	0.000	5.901	0.000	0.114
		B		0.000	0.000	5.901	0.000	0.114
		C		0.000	0.000	28.891	0.000	0.674
L10	66.00-61.00	A	2.135	0.000	0.000	5.885	0.000	0.113
		B		0.000	0.000	5.885	0.000	0.113
		C		0.000	0.000	28.782	0.000	0.670
L11	61.00-56.00	A	2.118	0.000	0.000	5.868	0.000	0.112
		B		0.000	0.000	5.868	0.000	0.112
		C		0.000	0.000	28.664	0.000	0.665
L12	56.00-51.00	A	2.099	0.000	0.000	5.849	0.000	0.112
		B		0.000	0.000	5.849	0.000	0.112
		C		0.000	0.000	28.537	0.000	0.660
L13	51.00-46.00	A	2.078	0.000	0.000	5.828	0.000	0.110
		B		0.000	0.000	5.828	0.000	0.110
		C		0.000	0.000	28.398	0.000	0.654
L14	46.00-45.00	A	2.065	0.000	0.000	1.166	0.000	0.022
		B		0.000	0.000	1.166	0.000	0.022
		C		0.000	0.000	5.680	0.000	0.131
L15	45.00-40.00	A	2.051	0.000	0.000	5.801	0.000	0.109
		B		0.000	0.000	5.801	0.000	0.109
		C		0.000	0.000	28.214	0.000	0.647
L16	40.00-35.00	A	2.026	0.000	0.000	5.776	0.000	0.108
		B		0.000	0.000	5.776	0.000	0.108
		C		0.000	0.000	28.042	0.000	0.640
L17	35.00-30.00	A	1.997	0.000	0.000	5.747	0.000	0.106
		B		0.000	0.000	5.747	0.000	0.106
		C		0.000	0.000	27.848	0.000	0.632
L18	30.00-25.00	A	1.964	0.000	0.000	5.714	0.000	0.105
		B		0.000	0.000	5.714	0.000	0.105
		C		0.000	0.000	27.624	0.000	0.623
L19	25.00-20.00	A	1.925	0.000	0.000	5.818	0.000	0.107
		B		0.000	0.000	5.818	0.000	0.107
		C		0.000	0.000	27.504	0.000	0.617
L20	20.00-19.75	A	1.901	0.000	0.000	0.319	0.000	0.006
		B		0.000	0.000	0.319	0.000	0.006
		C		0.000	0.000	0.698	0.000	0.013
L21	19.75-14.75	A	1.874	0.000	0.000	6.359	0.000	0.121
		B		0.000	0.000	6.359	0.000	0.121
		C		0.000	0.000	13.856	0.000	0.253
L22	14.75-10.00	A	1.813	0.000	0.000	6.006	0.000	0.110
		B		0.000	0.000	6.006	0.000	0.110
		C		0.000	0.000	12.939	0.000	0.231
L23	10.00-9.75	A	1.773	0.000	0.000	0.315	0.000	0.006
		B		0.000	0.000	0.315	0.000	0.006
		C		0.000	0.000	0.673	0.000	0.012
L24	9.75-5.00	A	1.721	0.000	0.000	5.953	0.000	0.103
		B		0.000	0.000	5.953	0.000	0.103
		C		0.000	0.000	11.245	0.000	0.194
L25	5.00-4.75	A	1.652	0.000	0.000	0.311	0.000	0.005
		B		0.000	0.000	0.311	0.000	0.005
		C		0.000	0.000	0.431	0.000	0.007
L26	4.75-0.00	A	1.537	0.000	0.000	5.230	0.000	0.081

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
		B		0.000	0.000	5.230	0.000	0.081
		C		0.000	0.000	6.030	0.000	0.094

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	110.00-105.00	0.0000	0.9858	0.0000	2.5203
L2	105.00-100.00	0.0000	0.9880	0.0000	2.6042
L3	100.00-96.00	0.0000	6.5761	0.0000	5.0244
L4	96.00-91.00	0.0000	6.6932	0.0000	5.1726
L5	91.00-86.00	0.0000	7.1286	0.0000	5.3926
L6	86.00-81.00	0.0000	7.3467	0.0000	5.5785
L7	81.00-76.00	0.0000	7.6579	0.0000	6.0399
L8	76.00-71.00	0.0000	6.8143	0.0000	5.8491
L9	71.00-66.00	0.0000	4.5824	0.0000	4.7119
L10	66.00-61.00	0.0000	4.7037	0.0000	4.8546
L11	61.00-56.00	0.0000	4.8225	0.0000	4.9941
L12	56.00-51.00	0.0000	4.9387	0.0000	5.1305
L13	51.00-46.00	0.0000	5.0525	0.0000	5.2637
L14	46.00-45.00	0.0000	5.0657	0.0000	5.2805
L15	45.00-40.00	0.0000	5.1319	0.0000	5.3533
L16	40.00-35.00	0.0000	5.2404	0.0000	5.4785
L17	35.00-30.00	0.0000	5.3468	0.0000	5.5999
L18	30.00-25.00	0.0000	5.4510	0.0000	5.7170
L19	25.00-20.00	0.0000	5.4123	0.0000	5.7916
L20	20.00-19.75	0.0000	0.6831	0.0000	2.7163
L21	19.75-14.75	0.0000	0.6881	0.0000	2.7231
L22	14.75-10.00	0.0000	0.6973	0.0000	2.7240
L23	10.00-9.75	0.0000	0.7021	0.0000	2.7160
L24	9.75-5.00	0.0000	0.6135	0.0000	2.2439
L25	5.00-4.75	0.0000	0.4136	0.0000	1.0991
L26	4.75-0.00	0.0000	0.1992	0.0000	0.4246

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	13	Safety Line 3/8	105.00 - 110.00	1.0000	1.0000
L1	14	Step Bolts	105.00 - 110.00	1.0000	1.0000
L2	13	Safety Line 3/8	100.00 - 105.00	1.0000	1.0000
L2	14	Step Bolts	100.00 - 105.00	1.0000	1.0000
L3	2	LDF7-50A(1-5/8)	96.00 - 100.00	1.0000	1.0000
L3	13	Safety Line 3/8	96.00 - 100.00	1.0000	1.0000
L3	14	Step Bolts	96.00 - 100.00	1.0000	1.0000
L4	2	LDF7-50A(1-5/8)	91.00 - 96.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L4	13	Safety Line 3/8	91.00 - 96.00	1.0000	1.0000
L4	14	Step Bolts	91.00 - 96.00	1.0000	1.0000
L5	2	LDF7-50A(1-5/8)	86.00 - 91.00	1.0000	1.0000
L5	9	MLCH HYBRID 6X12(1-3/8)	86.00 - 90.00	1.0000	1.0000
L5	13	Safety Line 3/8	86.00 - 91.00	1.0000	1.0000
L5	14	Step Bolts	86.00 - 91.00	1.0000	1.0000
L6	2	LDF7-50A(1-5/8)	81.00 - 86.00	1.0000	1.0000
L6	9	MLCH HYBRID 6X12(1-3/8)	81.00 - 86.00	1.0000	1.0000
L6	13	Safety Line 3/8	81.00 - 86.00	1.0000	1.0000
L6	14	Step Bolts	81.00 - 86.00	1.0000	1.0000
L7	2	LDF7-50A(1-5/8)	76.00 - 81.00	1.0000	1.0000
L7	9	MLCH HYBRID 6X12(1-3/8)	76.00 - 81.00	1.0000	1.0000
L7	11	CU12PSM9P8XXX_8AWG	76.00 - 80.00	1.0000	1.0000
L7	13	Safety Line 3/8	76.00 - 81.00	1.0000	1.0000
L7	14	Step Bolts	76.00 - 81.00	1.0000	1.0000
L8	2	LDF7-50A(1-5/8)	71.00 - 76.00	1.0000	1.0000
L8	9	MLCH HYBRID 6X12(1-3/8)	71.00 - 76.00	1.0000	1.0000
L8	11	CU12PSM9P8XXX_8AWG	71.00 - 76.00	1.0000	1.0000
L8	13	Safety Line 3/8	71.00 - 76.00	1.0000	1.0000
L8	14	Step Bolts	71.00 - 76.00	1.0000	1.0000
L8	16	Reinforcement PL1/2x4.5	71.00 - 72.00	1.0000	1.0000
L8	17	Reinforcement PL1/2x4.5	71.00 - 72.00	1.0000	1.0000
L8	18	Reinforcement PL1/2x4.5	71.00 - 72.00	1.0000	1.0000
L9	2	LDF7-50A(1-5/8)	66.00 - 71.00	1.0000	1.0000
L9	9	MLCH HYBRID 6X12(1-3/8)	66.00 - 71.00	1.0000	1.0000
L9	11	CU12PSM9P8XXX_8AWG	66.00 - 71.00	1.0000	1.0000
L9	13	Safety Line 3/8	66.00 - 71.00	1.0000	1.0000
L9	14	Step Bolts	66.00 - 71.00	1.0000	1.0000
L9	16	Reinforcement PL1/2x4.5	66.00 - 71.00	1.0000	1.0000
L9	17	Reinforcement PL1/2x4.5	66.00 - 71.00	1.0000	1.0000
L9	18	Reinforcement PL1/2x4.5	66.00 - 71.00	1.0000	1.0000
L10	2	LDF7-50A(1-5/8)	61.00 - 66.00	1.0000	1.0000
L10	9	MLCH HYBRID 6X12(1-3/8)	61.00 - 66.00	1.0000	1.0000
L10	11	CU12PSM9P8XXX_8AWG	61.00 - 66.00	1.0000	1.0000
L10	13	Safety Line 3/8	61.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L10	14	Step Bolts	66.00 61.00 - 66.00	1.0000	1.0000
L10	16	Reinforcement PL1/2x4.5	61.00 - 66.00	1.0000	1.0000
L10	17	Reinforcement PL1/2x4.5	61.00 - 66.00	1.0000	1.0000
L10	18	Reinforcement PL1/2x4.5	61.00 - 66.00	1.0000	1.0000
L11	2	LDF7-50A(1-5/8)	56.00 - 61.00	1.0000	1.0000
L11	9	MLCH HYBRID 6X12(1-3/8)	56.00 - 61.00	1.0000	1.0000
L11	11	CU12PSM9P8XXX_8AWG	56.00 - 61.00	1.0000	1.0000
L11	13	Safety Line 3/8	56.00 - 61.00	1.0000	1.0000
L11	14	Step Bolts	56.00 - 61.00	1.0000	1.0000
L11	16	Reinforcement PL1/2x4.5	56.00 - 61.00	1.0000	1.0000
L11	17	Reinforcement PL1/2x4.5	56.00 - 61.00	1.0000	1.0000
L11	18	Reinforcement PL1/2x4.5	56.00 - 61.00	1.0000	1.0000
L12	2	LDF7-50A(1-5/8)	51.00 - 56.00	1.0000	1.0000
L12	9	MLCH HYBRID 6X12(1-3/8)	51.00 - 56.00	1.0000	1.0000
L12	11	CU12PSM9P8XXX_8AWG	51.00 - 56.00	1.0000	1.0000
L12	13	Safety Line 3/8	51.00 - 56.00	1.0000	1.0000
L12	14	Step Bolts	51.00 - 56.00	1.0000	1.0000
L12	16	Reinforcement PL1/2x4.5	51.00 - 56.00	1.0000	1.0000
L12	17	Reinforcement PL1/2x4.5	51.00 - 56.00	1.0000	1.0000
L12	18	Reinforcement PL1/2x4.5	51.00 - 56.00	1.0000	1.0000
L13	2	LDF7-50A(1-5/8)	46.00 - 51.00	1.0000	1.0000
L13	9	MLCH HYBRID 6X12(1-3/8)	46.00 - 51.00	1.0000	1.0000
L13	11	CU12PSM9P8XXX_8AWG	46.00 - 51.00	1.0000	1.0000
L13	13	Safety Line 3/8	46.00 - 51.00	1.0000	1.0000
L13	14	Step Bolts	46.00 - 51.00	1.0000	1.0000
L13	16	Reinforcement PL1/2x4.5	47.00 - 51.00	1.0000	1.0000
L13	17	Reinforcement PL1/2x4.5	47.00 - 51.00	1.0000	1.0000
L13	18	Reinforcement PL1/2x4.5	47.00 - 51.00	1.0000	1.0000
L13	19	Reinforcement PL1/2x4.5	46.00 - 47.00	1.0000	1.0000
L13	20	Reinforcement PL1/2x4.5	46.00 - 47.00	1.0000	1.0000
L13	21	Reinforcement PL1/2x4.5	46.00 - 47.00	1.0000	1.0000
L14	2	LDF7-50A(1-5/8)	45.00 - 46.00	1.0000	1.0000
L14	9	MLCH HYBRID 6X12(1-3/8)	45.00 - 46.00	1.0000	1.0000
L14	11	CU12PSM9P8XXX_8AWG	45.00 - 46.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_e No Ice	K_a Ice
L14	13	Safety Line 3/8	45.00 - 46.00	1.0000	1.0000
L14	14	Step Bolts	45.00 - 46.00	1.0000	1.0000
L14	19	Reinforcement PL1/2x4.5	45.00 - 46.00	1.0000	1.0000
L14	20	Reinforcement PL1/2x4.5	45.00 - 46.00	1.0000	1.0000
L14	21	Reinforcement PL1/2x4.5	45.00 - 46.00	1.0000	1.0000
L15	2	LDF7-50A(1-5/8)	40.00 - 45.00	1.0000	1.0000
L15	9	MLCH HYBRID 6X12(1-3/8)	40.00 - 45.00	1.0000	1.0000
L15	11	CU12PSM9P8XXX_8AWG	40.00 - 45.00	1.0000	1.0000
L15	13	Safety Line 3/8	40.00 - 45.00	1.0000	1.0000
L15	14	Step Bolts	40.00 - 45.00	1.0000	1.0000
L15	19	Reinforcement PL1/2x4.5	40.00 - 45.00	1.0000	1.0000
L15	20	Reinforcement PL1/2x4.5	40.00 - 45.00	1.0000	1.0000
L15	21	Reinforcement PL1/2x4.5	40.00 - 45.00	1.0000	1.0000
L16	2	LDF7-50A(1-5/8)	35.00 - 40.00	1.0000	1.0000
L16	9	MLCH HYBRID 6X12(1-3/8)	35.00 - 40.00	1.0000	1.0000
L16	11	CU12PSM9P8XXX_8AWG	35.00 - 40.00	1.0000	1.0000
L16	13	Safety Line 3/8	35.00 - 40.00	1.0000	1.0000
L16	14	Step Bolts	35.00 - 40.00	1.0000	1.0000
L16	19	Reinforcement PL1/2x4.5	35.00 - 40.00	1.0000	1.0000
L16	20	Reinforcement PL1/2x4.5	35.00 - 40.00	1.0000	1.0000
L16	21	Reinforcement PL1/2x4.5	35.00 - 40.00	1.0000	1.0000
L17	2	LDF7-50A(1-5/8)	30.00 - 35.00	1.0000	1.0000
L17	9	MLCH HYBRID 6X12(1-3/8)	30.00 - 35.00	1.0000	1.0000
L17	11	CU12PSM9P8XXX_8AWG	30.00 - 35.00	1.0000	1.0000
L17	13	Safety Line 3/8	30.00 - 35.00	1.0000	1.0000
L17	14	Step Bolts	30.00 - 35.00	1.0000	1.0000
L17	19	Reinforcement PL1/2x4.5	30.00 - 35.00	1.0000	1.0000
L17	20	Reinforcement PL1/2x4.5	30.00 - 35.00	1.0000	1.0000
L17	21	Reinforcement PL1/2x4.5	30.00 - 35.00	1.0000	1.0000
L18	2	LDF7-50A(1-5/8)	25.00 - 30.00	1.0000	1.0000
L18	9	MLCH HYBRID 6X12(1-3/8)	25.00 - 30.00	1.0000	1.0000
L18	11	CU12PSM9P8XXX_8AWG	25.00 - 30.00	1.0000	1.0000
L18	13	Safety Line 3/8	25.00 - 30.00	1.0000	1.0000
L18	14	Step Bolts	25.00 - 30.00	1.0000	1.0000
L18	19	Reinforcement PL1/2x4.5	25.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L18	20	Reinforcement PL1/2x4.5	30.00 25.00 - 30.00	1.0000	1.0000
L18	21	Reinforcement PL1/2x4.5	25.00 - 30.00	1.0000	1.0000
L19	2	LDF7-50A(1-5/8)	20.00 - 25.00	1.0000	1.0000
L19	9	MLCH HYBRID 6X12(1-3/8)	20.00 - 25.00	1.0000	1.0000
L19	11	CU12PSM9P8XXX_8AWG	20.00 - 25.00	1.0000	1.0000
L19	13	Safety Line 3/8	20.00 - 25.00	1.0000	1.0000
L19	14	Step Bolts	20.00 - 25.00	1.0000	1.0000
L19	19	Reinforcement PL1/2x4.5	21.00 - 25.00	1.0000	1.0000
L19	20	Reinforcement PL1/2x4.5	21.00 - 25.00	1.0000	1.0000
L19	21	Reinforcement PL1/2x4.5	21.00 - 25.00	1.0000	1.0000
L19	22	Reinforcement C6	20.00 - 21.00	1.0000	1.0000
L19	23	Reinforcement C6	20.00 - 21.00	1.0000	1.0000
L19	24	Reinforcement C6	20.00 - 21.00	1.0000	1.0000
L20	11	CU12PSM9P8XXX_8AWG	19.75 - 20.00	1.0000	1.0000
L20	13	Safety Line 3/8	19.75 - 20.00	1.0000	1.0000
L20	14	Step Bolts	19.75 - 20.00	1.0000	1.0000
L20	22	Reinforcement C6	19.75 - 20.00	1.0000	1.0000
L20	23	Reinforcement C6	19.75 - 20.00	1.0000	1.0000
L20	24	Reinforcement C6	19.75 - 20.00	1.0000	1.0000
L21	11	CU12PSM9P8XXX_8AWG	14.75 - 19.75	1.0000	1.0000
L21	13	Safety Line 3/8	14.75 - 19.75	1.0000	1.0000
L21	14	Step Bolts	14.75 - 19.75	1.0000	1.0000
L21	22	Reinforcement C6	14.75 - 19.75	1.0000	1.0000
L21	23	Reinforcement C6	14.75 - 19.75	1.0000	1.0000
L21	24	Reinforcement C6	14.75 - 19.75	1.0000	1.0000
L22	11	CU12PSM9P8XXX_8AWG	10.00 - 14.75	1.0000	1.0000
L22	13	Safety Line 3/8	10.00 - 14.75	1.0000	1.0000
L22	14	Step Bolts	10.00 - 14.75	1.0000	1.0000
L22	22	Reinforcement C6	10.00 - 14.75	1.0000	1.0000
L22	23	Reinforcement C6	10.00 - 14.75	1.0000	1.0000
L22	24	Reinforcement C6	10.00 - 14.75	1.0000	1.0000
L23	11	CU12PSM9P8XXX_8AWG	9.75 - 10.00	1.0000	1.0000
L23	13	Safety Line 3/8	9.75 - 10.00	1.0000	1.0000
L23	14	Step Bolts	9.75 - 10.00	1.0000	1.0000
L23	22	Reinforcement C6	9.75 - 10.00	1.0000	1.0000
L23	23	Reinforcement C6	9.75 - 10.00	1.0000	1.0000
L23	24	Reinforcement C6	9.75 - 10.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L24	11	CU12PSM9P8XXX_8AWG	5.00 - 9.75	1.0000	1.0000
L24	13	Safety Line 3/8	6.50 - 9.75	1.0000	1.0000
L24	14	Step Bolts	6.50 - 9.75	1.0000	1.0000
L24	22	Reinforcement C6	5.00 - 9.75	1.0000	1.0000
L24	23	Reinforcement C6	5.00 - 9.75	1.0000	1.0000
L24	24	Reinforcement C6	5.00 - 9.75	1.0000	1.0000
L25	11	CU12PSM9P8XXX_8AWG	4.75 - 5.00	1.0000	1.0000
L25	22	Reinforcement C6	4.75 - 5.00	1.0000	1.0000
L25	23	Reinforcement C6	4.75 - 5.00	1.0000	1.0000
L25	24	Reinforcement C6	4.75 - 5.00	1.0000	1.0000
L26	11	CU12PSM9P8XXX_8AWG	3.00 - 4.75	1.0000	1.0000
L26	22	Reinforcement C6	0.50 - 4.75	1.0000	1.0000
L26	23	Reinforcement C6	0.50 - 4.75	1.0000	1.0000
L26	24	Reinforcement C6	0.50 - 4.75	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
***									
7770.00 w/ Mount Pipe	A	From Leg	4.00 0.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.055 0.103 0.157
7770.00 w/ Mount Pipe	B	From Leg	4.00 0.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.055 0.103 0.157
7770.00 w/ Mount Pipe	C	From Leg	4.00 0.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.055 0.103 0.157
80010965_TIA w/ Mount Pipe	A	From Leg	4.00 0.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice	14.05 14.69 15.30	7.63 8.90 9.96	0.136 0.233 0.338
80010964_TIA w/ Mount Pipe	C	From Leg	4.00 0.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice	10.23 10.74 11.24	5.51 6.37 7.12	0.116 0.191 0.273
80010964_TIA w/ Mount Pipe	B	From Leg	4.00 0.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice	10.23 10.74 11.24	5.51 6.37 7.12	0.116 0.191 0.273
OPA-65R-LCUU-H6_TIA w/ Mount Pipe	A	From Leg	4.00 0.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice	9.68 10.25 10.79	7.12 8.30 9.20	0.106 0.181 0.265
OPA-65R-LCUU-H6_TIA w/ Mount Pipe	B	From Leg	4.00 0.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice	9.68 10.25 10.79	7.12 8.30 9.20	0.106 0.181 0.265
OPA-65R-LCUU-H6_TIA w/ Mount Pipe	C	From Leg	4.00 0.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice	9.68 10.25 10.79	7.12 8.30 9.20	0.106 0.181 0.265
HPA-65R-BUU-H6_TIA w/	A	From Leg	4.00	0.000	100.00	No Ice	9.72	7.15	0.074

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Pipe			0.000			1/2"	10.30	8.34	0.149
			0.000			Ice	10.84	9.24	0.233
						1" Ice			
SBNHH-1D65A_TIA w/ Mount Pipe	B	From Leg	4.00	0.000	100.00	No Ice	6.19	5.25	0.054
			0.000			1/2"	6.64	6.04	0.108
			0.000			Ice	7.07	6.74	0.169
						1" Ice			
SBNHH-1D65A_TIA w/ Mount Pipe	C	From Leg	4.00	0.000	100.00	No Ice	6.19	5.25	0.054
			0.000			1/2"	6.64	6.04	0.108
			0.000			Ice	7.07	6.74	0.169
						1" Ice			
RRUS 11	A	From Leg	4.00	0.000	100.00	No Ice	2.78	1.19	0.051
			0.000			1/2"	2.99	1.33	0.071
			0.000			Ice	3.21	1.49	0.095
						1" Ice			
RRUS 11	B	From Leg	4.00	0.000	100.00	No Ice	2.78	1.19	0.051
			0.000			1/2"	2.99	1.33	0.071
			0.000			Ice	3.21	1.49	0.095
						1" Ice			
RRUS 11	C	From Leg	4.00	0.000	100.00	No Ice	2.78	1.19	0.051
			0.000			1/2"	2.99	1.33	0.071
			0.000			Ice	3.21	1.49	0.095
						1" Ice			
(3) RRUS 32	A	From Leg	4.00	0.000	100.00	No Ice	2.73	1.67	0.051
			0.000			1/2"	2.95	1.86	0.072
			0.000			Ice	3.18	2.05	0.096
						1" Ice			
(3) RRUS 32	B	From Leg	4.00	0.000	100.00	No Ice	2.73	1.67	0.051
			0.000			1/2"	2.95	1.86	0.072
			0.000			Ice	3.18	2.05	0.096
						1" Ice			
(3) RRUS 32	C	From Leg	4.00	0.000	100.00	No Ice	2.73	1.67	0.051
			0.000			1/2"	2.95	1.86	0.072
			0.000			Ice	3.18	2.05	0.096
						1" Ice			
RRUS 4478 B14	A	From Leg	4.00	0.000	100.00	No Ice	1.84	1.06	0.060
			0.000			1/2"	2.01	1.20	0.076
			0.000			Ice	2.19	1.34	0.094
						1" Ice			
RRUS 4478 B14	B	From Leg	4.00	0.000	100.00	No Ice	1.84	1.06	0.060
			0.000			1/2"	2.01	1.20	0.076
			0.000			Ice	2.19	1.34	0.094
						1" Ice			
RRUS 4478 B14	C	From Leg	4.00	0.000	100.00	No Ice	1.84	1.06	0.060
			0.000			1/2"	2.01	1.20	0.076
			0.000			Ice	2.19	1.34	0.094
						1" Ice			
(2) LGP21401	A	From Leg	4.00	0.000	100.00	No Ice	1.10	0.21	0.014
			0.000			1/2"	1.24	0.27	0.021
			0.000			Ice	1.38	0.35	0.030
						1" Ice			
(2) LGP21401	B	From Leg	4.00	0.000	100.00	No Ice	1.10	0.21	0.014
			0.000			1/2"	1.24	0.27	0.021
			0.000			Ice	1.38	0.35	0.030
						1" Ice			
(2) LGP21401	C	From Leg	4.00	0.000	100.00	No Ice	1.10	0.21	0.014
			0.000			1/2"	1.24	0.27	0.021
			0.000			Ice	1.38	0.35	0.030
						1" Ice			
(2) TPX-070821	A	From Leg	4.00	0.000	100.00	No Ice	0.47	0.10	0.008
			0.000			1/2"	0.56	0.15	0.011
			0.000			Ice	0.66	0.20	0.016
						1" Ice			
(2) TPX-070821	B	From Leg	4.00	0.000	100.00	No Ice	0.47	0.10	0.008
			0.000			1/2"	0.56	0.15	0.011

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
			0.000			Ice	0.66	0.20	0.016
						1" Ice			
(2) TPX-070821	C	From Leg	4.00	0.000	100.00	No Ice	0.47	0.10	0.008
			0.000			1/2"	0.56	0.15	0.011
			0.000			Ice	0.66	0.20	0.016
						1" Ice			
Squid Surge Arrestor	A	From Leg	4.00	0.000	100.00	No Ice	0.47	0.10	0.008
			0.000			1/2"	0.56	0.15	0.011
			0.000			Ice	0.66	0.20	0.016
						1" Ice			
Squid Surge Arrestor	B	From Leg	4.00	0.000	100.00	No Ice	0.47	0.10	0.008
			0.000			1/2"	0.56	0.15	0.011
			0.000			Ice	0.66	0.20	0.016
						1" Ice			
Squid Surge Arrestor	C	From Leg	4.00	0.000	100.00	No Ice	0.47	0.10	0.008
			0.000			1/2"	0.56	0.15	0.011
			0.000			Ice	0.66	0.20	0.016
						1" Ice			
Sabre 12' V-Boom	C	None		0.000	100.00	No Ice	29.82	29.82	1.673
						1/2"	42.21	42.21	2.266
						Ice	54.43	54.43	3.052
						1" Ice			
**									
BXA-80063-6BF-EDIN-4 w/ Mount Pipe	A	From Leg	4.00	0.000	90.00	No Ice	7.50	5.63	0.044
			0.000			1/2"	8.03	6.72	0.103
			0.000			Ice	8.53	7.56	0.170
						1" Ice			
BXA-80080/6CF W/ Mount Pipe	B	From Leg	4.00	0.000	90.00	No Ice	8.24	5.83	0.051
			0.000			1/2"	8.90	7.10	0.114
			0.000			Ice	9.52	8.22	0.185
						1" Ice			
BXA-80080/6CF W/ Mount Pipe	C	From Leg	4.00	0.000	90.00	No Ice	8.24	5.83	0.051
			0.000			1/2"	8.90	7.10	0.114
			0.000			Ice	9.52	8.22	0.185
						1" Ice			
(2) JAHH-65B-R3B_TIA w/ Mount Pipe	A	From Leg	4.00	0.000	90.00	No Ice	9.35	7.65	0.089
			0.000			1/2"	9.92	8.83	0.165
			0.000			Ice	10.46	9.73	0.250
						1" Ice			
(2) JAHH-65B-R3B_TIA w/ Mount Pipe	B	From Leg	4.00	0.000	90.00	No Ice	9.35	7.65	0.089
			0.000			1/2"	9.92	8.83	0.165
			0.000			Ice	10.46	9.73	0.250
						1" Ice			
(2) JAHH-65B-R3B_TIA w/ Mount Pipe	C	From Leg	4.00	0.000	90.00	No Ice	9.35	7.65	0.089
			0.000			1/2"	9.92	8.83	0.165
			0.000			Ice	10.46	9.73	0.250
						1" Ice			
XXDWMM-12.5-65-8T-CBRS	A	From Leg	4.00	0.000	90.00	No Ice	0.52	1.53	0.023
			0.000			1/2"	0.61	1.69	0.035
			0.000			Ice	0.72	1.85	0.049
						1" Ice			
XXDWMM-12.5-65-8T-CBRS	B	From Leg	4.00	0.000	90.00	No Ice	0.52	1.53	0.023
			0.000			1/2"	0.61	1.69	0.035
			0.000			Ice	0.72	1.85	0.049
						1" Ice			
XXDWMM-12.5-65-8T-CBRS	C	From Leg	4.00	0.000	90.00	No Ice	0.52	1.53	0.023
			0.000			1/2"	0.61	1.69	0.035
			0.000			Ice	0.72	1.85	0.049
						1" Ice			
B2/B66 RRH-BR049	A	From Leg	4.00	0.000	90.00	No Ice	1.88	1.25	0.084
			0.000			1/2"	2.05	1.39	0.103
			0.000			Ice	2.22	1.54	0.124
						1" Ice			
B2/B66 RRH-BR049	B	From Leg	4.00	0.000	90.00	No Ice	1.88	1.25	0.084
			0.000			1/2"	2.05	1.39	0.103

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
			0.000			Ice	2.22	1.54	0.124
						1" Ice			
B2/B66 RRH-BR049	C	From Leg	4.00	0.000	90.00	No Ice	1.88	1.25	0.084
			0.000			1/2"	2.05	1.39	0.103
			0.000			Ice	2.22	1.54	0.124
						1" Ice			
B5/B13 RRH-BR04C	A	From Leg	4.00	0.000	90.00	No Ice	1.88	1.01	0.070
			0.000			1/2"	2.05	1.14	0.087
			0.000			Ice	2.22	1.28	0.106
						1" Ice			
B5/B13 RRH-BR04C	B	From Leg	4.00	0.000	90.00	No Ice	1.88	1.01	0.070
			0.000			1/2"	2.05	1.14	0.087
			0.000			Ice	2.22	1.28	0.106
						1" Ice			
B5/B13 RRH-BR04C	C	From Leg	4.00	0.000	90.00	No Ice	1.88	1.01	0.070
			0.000			1/2"	2.05	1.14	0.087
			0.000			Ice	2.22	1.28	0.106
						1" Ice			
(2) CBC78T-DS-43	A	From Leg	4.00	0.000	90.00	No Ice	0.37	0.25	0.011
			0.000			1/2"	0.45	0.32	0.015
			0.000			Ice	0.53	0.39	0.020
						1" Ice			
CBC78T-DS-43	B	From Leg	4.00	0.000	90.00	No Ice	0.37	0.25	0.011
			0.000			1/2"	0.45	0.32	0.015
			0.000			Ice	0.53	0.39	0.020
						1" Ice			
CBC78T-DS-43	C	From Leg	4.00	0.000	90.00	No Ice	0.37	0.25	0.011
			0.000			1/2"	0.45	0.32	0.015
			0.000			Ice	0.53	0.39	0.020
						1" Ice			
RRFDC-3315-PF-48	B	From Leg	4.00	0.000	90.00	No Ice	3.71	2.19	0.021
			0.000			1/2"	3.95	2.39	0.052
			0.000			Ice	4.20	2.61	0.086
						1" Ice			
RRFDC-3315-PF-48	C	From Leg	4.00	0.000	90.00	No Ice	3.71	2.19	0.021
			0.000			1/2"	3.95	2.39	0.052
			0.000			Ice	4.20	2.61	0.086
						1" Ice			
MT6407-77A	A	From Leg	4.00	0.000	90.00	No Ice	4.71	1.84	0.087
			0.000			1/2"	5.00	2.07	0.116
			0.000			Ice	5.29	2.30	0.150
						1" Ice			
MT6407-77A	B	From Leg	4.00	0.000	90.00	No Ice	4.71	1.84	0.087
			0.000			1/2"	5.00	2.07	0.116
			0.000			Ice	5.29	2.30	0.150
						1" Ice			
MT6407-77A	C	From Leg	4.00	0.000	90.00	No Ice	4.71	1.84	0.087
			0.000			1/2"	5.00	2.07	0.116
			0.000			Ice	5.29	2.30	0.150
						1" Ice			
Empty Mount Pipe	A	From Leg	4.00	0.000	90.00	No Ice	1.90	1.90	0.029
			0.000			1/2"	2.73	2.73	0.044
			0.000			Ice	3.40	3.40	0.063
						1" Ice			
Empty Mount Pipe	B	From Leg	4.00	0.000	90.00	No Ice	1.90	1.90	0.029
			0.000			1/2"	2.73	2.73	0.044
			0.000			Ice	3.40	3.40	0.063
						1" Ice			
Empty Mount Pipe	C	From Leg	4.00	0.000	90.00	No Ice	1.90	1.90	0.029
			0.000			1/2"	2.73	2.73	0.044
			0.000			Ice	3.40	3.40	0.063
						1" Ice			
Platform Mount	C	None		0.000	90.00	No Ice	51.70	51.70	2.262
						1/2"	62.70	62.70	2.935
						Ice	73.70	73.70	3.608

