NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

January 20, 2022

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

RE: Tower Share Application
3 Bright Meadow Blvd, Enfield CT 06082
Latitude: 42.020808
Longitude: -72.585164
Site# 876348_Crown_Dish

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 3 Bright Meadow Blvd in Enfield, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 5G MHz antenna and six (6) RRUs, at the 97-foot level of the existing 147.5-foot monopole tower, one (1) Fiber cables will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7x5 lease area. Included are plans by Jacobs, dated January 14, 2022 Exhibit C. Also included is a structural analysis prepared by Morrison Hershfield, dated August 3, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was approved by the Town of Enfield, Special Use Permit No. PH2053 on July 2, 1998. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Ellen Zoppo, Town Manager, and Jennifer Pachaca, Assistant Town Planner for the Town of Enfield, as well as the tower owner (Crown Castle) and property owner (CL&P)

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the tower is 147.5-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 97-feet.

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

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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 22.84% as evidenced by Exhibit F.

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

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

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

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 97-foot level of the existing 147.5-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

Sincerely,

Denise Sabo

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

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Attachments cc:

Ellen Zoppo, Town Manager
Town of Enfield
820 Enfield Street Enfield, CT 06082

Jennifer Pachaca, Assistant Town Planner
Town of Enfield
820 Enfield Street Enfield, CT 06082

CT Light & Power Co, Property Owner
PO Box 270, Hartford CT 06140

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

Exhibit B

Property Card

Exhibit C

Construction Drawings

Exhibit D

Structural Analysis Report

Exhibit E

Mount Analysis

Exhibit F

Power Density/RF Emissions Report

Exhibit G

Letter of Authorization

Exhibit H

Recipient Mailings

Exhibit A

Original Facility Approval

TOWN OF ENFIELD

CERTIFIED MAIL Z392 898 405

May 20, 1998

Karen Johnson
Sprint PCS
9 Barnes Industrial Rd South
Wallingford, CT 06492

Dear Ms. Johnson:

At the May 19,1998 Regular Meeting of the Enfield Conservation Commission (Inland Wetland and Watercourses Agency), the following action was taken:

IW 273 - Application of Sprint PCS (Telecommunications) requesting a permit or regulated activities associated with the erection of a telecommunications tower accesses from Brightmeadow Boulevard.

The Commission approved the application with the following conditions:

1. The permittee shall notify the Planning Department at 253-6358 immediately upon the commencement of work and upon its completion.

2. If the authorized activity has not been initiated before May 19,2000, this permit shall be null and void if not previously revoked or specifically extended. The duration of the permit once initiated shall be 5 years from the date of approval.

3. All work and all regulated activities conducted pursuant to this authorization shall be consistent with these terms and conditions of this permit. Any structures, excavation, fill, obstruction, encroachments or regulated activities not specifically identified and authorized herein shall constitute a violation of this permit and may result in its modification, suspension, or revocation. Upon initiation of the activities authorized herein, the permittee thereby accepts and agrees to comply with the terms and conditions of this permit.

4. The authorization is not transferable without the written consent of the Enfield Conservation Commission.

5. In evaluating this application, the Commission has relied on information provided by the applicant and, if such information subsequently proves to be false, deceptive, incomplete and/or inaccurate this permit shall be modified, suspended or revoked.

6. This permittee shall employ best management practices, consistent with the terms and conditions of the permit, to control stormwater discharges and to prevent erosion and sedimentation and to otherwise prevent pollution of wetlands or watercourses. For information and technical assistance, contact the Town Planner. The permittee shall immediately inform the Planning Department of any problems involving wetlands or watercourses which have developed in the course of, or which are caused by, the authorized work.

7. No equipment or material including without limitation, fill, construction materials, or debris, shall be deposited, placed, or stored in any wetland or watercourse on or off site unless specifically authorized by this permit.

8. This permit is subject to and does not derogate any present or future property rights or other rights or powers of the Town of Enfield, and conveys no property rights or in real estate of material nor any exclusive privileges, and is further subject to any and all public and private rights and to any activity affected hereby.

9. Timely implementation and maintenance of sediment and erosion control measures are a condition of this permit. (All sediment and erosion control measures must be maintained until all disturbed areas are stabilized.)

10. A pre-construction meeting shall be held prior to the commencement of any construction activities on the site with the applicant, contractor, and Town staff.

11. A landscape/performance bond shall be posted prior to any clearing of the site.

If you have any questions regarding this action, please contact me at (860)253-6358.

Very truly yours,

Laurie P. Whitten

Laurie P. Whitten
Assistant Town Planner

LPW/vch

CT036C 221

TOWN OF ENFIELD

CERTIFIED MAIL Z205 375 469

July 7, 1998

Karen Johnson
Vanasse Hangen Brustlin Inc.
54 Tuttle Place
Middletown, CT 06457

Dear Ms. Johnson:

At the July 2,1998 Regular Meeting of the Enfield Planning & Zoning Commission the following action was taken:

> PH 2053 – Special Use Permit for a Commercial Wireless Telecommunication Service including site plan review of a wireless telecommunication facility consisting of a 150-foot Monopole and associated equipment surrounded by a chain link fence located east of Bright Meadow Blvd. adjacent to the Harley Hotel (Assessor's Map 35, Lot 219 - Old Enfield St) BR zone – The Connecticut Light and Power Company, owner / Sprint Spectrum L.P. (Sprint PCS) aplct.

The Commission approved the application with the following conditions:

1. An engineering bond for removal of the wireless telecommunications facility including the tower and base components in an amount to be determined by the town engineer shall be submitted to the town prior to the start of construction and prior to the issuance of any building permits. Any need to use the bond by the town shall be binding on the site regardless of name of the bond obligee.

2. An erosion and sedimentation control passbook, pledged to the town, in an amount to be determined buy the town engineer, shall be submitted to the town prior to the start of construction.

3. A preconstruction meeting between the applicant, site contractors, project engineer and town staff shall be held prior to the beginning of any site work.

4. The tower shall accommodate both the applicant's Antennas and comparable Antennas for at least two additional users.

5. The tower shall allow for future rearrangement of Antennas upon the tower and shall accommodate Antennas mounted at varying heights.

6. The wireless communication facility shall not interfere with existing or proposed public safety communications, commercial television and radio signals or other forms of communication transmissions. Penalty for subsequent interference shall void the approval of the facility.

7. The wireless communication facility shall comply with the standards promulgated by the Federal Communication Commission (FCC).

8. All generators installed in conjunction with the wireless communications facility shall comply with all State and local noise regulators.

9. On or before August 31 every year, the applicant or wireless telecommunications service provider shall submit information to the Planning Zoning Commission file in support of the provision of Section 14-8.6 of the Zoning Ordinance.

10. If the wireless communications facility is not in use for 12 consecutive months, it shall be removed within 90 days from the end of such 12 month period, including any towers and base components by the last service provider using the site or owner, whichever has a contractual obligation to perform the removal. The site shall be restored to an appearance that is compatible with the surrounding neighborhood and where appropriate, re-vegetated to blend with surrounding area.

11. The special use permit for a commercial wireless telecommunication service shall be valid for a maximum period of 10 years with a right of reapplication under regulations in effect at that time.

12. The approval of an application for special use permit shall be void and of no effect unless construction of the project commences within one year from the date of the approval granted by the commission in accordance with Section 14-10.2 of the Zoning Ordinance.

13. Arrangements shall be made with the fire department regarding emergency access to the compound.

14. The plans shall be modified to show a paved apron at the driveway entrance that conforms to town paving specifications.

15. The plans shall be modified to include standard notes as recommended by the town engineer.

16. Monopole shall be maintained if becomes rusty or eye sore.

If you have any questions regarding this action, please contact me at (860)253-6358.

Very truly yours,

Laurie P. Whitten

Laurie P. Whitten
Acting Town Planner

LPW/vch

Exhibit B

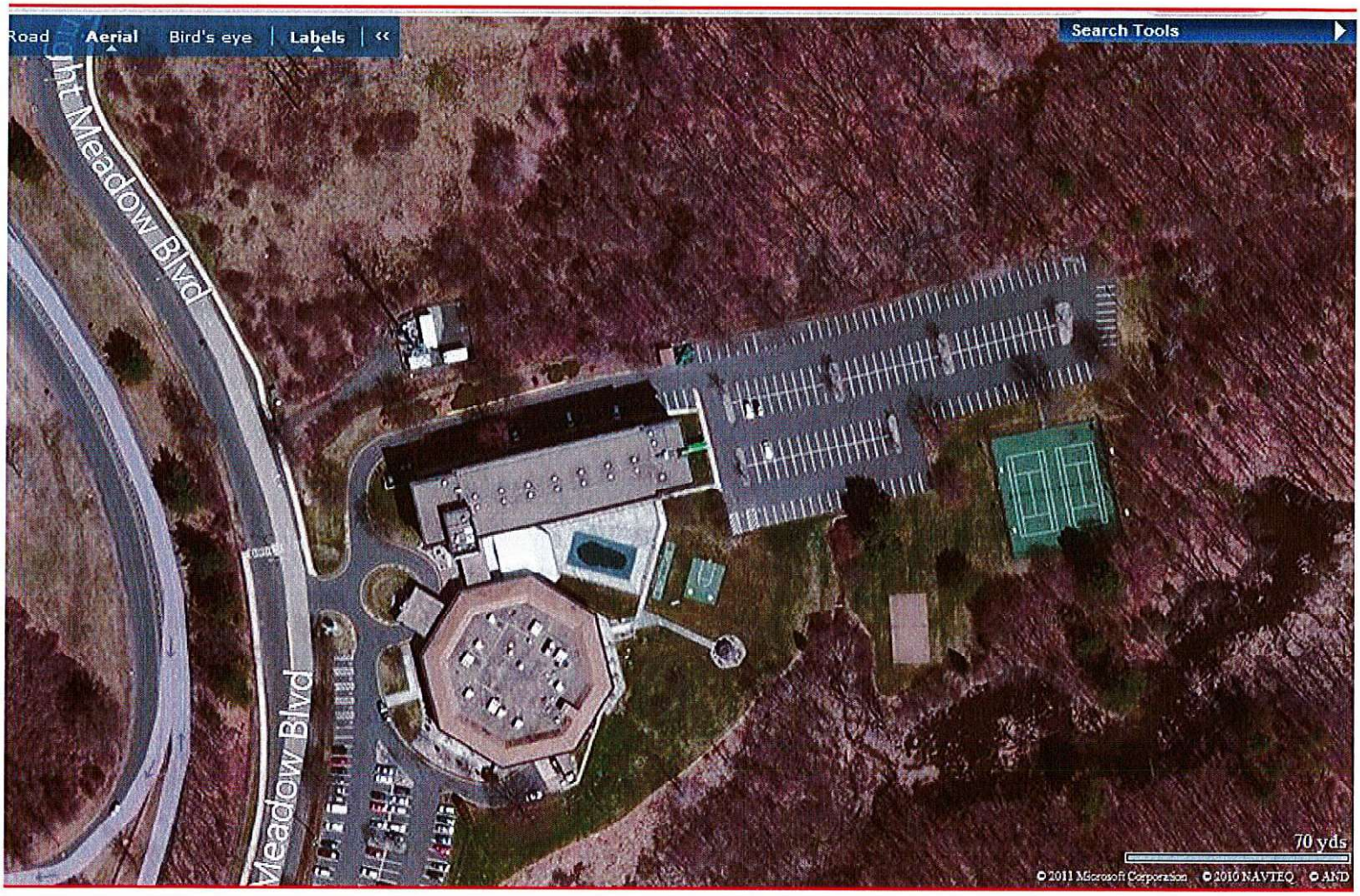
Property Card

BU #: **876348**

Tax Parcel ID # (Real Property):

ENFI-000487-000001-000005

Aerial Photo of Parcel from County GIS Database:



3 BRIGHT MEADOW BLVD

Location	3 BRIGHT MEADOW BLVD	**Mblu**	035/ / 0219/ /
Acct#	048700010005	**Owner**	CONN LIGHT + POWER COMPANY
Assessment	$485,710	**Appraisal**	$693,860
PID	11009	**Building Count**	1
Fire District	4		

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$419,280	$274,580	$693,860
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$293,500	$192,210	$485,710

Owner of Record

Owner	CONN LIGHT + POWER COMPANY	**Sale Price**	$0
Co-Owner		**Certificate**	1
Address	PO BOX 270 HARTFORD, CT 06140-0270	**Book & Page**	0237/0455
		Sale Date	
		Instrument	

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CONN LIGHT + POWER COMPANY	$0	1	0237/0455		

Building Information

Building 1 : Section 1

Year Built:	
Living Area:	0
Replacement Cost:	$0

Building Percent Good:

Replacement Cost

Less Depreciation: $0

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:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Extra Kitchens	
Fireplace(s)	
Extra Opening(s)	
Gas Fireplace(s)	
Blocked FPL(s)	
Bsmt Garage(s)	
Fin Bsmt	
FBM Quality	
Whirlpool(s)	
Sauna	
Walk Out	
Solar	
Fndtn Cndtn	
Basement	

Building Photo

(http://images.vgsl.com/photos2/EnfieldCTPhotos/\00\02\72\14.JPG)

Building Layout

Building Layout (ParcelSketch.ashx?pid=11009&bid=11009)

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

Use Code	300
Description	Ind Land
Zone	BR
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	12.61
Frontage	
Depth	
Assessed Value	$192,210
Appraised Value	$274,580

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN2	FENCE-6' CHAIN			400.00 L.F.	$3,400	1
MSC1	CMEQ			360.00 UNIT	$13,500	1
MSC1	CMEQ			240.00 UNIT	$9,000	1
MSC1	CMEQ			240.00 UNIT	$9,000	1
TWR3	Cell Twr3 Carriers			1.00 UNITS	$384,380	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$419,280	$274,580	$693,860
2018	$419,280	$274,580	$693,860
2017	$419,280	$274,580	$693,860

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$293,500	$192,210	$485,710
2018	$293,500	$192,210	$485,710
2017	$293,500	$192,210	$485,710

Exhibit C

Construction Drawings

DISH WIRELESS L.L.C. SITE ID:

BOBDL00093A

DISH WIRELESS L.L.C. SITE ADDRESS:

BRIGHT MEADOW BLVD
ENFIELD, CT 06082

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
A-1	OVERALL AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	EQUIPMENT PLATFORM AND H-FRAME DETAILS
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
E-2	ELECTRICAL DETAILS
E-3	ELECTRICAL ONE-LINE & PANEL SCHEDULE
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
RF-1	RF CABLE COLOR CODES
GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES

SCOPE OF WORK

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

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

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)
- DISH WIRELESS L.L.C TO UTILIZE POSITION "D" ON EXISTING METER BANK

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.

SITE INFORMATION

PROPERTY OWNER:	CONNECTICUT POWER & LIGHT
ADDRESS:	PO BOX 56006 BOSTON, MA 02205-6006
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	876348
TOWER APP NUMBER:	556604
COUNTY:	HARTFORD
LATITUDE (NAD 83):	42° 01' 14.91" N 42.020808
LONGITUDE (NAD 83):	72° 35' 06.59" W -72.585164
ZONING JURISDICTION:	CONNECTICUT SITING COUNCIL
ZONING DISTRICT:	NOT REQUIRED
PARCEL NUMBER:	MAP 35, LOT 219
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	TBD

PROJECT DIRECTORY

APPLICANT: DISH WIRELESS L.L.C.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

TOWER OWNER: CROWN CASTLE USA, INC.
2000 CORPORATE DRIVE
CANONSBURG, PA 15317
877.486.9377

SITE DESIGNER: JACOBS TELECOMMUNICATIONS, INC
5449 BELLS FERRY ROAD
ACWORTH, GA 30102
470.785.4050

SITE ACQUISITION:
COURTNEY PRESTON
COURTNEY.PRESTON.CONTRACTOR@CROWNCASTLE.COM

CONSTRUCTION MANAGER:
JAVIER SOTO
JAVIER.SOTO@DISH.COM

RF ENGINEER:
BOSSENER CHARLES
BOSSENER.CHARLES@DISH.COM

DIRECTIONS

ROUTE 91 NORTH TO EXIT 49, OFF EXIT TAKE RIGHT 500 FEET, TAKE RIGHT GO 1000 FEET, TOWER ON LEFT NEXT TO HOLIDAY INN ON BRIGHT MEADOW BLVD. YOU CANNOT ACCESS FROM ENTRY, MUST U-TURN THEN GET TO ACCESS ROAD EXITING BRIGHT MEADOW BLVD..

VICINITY MAP

N

NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Jacobs.
Challenging today.
Reinventing tomorrow.

Jacobs Telecommunications, Inc.
5449 BELLS FERRY ROAD
ACWORTH, GA 30102

STATE OF CONNECTICUT · EARL B. STRANDE · 34052 LICENSED PROFESSIONAL ENGINEER

01/14/2022

DRAWN BY:	CHECKED BY:	APPROVED BY:
CM	MWD	KRK

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
1	11/16/2021	ISSUED FOR CONSTRUCTION
2	01/14/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

EUCC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

BOBDL00093A
BRIGHT MEADOW BLVD
ENFIELD, CT 06082

SHEET TITLE

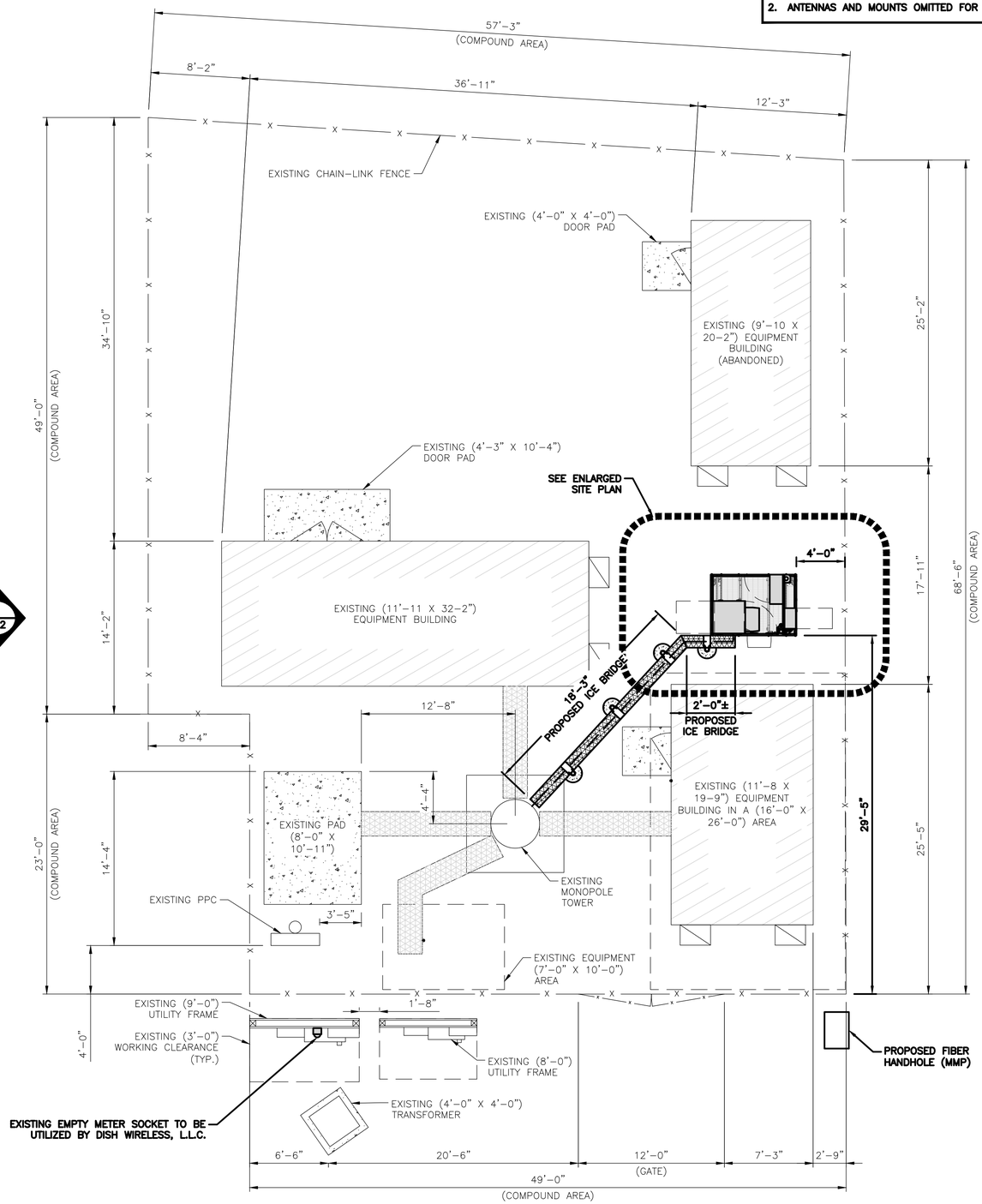
TITLE SHEET

SHEET NUMBER

T-1

NOTES

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



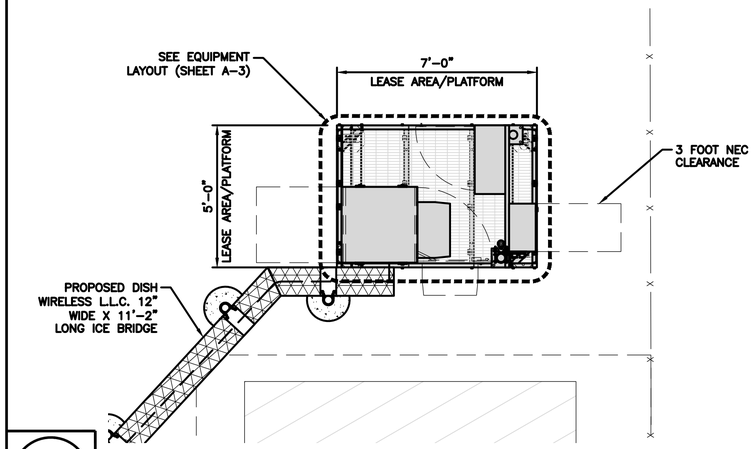
OVERALL SITE PLAN

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

1

NOTES

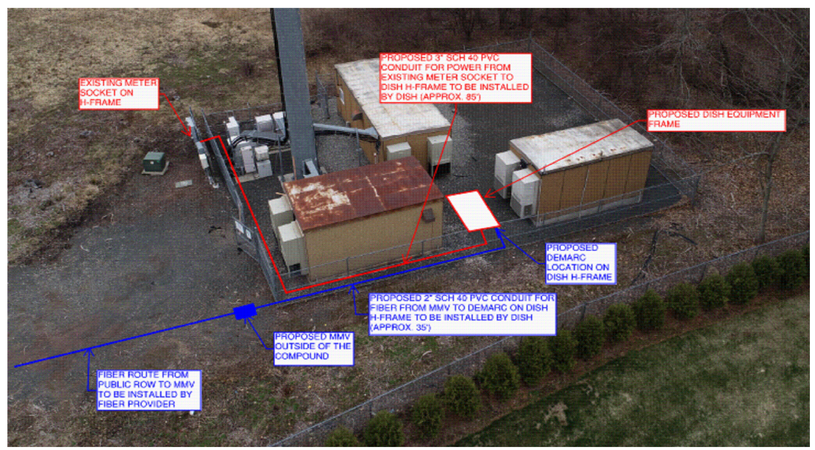
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN

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

2



ESA

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Jacobs

Challenging today.
Reinventing tomorrow.

Jacobs Telecommunications, Inc.
5449 BELLS FERRY ROAD
ACWORTH, GA 30102

STATE OF CONNECTICUT · EARL B. STONE · 34052 · LICENSED PROFESSIONAL ENGINEER

01/14/2022

DRAWN BY:	CHECKED BY:	APPROVED BY:
CM	MWD	KRK

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER

EUCC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

BOBDL00093A
BRIGHT MEADOW BLVD
ENFIELD, CT 06082

SHEET TITLE

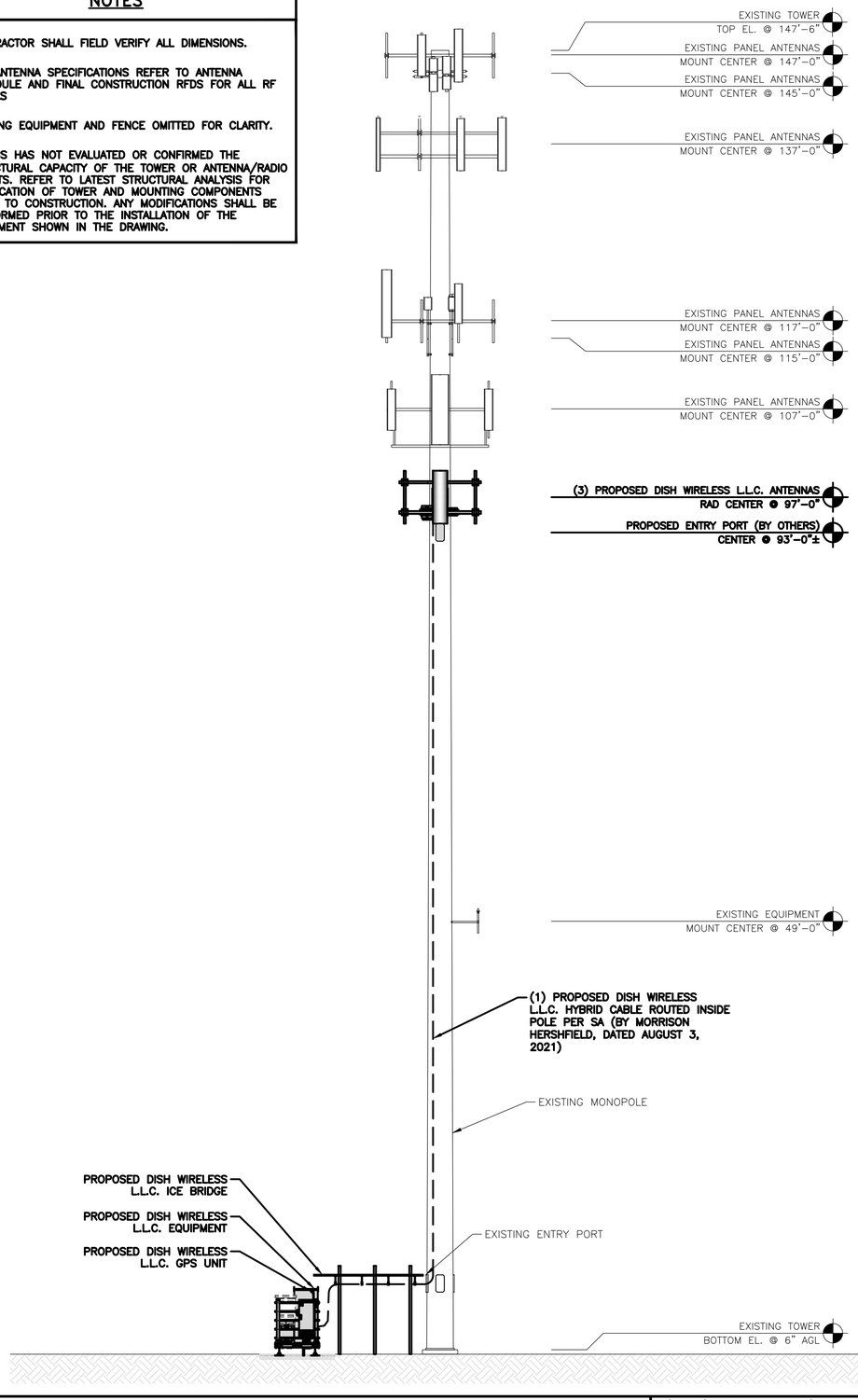
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

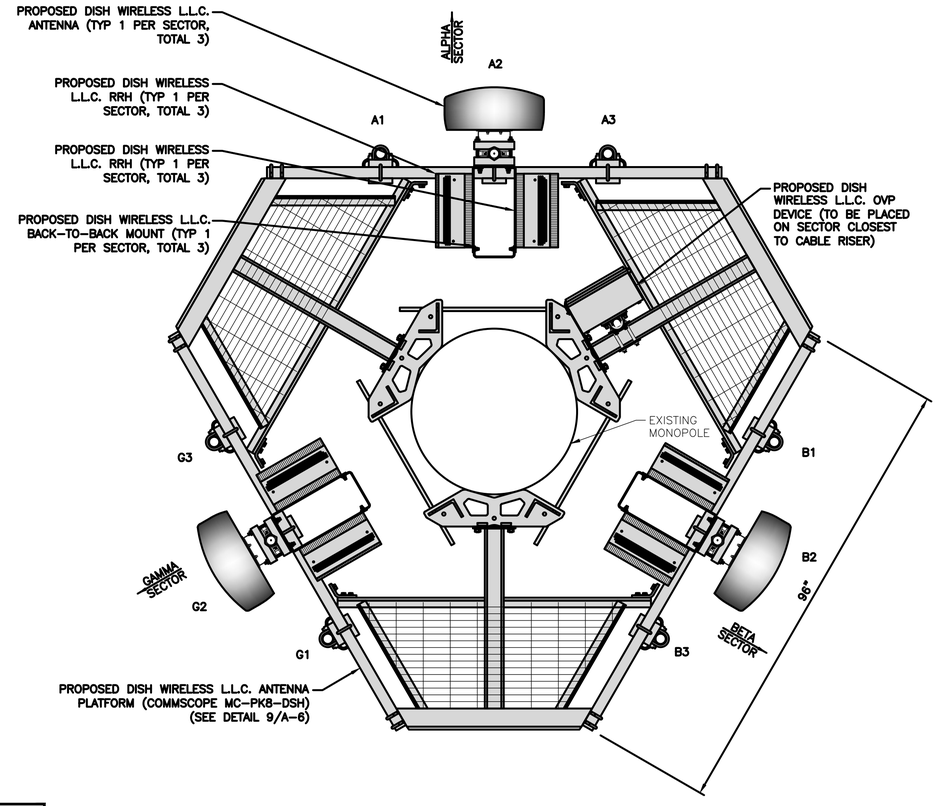
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. FOR ANTENNA SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. JACOBS HAS NOT EVALUATED OR CONFIRMED THE STRUCTURAL CAPACITY OF THE TOWER OR ANTENNA/RADIO MOUNTS. REFER TO LATEST STRUCTURAL ANALYSIS FOR VERIFICATION OF TOWER AND MOUNTING COMPONENTS PRIOR TO CONSTRUCTION. ANY MODIFICATIONS SHALL BE PERFORMED PRIOR TO THE INSTALLATION OF THE EQUIPMENT SHOWN IN THE DRAWING.