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Reinforcement	C	None		0.000	90.00	1" Ice No Ice 1/2" Ice 1" Ice	13.18 17.57 20.95	13.18 17.57 20.95	0.710 0.877 1.100
**									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.000 0.000	0.000	80.00	No Ice 1/2" Ice 1" Ice	12.96 13.67 14.34	7.77 9.05 10.19	0.094 0.189 0.292
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.000 0.000	0.000	80.00	No Ice 1/2" Ice 1" Ice	12.96 13.67 14.34	7.77 9.05 10.19	0.094 0.189 0.292
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.000 0.000	0.000	80.00	No Ice 1/2" Ice 1" Ice	12.96 13.67 14.34	7.77 9.05 10.19	0.094 0.189 0.292
TA08025-B605	A	From Leg	4.00 0.000 0.000	0.000	80.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.19 1.33 1.48	0.075 0.093 0.114
TA08025-B605	B	From Leg	4.00 0.000 0.000	0.000	80.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.19 1.33 1.48	0.075 0.093 0.114
TA08025-B605	C	From Leg	4.00 0.000 0.000	0.000	80.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.19 1.33 1.48	0.075 0.093 0.114
TA08025-B604	A	From Leg	4.00 0.000 0.000	0.000	80.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.03 1.17 1.31	0.064 0.081 0.100
TA08025-B604	B	From Leg	4.00 0.000 0.000	0.000	80.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.03 1.17 1.31	0.064 0.081 0.100
TA08025-B604	C	From Leg	4.00 0.000 0.000	0.000	80.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.03 1.17 1.31	0.064 0.081 0.100
RDIDC-9181-PF-48	C	From Leg	4.00 0.000 0.000	0.000	80.00	No Ice 1/2" Ice 1" Ice	1.87 2.04 2.21	1.07 1.20 1.35	0.022 0.038 0.057
(2) Empty Pipe	A	From Leg	4.00 0.000 0.000	0.000	80.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.029 0.044 0.063
(2) Empty Pipe	B	From Leg	4.00 0.000 0.000	0.000	80.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.029 0.044 0.063
(2) Empty Pipe	C	From Leg	4.00 0.000 0.000	0.000	80.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.029 0.044 0.063
Platform Mount	C	None		0.000	80.00	No Ice 1/2" Ice 1" Ice	26.80 32.20 37.60	26.80 32.20 37.60	1.509 1.811 2.113
*									

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
Clearwire										

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	110 - 105	Pole	Max Tension	48	0.000	0.00	0.00
			Max. Compression	26	-0.709	0.00	-0.08
			Max. Mx	8	-0.369	-0.52	-0.03
			Max. My	14	-0.374	0.00	-0.51
			Max. Vy	8	0.211	-0.52	-0.03
			Max. Vx	14	0.197	0.00	-0.51
			Max. Torque	36			0.00
L2	105 - 100	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-1.457	0.00	-0.17
			Max. Mx	8	-0.763	-2.12	-0.05
			Max. My	14	-0.772	0.00	-2.04
			Max. Vy	8	0.430	-2.12	-0.05
			Max. Vx	14	0.406	0.00	-2.04
			Max. Torque	36			0.00
L3	100 - 96	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-17.739	0.01	0.73
			Max. Mx	8	-4.869	-25.47	0.04
			Max. My	2	-4.997	0.00	24.94
			Max. Vy	8	6.060	-25.47	0.04
			Max. Vx	14	5.806	0.00	-24.74
			Max. Torque	20			-0.55
L4	96 - 91	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-18.736	0.02	0.22
			Max. Mx	8	-5.218	-57.10	-0.04
			Max. My	2	-5.390	0.00	54.40
			Max. Vy	8	6.600	-57.10	-0.04
			Max. Vx	14	6.020	0.01	-54.39
			Max. Torque	20			-0.46
L5	91 - 86	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-35.249	0.04	-1.29
			Max. Mx	8	-10.453	-115.57	-0.21
			Max. My	14	-10.778	0.01	-108.71
			Max. Vy	8	13.182	-115.57	-0.21
			Max. Vx	14	12.105	0.01	-108.71
			Max. Torque	22			-0.45
L6	86 - 81	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-36.414	0.06	-2.00
			Max. Mx	8	-10.932	-182.85	-0.33
			Max. My	14	-11.297	0.02	-169.82
			Max. Vy	8	13.742	-182.85	-0.33
			Max. Vx	14	12.301	0.02	-169.82
			Max. Torque	9			-0.42
L7	81 - 76	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-44.671	0.59	-3.09
			Max. Mx	8	-14.048	-263.68	-0.48
			Max. My	14	-14.493	0.16	-242.57
			Max. Vy	8	17.022	-263.68	-0.48
			Max. Vx	14	15.136	0.16	-242.57
			Max. Torque	9			-0.73
L8	76 - 71	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-46.020	0.61	-3.92
			Max. Mx	8	-14.660	-350.13	-0.57
			Max. My	14	-15.131	0.21	-318.74
			Max. Vy	8	17.582	-350.13	-0.57
			Max. Vx	14	15.298	0.21	-318.74
			Max. Torque	9			-0.93
L9	71 - 66	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-47.685	0.63	-4.76
			Max. Mx	8	-15.423	-439.39	-0.68
			Max. My	14	-15.909	0.27	-395.72
			Max. Vy	8	18.146	-439.39	-0.68
			Max. Vx	14	15.456	0.27	-395.72
			Max. Torque	9			-1.04
L10	66 - 61	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-49.373	0.65	-5.61

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	8	-16.224	-531.42	-0.79
			Max. My	14	-16.715	0.32	-473.45
			Max. Vy	8	18.695	-531.42	-0.79
			Max. Vx	14	15.602	0.32	-473.45
			Max. Torque	9			-1.16
L11	61 - 56	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-51.081	0.66	-6.45
			Max. Mx	8	-17.060	-626.15	-0.91
			Max. My	14	-17.545	0.37	-551.88
			Max. Vy	8	19.228	-626.15	-0.91
			Max. Vx	14	15.737	0.37	-551.88
			Max. Torque	9			-1.27
L12	56 - 51	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-52.810	0.67	-7.30
			Max. Mx	8	-17.930	-723.49	-1.03
			Max. My	14	-18.397	0.42	-630.95
			Max. Vy	8	19.743	-723.49	-1.03
			Max. Vx	14	15.860	0.42	-630.95
			Max. Torque	9			-1.39
L13	51 - 46	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-53.158	0.68	-7.47
			Max. Mx	8	-18.108	-743.27	-1.06
			Max. My	14	-18.571	0.43	-646.84
			Max. Vy	8	19.842	-743.27	-1.06
			Max. Vx	14	15.882	0.43	-646.84
			Max. Torque	9			-1.41
L14	46 - 45	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-55.664	0.69	-8.32
			Max. Mx	8	-19.382	-843.96	-1.18
			Max. My	14	-19.842	0.48	-726.90
			Max. Vy	8	20.447	-843.96	-1.18
			Max. Vx	14	16.089	0.48	-726.90
			Max. Torque	9			-1.53
L15	45 - 40	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-57.529	0.70	-9.16
			Max. Mx	8	-20.392	-947.35	-1.31
			Max. My	14	-20.824	0.54	-807.75
			Max. Vy	8	20.947	-947.35	-1.31
			Max. Vx	14	16.213	0.54	-807.75
			Max. Torque	9			-1.65
L16	40 - 35	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-59.414	0.71	-10.00
			Max. Mx	8	-21.434	-1053.19	-1.45
			Max. My	14	-21.828	0.59	-889.20
			Max. Vy	8	21.425	-1053.19	-1.45
			Max. Vx	14	16.327	0.59	-889.20
			Max. Torque	9			-1.76
L17	35 - 30	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-61.316	0.71	-10.84
			Max. Mx	8	-22.505	-1161.36	-1.58
			Max. My	14	-22.854	0.64	-971.19
			Max. Vy	8	21.879	-1161.36	-1.58
			Max. Vx	14	16.428	0.64	-971.19
			Max. Torque	9			-1.88
L18	30 - 25	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-63.232	0.72	-11.67
			Max. Mx	8	-23.604	-1271.76	-1.72
			Max. My	14	-23.901	0.69	-1053.67
			Max. Vy	8	22.319	-1271.76	-1.72
			Max. Vx	14	16.522	0.69	-1053.67
			Max. Torque	9			-1.99
L19	25 - 20	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-65.168	0.72	-12.48
			Max. Mx	8	-24.703	-1384.41	-1.86
			Max. My	14	-24.942	0.74	-1136.62
			Max. Vy	8	22.779	-1384.41	-1.86
			Max. Vx	14	16.614	0.74	-1136.62
			Max. Torque	9			-2.12
L20	20 - 19.75	Pole	Max Tension	1	0.000	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-65.256	0.72	-12.50
			Max. Mx	8	-24.769	-1390.10	-1.87
			Max. My	14	-24.999	0.74	-1140.77
			Max. Vy	8	22.789	-1390.10	-1.87
			Max. Vx	14	16.625	0.74	-1140.77
			Max. Torque	9			-2.12
L21	19.75 - 14.75	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-67.017	0.73	-12.75
			Max. Mx	8	-25.807	-1505.11	-1.89
			Max. My	14	-25.979	0.79	-1224.99
			Max. Vy	8	23.242	-1505.11	-1.89
			Max. Vx	14	17.059	0.79	-1224.99
			Max. Torque	9			-2.14
L22	14.75 - 10	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-68.689	0.73	-12.97
			Max. Mx	8	-26.826	-1616.42	-1.91
			Max. My	14	-26.938	0.83	-1306.99
			Max. Vy	8	23.668	-1616.42	-1.91
			Max. Vx	14	17.472	0.83	-1306.99
			Max. Torque	9			-2.16
L23	10 - 9.75	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-68.782	0.73	-12.98
			Max. Mx	8	-26.900	-1622.34	-1.91
			Max. My	14	-27.003	0.84	-1311.36
			Max. Vy	8	23.676	-1622.34	-1.91
			Max. Vx	14	17.482	0.84	-1311.36
			Max. Torque	9			-2.16
L24	9.75 - 5	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-70.497	0.73	-13.13
			Max. Mx	8	-27.975	-1735.85	-1.92
			Max. My	14	-28.034	0.88	-1395.49
			Max. Vy	8	24.146	-1735.85	-1.92
			Max. Vx	14	17.940	0.88	-1395.49
			Max. Torque	9			-2.18
L25	5 - 4.75	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-70.584	0.73	-13.13
			Max. Mx	8	-28.044	-1741.89	-1.92
			Max. My	14	-28.095	0.88	-1399.97
			Max. Vy	8	24.156	-1741.89	-1.92
			Max. Vx	14	17.953	0.88	-1399.97
			Max. Torque	9			-2.18
L26	4.75 - 0	Pole	Max Tension	1	0.000	0.00	0.00
			Max. Compression	26	-72.137	0.73	-13.15
			Max. Mx	8	-29.113	-1856.99	-1.87
			Max. My	14	-29.119	0.93	-1485.69
			Max. Vy	8	24.334	-1856.99	-1.87
			Max. Vx	14	18.155	0.93	-1485.69
			Max. Torque	9			-2.18

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	36	72.137	7.056	-0.002
	Max. H_x	20	29.129	23.948	-0.010
	Max. H_z	2	29.129	-0.010	18.140
	Max. M_x	2	1480.29	-0.010	18.140
	Max. M_z	8	1856.99	-24.315	0.010
	Max. Torsion	21	1.94	23.948	-0.010
	Min. Vert	13	21.846	-8.896	-15.446
	Min. H_x	8	29.129	-24.315	0.010
	Min. H_z	14	29.129	0.010	-18.140
	Min. M_x	14	-1485.69	0.010	-18.140

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. M_z	20	-1835.02	23.948	-0.010
	Min. Torsion	9	-2.18	-24.315	0.010

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	24.274	0.000	0.000	2.19	0.10	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	29.129	0.010	-18.140	-1480.29	-0.68	-0.13
0.9 Dead+1.6 Wind 0 deg - No Ice	21.846	0.010	-18.140	-1456.12	-0.70	-0.13
1.2 Dead+1.6 Wind 30 deg - No Ice	29.129	8.913	-15.455	-1280.03	-738.83	-0.20
0.9 Dead+1.6 Wind 30 deg - No Ice	21.846	8.913	-15.455	-1259.19	-726.45	-0.20
1.2 Dead+1.6 Wind 60 deg - No Ice	29.129	16.184	-9.365	-762.64	-1321.06	-0.15
0.9 Dead+1.6 Wind 60 deg - No Ice	21.846	16.184	-9.365	-750.54	-1298.98	-0.15
1.2 Dead+1.6 Wind 90 deg - No Ice	29.129	24.315	-0.010	1.87	-1856.99	2.17
0.9 Dead+1.6 Wind 90 deg - No Ice	21.846	24.315	-0.010	1.18	-1827.44	2.18
1.2 Dead+1.6 Wind 120 deg - No Ice	29.129	16.174	9.348	766.67	-1320.24	-0.02
0.9 Dead+1.6 Wind 120 deg - No Ice	21.846	16.174	9.348	753.15	-1298.18	-0.02
1.2 Dead+1.6 Wind 150 deg - No Ice	29.129	8.896	15.446	1284.64	-737.42	0.03
0.9 Dead+1.6 Wind 150 deg - No Ice	21.846	8.896	15.446	1262.38	-725.07	0.03
1.2 Dead+1.6 Wind 180 deg - No Ice	29.129	-0.010	18.140	1485.69	0.93	0.13
0.9 Dead+1.6 Wind 180 deg - No Ice	21.846	-0.010	18.140	1460.09	0.88	0.13
1.2 Dead+1.6 Wind 210 deg - No Ice	29.129	-8.913	15.455	1285.44	739.06	0.20
0.9 Dead+1.6 Wind 210 deg - No Ice	21.846	-8.913	15.455	1263.17	726.62	0.20
1.2 Dead+1.6 Wind 240 deg - No Ice	29.129	-16.184	9.365	768.06	1321.29	0.15
0.9 Dead+1.6 Wind 240 deg - No Ice	21.846	-16.184	9.365	754.53	1299.15	0.15
1.2 Dead+1.6 Wind 270 deg - No Ice	29.129	-23.948	0.010	3.49	1835.02	-1.94
0.9 Dead+1.6 Wind 270 deg - No Ice	21.846	-23.948	0.010	2.77	1805.69	-1.94
1.2 Dead+1.6 Wind 300 deg - No Ice	29.129	-16.174	-9.348	-761.24	1320.50	0.02
0.9 Dead+1.6 Wind 300 deg - No Ice	21.846	-16.174	-9.348	-749.16	1298.37	0.02
1.2 Dead+1.6 Wind 330 deg - No Ice	29.129	-8.896	-15.446	-1279.23	737.68	-0.03
0.9 Dead+1.6 Wind 330 deg - No Ice	21.846	-8.896	-15.446	-1258.40	725.26	-0.03
1.2 Dead+1.0 Ice+1.0 Temp	72.137	-0.000	0.000	13.15	0.73	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	72.137	0.002	-5.799	-543.84	0.53	-0.06
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	72.137	2.881	-4.986	-468.96	-277.73	-0.07
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	72.137	5.061	-2.923	-267.10	-484.51	-0.03
1.2 Dead+1.0 Wind 90	72.137	7.056	-0.002	12.98	-640.51	0.72

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	72.137	5.059	2.919	293.14	-484.30	0.02
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	72.137	2.877	4.984	495.13	-277.38	0.03
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	72.137	-0.002	5.799	570.20	0.92	0.06
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	72.137	-2.881	4.986	495.33	279.17	0.07
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	72.137	-5.061	2.923	293.48	485.95	0.03
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	72.137	-7.056	0.002	13.38	641.97	-0.72
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	72.137	-5.059	-2.919	-266.76	485.77	-0.02
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	72.137	-2.877	-4.984	-468.76	278.85	-0.03
Dead+Wind 0 deg - Service	24.274	0.002	-4.222	-339.73	-0.08	-0.03
Dead+Wind 30 deg - Service	24.274	2.075	-3.597	-293.55	-170.29	-0.05
Dead+Wind 60 deg - Service	24.274	3.767	-2.180	-174.27	-304.59	-0.03
Dead+Wind 90 deg - Service	24.274	5.660	-0.002	2.05	-428.63	0.51
Dead+Wind 120 deg - Service	24.274	3.765	2.176	178.42	-304.41	-0.00
Dead+Wind 150 deg - Service	24.274	2.071	3.595	297.84	-169.97	0.01
Dead+Wind 180 deg - Service	24.274	-0.002	4.222	344.20	0.29	0.03
Dead+Wind 210 deg - Service	24.274	-2.075	3.597	298.03	170.50	0.05
Dead+Wind 240 deg - Service	24.274	-3.767	2.180	178.75	304.80	0.03
Dead+Wind 270 deg - Service	24.274	-5.574	0.002	2.42	423.67	-0.46
Dead+Wind 300 deg - Service	24.274	-3.765	-2.176	-173.95	304.61	0.00
Dead+Wind 330 deg - Service	24.274	-2.071	-3.595	-293.36	170.18	-0.01

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-24.274	0.000	0.000	24.274	-0.000	0.000%
2	0.010	-29.129	-18.140	-0.010	29.129	18.140	0.000%
3	0.010	-21.846	-18.140	-0.010	21.846	18.140	0.000%
4	8.913	-29.129	-15.455	-8.913	29.129	15.455	0.000%
5	8.913	-21.846	-15.455	-8.913	21.846	15.455	0.000%
6	16.184	-29.129	-9.365	-16.184	29.129	9.365	0.000%
7	16.184	-21.846	-9.365	-16.184	21.846	9.365	0.000%
8	24.315	-29.129	-0.010	-24.315	29.129	0.010	0.000%
9	24.315	-21.846	-0.010	-24.315	21.846	0.010	0.000%
10	16.174	-29.129	9.348	-16.174	29.129	-9.348	0.000%
11	16.174	-21.846	9.348	-16.174	21.846	-9.348	0.000%
12	8.896	-29.129	15.446	-8.896	29.129	-15.446	0.000%
13	8.896	-21.846	15.446	-8.896	21.846	-15.446	0.000%
14	-0.010	-29.129	18.140	0.010	29.129	-18.140	0.000%
15	-0.010	-21.846	18.140	0.010	21.846	-18.140	0.000%
16	-8.913	-29.129	15.455	8.913	29.129	-15.455	0.000%
17	-8.913	-21.846	15.455	8.913	21.846	-15.455	0.000%
18	-16.184	-29.129	9.365	16.184	29.129	-9.365	0.000%
19	-16.184	-21.846	9.365	16.184	21.846	-9.365	0.000%
20	-23.948	-29.129	0.010	23.948	29.129	-0.010	0.000%
21	-23.948	-21.846	0.010	23.948	21.846	-0.010	0.000%
22	-16.174	-29.129	-9.348	16.174	29.129	9.348	0.000%
23	-16.174	-21.846	-9.348	16.174	21.846	9.348	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
24	-8.896	-29.129	-15.446	8.896	29.129	15.446	0.000%
25	-8.896	-21.846	-15.446	8.896	21.846	15.446	0.000%
26	0.000	-72.137	0.000	0.000	72.137	-0.000	0.000%
27	0.002	-72.137	-5.799	-0.002	72.137	5.799	0.000%
28	2.880	-72.137	-4.986	-2.881	72.137	4.986	0.000%
29	5.061	-72.137	-2.923	-5.061	72.137	2.923	0.000%
30	7.056	-72.137	-0.002	-7.056	72.137	0.002	0.000%
31	5.059	-72.137	2.919	-5.059	72.137	-2.919	0.000%
32	2.877	-72.137	4.984	-2.877	72.137	-4.984	0.000%
33	-0.002	-72.137	5.799	0.002	72.137	-5.799	0.000%
34	-2.880	-72.137	4.986	2.881	72.137	-4.986	0.000%
35	-5.061	-72.137	2.923	5.061	72.137	-2.923	0.000%
36	-7.056	-72.137	0.002	7.056	72.137	-0.002	0.000%
37	-5.059	-72.137	-2.919	5.059	72.137	2.919	0.000%
38	-2.877	-72.137	-4.984	2.877	72.137	4.984	0.000%
39	0.002	-24.274	-4.222	-0.002	24.274	4.222	0.000%
40	2.075	-24.274	-3.597	-2.075	24.274	3.597	0.000%
41	3.767	-24.274	-2.180	-3.767	24.274	2.180	0.000%
42	5.660	-24.274	-0.002	-5.660	24.274	0.002	0.000%
43	3.765	-24.274	2.176	-3.765	24.274	-2.176	0.000%
44	2.071	-24.274	3.595	-2.071	24.274	-3.595	0.000%
45	-0.002	-24.274	4.222	0.002	24.274	-4.222	0.000%
46	-2.075	-24.274	3.597	2.075	24.274	-3.597	0.000%
47	-3.767	-24.274	2.180	3.767	24.274	-2.180	0.000%
48	-5.574	-24.274	0.002	5.574	24.274	-0.002	0.000%
49	-3.765	-24.274	-2.176	3.765	24.274	2.176	0.000%
50	-2.071	-24.274	-3.595	2.071	24.274	3.595	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00019943
3	Yes	5	0.00000001	0.00007582
4	Yes	6	0.00000001	0.00096969
5	Yes	6	0.00000001	0.00031666
6	Yes	7	0.00000001	0.00008053
7	Yes	6	0.00000001	0.00033495
8	Yes	5	0.00000001	0.00099047
9	Yes	5	0.00000001	0.00044591
10	Yes	7	0.00000001	0.00007998
11	Yes	6	0.00000001	0.00033195
12	Yes	6	0.00000001	0.00098225
13	Yes	6	0.00000001	0.00032057
14	Yes	5	0.00000001	0.00021348
15	Yes	5	0.00000001	0.00008357
16	Yes	6	0.00000001	0.00099146
17	Yes	6	0.00000001	0.00032365
18	Yes	7	0.00000001	0.00007985
19	Yes	6	0.00000001	0.00033126
20	Yes	5	0.00000001	0.00091392
21	Yes	5	0.00000001	0.00041082
22	Yes	7	0.00000001	0.00008012
23	Yes	6	0.00000001	0.00033320
24	Yes	6	0.00000001	0.00097475
25	Yes	6	0.00000001	0.00031862
26	Yes	5	0.00000001	0.00030020
27	Yes	7	0.00000001	0.00060698
28	Yes	7	0.00000001	0.00085938
29	Yes	7	0.00000001	0.00087017
30	Yes	7	0.00000001	0.00069584
31	Yes	7	0.00000001	0.00093338
32	Yes	7	0.00000001	0.00092021
33	Yes	7	0.00000001	0.00064088

34	Yes	7	0.00000001	0.00093047
35	Yes	7	0.00000001	0.00093823
36	Yes	7	0.00000001	0.00069888
37	Yes	7	0.00000001	0.00087247
38	Yes	7	0.00000001	0.00086650
39	Yes	4	0.00000001	0.00052046
40	Yes	5	0.00000001	0.00017374
41	Yes	5	0.00000001	0.00019543
42	Yes	5	0.00000001	0.00007396
43	Yes	5	0.00000001	0.00019531
44	Yes	5	0.00000001	0.00018269
45	Yes	4	0.00000001	0.00052973
46	Yes	5	0.00000001	0.00018742
47	Yes	5	0.00000001	0.00019440
48	Yes	4	0.00000001	0.00096237
49	Yes	5	0.00000001	0.00019316
50	Yes	5	0.00000001	0.00017699

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 105	23.423	42	1.725	0.004
L2	105 - 100	21.617	42	1.725	0.004
L3	100 - 96	19.811	42	1.724	0.004
L4	96 - 91	18.368	42	1.719	0.004
L5	91 - 86	16.579	42	1.696	0.004
L6	86 - 81	14.823	42	1.655	0.004
L7	81 - 76	13.120	42	1.594	0.004
L8	76 - 71	11.492	42	1.515	0.004
L9	71 - 66	9.953	42	1.421	0.003
L10	66 - 61	8.520	42	1.316	0.003
L11	61 - 56	7.201	42	1.202	0.003
L12	56 - 51	6.004	42	1.083	0.002
L13	51 - 46	4.933	42	0.961	0.002
L14	50 - 45	4.734	42	0.936	0.002
L15	45 - 40	3.785	42	0.868	0.002
L16	40 - 35	2.933	42	0.760	0.002
L17	35 - 30	2.193	42	0.652	0.001
L18	30 - 25	1.566	42	0.545	0.001
L19	25 - 20	1.051	42	0.438	0.001
L20	20 - 19.75	0.648	42	0.332	0.001
L21	19.75 - 14.75	0.631	42	0.328	0.001
L22	14.75 - 10	0.337	42	0.233	0.000
L23	10 - 9.75	0.150	42	0.144	0.000
L24	9.75 - 5	0.143	42	0.140	0.000
L25	5 - 4.75	0.037	42	0.072	0.000
L26	4.75 - 0	0.034	42	0.068	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection In	Tilt °	Twist °	Radius of Curvature ft
100.00	7770.00 w/ Mount Pipe	42	19.811	1.724	0.004	86715
90.00	BXA-80063-6BF-EDIN-4 w/ Mount Pipe	42	16.225	1.689	0.004	8162
80.00	MX08FRO665-21 w/ Mount Pipe	42	12.788	1.579	0.004	3895

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 105	101.621	8	7.503	0.015
L2	105 - 100	93.787	8	7.502	0.015
L3	100 - 96	85.954	8	7.499	0.015
L4	96 - 91	79.696	8	7.478	0.016
L5	91 - 86	71.936	8	7.375	0.018
L6	86 - 81	64.318	8	7.198	0.017
L7	81 - 76	56.932	8	6.930	0.017
L8	76 - 71	49.865	8	6.587	0.016
L9	71 - 66	43.190	8	6.177	0.014
L10	66 - 61	36.969	8	5.719	0.013
L11	61 - 56	31.245	8	5.225	0.011
L12	56 - 51	26.049	8	4.707	0.010
L13	51 - 46	21.403	8	4.173	0.008
L14	50 - 45	20.541	8	4.064	0.008
L15	45 - 40	16.423	8	3.770	0.007
L16	40 - 35	12.722	8	3.301	0.006
L17	35 - 30	9.512	8	2.832	0.005
L18	30 - 25	6.792	8	2.365	0.004
L19	25 - 20	4.559	8	1.901	0.003
L20	20 - 19.75	2.809	8	1.442	0.003
L21	19.75 - 14.75	2.734	8	1.421	0.002
L22	14.75 - 10	1.462	8	1.009	0.002
L23	10 - 9.75	0.651	8	0.623	0.001
L24	9.75 - 5	0.619	8	0.607	0.001
L25	5 - 4.75	0.162	8	0.311	0.000
L26	4.75 - 0	0.147	8	0.295	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100.00	7770.00 w/ Mount Pipe	8	85.954	7.499	0.015	20415
90.00	BXA-80063-6BF-EDIN-4 w/ Mount Pipe	8	70.398	7.346	0.018	1931
80.00	MX08FRO665-21 w/ Mount Pipe	8	55.491	6.867	0.016	918

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	110 - 105 (1)	TP15.5714x14.5x0.375	5.00	0.00	0.0	18.0875	-0.369	744.267	0.000
L2	105 - 100 (2)	TP16.6429x15.5714x0.375	5.00	0.00	0.0	19.3628	-0.763	796.741	0.001
L3	100 - 96 (3)	TP17.5x16.6429x0.375	4.00	0.00	0.0	20.3830	-4.869	838.721	0.006
L4	96 - 91 (4)	TP18.548x17.5x0.25	5.00	0.00	0.0	14.5195	-5.218	1078.720	0.005
L5	91 - 86 (5)	TP19.596x18.548x0.25	5.00	0.00	0.0	15.3511	-10.453	1140.510	0.009
L6	86 - 81 (6)	TP20.644x19.596x0.25	5.00	0.00	0.0	16.182	-10.932	1202.290	0.009

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L7	81 - 76 (7)	TP21.692x20.644x0.25	5.00	0.00	0.0	17.0146	-14.048	1264.070	0.011
L8	76 - 71 (8)	TP22.74x21.692x0.25	5.00	0.00	0.0	17.8458	-14.660	1325.850	0.011
L9	71 - 66 (9)	TP23.788x22.74x0.25	5.00	0.00	0.0	18.6774	-15.423	1387.640	0.011
L10	66 - 61 (10)	TP24.836x23.788x0.25	5.00	0.00	0.0	19.5090	-16.224	1449.420	0.011
L11	61 - 56 (11)	TP25.884x24.836x0.25	5.00	0.00	0.0	20.3406	-17.060	1501.830	0.011
L12	56 - 51 (12)	TP26.932x25.884x0.25	5.00	0.00	0.0	21.1722	-17.930	1546.690	0.012
L13	51 - 46 (13)	TP27.98x26.932x0.25	5.00	0.00	0.0	21.3385	-18.108	1555.510	0.012
L14	46 - 45 (14)	TP27.6774x26.6416x0.3125	5.00	0.00	0.0	27.1426	-19.382	2016.560	0.010
L15	45 - 40 (15)	TP28.7133x27.6774x0.3125	5.00	0.00	0.0	28.1700	-20.392	2092.890	0.010
L16	40 - 35 (16)	TP29.7491x28.7133x0.3125	5.00	0.00	0.0	29.1974	-21.434	2169.220	0.010
L17	35 - 30 (17)	TP30.785x29.7491x0.3125	5.00	0.00	0.0	30.2249	-22.505	2245.560	0.010
L18	30 - 25 (18)	TP31.8208x30.785x0.3125	5.00	0.00	0.0	31.2523	-23.604	2317.440	0.010
L19	25 - 20 (19)	TP32.8566x31.8208x0.3125	5.00	0.00	0.0	32.2797	-24.703	2373.690	0.010
L20	20 - 19.75 (20)	TP32.9084x32.8566x0.3438	0.25	0.00	0.0	35.5301	-24.769	2639.710	0.009
L21	19.75 - 14.75 (21)	TP33.9443x32.9084x0.3438	5.00	0.00	0.0	36.6603	-25.807	2723.670	0.009
L22	14.75 - 10 (22)	TP34.9283x33.9443x0.3438	4.75	0.00	0.0	37.7339	-26.826	2799.590	0.010
L23	10 - 9.75 (23)	TP34.9801x34.9283x0.45	0.25	0.00	0.0	49.3194	-26.900	3664.180	0.007
L24	9.75 - 5 (24)	TP35.9642x34.9801x0.4438	4.75	0.00	0.0	50.0292	-27.975	3716.920	0.008
L25	5 - 4.75 (25)	TP36.016x35.9642x0.4438	0.25	0.00	0.0	50.1021	-28.044	3722.340	0.008
L26	4.75 - 0 (26)	TP37x36.016x0.4375	4.75	0.00	0.0	50.7716	-29.113	3772.080	0.008

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	110 - 105 (1)	TP15.5714x14.5x0.375	0.52	228.76	0.002	0.00	228.76	0.000
L2	105 - 100 (2)	TP16.6429x15.5714x0.375	2.12	262.57	0.008	0.00	262.57	0.000
L3	100 - 96 (3)	TP17.5x16.6429x0.375	25.47	291.30	0.087	0.00	291.30	0.000
L4	96 - 91 (4)	TP18.548x17.5x0.25	57.10	403.56	0.141	0.00	403.56	0.000
L5	91 - 86 (5)	TP19.596x18.548x0.25	115.57	451.44	0.256	0.00	451.44	0.000
L6	86 - 81 (6)	TP20.644x19.596x0.25	182.85	502.01	0.364	0.00	502.01	0.000
L7	81 - 76 (7)	TP21.692x20.644x0.25	263.68	555.26	0.475	0.00	555.26	0.000
L8	76 - 71 (8)	TP22.74x21.692x0.25	350.13	611.19	0.573	0.00	611.19	0.000
L9	71 - 66 (9)	TP23.788x22.74x0.25	439.39	669.81	0.656	0.00	669.81	0.000
L10	66 - 61 (10)	TP24.836x23.788x0.25	531.42	731.11	0.727	0.00	731.11	0.000
L11	61 - 56 (11)	TP25.884x24.836x0.25	626.15	790.16	0.792	0.00	790.16	0.000
L12	56 - 51 (12)	TP26.932x25.884x0.25	723.49	847.35	0.854	0.00	847.35	0.000
L13	51 - 46 (13)	TP27.98x26.932x0.25	743.27	858.94	0.865	0.00	858.94	0.000
L14	46 - 45 (14)	TP27.6774x26.6416x0.3125	843.96	1130.75	0.746	0.00	1130.75	0.000
L15	45 - 40 (15)	TP28.7133x27.6774x0.3125	947.36	1218.47	0.777	0.00	1218.47	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L16	40 - 35 (16)	TP29.7491x28.7133x0.3125	1053.19	1309.48	0.804	0.00	1309.48	0.000
L17	35 - 30 (17)	TP30.785x29.7491x0.3125	1161.37	1403.76	0.827	0.00	1403.76	0.000
L18	30 - 25 (18)	TP31.8208x30.785x0.3125	1271.76	1498.44	0.849	0.00	1498.44	0.000
L19	25 - 20 (19)	TP32.8566x31.8208x0.3125	1384.41	1585.77	0.873	0.00	1585.77	0.000
L20	20 - 19.75 (20)	TP32.9084x32.8566x0.3438	1390.10	1762.93	0.789	0.00	1762.93	0.000
L21	19.75 - 14.75 (21)	TP33.9443x32.9084x0.3438	1505.11	1877.47	0.802	0.00	1877.47	0.000
L22	14.75 - 10 (22)	TP34.9283x33.9443x0.3438	1616.43	1986.89	0.814	0.00	1986.89	0.000
L23	10 - 9.75 (23)	TP34.9801x34.9283x0.45	1622.33	2588.47	0.627	0.00	2588.47	0.000
L24	9.75 - 5 (24)	TP35.9642x34.9801x0.4438	1735.85	2702.47	0.642	0.00	2702.47	0.000
L25	5 - 4.75 (25)	TP36.016x35.9642x0.4438	1741.89	2710.41	0.643	0.00	2710.41	0.000
L26	4.75 - 0 (26)	TP37x36.016x0.4375	1856.99	2824.51	0.657	0.00	2824.51	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	110 - 105 (1)	TP15.5714x14.5x0.375	0.211	372.133	0.001	0.00	459.76	0.000
L2	105 - 100 (2)	TP16.6429x15.5714x0.375	0.430	398.371	0.001	0.00	527.59	0.000
L3	100 - 96 (3)	TP17.5x16.6429x0.375	6.060	419.361	0.014	0.48	585.21	0.001
L4	96 - 91 (4)	TP18.548x17.5x0.25	6.600	539.362	0.012	0.31	809.77	0.000
L5	91 - 86 (5)	TP19.596x18.548x0.25	13.182	570.253	0.023	0.21	905.75	0.000
L6	86 - 81 (6)	TP20.644x19.596x0.25	13.742	601.145	0.023	0.42	1007.10	0.000
L7	81 - 76 (7)	TP21.692x20.644x0.25	17.022	632.036	0.027	0.73	1113.83	0.001
L8	76 - 71 (8)	TP22.74x21.692x0.25	17.582	662.927	0.027	0.93	1225.93	0.001
L9	71 - 66 (9)	TP23.788x22.74x0.25	18.147	693.819	0.026	1.04	1343.40	0.001
L10	66 - 61 (10)	TP24.836x23.788x0.25	18.695	724.710	0.026	1.15	1466.24	0.001
L11	61 - 56 (11)	TP25.884x24.836x0.25	19.228	750.914	0.026	1.27	1584.58	0.001
L12	56 - 51 (12)	TP26.932x25.884x0.25	19.744	773.346	0.026	1.39	1699.18	0.001
L13	51 - 46 (13)	TP27.98x26.932x0.25	19.842	777.755	0.026	1.41	1722.39	0.001
L14	46 - 45 (14)	TP27.6774x26.6416x0.3125	20.447	1008.280	0.020	1.53	2268.16	0.001
L15	45 - 40 (15)	TP28.7133x27.6774x0.3125	20.947	1046.450	0.020	1.64	2443.97	0.001
L16	40 - 35 (16)	TP29.7491x28.7133x0.3125	21.425	1084.610	0.020	1.76	2626.35	0.001
L17	35 - 30 (17)	TP30.785x29.7491x0.3125	21.879	1122.780	0.019	1.88	2815.30	0.001
L18	30 - 25 (18)	TP31.8208x30.785x0.3125	22.319	1158.720	0.019	1.99	3005.03	0.001
L19	25 - 20 (19)	TP32.8566x31.8208x0.3125	22.779	1186.840	0.019	2.12	3180.00	0.001
L20	20 - 19.75 (20)	TP32.9084x32.8566x0.3438	22.789	1319.850	0.017	2.12	3535.78	0.001
L21	19.75 - 14.75 (21)	TP33.9443x32.9084x0.3438	23.242	1361.840	0.017	2.14	3765.32	0.001
L22	14.75 - 10 (22)	TP34.9283x33.9443x0.3438	23.668	1399.800	0.017	2.16	3984.60	0.001
L23	10 - 9.75 (23)	TP34.9801x34.9283x0.45	23.676	1832.090	0.013	2.16	5193.43	0.000
L24	9.75 - 5 (24)	TP35.9642x34.9801x0.4438	24.146	1858.460	0.013	2.17	5421.72	0.000
L25	5 - 4.75 (25)	TP36.016x35.9642x0.4438	24.156	1861.170	0.013	2.17	5437.63	0.000
L26	4.75 - 0 (26)	TP37x36.016x0.4375	24.334	1886.040	0.013	2.17	5666.11	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	110 - 105 (1)	0.000	0.002	0.000	0.001	0.000	0.003	1.000	4.8.2
L2	105 - 100 (2)	0.001	0.008	0.000	0.001	0.000	0.009	1.000	4.8.2
L3	100 - 96 (3)	0.006	0.087	0.000	0.014	0.001	0.093	1.000	4.8.2
L4	96 - 91 (4)	0.005	0.141	0.000	0.012	0.000	0.146	1.000	4.8.2
L5	91 - 86 (5)	0.009	0.256	0.000	0.023	0.000	0.266	1.000	4.8.2
L6	86 - 81 (6)	0.009	0.364	0.000	0.023	0.000	0.374	1.000	4.8.2
L7	81 - 76 (7)	0.011	0.475	0.000	0.027	0.001	0.487	1.000	4.8.2
L8	76 - 71 (8)	0.011	0.573	0.000	0.027	0.001	0.585	1.000	4.8.2
L9	71 - 66 (9)	0.011	0.656	0.000	0.026	0.001	0.668	1.000	4.8.2
L10	66 - 61 (10)	0.011	0.727	0.000	0.026	0.001	0.739	1.000	4.8.2
L11	61 - 56 (11)	0.011	0.792	0.000	0.026	0.001	0.804	1.000	4.8.2
L12	56 - 51 (12)	0.012	0.854	0.000	0.026	0.001	0.866	1.000	4.8.2
L13	51 - 46 (13)	0.012	0.865	0.000	0.026	0.001	0.878	1.000	4.8.2
L14	46 - 45 (14)	0.010	0.746	0.000	0.020	0.001	0.756	1.000	4.8.2
L15	45 - 40 (15)	0.010	0.777	0.000	0.020	0.001	0.788	1.000	4.8.2
L16	40 - 35 (16)	0.010	0.804	0.000	0.020	0.001	0.815	1.000	4.8.2
L17	35 - 30 (17)	0.010	0.827	0.000	0.019	0.001	0.838	1.000	4.8.2
L18	30 - 25 (18)	0.010	0.849	0.000	0.019	0.001	0.859	1.000	4.8.2
L19	25 - 20 (19)	0.010	0.873	0.000	0.019	0.001	0.884	1.000	4.8.2
L20	20 - 19.75 (20)	0.009	0.789	0.000	0.017	0.001	0.798	1.000	4.8.2
L21	19.75 - 14.75 (21)	0.009	0.802	0.000	0.017	0.001	0.811	1.000	4.8.2
L22	14.75 - 10 (22)	0.010	0.814	0.000	0.017	0.001	0.823	1.000	4.8.2
L23	10 - 9.75 (23)	0.007	0.627	0.000	0.013	0.000	0.634	1.000	4.8.2
L24	9.75 - 5 (24)	0.008	0.642	0.000	0.013	0.000	0.650	1.000	4.8.2
L25	5 - 4.75 (25)	0.008	0.643	0.000	0.013	0.000	0.650	1.000	4.8.2
L26	4.75 - 0 (26)	0.008	0.657	0.000	0.013	0.000	0.665	1.000	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	110 - 105	Pole	TP15.5714x14.5x0.375	1	-0.369	744.267	0.3	Pass
L2	105 - 100	Pole	TP16.6429x15.5714x0.375	2	-0.763	796.741	0.9	Pass
L3	100 - 96	Pole	TP17.5x16.6429x0.375	3	-4.869	838.721	9.3	Pass
L4	96 - 91	Pole	TP18.548x17.5x0.25	4	-5.218	1078.720	14.6	Pass
L5	91 - 86	Pole	TP19.596x18.548x0.25	5	-10.453	1140.510	26.6	Pass
L6	86 - 81	Pole	TP20.644x19.596x0.25	6	-10.932	1202.290	37.4	Pass
L7	81 - 76	Pole	TP21.692x20.644x0.25	7	-14.048	1264.070	48.7	Pass
L8	76 - 71	Pole	TP22.74x21.692x0.25	8	-14.660	1325.850	58.5	Pass
L9	71 - 66	Pole	TP23.788x22.74x0.25	9	-15.423	1387.640	66.8	Pass
L10	66 - 61	Pole	TP24.836x23.788x0.25	10	-16.224	1449.420	73.9	Pass
L11	61 - 56	Pole	TP25.884x24.836x0.25	11	-17.060	1501.830	80.4	Pass
L12	56 - 51	Pole	TP26.932x25.884x0.25	12	-17.930	1546.690	86.6	Pass
L13	51 - 46	Pole	TP27.98x26.932x0.25	13	-18.108	1555.510	87.8	Pass
L14	46 - 45	Pole	TP27.6774x26.6416x0.3125	14	-19.382	2016.560	75.6	Pass
L15	45 - 40	Pole	TP28.7133x27.6774x0.3125	15	-20.392	2092.890	78.8	Pass
L16	40 - 35	Pole	TP29.7491x28.7133x0.3125	16	-21.434	2169.220	81.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L17	35 - 30	Pole	TP30.785x29.7491x0.3125	17	-22.505	2245.560	83.8	Pass
L18	30 - 25	Pole	TP31.8208x30.785x0.3125	18	-23.604	2317.440	85.9	Pass
L19	25 - 20	Pole	TP32.8566x31.8208x0.3125	19	-24.703	2373.690	88.4	Pass
L20	20 - 19.75	Pole	TP32.9084x32.8566x0.3438	20	-24.769	2639.710	79.8	Pass
L21	19.75 - 14.75	Pole	TP33.9443x32.9084x0.3438	21	-25.807	2723.670	81.1	Pass
L22	14.75 - 10	Pole	TP34.9283x33.9443x0.3438	22	-26.826	2799.590	82.3	Pass
L23	10 - 9.75	Pole	TP34.9801x34.9283x0.45	23	-26.900	3664.180	63.4	Pass
L24	9.75 - 5	Pole	TP35.9642x34.9801x0.4438	24	-27.975	3716.920	65.0	Pass
L25	5 - 4.75	Pole	TP36.016x35.9642x0.4438	25	-28.044	3722.340	65.0	Pass
L26	4.75 - 0	Pole	TP37x36.016x0.4375	26	-29.113	3772.080	66.5	Pass
							Summary	
						Pole (L19)	88.4	Pass
						RATING =	**88.4**	**Pass**

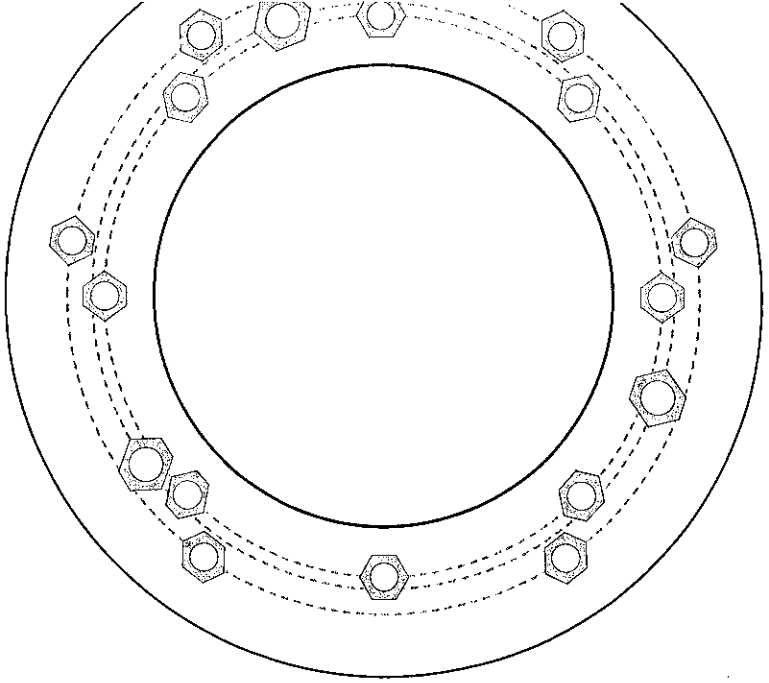
***NOTE: Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix B.**

APPENDIX B

ADDITIONAL CALCULATIONS

erations	
Revision	G
nsidered:	No
l_{ar} (in)	0
Factor, η	0.5

ıt (kip-ft)	1857.00
rce (kips)	29.11
rce (kips)	24.33



Connection Properties

ta

-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 45" BC
-1/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 51" BC
0, 55, 125, 170, 235, 305

-3/4" ø bolts (A193 Gr. B7 N; Fy=95 ksi, Fu=115 ksi) on 47" BC
10, 215, 340

ı

late (A871-GR60; Fy=60 ksi, Fu=75 ksi)

8-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of*

GROUP 1:

Pu_c = 105.78	ϕPn_t = 260	St
Vu = 1.31	ϕVn = n/a	
Mu = n/a	ϕMn = n/a	

GROUP 2:

Pu_c = 116.86	ϕPn_t = 325	St
Vu = 1.31	ϕVn = n/a	
Mu = n/a	ϕMn = n/a	

GROUP 3:

Pu_c = 156.45	ϕPn_t = 453.56	St
Vu = 1.99	ϕVn = n/a	
Mu = n/a	ϕMn = n/a	

Base Plate Summary

Max Stress (ksi):	30.78
Allowable Stress (ksi):	54
Stress Rating:	**57.0%**

MONOPOLE REINFORCEMENT

Site Name: NJJER01128B

Work Order: 10710.NJJER01128B

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	110	14	0	18	14.5	17.5	0.375	Auto	A36
2	96	50	4	18	17.50	27.98	0.25	Auto	A572-65
3	50	50	0	18	26.64	37	0.3125	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	20	channel	MC6x15.3	2			x												x			
2	5	20	channel	MC6x15.3	1										x								
3	0	10	channel	MC6x15.3	1									x									
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	6	3.5	4.49	0.5	20.500	20.500	16.000	4.065	1.1875	A572-65
2	6	3.5	4.49	0.5	20.500	20.500	16.000	4.065	1.1875	A572-65
3	6	3.5	4.49	0.5	20.500	20.500	16.000	4.065	1.1875	A572-65

76	5		18	20.644	21.692	0.25	A572-6
71	5		18	21.692	22.740	0.25	A572-6
66	5		18	22.740	23.788	0.25	A572-6
61	5		18	23.788	24.836	0.25	A572-6
56	5		18	24.836	25.884	0.25	A572-6
51	5		18	25.884	26.932	0.25	A572-6
50	5	4	18	26.932	27.980	0.25	A572-6
45	5		18	26.642	27.677	0.3125	A572-6
40	5		18	27.677	28.713	0.3125	A572-6
35	5		18	28.713	29.749	0.3125	A572-6
30	5		18	29.749	30.785	0.3125	A572-6
25	5		18	30.785	31.821	0.3125	A572-6
20	5		18	31.821	32.857	0.3125	A572-6
19.75	0.25		18	32.857	32.908	0.34375	A572-6
14.75	5		18	32.908	33.944	0.34375	A572-6
10	4.75		18	33.944	34.928	0.34375	A572-6
9.75	0.25		18	34.928	34.980	0.45	A572-6
5	4.75		18	34.980	35.964	0.44375	A572-6
4.75	0.25		18	35.964	36.016	0.44375	A572-6
0	4.75		18	36.016	37.000	0.4375	A572-6

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	110 - 105	0.37	0.52	0.21
2	105 - 100	0.76	2.12	0.43
3	100 - 96	4.87	25.47	6.06
4	96 - 91	5.22	57.10	6.60
5	91 - 86	10.45	115.57	13.18
6	86 - 81	10.93	182.85	13.74
7	81 - 76	14.05	263.68	17.02
8	76 - 71	14.66	350.14	17.58
9	71 - 66	15.42	439.39	18.15
10	66 - 61	16.22	531.42	18.70
11	61 - 56	17.06	626.15	19.23
12	56 - 51	17.93	723.49	19.74
13	51 - 50	18.11	743.27	19.84
14	50 - 45	19.38	843.96	20.45
15	45 - 40	20.39	947.36	20.95
16	40 - 35	21.43	1053.20	21.43
17	35 - 30	22.50	1161.36	21.88
18	30 - 25	23.60	1271.76	22.32
19	25 - 20	24.70	1384.41	22.78
20	20 - 19.75	24.77	1390.10	22.79
21	19.75 - 14.75	25.81	1505.11	23.24
22	14.75 - 10	26.83	1616.42	23.67
23	10 - 9.75	26.90	1622.34	23.68
24	9.75 - 5	27.97	1735.85	24.15
25	5 - 4.75	28.04	1741.89	24.16
26	4.75 - 0	29.11	1857.00	24.33

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fai
110 - 105	Pole	TP15.571x14.5x0.375	Pole	0.3%	Pass
105 - 100	Pole	TP16.643x15.571x0.375	Pole	0.9%	Pass
100 - 96	Pole	TP17.5x16.643x0.375	Pole	9.3%	Pass
96 - 91	Pole	TP18.548x17.5x0.25	Pole	14.6%	Pass
91 - 86	Pole	TP19.596x18.548x0.25	Pole	26.6%	Pass
86 - 81	Pole	TP20.644x19.596x0.25	Pole	37.4%	Pass
81 - 76	Pole	TP21.692x20.644x0.25	Pole	48.6%	Pass
76 - 71	Pole	TP22.74x21.692x0.25	Pole	58.4%	Pass
71 - 66	Pole	TP23.788x22.74x0.25	Pole	66.7%	Pass
66 - 61	Pole	TP24.836x23.788x0.25	Pole	73.8%	Pass
61 - 56	Pole	TP25.884x24.836x0.25	Pole	80.4%	Pass
56 - 51	Pole	TP26.932x25.884x0.25	Pole	86.6%	Pass
51 - 50	Pole	TP27.98x26.932x0.25	Pole	87.8%	Pass
50 - 45	Pole	TP27.677x26.642x0.3125	Pole	75.6%	Pass
45 - 40	Pole	TP28.713x27.677x0.3125	Pole	78.7%	Pass
40 - 35	Pole	TP29.749x28.713x0.3125	Pole	81.4%	Pass
35 - 30	Pole	TP30.785x29.749x0.3125	Pole	83.7%	Pass
30 - 25	Pole	TP31.821x30.785x0.3125	Pole	85.9%	Pass
25 - 20	Pole	TP32.857x31.821x0.3125	Pole	88.4%	Pass
20 - 19.75	Pole + Reinf.	TP32.908x32.857x0.3438	Pole	87.1%	Pass
19.75 - 14.75	Pole + Reinf.	TP33.944x32.908x0.3438	Pole	89.4%	Pass
14.75 - 10	Pole + Reinf.	TP34.928x33.944x0.3438	Pole	91.3%	Pass
10 - 9.75	Pole + Reinf.	TP34.98x34.928x0.45	Reinf. 1 Tension Rupture	90.3%	Pass
9.75 - 5	Pole + Reinf.	TP35.964x34.98x0.4438	Reinf. 1 Tension Rupture	92.1%	Pass
5 - 4.75	Pole + Reinf.	TP36.016x35.964x0.4438	Reinf. 1 Tension Rupture	92.2%	Pass
4.75 - 0	Pole + Reinf.	TP37x36.016x0.4375	Reinf. 1 Tension Rupture	93.8%	Pass
				Summary	
			Pole	91.3%	Pass
			Reinforcement	93.8%	Pass
			Overall	93.8%	Pass

) - 96	755	n/a	755	20.38	n/a	20.38	9.3%			
- 91	614	n/a	614	14.52	n/a	14.52	14.6%			
- 86	726	n/a	726	15.35	n/a	15.35	26.6%			
- 81	850	n/a	850	16.18	n/a	16.18	37.4%			
- 76	988	n/a	988	17.01	n/a	17.01	48.6%			
- 71	1140	n/a	1140	17.85	n/a	17.85	58.4%			
- 66	1307	n/a	1307	18.68	n/a	18.68	66.7%			
- 61	1489	n/a	1489	19.51	n/a	19.51	73.8%			
- 56	1688	n/a	1688	20.34	n/a	20.34	80.4%			
- 51	1904	n/a	1904	21.17	n/a	21.17	86.6%			
- 50	1949	n/a	1949	21.34	n/a	21.34	87.8%			
- 45	2567	n/a	2567	27.14	n/a	27.14	75.6%			
- 40	2870	n/a	2870	28.17	n/a	28.17	78.7%			
- 35	3195	n/a	3195	29.20	n/a	29.20	81.4%			
- 30	3545	n/a	3545	30.22	n/a	30.22	83.7%			
- 25	3918	n/a	3918	31.25	n/a	31.25	85.9%			
- 20	4318	n/a	4318	32.28	n/a	32.28	88.4%			
19.75	4447	418	4866	32.33	8.98	41.31	87.1%	87.0%		
- 14.75	4879	449	5328	33.36	8.98	42.34	89.4%	89.2%		
5 - 10	5314	480	5794	34.33	8.98	43.31	91.3%	91.1%		
- 9.75	5219	2192	7411	34.38	13.47	47.85	64.5%	90.3%		
5 - 5	5676	2312	7989	35.36	13.47	48.83	66.3%	92.1%		
4.75	5701	2319	8020	35.41	13.47	48.88	66.4%	92.2%		
5 - 0	6186	2443	8629	36.39	13.47	49.86	68.2%	93.8%		

ion capacity checked in 5 degree increments.

CONNECTICUT DESIGN CRITERIA - STATE

Revison:

CT is NOT a Home Rule State; Tab added only for Design Criteria

(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS

Municipality	Ground Snow Load	*Wind Design Parameters* MCE Spectral Accelerations (%g)		Ultimate Design Wind Speeds, V_{ult} (mph)			Nominal Design Wind Speeds, V_{asd} (mph)		
		S_s	S_1	Risk Cat.I	Risk Cat.II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV
Andover	30	0.176	0.063	120	130	140	93	101	108
Ansonia	30	0.195	0.064	115	125	135	89	97	105
Ashford	35	0.173	0.063	120	130	140	93	101	108
Avon	35	0.181	0.064	110	120	130	85	93	101
Barkhamsted	40	0.177	0.065	110	120	125	85	93	97
Beacon Falls	30	0.192	0.064	115	125	135	89	97	105
Berlin	30	0.183	0.063	115	125	135	89	97	105
Bethany	30	0.189	0.063	115	125	135	89	97	105
Bethel	30	0.215	0.066	110	120	125	85	93	97
Bethlehem	35	0.190	0.065	110	120	125	85	93	97
Bloomfield	35	0.180	0.064	115	125	130	89	97	101
Bolton	30	0.177	0.063	115	125	135	89	97	105
Bozrah	30	0.170	0.061	120	135	145	93	105	112
Branford	30	0.180	0.061	120	130	140	93	101	108
Bridgeport	30	0.209	0.064	115	125	135	89	97	105
Bridgewater	35	0.201	0.066	110	120	125	85	93	97
Bristol	35	0.185	0.064	110	120	130	85	93	101
Brookfield	35	0.208	0.066	110	120	125	85	93	97
Brooklyn	35	0.171	0.062	120	130	140	93	101	108
Burlington	35	0.182	0.064	110	120	130	85	93	101
Canaan	40	0.173	0.065	105	115	120	81	89	93
Canterbury	35	0.171	0.061	120	130	140	93	101	108
Canton	35	0.180	0.064	110	120	130	85	93	101
Chaplin	35	0.173	0.062	120	130	140	93	101	108
Cheshire	30	0.186	0.063	115	125	135	89	97	105
Chester	30	0.172	0.060	120	130	140	93	101	108
Clinton	30	0.169	0.059	120	135	140	93	105	108
Colchester	30	0.174	0.061	120	130	140	93	101	108
Colebrook	40	0.174	0.065	105	115	125	81	89	97
Columbia	30	0.175	0.062	120	130	140	93	101	108
Cornwall	40	0.180	0.065	105	115	120	81	89	93
Coventry	30	0.176	0.063	120	130	140	93	101	108
Cromwell	30	0.181	0.063	115	125	135	89	97	105
Danbury	30	0.217	0.067	110	120	125	85	93	97
Darien	30	0.242	0.068	110	120	130	85	93	101
Deep River	30	0.170	0.060	120	130	140	93	101	108
Derby	30	0.195	0.064	115	125	135	89	97	105
Durham	30	0.179	0.062	115	130	140	89	101	108
Eastford	40	0.172	0.063	120	130	140	93	101	108
East Granby	35	0.177	0.065	110	120	130	85	93	101
East Haddam	30	0.172	0.061	120	130	140	93	101	108
East Hampton	30	0.177	0.062	120	130	140	93	101	108

Exhibit E

Mount Analysis

Tectonic

PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Date: **February 23, 2022**

Mount Analysis Report

Project Information:

Carrier:	Dish Wireless
Site Number:	NJJER01128B
Site Address:	48 Newton Road, Danbury, Fairfield County, CT 06810
Site Type:	Platform w/ Railing Mount on Monopole

Tectonic Project Number: 10710.NJJER01128B

Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C. is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of the above-mentioned proposed mount.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Mount: **Sufficient – 29%**

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 120 mph converted to a nominal 3-second gust wind speed of 93 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B with a maximum topographic factor, Kzt, of 1.0 and Risk Category II was used in this analysis.

We at Tectonic appreciate the opportunity of providing our continuing professional services to you and Dish Wireless. If you have any questions or need further assistance on this or any other projects, please give us a call.

Structural analysis prepared by: John-Fritz Julien / Ian Marinaccio

Respectfully submitted by:
Tectonic Engineering Consultants, Geologists & Land Surveyors D.P.C.

Edward N. Iamiceli, P.E.
Managing Director - Structural

STATE OF CONNECTICUT
EDWARD N. IAMICELI
PEN.0028473
LICENSED
PROFESSIONAL ENGINEER

Project Contact Info

1279 Route 300 | Newburgh, NY 12550
845.567.6656 Tel | 845.567.8703 Fax

tectonicengineering.com
Equal Opportunity Employer

TABLE OF CONTENTS

1) INTRODUCTION

Analysis of the proposed antenna mounts due to the loading of the proposed antennas, equipment, and related appurtenances. The proposed mount is a platform mount manufactured by CommScope, P/N: MC-PK8-DSH.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-G
Risk Category:	II
Wind Speed:	93 mph
Exposure Category:	C
Topographic Factor:	1.0
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Service Load:	60 mph

Table 1 - Proposed Equipment Loading Information

Mounting Level (ft)	Carrier Designation	Number of Antennas	Antenna Manufacturer	Antenna Model	Proposed Mount Type	Note
80.0	Dish Wireless	3	JMA	MX08FRO665-21	CommScope MC-PK8-DSH	1
		3	Fujitsu	TA08025-B604 RRH		
		3	Fujitsu	TA08025-B605 RRH		
		1	Raycap	RDIDC-9181-PF-48		

Note:
1) Proposed equipment to be installed on the proposed mounts.

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Dated
Mount Assembly Drawings	CommScope, P/N: MC-PK8- DSH	03/17/2021
RFDS	Dish Wireless	11/16/2021
Field Notes & Photos	Tectonic	01/21/2022
Preliminary Construction Drawings	Tectonic	02/10/2022

3.1) Analysis Method

A tool internally developed, using Microsoft Excel, was used to calculate wind loading on all appurtenances and mount members. This information was then used in conjunction with another program, RISA-3D, which is a commercially available analysis software package, used to check the antenna mounting system and calculate member stresses for various loading cases. The selected output from the analysis is included in Appendices B and C.

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed, and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Tables 1 and 2.
3) 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.
4) Member length and sizes are based solely on the assembly drawing by CommScope, referenced above.

5) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM 500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform Mount)

Notes	Component	Mount Centerline (ft)	% Capacity	Pass / Fail
1	Standoff End Plate	80.0	21	Pass
	Grating Support Angle		9	Pass
	Face Horizontal		14	Pass
	Mount Pipe		19	Pass
	Standoff Channel		29	Pass
	Standoff		23	Pass
	Rail Connector		15	Pass
	Railing		15	Pass
2	Collar Connection		27	Pass
Structure Rating (max from all components) =				**29 %**

Notes:
1) See additional documentation in "Appendix C - Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Result / Conclusions

The proposed platform mount has adequate capacity to support the proposed antenna and equipment installation as detailed in the following report.

This structural analysis only includes evaluation of the antenna mounts and not the monopole. The monopole is to be analyzed under a separate structural analysis by Tectonic.

Contractor shall field verify existing conditions and recommendations as noted on the construction drawings and notify the design engineer of any discrepancies prior to construction. Any further changes to the antenna and/or appurtenance configuration should be reviewed with respect to their effect on structural loads prior to implementation.