PROPOSED NORTH ELEVATION

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

1



ANTENNA LAYOUT

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

2

SECTOR POS.	ANTENNA					RRH		OVP	TRANSMISSION CABLE
	EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECH	AZIMUTH	RAD CENTER	MANUFACTURER – MODEL NUMBER	TECH	MANUFACTURER MODEL	FEED LINE TYPE AND LENGTH
A1	--	--	--	--	--	--	--	RAYCAP RDIDC-9181-PF-48	(1) HIGH-CAPACITY HYBRID CABLE (110' LONG)
A2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	0°	97'-0"	FUJITSU – TA08025-B604 FUJITSU – TA08025-B605	5G		
A3	--	--	--	--	--	--	--		
B1	--	--	--	--	--	--	--	SHARED W/ALPHA	SHARED W/ALPHA
B2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	120°	97'-0"	FUJITSU – TA08025-B604 FUJITSU – TA08025-B605	5G		
B3	--	--	--	--	--	--	--		
G1	--	--	--	--	--	--	--	SHARED W/ALPHA	SHARED W/ALPHA
G2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	240°	97'-0"	FUJITSU – TA08025-B604 FUJITSU – TA08025-B605	5G		
G3	--	--	--	--	--	--	--		

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.

*SEE LATEST DISH RFDS FOR AZIMUTH INFORMATION AT TIME OF BUILD

ANTENNA SCHEDULE

NO SCALE

3

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STATE OF CONNECTICUT
EARL B. STRANDE
34052
LICENSED PROFESSIONAL ENGINEER

01/14/2022

DRAWN BY:	CHECKED BY:	APPROVED BY:
CM	MWD	KRK

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

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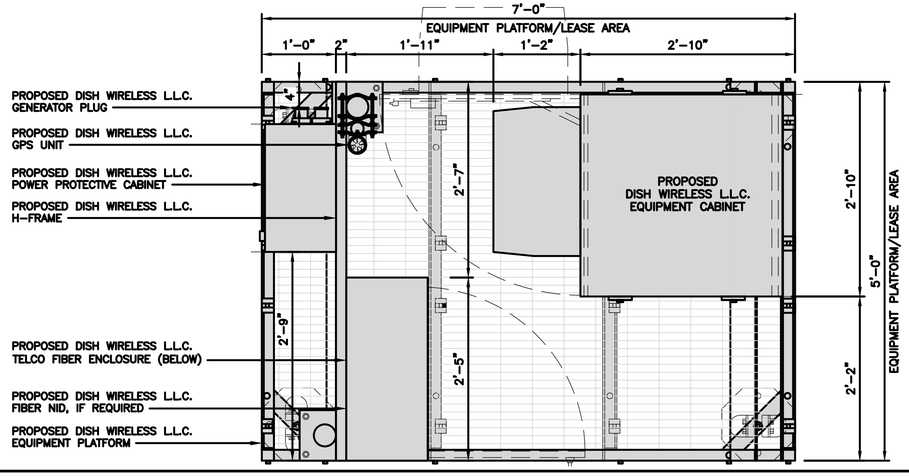
A&E PROJECT NUMBER
EUCC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION
BOBDL00093A
BRIGHT MEADOW BLVD
ENFIELD, CT 06082

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2

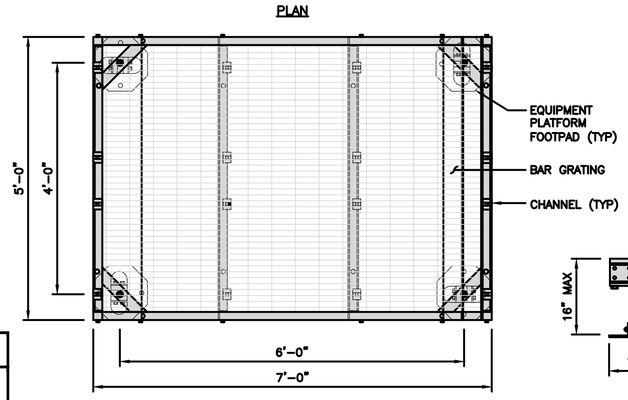


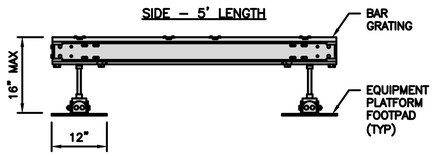
PLATFORM EQUIPMENT PLAN

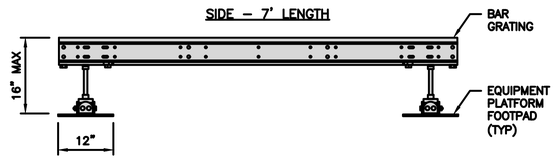
12" 9" 6" 3" 0 1' 2'
1"=1'-0"

1

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





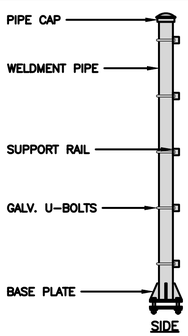


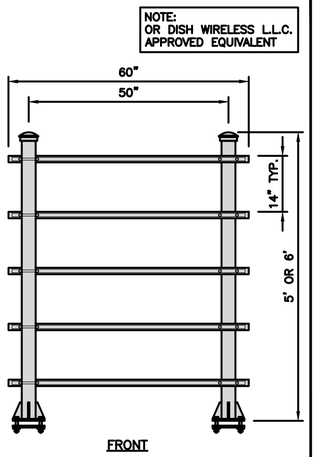
NOTES

1. PLATFORM TO BE LEVELED TO NO MORE THAN +/– 1 DEGREE FROM HORIZONTAL ON BOTH PLANES.

PLATFORM DETAIL | NO SCALE | 2

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



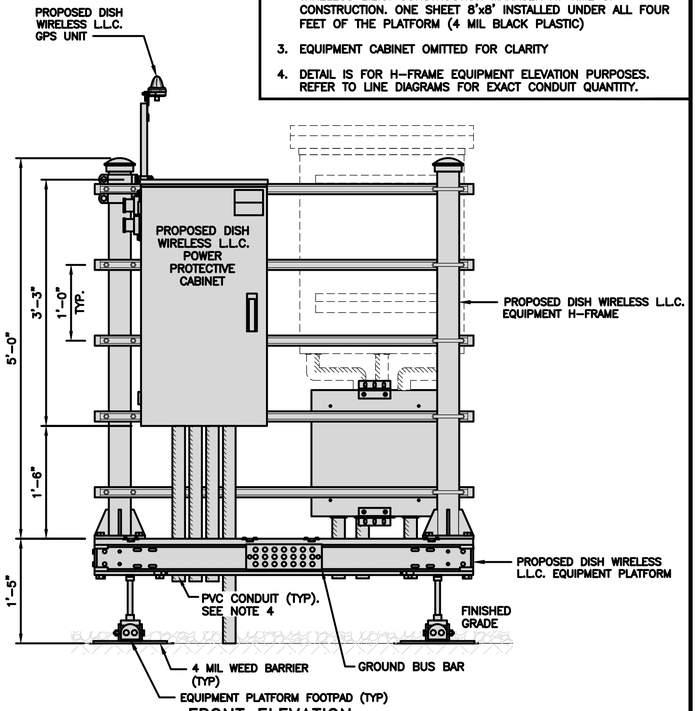


H-FRAME DETAIL | NO SCALE | 3

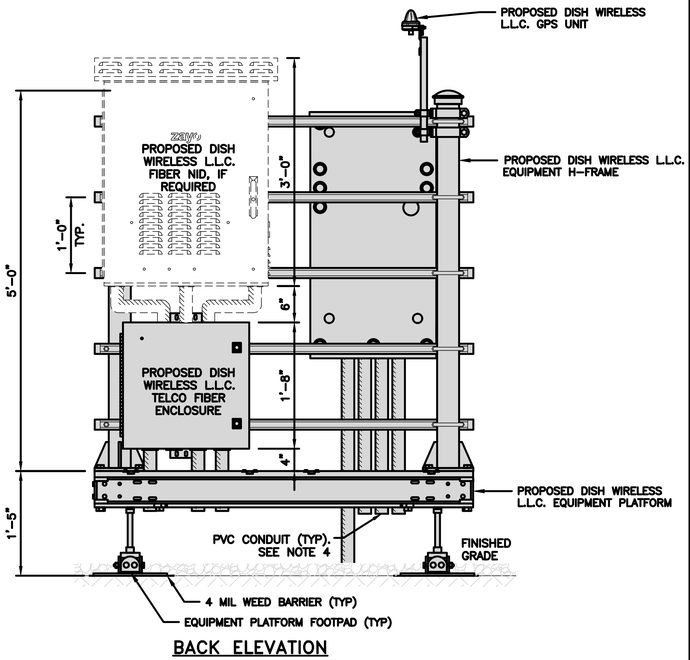
NOT USED | NO SCALE | 4

NOTES

1. CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
2. WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH WIRELESS L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
3. EQUIPMENT CABINET OMITTED FOR CLARITY
4. DETAIL IS FOR H-FRAME EQUIPMENT ELEVATION PURPOSES. REFER TO LINE DIAGRAMS FOR EXACT CONDUIT QUANTITY.



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION | 12" 9" 6" 3" 0 1' 2' 1"=1'-0" | 5

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01/14/2022

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CM	MWD	KRK

RFDS REV #: 0

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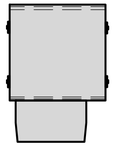
EUCC0309

DISH WIRELESS L.L.C. PROJECT INFORMATION
BOBDL00093A
BRIGHT MEADOW BLVD
ENFIELD, CT 06082

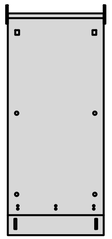
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

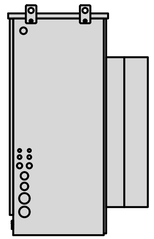
CHARLES INDUSTRY HEX CUBE–PM639155N4	
DIMENSIONS (HxWxD)	74"x32"x32"
POWER PLANT	–48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 lbs



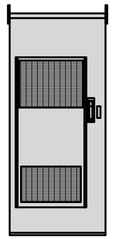
PLAN



BACK



SIDE

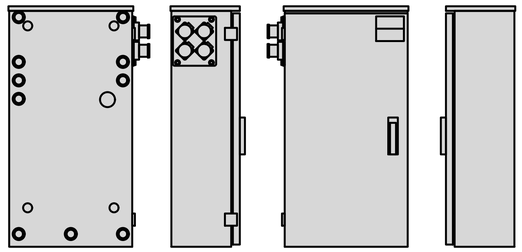


FRONT

CABINET DETAIL | NO SCALE | 1

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

TOP



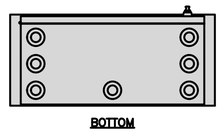
BACK | SIDE | FRONT | SIDE

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

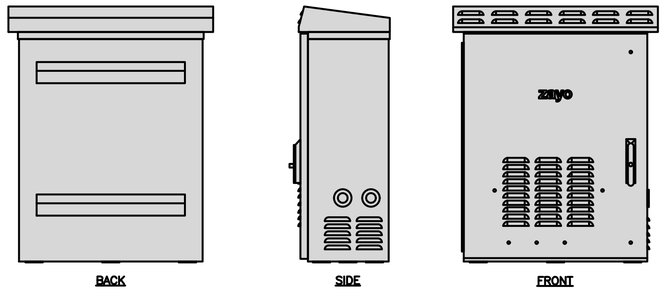
NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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



BOTTOM



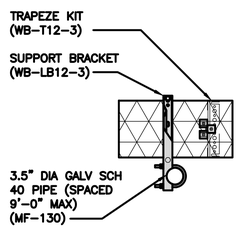
BACK | SIDE | FRONT

FIBER NID ENCLOSURE DETAIL | NO SCALE | 5

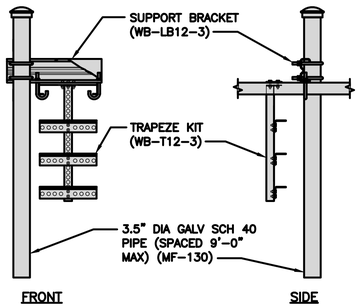
NOT USED | NO SCALE | 6

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

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

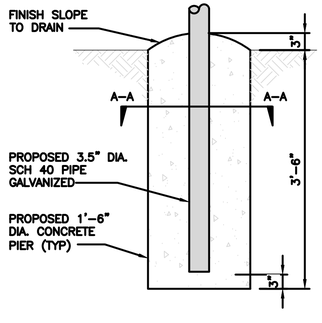


PLAN

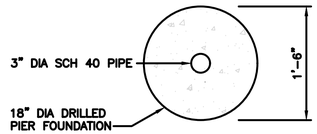


FRONT | SIDE

ICE BRIDGE DETAIL | NO SCALE | 7

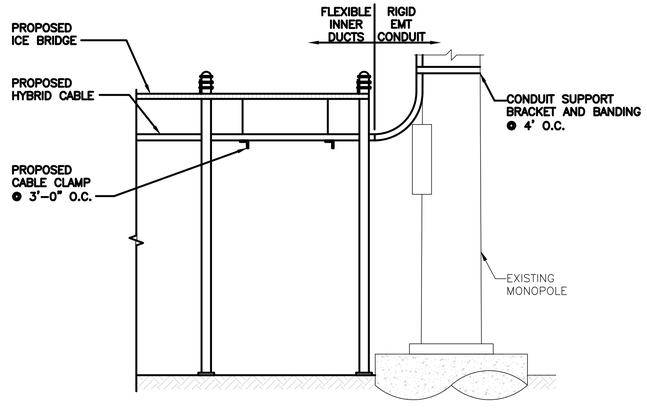


CONCRETE PIER



A–A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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01/14/2022

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DISH WIRELESS L.L.C.
PROJECT INFORMATION

BOBDL00093A
BRIGHT MEADOW BLVD
ENFIELD, CT 06082

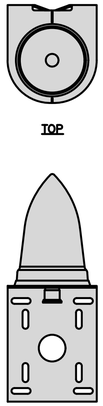
SHEET TITLE

EQUIPMENT DETAILS

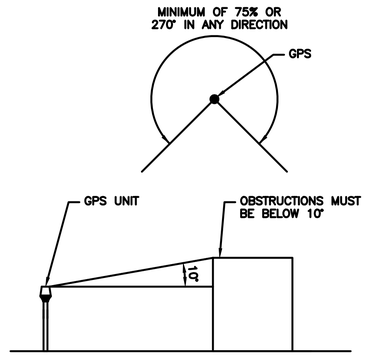
SHEET NUMBER

A-4

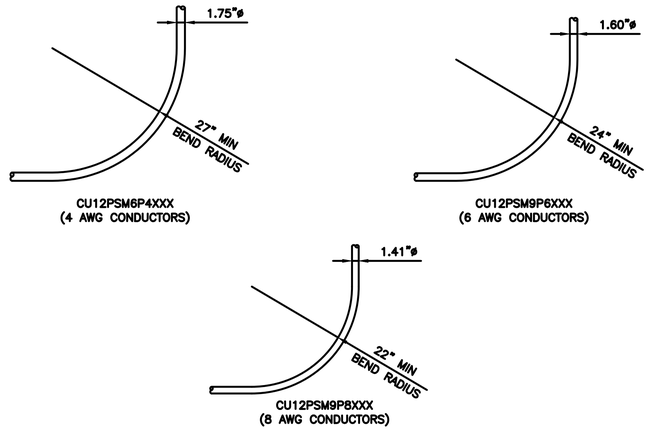
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



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

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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PROJECT INFORMATION

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ENFIELD, CT 06082

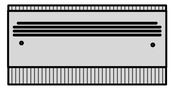
SHEET TITLE

EQUIPMENT DETAILS

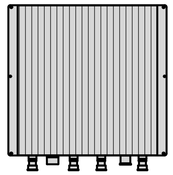
SHEET NUMBER

A-5

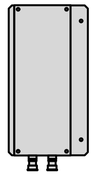
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



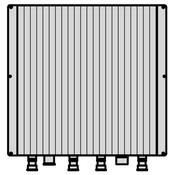
PLAN



BACK



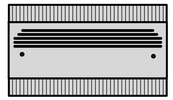
SIDE



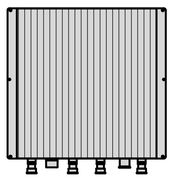
FRONT

REMOTE RADIO HEAD DETAIL (RRH) | NO SCALE | 1

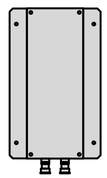
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



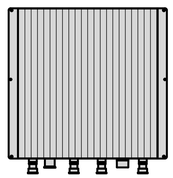
PLAN



BACK



SIDE

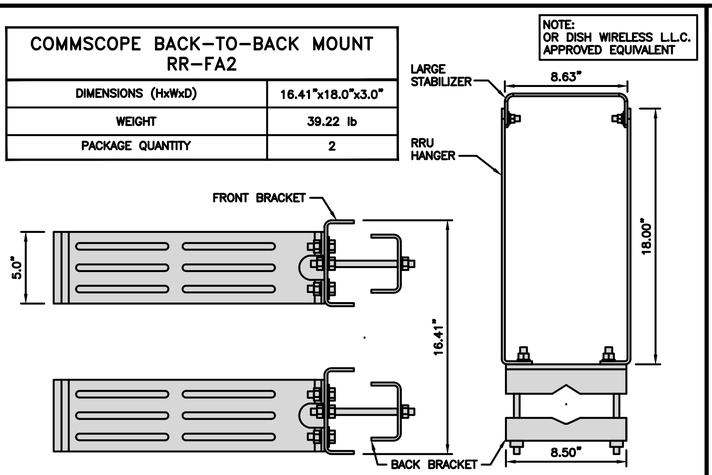


FRONT

REMOTE RADIO HEAD DETAIL (RRH) | NO SCALE | 2

COMMSCOPE BACK-TO-BACK MOUNT RR-FA2	
DIMENSIONS (HxWxD)	16.41"x18.0"x3.0"
WEIGHT	39.22 lb
PACKAGE QUANTITY	2

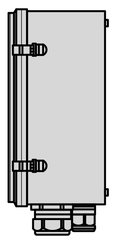
NOTE: OR DISH WIRELESS L.L.C. APPROVED EQUIVALENT



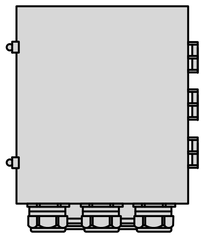
REMOTE RADIO MOUNT DETAIL | NO SCALE | 3

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

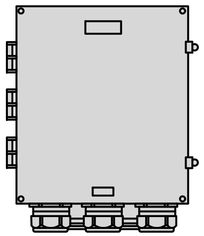
PLAN



SIDE



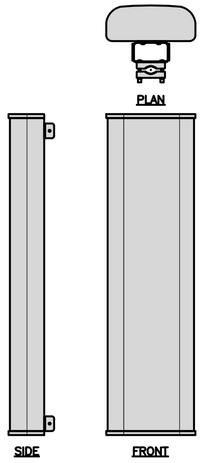
BACK



FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 4

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



PLAN

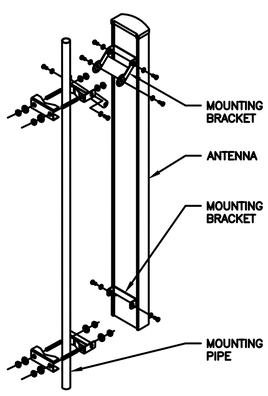
SIDE

FRONT

ANTENNA DETAIL | NO SCALE | 5

NOT USED | NO SCALE | 6

M04 MOUNTING BRACKET HPA-33R-BUU-H4-K	
WIDTH	5"
DEPTH	2"
HEIGHT	8"
TOTAL WEIGHT	1.5 lbs
HOUSING MATERIAL	ASA/ABS/ALUMINUM
RADOME COLOR	LIGHT GRAY
CONNECTOR	1x8-PIN DAISY CHAIN

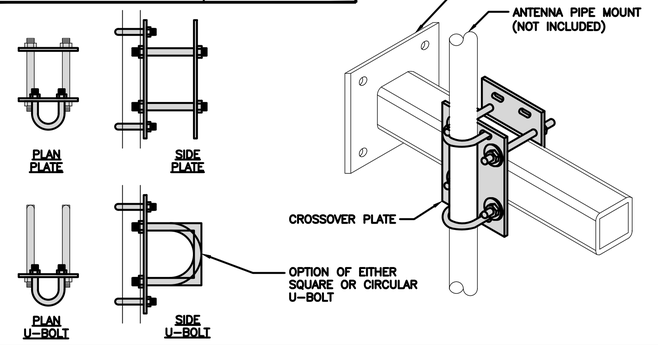


NOTE: OR DISH WIRELESS L.L.C. APPROVED EQUIVALENT

ANTENNA MOUNTING DETAIL | NO SCALE | 7

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11 LBS

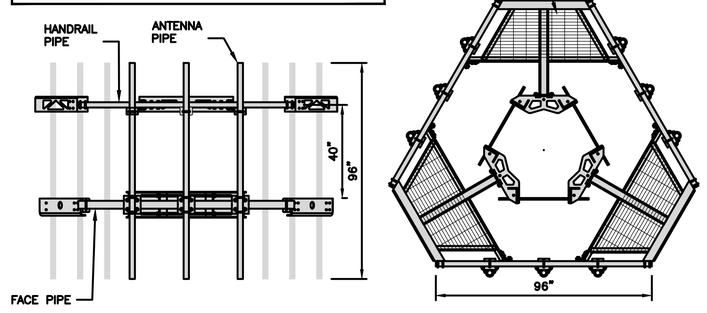
NOTE: OR DISH WIRELESS L.L.C. APPROVED EQUIVALENT



RRH/OVP MOUNT DETAIL | NO SCALE | 8

COMMSCOPE MC-PK8-DSH	
FACE WIDTH	96"
WEIGHT	1373.08 lbs
NOTE: 15" TO 38" O.D.	

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



ANTENNA PLATFORM DETAIL | NO SCALE | 9

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01/14/2022

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RFDS REV #: 0

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A&E PROJECT NUMBER

EUCC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

BOBDL00093A
BRIGHT MEADOW BLVD
ENFIELD, CT 06082

SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

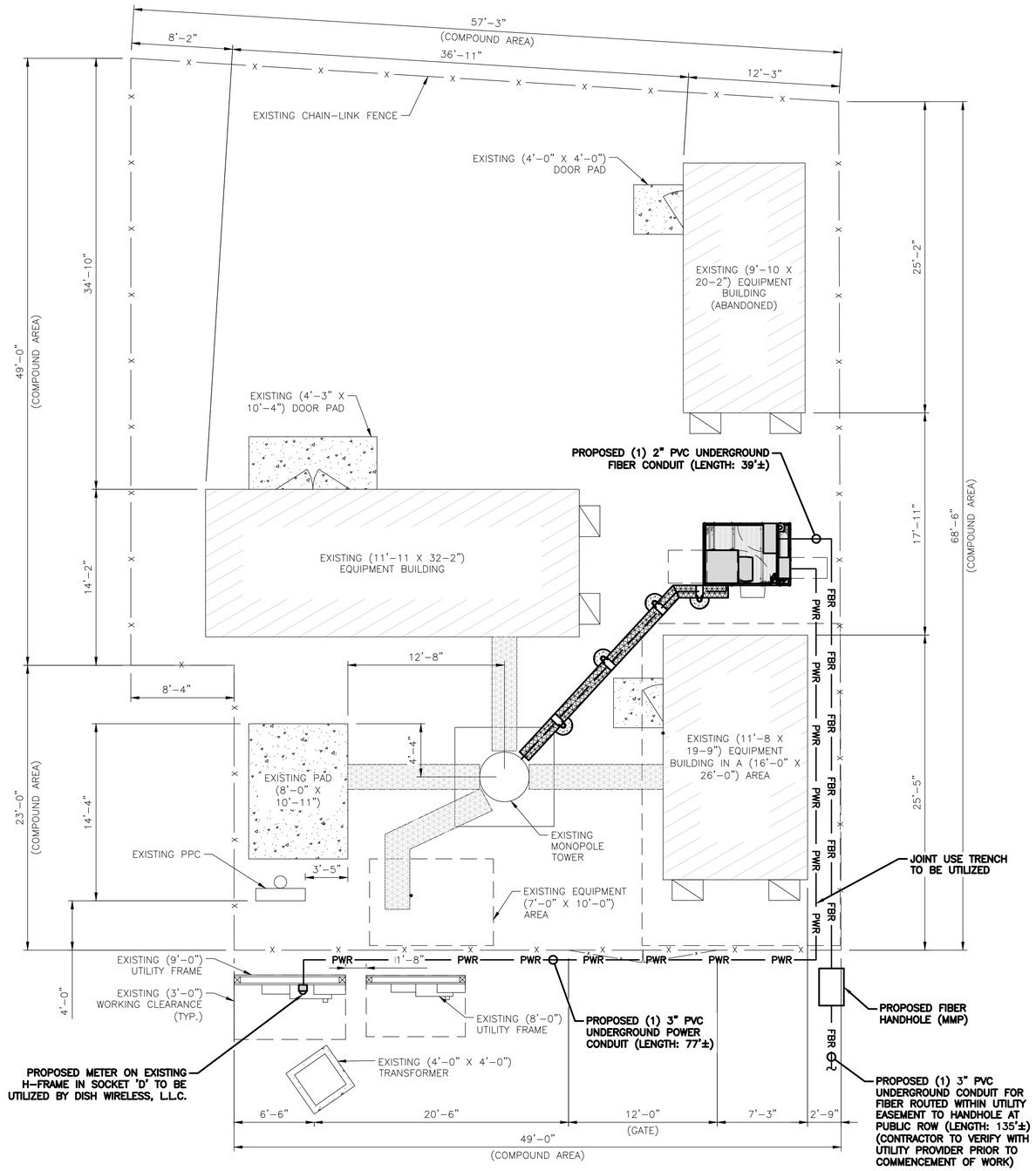
A-6

ROW NOTE

NO WORK WITHIN THIS PERMIT APPLICATION SHALL BE PERFORMED WITHIN THE PUBLIC ROW. UTILITY WORK WITHIN THE PUBLIC ROW SHALL BE THE RESPONSIBILITY OF THE UTILITY PROVIDER AND REQUIRES A SEPARATE PERMIT.