APPENDIX A

SOFTWARE INPUT CALCULATIONS

CONNECTICUT DESIGN CRITERIA - STATE

Revison:

CT is NOT a Home Rule State; Tab added only for Design Criteria

(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS

Municipality	Ground Snow Load	MCE Spectral Accelerations (%g)		*Wind Design Parameters* Ultimate Design Wind Speeds, V_{ult} (mph)			Nominal Design Wind Speeds, V_{asd} (mph)		
		S_S	S_1	Risk Cat.I	Risk Cat.II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV
Andover	30	0.176	0.063	120	130	140	93	101	108
Ansonia	30	0.195	0.064	115	125	135	89	97	105
Ashford	35	0.173	0.063	120	130	140	93	101	108
Avon	35	0.181	0.064	110	120	130	85	93	101
Barkhamsted	40	0.177	0.065	110	120	125	85	93	97
Beacon Falls	30	0.192	0.064	115	125	135	89	97	105
Berlin	30	0.183	0.063	115	125	135	89	97	105
Bethany	30	0.189	0.063	115	125	135	89	97	105
Bethel	30	0.215	0.066	110	120	125	85	93	97
Bethlehem	35	0.190	0.065	110	120	125	85	93	97
Bloomfield	35	0.180	0.064	115	125	130	89	97	101
Bolton	30	0.177	0.063	115	125	135	89	97	105
Bozrah	30	0.170	0.061	120	135	145	93	105	112
Branford	30	0.180	0.061	120	130	140	93	101	108
Bridgeport	30	0.209	0.064	115	125	135	89	97	105
Bridgewater	35	0.201	0.066	110	120	125	85	93	97
Bristol	35	0.185	0.064	110	120	130	85	93	101
Brookfield	35	0.208	0.066	110	120	125	85	93	97
Brooklyn	35	0.171	0.062	120	130	140	93	101	108
Burlington	35	0.182	0.064	110	120	130	85	93	101
Canaan	40	0.173	0.065	105	115	120	81	89	93
Canterbury	35	0.171	0.061	120	130	140	93	101	108
Canton	35	0.180	0.064	110	120	130	85	93	101
Chaplin	35	0.173	0.062	120	130	140	93	101	108
Cheshire	30	0.186	0.063	115	125	135	89	97	105
Chester	30	0.172	0.060	120	130	140	93	101	108
Clinton	30	0.169	0.059	120	135	140	93	105	108
Colchester	30	0.174	0.061	120	130	140	93	101	108
Colebrook	40	0.174	0.065	105	115	125	81	89	97
Columbia	30	0.175	0.062	120	130	140	93	101	108
Cornwall	40	0.180	0.065	105	115	120	81	89	93
Coventry	30	0.176	0.063	120	130	140	93	101	108
Cromwell	30	0.181	0.063	115	125	135	89	97	105
Danbury	30	0.217	0.067	110	120	125	85	93	97
Darien	30	0.242	0.068	110	120	130	85	93	101
Deep River	30	0.170	0.060	120	130	140	93	101	108
Derby	30	0.195	0.064	115	125	135	89	97	105
Durham	30	0.179	0.062	115	130	140	89	101	108
Eastford	40	0.172	0.063	120	130	140	93	101	108
East Granby	35	0.177	0.065	110	120	130	85	93	101
East Haddam	30	0.172	0.061	120	130	140	93	101	108
East Hampton	30	0.177	0.062	120	130	140	93	101	108

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

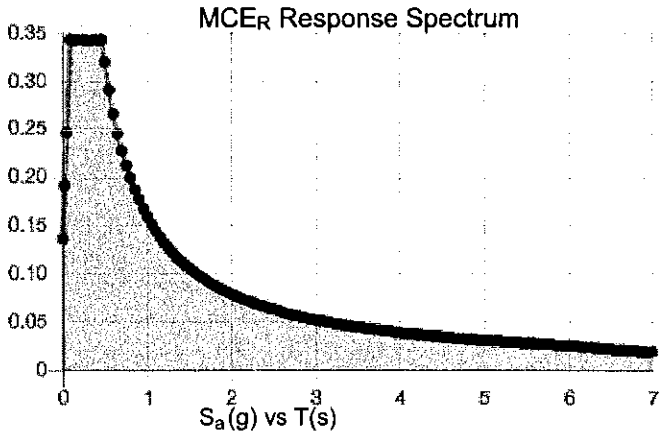
Seismic

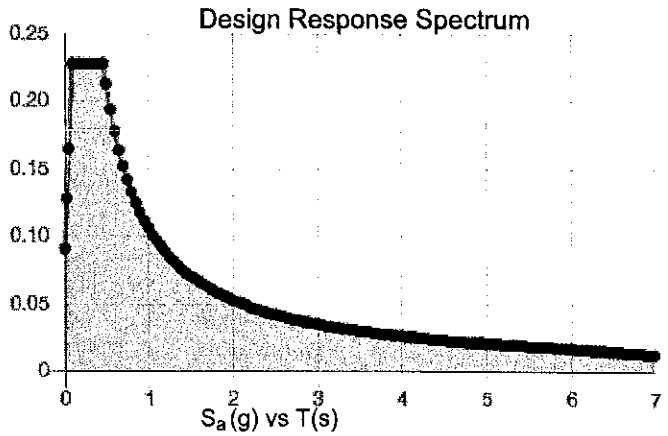
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.214	S_{DS} :	0.228
S_1 :	0.067	S_{D1} :	0.107
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.116
S_{MS} :	0.343	PGA_M :	0.182
S_{M1} :	0.16	F_{PGA} :	1.567
		I_e :	1

Seismic Design Category B





Data Accessed: **Wed Jan 05 2022**

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

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed Jan 05 2022

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

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

Tectonic	Job No.	10710.NJJER01128B		
	Sheet No.	1	of	3
	Calculated By	JJ	Date :	2/22/2022
	Checked By	IM	Date :	2/22/2022

WIND AND ICE LOADS PER TIA-222-G

W.O.	10710.NJJER01128B
Project Name	NJJER01128B
Location	33 Newton Road, Danbury, CT 06810
County	Fairfield

Tower Type	MP	Monopole
Structure Class	II	Substantial hazard
Exposure Category	B	Suburban/wooded/obstructed
Topo Category	1	Flat or rolling terrain
Height of crest	0	ft

Basic Wind Speed (3-sec gust):		
Without ice	93	mph*
With ice	50	mph
Service	60	mph
Ice thickness	1.00	in

Importance Factor	
Wind only	1.00
Wind with ice	1.00
Ice thickness	1.00
Supporting Data:	
K_e	0.90
K_t	N/A
f	N/A
z_g	1200
α	7
$K_{z,min}$	0.7
K_d	0.95
G_h	1.00

Height	z (ft)	60
	Kh	N/A
	Kzt	1.00
	Kz	0.93
	Kiz	1.09
Wind Pressure, qz (psf)	No Ice	19.50
	With Ice	5.64
	Service	8.12
(tiz)	Ice Thk	2.19
Appurtenances (qzGh)	No Ice	19.50
	With Ice	5.64
	Service	8.12

*Ultimate 3-second gust wind speed of 120 mph converted to a nominal 3-second wind gust speed of 93 mph per Section 1609.3 and Appendix N, as required for use in the TIA-222-G Standard.

Tectonic

Job No.	10710.NJJER01128B		
Sheet No.	2	of	3
Calculated By	JJ	Date :	02/22/22
Checked By	IM	Date :	02/22/22

Appurtenance Information

Effective Projected Area for Appurtenance $(EPA)_A=Max((EPA)_N,(EPA)_T)$

$(EPA)_T=\sum(C_AA_A)_T$ | $(EPA)_N=\sum(C_AA_A)_N$ | Reduction Factor = [redacted]

Wind Only Load Combinations

Antenna Configuration	(E) or (P)	Qty	z (ft)	Length or Diameter (ft)	Width (in)	Depth (in)	Flat or Cylindrical?	Antenna $(Ca)_T$	Antenna $(Ca)_N$	Side Face $(A_a)_T$ (ft^2)	Wind ward Side Face $(CaAa)_T$ (ft^2)	Face Normal $(A_a)_N$ (ft^2)	Windward face Normal $(CaAa)_N$ (ft^2)	Normal Antenna Wind Load Each (lb)	Transverse Antenna Wind Load Each (lb)	Antenna Weight (lb)	Total Weight (lb)
[redacted]	P	3	80	1.24	15.70	7.80	[redacted]	1.20	1.20	0.81	2.61	1.62	5.26	34	17	63.9	191.7
[redacted]	P	3	80	1.24	15.70	9.00	[redacted]	1.20	1.20	0.93	3.02	1.62	5.26	34	20	74.9	224.7
[redacted]	P	1	80	1.58	14.39	8.15	[redacted]	1.20	1.20	1.07	1.16	1.90	2.05	40	23	21.8	21.8
[redacted]	P	3	80	6.00	20.00	8.00	[redacted]	1.47	1.25	4.00	15.84	10.00	33.72	219	103	82.5	247.5
										$\sum(CaAA)_T$	22.63	$\sum(CaAa)_N$	46.30				686

Wind with Ice Load Combinations Ice Thk= 2.19 in

Antenna Configuration	(E), (R) or (P)	Qty	z (ft)	Length or Diameter (ft)	Width (in)	Depth (in)	Flat or Cylindrical?	Antenna $(Ca)_T$	Antenna $(Ca)_N$	Side Face $(A_a)_T$ (ft^2)	Windward Side Face $(CaAa)_T$ (ft^2)	Face Normal $(A_a)_N$ (ft^2)	Windward Face Normal $(CaAa)_N$ (ft^2)	Normal Antenna Wind Load Each (lb)	Transverse Antenna Wind Load Each (lb)	Ice Area for Weight (ft^2)	Ice Weight Alone (lbs)
TA08025-B604 RRH	P	3	80	1.61	20.07	12.17	Cylindrical	1.20	1.20	1.63	5.28	2.69	8.70	16	10	4.9	49.6
TA08025-B605 RRH	P	3	80	1.61	20.07	13.37	Cylindrical	1.20	1.20	1.79	5.80	2.69	8.70	16	11	5.1	52.1
RDIDC-9181-PF-48	P	1	80	1.95	18.76	12.52	Cylindrical	1.20	1.20	2.03	2.19	3.04	3.29	19	12	5.9	60.6
MX08FRO665-21	P	3	80	6.36	24.37	12.37	Cylindrical	1.36	1.23	6.56	24.15	12.92	42.66	81	45	28.0	285.5
										$\sum(CaAA)_T$	37.42	$\sum(CaAa)_N$	63.55				448

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Job No.	10710.NJJER01128B		
Sheet No.	3	of	3
Calculated By	JJ	Date :	02/22/22
Checked By	IM	Date :	02/22/22

Mounting System Information

Mount Center Line=	80 ft

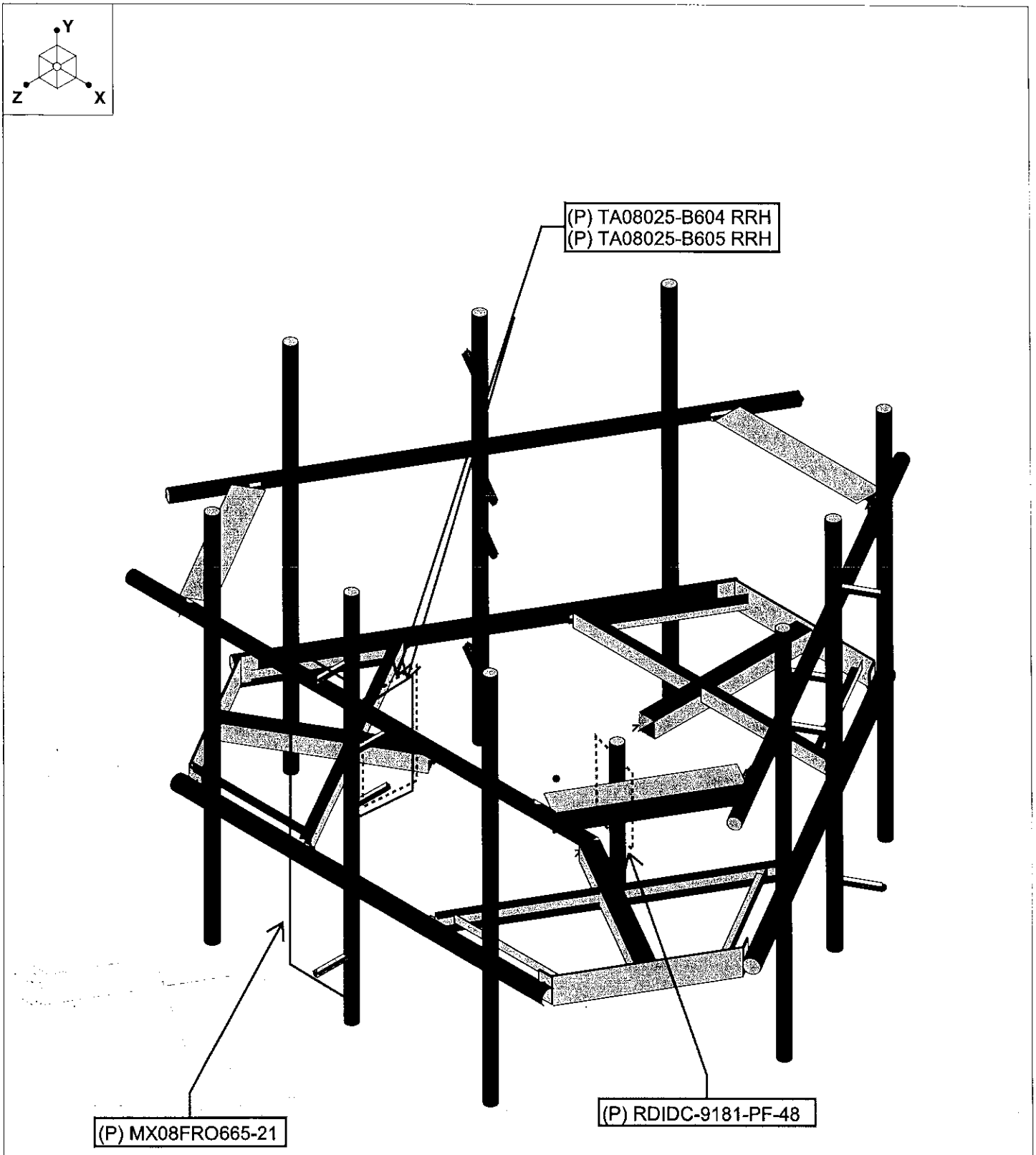
Member sizes are based on the assembly drawings by Commscope, dated 03/17/21

Reduction Factor = [redacted]

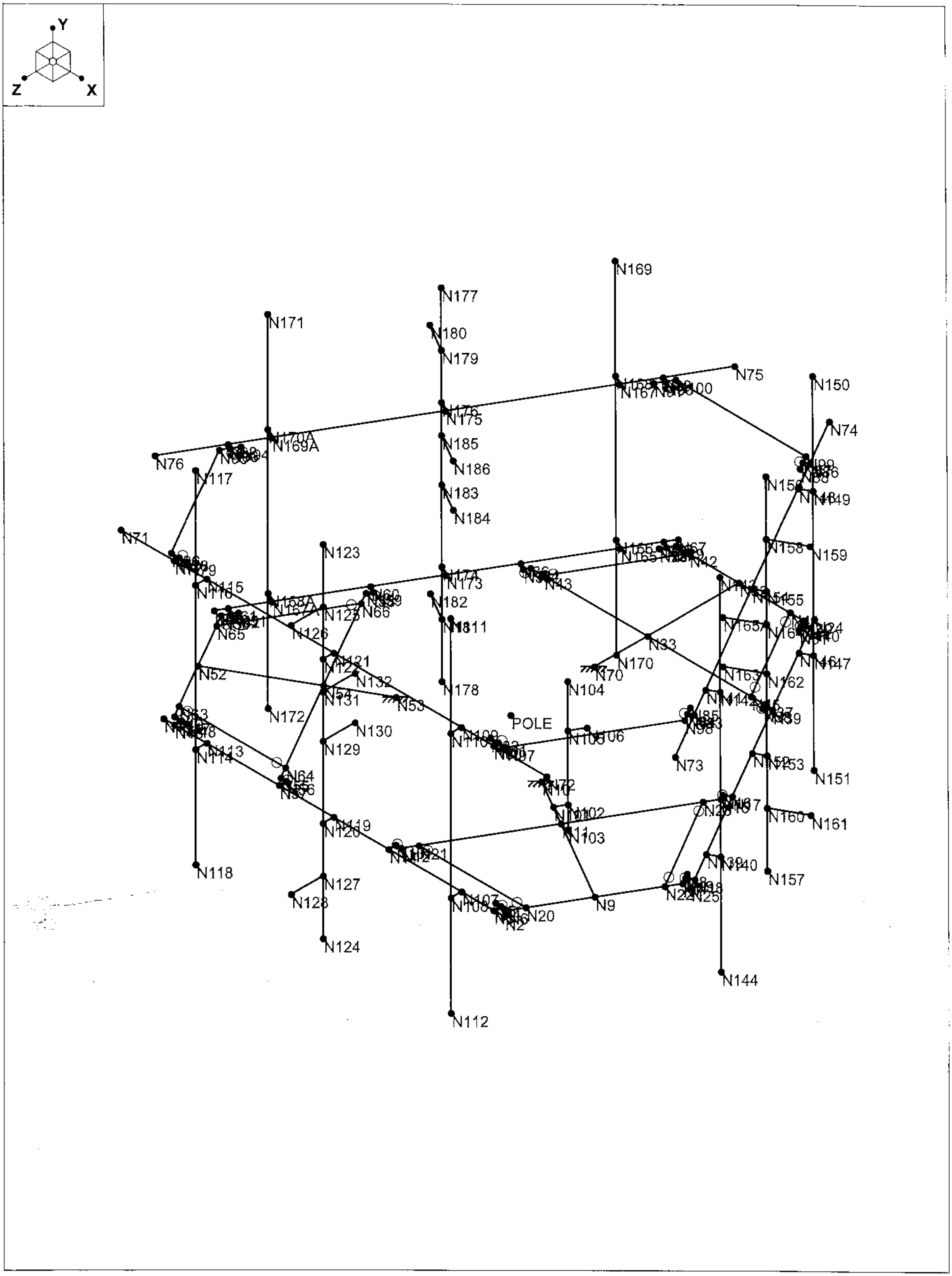
Mount Part	Quantity	Length (ft)	Projected Width (in)	Depth (in)	Flat or Cylindrical?	Drag Factor	Projected Area (ft^2)	Wind Force (lbs/ft)	Ice Weight Area (ft^2)	Ice Weight (lbs/ft)	Projected Area with Ice (ft^2)	Wind Force Ice (lbs/ft)	Service Wind Force (lbs/ft)
[redacted]	3	[redacted]	[redacted]	[redacted]	[redacted]	2	9.75	19.0	10.31	11.7	16.31	9.2	7.9
[redacted]	2	[redacted]	[redacted]	[redacted]	[redacted]	2	1.74	17.6	1.85	10.8	3.01	8.8	7.3
[redacted]	6	[redacted]	[redacted]	[redacted]	[redacted]	2	5.00	5.9	10.00	6.8	15.93	5.4	2.4
[redacted]	3	[redacted]	[redacted]	[redacted]	[redacted]	1.2	8.40	6.1	21.98	9.3	18.89	4.0	2.6
[redacted]	9	[redacted]	[redacted]	[redacted]	[redacted]	1.2	20.70	5.0	54.17	7.7	52.17	3.7	2.1
[redacted]	6	[redacted]	[redacted]	[redacted]	[redacted]	2	9.30	9.9	14.96	9.2	21.31	6.6	4.1
[redacted]	3	[redacted]	[redacted]	[redacted]	[redacted]	2	6.84	11.7	13.68	13.6	14.31	7.1	4.9
[redacted]	3	[redacted]	[redacted]	[redacted]	[redacted]	2	9.90	19.3	16.58	18.8	16.46	9.3	8.0
2.5 Std Pipe Rail	3	10.00	[redacted]	[redacted]	Cylindrical	1.2	8.63	5.0	22.57	7.7	21.74	3.7	2.1

APPENDIX B

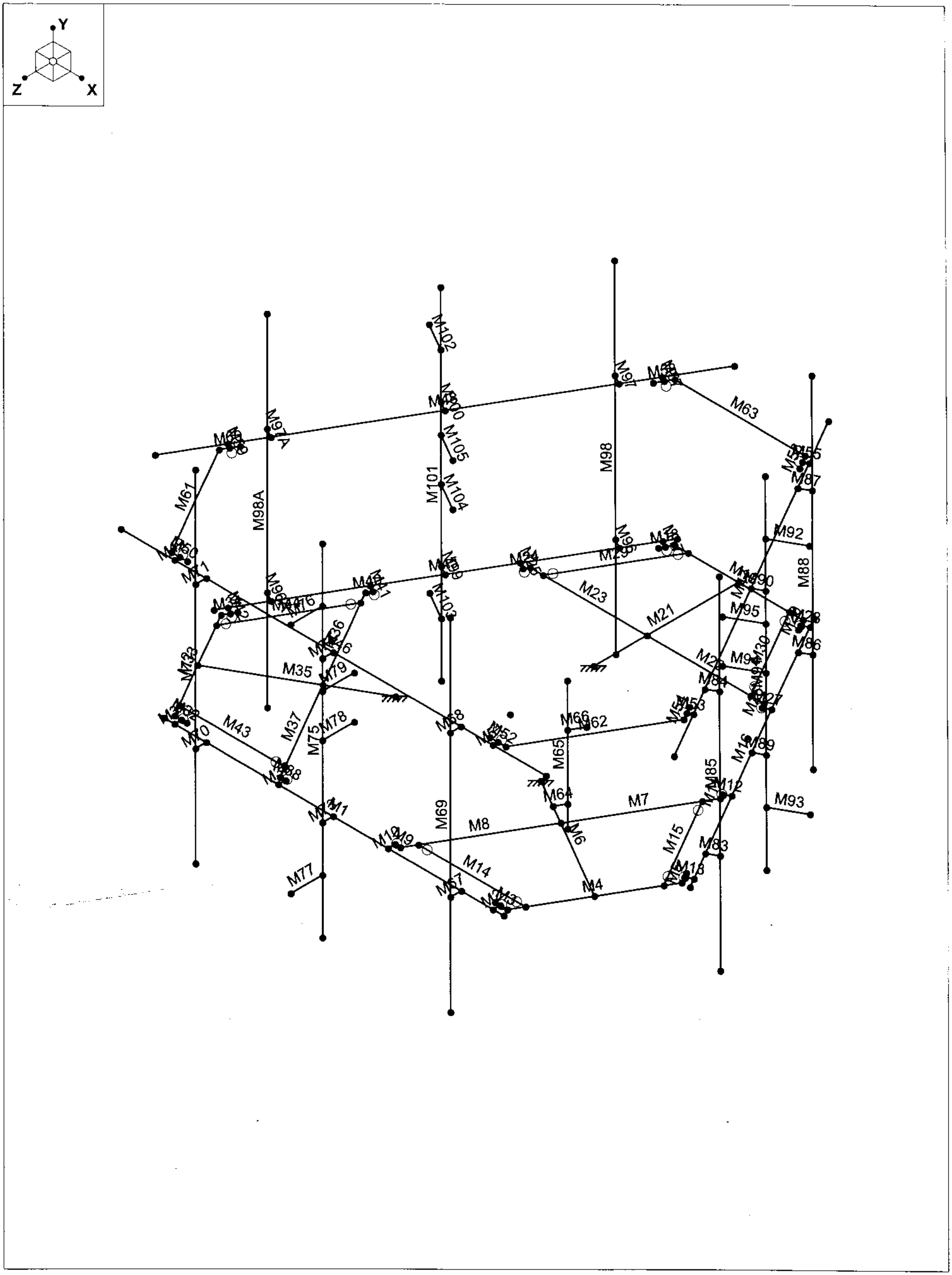
WIRE FRAME AND RENDERED MODELS



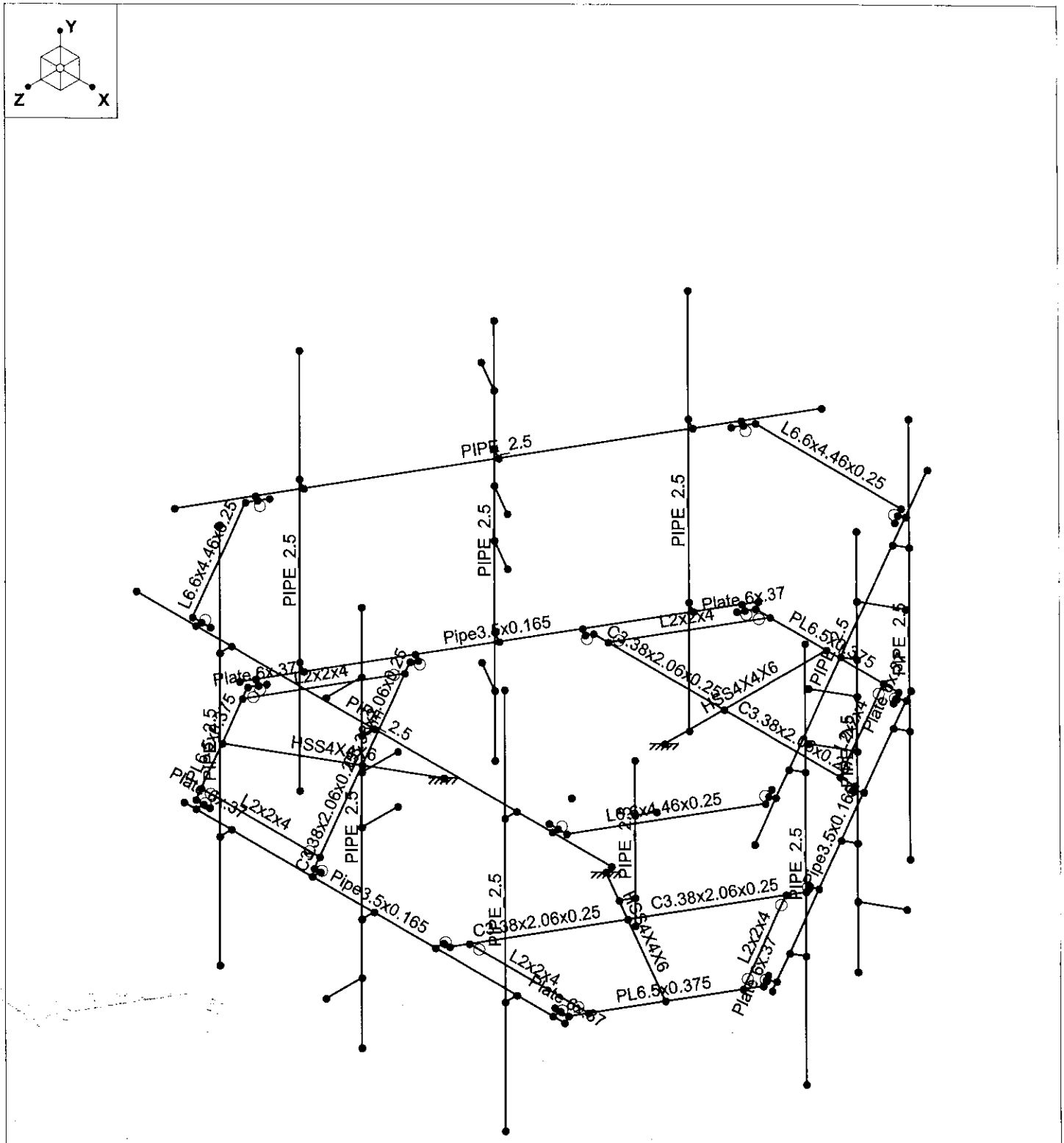
NOTES:
1) PROPOSED ANTENNAS AND MOUNTING PIPES HAVE BEEN VERTICALLY CENTERED ALONG THE EXISTING MOUNT (NO OFFSET).
2) LISTED PROPOSED APPURTENANCES ABOVE ARE TYPICAL FOR ALL SECTORS.

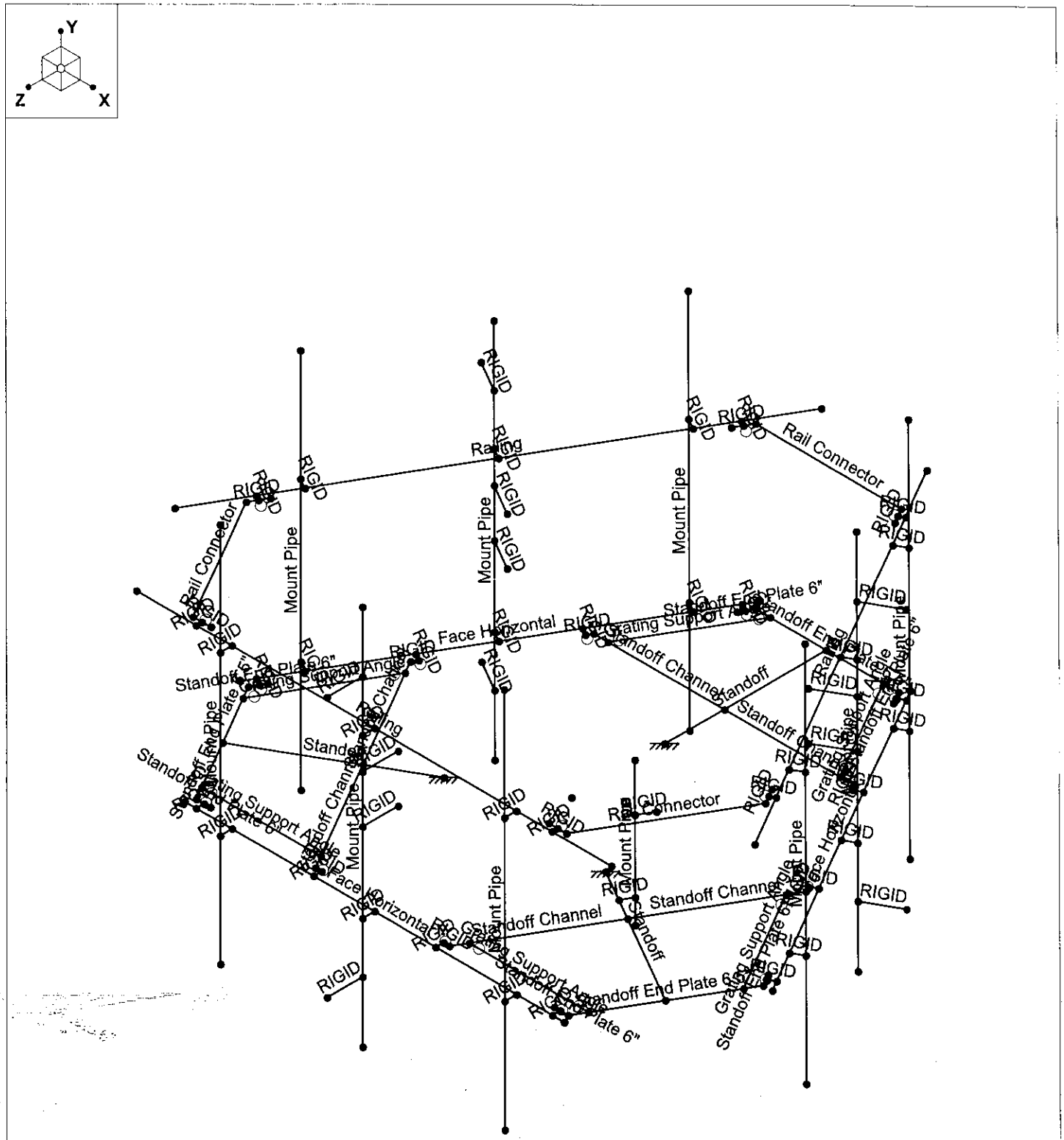


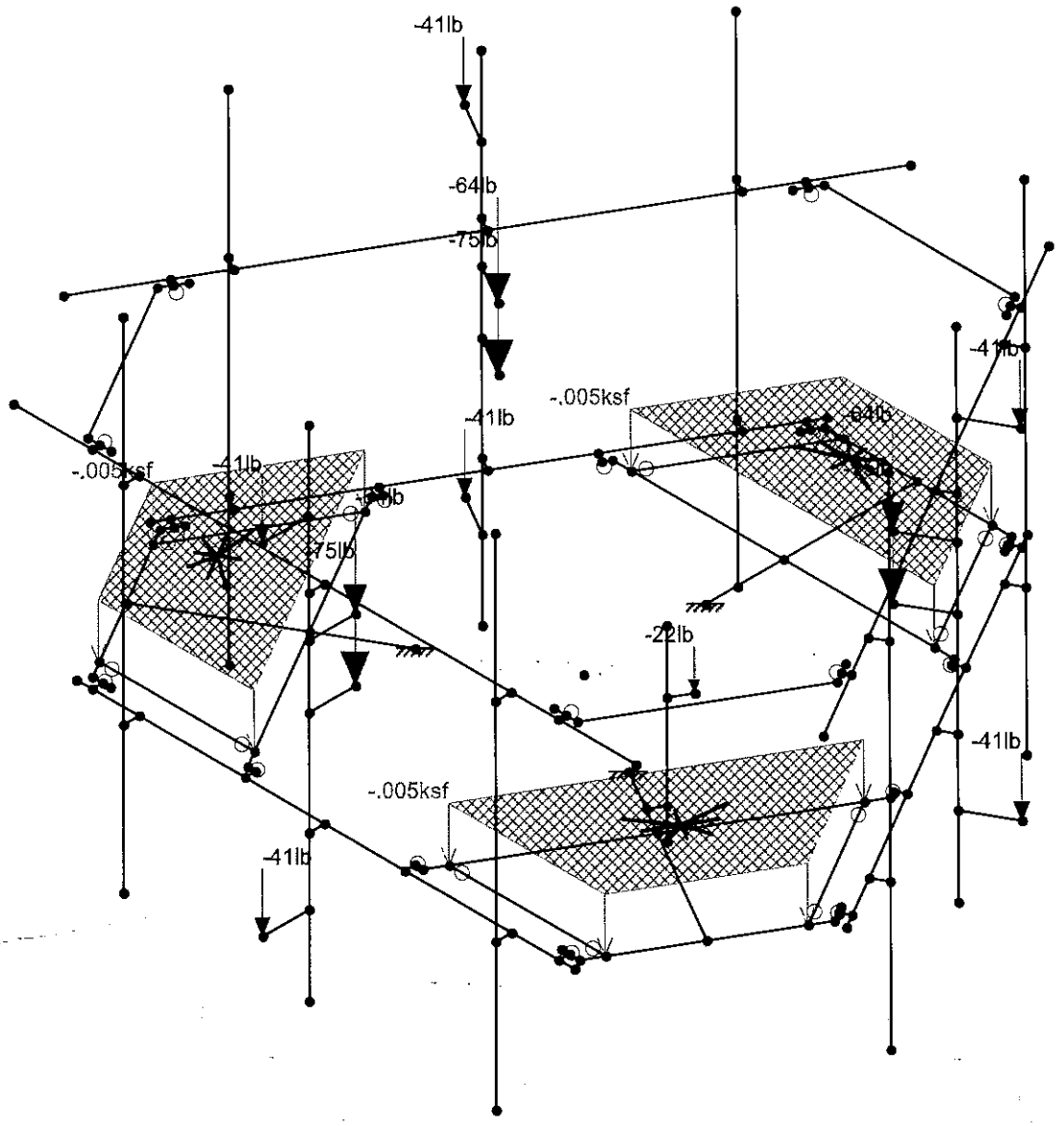
Y
Z
X
N169
N177
N171
N180
N179
N75
N150
N74
N176
N175
N170A
N169A
N76
N185
N186
N117
N159
N183
N184
N71
N123
N158
N159
N165
N12
N174
N173
N43
N115
N116
N168A
N182
N155
N65
N125
N66
N126
N165A
N33
N121
N131
N52
N132
N70
N170
N163
N162
N178
N104
N53
N172
POLE
N85
N98
N130
N129
N109
N106
N73
N113
N114
N64
N153
N151
N72
N102
N119
N120
N160
N161
N103
N118
N140
N157
N127
N128
N107
N108
N20
N9
N2
N124
N144
N112



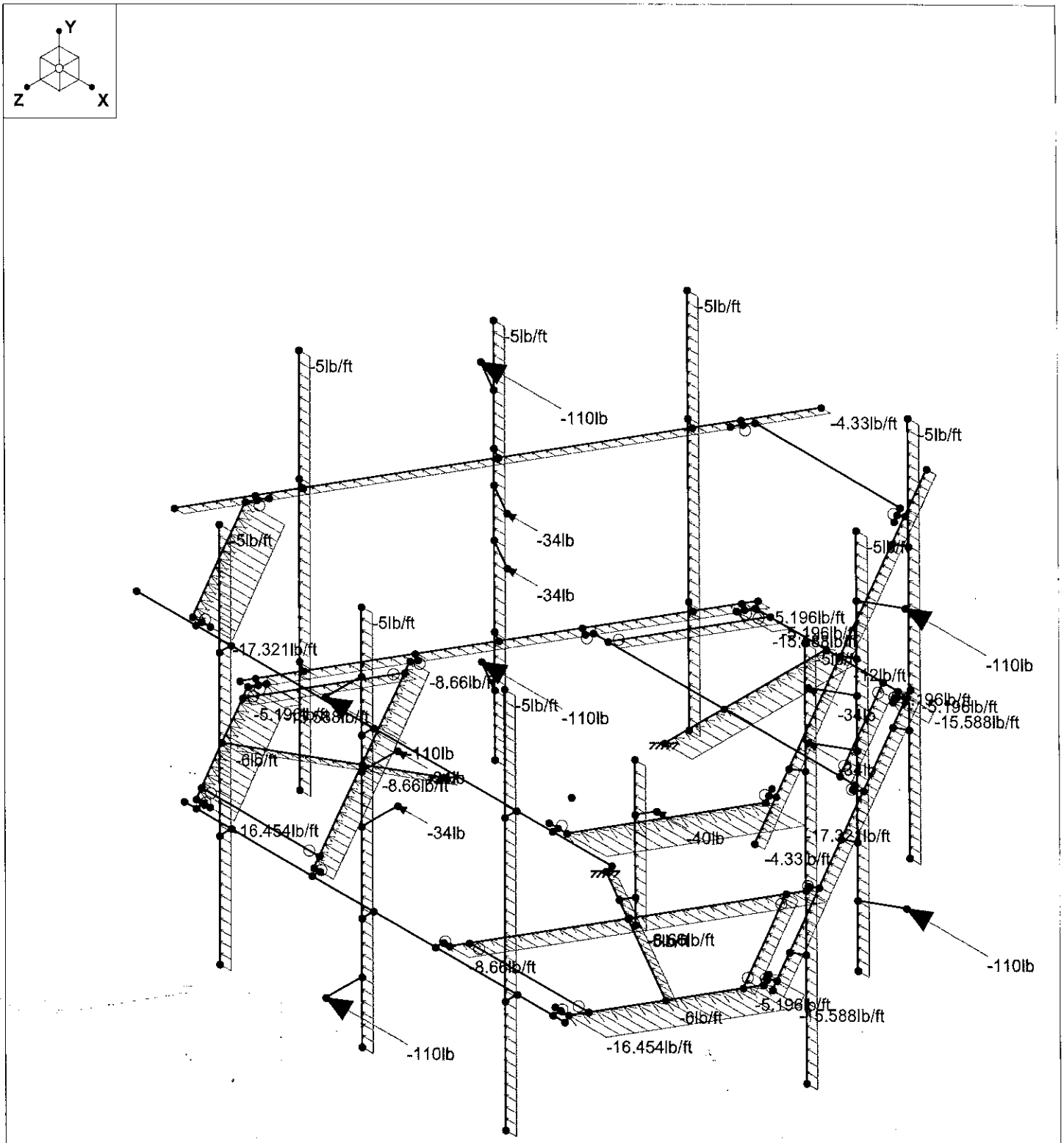
Y
Z
X
M63
M98
M98A
M97A
M61
M101
M102
M105
M104
M87
M88
M92
M90
M95
M94
M86
M21
M23
M35
M79
M78
M75
M37
M43
M1
M77
M9
M8
M7
M69
M14
M57
M4
M6
M64
M65
M66
M62
M53
M83
M15
M85
M12
M16
M89
M93
M84
M27
M28
M36
M76


Y
Z
X
PIPE 2.5
L6.6x4.46x0.25
PIPE 2.5
PIPE 2.5
PIPE 2.5
L6.6x4.46x0.25
Plate 6x.37
Pipe3.5x0.165
L2x2x4
C3.38x2.06x0.25
PL6.5x0.375
HSS4X4X6
C3.38x2.06x0.25
HSS4X4X6
Plate 6x.37
L2x2x4
PIPE 2.5
PIPE 2.5
L6.6x4.46x0.25
PIPE 2.5
Pipe3.5x0.165
C3.38x2.06x0.25
PIPE 2.5
C3.38x2.06x0.25
HSS4X4X6
L2x2x4
PIPE 2.5
L2x2x4
Plate 6x.37
PL6.5x0.375
Plate 6x.37
L2x2x4
PIPE 2.5

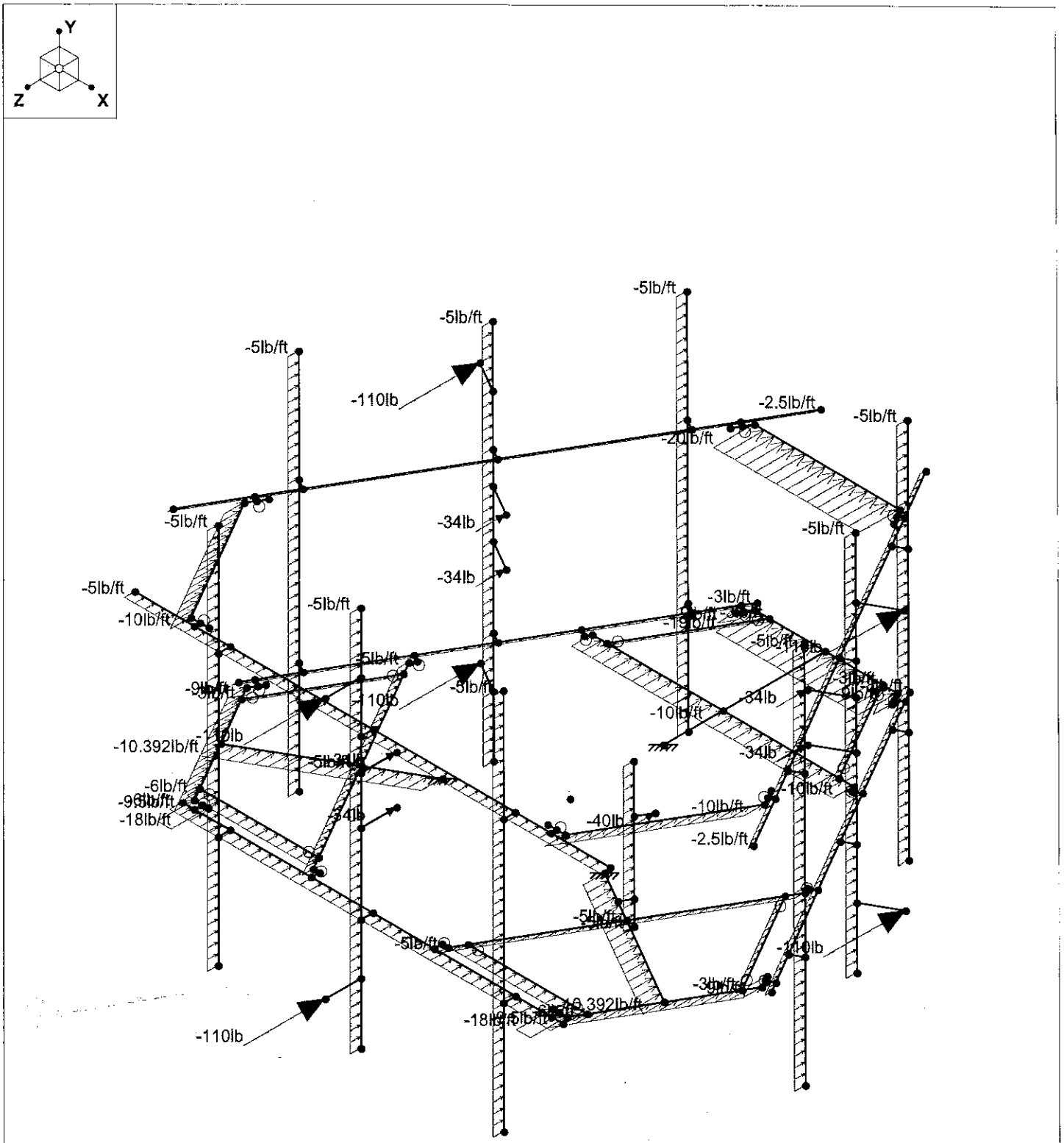

Y
Z
X
RIGID
Rail Connector
Mount Pipe
Standoff Channel
Standoff End Plate 6"
Grating Support Angle
Face Horizontal
Standoff



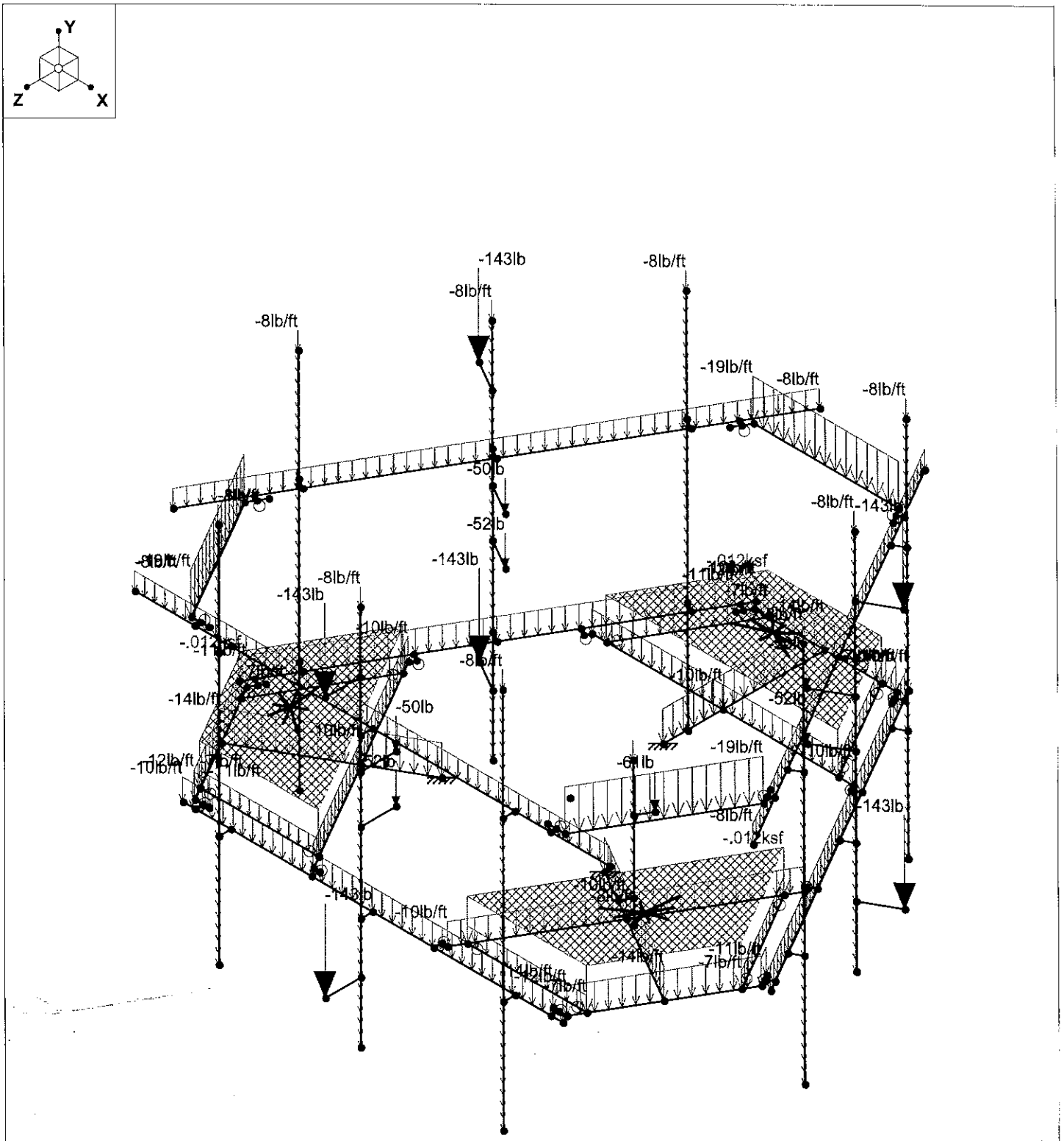
Loads: BLC 1, DL



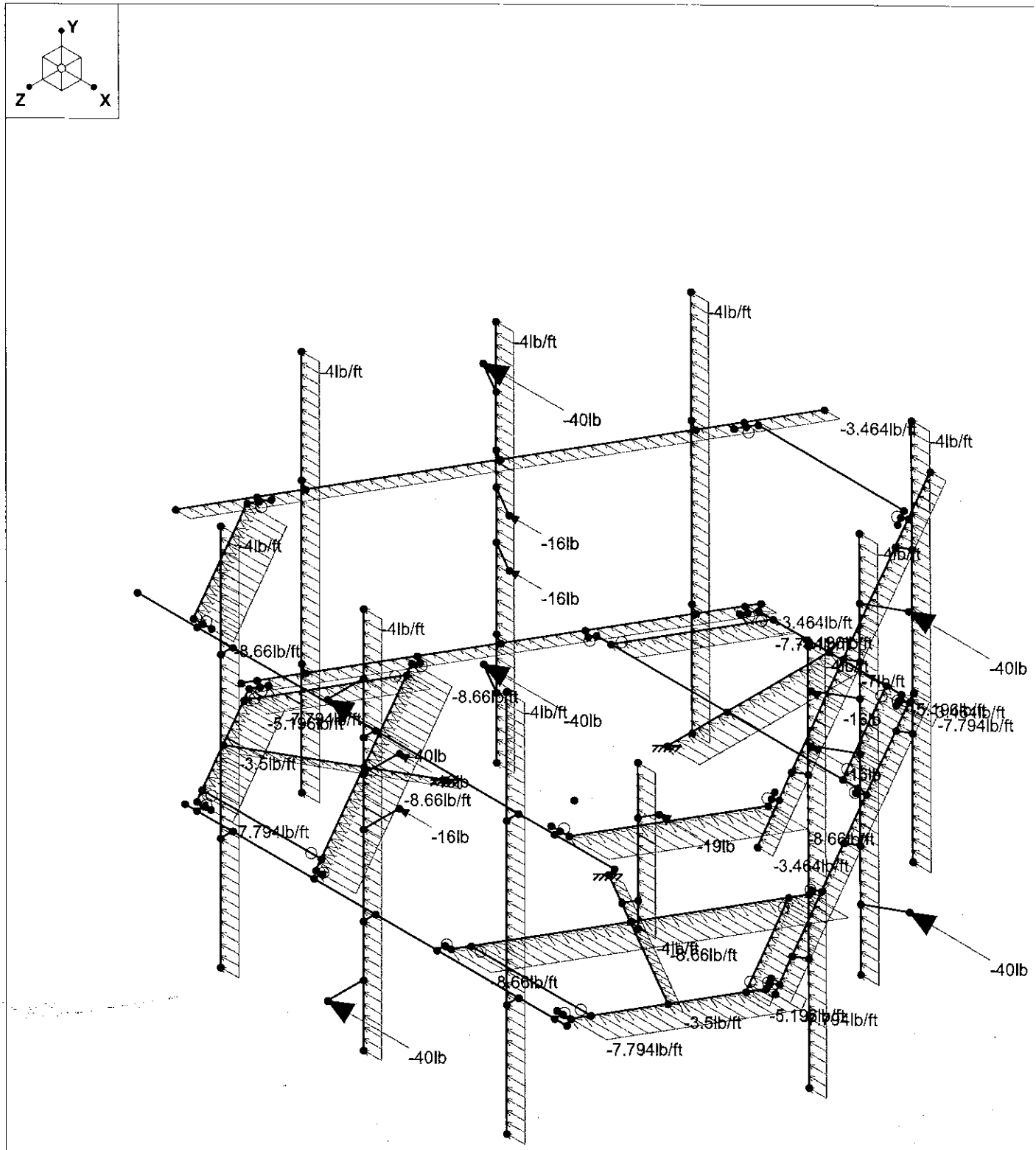
Loads: BLC 2, WLX



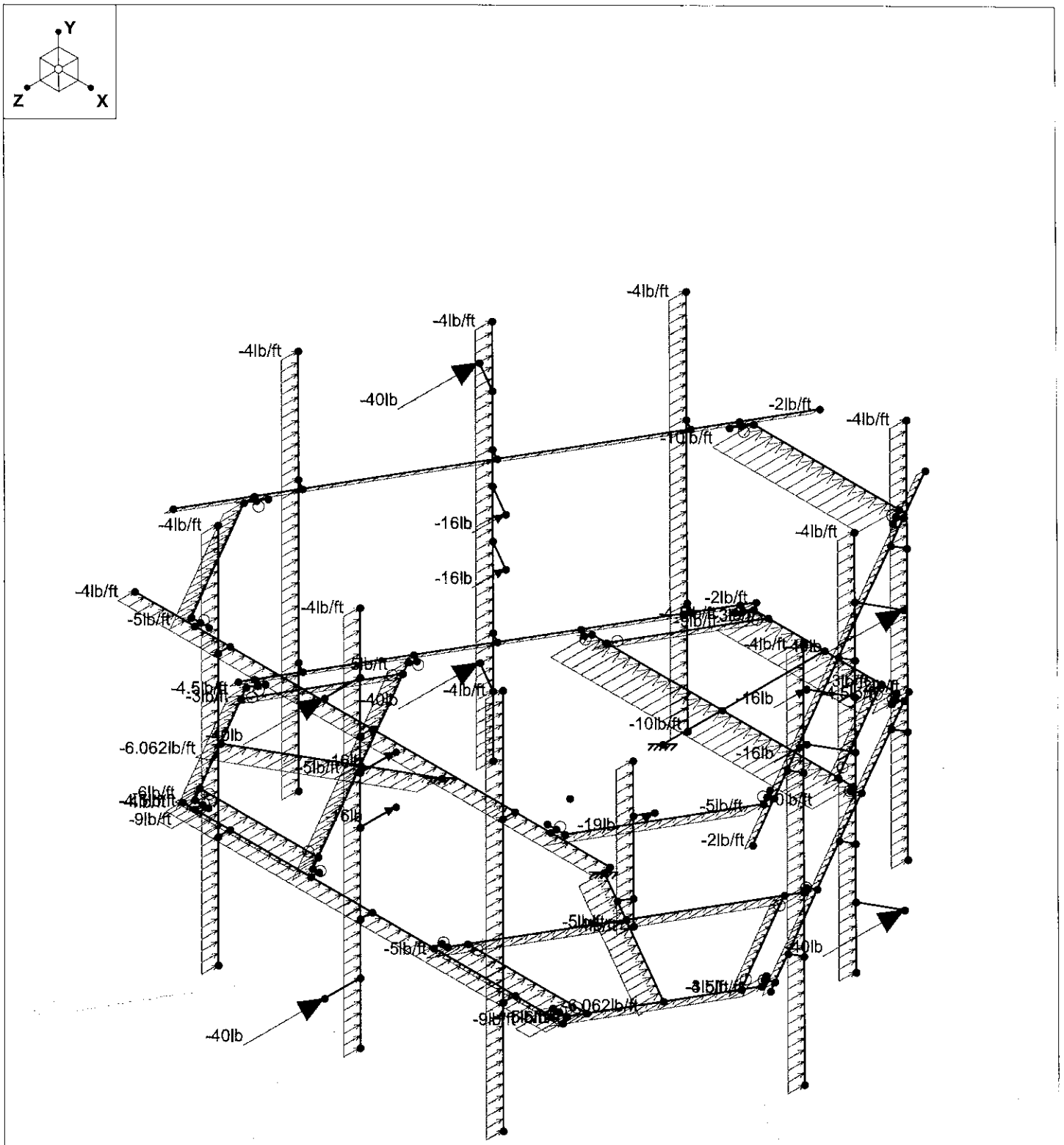
Loads: BLC 3, WLZ



Loads: BLC 4, DL (ICE)



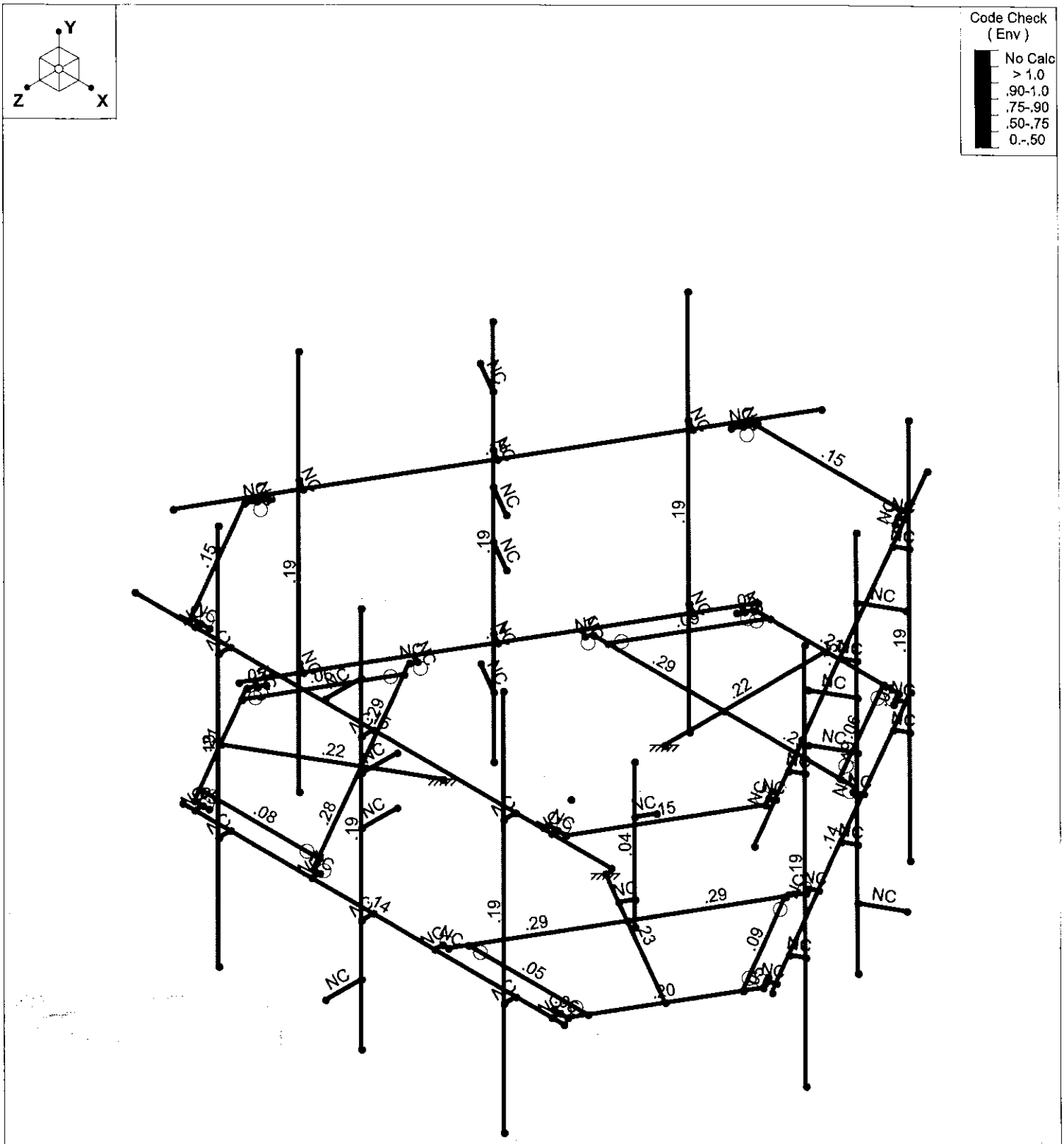
Loads: BLC 5, WLX (ICE)



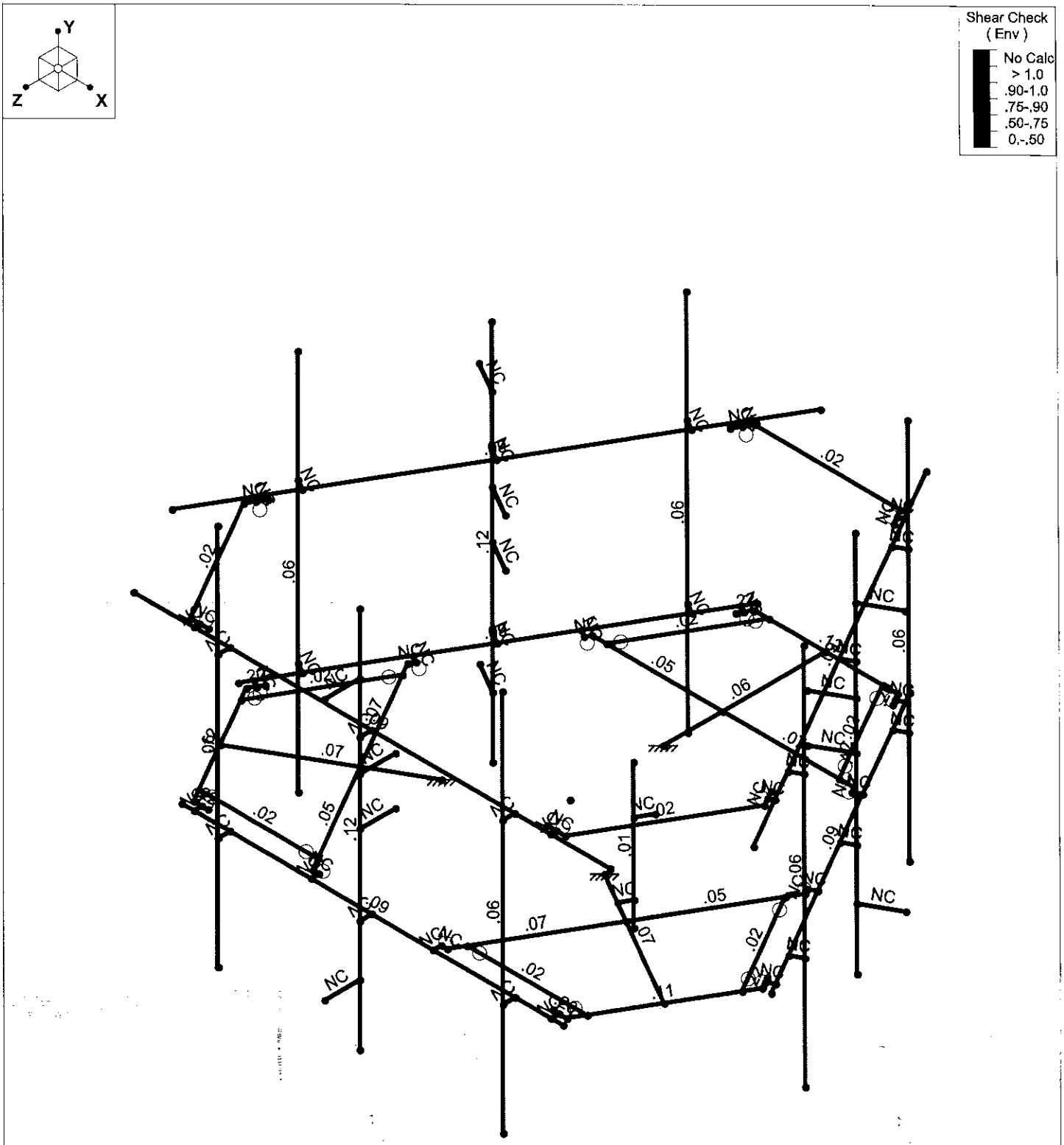
Loads: BLC 6, WLZ (ICE)