NOTES

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



UTILITY ROUTE PLAN

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

1

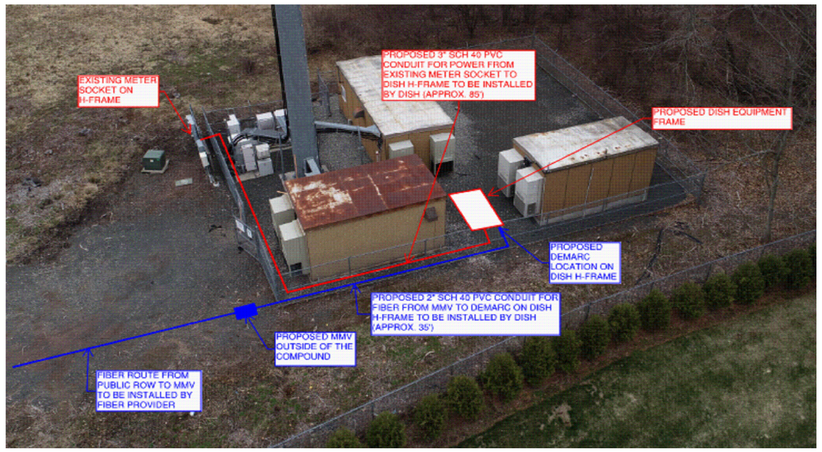
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314. PROVIDE 1 PULL BOX EVERY 150' TO 200' MAX.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG.

ELECTRICAL NOTES

NO SCALE

2



ESA

NO SCALE

3

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BRIGHT MEADOW BLVD
ENFIELD, CT 06082

SHEET TITLE

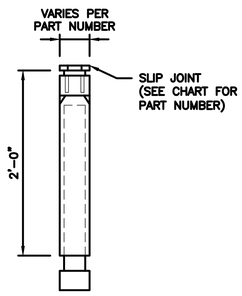
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER

E-1

CARLON EXPANSION FITTINGS

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

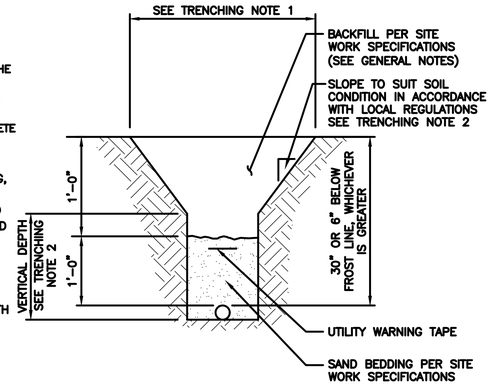


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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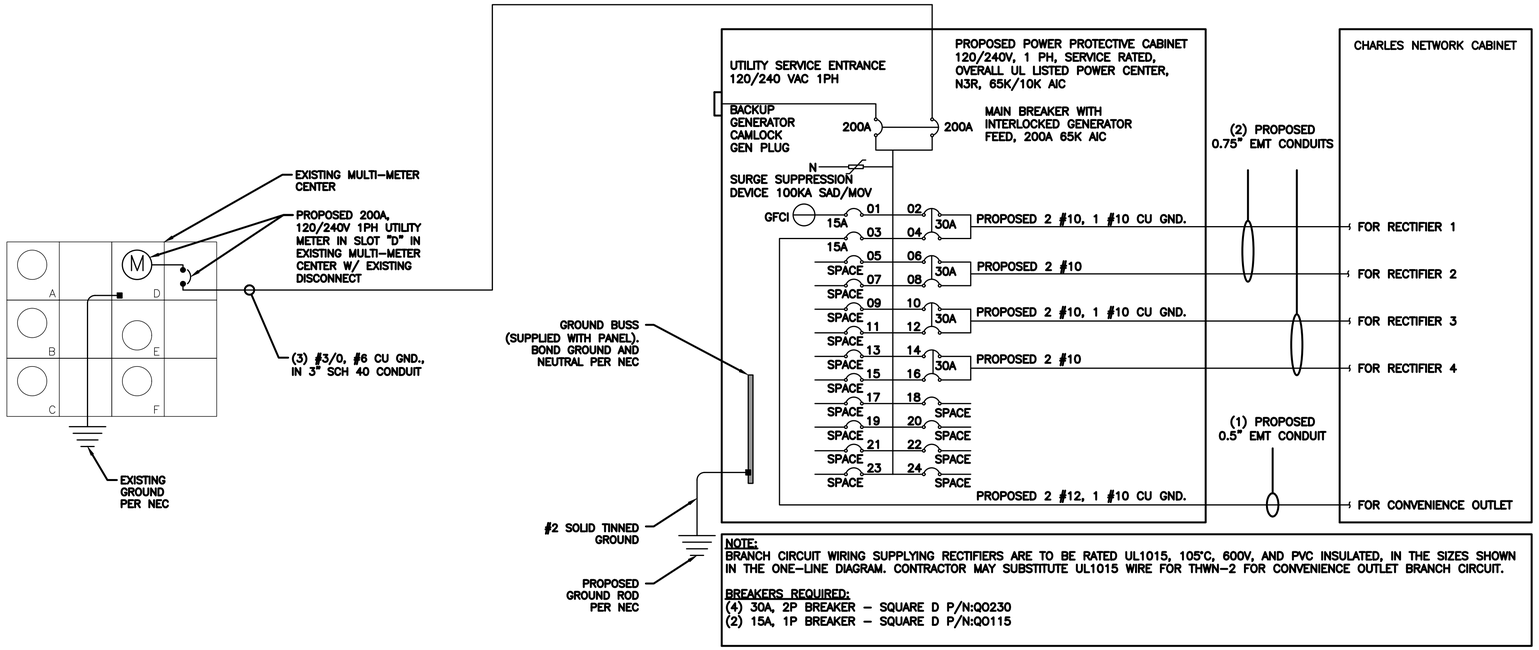
BRIGHT MEADOW BLVD
ENFIELD, CT 06082

SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E-2



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

BREAKERS REQUIRED:
(4) 30A, 2P BREAKER - SQUARE D P/N:QO230
(2) 15A, 1P BREAKER - SQUARE D P/N:QO115

NOTES

ELECTRICAL CONTRACTOR TO CALCULATE MAXIMUM AVAILABLE FAULT CURRENT AND LABEL PANEL IN ACCORDANCE WITH NEC AS REQUIRED BY JURISDICTION.

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

THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(a) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.

#12 FOR 15A-20A/1P BREAKER: 0.8 x 30A = 24.0A
#10 FOR 25A-30A/2P BREAKER: 0.8 x 40A = 32.0A
#8 FOR 35A-40A/2P BREAKER: 0.8 x 55A = 44.0A
#6 FOR 45A-60A/2P BREAKER: 0.8 x 75A = 60.0A

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

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

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

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

RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.

#10 - 0.0266 SQ. IN X 4 = 0.1064 SQ. IN
#10 - 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND
TOTAL = 0.1146 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (5) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

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

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

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

PPC ONE-LINE DIAGRAM

NO SCALE | 1

PROPOSED PPC PANEL SCHEDULE FOR CHARLES CABINET

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
-SPACE-				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
-SPACE-				7	B	8			2880	
-SPACE-				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
-SPACE-				11	B	12			2880	
-SPACE-				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
-SPACE-				15	B	16			2880	
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						11520	11520	
200A MCB, 1ϕ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			11700		11700		VOLTAGE AMPS			
			98		98		AMPS			
			98				MAX AMPS			
			123				MAX 125%			

PANEL SCHEDULE | NO SCALE | 2

NOT USED | NO SCALE | 3

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PROJECT INFORMATION
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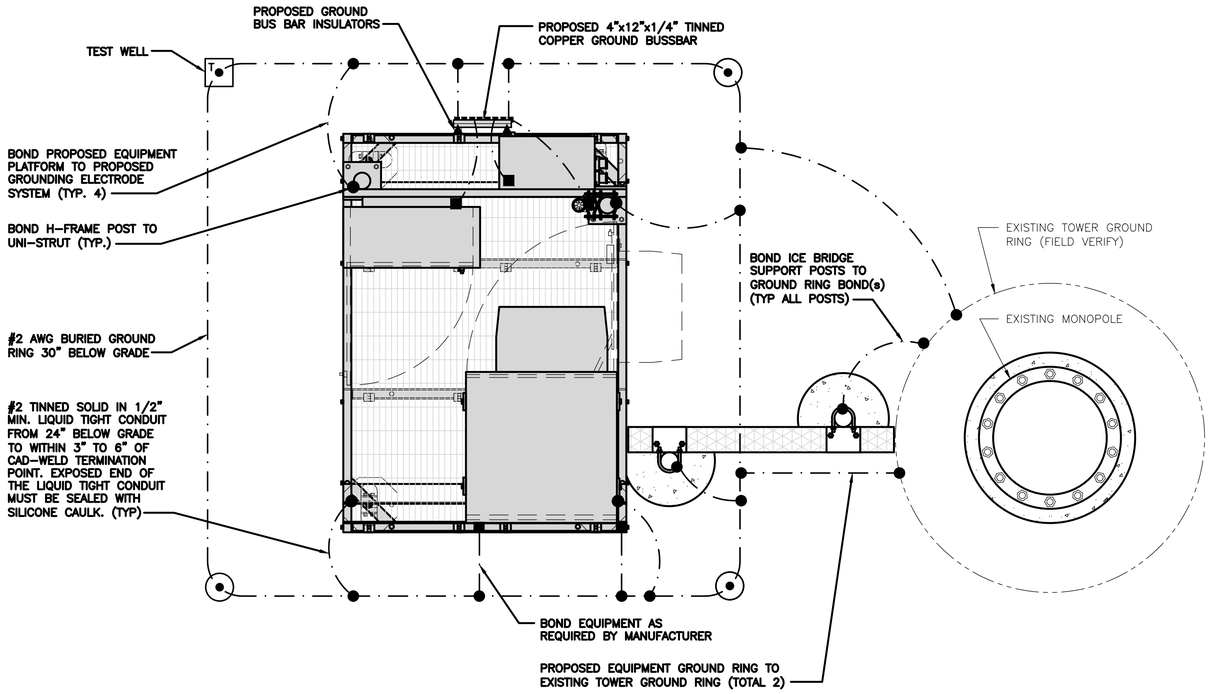
BRIGHT MEADOW BLVD
ENFIELD, CT 06082

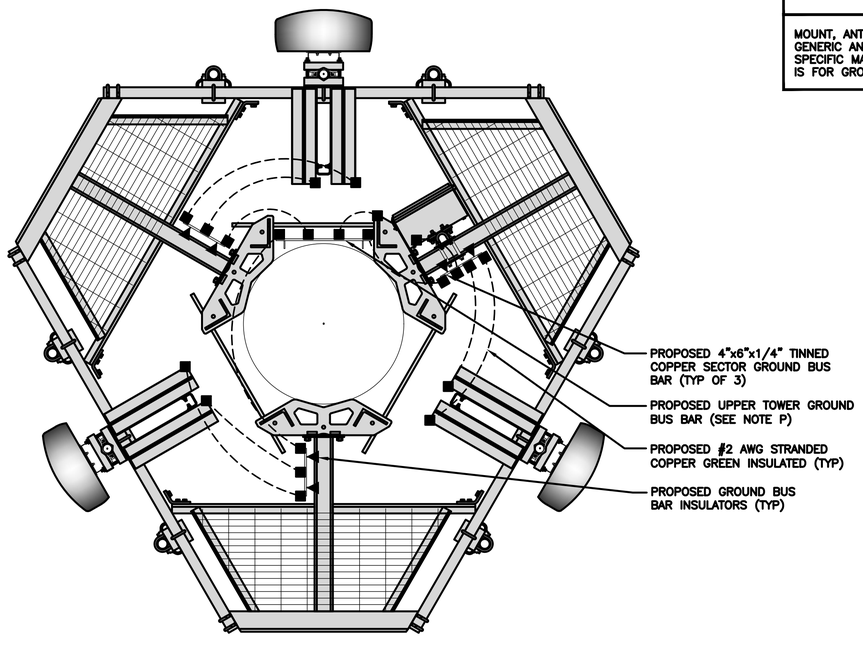
SHEET TITLE
ELECTRICAL ONE-LINE & PANEL SCHEDULE

SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1



NOTES

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

TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GROUNDING KEY NOTES

NO SCALE | 3

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DISH WIRELESS L.L.C.
PROJECT INFORMATION

BOBDL00093A
BRIGHT MEADOW BLVD
ENFIELD, CT 06082

SHEET TITLE

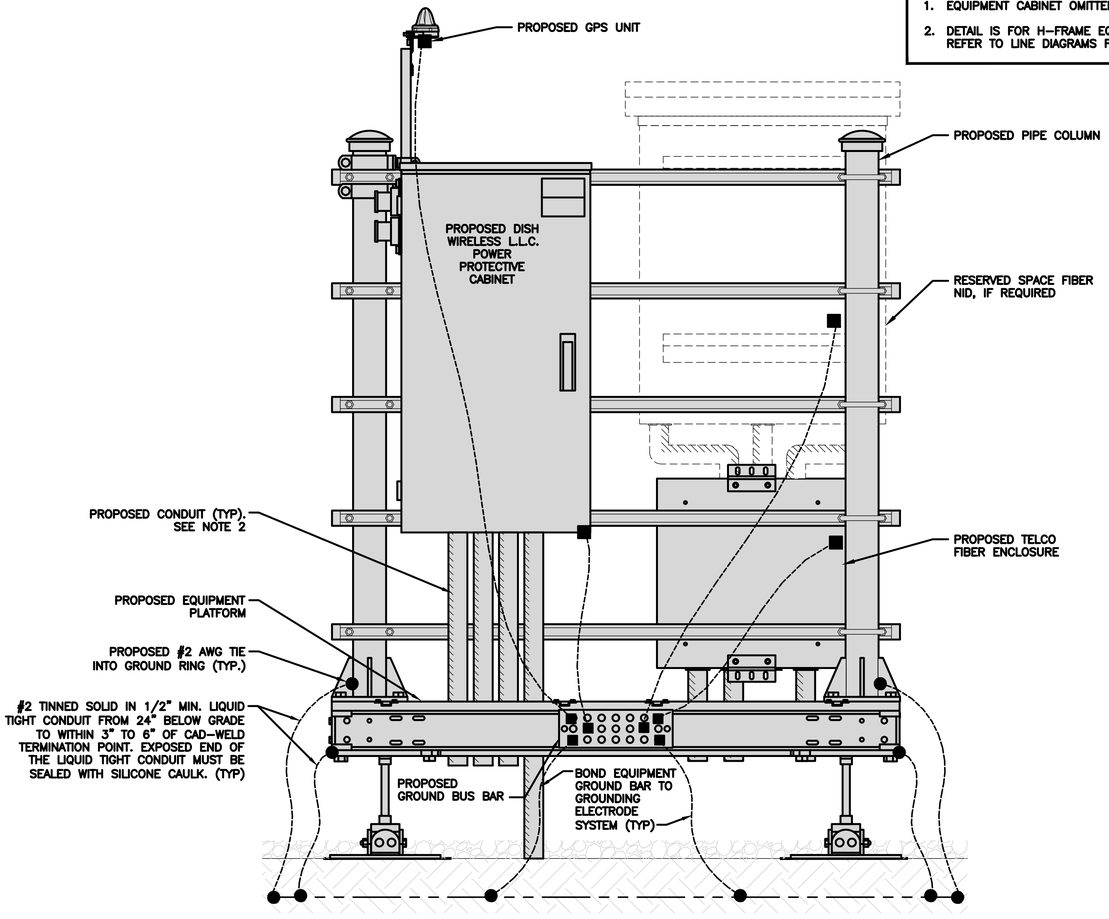
GROUNDING PLANS AND NOTES

SHEET NUMBER

G-1

NOTES

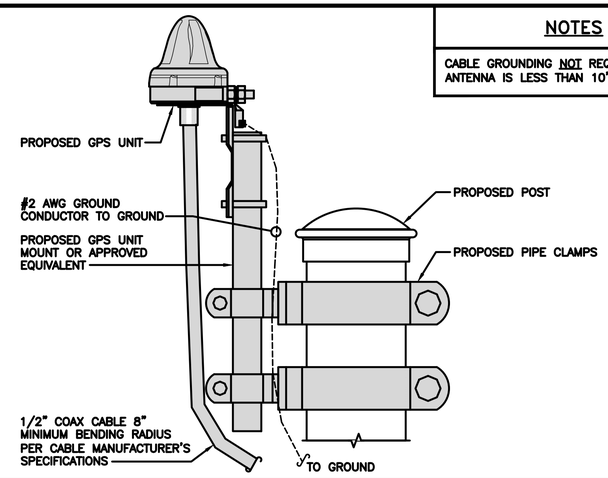
1. EQUIPMENT CABINET OMITTED FOR CLARITY
2. DETAIL IS FOR H-FRAME EQUIPMENT GROUNDING PURPOSES. REFER TO LINE DIAGRAMS FOR EXACT CONDUIT QUANTITY.



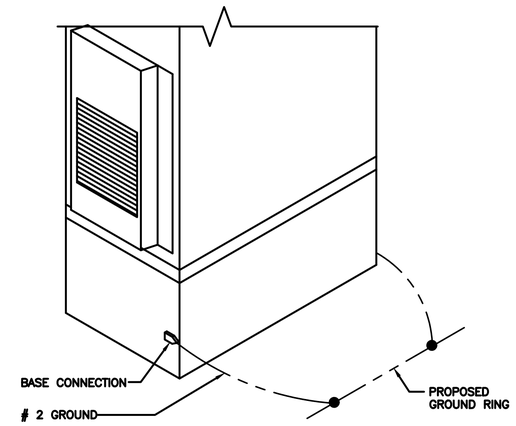
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

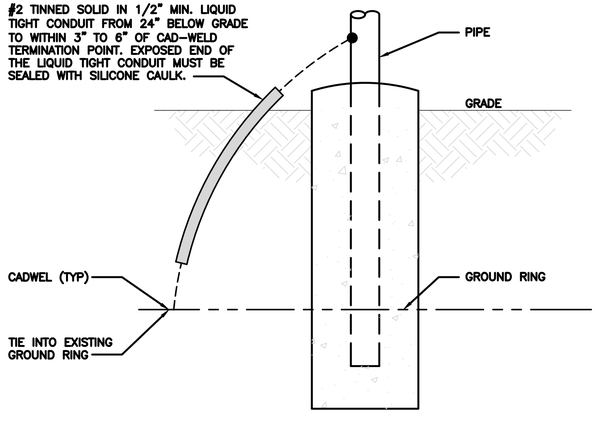
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



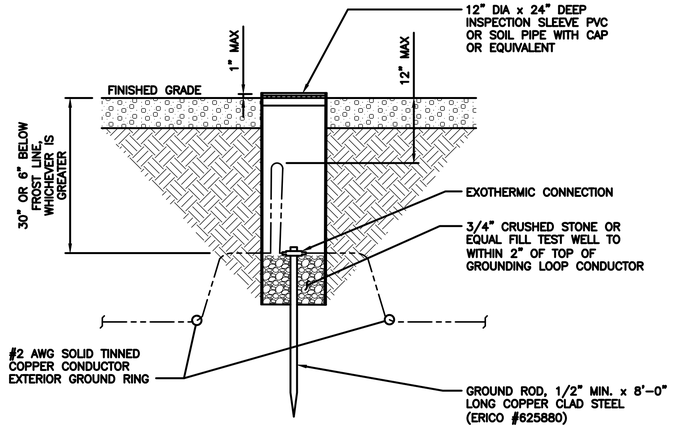
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



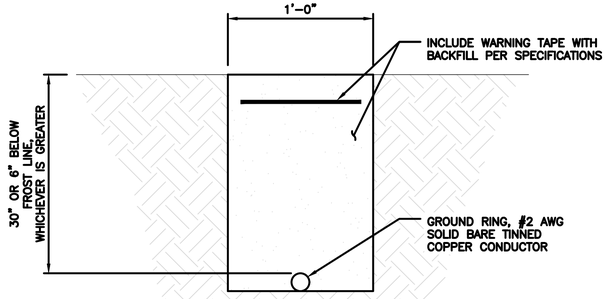
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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01/14/2022

DRAWN BY:	CHECKED BY:	APPROVED BY:
CM	MWD	KRK

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER

EUCC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

BOBDL00093A
BRIGHT MEADOW BLVD
ENFIELD, CT 06082

SHEET TITLE

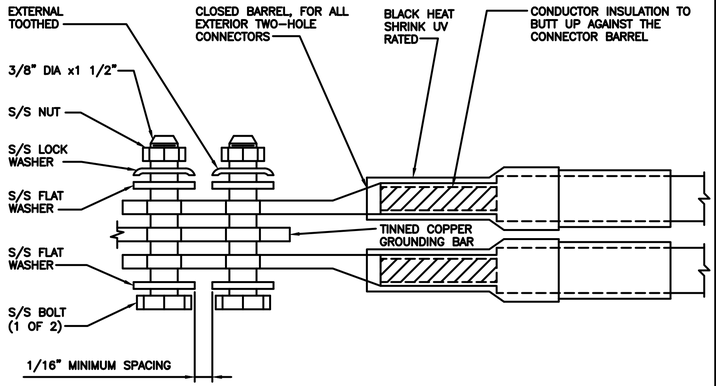
GROUNDING DETAILS

SHEET NUMBER

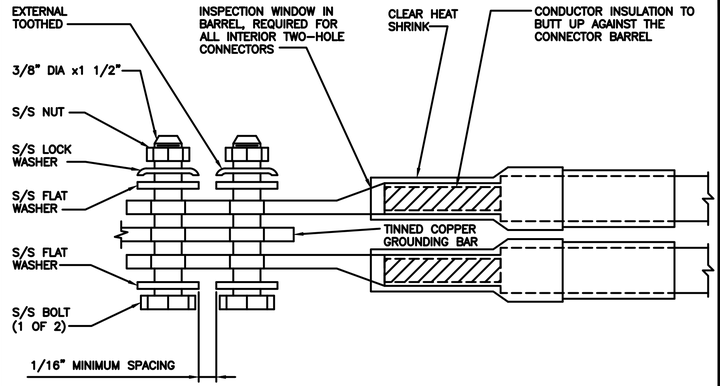
G-2

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

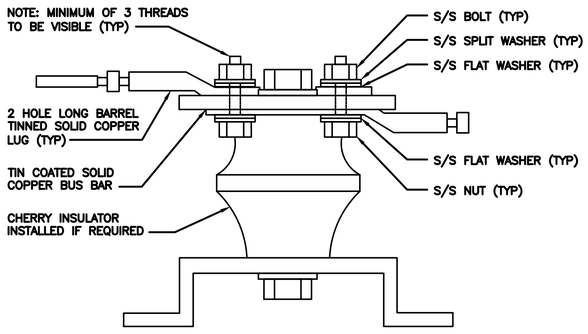
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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BRIGHT MEADOW BLVD
ENFIELD, CT 06082

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

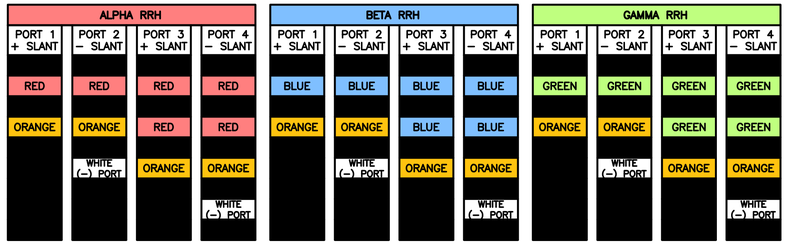
G-3

RF JUMPER COLOR CODING

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

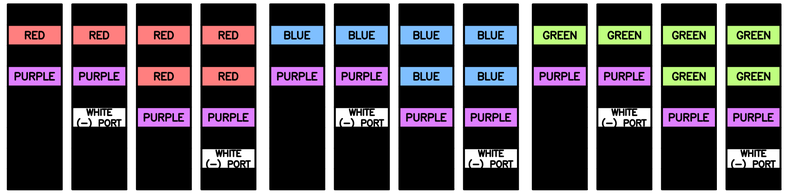
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

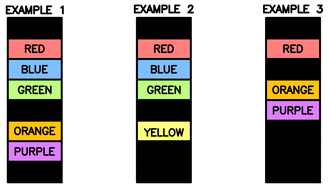


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

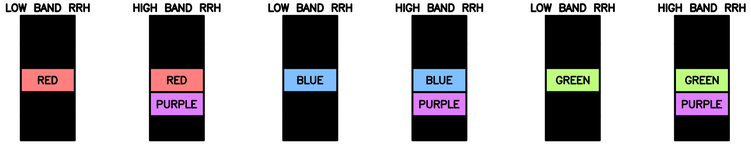
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



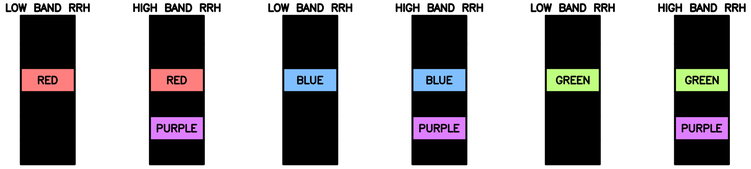
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

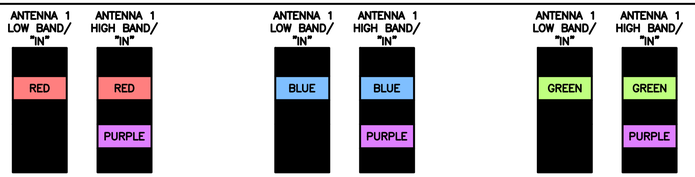


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



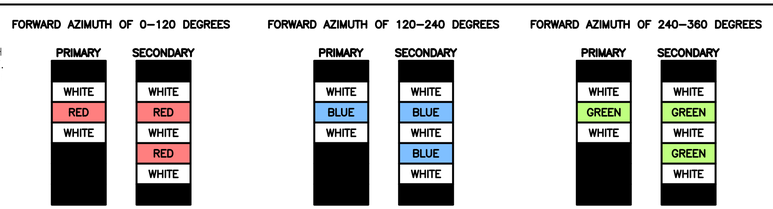
RET MOTORS AT ANTENNAS



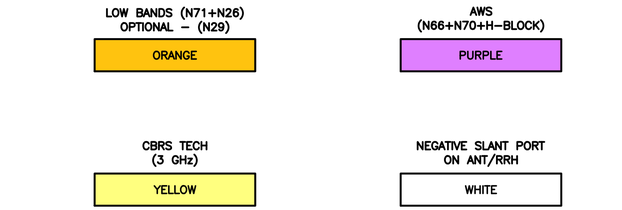
MICROWAVE RADIO LINKS

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

MICROWAVE CABLES WILL REQUIRE P-TOUCH
LABELS INSIDE THE CABINET TO IDENTIFY THE
LOCAL AND REMOTE SITE ID'S



RF CABLE COLOR CODES | NO SCALE | 1



COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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DISH WIRELESS L.L.C.
PROJECT INFORMATION

BOBDL00093A
BRIGHT MEADOW BLVD
ENFIELD, CT 06082

SHEET TITLE

RF
CABLE COLOR CODES

SHEET NUMBER

RF-1

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
MCL	MOUNT CENTER LINE
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

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BRIGHT MEADOW BLVD
ENFIELD, CT 06082

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH WIRELESS L.L.C.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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01/14/2022

DRAWN BY:	CHECKED BY:	APPROVED BY:
CM	MWD	KRK

RFDS REV #: 0

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DISH WIRELESS L.L.C.
PROJECT INFORMATION

BOBDL00093A
BRIGHT MEADOW BLVD
ENFIELD, CT 06082

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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01/14/2022

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CM	MWD	KRK

RFDS REV #: 0

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1	11/16/2021	ISSUED FOR CONSTRUCTION
2	01/14/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

EUCC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

BOBDL00093A
BRIGHT MEADOW BLVD
ENFIELD, CT 06082

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

GROUNDING NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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DISH WIRELESS L.L.C.
PROJECT INFORMATION

BOBDL00093A
BRIGHT MEADOW BLVD
ENFIELD, CT 06082

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Date: **August 03, 2021**

MORRISON HERSHFIELD

Morrison Hershfield
1455 Lincoln Parkway, Suite 500
Atlanta, GA 30346
(770) 379-8500

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	BOBDL00093A
	Site Name:	CT-CCI-T-876348
Crown Castle Designation:	**BU Number:**	876348
	Site Name:	Enfield
	JDE Job Number:	650079
	Work Order Number:	1972559
	Order Number:	556604 Rev. 0
Engineering Firm Designation:	**Morrison Hershfield Project Number:** CN8-725R1 / 2101398	
Site Data:	**Bright Meadow Blvd., Enfield, Hartford County, CT 06082** **Latitude *42° 1' 14.91"*, Longitude *-72° 35' 6.59"*** **147.5 Foot – Summit Monopole Tower**	

Morrison Hershfield is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

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

LC7: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code (2015 IBC). Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

STATE OF CONNECTICUT
G. LANCE COOKE
No. 28133
LICENSED
PROFESSIONAL ENGINEER

Digitally signed by G. Lance Cooke
Date: 2021.08.04 09:15:11-07'00'

G. Lance Cooke, P.E. (CT License No. PEN.0028133)
Senior Engineer

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tnxTower Output

6) APPENDIX B
Base Level Drawing

7) APPENDIX C
Additional Calculations

1) INTRODUCTION

This tower is a 147.5 ft Summit monopole tower designed by Paul J Ford and Company.