APPENDIX C

SOFTWARE ANALYSIS OUTPUT



Member Code Checks Displayed (Enveloped)
Envelope Only Solution



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Standoff End Plate 6.5"	PL6.5x0.375	Beam	RECT	A36 Gr.36	Typical	2.438	.029	8.582	.11
2	Standoff End Plate 6"	Plate 6x.37	Beam	RECT	A36 Gr.36	Typical	2.22	.025	6.66	.097
3	Grating Support Angle	L2x2x4	Beam	Single An...	A36 Gr.36	Typical	.944	.346	.346	.021
4	Face Horizontal	Pipe3.5x0.165	Beam	Pipe	A53 Gr.B	Typical	1.729	2.409	2.409	4.819
5	Mount Pipe	PIPE_2.5	Column	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
6	Standoff Channel	C3.38x2.06x0.25	Beam	Channel	A36 Gr.36	Typical	1.75	.715	3.026	.034
7	Standoff	HSS4X4X6	Beam	SquareT...	A500 Gr.B R...	Typical	4.78	10.3	10.3	17.5
8	Rail Connector	L6.6x4.46x0.25	Beam	Single An...	A36 Gr.36	Typical	2.703	4.759	12.473	.055
9	Railing	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4D	Yes	Y		1	1.4																		
2	1.2D+1.6WLX	Yes	Y		1	1.2	2	1.6																
3	1.2D+1.6WLZ	Yes	Y		1	1.2	3	1.6																
4	1.2D+1.6(WLX+WLZ) - 0 Deg	Yes	Y		1	1.2	2	1.6																
5	1.2D+1.6(WLX+WLZ) - 30 Deg	Yes	Y		1	1.2	2	1.3...	3	.8														
6	1.2D+1.6(WLX+WLZ) - 60 Deg	Yes	Y		1	1.2	2	.8	3	1.3...														
7	1.2D+1.6(WLX+WLZ) - 90 Deg	Yes	Y		1	1.2	2		3	1.6														
8	1.2D+1.6(WLX+WLZ) - 120 Deg	Yes	Y		1	1.2	2	-.8	3	1.3...														
9	1.2D+1.6(WLX+WLZ) - 150 Deg	Yes	Y		1	1.2	2	-1....	3	.8														
10	1.2D+1.6(WLX+WLZ) - 180 Deg	Yes	Y		1	1.2	2	-1.6	3															
11	1.2D+1.6(WLX+WLZ) - 210 Deg	Yes	Y		1	1.2	2	-1....	3	-.8														
12	1.2D+1.6(WLX+WLZ) - 240 Deg	Yes	Y		1	1.2	2	-.8	3	-1....														
13	1.2D+1.6(WLX+WLZ) - 270 Deg	Yes	Y		1	1.2	2		3	-1.6														
14	1.2D+1.6(WLX+WLZ) - 300 Deg	Yes	Y		1	1.2	2	.8	3	-1....														
15	1.2D+1.6(WLX+WLZ) - 330 Deg	Yes	Y		1	1.2	2	1.3...	3	-.8														
16	**Wind Load with Ice**																							
17	1.2D+1.0Di+1.0WLXi	Yes	Y		1	1.2	4	1	5	1														
18	1.2D+1.0Di+1.0WLZi	Yes	Y		1	1.2	4	1			6	1												
19	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	1	6													
20	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	.87	6	.5												
21	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	.5	6	.87												
22	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5		6	1												
23	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	-.5	6	.87												
24	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	-.87	6	.5												
25	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	-1	6													
26	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	-.87	6	-.5												
27	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	-.5	6	-.87												
28	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5		6	-1												
29	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	.5	6	-.87												
30	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	.87	6	-.5												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N10	max	961.376	15	2264.23	26	1454.002	8	.406	4	1.664	14	4.24	26
2		min	-960.106	9	146.002	5	-1450.583	14	-2.405	25	-1.658	8	-.529	5
3	N53	max	864.096	5	2131.518	30	1382.721	6	.414	10	1.605	6	.467	9
4		min	-868.509	11	96.826	9	-1384.784	12	-2.406	17	-1.599	12	-4.092	30
5	N70	max	1512.116	4	2140.456	22	438.04	7	4.749	22	1.472	10	.631	4
6		min	-1509.006	10	78.289	13	-444.317	13	-.605	13	-1.466	2	-.63	10
7	Totals:	max	3041.509	4	5797.776	19	3157.458	7						
8		min	-3041.509	10	2494.014	10	-3157.457	13						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code ...	Loc[ft]	LC	Shear..	Loc[...	Dir	LC	phi*Pn...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
1	M22	C3.38x2.06x0....	.291	2.75	22	.071	.286	z	12	47760....	56700	2.203	5.752	1...	H1-1b
2	M23	C3.38x2.06x0....	.290	0	22	.053	2.464	z	8	47760....	56700	2.203	5.752	1...	H1-1b
3	M36	C3.38x2.06x0....	.289	2.75	30	.071	.286	z	8	47760....	56700	2.203	5.752	1...	H1-1b
4	M7	C3.38x2.06x0....	.288	0	26	.053	2.464	z	12	47760....	56700	2.203	5.752	1...	H1-1b
5	M8	C3.38x2.06x0....	.287	2.75	26	.065	.286	z	4	47760....	56700	2.203	5.752	1...	H1-1b
6	M37	C3.38x2.06x0....	.284	0	30	.048	2.464	z	15	47760....	56700	2.203	5.752	1...	H1-1b
7	M6	HSS4X4X6	.231	3.417	27	.067	2.634	z	8	187775...	197892	22.046	22.046	2...	H1-1b
8	M35	HSS4X4X6	.224	3.417	29	.066	3.417	z	12	187775...	197892	22.046	22.046	2...	H1-1b
9	M21	HSS4X4X6	.224	3.417	21	.062	3.417	z	4	187775...	197892	22.046	22.046	2...	H1-1b
10	M19	PL6.5x0.375	.215	1.5	6	.121	3	y	12	4979.1...	78975	.617	8.958	1...	H1-1b
11	M33	PL6.5x0.375	.210	1.5	14	.120	3	y	8	4979.1...	78975	.617	8.988	1...	H1-1b
12	M4	PL6.5x0.375	.205	1.5	12	.111	0	y	4	4979.1...	78975	.617	8.966	1...	H1-1b
13	M91	PIPE_2.5	.195	5.667	12	.122	3		6	30038....	50715	3.596	3.596	2...	H1-1b
14	M101	PIPE_2.5	.194	5.667	8	.122	3		14	30038....	50715	3.596	3.596	2...	H1-1b
15	M75	PIPE_2.5	.193	5.667	10	.120	3		10	30038....	50715	3.596	3.596	3...	H1-1b
16	M88	PIPE_2.5	.188	5.667	6	.055	5.667		4	30038....	50715	3.596	3.596	3...	H1-1b
17	M98A	PIPE_2.5	.188	5.667	14	.057	5.667		12	30038....	50715	3.596	3.596	2...	H1-1b
18	M98	PIPE_2.5	.188	5.667	8	.055	5.667		10	30038....	50715	3.596	3.596	3...	H1-1b
19	M85	PIPE_2.5	.188	5.667	12	.058	5.667		14	30038....	50715	3.596	3.596	2...	H1-1b
20	M72	PIPE_2.5	.188	5.667	4	.058	5.667		6	30038....	50715	3.596	3.596	4...	H1-1b
21	M69	PIPE_2.5	.187	5.667	10	.058	5.667		8	30038....	50715	3.596	3.596	4...	H1-1b
22	M62	L6.6x4.46x0.25	.155	3.06	4	.023	3.06	y	14	51620....	87561	2.465	7.125	1...	H2-1
23	M46	PIPE_2.5	.154	2.083	4	.086	2.083		15	22373....	50715	3.596	3.596	1...	H1-1b
24	M61	L6.6x4.46x0.25	.154	0	10	.023	0	y	6	51620....	87561	2.465	7.125	1...	H2-1
25	M47	PIPE_2.5	.152	2.083	12	.087	7.917		7	22373....	50715	3.596	3.596	1...	H1-1b
26	M48	PIPE_2.5	.152	7.917	14	.087	2.083		7	22373....	50715	3.596	3.596	1...	H1-1b
27	M63	L6.6x4.46x0.25	.146	3.06	12	.021	0	y	10	51620....	87561	2.465	7.125	1...	H2-1
28	M45	Pipe3.5x0.165	.145	5.333	8	.092	2.75		8	38821....	54463.5	4.822	4.822	1...	H1-1b
29	M16	Pipe3.5x0.165	.144	5.333	6	.092	2.75		6	38821....	54463.5	4.822	4.822	1...	H1-1b
30	M1	Pipe3.5x0.165	.136	5.333	4	.090	5.25		10	38821....	54463.5	4.822	4.822	1...	H1-1b
31	M29	L2x2x4	.090	0	14	.021	0	z	19	22280....	30585.6	.691	1.577	1...	H2-1
32	M15	L2x2x4	.088	0	6	.021	0	z	23	22280....	30585.6	.691	1.577	1...	H2-1
33	M43	L2x2x4	.080	0	10	.022	0	z	27	22280....	30585.6	.691	1.577	1...	H2-1
34	M30	L2x2x4	.061	0	6	.023	2.502	y	26	22280....	30585.6	.691	1.577	2...	H2-1
35	M44	L2x2x4	.060	0	14	.023	2.502	y	22	22280....	30585.6	.691	1.577	2...	H2-1
36	M14	L2x2x4	.054	0	10	.022	2.502	y	30	22280....	30585.6	.691	1.577	2...	H2-1
37	M5	Plate 6x.37	.051	.164	7	.223	0	y	12	67974....	71928	.554	8.991	2...	H1-1b
38	M34	Plate 6x.37	.050	.164	7	.201	0	y	14	67974....	71928	.554	8.991	1...	H1-1b
39	M18	Plate 6x.37	.049	.128	15	.223	.292	y	8	67974....	71928	.554	8.991	2...	H1-1b
40	M20	Plate 6x.37	.048	.164	11	.201	0	y	6	67974....	71928	.554	8.991	1...	H1-1b
41	M32	Plate 6x.37	.047	.128	11	.222	.292	y	4	67974....	71928	.554	8.991	2...	H1-1b
42	M3	Plate 6x.37	.046	.128	15	.201	.292	y	10	67974....	71928	.554	8.991	1...	H1-1b
43	M65	PIPE_2.5	.037	.5	8	.012	.5		11	47114....	50715	3.596	3.596	1...	H1-1b

APPENDIX D

ADDITIONAL CALCULATIONS

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Job No. 10710.NJJER01128B
Calculated By: JJ Date : 2/22/22
Checked By: IM Date : 2/22/22

Connection Details		
Bolt Details		
Bolt Quantity =	[redacted]	
Bolt Diameter =	[redacted]	in
Vertical Spacing =	[redacted]	in
Horizontal Spacing =	[redacted]	in
Bolt Grade =	[redacted]	
Bolt F_u, if "Other" =	[redacted]	ksi

Loading Details		
Node N70, LC21		
Shear, X =	[redacted]	k
Shear, Y =	[redacted]	k
Tension, Z =	[redacted]	k
Mx =	[redacted]	k-ft
My =	[redacted]	k-ft
Torsion, Mz =	[redacted]	k-ft

1 - Tensile Capacity

$$R_{nt} = F_{nt} A_b$$ AISC [Eqn. J3-1]

Φ =	0.75	
F_{nt} =	90	ksi
A_b =	0.307	in^2
$ΦR_{nt}$ =	20.72	k
T_{max} =	4.26	k

AISC [Table J3.2]

ΦRnt > Tmax
[redacted]
OK

2 - Shear Capacity

$$R_{nv} = F_{nv} A_b$$ AISC [Eqn. J3-1]

Φ =	0.75	
F_{nv} =	54	ksi
A_b =	0.307	in^2
$ΦR_{nv}$ =	12.43	k
V_{max} =	0.60	k

AISC [Table J3.2]

ΦRnv > Vmax
[redacted]
OK

3 - Combined Tension and Shear Capacity

$$R'_{nt} = F'_{nt} A_b$$ AISC [Eqn. J3-2]

$$F'_{nt} = 1.3F_{nt} - \frac{F_{nt}}{\phi F_{nv}} f_{rv} \leq F_{nt}$$ AISC [Eqn. J3-3a]

Φ =	0.75	
F'_{nt} =	90	ksi
A_b =	0.307	in^2
$ΦR'_{nt}$ =	20.72	k
T_{max} =	4.26	k

ΦR'nt > Tmax
[redacted]
OK

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Job No. 10710.NJJER01128B
Calculated By: JJ Date : 2/22/22
Checked By: IM Date : 2/22/22

Connection Details		
Weld Details		
Weld Type	[redacted]	
# of Sides	[redacted]	
Electrodes	[redacted]	XX
Size of Weld =	[redacted]	in
HSS Height =	[redacted]	in
HSS Width =	[redacted]	in
HSS Thickness =	[redacted]	in
Plate Details		
Height/Width =	[redacted]	in
Thickness =	[redacted]	in
F_y =	[redacted]	ksi

4 - Weld Capacity

$$F_{nw} = 0.6F_{EXX}$$

AISC [Table J2.5]

Φ =	0.75	
ΦF_{nw} =	63.00	ksi
$f_{V,max}$ =	0.798	ksi
$f_{b,max}$ =	15.60	ksi

Min(ΦFnw,ΦFnbm) > √(fv,max+fm,max)

[redacted] **OK**

5 - Plate Capacity

Φ =	0.9	
ΦF_{byy} =	45.00	ksi
f_b =	12.36	ksi

ΦFbyy > Fb

[redacted] **OK**

Exhibit F

Emissions Report

Pinnacle Telecom Group

Professional and Technical Services

Telecom Consulting

Antenna Site FCC RF Compliance Assessment and Report for Municipal Submission

Prepared for:	Dish Wireless, LLC
Site ID:	NJJER01128B
Site Address:	48 Newtown Road Danbury, CT
Latitude:	N 41.403422
Longitude:	W 73.424435
Structure type:	Monopole
Report date:	February 7, 2022
Compliance Conclusion:	Dish Wireless, LLC will be in compliance with the rules and regulations as described in OET Bulletin 65, following the implementation of the proposed mitigation as detailed in the report.

14 Ridgedale Avenue - Suite 260 • Cedar Knolls, NJ 07927 • 973-451-1630

Contents

Introduction and Summary

At the request of Dish Wireless, LLC ("Dish"), Pinnacle Telecom Group has performed an independent expert assessment of radiofrequency (RF) levels and related FCC compliance for proposed wireless base station antenna operations on an existing monopole located at 48 Newtown Road in Danbury, CT. Dish refers to the antenna site by the code "NJJER01128B", and its proposed operation involves directional panel antennas and transmission in the 600 MHz, 2000 MHz, and 2100 MHz frequency bands licensed to it by the FCC.

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

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

The results of a compliance assessment can be described in layman's terms by expressing the calculated RF levels as simple percentages of the FCC MPE limit. If the normalized reference for that limit is 100 percent, then calculated RF levels higher than 100 percent indicate the MPE limit is exceeded and there is a need to mitigate the potential exposure. On the other hand, calculated RF levels consistently below 100 percent serve as a clear and sufficient demonstration of compliance with the MPE limit. We can (and will) also describe the overall worst-case result via the "plain-English" equivalent "times-below-the-limit" factor.

The result of the RF compliance assessment in this case is as follows:

- At street level, the conservatively calculated maximum RF level from the combination of proposed and existing antenna operations at the site is 3.7856 percent of the FCC general population MPE limit – well below the 100-percent reference for compliance. In other words, the worst-case calculated RF level – intentionally and significantly overstated by the calculations – is still more than 25 times below the FCC limit for safe, continuous exposure of the general public.
- A supplemental analysis of the RF levels at the same height as the Dish antennas indicate that the FCC MPE limit is potentially exceeded. Therefore, it is recommended that two Caution signs be installed six feet below the antennas. In addition, NOC Information signs are to be installed at the base of the monopole.
- The results of the calculations, along with the proposed mitigation, combine to satisfy the FCC requirements and associated guidelines on RF compliance. Moreover, because of the significant conservatism incorporated in the analysis, RF levels actually caused by the antennas will be lower than these calculations indicate.

The remainder of this report provides the following:

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

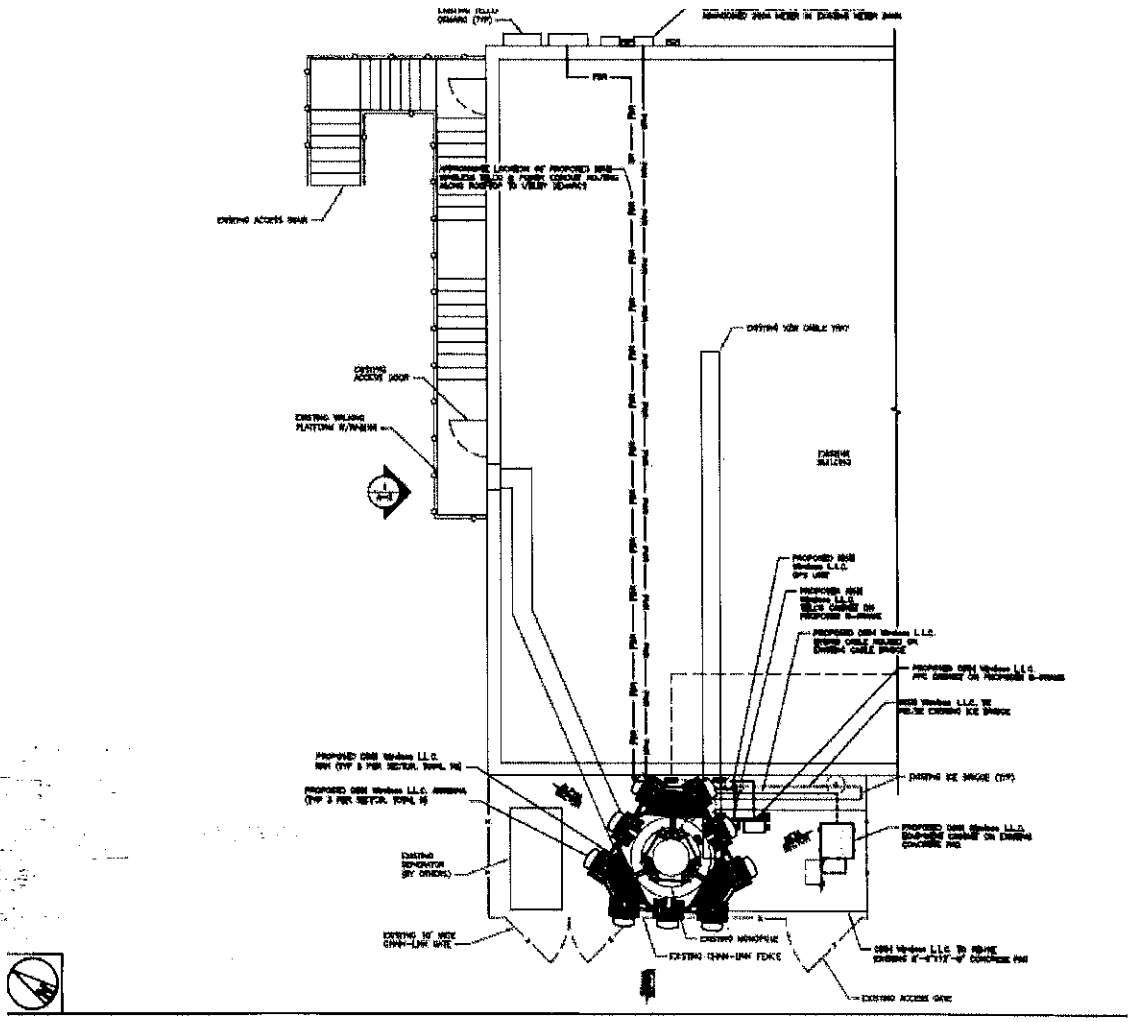
In addition, four Appendices are included. Appendix A provides information on the documents used to prepare the analysis. Appendix B provides background on the FCC MPE limit. Appendix C details the proposed mitigation to satisfy the FCC requirements and associated guidelines on RF compliance. Appendix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

a summary of the qualifications of the expert certifying FCC compliance for this site.

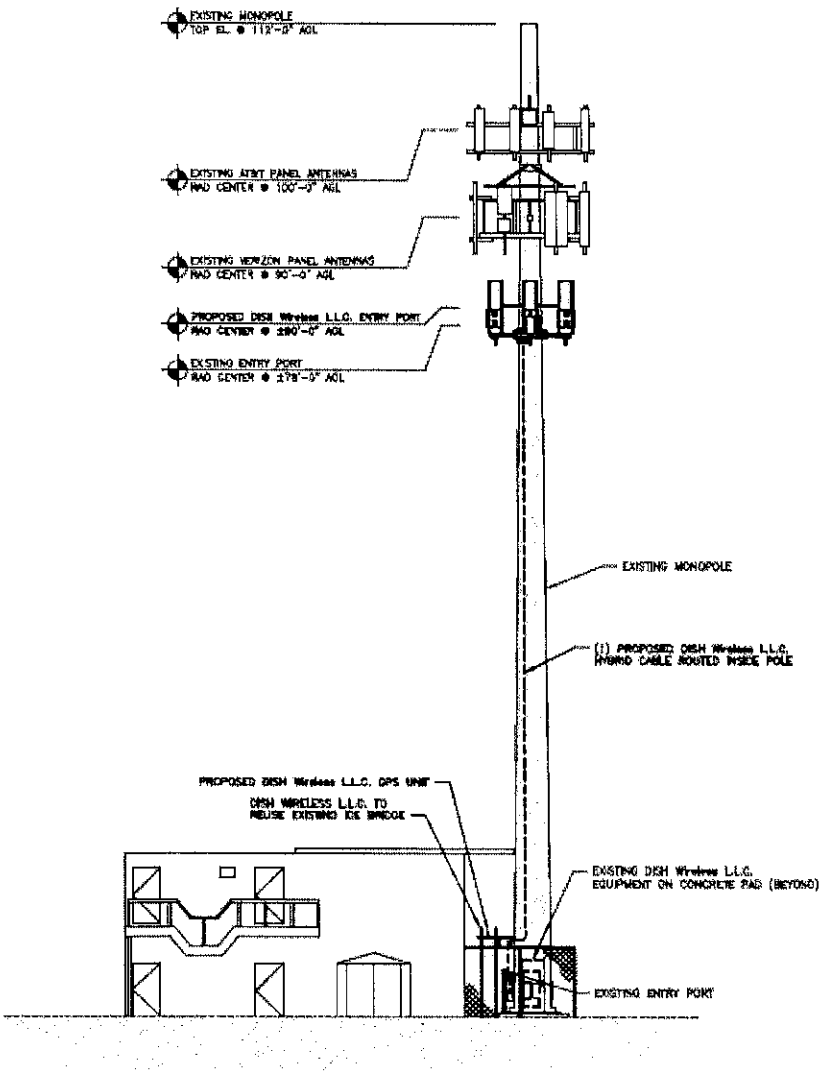
Antenna and Transmission Data

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

Plan View:



Elevation View:



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

Ant. ID	Carrier	Antenna Manufacturer	Antenna Model	Type	Freq. (MHz)	Ant. Dim. (ft.)	Total ERP (watts)	Z (ft)	Ant. Gain (dBd)	B/W	Azimuth	EDT	MDT
❶	Dish	JMA Wireless	MX08FRO665-21	Panel	600	6	1637	80	11.46	68	0	2	0
❶	Dish	JMA Wireless	MX08FRO665-21	Panel	2000	6	6011	80	16.16	62	0	2	0
❶	Dish	JMA Wireless	MX08FRO665-21	Panel	2100	6	7567	80	16.66	64	0	2	0
❷	Dish	JMA Wireless	MX08FRO665-21	Panel	600	6	1637	80	11.46	68	120	2	0
❷	Dish	JMA Wireless	MX08FRO665-21	Panel	2000	6	6011	80	16.16	62	120	2	0
❷	Dish	JMA Wireless	MX08FRO665-21	Panel	2100	6	7567	80	16.66	64	120	2	0
❸	Dish	JMA Wireless	MX08FRO665-21	Panel	600	6	1637	80	11.46	68	240	2	0
❸	Dish	JMA Wireless	MX08FRO665-21	Panel	2000	6	6011	80	16.16	62	240	2	0
❸	Dish	JMA Wireless	MX08FRO665-21	Panel	2100	6	7567	80	16.66	64	240	2	0

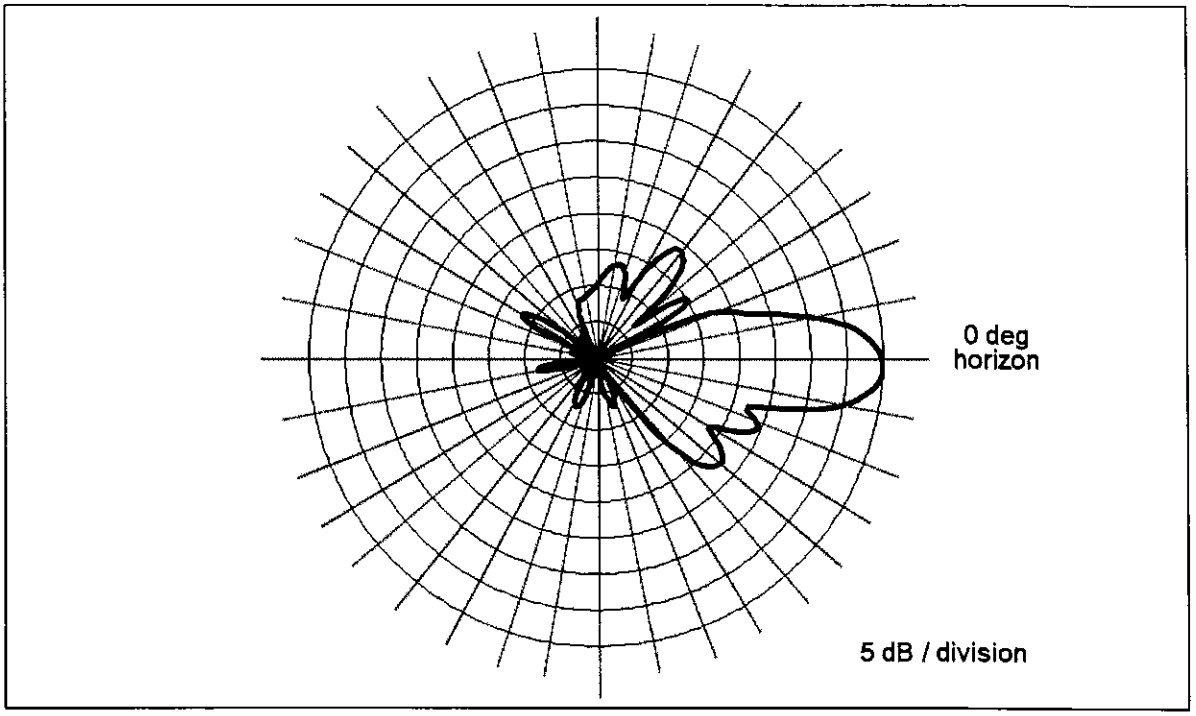
The area below the antennas, at street level, is of interest in terms of potential "uncontrolled" exposure of the general public, so the antenna's vertical-plane emission characteristic is used in the calculations, as it is a key determinant of the relative amount of RF emissions in the "downward" direction.

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

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

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

Figure 1. JMA Wireless MX08FRO665-21 – 600 MHz Vertical-plane Pattern



As noted at the outset, there are other existing wireless antenna operations to include in the compliance assessment. For each of the wireless operators, we will conservatively assume operation with maximum channel capacity and at maximum transmitter power per channel to be used by each wireless operator in each of their respective FCC-licensed frequency bands.

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

Carrier	Antenna Manufacturer	Antenna Model	Type	Freq (MHz)	Total ERP (watts)	Z (AGL) (ft)	Ant. Gain (dBd)	Azimuth
AT&T	Generic	Generic	Panel	700	4945	100	11.25	N/A
AT&T	Generic	Generic	Panel	850	2400	100	11.76	N/A
AT&T	Generic	Generic	Panel	1900	5756	100	15.56	N/A
AT&T	Generic	Generic	Panel	2100	5890	100	15.66	N/A
AT&T	Generic	Generic	Panel	2300	4131	100	16.16	N/A
Verizon Wireless	Generic	Generic	Panel	746	2400	90	11.76	N/A
Verizon Wireless	Generic	Generic	Panel	869	5166	90	12.36	N/A
Verizon Wireless	Generic	Generic	Panel	1900	5372	90	15.26	N/A
Verizon Wireless	Generic	Generic	Panel	2100	5625	90	15.46	N/A

Compliance Analysis

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

Street Level Analysis

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

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

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

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

where

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

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

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

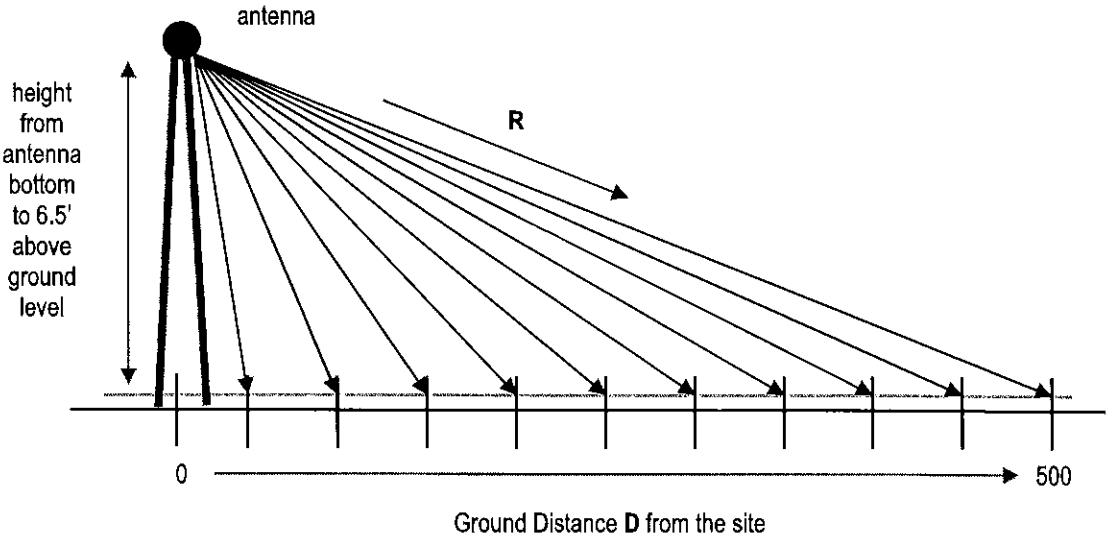


Figure 2. Street-level MPE% Calculation Geometry

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

Therefore, RF levels may actually increase slightly with increasing distance within

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

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

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

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

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

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

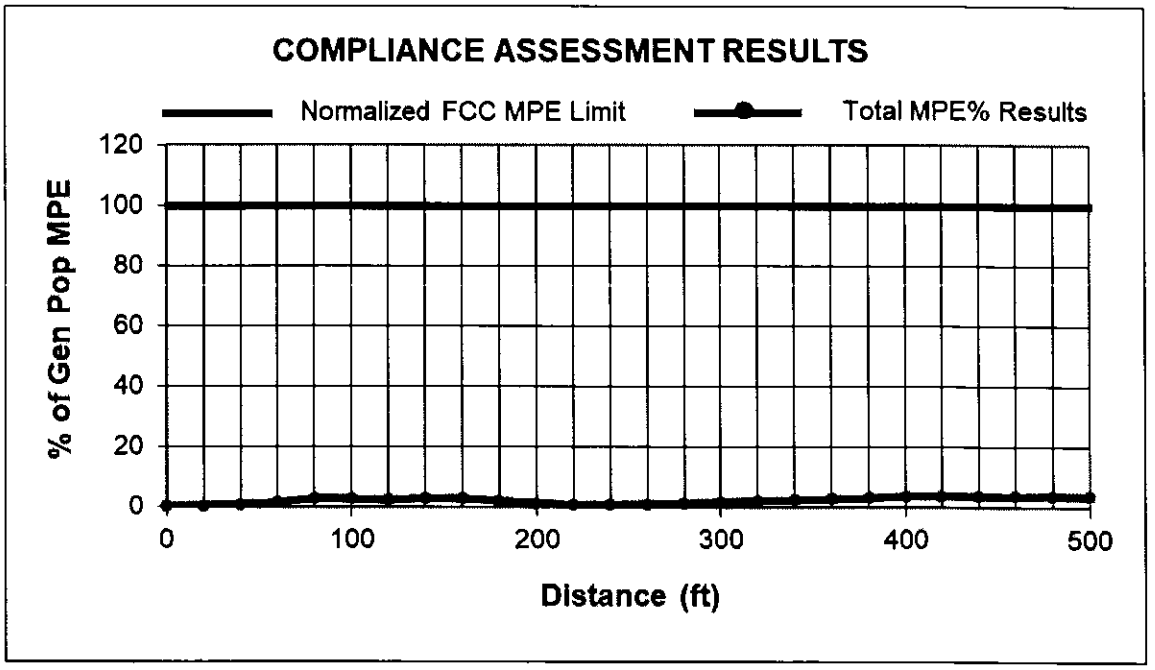
The net result of these assumptions is to intentionally and significantly overstate the calculated RF levels relative to the levels that will actually result from the antenna operations – and the purpose of this conservatism is to allow very "safe-side" conclusions about compliance.

The table that follows provides the results of the MPE% calculations for each antenna operation, with the overall worst-case calculated result highlighted in bold in the last column.

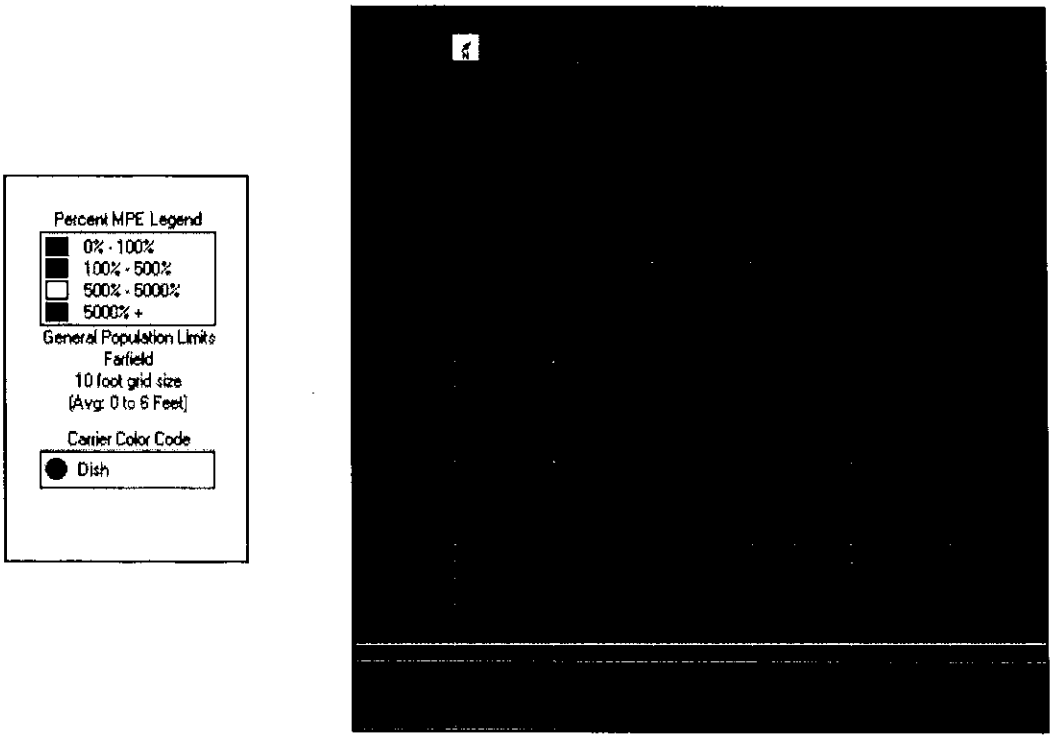
Ground Distance (ft)	Dish 600 MHz MPE%	Dish 2000 MHz MPE%	Dish 2100 MHz MPE%	AT&T MPE%	Verizon Wireless MPE%	Total MPE%
0	0.0029	0.0037	0.0001	0.1392	0.0510	0.1969
20	0.0179	0.0446	0.0282	0.2203	0.0965	0.4075
40	0.0057	0.0419	0.0606	0.4285	0.3360	0.8727
60	0.1382	0.0169	0.2798	0.7001	0.3533	1.4883
80	0.3529	0.3581	1.0093	0.6612	0.4150	2.7965
100	0.1653	0.4727	0.2848	1.1279	0.6531	2.7038
120	0.0991	0.0236	0.0665	1.3666	0.7240	2.2798
140	0.1963	0.2185	0.0793	1.3951	1.0772	2.9664
160	0.1987	0.0595	0.0581	1.5701	0.8589	2.7453
180	0.1352	0.0329	0.0454	1.2412	0.5273	1.9820
200	0.0814	0.1040	0.0993	0.7458	0.2319	1.2624
220	0.0904	0.0553	0.0341	0.4219	0.0617	0.6634
240	0.1222	0.0636	0.0567	0.3438	0.1211	0.7074
260	0.1789	0.0849	0.1021	0.3258	0.2246	0.9163
280	0.2526	0.0739	0.1044	0.3292	0.3665	1.1266
300	0.3434	0.0311	0.0552	0.5577	0.5466	1.5340
320	0.4391	0.0017	0.0079	0.8002	0.7507	1.9996
340	0.5523	0.0079	0.0041	0.7150	0.9847	2.2640
360	0.4948	0.0071	0.0036	1.0193	1.2212	2.7460
380	0.5877	0.0202	0.0217	1.3611	1.1015	3.0922
400	0.6699	0.0108	0.0167	1.6699	1.3345	3.7018
420	0.6093	0.0098	0.0152	1.5216	1.5566	3.7125
440	0.5565	0.0090	0.0139	1.7378	1.4229	3.7401
460	0.6135	0.0026	0.0001	1.5956	1.3056	3.5174
480	0.5645	0.0024	0.0001	1.7368	1.4818	**3.7856**
500	0.5211	0.0022	0.0001	1.6050	1.3686	3.4970

As indicated, the maximum calculated overall RF level is 3.7856 percent of the FCC MPE limit – well below the 100-percent reference for compliance.

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



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

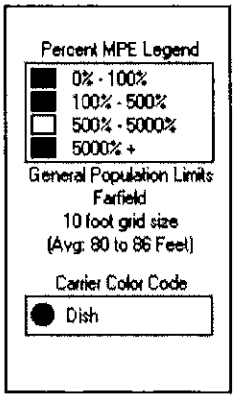


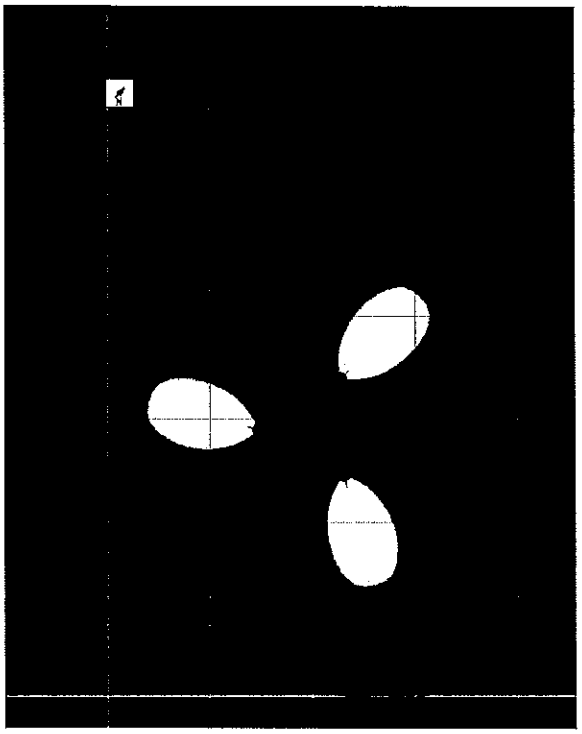
Near-field Analysis

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

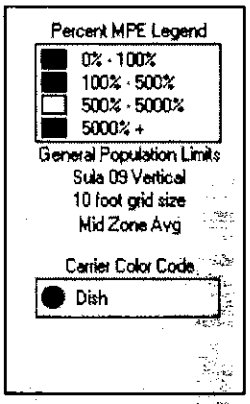
RF levels in the near field of an antenna depend on the power input to the antenna, the antenna's length and horizontal beamwidth, the mounting height of the antenna above nearby standing level, and one's position and distance from the antenna. RF levels in front of a directional antenna are higher than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

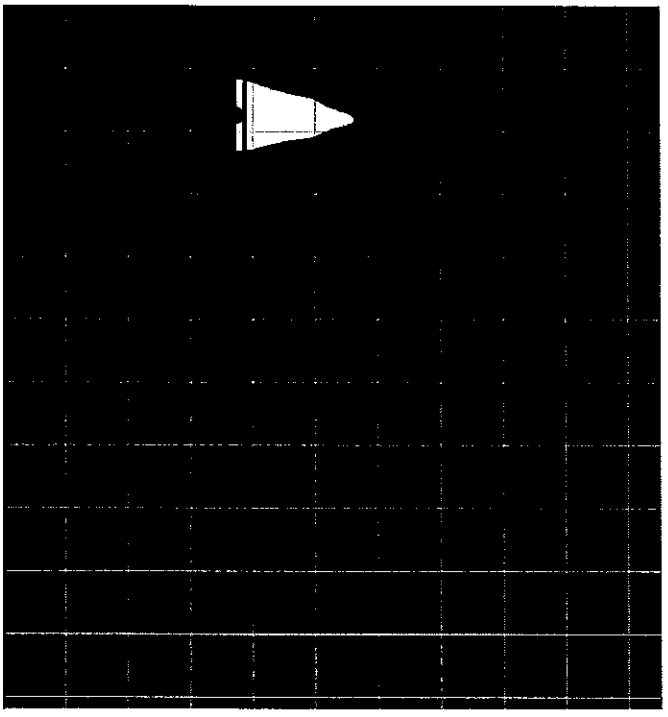
The RoofMaster graphic outputs for the same height as the Dish antennas are reproduced on the next page.





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





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

Compliance Conclusion

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

The conservative analysis in this case shows that the maximum calculated RF level from the proposed modifications to the existing antenna operations at the site is 3.7856 percent of the FCC general population MPE limit. At the same height as the antennas, the analysis shows that the calculated RF levels potentially exceed the FCC MPE limit. Per Dish guidelines, and consistent with FCC guidance on compliance, it is recommended that two Caution signs be six feet below the antennas. In addition, NOC Information signs be installed at the base of the monopole.

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

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

Certification

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

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

2/7/22

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

Date

Appendix A. Documents Used to Prepare the Analysis

RFDS: RFDS-NJJER01128B-Preliminary-20211116-v.1_20211116131105

CD: NJJER01128B_LeaseExhibit_20220117075943

Appendix B. Background on the FCC MPE Limit

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

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

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

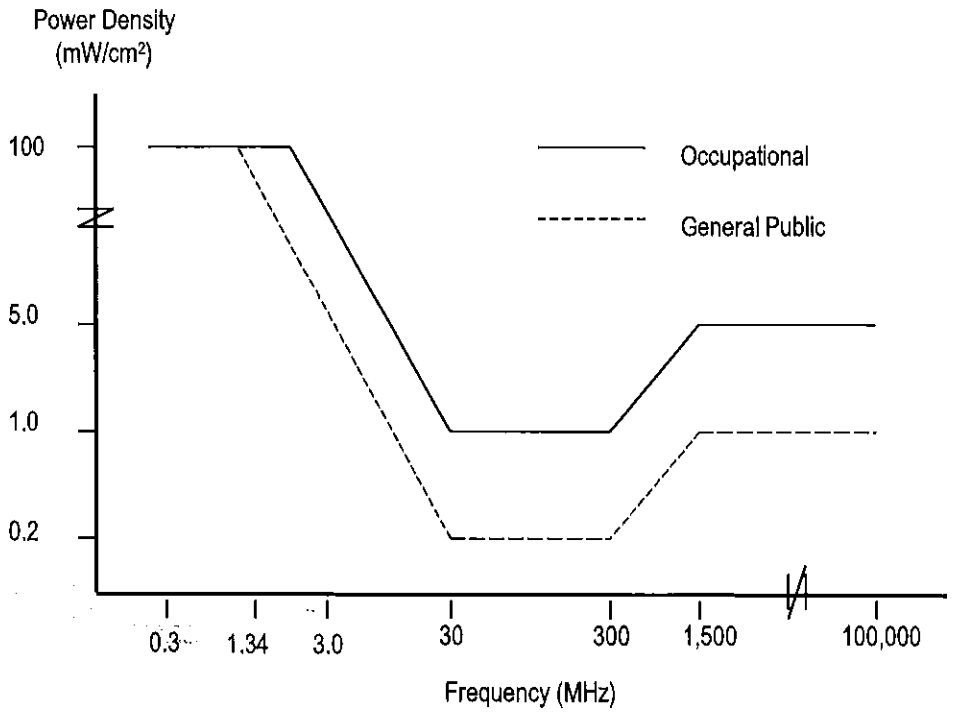
The specified continuous exposure MPE limits are based on known variation of human body susceptibility in different frequency ranges, and a Specific Absorption Rate (SAR) of 4 watts per kilogram, which is universally considered to accurately represent human capacity to dissipate incident RF energy (in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

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

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

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

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



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

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

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

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

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

FCC References on RF Compliance

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

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

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

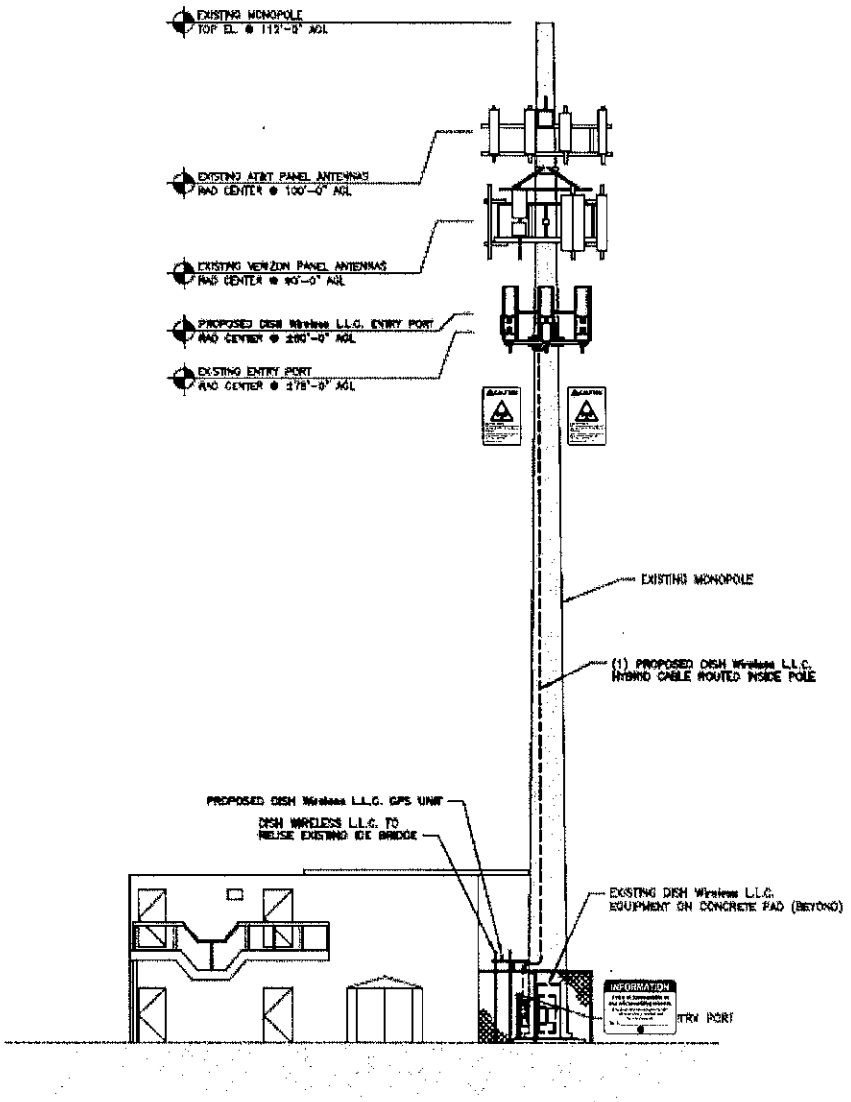
FCC Report and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released August 1, 1996.

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

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

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

Appendix C. Proposed Signage



NOC Information Sign		Caution Sign	
Guidelines Sign		Warning Sign	
Notice Sign			

Appendix D. Summary of Expert Qualifications

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

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

Exhibit G

Lease Agreement

SITE LEASE AGREEMENT

This Site Lease Agreement (the "**Agreement**") is made and effective as of the date the last Party executes this Agreement (the "**Effective Date**"), by and between 48 Newtown Road Corporation, a Connecticut corporation having a place of business at 50 Newtown Road Danbury, CT 06810 ("**Landlord**"), and DISH Wireless L.L.C., a Colorado limited liability company having a place of business at 9601 S. Meridian Blvd., Englewood, Colorado 80112 ("**Tenant**," and together with Landlord, the "**Parties**," each a "**Party**").

WITNESSETH:

1. Definitions.

"**Affiliate(s)**" means, with respect to a Party, any person or entity, directly or indirectly, controlling, controlled by, or under common control with such Party, in each case for so long as such control continues. For purposes of this definition, "control" shall mean (i) the ownership, directly or indirectly, or at least fifty percent (50%) of either: (a) the voting rights attached to issued voting shares; or (b) the power to elect fifty percent (50%) of the directors of such entity, or (ii) the ability to direct the actions of the entity. Notwithstanding the preceding, for purposes of this Agreement, EchoStar Corporation and its direct and indirect subsidiaries shall not be deemed to be "Affiliates" of Tenant unless after the Effective Date any such entity qualifies as a direct or indirect subsidiary of DISH Network Corporation.

"**Applicable Law**" means any applicable federal, state or local act, law, statute, ordinance, building code, rule, regulation or permit, or any order, judgment, consent or approval of any Governmental Authority having jurisdiction over the Parties or this Agreement.

"**Governmental Authority**" means any: (i) federal, state, county, municipal, tribal or other local government and any political subdivision thereof having jurisdiction over the Parties or this Agreement; (ii) any court or administrative tribunal exercising proper jurisdiction; or (iii) any other governmental, quasi-governmental, self-regulatory, judicial, public or statutory instrumentality, authority, body, agency, bureau or entity of competent jurisdiction.

"**Installation**" means the installation of Tenant's Equipment at the Premises.

"**Permitted Modifications**" means adding, replacing, or modifying Tenant's Equipment within the Premises.

"**Property**" means that certain parcel of real property upon which the Structure, Tower, and Premises are located.

"**Structure**" means that certain structure of which the Premises are a part.

"**Tower**" means the structure located on the Property upon which Tenant's antennas, radios, and related communication equipment are mounted, but does not include the ground space used for the placement of cabinets, generators, cabling, conduit, backhaul fiber, electrical feeds and similar supporting communications equipment are located.

2. Premises, Term, Rent and Contingencies.

2.1 Premises. Landlord is the owner of the Property located at 48 Newtown Road Danbury, CT 06810, as more particularly described in Exhibit A. Landlord leases to Tenant approximately 100 square feet of ground

space for the placement of communications equipment together with additional space on the tower for antennas and related equipment and additional space for cabling, conduit, backhaul fiber, electrical feeds and similar supporting communications equipment, all for the use and operation of its facilities as such are initially described in Exhibit B, collectively referred to as the **"Premises"**. Landlord also grants to Tenant: (a) the right to use any available electrical systems and/or fiber installed at the Property to support Tenant's Installation: and (b) any easements on, over, under, and across the Property for utilities, fiber and access to the Premises. Landlord agrees that providers of utility or fiber services may use such easement(s) and/or available conduit(s) for the installation of any equipment necessary to provide utility or fiber service. If the existing utility or fiber sources located within the Premises or on the Property are insufficient for Tenant's Permitted Use, Landlord agrees to grant Tenant and/or the applicable third party utility or fiber provider the right, at Tenant's sole cost and expense, to install such utilities or fiber on, over and/or under the Property as is necessary for Tenant's Permitted Use; provided that Landlord and Tenant shall mutually agree on the location of such installation(s).

2.2 Term. This Agreement shall be effective as of the Effective Date. The initial term of this Agreement (the "**Initial Term**") will commence on the first (1st) day of the month following the commencement of Tenant's Installation (the "**Commencement Date**"), and will expire on the last day of the month that is [redacted] months after the Commencement Date unless terminated sooner, renewed or extended in accordance with this Agreement. The Initial Term shall automatically renew for up to [redacted] additional terms of [redacted] months each (each, a "**Renewal Term**" and together with the Initial Term, the "**Term**"). However, Tenant may, in Tenant's sole and absolute discretion, elect not to renew the lease at the end of the then-current Term by giving Landlord written Notice at least ninety (90) days prior to the end of the then-current Term. The Parties agree that, subject to the Contingencies, this Agreement constitutes a binding and valid obligation on each Party and that each Party has vested rights in this Agreement as of the Effective Date.

2.3 Rent. Beginning on the Commencement Date and continuing through the term of this Agreement, Tenant shall pay Landlord rent for the Premises ("**Rent**") in the amount of [redacted] Dollars [redacted] per month. The first Rent payment shall be made within twenty (20) business days of the Commencement Date, with subsequent rent payable by the fifth day of each month. On each anniversary of the Commencement Date, the Rent shall be automatically increased by [redacted] of the then-current Rent. Payments shall be delivered to the address designated by Landlord in Section 12.11, or by electronic payment. All payments for any fractional month shall be prorated based upon the number of days during such month that the payment obligation was in force ("**Payment Terms**"). Tenant shall require receipt of a validly completed IRS approved W-9 form (or its equivalent) prior to paying any Rent or any other amount(s) due under this Agreement.

2.4 Contingencies. The Parties acknowledge and agree that Tenant's ability to lawfully use the Premises is contingent upon Tenant obtaining each of the following: (a) a satisfactory structural analysis showing that the Tower is suitable for Tenant's Permitted Use; and (b) all certificates, permits, approvals and other authorizations that may be required by any Governmental Authority in accordance with Applicable Law (collectively, the "**Governmental Approvals**"). Tenant will endeavor to obtain all such Governmental Approvals promptly. Landlord hereby authorizes Tenant, at Tenant's sole cost and expense, to file and submit for Governmental Approvals. Landlord shall: (x) cooperate with Tenant in Tenant's efforts to obtain such Governmental Approvals; (y) promptly execute and deliver all documents necessary to obtain and maintain the Government Approvals; and (z) not take any action that would adversely affect Tenant's ability to obtain and/or maintain the Governmental Approvals. If: (i) any application for Governmental Approvals is rejected, conditioned, materially delayed or otherwise not approved for any or no reason; (ii) a structural analysis shows that the Tower is not suitable for Tenant's Permitted Use; or (iii) Tenant determines, in Tenant's sole and absolute discretion, that such Governmental Approvals cannot be obtained in a timely and commercially reasonable manner (clauses (i), (ii) and (iii) collectively, the "**Contingencies**"), then, Tenant shall have the right in its sole and absolute discretion to terminate this Agreement immediately upon Notice to Landlord, without penalty or further obligation to

Landlord (or Landlord's affiliates, employees, officers, agents or lenders). If, following the Commencement Date, and through no fault of Tenant, any Governmental Approval issued to Tenant is canceled, expires, lapses or is otherwise withdrawn or terminated by the applicable Governmental Authority, then Tenant shall have the right in its sole and absolute discretion to terminate this Agreement upon ninety (90) days' Notice to Landlord without penalty or further obligation to Landlord (or Landlord's affiliates, employees, officers, agents or lenders). If this Agreement is terminated, this Agreement shall be of no further force or effect (except as set forth to the contrary herein).

3. Use, Access and Modifications to Tenant's Equipment.

3.1 Tenant's Permitted Use. Landlord agrees that Tenant may use the Premises for the purpose of the installation, operation, maintenance and management of a telecommunications facility (including, without limitation, equipment designed to transmit and receive radio frequency signals) (collectively, "**Tenant's Equipment**"), which shall include the right to replace, repair, add, or otherwise modify any or all of Tenant's Equipment and the frequencies over which Tenant's Equipment operates ("**Tenant's Permitted Use**"). Landlord acknowledges and agrees that if radio frequency signage and/or barricades are required by Applicable Law, Tenant shall have the right to install the same on the Property.

3.2 Access. Commencing on the Effective Date and continuing throughout the Term, Tenant, its employees, agents and contractors shall have unrestricted access to the Premises 24 hours per day, 7 days per week and at no additional cost or expense to Tenant. Further, Landlord grants to Tenant the right of ingress and egress to the Structure, Tower and the Premises.

3.3 Modifications to Tenant's Equipment. After Tenant's initial Installation, Tenant may make Permitted Modifications, including those which allow Tenant to: (i) modify or add additional frequencies or technologies; and (ii) replace, modify or add equipment within the Premises; in either case, without incurring any increase in the then-current Rent, or other modification of the terms and conditions set forth in this Agreement. For any modification or addition that is not a Permitted Modification, Tenant shall seek Landlord's approval of Tenant's installation plans and specifications prior to commencing any such addition or modification.

4. Utilities, Liens and Taxes.

4.1 Utilities. Tenant may have its own utility meter installed in a mutually agreed upon location. If separate metering is not commercially reasonable, then Tenant may install a utility sub meter on Landlord's main utility meter, which Landlord shall read and bill to Tenant on a monthly basis (without mark-up) for Tenant's utility consumption and provide Tenant with documentation to substantiate all invoiced amounts. Tenant's actual utility usage charges shall be paid by Tenant to Landlord (each without mark-up) within sixty (60) days following Tenant's receipt of an undisputed invoice and documentation substantiating all invoiced amounts.

Landlord grants to Tenant and its utility providers non-exclusive easement(s) for utilities, including, without limitation, fiber optic cabling and electrical power as may be reasonably necessary for utilization of Tenant's Equipment at the Premises ("**Easement**"). The Parties acknowledge and agree that independent third-party providers of utility services, including but not limited to, fiber, gas, electric and telephone, may utilize the Easement.

4.2 Liens. Tenant will use commercially reasonable efforts to prevent any lien from attaching to the Property or any part thereof. If any lien is filed purporting to be for labor or material furnished or to be furnished at the request of Tenant, then Tenant shall do all acts necessary to discharge such lien by payment, satisfaction or posting of bond within ninety (90) days of receipt of Notice of the same from Landlord; provided, that Tenant may

contest any such lien if Tenant provides Landlord with cash or a letter of credit in the amount of said lien as security for its payment within such ninety (90) day period, and thereafter diligently contests such lien. In the event Tenant fails to deposit the aforementioned security with Landlord and fails to pay any lien claim after entry of final judgment in favor of the claimant, then Landlord shall have the right to expend all sums reasonably necessary to discharge the lien claim and Tenant will be responsible to indemnify and hold harmless Landlord for its costs and expenses incurred in removing the lien.

4.3 Taxes. Landlord shall pay all taxes that accrue against the Structure, Tower, and Property during the Term. If any such tax or excise is levied or assessed directly against Tenant, then Tenant shall be responsible for and shall pay the taxing authority. Tenant shall be liable for all taxes against Tenant's personal property or Tenant's fixtures placed in the Premises, whether levied or assessed against Landlord or Tenant. Landlord shall reasonably cooperate with Tenant, at Tenant's expense, in any appeal or challenge to Taxes. If, as a result of any appeal or challenge by Tenant, there is a reduction, credit or repayment received by Landlord for any Taxes previously paid by Tenant, Landlord agrees to promptly reimburse to Tenant the amount of said reduction, credit or repayment. If Tenant does not have the standing rights to pursue a good faith and reasonable dispute of any Taxes under this section, Landlord will pursue such dispute at Tenant's sole cost and expense upon written request of Tenant.

5. Interference and Relocation of Tenant's Equipment.

5.1 Interference. Tenant agrees to use commercially reasonable efforts to ensure that Tenant's Equipment does not cause measurable Interference (as defined below) with any equipment installed at the Structure, Tower, or Property as of the Effective Date. Following the Effective Date, Landlord agrees not to install or to permit others to install any structure or equipment which could block or otherwise interfere with any transmission or reception by Tenant's Equipment ("**Interference**"). If Interference continues for a period more than forty-eight (48) hours following a Party's receipt of notification thereof, Landlord shall cause any interfering party to cease operating, and/or relocate, the source of Interference, or to reduce the power sufficiently to minimize the Interference until such Interference can be remedied.

5.2 Structure Unfit For Tenant's Permitted Use. In the event that all or a substantial portion of the Tower is destroyed, damaged or otherwise becomes unfit for Tenant's occupancy in accordance with the Tenant's Permitted Use (as determined by Tenant in its reasonable discretion) and the Tower cannot be restored, or rebuilt, by Landlord within thirty (30) days to a condition which is fit for Tenant's occupancy in accordance with the Tenant's Permitted Use (as determined by Tenant in its reasonable discretion), then Tenant may elect to immediately terminate this Agreement by written Notice to Landlord without penalty or further obligation to Landlord, its employees, officers, agents or lenders. Landlord shall inform Tenant whether Landlord intends to rebuild, repair or replace the Tower as soon as possible under the circumstances, but in all cases within ten (10) days following Landlord's discovery of such condition. In the event Tenant does not elect to terminate this Agreement, then Landlord shall promptly commence and diligently pursue to completion the restoration or repair of the Tower in accordance with prevailing tower industry standards, at Landlord's sole cost and expense. If such restoration or repair cannot reasonably be undertaken without moving Tenant's Equipment, then, at Landlord's sole cost and expense, Tenant may remove Tenant's Equipment from the Tower, thereafter replacing Tenant's Equipment on the Tower as soon as reasonably possible. Tenant shall be entitled to deploy and use a mobile structure, temporary power solution or other interim cell siting arrangement in a location mutually agreed upon by the Parties in good faith, and to an abatement of its Rent obligation (and/or a pro rata refund of prepaid Rent, as applicable) until such time that the affected facility is replaced or otherwise restored to a condition fit for Tenant's occupancy in accordance with the Tenant's Permitted Use (as determined by Tenant in its reasonable discretion).

5.3 Relocation of Tenant's Equipment. Following Tenant's receipt of a written Notice from Landlord, Tenant agrees to temporarily relocate its equipment to a mutually agreed upon location on the Property (a "**Temporary Location**") to facilitate Landlord's performance of maintenance, repair or similar work at the Property or in or on the Structure, provided that: (a) Landlord pays all costs incurred by Tenant for relocating Tenant's Equipment to the Temporary Location as well as back to the original location; (b) Landlord gives Tenant at least six (6) months prior written Notice (except in the case of a bona fide emergency which is reasonably likely to result in damage or injury to persons, the Structure or the Property (an "**Emergency**"), in which event Landlord will provide the greatest amount of notice possible under the circumstances; and (c) except for an Emergency Tenant shall not be required to relocate its equipment to a Temporary Location more than one (1) time within any five (5) year period. If Tenant's use of the Temporary Location requires Tenant to undergo re-zoning or re-permitting, Landlord shall not require Tenant to relocate Tenant's Equipment, absent an Emergency, until Tenant's receipt of all Governmental Approvals applicable to Tenant's use of the Temporary Location.

6. Maintenance and Repair Obligations.

6.1 Landlord Maintenance of the Structure and Tower. Landlord represents and warrants that, as of the Effective Date, the Structure, the Structure's systems and all structural elements of the Structure are in compliance with Applicable Law. Throughout the term of this Agreement, Landlord shall maintain, at its sole cost and expense, the Structure and the Property (but not Tenant's Equipment located thereon) in good operating condition. Landlord shall not have any obligation to maintain, repair or replace Tenant's Equipment except to the extent required due to the acts and/or omissions of Landlord, Landlord's agents, contractors or other tenants of the Structure. Landlord agrees to safeguard Tenant's Equipment with the same standard of care it uses to protect its own property, but in no event less than reasonable care. In addition, Tenant may take all actions necessary, in Tenant's reasonable discretion, to secure and/or restrict access to Tenant's Equipment.

Landlord represents and warrants that: (i) its operation of the Tower (exclusive of Tenant's Equipment), including, without limitation, any required or advisable lighting systems, currently complies with, and will be maintained throughout the Term of this Agreement in accordance with, all Applicable Laws. Landlord shall at all times throughout the Term maintain, at its sole cost and expense, the Tower, including, without limitation, the lighting systems, transmission lines, equipment and building(s) in good operating condition. In no event shall Landlord access, power down, move, modify or otherwise alter Tenant's Equipment without Tenant's prior written consent (email being sufficient).

6.2 Tenant Maintenance of Tenant's Equipment. Tenant assumes sole responsibility for the maintenance, repair and/or replacement of Tenant's Equipment, except as set forth in Section 6.1. Tenant agrees to perform all maintenance, repair or replacement of Tenant's Equipment ("**Tenant Maintenance**") in accordance with Applicable Law, and in a good and workmanlike manner. Tenant shall not be permitted to conduct Tenant Maintenance in a manner that would materially increase the size of the Premises.

7. Surrender and Hold Over.

7.1 Surrender. Except as set forth to the contrary herein, within ninety (90) days following the expiration or termination of this Agreement (the "**Equipment Removal Period**"), in accordance with the terms of this Agreement, Tenant will surrender the Premises to Landlord in a condition similar to that which existed immediately prior to Tenant's Installation together with any additions alteration and improvements to the Premises, in either case, normal wear and tear excepted and provided, however, that Tenant shall have no obligation to remove any Tenant's Equipment or other objects that are below the surface of the Property or behind/under ceilings, floors or walls (such as cables) or any concrete or equivalent installation pad. The Parties acknowledge and agree that Rent will not accrue during the Equipment Removal Period. However, if Tenant's

Equipment is not removed during the Equipment Removal Period, Tenant will be deemed to be in Hold Over (as defined in Section 7.2 below) until Tenant's Equipment is removed from the Premises. Tenant shall have the right to access the Premises or remove any or all of Tenant's Equipment from the Premises at any time during the Term or the Equipment Removal Period.

7.2 Hold Over. If Tenant occupies the Premises beyond the Equipment Removal Period without Landlord's written consent ("**Hold Over**"), Tenant will be deemed to occupy the Premises on a month-to-month basis, terminable by either Party on thirty (30) days' written Notice to the other Party. All of the terms and provisions of this Agreement shall be applicable during that period, except that Tenant shall pay Landlord a rental fee equal to the then current monthly Rent applicable at the expiration or termination of the Agreement, prorated for the number of days of such hold over.

8. Default, Remedies and Termination.

8.1 Default. If any of the following events occur during the Term (each a "Default"), then the non-Defaulting Party may elect one or more of the remedies set forth below in this Section 8 or seek any other remedy available: (a) Tenant's failure to make any payment required by this Agreement within thirty (30) days after receipt of written Notice from the Landlord of such failure to pay; (b) failure by either Party to observe or perform any provision of this Agreement where such failure: (1) continues for a period of thirty (30) days after written Notice thereof from the non-Defaulting Party and the Defaulting Party has failed to cure or commenced the cure of such Default; and/or (2) based upon Tenant's reasonable determination, materially affects Tenant's ability to transmit or receive wireless communications signals to or from the Premises; (c) either Party files a petition in bankruptcy or insolvency or for reorganization or arrangement under the bankruptcy laws or under any insolvency act of any state, or admits the material allegations of any such petition by answer or otherwise, or is dissolved or makes an assignment for the benefit of creditors; and/or (d) involuntary proceedings under any such bankruptcy law or insolvency act or for the dissolution of either Party are instituted against either Party, or a receiver or trustee is appointed for all or substantially all of the property of either Party, and such proceeding is not dismissed, or such receivership or trusteeship vacated within sixty (60) days after such institution or appointment.

8.2 Remedies. Upon the occurrence of any uncured Default, the non-Defaulting Party may thereafter terminate this Agreement immediately upon written Notice to the other Party without prejudice to any other remedies the non-Defaulting Party may have at law or in equity.