The tower was modified per reinforcement drawings prepared by Paul J Ford and Company. Reinforcement consisted of adding flat members from 39 ft to 49 ft and additional anchor rods. Per the post modification inspection completed by Tower Engineering Solutions in August of 2013, these modifications have been properly installed and were considered in this analysis.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	2 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
97.0	97.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe	1	1-1/2
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		1	raycap	RDIDC-9181-PF-48		
		1	-	Commscope MC-PK8-DSH		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
147.0	147.0	3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe	3 1	1-5/8 3/4
		3	rfs/celwave	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe		
		3	rfs/celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
		3	ericsson	RADIO 4415 B66A_CCIV3		
		3	ericsson	RADIO 4424 B25_TMOV1		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	-	Pipe Mount [#9' Long, P2.0 STD]		
		1	Site Pro 1	Platform Reinforcement Kit [#PRK-1245L]		
		1	Site Pro 1	Support Rail Kit [#HRK-12]		
		1	-	Platform Mount [LP 1201-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
145.0	146.0	2	alcatel lucent	TME-800MHz 2x50W RRH	-	-
		1	alcatel lucent	TME-PCS 1900MHz 4x45W-65MHz		
	145.0	1	-	Side Arm Mount [SO 102-3]		
	144.0	1	alcatel lucent	TME-800MHz 2x50W RRH		
		2	alcatel lucent	TME-PCS 1900MHz 4x45W-65MHz		
137.0	139.0	3	samsung telecommunications	MT6407-77A w/ Mount Pipe	8	1-5/8
		1	symmetricom	58532A		
	137.0	3	antel	BXA-70063-6CF-EDIN-2 w/ Mount Pipe		
		6	commscope	SBNHH-1D65B		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
		2	rfs/celwave	DB-T1-6Z-8AB-0Z		
		3	-	Dual Antenna Mount Kit		
		1	-	Platform Mount [LP 1201-1_HR-2]		
	135.0	3	samsung telecommunications	CBRS w/ Mount Pipe		
117.0	119.0	1	andrew	SBNHH-1D65A w/ Mount Pipe	9 2 1 1	1-5/8 3/4 3/8 2C
		1	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe		
		1	cci antennas	HPA-65R-BUU-H8 w/ Mount Pipe		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		3	ericsson	RRUS 32 B2		
		4	kathrein	860 10025		
	117.0	2	powerwave technologies	LGP17201		
		1	-	Platform Mount [LP 1201-1]		
115.0	119.0	3	raycap	TME-RRU-11	-	-
		1	raycap	TME-DC6-48-60-18-8F		
	115.0	1	-	Side Arm Mount [SO 102-3]		
107.0	107.0	3	ericsson	AIR 32 B2A/B66AA w/ Mount Pipe	7 2	1-5/8 1-3/8
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe		
		3	rfs/celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
107.0	107.0	3	ericsson	RADIO 4449 B12/B71	-	-
		1	-	T-Arm Mount [TA 701-3]		
49.0	50.0	1	symmetricom	58532A	1	1/2
	49.0	1	-	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1532963	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1613614	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1613591	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3667620	CCISITES
4-POST-MODIFICATION INSPECTION	3966655	CCISITES

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. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

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 C.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Morrison Hershfield 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	% Capacity	Pass / Fail
L1	147.5 - 142.5	Pole	TP22.95x22x0.25	Pole	5.6	Pass
L2	142.5 - 137.5	Pole	TP23.9x22.95x0.25	Pole	10.9	Pass
L3	137.5 - 132.5	Pole	TP24.85x23.9x0.25	Pole	19.1	Pass
L4	132.5 - 127.5	Pole	TP25.8x24.85x0.25	Pole	26.3	Pass
L5	127.5 - 122.5	Pole	TP26.75x25.8x0.25	Pole	32.9	Pass
L6	122.5 - 117.5	Pole	TP27.7x26.75x0.25	Pole	38.9	Pass
L7	117.5 - 112.5	Pole	TP28.65x27.7x0.25	Pole	46.7	Pass
L8	112.5 - 112.25	Pole	TP29.41x28.65x0.25	Pole	47.1	Pass
L9	112.25 - 107.25	Pole	TP29.148x28.198x0.25	Pole	51.7	Pass
L10	107.25 - 102.25	Pole	TP30.098x29.148x0.25	Pole	59.3	Pass
L11	102.25 - 97.25	Pole	TP31.048x30.098x0.25	Pole	66.0	Pass
L12	97.25 - 92.25	Pole	TP31.998x31.048x0.25	Pole	73.6	Pass
L13	92.25 - 87.25	Pole	TP32.948x31.998x0.25	Pole	80.6	Pass
L14	87.25 - 82.25	Pole	TP33.898x32.948x0.25	Pole	87.0	Pass
L15	82.25 - 77.25	Pole	TP34.848x33.898x0.25	Pole	93.0	Pass
L16	77.25 - 76.75	Pole	TP35.798x34.848x0.25	Pole	93.5	Pass
L17	76.75 - 71.75	Pole	TP35.393x34.443x0.3125	Pole	75.5	Pass
L18	71.75 - 66.75	Pole	TP36.343x35.393x0.3125	Pole	79.2	Pass
L19	66.75 - 61.75	Pole	TP37.293x36.343x0.3125	Pole	82.6	Pass
L20	61.75 - 56.75	Pole	TP38.242x37.293x0.3125	Pole	85.8	Pass
L21	56.75 - 51.75	Pole	TP39.192x38.242x0.3125	Pole	88.7	Pass
L22	51.75 - 47.83	Pole	TP39.937x39.192x0.3125	Pole	90.9	Pass
L23	47.83 - 47.58	Pole	TP39.984x39.937x0.3125	Pole	91.0	Pass
L24	47.58 - 42.58	Pole	TP40.934x39.984x0.3125	Pole	93.6	Pass
L25	42.58 - 41	Pole	TP42.232x40.934x0.3125	Pole	94.4	Pass
L26	41 - 34.75	Pole	TP41.797x40.61x0.375	Pole	78.8	Pass
L27	34.75 - 29.75	Pole	TP42.747x41.797x0.375	Pole	80.4	Pass
L28	29.75 - 24.75	Pole	TP43.697x42.747x0.375	Pole	81.9	Pass
L29	24.75 - 19.75	Pole	TP44.647x43.697x0.375	Pole	83.3	Pass
L30	19.75 - 14.75	Pole	TP45.597x44.647x0.375	Pole	84.6	Pass
L31	14.75 - 9.75	Pole	TP46.547x45.597x0.375	Pole	85.8	Pass
L32	9.75 - 4.75	Pole	TP47.497x46.547x0.375	Pole	86.9	Pass
L33	4.75 - 0	Pole	TP48.4x47.497x0.375	Pole	87.9	Pass
					Summary	
				Pole	94.4	Pass
				Reinforcement	0.0	Pass
				Overall	94.4	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	84.8	Pass
1	Base Plate		70.3	Pass
1	Base Foundation (Structure)	0	54.3	Pass
1	Base Foundation (Soil Interaction)		60.0	Pass

Structure Rating (max from all components) =	94.4%*

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
2) *Rating per TIA-222-H, Section 15.5.

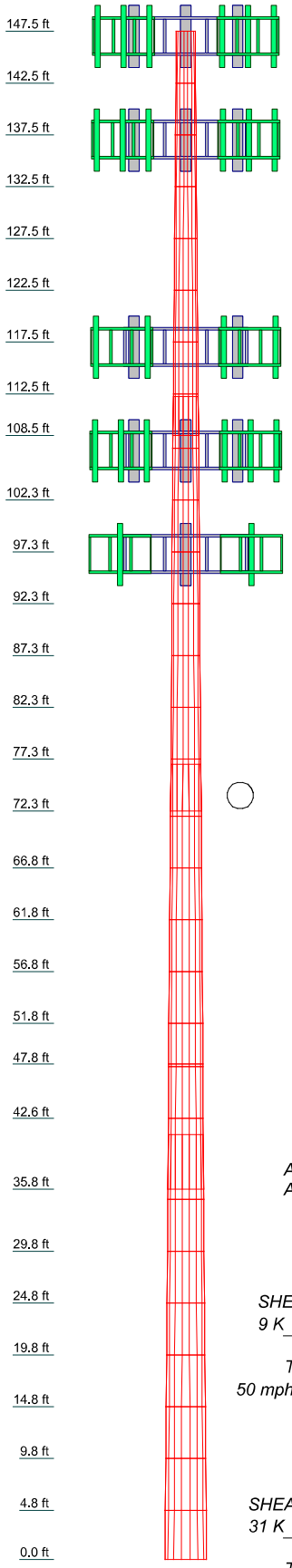
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	18	0.2500		22.0000	22.9500		0.3
2	5.00	18	0.2500		22.9500	23.9000		0.3
3	5.00	18	0.2500		23.9000	24.8500		0.3
4	5.00	18	0.2500		24.8500	25.8000		0.3
5	5.00	18	0.2500		25.8000	26.7500		0.4
6	5.00	18	0.2500		26.7500	27.7000		0.4
7	5.00	18	0.2500		27.7000	28.6500		0.4
8	5.00	18	0.2500	3.75	28.6500	29.6000	A607-60	0.3
9	5.00	18	0.2500		29.6000	30.0976		0.4
10	5.00	18	0.2500		30.0976	31.0477		0.4
11	5.00	18	0.2500		31.0477	31.9978		0.4
12	5.00	18	0.2500		31.9978	32.9478		0.4
13	5.00	18	0.2500		32.9478	33.8979		0.4
14	5.00	18	0.2500		33.8979	34.8479		0.4
15	5.00	18	0.2500		34.8479	35.7980		0.5
16	5.00	18	0.2500	4.50	35.7980	36.3427		0.5
17	5.00	18	0.3125		36.3427	37.2926		0.6
18	5.00	18	0.3125		37.2926	38.2425		0.6
19	5.00	18	0.3125		38.2425	39.1924		0.6
20	5.00	18	0.3125		39.1924	40.1423		0.6
21	5.00	18	0.3125		40.1423	40.9339		0.7
22	5.00	18	0.3125		40.9339	41.7972		0.7
23	5.00	18	0.3125		41.7972	42.7472		0.8
24	5.00	18	0.3125		42.7472	43.6973		0.9
25	6.2883	18	0.3125	5.25	43.6973	44.6473	A607-65	1.0
26	5.00	18	0.3750		44.6473	45.5974		1.0
27	5.00	18	0.3750		45.5974	46.5474		0.8
28	5.00	18	0.3750		46.5474	47.4975		0.9
29	5.00	18	0.3750		47.4975	48.4000		0.9
30	5.00	18	0.3750					0.9
31	5.00	18	0.3750					0.9
32	5.00	18	0.3750					0.9
33	4.75	18	0.3750					0.9



ALL REACTIONS ARE FACTORED

AXIAL 100 K

SHEAR 9 K — *MOMENT 1106 kip-ft*

TORQUE 0 kip-ft

50 mph WIND - 2.0000 in ICE

AXIAL 50 K

SHEAR 31 K — *MOMENT 3488 kip-ft*

TORQUE 2 kip-ft

REACTIONS - 125 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi	A607-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 2.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. CCIPOLE RATING: 94.4%

Morrison Hershfield
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FAX: (770) 379-8501

Job: CN8-725R1 / 2101398			
Project: 876348 / Enfield			
Client: Crown Castle USA	Drawn by: RP	App'd:	
Code: TIA-222-H	Date: 08/03/21	Scale: NTS	
Path: C:\Users\RPeddamaru\OneDrive - MORRISON HERSHFIELD\Desktop\CN8-725R1 SA\Analysis\CN8-725R1 BU_876348 WO_1872558.eri		Dwg No. E-1	

Tower Input Data

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

Tower is located in Hartford County, Connecticut.
Tower base elevation above sea level: 110.00 ft.
Basic wind speed of 125 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 2.0000 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.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	147.50-142.50	5.00	0.00	18	22.0000	22.9500	0.2500	1.0000	A607-60 (60 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
L2	142.50-137.50	5.00	0.00	18	22.9500	23.9000	0.2500	1.0000	A607-60 (60 ksi)
L3	137.50-132.50	5.00	0.00	18	23.9000	24.8500	0.2500	1.0000	A607-60 (60 ksi)
L4	132.50-127.50	5.00	0.00	18	24.8500	25.8000	0.2500	1.0000	A607-60 (60 ksi)
L5	127.50-122.50	5.00	0.00	18	25.8000	26.7500	0.2500	1.0000	A607-60 (60 ksi)
L6	122.50-117.50	5.00	0.00	18	26.7500	27.7000	0.2500	1.0000	A607-60 (60 ksi)
L7	117.50-112.50	5.00	0.00	18	27.7000	28.6500	0.2500	1.0000	A607-60 (60 ksi)
L8	112.50-108.50	4.00	3.75	18	28.6500	29.4100	0.2500	1.0000	A607-60 (60 ksi)
L9	108.50-107.25	5.00	0.00	18	28.1975	29.1476	0.2500	1.0000	A607-65 (65 ksi)
L10	107.25-102.25	5.00	0.00	18	29.1476	30.0976	0.2500	1.0000	A607-65 (65 ksi)
L11	102.25-97.25	5.00	0.00	18	30.0976	31.0477	0.2500	1.0000	A607-65 (65 ksi)
L12	97.25-92.25	5.00	0.00	18	31.0477	31.9978	0.2500	1.0000	A607-65 (65 ksi)
L13	92.25-87.25	5.00	0.00	18	31.9978	32.9478	0.2500	1.0000	A607-65 (65 ksi)
L14	87.25-82.25	5.00	0.00	18	32.9478	33.8979	0.2500	1.0000	A607-65 (65 ksi)
L15	82.25-77.25	5.00	0.00	18	33.8979	34.8479	0.2500	1.0000	A607-65 (65 ksi)
L16	77.25-72.25	5.00	4.50	18	34.8479	35.7980	0.2500	1.0000	A607-65 (65 ksi)
L17	72.25-71.75	5.00	0.00	18	34.4429	35.3928	0.3125	1.2500	A607-65 (65 ksi)
L18	71.75-66.75	5.00	0.00	18	35.3928	36.3427	0.3125	1.2500	A607-65 (65 ksi)
L19	66.75-61.75	5.00	0.00	18	36.3427	37.2926	0.3125	1.2500	A607-65 (65 ksi)
L20	61.75-56.75	5.00	0.00	18	37.2926	38.2425	0.3125	1.2500	A607-65 (65 ksi)
L21	56.75-51.75	5.00	0.00	18	38.2425	39.1924	0.3125	1.2500	A607-65 (65 ksi)
L22	51.75-47.83	3.92	0.00	18	39.1924	39.9365	0.3125	1.2500	A607-65 (65 ksi)
L23	47.83-47.58	0.25	0.00	18	39.9365	39.9840	0.3125	1.2500	A607-65 (65 ksi)
L24	47.58-42.58	5.00	0.00	18	39.9840	40.9339	0.3125	1.2500	A607-65 (65 ksi)
L25	42.58-35.75	6.83	5.25	18	40.9339	42.2320	0.3125	1.2500	A607-65 (65 ksi)
L26	35.75-34.75	6.25	0.00	18	40.6096	41.7972	0.3750	1.5000	A607-65 (65 ksi)
L27	34.75-29.75	5.00	0.00	18	41.7972	42.7472	0.3750	1.5000	A607-65 (65 ksi)
L28	29.75-24.75	5.00	0.00	18	42.7472	43.6973	0.3750	1.5000	A607-65 (65 ksi)
L29	24.75-19.75	5.00	0.00	18	43.6973	44.6473	0.3750	1.5000	A607-65 (65 ksi)
L30	19.75-14.75	5.00	0.00	18	44.6473	45.5974	0.3750	1.5000	A607-65 (65 ksi)
L31	14.75-9.75	5.00	0.00	18	45.5974	46.5474	0.3750	1.5000	A607-65 (65 ksi)
L32	9.75-4.75	5.00	0.00	18	46.5474	47.4975	0.3750	1.5000	A607-65 (65 ksi)
L33	4.75-0.00	4.75		18	47.4975	48.4000	0.3750	1.5000	A607-65 (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	22.3008	17.2586	1031.4832	7.7212	11.1760	92.2945	2064.3237	8.6310	3.4320	13.728
	23.2655	18.0125	1172.6326	8.0585	11.6586	100.5809	2346.8081	9.0079	3.5992	14.397
L2	23.2655	18.0125	1172.6326	8.0585	11.6586	100.5809	2346.8081	9.0079	3.5992	14.397
	24.2301	18.7663	1326.1047	8.3957	12.1412	109.2235	2653.9543	9.3849	3.7664	15.066
L3	24.2301	18.7663	1326.1047	8.3957	12.1412	109.2235	2653.9543	9.3849	3.7664	15.066
	25.1948	19.5201	1492.4153	8.7330	12.6238	118.2224	2986.7944	9.7619	3.9336	15.734
L4	25.1948	19.5201	1492.4153	8.7330	12.6238	118.2224	2986.7944	9.7619	3.9336	15.734
	26.1594	20.2739	1672.0802	9.0702	13.1064	127.5774	3346.3605	10.1389	4.1008	16.403
L5	26.1594	20.2739	1672.0802	9.0702	13.1064	127.5774	3346.3605	10.1389	4.1008	16.403
	27.1241	21.0278	1865.6149	9.4075	13.5890	137.2886	3733.6846	10.5159	4.2680	17.072
L6	27.1241	21.0278	1865.6149	9.4075	13.5890	137.2886	3733.6846	10.5159	4.2680	17.072
	28.0888	21.7816	2073.5353	9.7447	14.0716	147.3560	4149.7990	10.8929	4.4352	17.741
L7	28.0888	21.7816	2073.5353	9.7447	14.0716	147.3560	4149.7990	10.8929	4.4352	17.741
	29.0534	22.5354	2296.3570	10.0820	14.5542	157.7797	4595.7356	11.2698	4.6024	18.41
L8	29.0534	22.5354	2296.3570	10.0820	14.5542	157.7797	4595.7356	11.2698	4.6024	18.41
	29.8251	23.1385	2485.6899	10.3518	14.9403	166.3751	4974.6504	11.5714	4.7362	18.945
L9	29.3175	22.1763	2188.3323	9.9214	14.3243	152.7703	4379.5441	11.0903	4.5228	18.091
	29.5586	22.9302	2419.1791	10.2586	14.8070	163.3812	4841.5414	11.4673	4.6900	18.76
L10	29.5586	22.9302	2419.1791	10.2586	14.8070	163.3812	4841.5414	11.4673	4.6900	18.76
	30.5234	23.6841	2665.7150	10.5959	15.2896	174.3483	5334.9377	11.8443	4.8572	19.429
L11	30.5234	23.6841	2665.7150	10.5959	15.2896	174.3483	5334.9377	11.8443	4.8572	19.429
	31.4881	24.4380	2928.4560	10.9332	15.7722	185.6717	5860.7654	12.2213	5.0244	20.098
L12	31.4881	24.4380	2928.4560	10.9332	15.7722	185.6717	5860.7654	12.2213	5.0244	20.098
	32.4528	25.1918	3207.9178	11.2705	16.2549	197.3513	6420.0567	12.5983	5.1916	20.766
L13	32.4528	25.1918	3207.9178	11.2705	16.2549	197.3513	6420.0567	12.5983	5.1916	20.766
	33.4175	25.9457	3504.6163	11.6077	16.7375	209.3872	7013.8441	12.9753	5.3588	21.435
L14	33.4175	25.9457	3504.6163	11.6077	16.7375	209.3872	7013.8441	12.9753	5.3588	21.435
	34.3822	26.6996	3819.0673	11.9450	17.2201	221.7794	7643.1597	13.3523	5.5260	22.104
L15	34.3822	26.6996	3819.0673	11.9450	17.2201	221.7794	7643.1597	13.3523	5.5260	22.104
	35.3470	27.4535	4151.7865	12.2823	17.7028	234.5277	8309.0360	13.7293	5.6932	22.773
L16	35.3470	27.4535	4151.7865	12.2823	17.7028	234.5277	8309.0360	13.7293	5.6932	22.773
	36.3117	28.2073	4503.2898	12.6195	18.1854	247.6324	9012.5051	14.1063	5.8604	23.442
L17	35.7942	33.8531	4982.1890	12.1163	17.4970	284.7451	9970.9337	16.9298	5.5120	17.638
	35.8906	34.7953	5409.8516	12.4535	17.9796	300.8890	10826.821 7	17.4010	5.6791	18.173
L18	35.8906	34.7953	5409.8516	12.4535	17.9796	300.8890	10826.821 7	17.4010	5.6791	18.173
	36.8552	35.7375	5861.3129	12.7907	18.4621	317.4781	11730.338 2	17.8721	5.8463	18.708
L19	36.8552	35.7375	5861.3129	12.7907	18.4621	317.4781	11730.338 2	17.8721	5.8463	18.708
	37.8197	36.6796	6337.2171	13.1279	18.9446	334.5124	12682.772 8	18.3433	6.0135	19.243
L20	37.8197	36.6796	6337.2171	13.1279	18.9446	334.5124	12682.772 8	18.3433	6.0135	19.243
	38.7842	37.6218	6838.2087	13.4651	19.4272	351.9918	13685.415 3	18.8145	6.1807	19.778
L21	38.7842	37.6218	6838.2087	13.4651	19.4272	351.9918	13685.415 3	18.8145	6.1807	19.778
	39.7488	38.5640	7364.9321	13.8024	19.9097	369.9164	14739.555 2	19.2856	6.3479	20.313
L22	39.7488	38.5640	7364.9321	13.8024	19.9097	369.9164	14739.555 2	19.2856	6.3479	20.313
	40.5044	39.3021	7795.9601	14.0665	20.2877	384.2694	15602.178 3	19.6548	6.4788	20.732
L23	40.5044	39.3021	7795.9601	14.0665	20.2877	384.2694	15602.178 3	19.6548	6.4788	20.732
	40.5526	39.3492	7824.0269	14.0834	20.3119	385.1948	15658.348 9	19.6783	6.4872	20.759
L24	40.5526	39.3492	7824.0269	14.0834	20.3119	385.1948	15658.348 9	19.6783	6.4872	20.759
	41.5172	40.2913	8399.6008	14.4206	20.7944	403.9354	16810.254 1	20.1495	6.6544	21.294
L25	41.5172	40.2913	8399.6008	14.4206	20.7944	403.9354	16810.254 1	20.1495	6.6544	21.294
	42.8353	41.5789	9230.8709	14.8814	21.4539	430.2663	18473.888 0	20.7934	6.8828	22.025

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
L26	42.1912	47.8893	9794.3446	14.2833	20.6297	474.7694	19601.5768	23.9492	6.4873	17.299
	42.3841	49.3027	10687.4588	14.7049	21.2330	503.3427	21388.9804	24.6561	6.6963	17.857
L27	42.3841	49.3027	10687.4588	14.7049	21.2330	503.3427	21388.9804	24.6561	6.6963	17.857
	43.3488	50.4335	11439.8267	15.0421	21.7156	526.8025	22894.7062	25.2216	6.8635	18.303
L28	43.3488	50.4335	11439.8267	15.0421	21.7156	526.8025	22894.7062	25.2216	6.8635	18.303
	44.3135	51.5643	12226.7009	15.3794	22.1982	550.7966	24469.4900	25.7871	7.0307	18.749
L29	44.3135	51.5643	12226.7009	15.3794	22.1982	550.7966	24469.4900	25.7871	7.0307	18.749
	45.2782	52.6951	13048.8550	15.7167	22.6808	575.3251	26114.8800	26.3526	7.1979	19.194
L30	45.2782	52.6951	13048.8550	15.7167	22.6808	575.3251	26114.8800	26.3526	7.1979	19.194
	46.2429	53.8259	13907.0627	16.0539	23.1635	600.3880	27832.4247	26.9181	7.3651	19.64
L31	46.2429	53.8259	13907.0627	16.0539	23.1635	600.3880	27832.4247	26.9181	7.3651	19.64
	47.2076	54.9567	14802.0977	16.3912	23.6461	625.9852	29623.6724	27.4836	7.5323	20.086
L32	47.2076	54.9567	14802.0977	16.3912	23.6461	625.9852	29623.6724	27.4836	7.5323	20.086
	48.1723	56.0875	15734.7336	16.7285	24.1287	652.1167	31490.1714	28.0491	7.6996	20.532
L33	48.1723	56.0875	15734.7336	16.7285	24.1287	652.1167	31490.1714	28.0491	7.6996	20.532
	49.0888	57.1618	16656.2703	17.0489	24.5872	677.4366	33334.4574	28.5863	7.8584	20.956

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 147.50-142.50				1	1	1			
L2 142.50-137.50				1	1	1			
L3 137.50-132.50				1	1	1			
L4 132.50-127.50				1	1	1			
L5 127.50-122.50				1	1	1			
L6 122.50-117.50				1	1	1			
L7 117.50-112.50				1	1	1			
L8 112.50-108.50				1	1	1			
L9 108.50-107.25				1	1	1			
L10 107.25-102.25				1	1	1			
L11 102.25-97.25				1	1	1			
L12 97.25-92.25				1	1	1			
L13 92.25-87.25				1	1	1			
L14 87.25-82.25				1	1	1			
L15 82.25-77.25				1	1	1			
L16 77.25-				1	1	1			