8.3 Termination. Tenant shall have the right to terminate this Agreement without further liability upon thirty (30) days prior written Notice to Landlord due to any one or more of the following: (i) changes in Applicable Law which prohibit or materially adversely affect Tenant's ability to operate Tenant's Equipment at the Premises; or (ii) Landlord or a third party installs any structure, equipment, or other item which blocks, hinders, limits, or prevents Tenant from being able to use the Tenant Equipment for Tenant's Permitted Use. In addition, at any time after the Initial Term, Tenant shall have the right to terminate this Agreement without further liability upon ninety (90) days prior written Notice to Landlord in the event Tenant, in its sole discretion, determines that Tenant's Permitted Use of the Premises is obsolete or unnecessary and Tenant shall pay Landlord a termination fee equal to six (6) months at the Rent in effect at the time of the applicable termination date.

9. Limitation of Liability and Indemnification.

9.1 Limitation of Liability. EXCEPT FOR EACH PARTY'S INDEMNIFICATION OBLIGATIONS SET FORTH BELOW IN THIS SECTION 9, NEITHER PARTY NOR ANY OF ITS AGENTS, CONTRACTORS OR EMPLOYEES, SHALL BE LIABLE TO THE OTHER PARTY OR ANY PERSON CLAIMING THROUGH THAT PARTY FOR ANY EXEMPLARY, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR ANY CAUSE WHATSOEVER, INCLUDING, WITHOUT LIMITATION,

CLAIMS CAUSED BY OR RESULTING FROM THE NEGLIGENCE, GROSS NEGLIGENCE OR WILLFUL MISCONDUCT OF THAT PARTY, ITS AGENTS, CONTRACTORS OR EMPLOYEES.

9.2 Tenant's Indemnity. Except to the extent caused by the breach of this Agreement by Landlord or the acts or omissions of Landlord, its officers, agents, employees, contractors, or any other person or entity for whom Landlord is legally responsible, Tenant shall defend, indemnify and hold Landlord and its officers, directors, shareholders, employees, agents and representatives ("**Landlord's Representatives**") harmless from and against any and all claims, demands, litigation, settlements, judgments, damages, liabilities, costs and expenses (including, without limitation, reasonable attorneys' fees) (individually or collectively, a "**Claim**") arising directly or indirectly out of: (i) any act or omission of Tenant, its officers, agents, employees, contractors, or any other person or entity for whom Tenant is legally responsible ("**Tenant's Representatives**"); or (ii) a breach of any representation, warranty or covenant of Tenant contained or incorporated in this Agreement. Tenant's obligations under this Section 9.2 shall survive the expiration or earlier termination of this Agreement for two (2) years.

9.3 Landlord's Indemnity. Except to the extent caused by the breach of this Agreement by Tenant or the acts or omissions of Tenant or Tenant's Representatives, , Landlord shall defend, indemnify and hold Tenant, its officers, directors, shareholders, employees, agents and representatives harmless from and against any and all Claims arising directly or indirectly out of: (i) any act or omission of Landlord, its officers, agents, employees, contractors or any other person or entity for whom Landlord is legally responsible; (ii) a breach of any representation, warranty or covenant of Landlord contained or incorporated in this Agreement; and/or (iii) the generation, possession, use, storage, presence, release, spill, treatment, transportation, manufacture, refinement, handling, production and/or disposal of Hazardous Substances in, on, about, adjacent to, under or near the Premises, the Structure and/or the Property, and/or any contamination of the Premises, the Structure and/or the Property by any Hazardous Substance, but only to the extent not caused by Tenant or Tenant's Representatives. Landlord's obligations under this Section 9.3 shall survive the expiration or earlier termination of this Agreement for two (2) years.

9.4 Indemnification Procedure. The Party seeking indemnification (the "**Indemnified Party**") shall promptly send Notice to the Party from whom indemnification is being sought (the "**Indemnifying Party**") of the claim or suit for which indemnification is sought. The Indemnified Party shall not make any admission as to liability or agree to any settlement of or compromise any claim without the prior written consent of the Indemnifying Party. The Indemnified Party shall, at the Indemnifying Party request and expense, give the Indemnifying Party all reasonable assistance in connection with those negotiations and litigation.

10. Insurance.

10.1 Landlord Obligations. Throughout the Term, Landlord shall maintain, at Landlord's sole cost and expense, the following insurance coverage: (i) Commercial General Liability of not less than $1,000,000 per occurrence and $2,000,000 aggregate; and (ii) such other insurance policies as may be deemed normal and customary for substantially similar properties, including, without limitation, coverage for loss of rent. All such policies shall be endorsed to include Tenant as an additional insured. Subject to the policy minimums set forth above in this Section 10.1, the insurance required of Landlord hereunder may be maintained by a blanket or master policy that includes properties other than the Property.

10.2 Tenant Obligations. Throughout the Term, Tenant shall maintain, at Tenant's sole cost and expense, the following insurance coverage: (i) workers' compensation insurance with no less than the minimum limits required by Applicable Law; (ii) employer's liability insurance with such limits as required by Applicable Law; and (iii) Commercial General Liability with a minimum limit of $1,000,000 per occurrence and $2,000,000 aggregate. All such policies shall be endorsed to include Landlord as additional insured.

10.3 Insurance Requirements. All policies required by this Section 10 shall be issued by insurers that are (1) licensed to do business in the state in which the Property and/or Structure are located, and (2) rated A- or better by Best's Key Rating Guide.

10.4 Waiver of Subrogation. To the fullest extent permitted by law, Landlord and Tenant for themselves and any and all parties claiming under or through them, including, without limitation, their respective insurers, hereby mutually release and discharge each other and the other's Affiliates, and their respective officers, directors, shareholders, agents, employees, contractors, and/or any other person or entity for whom a Party is legally responsible from any claims for damage to any person or to the Premises or any other real or personal property that are or are claimed to have been caused by or result from risks insured against under any insurance policies carried by the waiving party and in force at the time of such damage and hereby waive any right of subrogation that might otherwise exist in or accrue to any person on account thereof. All policies required to be carried by either Party herein shall contain an endorsement in favor of the other Party waiving the insurance company's right of subrogation against such other Party. THIS RELEASE SHALL APPLY EVEN IF THE LOSS OR DAMAGE IS CAUSED BY THE FAULT OR NEGLIGENCE OF A PARTY HERETO OR BY ANY PERSON FOR WHICH SUCH PARTY IS RESPONSIBLE. EACH PARTY AGREES TO NOTIFY ITS INSURANCE CARRIER(S) OF THIS PROVISION.

11. Representations and Warranties.

11.1 Representations and Warranties. Landlord represents, warrants and covenants that: (a) Landlord has the right and authority to execute and perform this Agreement; (b) there are no liens, judgments or other title matters materially and adversely affecting Landlord's title to the Property; (c) there are no covenants, easements or restrictions that prevent the use of the Premises for Tenant's Permitted Use; (d) the Structure , Tower and the Premises are in good repair and suitable for Tenant's Permitted Use; (e) Landlord will comply with all federal, state, and local laws in connection with any substances brought on to the Property and/or Structure that are identified as toxic or hazardous by any Applicable Law, ordinance or regulation ("**Hazardous Substance**"); and (f) Tenant's use and quiet enjoyment of the Premises shall not be disturbed. Landlord is responsible for any loss or damage, including remediation, with respect to Hazardous Substances as per Applicable Law. Landlord understands and agrees that notwithstanding anything contained in this Agreement to the contrary, in no event shall Tenant have any liability whatsoever with respect to any Hazardous Substance that was on, about, adjacent to, under or near the Property and/or Structure prior to the Effective Date, or that was generated, possessed, used, stored, released, spilled, treated, transported, manufactured, refined, handled, produced or disposed of on, about, adjacent to, under or near the Property and/or Structure by: (1) Landlord, its agents, employees, contractors or invitees; or (2) any third party who is not an employee, agent, contractor or invitee of Tenant.

12. Miscellaneous.

12.1 Assignment. Neither Party may assign or otherwise transfer any of its rights or obligations under this Agreement to any third party without the prior written approval of the other Party, which consent shall not be unreasonably withheld, conditioned or delayed. Notwithstanding the foregoing, either Party may assign or transfer some or all of its rights and/or obligations under the Agreement to: (i) an Affiliate; (ii) a successor entity to its business, whether by merger, consolidation, reorganization, or by sale of all or substantially all of its assets or stock; (iii) any entity in which a Party or its Affiliates have any direct or indirect equity investment; and/or (iv) any other entity directly or indirectly controlling, controlled by or under common control with any of the foregoing, and in each case, such assignment, transfer or other such transaction shall not be considered an assignment under this Section 12.1 requiring consent and the non-assigning Party shall have no right to delay, alter or impede such assignment or transfer.

12.2 Rights Upon Sale of Property or Structure. Should Landlord, at any time during the Term, sell or transfer all or any part of the Property, the Tower or the Structure to a purchaser other than Tenant, such transfer shall be subject to this Agreement and Landlord shall require any such purchaser or transferee to recognize Tenant's rights under the terms of this Agreement in a written instrument signed by Landlord and the third party transferee. If Landlord completes any such transfer without executing such a written instrument, then Landlord shall not be released from its obligations to Tenant under this Agreement, and Tenant shall have the right to look to Landlord and the third party for the full performance of this Agreement. In addition to, and not in limitation of the preceding, in the event the Landlord sells or transfers either its rights in all or any portion of the Premises or Landlord's right to the receive the Rent (and other payments) derived from the Premises under this Agreement, in either case separate from the underlying Structure and/or Property, to any third party who is not an Affiliate of Landlord, then prior to any such sale or transfer Landlord shall first provide Tenant with a right of first refusal ("**ROFR**") to acquire such right(s). In order to evaluate the terms and conditions offered to Landlord by such third party Landlord shall provide Tenant with a full, complete and unredacted copy thereof and Tenant shall have thirty (30) days from receipt thereof to elect to exercise its ROFR; provided that Tenant's exercise of the ROFR shall be on the same terms and conditions as offered to Landlord by such third party (except as may be mutually agreed upon to the contrary).

12.3 Subordination and Non-Disturbance. This Agreement shall be subordinate to any mortgage, deed of trust, or other security agreement (each a "**Mortgage**") by Landlord which, from time to time, may encumber all or part of the Property; provided, however, the lender under every such Mortgage shall, in the event of a foreclosure of Landlord's interest, recognize the validity of this Agreement and Tenant's right to remain in occupancy of and have access to the Premises, as long as no Default by Tenant exists under this Agreement. If the Property is encumbered by a Mortgage, then Landlord shall, promptly following Tenant's request, obtain and furnish to Tenant a non-disturbance agreement, in recordable form, for each such Mortgage.

12.4 Condemnation. If all or any portion of the Premises is condemned, taken by a Governmental Authority or otherwise appropriated by the exercise of the right of eminent domain or a deed or conveyance in lieu of eminent domain (each, a "**Taking**"), either Party hereto shall have the right to terminate this Agreement immediately upon Notice to the other Party. If either Party elects to terminate this Agreement, the Rent set forth herein shall be abated, and Tenant's liability therefor will cease as of the date of such Taking, this Agreement shall terminate as of such date, and any prepaid rent shall be returned to Tenant. If this Agreement is not terminated as herein provided, then it shall continue in full force and effect, and Landlord shall, within a reasonable time after possession is physically taken by the condemning authority restore the remaining portion of the Premises to render it reasonably suitable for the uses permitted by this Agreement and the Rent shall be proportionately and equitably reduced. Notwithstanding the foregoing, Landlord shall not be obligated to expend an amount greater than the proceeds received from the condemning authority less all expenses reasonably incurred in connection therewith (including attorneys' fees) for the restoration. All compensation awarded in connection with a Taking shall be the property of Landlord, provided that if allowed under Applicable Law, Tenant may apply for and keep as its property a separate award for (i) the value of Tenant's leasehold interest; (ii) the value of Tenant's Equipment or other personal property of Tenant; (iii) Tenant's relocation expenses; and (iv) damages to Tenant's business incurred as a result of such Taking.

12.5 Recording. If requested by Tenant, Landlord and Tenant agree to execute a Memorandum of Lease that Tenant may record at Tenant's sole cost and expense. The date set forth in the Memorandum of Lease is for recording purposes only, and bears no reference to commencement of the Term or rent payments of any kind.

12.6 Force Majeure. Notwithstanding anything to the contrary in this Agreement, neither Party shall be liable to the other Party for nonperformance or delay in performance of any of its obligations under this

Agreement due to causes beyond its reasonable control, including, without limitation, strikes, lockouts, pandemics, labor troubles, acts of God, accidents, technical failure governmental restrictions, insurrections, riots, enemy act, war, civil commotion, fire, explosion, flood, windstorm, earthquake, natural disaster or other casualty ("**Force Majeure**"). Upon the occurrence of a Force Majeure condition, the affected Party shall immediately notify the other Party with as much detail as possible and shall promptly inform the other Party of any further developments. Immediately after the Force Majeure event is removed or abates, the affected Party shall perform such obligations with all due speed. Neither Party shall be deemed in default of this Agreement to the extent that a delay or other breach is due to or related to a Force Majeure event. A proportion of the Rent herein reserved, according to the extent that such Force Majeure event shall interfere with the full enjoyment and use of the Premises, shall be suspended and abated from the date of commencement of such Force Majeure event until the date that such Force Majeure event subsides. If such Force Majeure event prevents the affected Party from performing its obligations under this Agreement, in whole or in part, for a period of forty-five (45) or more days, then the other Party may terminate this Agreement immediately upon Notice to the affected Party.

12.7 Successors and Assigns. The respective rights and obligations provided in this Agreement shall bind and shall continue to apply for the benefit of the Parties hereto, their legal representative, heirs, successors and permitted assigns. No rights however, shall continue to apply for the benefit of any assignee, unless such assignment was made in accordance with Section 12.1 of this Agreement.

12.8 Governing Law and Construction. This Agreement shall be construed, governed and enforced in accordance with the laws of the state in which the Premises is located. The section and paragraph headings contained in this Agreement are solely for reference purposes, and shall not affect in any way the meaning or interpretation of this Agreement.

12.9 Severability. Each provision of this Agreement shall be construed as separable and divisible from every other provision and the enforceability of any one provision shall not limit the enforceability, in whole or in part, of any other provision. If a court or administrative body of competent jurisdiction holds any provision of this Agreement to be invalid, illegal, void or less than fully enforceable as to time, scope or otherwise, such provision shall be construed by limiting and reducing it so that such provision is valid, legal and fully enforceable while preserving to the greatest extent permissible the original intent of the parties; the remaining terms and conditions of this Agreement shall not be affected by such alteration, and shall remain in full force and effect.

12.10 Waiver; Remedies. It is agreed that, except as expressly set forth in this Agreement, the rights and remedies herein provided in case of Default or breach by either Landlord or Tenant are cumulative and shall not affect in any manner any other remedies that the non-breaching Party may have by reason of such default or breach. The exercise of any right or remedy herein provided shall be without prejudice to the right to exercise any other right or remedy provided herein, at law, in equity or otherwise. In addition to, and not in limitation of, the preceding, the Parties acknowledge and agree that there will not be an adequate remedy at law for noncompliance with the provisions of Section 5, and therefore either Party shall have the right to equitable remedies, including, without limitation, injunctive relief and specific performance.

12.11 Notice. All notices or requests that are required or permitted to be given pursuant to this Agreement must be given in writing by certified US mail (postage pre-paid) with return receipt requested or by courier service (charges prepaid), or solely in the case of notice to Landlord by email, to the party to be notified, addressed to such party at the address(es) or email address(es) set forth below, or such other address(es), email address(es) or fax number(s) as such Party may have substituted by written notice (given in accordance with this Section 12.11) to the other Party ("**Notice**"). The sending of such Notice to the proper email address (in the case of email transmission) or the receipt of such Notice (in the case of delivery by first-class certified mail or by courier service) will constitute the giving thereof.

If to be given to Landlord:
48 Newtown Road Corporation
Attn: Jessica Granger

50 Newtown Road
Danbury, Connecticut 06810

If by courier service:
48 Newtown Road Corporation
Attn: Jessica Granger
50 Newtown Road
Danbury, Connecticut 06810

If by first-class certified mail:
48 Newtown Road Corporation
Attn: Jessica Granger
50 Newtown Road
Danbury, Connecticut 06810

If by email:
Email address: jessicag@brt.com

If to be given to Tenant:
DISH Wireless L.L.C.
Attn: Lease Administration
5701 South Santa Fe Blvd.
Littleton, Colorado 80120

12.12 Entire Agreement. This Agreement sets forth the entire, final and complete understanding between the Parties hereto regarding the subject matter of this Agreement, and it supersedes and replaces all previous understandings or agreements, written, oral, or implied, regarding the subject matter of this Agreement made or existing before the date of this Agreement. Except as expressly provided by this Agreement, no waiver or modification of any of the terms or conditions of this Agreement shall be effective unless in writing and signed by both Parties. Any provision of this Agreement that logically would be expected to survive termination or expiration, shall survive for a reasonable time period under the circumstances, whether or not specifically provided in this Agreement.

12.13 Compliance with Law. Each Party shall, with respect to its actions and/or inactions pursuant to and in connection with this Agreement, comply with all applicable statutes, laws, rules, ordinances, codes and governmental or quasi-governmental orders or regulations (in each case, whether federal, state, local or otherwise) and all amendments thereto, now enacted or hereafter promulgated and in force during the term of this Agreement, a Renewal Term or any extension of either of the foregoing.

12.14 Counterparts. This Agreement may be executed in any number of identical counterparts and, if so executed, shall constitute one agreement, binding on all the Parties hereto, notwithstanding that all the Parties are not signatories to the original or the same counterpart. Execution of this Agreement by facsimile or electronic signature shall be effective to create a binding agreement and, if requested, Landlord and Tenant agree to exchange original signed counterparts in their possession.

12.15 Attorneys' Fees. If an action is brought by either Party for breach of any covenant and/or to enforce or interpret any provision of this Agreement, the prevailing Party shall be entitled to recover its costs, expenses and reasonable attorneys' fees, both at trial and on appeal, in addition to all other sums allowed by law.

12.16 Incorporation of Exhibits. All exhibits referenced herein and attached hereto are hereby incorporated herein in their entirety by this reference.

[*Remainder of page intentionally left blank. Signature page follows.*]

IN WITNESS WHEREOF, the Parties have caused their duly authorized representatives to execute this Agreement as of the Effective Date.

LANDLORD:

48 Newtown Road Corporation

By: DocuSigned by: Jessica Granger 771EAA0033004F2...

Name: Jessica Granger

Its: VP / Treasurer

Date: 1/27/2022

TENANT:

DISH WIRELESS L.L.C.

By: DocuSigned by: F0DA1A105A004D7...

Name: Dave Mayo

Its: EVP

Date: 1/30/2022

DS MF

1/27/2022

EXHIBIT A

LEGAL DESCRIPTION OF PROPERTY

All that certain piece or parcel of land, together with the buildings and improvements thereon, to be known as 48 Newtown Road in the City of Danbury, County of Fairfield, State of Connecticut, and being the same property as set out in Quit Claim Deed recorded in the City of Danbury Land Records on Volume 1041, Page 377 intending to merge the First Parcel and Second Parcel referenced therein into one piece. Said merged parcel is depicted on a map known as: "PROPERTY SURVEY SHOWING LOT LINE TO BE VACATED PREPARED FOR 48 NEWTOWN ROAD CORPORATION 46 & 48 NEWTOWN ROAD DANBURY, CONNECTICUT AREA 25,998±S.F. 0.60±AC." dated 10-01-04 prepared by CCA, LLC of Brookfield, Connecticut, to be recorded with the Town Clerk of the City of Danbury, and is more particularly bounded and described as follows:

Commencing at a point being the southeasterly point of the property hereinafter described; Thence continuing S36°08'23"W a distance of 21.43' to a point; Thence S41°15'23"W a distance of 152.07' to a point; Thence S27°31'25"W a distance of 30.55' to a point; Thence S88°24'05"W a distance of 3.13' to a point; Thence N12°53'10"W a distance of 184.45' to a point; Thence N06°59'40"W a distance of 134.24' to a point; Thence S50°34'55"E a distance of 242.90' to the point or place of beginning.

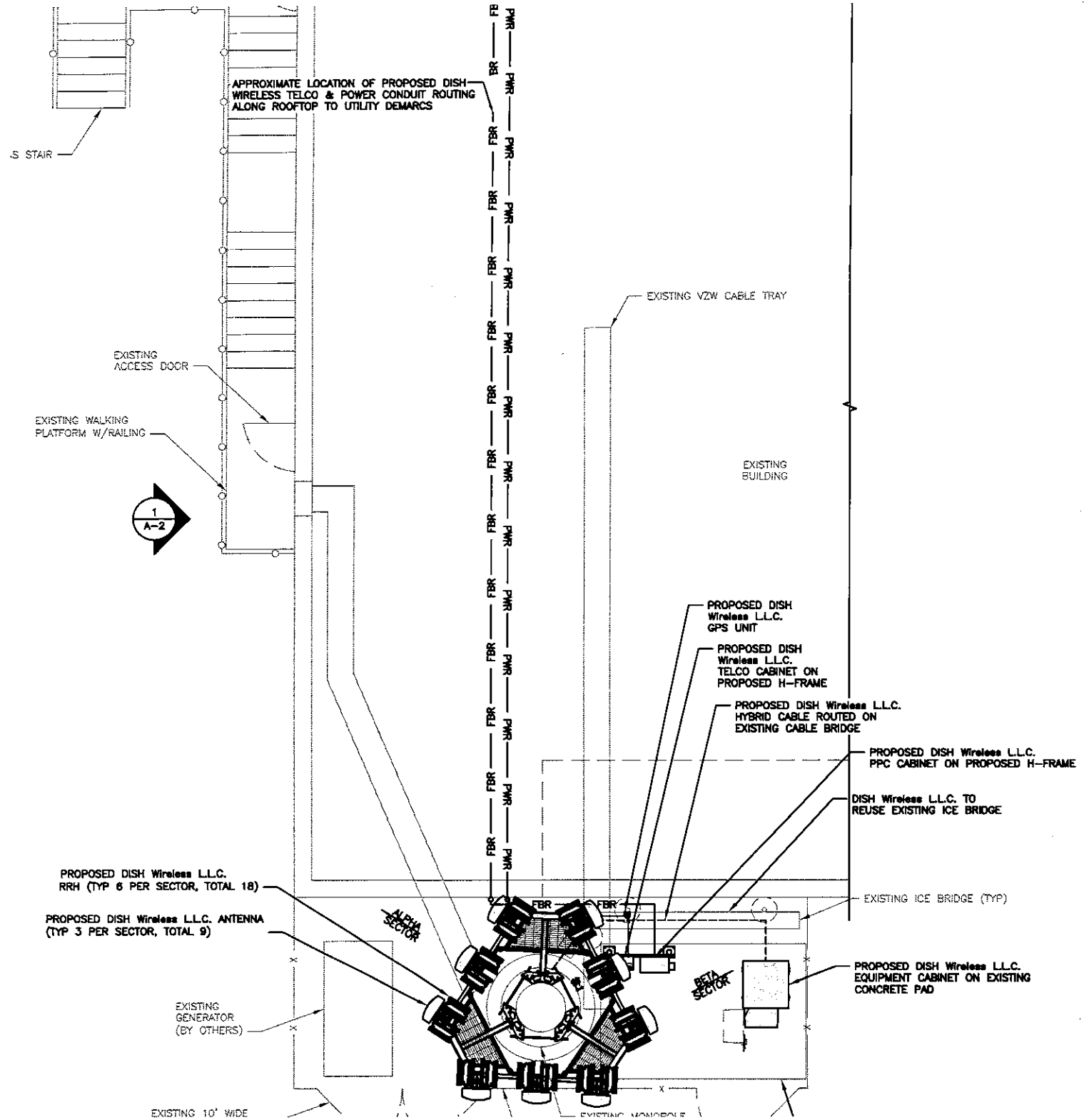
EXHIBIT B

SITE PLAN

See attached drawings.

NOTE: Tenant may be referred to in the attached as "DISH Wireless LLC".

NOTE ALSO: Certain right of way grants of Easements for access and utilities as provided in the Agreement may or may not be described or depicted in the attached drawings.


APPROXIMATE LOCATION OF PROPOSED DISH WIRELESS TELCO & POWER CONDUIT ROUTING ALONG ROOFTOP TO UTILITY DEMARCS
S STAIR
EXISTING VZW CABLE TRAY
EXISTING ACCESS DOOR
EXISTING WALKING PLATFORM W/RAILING
1 A-2
EXISTING BUILDING
PROPOSED DISH Wireless L.L.C. GPS UNIT
PROPOSED DISH Wireless L.L.C. TELCO CABINET ON PROPOSED H-FRAME
PROPOSED DISH Wireless L.L.C. HYBRID CABLE ROUTED ON EXISTING CABLE BRIDGE
PROPOSED DISH Wireless L.L.C. PPC CABINET ON PROPOSED H-FRAME
DISH Wireless L.L.C. TO REUSE EXISTING ICE BRIDGE
PROPOSED DISH Wireless L.L.C. RRH (TYP 6 PER SECTOR, TOTAL 18)
PROPOSED DISH Wireless L.L.C. ANTENNA (TYP 3 PER SECTOR, TOTAL 9)
EXISTING ICE BRIDGE (TYP)
ALPHA SECTOR
BETA SECTOR
PROPOSED DISH Wireless L.L.C. EQUIPMENT CABINET ON EXISTING CONCRETE PAD
EXISTING GENERATOR (BY OTHERS)
EXISTING 10' WIDE
FBR
PWR
BR

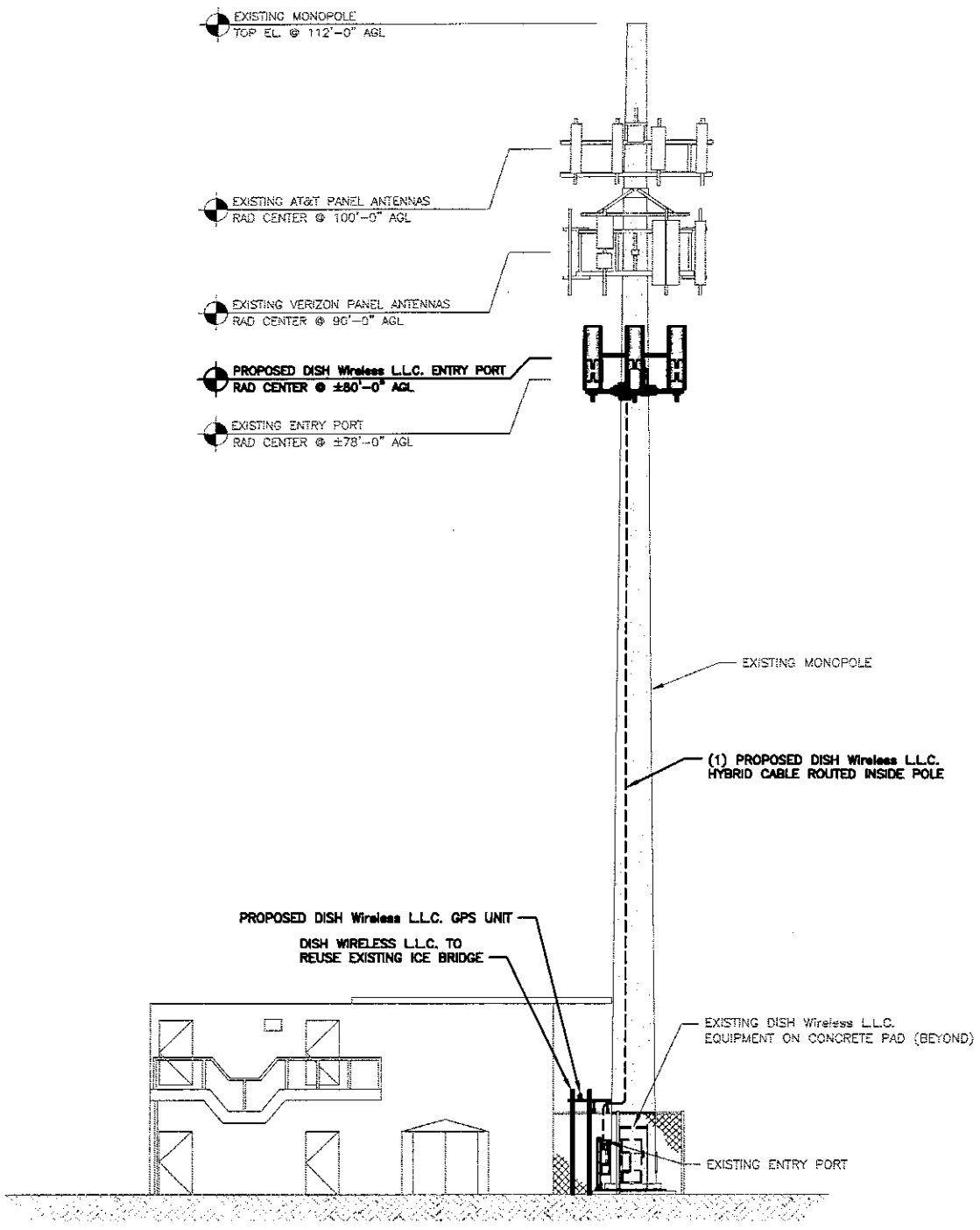

EXISTING MONOPOLE
TOP EL. @ 112'-0" AGL
EXISTING AT&T PANEL ANTENNAS
RAD CENTER @ 100'-0" AGL
EXISTING VERIZON PANEL ANTENNAS
RAD CENTER @ 90'-0" AGL
PROPOSED DISH Wireless L.L.C. ENTRY PORT
RAD CENTER @ ±80'-0" AGL
EXISTING ENTRY PORT
RAD CENTER @ ±78'-0" AGL
EXISTING MONOPOLE
(1) PROPOSED DISH Wireless L.L.C.
HYBRID CABLE ROUTED INSIDE POLE
PROPOSED DISH Wireless L.L.C. GPS UNIT
DISH WIRELESS L.L.C. TO
REUSE EXISTING ICE BRIDGE
EXISTING DISH Wireless L.L.C.
EQUIPMENT ON CONCRETE PAD (BEYOND)
EXISTING ENTRY PORT

Exhibit H

Mailing Receipts

LTR 1 OF 1

FROM:
LEV MAYZLER
(203) 488-0712
CONSTRUCTION SERVICES OF BRANF
63-3 NORTH BRANFORD ROAD
BRANFORD CT 06405-2848

SHIP TO:

HON. DEAN ESPOSITO
15 DEER HILL AVE.
DANBURY CT 06810

CT 068 0-01

UPS 2ND DAY AIR **2**
TRACKING #: 1Z E05 345 02 6339 1716

BILLING: P/P

WS 22.0.17 SHARP MX-3070 10.0A 02/2022

Fold here and place in label pouch

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number
1ZE053450263391716

Service

UPS 2nd Day Air®

Delivered On

03/07/2022 9:31 A.M.

Delivered To
DANBURY, CT, US
Received By

ELLIOT

Left At
Inside Delivery

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 03/07/2022 3:47 P.M. EST

LTR 1 OF 1

FROM:
LEV MAYZLER
(203) 488-0712
CONSTRUCTION SERVICES OF BRANF
63-3 NORTH BRANFORD ROAD
BRANFORD CT 06405-2848

SHIP TO:

DIRECTOR OF PLANING & ZONING
MS. SHARON B. CALITRO
155 DEER HILL AVE.
DANBURY CT 06810

CT 068 0-01

UPS 2ND DAY AIR **2**
TRACKING #: 1Z E05 345 02 6158 2728

BILLING: P/P

WS 22.0.17 SHARP MX-3070 10.0A 02/2022

Fold here and place in label pouch

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number
1ZE053450261582728

Service

UPS 2nd Day Air®

Delivered On

03/07/2022 9:31 A.M.

Delivered To
DANBURY, CT, US
Received By

ELLIOT

Left At
Inside Delivery

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 03/07/2022 3:48 P.M. EST

LTR 1 OF 1

FROM:
LEV MAYZLER
(203) 488-0712
CONSTRUCTION SERVICES OF BRANF
63-3 NORTH BRANFORD ROAD
BRANFORD CT 06405-2848

SHIP TO:

48 NEWTOWN ROAD CORP.
50 NEWTOWN RD.
DANBURY CT 06810

CT 068 0-01

UPS 2ND DAY AIR **2**
TRACKING #: 1Z E05 345 02 6148 8536

BILLING: P/P

WS 22.0.17 SHARP MX-3070 10.0A 02/2022

Fold here and place in label pouch

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1ZE053450261488536

Service

UPS 2nd Day Air®

Delivered On

03/04/2022 12:48 P.M.

Delivered To

50 NEWTOWN RD
DANBURY, CT, 06810, US

Received By

BRT

Left At

Receiver

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 03/07/2022 6:27 A.M. EST