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
72.25									
L17 72.25-71.75				1	1	1			
L18 71.75-66.75				1	1	1			
L19 66.75-61.75				1	1	1			
L20 61.75-56.75				1	1	1			
L21 56.75-51.75				1	1	1			
L22 51.75-47.83				1	1	1			
L23 47.83-47.58				1	1	1			
L24 47.58-42.58				1	1	1			
L25 42.58-35.75				1	1	1			
L26 35.75-34.75				1	1	1			
L27 34.75-29.75				1	1	1			
L28 29.75-24.75				1	1	1			
L29 24.75-19.75				1	1	1			
L30 19.75-14.75				1	1	1			
L31 14.75-9.75				1	1	1			
L32 9.75-4.75				1	1	1			
L33 4.75-0.00				1	1	1			

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 plf
******										
Safety Line 5/8"	B	No	Surface Ar (CaAa)	147.50 - 8.00	1	1	0.000 0.000	0.8800		0.40
Climbing Pegs	B	No	Surface Ar (CaAa)	147.50 - 8.00	1	1	-0.100 0.100	0.7050		1.80
******										
HCS 6X12 6AWG(1-3/8)	A	No	Surface Ar (CaAa)	107.00 - 6.00	2	2	0.400 0.440	1.3800		1.70
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	A	No	Surface Ar (CaAa)	107.00 - 6.00	1	1	0.400 0.400	1.6250		1.07
LDF7-50A(1-5/8)	A	No	Surface Ar (CaAa)	107.00 - 6.00	6	4	0.350 0.450	1.9800		0.82
******										
MP3-03 Reinforcement	A	No	Surface Af (CaAa)	49.00 - 39.00	1	1	-0.417 -0.417	4.0600	11.2600	0.00
MP3-03 Reinforcement	B	No	Surface Af (CaAa)	49.00 - 39.00	1	1	-0.417 -0.417	4.0600	11.2600	0.00
MP3-03 Reinforcement	C	No	Surface Af (CaAa)	49.00 - 39.00	1	1	-0.417 -0.417	4.0600	11.2600	0.00
******										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
******									
WR-VG86ST-BRD(3/4)	A	No	No	Inside Pole	147.00 - 6.00	1	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
							2" Ice	0.00	0.58
***									
HB158-21U6S24-xxM_TMO(1-5/8)	A	No	No	Inside Pole	147.00 - 6.00	3	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
							2" Ice	0.00	2.50
******									
HB158-1-08U8-S8J18(1-5/8)	B	No	No	Inside Pole	137.00 - 6.00	2	No Ice	0.00	1.30
							1/2" Ice	0.00	1.30
							1" Ice	0.00	1.30
							2" Ice	0.00	1.30
LDF7-50A(1-5/8)	B	No	No	Inside Pole	137.00 - 6.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
******									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	117.00 - 6.00	9	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
FB-L98B-002-75000(3/8)	C	No	No	Inside Pole	117.00 - 6.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	117.00 - 6.00	2	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
							2" Ice	0.00	0.58
******									
CU12PSM9P6XXX (1-1/2)	B	No	No	Inside Pole	97.00 - 6.00	1	No Ice	0.00	2.35
							1/2" Ice	0.00	2.35
							1" Ice	0.00	2.35
							2" Ice	0.00	2.35
******									
LDF4-50A(1/2)	B	No	No	Inside Pole	49.00 - 6.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15
******									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	147.50-142.50	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.792	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.00
L2	142.50-137.50	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.792	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.00
L3	137.50-132.50	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.792	0.000	0.04
		C	0.000	0.000	0.000	0.000	0.00
L4	132.50-127.50	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.792	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.00
L5	127.50-122.50	A	0.000	0.000	0.000	0.000	0.04

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	0.792	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.00
L6	122.50-117.50	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.792	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.00
L7	117.50-112.50	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.792	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.04
L8	112.50-108.50	A	0.000	0.000	0.000	0.000	0.03
		B	0.000	0.000	0.634	0.000	0.04
		C	0.000	0.000	0.000	0.000	0.03
L9	108.50-107.25	A	0.000	0.000	0.000	0.000	0.01
		B	0.000	0.000	0.198	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.01
L10	107.25-102.25	A	0.000	0.000	5.845	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.04
L11	102.25-97.25	A	0.000	0.000	6.152	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.04
L12	97.25-92.25	A	0.000	0.000	6.152	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L13	92.25-87.25	A	0.000	0.000	6.152	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L14	87.25-82.25	A	0.000	0.000	6.152	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L15	82.25-77.25	A	0.000	0.000	6.152	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L16	77.25-72.25	A	0.000	0.000	6.152	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L17	72.25-71.75	A	0.000	0.000	0.615	0.000	0.01
		B	0.000	0.000	0.079	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.00
L18	71.75-66.75	A	0.000	0.000	6.152	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L19	66.75-61.75	A	0.000	0.000	6.152	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L20	61.75-56.75	A	0.000	0.000	6.152	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L21	56.75-51.75	A	0.000	0.000	6.152	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L22	51.75-47.83	A	0.000	0.000	5.610	0.000	0.07
		B	0.000	0.000	1.411	0.000	0.05
		C	0.000	0.000	0.790	0.000	0.03
L23	47.83-47.58	A	0.000	0.000	0.477	0.000	0.00
		B	0.000	0.000	0.209	0.000	0.00
		C	0.000	0.000	0.169	0.000	0.00
L24	47.58-42.58	A	0.000	0.000	9.536	0.000	0.09
		B	0.000	0.000	4.176	0.000	0.06
		C	0.000	0.000	3.383	0.000	0.04
L25	42.58-35.75	A	0.000	0.000	10.833	0.000	0.12
		B	0.000	0.000	3.508	0.000	0.08
		C	0.000	0.000	2.424	0.000	0.06
L26	35.75-34.75	A	0.000	0.000	1.230	0.000	0.02
		B	0.000	0.000	0.159	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.01
L27	34.75-29.75	A	0.000	0.000	6.152	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L28	29.75-24.75	A	0.000	0.000	6.152	0.000	0.09

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	0.792	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L29	24.75-19.75	A	0.000	0.000	6.152	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L30	19.75-14.75	A	0.000	0.000	6.152	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L31	14.75-9.75	A	0.000	0.000	6.152	0.000	0.09
		B	0.000	0.000	0.792	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L32	9.75-4.75	A	0.000	0.000	4.614	0.000	0.07
		B	0.000	0.000	0.277	0.000	0.04
		C	0.000	0.000	0.000	0.000	0.03
L33	4.75-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

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	147.50-142.50	A	1.971	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	4.735	0.000	0.08
		C		0.000	0.000	0.000	0.000	0.00
L2	142.50-137.50	A	1.964	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	4.721	0.000	0.08
		C		0.000	0.000	0.000	0.000	0.00
L3	137.50-132.50	A	1.957	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	4.707	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.00
L4	132.50-127.50	A	1.950	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	4.692	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.00
L5	127.50-122.50	A	1.942	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	4.677	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.00
L6	122.50-117.50	A	1.934	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	4.661	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.00
L7	117.50-112.50	A	1.926	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	4.645	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.04
L8	112.50-108.50	A	1.918	0.000	0.000	0.000	0.000	0.03
		B		0.000	0.000	3.703	0.000	0.09
		C		0.000	0.000	0.000	0.000	0.03
L9	108.50-107.25	A	1.914	0.000	0.000	0.000	0.000	0.01
		B		0.000	0.000	1.157	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.01
L10	107.25-102.25	A	1.908	0.000	0.000	13.458	0.000	0.27
		B		0.000	0.000	4.609	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.04
L11	102.25-97.25	A	1.899	0.000	0.000	14.133	0.000	0.29
		B		0.000	0.000	4.590	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.04
L12	97.25-92.25	A	1.889	0.000	0.000	14.099	0.000	0.28
		B		0.000	0.000	4.571	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.04
L13	92.25-87.25	A	1.879	0.000	0.000	14.064	0.000	0.28
		B		0.000	0.000	4.550	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.04
L14	87.25-82.25	A	1.868	0.000	0.000	14.026	0.000	0.28
		B		0.000	0.000	4.529	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.04
L15	82.25-77.25	A	1.857	0.000	0.000	13.986	0.000	0.28

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	4.506	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.04
L16	77.25-72.25	A	1.845	0.000	0.000	13.944	0.000	0.28
		B		0.000	0.000	4.482	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.04
L17	72.25-71.75	A	1.838	0.000	0.000	1.394	0.000	0.03
		B		0.000	0.000	0.448	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L18	71.75-66.75	A	1.831	0.000	0.000	13.895	0.000	0.28
		B		0.000	0.000	4.454	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.04
L19	66.75-61.75	A	1.817	0.000	0.000	13.847	0.000	0.27
		B		0.000	0.000	4.427	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.04
L20	61.75-56.75	A	1.802	0.000	0.000	13.796	0.000	0.27
		B		0.000	0.000	4.397	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.04
L21	56.75-51.75	A	1.787	0.000	0.000	13.741	0.000	0.27
		B		0.000	0.000	4.366	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.04
L22	51.75-47.83	A	1.771	0.000	0.000	11.765	0.000	0.22
		B		0.000	0.000	4.439	0.000	0.11
		C		0.000	0.000	1.042	0.000	0.05
L23	47.83-47.58	A	1.764	0.000	0.000	0.906	0.000	0.02
		B		0.000	0.000	0.439	0.000	0.01
		C		0.000	0.000	0.223	0.000	0.01
L24	47.58-42.58	A	1.754	0.000	0.000	18.083	0.000	0.33
		B		0.000	0.000	8.757	0.000	0.18
		C		0.000	0.000	4.457	0.000	0.10
L25	42.58-35.75	A	1.729	0.000	0.000	21.689	0.000	0.40
		B		0.000	0.000	8.994	0.000	0.20
		C		0.000	0.000	3.185	0.000	0.10
L26	35.75-34.75	A	1.711	0.000	0.000	2.708	0.000	0.05
		B		0.000	0.000	0.850	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.01
L27	34.75-29.75	A	1.696	0.000	0.000	13.424	0.000	0.26
		B		0.000	0.000	4.185	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.04
L28	29.75-24.75	A	1.668	0.000	0.000	13.324	0.000	0.26
		B		0.000	0.000	4.128	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.04
L29	24.75-19.75	A	1.634	0.000	0.000	13.207	0.000	0.25
		B		0.000	0.000	4.061	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.04
L30	19.75-14.75	A	1.593	0.000	0.000	13.063	0.000	0.25
		B		0.000	0.000	3.979	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.04
L31	14.75-9.75	A	1.540	0.000	0.000	12.876	0.000	0.24
		B		0.000	0.000	3.872	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.04
L32	9.75-4.75	A	1.461	0.000	0.000	9.450	0.000	0.17
		B		0.000	0.000	1.300	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.03
L33	4.75-0.00	A	1.306	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	147.50-142.50	1.0344	-0.5972	2.6361	-1.5220
L2	142.50-137.50	1.0372	-0.5988	2.6677	-1.5402
L3	137.50-132.50	1.0398	-0.6003	2.6970	-1.5571
L4	132.50-127.50	1.0422	-0.6017	2.7241	-1.5728

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L5	127.50-122.50	1.0445	-0.6030	2.7492	-1.5872
L6	122.50-117.50	1.0466	-0.6043	2.7723	-1.6006
L7	117.50-112.50	1.0486	-0.6054	2.7935	-1.6128
L8	112.50-108.50	1.0503	-0.6064	2.8110	-1.6230
L9	108.50-107.25	1.0503	-0.6064	2.8116	-1.6233
L10	107.25-102.25	-0.5454	-6.3213	0.4300	-5.9928
L11	102.25-97.25	-0.6012	-6.5724	0.3737	-6.2119
L12	97.25-92.25	-0.6059	-6.6398	0.3798	-6.3156
L13	92.25-87.25	-0.6104	-6.7049	0.3854	-6.4163
L14	87.25-82.25	-0.6148	-6.7678	0.3905	-6.5140
L15	82.25-77.25	-0.6191	-6.8285	0.3951	-6.6087
L16	77.25-72.25	-0.6231	-6.8873	0.3992	-6.7004
L17	72.25-71.75	-0.6233	-6.8898	0.3995	-6.7044
L18	71.75-66.75	-0.6255	-6.9212	0.3990	-6.7488
L19	66.75-61.75	-0.6294	-6.9770	0.4019	-6.8353
L20	61.75-56.75	-0.6332	-7.0311	0.4041	-6.9186
L21	56.75-51.75	-0.6368	-7.0834	0.4055	-6.9986
L22	51.75-47.83	-0.5527	-6.1565	0.3739	-6.5071
L23	47.83-47.58	-0.4201	-4.6831	0.3153	-5.5120
L24	47.58-42.58	-0.4225	-4.7129	0.3154	-5.5473
L25	42.58-35.75	-0.5099	-5.6982	0.3516	-6.2839
L26	35.75-34.75	-0.6477	-7.2389	0.4049	-7.2317
L27	34.75-29.75	-0.6496	-7.2667	0.3954	-7.2544
L28	29.75-24.75	-0.6528	-7.3121	0.3898	-7.3126
L29	24.75-19.75	-0.6558	-7.3562	0.3816	-7.3639
L30	19.75-14.75	-0.6588	-7.3990	0.3695	-7.4057
L31	14.75-9.75	-0.6617	-7.4406	0.3511	-7.4334
L32	9.75-4.75	-0.8887	-5.9944	-0.4819	-6.0867
L33	4.75-0.00	0.0000	0.0000	0.0000	0.0000

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	2	Safety Line 5/8"	142.50 - 147.50	1.0000	1.0000
L1	3	Climbing Pegs	142.50 - 147.50	1.0000	1.0000
L2	2	Safety Line 5/8"	137.50 - 142.50	1.0000	1.0000
L2	3	Climbing Pegs	137.50 - 142.50	1.0000	1.0000
L3	2	Safety Line 5/8"	132.50 - 137.50	1.0000	1.0000
L3	3	Climbing Pegs	132.50 - 137.50	1.0000	1.0000
L4	2	Safety Line 5/8"	127.50 - 132.50	1.0000	1.0000
L4	3	Climbing Pegs	127.50 - 132.50	1.0000	1.0000
L5	2	Safety Line 5/8"	122.50 - 127.50	1.0000	1.0000
L5	3	Climbing Pegs	122.50 - 127.50	1.0000	1.0000
L6	2	Safety Line 5/8"	117.50 - 122.50	1.0000	1.0000
L6	3	Climbing Pegs	117.50 - 122.50	1.0000	1.0000
L7	2	Safety Line 5/8"	112.50 - 117.50	1.0000	1.0000
L7	3	Climbing Pegs	112.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			117.50		
L8	2	Safety Line 5/8"	108.50 - 112.50	1.0000	1.0000
L8	3	Climbing Pegs	108.50 - 112.50	1.0000	1.0000
L9	2	Safety Line 5/8"	107.25 - 108.50	1.0000	1.0000
L9	3	Climbing Pegs	107.25 - 108.50	1.0000	1.0000
L10	2	Safety Line 5/8"	102.25 - 107.25	1.0000	1.0000
L10	3	Climbing Pegs	102.25 - 107.25	1.0000	1.0000
L10	18	HCS 6X12 6AWG(1-3/8)	102.25 - 107.00	1.0000	1.0000
L10	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	102.25 - 107.00	1.0000	1.0000
L10	20	LDF7-50A(1-5/8)	102.25 - 107.00	1.0000	1.0000
L11	2	Safety Line 5/8"	97.25 - 102.25	1.0000	1.0000
L11	3	Climbing Pegs	97.25 - 102.25	1.0000	1.0000
L11	18	HCS 6X12 6AWG(1-3/8)	97.25 - 102.25	1.0000	1.0000
L11	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	97.25 - 102.25	1.0000	1.0000
L11	20	LDF7-50A(1-5/8)	97.25 - 102.25	1.0000	1.0000
L12	2	Safety Line 5/8"	92.25 - 97.25	1.0000	1.0000
L12	3	Climbing Pegs	92.25 - 97.25	1.0000	1.0000
L12	18	HCS 6X12 6AWG(1-3/8)	92.25 - 97.25	1.0000	1.0000
L12	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	92.25 - 97.25	1.0000	1.0000
L12	20	LDF7-50A(1-5/8)	92.25 - 97.25	1.0000	1.0000
L13	2	Safety Line 5/8"	87.25 - 92.25	1.0000	1.0000
L13	3	Climbing Pegs	87.25 - 92.25	1.0000	1.0000
L13	18	HCS 6X12 6AWG(1-3/8)	87.25 - 92.25	1.0000	1.0000
L13	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	87.25 - 92.25	1.0000	1.0000
L13	20	LDF7-50A(1-5/8)	87.25 - 92.25	1.0000	1.0000
L14	2	Safety Line 5/8"	82.25 - 87.25	1.0000	1.0000
L14	3	Climbing Pegs	82.25 - 87.25	1.0000	1.0000
L14	18	HCS 6X12 6AWG(1-3/8)	82.25 - 87.25	1.0000	1.0000
L14	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	82.25 - 87.25	1.0000	1.0000
L14	20	LDF7-50A(1-5/8)	82.25 - 87.25	1.0000	1.0000
L15	2	Safety Line 5/8"	77.25 - 82.25	1.0000	1.0000
L15	3	Climbing Pegs	77.25 - 82.25	1.0000	1.0000
L15	18	HCS 6X12 6AWG(1-3/8)	77.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			82.25		
L15	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	77.25 - 82.25	1.0000	1.0000
L15	20	LDF7-50A(1-5/8)	77.25 - 82.25	1.0000	1.0000
L16	2	Safety Line 5/8"	72.25 - 77.25	1.0000	1.0000
L16	3	Climbing Pegs	72.25 - 77.25	1.0000	1.0000
L16	18	HCS 6X12 6AWG(1-3/8)	72.25 - 77.25	1.0000	1.0000
L16	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	72.25 - 77.25	1.0000	1.0000
L16	20	LDF7-50A(1-5/8)	72.25 - 77.25	1.0000	1.0000
L17	2	Safety Line 5/8"	71.75 - 72.25	1.0000	1.0000
L17	3	Climbing Pegs	71.75 - 72.25	1.0000	1.0000
L17	18	HCS 6X12 6AWG(1-3/8)	71.75 - 72.25	1.0000	1.0000
L17	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	71.75 - 72.25	1.0000	1.0000
L17	20	LDF7-50A(1-5/8)	71.75 - 72.25	1.0000	1.0000
L18	2	Safety Line 5/8"	66.75 - 71.75	1.0000	1.0000
L18	3	Climbing Pegs	66.75 - 71.75	1.0000	1.0000
L18	18	HCS 6X12 6AWG(1-3/8)	66.75 - 71.75	1.0000	1.0000
L18	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	66.75 - 71.75	1.0000	1.0000
L18	20	LDF7-50A(1-5/8)	66.75 - 71.75	1.0000	1.0000
L19	2	Safety Line 5/8"	61.75 - 66.75	1.0000	1.0000
L19	3	Climbing Pegs	61.75 - 66.75	1.0000	1.0000
L19	18	HCS 6X12 6AWG(1-3/8)	61.75 - 66.75	1.0000	1.0000
L19	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	61.75 - 66.75	1.0000	1.0000
L19	20	LDF7-50A(1-5/8)	61.75 - 66.75	1.0000	1.0000
L20	2	Safety Line 5/8"	56.75 - 61.75	1.0000	1.0000
L20	3	Climbing Pegs	56.75 - 61.75	1.0000	1.0000
L20	18	HCS 6X12 6AWG(1-3/8)	56.75 - 61.75	1.0000	1.0000
L20	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	56.75 - 61.75	1.0000	1.0000
L20	20	LDF7-50A(1-5/8)	56.75 - 61.75	1.0000	1.0000
L21	2	Safety Line 5/8"	51.75 - 56.75	1.0000	1.0000
L21	3	Climbing Pegs	51.75 - 56.75	1.0000	1.0000
L21	18	HCS 6X12 6AWG(1-3/8)	51.75 - 56.75	1.0000	1.0000
L21	19	MLE HYBRID 9POWER/18FIBER RL	51.75 - 56.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		2(1-5/8)			
L21	20	LDF7-50A(1-5/8)	51.75 - 56.75	1.0000	1.0000
L22	2	Safety Line 5/8"	47.83 - 51.75	1.0000	1.0000
L22	3	Climbing Pegs	47.83 - 51.75	1.0000	1.0000
L22	18	HCS 6X12 6AWG(1-3/8)	47.83 - 51.75	1.0000	1.0000
L22	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	47.83 - 51.75	1.0000	1.0000
L22	20	LDF7-50A(1-5/8)	47.83 - 51.75	1.0000	1.0000
L22	26	MP3-03 Reinforcement	47.83 - 49.00	1.0000	1.0000
L22	27	MP3-03 Reinforcement	47.83 - 49.00	1.0000	1.0000
L22	28	MP3-03 Reinforcement	47.83 - 49.00	1.0000	1.0000
L23	2	Safety Line 5/8"	47.58 - 47.83	1.0000	1.0000
L23	3	Climbing Pegs	47.58 - 47.83	1.0000	1.0000
L23	18	HCS 6X12 6AWG(1-3/8)	47.58 - 47.83	1.0000	1.0000
L23	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	47.58 - 47.83	1.0000	1.0000
L23	20	LDF7-50A(1-5/8)	47.58 - 47.83	1.0000	1.0000
L23	26	MP3-03 Reinforcement	47.58 - 47.83	1.0000	1.0000
L23	27	MP3-03 Reinforcement	47.58 - 47.83	1.0000	1.0000
L23	28	MP3-03 Reinforcement	47.58 - 47.83	1.0000	1.0000
L24	2	Safety Line 5/8"	42.58 - 47.58	1.0000	1.0000
L24	3	Climbing Pegs	42.58 - 47.58	1.0000	1.0000
L24	18	HCS 6X12 6AWG(1-3/8)	42.58 - 47.58	1.0000	1.0000
L24	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	42.58 - 47.58	1.0000	1.0000
L24	20	LDF7-50A(1-5/8)	42.58 - 47.58	1.0000	1.0000
L24	26	MP3-03 Reinforcement	42.58 - 47.58	1.0000	1.0000
L24	27	MP3-03 Reinforcement	42.58 - 47.58	1.0000	1.0000
L24	28	MP3-03 Reinforcement	42.58 - 47.58	1.0000	1.0000
L25	2	Safety Line 5/8"	35.75 - 42.58	1.0000	1.0000
L25	3	Climbing Pegs	35.75 - 42.58	1.0000	1.0000
L25	18	HCS 6X12 6AWG(1-3/8)	35.75 - 42.58	1.0000	1.0000
L25	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	35.75 - 42.58	1.0000	1.0000
L25	20	LDF7-50A(1-5/8)	35.75 - 42.58	1.0000	1.0000
L25	26	MP3-03 Reinforcement	39.00 - 42.58	1.0000	1.0000
L25	27	MP3-03 Reinforcement	39.00 - 42.58	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L25	28	MP3-03 Reinforcement	39.00 - 42.58	1.0000	1.0000
L26	2	Safety Line 5/8"	34.75 - 35.75	1.0000	1.0000
L26	3	Climbing Pegs	34.75 - 35.75	1.0000	1.0000
L26	18	HCS 6X12 6AWG(1-3/8)	34.75 - 35.75	1.0000	1.0000
L26	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	34.75 - 35.75	1.0000	1.0000
L26	20	LDF7-50A(1-5/8)	34.75 - 35.75	1.0000	1.0000
L27	2	Safety Line 5/8"	29.75 - 34.75	1.0000	1.0000
L27	3	Climbing Pegs	29.75 - 34.75	1.0000	1.0000
L27	18	HCS 6X12 6AWG(1-3/8)	29.75 - 34.75	1.0000	1.0000
L27	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	29.75 - 34.75	1.0000	1.0000
L27	20	LDF7-50A(1-5/8)	29.75 - 34.75	1.0000	1.0000
L28	2	Safety Line 5/8"	24.75 - 29.75	1.0000	1.0000
L28	3	Climbing Pegs	24.75 - 29.75	1.0000	1.0000
L28	18	HCS 6X12 6AWG(1-3/8)	24.75 - 29.75	1.0000	1.0000
L28	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	24.75 - 29.75	1.0000	1.0000
L28	20	LDF7-50A(1-5/8)	24.75 - 29.75	1.0000	1.0000
L29	2	Safety Line 5/8"	19.75 - 24.75	1.0000	1.0000
L29	3	Climbing Pegs	19.75 - 24.75	1.0000	1.0000
L29	18	HCS 6X12 6AWG(1-3/8)	19.75 - 24.75	1.0000	1.0000
L29	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	19.75 - 24.75	1.0000	1.0000
L29	20	LDF7-50A(1-5/8)	19.75 - 24.75	1.0000	1.0000
L30	2	Safety Line 5/8"	14.75 - 19.75	1.0000	1.0000
L30	3	Climbing Pegs	14.75 - 19.75	1.0000	1.0000
L30	18	HCS 6X12 6AWG(1-3/8)	14.75 - 19.75	1.0000	1.0000
L30	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	14.75 - 19.75	1.0000	1.0000
L30	20	LDF7-50A(1-5/8)	14.75 - 19.75	1.0000	1.0000
L31	2	Safety Line 5/8"	9.75 - 14.75	1.0000	1.0000
L31	3	Climbing Pegs	9.75 - 14.75	1.0000	1.0000
L31	18	HCS 6X12 6AWG(1-3/8)	9.75 - 14.75	1.0000	1.0000
L31	19	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	9.75 - 14.75	1.0000	1.0000
L31	20	LDF7-50A(1-5/8)	9.75 - 14.75	1.0000	1.0000
L32	2	Safety Line 5/8"	8.00 - 9.75	1.0000	1.0000
L32	3	Climbing Pegs	8.00 - 9.75	1.0000	1.0000
L32	18	HCS 6X12 6AWG(1-3/8)	6.00 - 9.75	1.0000	1.0000
L32	19	MLE HYBRID 9POWER/18FIBER RL	6.00 - 9.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L32	20	2(1-5/8) LDF7-50A(1-5/8)	6.00 - 9.75	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L22	26	MP3-03 Reinforcement	47.83 - 49.00	Auto	0.0000
L22	27	MP3-03 Reinforcement	47.83 - 49.00	Auto	0.0000
L22	28	MP3-03 Reinforcement	47.83 - 49.00	Auto	0.0000
L23	26	MP3-03 Reinforcement	47.58 - 47.83	Auto	0.0000
L23	27	MP3-03 Reinforcement	47.58 - 47.83	Auto	0.0000
L23	28	MP3-03 Reinforcement	47.58 - 47.83	Auto	0.0000
L24	26	MP3-03 Reinforcement	42.58 - 47.58	Auto	0.0000
L24	27	MP3-03 Reinforcement	42.58 - 47.58	Auto	0.0000
L24	28	MP3-03 Reinforcement	42.58 - 47.58	Auto	0.0000
L25	26	MP3-03 Reinforcement	39.00 - 42.58	Auto	0.0000
L25	27	MP3-03 Reinforcement	39.00 - 42.58	Auto	0.0000
L25	28	MP3-03 Reinforcement	39.00 - 42.58	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
******									
Platform Mount [LP 1201-1]	C	None		0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	18.38 22.11 25.87 33.47	18.38 22.11 25.87 33.47	2.10 2.65 3.26 4.66
***									
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.29 6.86 7.45 8.68	2.76 3.27 3.79 4.90	0.06 0.11 0.16 0.29
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.29 6.86 7.45 8.68	2.76 3.27 3.79 4.90	0.06 0.11 0.16 0.29
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice	6.29 6.86 7.45	2.76 3.27 3.79	0.06 0.11 0.16

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
						1" Ice	8.68	4.90	0.29
						2" Ice			
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.18 0.31 0.45 0.78
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.18 0.31 0.45 0.78
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.18 0.31 0.45 0.78
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.59 6.02 6.90	2.71 3.04 3.38 4.12	0.13 0.17 0.23 0.35
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.59 6.02 6.90	2.71 3.04 3.38 4.12	0.13 0.17 0.23 0.35
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.59 6.02 6.90	2.71 3.04 3.38 4.12	0.13 0.17 0.23 0.35
RADIO 4415 B66A_CCIV3	A	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	0.68 0.79 0.91 1.18	0.05 0.06 0.07 0.11
RADIO 4415 B66A_CCIV3	B	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	0.68 0.79 0.91 1.18	0.05 0.06 0.07 0.11
RADIO 4415 B66A_CCIV3	C	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	0.68 0.79 0.91 1.18	0.05 0.06 0.07 0.11
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.15 2.33 2.72	1.59 1.75 1.92 2.28	0.07 0.09 0.12 0.17
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.15 2.33 2.72	1.59 1.75 1.92 2.28	0.07 0.09 0.12 0.17
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.15 2.33 2.72	1.59 1.75 1.92 2.28	0.07 0.09 0.12 0.17
RADIO 4424 B25_TMOV1	A	From Leg	4.00 0.00 0.00	0.0000	147.00	No Ice 1/2" Ice	2.05 2.23 2.42	1.61 1.77 1.94	0.10 0.12 0.14

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
						1" Ice	2.81	2.30	0.20
						2" Ice			
RADIO 4424 B25_TMOV1	B	From Leg	4.00	0.0000	147.00	No Ice	2.05	1.61	0.10
			0.00			1/2"	2.23	1.77	0.12
			0.00			Ice	2.42	1.94	0.14
						1" Ice	2.81	2.30	0.20
						2" Ice			
RADIO 4424 B25_TMOV1	C	From Leg	4.00	0.0000	147.00	No Ice	2.05	1.61	0.10
			0.00			1/2"	2.23	1.77	0.12
			0.00			Ice	2.42	1.94	0.14
						1" Ice	2.81	2.30	0.20
						2" Ice			
Support Rail Kit [#HRK-12]	C	None		0.0000	147.00	No Ice	12.17	12.17	0.51
						1/2"	16.47	16.47	0.70
						Ice	20.42	20.42	0.95
						1" Ice	27.62	27.62	1.65
						2" Ice			
Platform Reinforcement Kit [#PRK-1245L]	C	None		0.0000	147.00	No Ice	11.84	11.84	0.28
						1/2"	16.96	16.96	0.30
						Ice	22.08	22.08	0.32
						1" Ice	32.32	32.32	0.36
						2" Ice			
Pipe Mount [#9' Long, P2.0 STD]	A	From Leg	4.00	0.0000	147.00	No Ice	2.14	2.14	0.07
			0.00			1/2"	3.07	3.07	0.08
			0.00			Ice	4.01	4.01	0.10
						1" Ice	5.13	5.13	0.17
						2" Ice			
Pipe Mount [#9' Long, P2.0 STD]	B	From Leg	4.00	0.0000	147.00	No Ice	2.14	2.14	0.07
			0.00			1/2"	3.07	3.07	0.08
			0.00			Ice	4.01	4.01	0.10
						1" Ice	5.13	5.13	0.17
						2" Ice			
Pipe Mount [#9' Long, P2.0 STD]	C	From Leg	4.00	0.0000	147.00	No Ice	2.14	2.14	0.07
			0.00			1/2"	3.07	3.07	0.08
			0.00			Ice	4.01	4.01	0.10
						1" Ice	5.13	5.13	0.17
						2" Ice			
******									
TME-PCS 1900MHz 4x45W-65MHz	A	From Leg	4.00	0.0000	145.00	No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
			1.00			Ice	2.74	2.65	0.11
						1" Ice	3.19	3.09	0.17
						2" Ice			
TME-PCS 1900MHz 4x45W-65MHz	B	From Leg	4.00	0.0000	145.00	No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
			-1.00			Ice	2.74	2.65	0.11
						1" Ice	3.19	3.09	0.17
						2" Ice			
TME-PCS 1900MHz 4x45W-65MHz	C	From Leg	4.00	0.0000	145.00	No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
			-1.00			Ice	2.74	2.65	0.11
						1" Ice	3.19	3.09	0.17
						2" Ice			
TME-800MHz 2x50W RRH	A	From Leg	4.00	0.0000	145.00	No Ice	2.13	1.77	0.05
			0.00			1/2"	2.32	1.95	0.07
			-1.00			Ice	2.51	2.13	0.10
						1" Ice	2.92	2.51	0.16
						2" Ice			
TME-800MHz 2x50W RRH	B	From Leg	4.00	0.0000	145.00	No Ice	2.13	1.77	0.05
			0.00			1/2"	2.32	1.95	0.07
			1.00			Ice	2.51	2.13	0.10
						1" Ice	2.92	2.51	0.16
						2" Ice			
TME-800MHz 2x50W RRH	C	From Leg	4.00	0.0000	145.00	No Ice	2.13	1.77	0.05
			0.00			1/2"	2.32	1.95	0.07

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
			1.00			Ice	2.51	2.13	0.10
						1" Ice	2.92	2.51	0.16
						2" Ice			
Side Arm Mount [SO 102-3]	C	None		0.0000	145.00	No Ice	3.60	3.60	0.07
						1/2" Ice	4.18	4.18	0.11
						1" Ice	4.75	4.75	0.14
						2" Ice	5.90	5.90	0.20
6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
6' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
6' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
******									
(2) SBNHH-1D65B	A	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	4.16 4.57 4.99 5.85	2.49 2.88 3.27 4.09	0.04 0.09 0.15 0.28
(2) SBNHH-1D65B	B	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	4.16 4.57 4.99 5.85	2.49 2.88 3.27 4.09	0.04 0.09 0.15 0.28
(2) SBNHH-1D65B	C	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	4.16 4.57 4.99 5.85	2.49 2.88 3.27 4.09	0.04 0.09 0.15 0.28
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	7.40 8.14 8.90 10.46	5.39 6.10 6.83 8.34	0.04 0.10 0.16 0.33
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	7.40 8.14 8.90 10.46	5.39 6.10 6.83 8.34	0.04 0.10 0.16 0.33
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	7.40 8.14 8.90 10.46	5.39 6.10 6.83 8.34	0.04 0.10 0.16 0.33
58532A	A	From Leg	4.00 0.00 2.00	0.0000	137.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	0.19 0.25 0.31 0.47	0.19 0.25 0.31 0.47	0.00 0.00 0.01 0.02
RFV01U-D1A	A	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18
RFV01U-D1A	B	From Leg	4.00	0.0000	137.00	No Ice	1.88	1.25	0.08

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
			0.00 0.00			1/2" Ice 1" Ice 2" Ice	2.05 2.22 2.60	1.39 1.54 1.86	0.10 0.12 0.18
RFV01U-D1A	C	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18
RFV01U-D2A	A	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
RFV01U-D2A	B	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
RFV01U-D2A	C	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
DB-T1-6Z-8AB-0Z	A	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.80 5.07 5.35 5.93	2.00 2.19 2.39 2.81	0.04 0.08 0.12 0.21
DB-T1-6Z-8AB-0Z	B	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.80 5.07 5.35 5.93	2.00 2.19 2.39 2.81	0.04 0.08 0.12 0.21
Platform Mount [LP 1201-1_HR-2]	C	None		0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	32.68 38.48 44.02 54.73	32.68 38.48 44.02 54.73	2.56 3.32 4.20 6.30
***									
CBRS w/ Mount Pipe	A	From Leg	4.00 0.00 -2.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.45 1.67 1.90 2.42	0.99 1.18 1.39 1.85	0.03 0.05 0.07 0.12
CBRS w/ Mount Pipe	B	From Leg	4.00 0.00 -2.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.45 1.67 1.90 2.42	0.99 1.18 1.39 1.85	0.03 0.05 0.07 0.12
CBRS w/ Mount Pipe	C	From Leg	4.00 0.00 -2.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.45 1.67 1.90 2.42	0.99 1.18 1.39 1.85	0.03 0.05 0.07 0.12
MT6407-77A w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.91 5.26 5.61 6.36	2.68 3.14 3.62 4.63	0.10 0.14 0.18 0.29
MT6407-77A w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.91 5.26 5.61 6.36	2.68 3.14 3.62 4.63	0.10 0.14 0.18 0.29

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
MT6407-77A w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.91 5.26 5.61 6.36	2.68 3.14 3.62 4.63	0.10 0.14 0.18 0.29
Dual Antenna Mount Kit	A	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.32 1.58 1.84 2.40	1.32 1.58 1.84 2.40	0.07 0.08 0.09 0.13
Dual Antenna Mount Kit	B	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.32 1.58 1.84 2.40	1.32 1.58 1.84 2.40	0.07 0.08 0.09 0.13
Dual Antenna Mount Kit	C	From Leg	4.00 0.00 0.00	0.0000	137.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.32 1.58 1.84 2.40	1.32 1.58 1.84 2.40	0.07 0.08 0.09 0.13
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7770.00 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
7770.00 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
HPA-65R-BUU-H8 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.25 13.19 14.16 16.14	8.33 9.23 10.15 12.05	0.10 0.19 0.30 0.54
SBNHH-1D65A w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.04 3.34 3.65 4.31	2.45 2.75 3.05 3.68	0.05 0.10 0.16 0.31
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.22 9.98 10.76 12.36	6.25 6.96 7.70 9.22	0.07 0.14 0.22 0.42
LGP17201	A	From Leg	4.00 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.04 2.21 2.59	0.48 0.58 0.69 0.93	0.03 0.04 0.06 0.10
LGP17201	C	From Leg	4.00 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.04 2.21 2.59	0.48 0.58 0.69 0.93	0.03 0.04 0.06 0.10
(2) 860 10025	A	From Leg	4.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	0.14 0.20 0.26 0.41	0.12 0.17 0.23 0.38	0.00 0.00 0.01 0.01

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
						2" Ice			
(2) 860 10025	C	From Leg	4.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.14 0.20 0.26 0.41	0.12 0.17 0.23 0.38	0.00 0.00 0.01 0.01
RRUS 32 B2	A	From Leg	4.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16
RRUS 32 B2	B	From Leg	4.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16
RRUS 32 B2	C	From Leg	4.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16
(2) 6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
(2) 6' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
(2) 6' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
Platform Mount [LP 1201-1]	C	None		0.0000	117.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	18.38 22.11 25.87 33.47	18.38 22.11 25.87 33.47	2.10 2.65 3.26 4.66
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TME-RRU-11	A	From Leg	4.00 0.00 4.00	0.0000	115.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	2.79 3.00 3.21 3.67	1.19 1.34 1.50 1.84	0.05 0.07 0.10 0.15
TME-RRU-11	B	From Leg	4.00 0.00 4.00	0.0000	115.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	2.79 3.00 3.21 3.67	1.19 1.34 1.50 1.84	0.05 0.07 0.10 0.15
TME-RRU-11	C	From Leg	4.00 0.00 4.00	0.0000	115.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	2.79 3.00 3.21 3.67	1.19 1.34 1.50 1.84	0.05 0.07 0.10 0.15
TME-DC6-48-60-18-8F	A	From Leg	4.00 0.00 4.00	0.0000	115.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.00 1.58 1.77 2.18	1.00 1.58 1.77 2.18	0.03 0.05 0.07 0.13
6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	115.00	No Ice 1/2" Ice Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05

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
						1" Ice	3.06	3.06	0.09
						2" Ice			
6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	115.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	115.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
Side Arm Mount [SO 102-3]	C	None		0.0000	115.00	No Ice	3.60	3.60	0.07
						1/2"	4.18	4.18	0.11
						Ice	4.75	4.75	0.14
						1" Ice	5.90	5.90	0.20
						2" Ice			
******									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00	0.0000	107.00	No Ice	3.14	2.59	0.11
			0.00			1/2"	3.45	2.88	0.16
			0.00			Ice	3.77	3.19	0.23
						1" Ice	4.43	3.84	0.38
						2" Ice			
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00	0.0000	107.00	No Ice	3.14	2.59	0.11
			0.00			1/2"	3.45	2.88	0.16
			0.00			Ice	3.77	3.19	0.23
						1" Ice	4.43	3.84	0.38
						2" Ice			
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00	0.0000	107.00	No Ice	3.14	2.59	0.11
			0.00			1/2"	3.45	2.88	0.16
			0.00			Ice	3.77	3.19	0.23
						1" Ice	4.43	3.84	0.38
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00	0.0000	107.00	No Ice	14.69	6.87	0.19
			0.00			1/2"	15.46	7.55	0.31
			0.00			Ice	16.23	8.25	0.46
						1" Ice	17.82	9.67	0.79
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00	0.0000	107.00	No Ice	14.69	6.87	0.19
			0.00			1/2"	15.46	7.55	0.31
			0.00			Ice	16.23	8.25	0.46
						1" Ice	17.82	9.67	0.79
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00	0.0000	107.00	No Ice	14.69	6.87	0.19
			0.00			1/2"	15.46	7.55	0.31
			0.00			Ice	16.23	8.25	0.46
						1" Ice	17.82	9.67	0.79
						2" Ice			
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.00	0.0000	107.00	No Ice	3.76	3.15	0.19
			0.00			1/2"	4.12	3.49	0.25
			0.00			Ice	4.48	3.84	0.32
						1" Ice	5.24	4.58	0.48
						2" Ice			
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.00	0.0000	107.00	No Ice	3.76	3.15	0.19
			0.00			1/2"	4.12	3.49	0.25
			0.00			Ice	4.48	3.84	0.32
						1" Ice	5.24	4.58	0.48
						2" Ice			
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.00	0.0000	107.00	No Ice	3.76	3.15	0.19
			0.00			1/2"	4.12	3.49	0.25
			0.00			Ice	4.48	3.84	0.32
						1" Ice	5.24	4.58	0.48
						2" Ice			
KRY 112 144/1	A	From Leg	4.00	0.0000	107.00	No Ice	0.35	0.17	0.01
			0.00			1/2"	0.43	0.23	0.01

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
			0.00			Ice	0.51	0.30	0.02
						1" Ice	0.70	0.46	0.03
						2" Ice			
(2) KRY 112 144/1	B	From Leg	4.00	0.0000	107.00	No Ice	0.35	0.17	0.01
			0.00			1/2"	0.43	0.23	0.01
			0.00			Ice	0.51	0.30	0.02
						1" Ice	0.70	0.46	0.03
						2" Ice			
(2) RADIO 4449 B12/B71	A	From Leg	4.00	0.0000	107.00	No Ice	1.65	1.16	0.07
			0.00			1/2"	1.81	1.30	0.09
			0.00			Ice	1.98	1.45	0.11
						1" Ice	2.34	1.76	0.16
						2" Ice			
RADIO 4449 B12/B71	C	From Leg	4.00	0.0000	107.00	No Ice	1.65	1.16	0.07
			0.00			1/2"	1.81	1.30	0.09
			0.00			Ice	1.98	1.45	0.11
						1" Ice	2.34	1.76	0.16
						2" Ice			
T-Arm Mount [TA 701-3]	C	None		0.0000	107.00	No Ice	23.94	23.94	1.09
						1/2"	30.04	30.04	1.48
						Ice	36.16	36.16	1.95
						1" Ice	48.72	48.72	3.16
						2" Ice			
******									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00	0.0000	97.00	No Ice	8.01	4.23	0.11
			0.00			1/2"	8.52	4.69	0.19
			0.00			Ice	9.04	5.16	0.29
						1" Ice	10.11	6.12	0.52
						2" Ice			
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00	0.0000	97.00	No Ice	8.01	4.23	0.11
			0.00			1/2"	8.52	4.69	0.19
			0.00			Ice	9.04	5.16	0.29
						1" Ice	10.11	6.12	0.52
						2" Ice			
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00	0.0000	97.00	No Ice	8.01	4.23	0.11
			0.00			1/2"	8.52	4.69	0.19
			0.00			Ice	9.04	5.16	0.29
						1" Ice	10.11	6.12	0.52
						2" Ice			
TA08025-B604	A	From Leg	4.00	0.0000	97.00	No Ice	1.96	0.98	0.06
			0.00			1/2"	2.14	1.11	0.08
			0.00			Ice	2.32	1.25	0.10
						1" Ice	2.71	1.55	0.15
						2" Ice			
TA08025-B604	B	From Leg	4.00	0.0000	97.00	No Ice	1.96	0.98	0.06
			0.00			1/2"	2.14	1.11	0.08
			0.00			Ice	2.32	1.25	0.10
						1" Ice	2.71	1.55	0.15
						2" Ice			
TA08025-B604	C	From Leg	4.00	0.0000	97.00	No Ice	1.96	0.98	0.06
			0.00			1/2"	2.14	1.11	0.08
			0.00			Ice	2.32	1.25	0.10
						1" Ice	2.71	1.55	0.15
						2" Ice			
TA08025-B605	A	From Leg	4.00	0.0000	97.00	No Ice	1.96	1.13	0.08
			0.00			1/2"	2.14	1.27	0.09
			0.00			Ice	2.32	1.41	0.11
						1" Ice	2.71	1.72	0.16
						2" Ice			
TA08025-B605	B	From Leg	4.00	0.0000	97.00	No Ice	1.96	1.13	0.08
			0.00			1/2"	2.14	1.27	0.09
			0.00			Ice	2.32	1.41	0.11
						1" Ice	2.71	1.72	0.16
						2" Ice			
TA08025-B605	C	From Leg	4.00	0.0000	97.00	No Ice	1.96	1.13	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	2.14	1.27	0.09
			0.00			1" Ice	2.32	1.41	0.11
						2" Ice	2.71	1.72	0.16
RDIDC-9181-PF-48	A	From Leg	4.00	0.0000	97.00	No Ice	2.01	1.17	0.02
			0.00			1/2" Ice	2.19	1.31	0.04
			0.00			1" Ice	2.37	1.46	0.06
						2" Ice	2.76	1.78	0.11
(2) 8' x 2" Mount Pipe	A	From Leg	4.00	0.0000	97.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
						2" Ice	4.40	4.40	0.12
(2) 8' x 2" Mount Pipe	B	From Leg	4.00	0.0000	97.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
						2" Ice	4.40	4.40	0.12
(2) 8' x 2" Mount Pipe	C	From Leg	4.00	0.0000	97.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
						2" Ice	4.40	4.40	0.12
Commscope MC-PK8-DSH	C	None		0.0000	97.00	No Ice	34.24	34.24	1.75
						1/2" Ice	62.95	62.95	2.10
						1" Ice	91.66	91.66	2.45
						2" Ice	149.08	149.08	3.15
******									
58532A	A	From Leg	4.00	0.0000	49.00	No Ice	0.19	0.19	0.00
			0.00			1/2" Ice	0.25	0.25	0.00
			1.00			1" Ice	0.31	0.31	0.01
						2" Ice	0.47	0.47	0.02
Side Arm Mount [SO 701-1]	A	From Leg	1.00	0.0000	49.00	No Ice	0.85	1.67	0.07
			0.00			1/2" Ice	1.14	2.34	0.08
			0.00			1" Ice	1.43	3.01	0.09
						2" Ice	2.01	4.35	0.12
******									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice

Comb. No.	Description
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
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	147.5 - 142.5	Pole	Max Tension	26	0.00	-0.00	-0.00
			Max. Compression	26	-16.05	-0.06	0.10
			Max. Mx	8	-5.84	-30.23	0.02
			Max. My	2	-5.85	-0.01	30.16
			Max. Vy	20	-7.24	30.21	0.02
			Max. Vx	2	-7.23	-0.01	30.16
			Max. Torque	6			0.00
L2	142.5 - 137.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.86	-0.12	0.21
			Max. Mx	8	-6.23	-67.34	0.04
			Max. My	2	-6.25	-0.01	67.22
			Max. Vy	20	-7.60	67.30	0.04
			Max. Vx	2	-7.59	-0.01	67.22
			Max. Torque	6			0.00
L3	137.5 - 132.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.39	-1.11	1.01
			Max. Mx	8	-10.95	-127.58	-0.03
			Max. My	2	-10.96	0.00	127.50
			Max. Vy	20	-12.54	127.11	0.35
			Max. Vx	2	-12.57	0.00	127.50
			Max. Torque	25			-0.34
L4	132.5 - 127.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.30	-1.16	1.18

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	-11.44	-191.21	-0.21
			Max. My	2	-11.45	0.20	191.28
			Max. Vy	20	-12.91	190.73	0.59
			Max. Vx	2	-12.94	0.20	191.28
			Max. Torque	25			-0.34
L5	127.5 - 122.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.23	-1.21	1.36
			Max. Mx	8	-11.96	-256.69	-0.39
			Max. My	2	-11.97	0.41	256.89
			Max. Vy	20	-13.28	256.19	0.83
			Max. Vx	2	-13.31	0.41	256.89
			Max. Torque	25			-0.34
L6	122.5 - 117.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.19	-1.26	1.54
			Max. Mx	8	-12.50	-324.03	-0.56
			Max. My	2	-12.51	0.61	324.36
			Max. Vy	20	-13.66	323.50	1.07
			Max. Vx	2	-13.68	0.61	324.36
			Max. Torque	25			-0.34
L7	117.5 - 112.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.72	-0.23	3.69
			Max. Mx	20	-16.49	411.00	1.43
			Max. My	2	-16.50	0.70	412.80
			Max. Vy	20	-17.48	411.00	1.43
			Max. Vx	2	-17.59	0.70	412.80
			Max. Torque	19			-1.11
L8	112.5 - 108.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.77	-0.23	3.71
			Max. Mx	20	-16.53	415.37	1.43
			Max. My	2	-16.54	0.69	417.20
			Max. Vy	20	-17.50	415.37	1.43
			Max. Vx	2	-17.61	0.69	417.20
			Max. Torque	19			-1.11
L9	108.5 - 107.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.44	-0.27	3.92
			Max. Mx	8	-17.49	-503.95	0.10
			Max. My	2	-17.50	0.63	506.34
			Max. Vy	20	-17.93	503.94	1.41
			Max. Vx	2	-18.04	0.63	506.34
			Max. Torque	19			-1.11
L10	107.25 - 102.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.68	0.43	5.63
			Max. Mx	20	-21.23	609.84	2.03
			Max. My	2	-21.26	0.87	612.98
			Max. Vy	20	-21.50	609.84	2.03
			Max. Vx	2	-21.52	0.87	612.98
			Max. Torque	19			-1.41
L11	102.25 - 97.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.03	0.71	6.04
			Max. Mx	20	-21.97	719.11	2.02
			Max. My	2	-22.05	0.86	721.39
			Max. Vy	20	-22.21	719.11	2.02
			Max. Vx	2	-21.84	0.86	721.39
			Max. Torque	21			-1.54
L12	97.25 - 92.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.21	0.99	7.05
			Max. Mx	20	-25.72	845.01	2.13
			Max. My	2	-25.81	0.85	845.40
			Max. Vy	20	-25.53	845.01	2.13
			Max. Vx	2	-25.08	0.85	845.40
			Max. Torque	21			-1.73

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L13	92.25 - 87.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.62	1.28	7.47
			Max. Mx	20	-26.59	973.59	2.14
			Max. My	2	-26.69	0.85	971.45
			Max. Vy	20	-25.91	973.59	2.14
			Max. Vx	2	-25.36	0.85	971.45
			Max. Torque	21			-1.73
L14	87.25 - 82.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.05	1.57	7.89
			Max. Mx	20	-27.49	1104.03	2.14
			Max. My	2	-27.59	0.84	1098.85
			Max. Vy	20	-26.28	1104.03	2.14
			Max. Vx	2	-25.62	0.84	1098.85
			Max. Torque	21			-1.73
L15	82.25 - 77.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-69.50	1.87	8.30
			Max. Mx	20	-28.42	1236.23	2.15
			Max. My	2	-28.52	0.83	1227.55
			Max. Vy	20	-26.62	1236.23	2.15
			Max. Vx	2	-25.88	0.83	1227.55
			Max. Torque	21			-1.73
L16	77.25 - 72.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-69.64	1.90	8.34
			Max. Mx	20	-28.52	1249.55	2.15
			Max. My	2	-28.63	0.83	1240.49
			Max. Vy	20	-26.65	1249.55	2.15
			Max. Vx	2	-25.89	0.83	1240.49
			Max. Torque	21			-1.73
L17	72.25 - 71.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.14	2.20	8.74
			Max. Mx	20	-30.02	1384.04	2.15
			Max. My	2	-30.13	0.83	1370.98
			Max. Vy	20	-27.13	1384.04	2.15
			Max. Vx	2	-26.29	0.83	1370.98
			Max. Torque	21			-1.72
L18	71.75 - 66.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.76	2.50	9.13
			Max. Mx	20	-31.09	1520.59	2.15
			Max. My	2	-31.20	0.82	1503.10
			Max. Vy	20	-27.49	1520.59	2.15
			Max. Vx	2	-26.57	0.82	1503.10
			Max. Torque	21			-1.72
L19	66.75 - 61.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.41	2.80	9.52
			Max. Mx	20	-32.20	1658.86	2.16
			Max. My	2	-32.31	0.82	1636.53
			Max. Vy	20	-27.83	1658.86	2.16
			Max. Vx	2	-26.82	0.82	1636.53
			Max. Torque	21			-1.72
L20	61.75 - 56.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-77.08	3.10	9.90
			Max. Mx	20	-33.34	1798.75	2.16
			Max. My	2	-33.44	0.81	1771.22
			Max. Vy	20	-28.15	1798.75	2.16
			Max. Vx	2	-27.07	0.81	1771.22
			Max. Torque	21			-1.72
L21	56.75 - 51.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.77	3.40	10.27
			Max. Mx	20	-34.50	1940.17	2.16
			Max. My	2	-34.60	0.81	1907.09

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-28.44	1940.17	2.16
			Max. Vx	2	-27.30	0.81	1907.09
			Max. Torque	21			-1.72
L22	51.75 - 47.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-80.30	3.64	10.98
			Max. Mx	20	-35.50	2052.08	2.36
			Max. My	2	-35.60	0.81	2014.57
			Max. Vy	20	-28.74	2052.08	2.36
			Max. Vx	2	-27.52	0.81	2014.57
			Max. Torque	21			-1.90
L23	47.833 - 47.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-80.39	3.65	11.01
			Max. Mx	20	-35.58	2059.26	2.36
			Max. My	2	-35.67	0.81	2021.45
			Max. Vy	20	-28.74	2059.26	2.36
			Max. Vx	2	-27.51	0.81	2021.45
			Max. Torque	21			-1.90
L24	47.583 - 42.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-82.31	3.95	11.36
			Max. Mx	20	-36.77	2203.71	2.36
			Max. My	2	-36.86	0.81	2159.50
			Max. Vy	20	-29.05	2203.71	2.36
			Max. Vx	2	-27.72	0.81	2159.50
			Max. Torque	21			-1.90
L25	42.583 - 35.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-82.89	4.05	11.47
			Max. Mx	20	-37.15	2249.74	2.36
			Max. My	2	-37.24	0.81	2203.42
			Max. Vy	20	-29.14	2249.74	2.36
			Max. Vx	2	-27.80	0.81	2203.42
			Max. Torque	21			-1.90
L26	35.75 - 34.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.74	4.43	11.91
			Max. Mx	20	-39.67	2433.39	2.36
			Max. My	2	-39.75	0.81	2378.36
			Max. Vy	20	-29.62	2433.39	2.36
			Max. Vx	2	-28.19	0.81	2378.36
			Max. Torque	21			-1.89
L27	34.75 - 29.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.67	4.72	12.25
			Max. Mx	20	-41.07	2582.05	2.36
			Max. My	2	-41.14	0.81	2519.75
			Max. Vy	20	-29.86	2582.05	2.36
			Max. Vx	2	-28.38	0.81	2519.75
			Max. Torque	21			-1.89
L28	29.75 - 24.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-90.63	5.02	12.58
			Max. Mx	20	-42.50	2731.86	2.36
			Max. My	2	-42.56	0.81	2662.05
			Max. Vy	20	-30.08	2731.86	2.36
			Max. Vx	2	-28.56	0.81	2662.05
			Max. Torque	21			-1.89
L29	24.75 - 19.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.59	5.31	12.89
			Max. Mx	20	-43.95	2882.75	2.35
			Max. My	2	-44.00	0.82	2805.23
			Max. Vy	20	-30.29	2882.75	2.35
			Max. Vx	2	-28.73	0.82	2805.23
			Max. Torque	21			-1.89
L30	19.75 - 14.75	Pole	Max Tension	1	0.00	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	-94.58	5.58	13.16
			Max. Mx	20	-45.42	3034.69	2.35
			Max. My	2	-45.46	0.82	2949.28
			Max. Vy	20	-30.50	3034.69	2.35
			Max. Vx	2	-28.91	0.82	2949.28
			Max. Torque	21			-1.89
L31	14.75 - 9.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-96.57	5.86	13.43
			Max. Mx	20	-46.92	3187.66	2.35
			Max. My	2	-46.95	0.82	3094.18
			Max. Vy	20	-30.70	3187.66	2.35
			Max. Vx	2	-29.07	0.82	3094.18
			Max. Torque	21			-1.89
L32	9.75 - 4.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-98.42	6.09	13.60
			Max. Mx	20	-48.38	3341.51	2.33
			Max. My	2	-48.39	0.82	3239.89
			Max. Vy	20	-30.86	3341.51	2.33
			Max. Vx	2	-29.24	0.82	3239.89
			Max. Torque	21			-1.89
L33	4.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-99.90	6.09	13.60
			Max. Mx	20	-49.63	3488.34	2.26
			Max. My	2	-49.63	0.75	3379.04
			Max. Vy	20	-31.02	3488.34	2.26
			Max. Vx	2	-29.40	0.75	3379.04
			Max. Torque	21			-1.89

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	99.90	-0.00	8.49
	Max. H_x	20	49.65	30.98	-0.01
	Max. H_z	3	37.24	-0.01	29.37
	Max. M_x	2	3379.04	-0.01	29.37
	Max. M_z	8	3484.99	-30.98	0.01
	Max. Torsion	9	1.88	-30.98	0.01
	Min. Vert	23	37.24	25.29	14.67
	Min. H_x	8	49.65	-30.98	0.01
	Min. H_z	15	37.24	0.01	-29.37
	Min. M_x	14	-3372.64	0.01	-29.37
	Min. M_z	20	-3488.34	30.98	-0.01
	Min. Torsion	21	-1.89	30.98	-0.01

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	41.37	-0.00	-0.00	-2.55	1.34	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	49.65	0.01	-29.37	-3379.04	0.75	-0.47
0.9 Dead+1.0 Wind 0 deg - No Ice	37.24	0.01	-29.37	-3305.61	0.31	-0.47
1.2 Dead+1.0 Wind 30 deg - No Ice	49.65	14.62	-25.44	-2927.26	-1675.46	-1.24
0.9 Dead+1.0 Wind 30 deg - No Ice	37.24	14.62	-25.44	-2863.55	-1639.87	-1.25
1.2 Dead+1.0 Wind 60 deg -	49.65	25.65	-14.90	-1708.91	-2931.69	-1.68

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
No Ice						
0.9 Dead+1.0 Wind 60 deg - No Ice	37.24	25.65	-14.90	-1671.50	-2869.28	-1.70
1.2 Dead+1.0 Wind 90 deg - No Ice	49.65	30.98	-0.01	-4.10	-3484.99	-1.87
0.9 Dead+1.0 Wind 90 deg - No Ice	37.24	30.98	-0.01	-3.24	-3411.41	-1.88
1.2 Dead+1.0 Wind 120 deg - No Ice	49.65	25.29	14.67	1683.99	-2901.40	-1.22
0.9 Dead+1.0 Wind 120 deg - No Ice	37.24	25.29	14.67	1648.57	-2839.45	-1.23
1.2 Dead+1.0 Wind 150 deg - No Ice	49.65	14.59	25.43	2919.94	-1673.84	-0.44
0.9 Dead+1.0 Wind 150 deg - No Ice	37.24	14.59	25.43	2857.96	-1638.27	-0.45
1.2 Dead+1.0 Wind 180 deg - No Ice	49.65	-0.01	29.37	3372.64	2.60	0.46
0.9 Dead+1.0 Wind 180 deg - No Ice	37.24	-0.01	29.37	3300.94	2.15	0.46
1.2 Dead+1.0 Wind 210 deg - No Ice	49.65	-14.62	25.44	2920.87	1678.79	1.24
0.9 Dead+1.0 Wind 210 deg - No Ice	37.24	-14.62	25.44	2858.89	1642.32	1.25
1.2 Dead+1.0 Wind 240 deg - No Ice	49.65	-25.65	14.90	1702.54	2935.03	1.69
0.9 Dead+1.0 Wind 240 deg - No Ice	37.24	-25.65	14.90	1666.86	2871.73	1.71
1.2 Dead+1.0 Wind 270 deg - No Ice	49.65	-30.98	0.01	-2.25	3488.34	1.88
0.9 Dead+1.0 Wind 270 deg - No Ice	37.24	-30.98	0.01	-1.39	3413.87	1.89
1.2 Dead+1.0 Wind 300 deg - No Ice	49.65	-25.29	-14.67	-1690.37	2904.76	1.22
0.9 Dead+1.0 Wind 300 deg - No Ice	37.24	-25.29	-14.67	-1653.22	2841.92	1.23
1.2 Dead+1.0 Wind 330 deg - No Ice	49.65	-14.59	-25.43	-2926.33	1677.20	0.43
0.9 Dead+1.0 Wind 330 deg - No Ice	37.24	-14.59	-25.43	-2862.62	1640.73	0.44
1.2 Dead+1.0 Ice+1.0 Temp	99.90	-0.00	-0.00	-13.60	6.09	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	99.90	0.00	-8.49	-1105.87	5.98	-0.12
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	99.90	4.23	-7.35	-959.63	-537.92	-0.30
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	99.90	7.33	-4.25	-559.92	-936.06	-0.41
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	99.90	8.51	-0.00	-13.83	-1087.23	-0.44
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	99.90	7.33	4.24	532.29	-935.91	-0.29
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	99.90	4.23	7.35	932.12	-537.67	-0.10
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	99.90	-0.00	8.49	1078.52	6.28	0.12
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	99.90	-4.23	7.35	932.26	550.19	0.30
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	99.90	-7.33	4.25	532.54	948.32	0.41
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	99.90	-8.51	0.00	-13.54	1099.49	0.44
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	99.90	-7.33	-4.24	-559.66	948.17	0.29
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	99.90	-4.23	-7.35	-959.48	549.93	0.10
Dead+Wind 0 deg - Service	41.37	0.00	-6.37	-726.95	1.19	-0.10
Dead+Wind 30 deg - Service	41.37	3.17	-5.52	-630.01	-358.44	-0.28
Dead+Wind 60 deg - Service	41.37	5.57	-3.23	-368.64	-628.00	-0.38
Dead+Wind 90 deg - Service	41.37	6.72	-0.00	-2.85	-746.85	-0.42
Dead+Wind 120 deg -	41.37	5.49	3.18	359.32	-621.46	-0.28

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Service						
Dead+Wind 150 deg - Service	41.37	3.17	5.52	624.51	-358.10	-0.10
Dead+Wind 180 deg - Service	41.37	-0.00	6.37	721.64	1.59	0.10
Dead+Wind 210 deg - Service	41.37	-3.17	5.52	624.71	361.22	0.28
Dead+Wind 240 deg - Service	41.37	-5.57	3.23	363.33	630.77	0.38
Dead+Wind 270 deg - Service	41.37	-6.72	0.00	-2.45	749.63	0.42
Dead+Wind 300 deg - Service	41.37	-5.49	-3.18	-364.63	624.24	0.28
Dead+Wind 330 deg - Service	41.37	-3.17	-5.52	-629.82	360.87	0.10

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-41.37	0.00	0.00	41.37	0.00	0.000%
2	0.01	-49.65	-29.37	-0.01	49.65	29.37	0.000%
3	0.01	-37.24	-29.37	-0.01	37.24	29.37	0.000%
4	14.62	-49.65	-25.44	-14.62	49.65	25.44	0.000%
5	14.62	-37.24	-25.44	-14.62	37.24	25.44	0.000%
6	25.65	-49.65	-14.90	-25.65	49.65	14.90	0.000%
7	25.65	-37.24	-14.90	-25.65	37.24	14.90	0.000%
8	30.98	-49.65	-0.01	-30.98	49.65	0.01	0.000%
9	30.98	-37.24	-0.01	-30.98	37.24	0.01	0.000%
10	25.29	-49.65	14.67	-25.29	49.65	-14.67	0.000%
11	25.29	-37.24	14.67	-25.29	37.24	-14.67	0.000%
12	14.59	-49.65	25.43	-14.59	49.65	-25.43	0.000%
13	14.59	-37.24	25.43	-14.59	37.24	-25.43	0.000%
14	-0.01	-49.65	29.37	0.01	49.65	-29.37	0.000%
15	-0.01	-37.24	29.37	0.01	37.24	-29.37	0.000%
16	-14.62	-49.65	25.44	14.62	49.65	-25.44	0.000%
17	-14.62	-37.24	25.44	14.62	37.24	-25.44	0.000%
18	-25.65	-49.65	14.90	25.65	49.65	-14.90	0.000%
19	-25.65	-37.24	14.90	25.65	37.24	-14.90	0.000%
20	-30.98	-49.65	0.01	30.98	49.65	-0.01	0.000%
21	-30.98	-37.24	0.01	30.98	37.24	-0.01	0.000%
22	-25.29	-49.65	-14.67	25.29	49.65	14.67	0.000%
23	-25.29	-37.24	-14.67	25.29	37.24	14.67	0.000%
24	-14.59	-49.65	-25.43	14.59	49.65	25.43	0.000%
25	-14.59	-37.24	-25.43	14.59	37.24	25.43	0.000%
26	0.00	-99.90	0.00	0.00	99.90	0.00	0.000%
27	0.00	-99.90	-8.49	-0.00	99.90	8.49	0.000%
28	4.23	-99.90	-7.35	-4.23	99.90	7.35	0.000%
29	7.33	-99.90	-4.25	-7.33	99.90	4.25	0.000%
30	8.51	-99.90	-0.00	-8.51	99.90	0.00	0.000%
31	7.33	-99.90	4.24	-7.33	99.90	-4.24	0.000%
32	4.23	-99.90	7.35	-4.23	99.90	-7.35	0.000%
33	-0.00	-99.90	8.49	0.00	99.90	-8.49	0.000%
34	-4.23	-99.90	7.35	4.23	99.90	-7.35	0.000%
35	-7.33	-99.90	4.25	7.33	99.90	-4.25	0.000%
36	-8.51	-99.90	0.00	8.51	99.90	-0.00	0.000%
37	-7.33	-99.90	-4.24	7.33	99.90	4.24	0.000%
38	-4.23	-99.90	-7.35	4.23	99.90	7.35	0.000%
39	0.00	-41.37	-6.37	-0.00	41.37	6.37	0.000%
40	3.17	-41.37	-5.52	-3.17	41.37	5.52	0.000%
41	5.57	-41.37	-3.23	-5.57	41.37	3.23	0.000%
42	6.72	-41.37	-0.00	-6.72	41.37	0.00	0.000%
43	5.49	-41.37	3.18	-5.49	41.37	-3.18	0.000%
44	3.17	-41.37	5.52	-3.17	41.37	-5.52	0.000%
45	-0.00	-41.37	6.37	0.00	41.37	-6.37	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
46	-3.17	-41.37	5.52	3.17	41.37	-5.52	0.000%
47	-5.57	-41.37	3.23	5.57	41.37	-3.23	0.000%
48	-6.72	-41.37	0.00	6.72	41.37	-0.00	0.000%
49	-5.49	-41.37	-3.18	5.49	41.37	3.18	0.000%
50	-3.17	-41.37	-5.52	3.17	41.37	5.52	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00001176
2	Yes	6	0.00000001	0.00018635
3	Yes	5	0.00000001	0.00082696
4	Yes	8	0.00000001	0.00013185
5	Yes	7	0.00000001	0.00031768
6	Yes	8	0.00000001	0.00013771
7	Yes	7	0.00000001	0.00033272
8	Yes	6	0.00000001	0.00055064
9	Yes	6	0.00000001	0.00018888
10	Yes	8	0.00000001	0.00013154
11	Yes	7	0.00000001	0.00031734
12	Yes	8	0.00000001	0.00013425
13	Yes	7	0.00000001	0.00032454
14	Yes	6	0.00000001	0.00019023
15	Yes	5	0.00000001	0.00084728
16	Yes	8	0.00000001	0.00013598
17	Yes	7	0.00000001	0.00032900
18	Yes	8	0.00000001	0.00013190
19	Yes	7	0.00000001	0.00031725
20	Yes	6	0.00000001	0.00054604
21	Yes	6	0.00000001	0.00018723
22	Yes	8	0.00000001	0.00013596
23	Yes	7	0.00000001	0.00032882
24	Yes	8	0.00000001	0.00013345
25	Yes	7	0.00000001	0.00032180
26	Yes	5	0.00000001	0.00051553
27	Yes	8	0.00000001	0.00046029
28	Yes	8	0.00000001	0.00097607
29	Yes	9	0.00000001	0.00025202
30	Yes	8	0.00000001	0.00045468
31	Yes	8	0.00000001	0.00092518
32	Yes	8	0.00000001	0.00093903
33	Yes	8	0.00000001	0.00044554
34	Yes	8	0.00000001	0.00096121
35	Yes	8	0.00000001	0.00093331
36	Yes	8	0.00000001	0.00045877
37	Yes	9	0.00000001	0.00025438
38	Yes	8	0.00000001	0.00099986
39	Yes	5	0.00000001	0.00022191
40	Yes	6	0.00000001	0.00016248
41	Yes	6	0.00000001	0.00018264
42	Yes	5	0.00000001	0.00034511
43	Yes	6	0.00000001	0.00015900
44	Yes	6	0.00000001	0.00016819
45	Yes	5	0.00000001	0.00021980
46	Yes	6	0.00000001	0.00017505
47	Yes	6	0.00000001	0.00016049
48	Yes	5	0.00000001	0.00034597
49	Yes	6	0.00000001	0.00017777
50	Yes	6	0.00000001	0.00016870

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147.5 - 142.5	30.926	48	1.7766	0.0029
L2	142.5 - 137.5	29.067	48	1.7731	0.0029
L3	137.5 - 132.5	27.216	48	1.7614	0.0029
L4	132.5 - 127.5	25.382	48	1.7408	0.0028
L5	127.5 - 122.5	23.574	48	1.7106	0.0028
L6	122.5 - 117.5	21.803	48	1.6724	0.0027
L7	117.5 - 112.5	20.074	48	1.6279	0.0027
L8	112.5 - 108.5	18.396	48	1.5769	0.0025
L9	112.25 - 107.25	18.313	48	1.5741	0.0025
L10	107.25 - 102.25	16.681	48	1.5366	0.0024
L11	102.25 - 97.25	15.107	48	1.4701	0.0022
L12	97.25 - 92.25	13.605	48	1.3979	0.0020
L13	92.25 - 87.25	12.181	48	1.3205	0.0018
L14	87.25 - 82.25	10.841	48	1.2381	0.0016
L15	82.25 - 77.25	9.589	48	1.1519	0.0014
L16	77.25 - 72.25	8.430	48	1.0626	0.0012
L17	76.75 - 71.75	8.319	48	1.0535	0.0012
L18	71.75 - 66.75	7.238	48	1.0081	0.0011
L19	66.75 - 61.75	6.223	48	0.9297	0.0010
L20	61.75 - 56.75	5.291	48	0.8503	0.0009
L21	56.75 - 51.75	4.442	48	0.7705	0.0008
L22	51.75 - 47.833	3.678	48	0.6903	0.0007
L23	47.833 - 47.583	3.137	48	0.6275	0.0006
L24	47.583 - 42.583	3.104	48	0.6235	0.0006
L25	42.583 - 35.75	2.493	48	0.5434	0.0005
L26	41 - 34.75	2.317	48	0.5181	0.0005
L27	34.75 - 29.75	1.670	48	0.4652	0.0004
L28	29.75 - 24.75	1.219	48	0.3961	0.0003
L29	24.75 - 19.75	0.840	48	0.3276	0.0003
L30	19.75 - 14.75	0.533	48	0.2598	0.0002
L31	14.75 - 9.75	0.296	48	0.1928	0.0002
L32	9.75 - 4.75	0.129	48	0.1266	0.0001
L33	4.75 - 0	0.030	48	0.0612	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
147.00	Platform Mount [LP 1201-1]	48	30.740	1.7764	0.0029	37148
145.00	TME-PCS 1900MHz 4x45W-65MHz	48	29.996	1.7755	0.0029	37148
137.00	(2) SBNHH-1D65B	48	27.032	1.7597	0.0029	16883
117.00	7770.00 w/ Mount Pipe	48	19.904	1.6231	0.0027	5899
115.00	TME-RRU-11	48	19.228	1.6033	0.0026	5969
107.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	48	16.601	1.5342	0.0024	5056
97.00	MX08FRO665-21 w/ Mount Pipe	48	13.532	1.3942	0.0020	3792
49.00	58532A	48	3.293	0.6462	0.0006	3584

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147.5 - 142.5	144.108	20	8.3042	0.0126
L2	142.5 - 137.5	135.447	20	8.2877	0.0126
L3	137.5 - 132.5	126.824	20	8.2326	0.0126
L4	132.5 - 127.5	118.279	20	8.1360	0.0124

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L5	127.5 - 122.5	109.858	20	7.9935	0.0122
L6	122.5 - 117.5	101.604	20	7.8141	0.0120
L7	117.5 - 112.5	93.553	20	7.6050	0.0119
L8	112.5 - 108.5	85.734	20	7.3660	0.0112
L9	112.25 - 107.25	85.350	20	7.3532	0.0111
L10	107.25 - 102.25	77.745	20	7.1774	0.0107
L11	102.25 - 97.25	70.408	20	6.8662	0.0098
L12	97.25 - 92.25	63.409	20	6.5284	0.0089
L13	92.25 - 87.25	56.774	20	6.1661	0.0079
L14	87.25 - 82.25	50.528	20	5.7807	0.0070
L15	82.25 - 77.25	44.694	20	5.3772	0.0061
L16	77.25 - 72.25	39.288	20	4.9595	0.0054
L17	76.75 - 71.75	38.771	20	4.9171	0.0053
L18	71.75 - 66.75	33.730	20	4.7046	0.0050
L19	66.75 - 61.75	29.000	20	4.3379	0.0044
L20	61.75 - 56.75	24.655	20	3.9671	0.0039
L21	56.75 - 51.75	20.699	20	3.5937	0.0034
L22	51.75 - 47.833	17.134	20	3.2191	0.0030
L23	47.833 - 47.583	14.615	20	2.9257	0.0026
L24	47.583 - 42.583	14.462	20	2.9070	0.0026
L25	42.583 - 35.75	11.615	20	2.5331	0.0022
L26	41 - 34.75	10.795	20	2.4150	0.0021
L27	34.75 - 29.75	7.778	20	2.1680	0.0018
L28	29.75 - 24.75	5.677	20	1.8455	0.0015
L29	24.75 - 19.75	3.912	20	1.5260	0.0012
L30	19.75 - 14.75	2.480	20	1.2100	0.0009
L31	14.75 - 9.75	1.377	20	0.8976	0.0007
L32	9.75 - 4.75	0.599	20	0.5892	0.0004
L33	4.75 - 0	0.142	20	0.2850	0.0002

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
147.00	Platform Mount [LP 1201-1]	20	143.241	8.3033	0.0133	8262
145.00	TME-PCS 1900MHz 4x45W-65MHz	20	139.775	8.2989	0.0133	8262
137.00	(2) SBNHH-1D65B	20	125.965	8.2249	0.0133	3766
117.00	7770.00 w/ Mount Pipe	20	92.760	7.5825	0.0123	1305
115.00	TME-RRU-11	20	89.612	7.4898	0.0120	1321
107.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	20	77.371	7.1662	0.0109	1118
97.00	MX08FRO665-21 w/ Mount Pipe	20	63.068	6.5111	0.0090	834
49.00	58532A	20	15.340	3.0131	0.0027	771

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	147.5 - 142.5 (1)	TP22.95x22x0.25	5.00	0.00	0.0	18.0124	-5.84	972.67	0.006
L2	142.5 - 137.5 (2)	TP23.9x22.95x0.25	5.00	0.00	0.0	18.7663	-6.23	1013.38	0.006
L3	137.5 - 132.5 (3)	TP24.85x23.9x0.25	5.00	0.00	0.0	19.5201	-10.95	1054.09	0.010
L4	132.5 - 127.5	TP25.8x24.85x0.25	5.00	0.00	0.0	20.273	-11.45	1094.79	0.010

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	(4)					9			
L5	127.5 - 122.5 (5)	TP26.75x25.8x0.25	5.00	0.00	0.0	21.027 8	-11.97	1135.50	0.011
L6	122.5 - 117.5 (6)	TP27.7x26.75x0.25	5.00	0.00	0.0	21.781 6	-12.51	1176.21	0.011
L7	117.5 - 112.5 (7)	TP28.65x27.7x0.25	5.00	0.00	0.0	22.535 4	-16.50	1216.91	0.014
L8	112.5 - 108.5 (8)	TP29.41x28.65x0.25	4.00	0.00	0.0	22.573 1	-16.54	1218.95	0.014
L9	108.5 - 107.25 (9)	TP29.1476x28.1975x0.25	5.00	0.00	0.0	22.930 2	-17.50	1341.42	0.013
L10	107.25 - 102.25 (10)	TP30.0976x29.1476x0.25	5.00	0.00	0.0	23.684 1	-21.26	1385.52	0.015
L11	102.25 - 97.25 (11)	TP31.0477x30.0976x0.25	5.00	0.00	0.0	24.438 0	-22.05	1429.62	0.015
L12	97.25 - 92.25 (12)	TP31.9978x31.0477x0.25	5.00	0.00	0.0	25.191 8	-25.81	1473.72	0.018
L13	92.25 - 87.25 (13)	TP32.9478x31.9978x0.25	5.00	0.00	0.0	25.945 7	-26.59	1517.82	0.018
L14	87.25 - 82.25 (14)	TP33.8979x32.9478x0.25	5.00	0.00	0.0	26.699 6	-27.49	1561.93	0.018
L15	82.25 - 77.25 (15)	TP34.8479x33.8979x0.25	5.00	0.00	0.0	27.453 5	-28.42	1606.03	0.018
L16	77.25 - 72.25 (16)	TP35.798x34.8479x0.25	5.00	0.00	0.0	27.528 9	-28.52	1610.44	0.018
L17	72.25 - 71.75 (17)	TP35.3928x34.4429x0.31 25	5.00	0.00	0.0	34.795 3	-30.02	2035.53	0.015
L18	71.75 - 66.75 (18)	TP36.3427x35.3928x0.31 25	5.00	0.00	0.0	35.737 5	-31.09	2090.64	0.015
L19	66.75 - 61.75 (19)	TP37.2926x36.3427x0.31 25	5.00	0.00	0.0	36.679 6	-32.20	2145.76	0.015
L20	61.75 - 56.75 (20)	TP38.2425x37.2926x0.31 25	5.00	0.00	0.0	37.621 8	-33.34	2200.88	0.015
L21	56.75 - 51.75 (21)	TP39.1924x38.2425x0.31 25	5.00	0.00	0.0	38.564 0	-34.50	2255.99	0.015
L22	51.75 - 47.833 (22)	TP39.9365x39.1924x0.31 25	3.92	0.00	0.0	39.302 1	-35.50	2299.17	0.015
L23	47.833 - 47.583 (23)	TP39.984x39.9365x0.312 5	0.25	0.00	0.0	39.349 2	-35.58	2301.93	0.015
L24	47.583 - 42.583 (24)	TP40.9339x39.984x0.312 5	5.00	0.00	0.0	40.291 3	-36.77	2357.04	0.016
L25	42.583 - 35.75 (25)	TP42.232x40.9339x0.312 5	6.83	0.00	0.0	40.589 6	-37.15	2374.49	0.016
L26	35.75 - 34.75 (26)	TP41.7972x40.6096x0.37 5	6.25	0.00	0.0	49.302 7	-39.67	2884.21	0.014
L27	34.75 - 29.75 (27)	TP42.7472x41.7972x0.37 5	5.00	0.00	0.0	50.433 5	-41.07	2950.36	0.014
L28	29.75 - 24.75 (28)	TP43.6973x42.7472x0.37 5	5.00	0.00	0.0	51.564 3	-42.50	3016.51	0.014
L29	24.75 - 19.75 (29)	TP44.6473x43.6973x0.37 5	5.00	0.00	0.0	52.695 1	-43.95	3082.66	0.014
L30	19.75 - 14.75 (30)	TP45.5974x44.6473x0.37 5	5.00	0.00	0.0	53.825 9	-45.42	3148.82	0.014
L31	14.75 - 9.75 (31)	TP46.5474x45.5974x0.37 5	5.00	0.00	0.0	54.956 7	-46.92	3214.97	0.015
L32	9.75 - 4.75 (32)	TP47.4975x46.5474x0.37 5	5.00	0.00	0.0	56.087 5	-48.38	3281.12	0.015
L33	4.75 - 0 (33)	TP48.4x47.4975x0.375	4.75	0.00	0.0	57.161 8	-49.63	3343.96	0.015

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	147.5 - 142.5 (1)	TP22.95x22x0.25	30.23	574.82	0.053	0.00	574.82	0.000
L2	142.5 - 137.5 (2)	TP23.9x22.95x0.25	67.34	624.21	0.108	0.00	624.21	0.000
L3	137.5 - 132.5 (3)	TP24.85x23.9x0.25	127.58	675.64	0.189	0.00	675.64	0.000
L4	132.5 - 127.5 (4)	TP25.8x24.85x0.25	191.33	723.10	0.265	0.00	723.10	0.000
L5	127.5 - 122.5 (5)	TP26.75x25.8x0.25	257.05	770.96	0.333	0.00	770.96	0.000
L6	122.5 - 117.5 (6)	TP27.7x26.75x0.25	324.61	819.78	0.396	0.00	819.78	0.000
L7	117.5 - 112.5 (7)	TP28.65x27.7x0.25	412.80	869.52	0.475	0.00	869.52	0.000
L8	112.5 - 108.5 (8)	TP29.41x28.65x0.25	417.20	872.02	0.478	0.00	872.02	0.000
L9	108.5 - 107.25 (9)	TP29.1476x28.1975x0.25	506.34	959.47	0.528	0.00	959.47	0.000
L10	107.25 - 102.25 (10)	TP30.0976x29.1476x0.25	612.99	1013.58	0.605	0.00	1013.58	0.000
L11	102.25 - 97.25 (11)	TP31.0477x30.0976x0.25	721.39	1068.46	0.675	0.00	1068.46	0.000
L12	97.25 - 92.25 (12)	TP31.9978x31.0477x0.25	845.40	1124.03	0.752	0.00	1124.03	0.000
L13	92.25 - 87.25 (13)	TP32.9478x31.9978x0.25	973.59	1180.22	0.825	0.00	1180.22	0.000
L14	87.25 - 82.25 (14)	TP33.8979x32.9478x0.25	1104.03	1236.98	0.893	0.00	1236.98	0.000
L15	82.25 - 77.25 (15)	TP34.8479x33.8979x0.25	1236.23	1294.25	0.955	0.00	1294.25	0.000
L16	77.25 - 72.25 (16)	TP35.798x34.8479x0.25	1249.55	1300.01	0.961	0.00	1300.01	0.000
L17	72.25 - 71.75 (17)	TP35.3928x34.4429x0.3125	1384.04	1782.56	0.776	0.00	1782.56	0.000
L18	71.75 - 66.75 (18)	TP36.3427x35.3928x0.3125	1520.59	1865.85	0.815	0.00	1865.85	0.000
L19	66.75 - 61.75 (19)	TP37.2926x36.3427x0.3125	1658.86	1950.18	0.851	0.00	1950.18	0.000
L20	61.75 - 56.75 (20)	TP38.2425x37.2926x0.3125	1798.75	2035.47	0.884	0.00	2035.47	0.000
L21	56.75 - 51.75 (21)	TP39.1924x38.2425x0.3125	1940.18	2121.67	0.914	0.00	2121.67	0.000
L22	51.75 - 47.833 (22)	TP39.9365x39.1924x0.3125	2052.07	2189.78	0.937	0.00	2189.78	0.000
L23	47.833 - 47.583 (23)	TP39.984x39.9365x0.3125	2059.27	2194.15	0.939	0.00	2194.15	0.000
L24	47.583 - 42.583 (24)	TP40.9339x39.984x0.3125	2203.72	2281.83	0.966	0.00	2281.83	0.000
L25	42.583 - 35.75 (25)	TP42.232x40.9339x0.3125	2249.74	2309.75	0.974	0.00	2309.75	0.000
L26	35.75 - 34.75 (26)	TP41.7972x40.6096x0.375	2433.39	2996.00	0.812	0.00	2996.00	0.000
L27	34.75 - 29.75 (27)	TP42.7472x41.7972x0.375	2582.06	3114.92	0.829	0.00	3114.92	0.000
L28	29.75 - 24.75 (28)	TP43.6973x42.7472x0.375	2731.86	3235.13	0.844	0.00	3235.13	0.000
L29	24.75 - 19.75 (29)	TP44.6473x43.6973x0.375	2882.75	3356.57	0.859	0.00	3356.57	0.000
L30	19.75 - 14.75 (30)	TP45.5974x44.6473x0.375	3034.69	3479.18	0.872	0.00	3479.18	0.000
L31	14.75 - 9.75 (31)	TP46.5474x45.5974x0.375	3187.66	3602.88	0.885	0.00	3602.88	0.000
L32	9.75 - 4.75 (32)	TP47.4975x46.5474x0.375	3341.52	3727.64	0.896	0.00	3727.64	0.000
L33	4.75 - 0 (33)	TP48.4x47.4975x0.375	3488.34	3847.06	0.907	0.00	3847.06	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	147.5 - 142.5 (1)	TP22.95x22x0.25	7.24	291.80	0.025	0.00	580.09	0.000
L2	142.5 - 137.5 (2)	TP23.9x22.95x0.25	7.60	304.01	0.025	0.00	629.66	0.000
L3	137.5 - 132.5 (3)	TP24.85x23.9x0.25	12.54	316.23	0.040	0.19	681.26	0.000
L4	132.5 - 127.5 (4)	TP25.8x24.85x0.25	12.96	328.44	0.039	0.34	734.89	0.000
L5	127.5 - 122.5 (5)	TP26.75x25.8x0.25	13.33	340.65	0.039	0.34	790.56	0.000
L6	122.5 - 117.5 (6)	TP27.7x26.75x0.25	13.70	352.86	0.039	0.34	848.26	0.000
L7	117.5 - 112.5 (7)	TP28.65x27.7x0.25	17.59	362.63	0.049	0.37	907.98	0.000
L8	112.5 - 108.5 (8)	TP29.41x28.65x0.25	17.61	365.07	0.048	0.37	911.02	0.000
L9	108.5 - 107.25 (9)	TP29.1476x28.1975x0.25	18.04	399.12	0.045	0.37	1018.42	0.000
L10	107.25 - 102.25 (10)	TP30.0976x29.1476x0.25	21.52	413.01	0.052	0.48	1086.48	0.000
L11	102.25 - 97.25 (11)	TP31.0477x30.0976x0.25	21.84	426.24	0.051	0.48	1156.75	0.000
L12	97.25 - 92.25 (12)	TP31.9978x31.0477x0.25	25.08	439.47	0.057	0.48	1229.22	0.000
L13	92.25 - 87.25 (13)	TP32.9478x31.9978x0.25	25.91	455.35	0.057	1.71	1303.89	0.001
L14	87.25 - 82.25 (14)	TP33.8979x32.9478x0.25	26.28	468.58	0.056	1.71	1380.77	0.001
L15	82.25 - 77.25 (15)	TP34.8479x33.8979x0.25	26.62	481.81	0.055	1.71	1459.83	0.001
L16	77.25 - 72.25 (16)	TP35.798x34.8479x0.25	26.65	483.13	0.055	1.71	1467.87	0.001
L17	72.25 - 71.75 (17)	TP35.3928x34.4429x0.3125	27.13	610.66	0.044	1.71	1876.03	0.001
L18	71.75 - 66.75 (18)	TP36.3427x35.3928x0.3125	27.49	627.19	0.044	1.71	1979.01	0.001
L19	66.75 - 61.75 (19)	TP37.2926x36.3427x0.3125	27.83	643.73	0.043	1.71	2084.73	0.001
L20	61.75 - 56.75 (20)	TP38.2425x37.2926x0.3125	28.15	660.26	0.043	1.70	2193.21	0.001
L21	56.75 - 51.75 (21)	TP39.1924x38.2425x0.3125	28.44	676.80	0.042	1.70	2304.43	0.001
L22	51.75 - 47.833 (22)	TP39.9365x39.1924x0.3125	28.74	689.75	0.042	1.88	2393.48	0.001
L23	47.833 - 47.583 (23)	TP39.984x39.9365x0.3125	28.74	690.58	0.042	1.88	2399.22	0.001
L24	47.583 - 42.583 (24)	TP40.9339x39.984x0.3125	29.05	707.11	0.041	1.88	2515.49	0.001
L25	42.583 - 35.75 (25)	TP42.232x40.9339x0.3125	29.14	712.35	0.041	1.88	2552.88	0.001
L26	35.75 - 34.75 (26)	TP41.7972x40.6096x0.375	29.62	865.26	0.034	1.88	3138.78	0.001
L27	34.75 - 29.75 (27)	TP42.7472x41.7972x0.375	29.86	885.11	0.034	1.88	3284.42	0.001
L28	29.75 - 24.75 (28)	TP43.6973x42.7472x0.375	30.08	904.95	0.033	1.88	3433.35	0.001
L29	24.75 - 19.75 (29)	TP44.6473x43.6973x0.375	30.29	924.80	0.033	1.88	3585.58	0.001
L30	19.75 - 14.75 (30)	TP45.5974x44.6473x0.375	30.50	944.64	0.032	1.88	3741.13	0.001
L31	14.75 - 9.75 (31)	TP46.5474x45.5974x0.375	30.70	964.49	0.032	1.88	3899.96	0.000
L32	9.75 - 4.75 (32)	TP47.4975x46.5474x0.375	30.86	984.34	0.031	1.88	4062.11	0.000
L33	4.75 - 0 (33)	TP48.4x47.4975x0.375	31.02	1003.19	0.031	1.88	4219.20	0.000

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	147.5 - 142.5 (1)	0.006	0.053	0.000	0.025	0.000	0.059	1.050	4.8.2
L2	142.5 - 137.5 (2)	0.006	0.108	0.000	0.025	0.000	0.115	1.050	4.8.2
L3	137.5 - 132.5 (3)	0.010	0.189	0.000	0.040	0.000	0.201	1.050	4.8.2
L4	132.5 - 127.5 (4)	0.010	0.265	0.000	0.039	0.000	0.277	1.050	4.8.2
L5	127.5 - 122.5 (5)	0.011	0.333	0.000	0.039	0.000	0.346	1.050	4.8.2
L6	122.5 - 117.5 (6)	0.011	0.396	0.000	0.039	0.000	0.408	1.050	4.8.2
L7	117.5 - 112.5 (7)	0.014	0.475	0.000	0.049	0.000	0.491	1.050	4.8.2
L8	112.5 - 108.5 (8)	0.014	0.478	0.000	0.048	0.000	0.494	1.050	4.8.2
L9	108.5 - 107.25 (9)	0.013	0.528	0.000	0.045	0.000	0.543	1.050	4.8.2
L10	107.25 - 102.25 (10)	0.015	0.605	0.000	0.052	0.000	0.623	1.050	4.8.2
L11	102.25 - 97.25 (11)	0.015	0.675	0.000	0.051	0.000	0.693	1.050	4.8.2
L12	97.25 - 92.25 (12)	0.018	0.752	0.000	0.057	0.000	0.773	1.050	4.8.2
L13	92.25 - 87.25 (13)	0.018	0.825	0.000	0.057	0.001	0.846	1.050	4.8.2
L14	87.25 - 82.25 (14)	0.018	0.893	0.000	0.056	0.001	0.913	1.050	4.8.2
L15	82.25 - 77.25 (15)	0.018	0.955	0.000	0.055	0.001	0.976	1.050	4.8.2
L16	77.25 - 72.25 (16)	0.018	0.961	0.000	0.055	0.001	0.982	1.050	4.8.2
L17	72.25 - 71.75 (17)	0.015	0.776	0.000	0.044	0.001	0.793	1.050	4.8.2
L18	71.75 - 66.75 (18)	0.015	0.815	0.000	0.044	0.001	0.832	1.050	4.8.2
L19	66.75 - 61.75 (19)	0.015	0.851	0.000	0.043	0.001	0.868	1.050	4.8.2
L20	61.75 - 56.75 (20)	0.015	0.884	0.000	0.043	0.001	0.901	1.050	4.8.2
L21	56.75 - 51.75 (21)	0.015	0.914	0.000	0.042	0.001	0.932	1.050	4.8.2
L22	51.75 - 47.833 (22)	0.015	0.937	0.000	0.042	0.001	0.954	1.050	4.8.2
L23	47.833 - 47.583 (23)	0.015	0.939	0.000	0.042	0.001	0.956	1.050	4.8.2
L24	47.583 - 42.583 (24)	0.016	0.966	0.000	0.041	0.001	0.983	1.050	4.8.2
L25	42.583 - 35.75 (25)	0.016	0.974	0.000	0.041	0.001	0.991	1.050	4.8.2
L26	35.75 - 34.75 (26)	0.014	0.812	0.000	0.034	0.001	0.827	1.050	4.8.2
L27	34.75 - 29.75 (27)	0.014	0.829	0.000	0.034	0.001	0.844	1.050	4.8.2
L28	29.75 - 24.75 (28)	0.014	0.844	0.000	0.033	0.001	0.860	1.050	4.8.2
L29	24.75 - 19.75 (29)	0.014	0.859	0.000	0.033	0.001	0.874	1.050	4.8.2
L30	19.75 - 14.75 (30)	0.014	0.872	0.000	0.032	0.001	0.888	1.050	4.8.2
L31	14.75 - 9.75 (31)	0.015	0.885	0.000	0.032	0.000	0.900	1.050	4.8.2
L32	9.75 - 4.75 (32)	0.015	0.896	0.000	0.031	0.000	0.912	1.050	4.8.2
L33	4.75 - 0 (33)	0.015	0.907	0.000	0.031	0.000	0.923	1.050	4.8.2

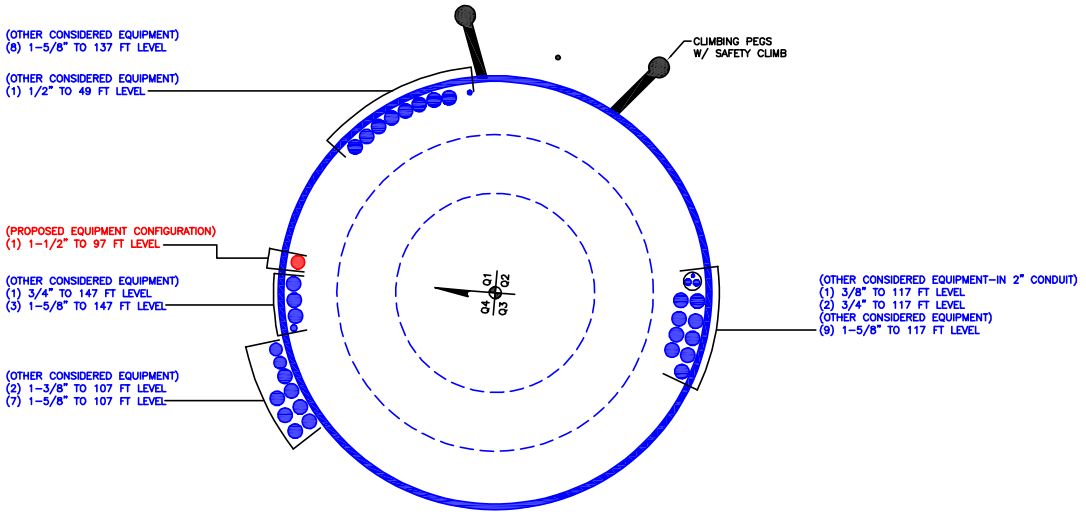
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	147.5 - 142.5	Pole	TP22.95x22x0.25	1	-5.84	1021.31	5.6	Pass
L2	142.5 - 137.5	Pole	TP23.9x22.95x0.25	2	-6.23	1064.05	10.9	Pass
L3	137.5 - 132.5	Pole	TP24.85x23.9x0.25	3	-10.95	1106.79	19.1	Pass
L4	132.5 - 127.5	Pole	TP25.8x24.85x0.25	4	-11.45	1149.53	26.3	Pass
L5	127.5 - 122.5	Pole	TP26.75x25.8x0.25	5	-11.97	1192.27	32.9	Pass
L6	122.5 - 117.5	Pole	TP27.7x26.75x0.25	6	-12.51	1235.02	38.9	Pass
L7	117.5 - 112.5	Pole	TP28.65x27.7x0.25	7	-16.50	1277.76	46.7	Pass
L8	112.5 - 108.5	Pole	TP29.41x28.65x0.25	8	-16.54	1279.90	47.1	Pass
L9	108.5 - 107.25	Pole	TP29.1476x28.1975x0.25	9	-17.50	1408.49	51.7	Pass
L10	107.25 - 102.25	Pole	TP30.0976x29.1476x0.25	10	-21.26	1454.80	59.3	Pass
L11	102.25 - 97.25	Pole	TP31.0477x30.0976x0.25	11	-22.05	1501.10	66.0	Pass
L12	97.25 - 92.25	Pole	TP31.9978x31.0477x0.25	12	-25.81	1547.41	73.6	Pass
L13	92.25 - 87.25	Pole	TP32.9478x31.9978x0.25	13	-26.59	1593.71	80.6	Pass
L14	87.25 - 82.25	Pole	TP33.8979x32.9478x0.25	14	-27.49	1640.03	87.0	Pass
L15	82.25 - 77.25	Pole	TP34.8479x33.8979x0.25	15	-28.42	1686.33	93.0	Pass
L16	77.25 - 72.25	Pole	TP35.798x34.8479x0.25	16	-28.52	1690.96	93.5	Pass
L17	72.25 - 71.75	Pole	TP35.3928x34.4429x0.3125	17	-30.02	2137.31	75.5	Pass
L18	71.75 - 66.75	Pole	TP36.3427x35.3928x0.3125	18	-31.09	2195.17	79.2	Pass
L19	66.75 - 61.75	Pole	TP37.2926x36.3427x0.3125	19	-32.20	2253.05	82.6	Pass
L20	61.75 - 56.75	Pole	TP38.2425x37.2926x0.3125	20	-33.34	2310.92	85.8	Pass
L21	56.75 - 51.75	Pole	TP39.1924x38.2425x0.3125	21	-34.50	2368.79	88.7	Pass
L22	51.75 - 47.833	Pole	TP39.9365x39.1924x0.3125	22	-35.50	2414.13	90.9	Pass
L23	47.833 - 47.583	Pole	TP39.984x39.9365x0.3125	23	-35.58	2417.03	91.0	Pass
L24	47.583 - 42.583	Pole	TP40.9339x39.984x0.3125	24	-36.77	2474.89	93.6	Pass
L25	42.583 - 35.75	Pole	TP42.232x40.9339x0.3125	25	-37.15	2493.21	94.4	Pass
L26	35.75 - 34.75	Pole	TP41.7972x40.6096x0.375	26	-39.67	3028.42	78.8	Pass
L27	34.75 - 29.75	Pole	TP42.7472x41.7972x0.375	27	-41.07	3097.88	80.4	Pass
L28	29.75 - 24.75	Pole	TP43.6973x42.7472x0.375	28	-42.50	3167.34	81.9	Pass
L29	24.75 - 19.75	Pole	TP44.6473x43.6973x0.375	29	-43.95	3236.79	83.3	Pass
L30	19.75 - 14.75	Pole	TP45.5974x44.6473x0.375	30	-45.42	3306.26	84.5	Pass
L31	14.75 - 9.75	Pole	TP46.5474x45.5974x0.375	31	-46.92	3375.72	85.8	Pass
L32	9.75 - 4.75	Pole	TP47.4975x46.5474x0.375	32	-48.38	3445.18	86.9	Pass
L33	4.75 - 0	Pole	TP48.4x47.4975x0.375	33	-49.63	3511.16	87.9	Pass
							Summary	
						Pole (L25)	94.4	Pass
						RATING =	**94.4**	**Pass**

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

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876348 TOWER ID:C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876348

Work Order: 1972559

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	147.5	39	3.75	18	22	29.41	0.25	Auto	A607-60
2	112.25	40	4.5	18	28.20	35.798	0.25	Auto	A607-65
3	76.75	41	5.25	18	34.44	42.232	0.3125	Auto	A607-65
4	41	41	0	18	40.61	48.4	0.375	Auto	A607-65

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	40.167	47.833	channel	MP3-03 (1.1875in)	3					X						X						X	
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.545	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	147.5 - 142.5	5		18	22.000	22.950	0.25	A607-60	1.000
2	142.5 - 137.5	5		18	22.950	23.900	0.25	A607-60	1.000
3	137.5 - 132.5	5		18	23.900	24.850	0.25	A607-60	1.000
4	132.5 - 127.5	5		18	24.850	25.800	0.25	A607-60	1.000
5	127.5 - 122.5	5		18	25.800	26.750	0.25	A607-60	1.000
6	122.5 - 117.5	5		18	26.750	27.700	0.25	A607-60	1.000
7	117.5 - 112.5	5		18	27.700	28.650	0.25	A607-60	1.000
8	112.5 - 112.25	4	3.75	18	28.650	29.410	0.25	A607-60	1.000
9	112.25 - 107.25	5		18	28.198	29.148	0.25	A607-65	1.000
10	107.25 - 102.25	5		18	29.148	30.098	0.25	A607-65	1.000
11	102.25 - 97.25	5		18	30.098	31.048	0.25	A607-65	1.000
12	97.25 - 92.25	5		18	31.048	31.998	0.25	A607-65	1.000
13	92.25 - 87.25	5		18	31.998	32.948	0.25	A607-65	1.000
14	87.25 - 82.25	5		18	32.948	33.898	0.25	A607-65	1.000
15	82.25 - 77.25	5		18	33.898	34.848	0.25	A607-65	1.000
16	77.25 - 76.75	5	4.5	18	34.848	35.798	0.25	A607-65	1.000
17	76.75 - 71.75	5		18	34.443	35.393	0.3125	A607-65	1.000
18	71.75 - 66.75	5		18	35.393	36.343	0.3125	A607-65	1.000
19	66.75 - 61.75	5		18	36.343	37.293	0.3125	A607-65	1.000
20	61.75 - 56.75	5		18	37.293	38.242	0.3125	A607-65	1.000
21	56.75 - 51.75	5		18	38.242	39.192	0.3125	A607-65	1.000
22	51.75 - 47.833	3.917		18	39.192	39.937	0.3125	A607-65	1.000
23	47.833 - 47.583	0.25		18	39.937	39.984	0.3125	A607-65	1.000
24	47.583 - 42.583	5		18	39.984	40.934	0.3125	A607-65	1.000
25	42.583 - 41	6.833	5.25	18	40.934	42.232	0.3125	A607-65	1.000
26	41 - 34.75	6.25		18	40.610	41.797	0.375	A607-65	1.000
27	34.75 - 29.75	5		18	41.797	42.747	0.375	A607-65	1.000
28	29.75 - 24.75	5		18	42.747	43.697	0.375	A607-65	1.000
29	24.75 - 19.75	5		18	43.697	44.647	0.375	A607-65	1.000
30	19.75 - 14.75	5		18	44.647	45.597	0.375	A607-65	1.000
31	14.75 - 9.75	5		18	45.597	46.547	0.375	A607-65	1.000
32	9.75 - 4.75	5		18	46.547	47.497	0.375	A607-65	1.000
33	4.75 - 0	4.75		18	47.497	48.400	0.375	A607-65	1.000

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	147.5 - 142.5	5.84	30.23	7.24
2	142.5 - 137.5	6.23	67.34	7.60
3	137.5 - 132.5	10.95	127.58	12.54
4	132.5 - 127.5	11.45	191.33	12.96
5	127.5 - 122.5	11.97	257.05	13.33
6	122.5 - 117.5	12.51	324.61	13.70
7	117.5 - 112.5	16.51	412.80	17.54
8	112.5 - 112.25	16.54	417.20	17.61
9	112.25 - 107.25	17.50	506.34	18.04
10	107.25 - 102.25	21.26	612.99	21.52
11	102.25 - 97.25	22.05	721.39	21.84
12	97.25 - 92.25	25.81	845.40	25.08
13	92.25 - 87.25	26.59	973.59	25.91
14	87.25 - 82.25	27.49	1104.03	26.28
15	82.25 - 77.25	28.42	1236.23	26.62
16	77.25 - 76.75	28.52	1249.55	26.65
17	76.75 - 71.75	30.02	1384.04	27.13
18	71.75 - 66.75	31.09	1520.59	27.49
19	66.75 - 61.75	32.20	1658.86	27.83
20	61.75 - 56.75	33.34	1798.75	28.15
21	56.75 - 51.75	34.50	1940.17	28.44
22	51.75 - 47.833	35.50	2052.08	28.74
23	47.833 - 47.583	35.58	2059.26	28.74
24	47.583 - 42.583	36.77	2203.71	29.05
25	42.583 - 41	37.15	2249.75	29.14
26	41 - 34.75	39.67	2433.39	29.62
27	34.75 - 29.75	41.07	2582.06	29.86
28	29.75 - 24.75	42.50	2731.86	30.08
29	24.75 - 19.75	43.95	2882.75	30.29
30	19.75 - 14.75	45.42	3034.69	30.50
31	14.75 - 9.75	46.92	3187.66	30.70
32	9.75 - 4.75	48.38	3341.51	30.86
33	4.75 - 0	49.63	3488.34	31.02

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
147.5 - 142.5	Pole	TP22.95x22x0.25	Pole	5.6%	Pass
142.5 - 137.5	Pole	TP23.9x22.95x0.25	Pole	10.9%	Pass
137.5 - 132.5	Pole	TP24.85x23.9x0.25	Pole	19.1%	Pass
132.5 - 127.5	Pole	TP25.8x24.85x0.25	Pole	26.3%	Pass
127.5 - 122.5	Pole	TP26.75x25.8x0.25	Pole	32.9%	Pass
122.5 - 117.5	Pole	TP27.7x26.75x0.25	Pole	38.9%	Pass
117.5 - 112.5	Pole	TP28.65x27.7x0.25	Pole	46.7%	Pass
112.5 - 112.25	Pole	TP29.41x28.65x0.25	Pole	47.1%	Pass
112.25 - 107.25	Pole	TP29.148x28.198x0.25	Pole	51.7%	Pass
107.25 - 102.25	Pole	TP30.098x29.148x0.25	Pole	59.3%	Pass
102.25 - 97.25	Pole	TP31.048x30.098x0.25	Pole	66.0%	Pass
97.25 - 92.25	Pole	TP31.998x31.048x0.25	Pole	73.6%	Pass
92.25 - 87.25	Pole	TP32.948x31.998x0.25	Pole	80.6%	Pass
87.25 - 82.25	Pole	TP33.898x32.948x0.25	Pole	87.0%	Pass
82.25 - 77.25	Pole	TP34.848x33.898x0.25	Pole	93.0%	Pass
77.25 - 76.75	Pole	TP35.798x34.848x0.25	Pole	93.5%	Pass
76.75 - 71.75	Pole	TP35.393x34.443x0.3125	Pole	75.5%	Pass
71.75 - 66.75	Pole	TP36.343x35.393x0.3125	Pole	79.2%	Pass
66.75 - 61.75	Pole	TP37.293x36.343x0.3125	Pole	82.6%	Pass
61.75 - 56.75	Pole	TP38.242x37.293x0.3125	Pole	85.8%	Pass
56.75 - 51.75	Pole	TP39.192x38.242x0.3125	Pole	88.7%	Pass
51.75 - 47.83	Pole	TP39.937x39.192x0.3125	Pole	90.9%	Pass
47.83 - 47.58	Pole	TP39.984x39.937x0.3125	Pole	91.0%	Pass
47.58 - 42.58	Pole	TP40.934x39.984x0.3125	Pole	93.6%	Pass
42.58 - 41	Pole	TP42.232x40.934x0.3125	Pole	94.4%	Pass
41 - 34.75	Pole	TP41.797x40.61x0.375	Pole	78.8%	Pass
34.75 - 29.75	Pole	TP42.747x41.797x0.375	Pole	80.4%	Pass
29.75 - 24.75	Pole	TP43.697x42.747x0.375	Pole	81.9%	Pass
24.75 - 19.75	Pole	TP44.647x43.697x0.375	Pole	83.3%	Pass
19.75 - 14.75	Pole	TP45.597x44.647x0.375	Pole	84.6%	Pass
14.75 - 9.75	Pole	TP46.547x45.597x0.375	Pole	85.8%	Pass
9.75 - 4.75	Pole	TP47.497x46.547x0.375	Pole	86.9%	Pass
4.75 - 0	Pole	TP48.4x47.497x0.375	Pole	87.9%	Pass
				Summary	
			Pole	94.4%	Pass
			Reinforcement	0.0%	Pass
			Overall	94.4%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*	
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1
147.5 - 142.5	1172	n/a	1172	18.01	n/a	18.01	5.6%	
142.5 - 137.5	1326	n/a	1326	18.77	n/a	18.77	10.9%	
137.5 - 132.5	1492	n/a	1492	19.52	n/a	19.52	19.1%	
132.5 - 127.5	1671	n/a	1671	20.27	n/a	20.27	26.3%	
127.5 - 122.5	1865	n/a	1865	21.03	n/a	21.03	32.9%	
122.5 - 117.5	2073	n/a	2073	21.78	n/a	21.78	38.9%	
117.5 - 112.5	2296	n/a	2296	22.53	n/a	22.53	46.7%	
112.5 - 112.25	2307	n/a	2307	22.57	n/a	22.57	47.1%	
112.25 - 107.25	2418	n/a	2418	22.93	n/a	22.93	51.7%	
107.25 - 102.25	2665	n/a	2665	23.68	n/a	23.68	59.3%	
102.25 - 97.25	2927	n/a	2927	24.44	n/a	24.44	66.0%	
97.25 - 92.25	3207	n/a	3207	25.19	n/a	25.19	73.6%	
92.25 - 87.25	3503	n/a	3503	25.94	n/a	25.94	80.6%	
87.25 - 82.25	3818	n/a	3818	26.70	n/a	26.70	87.0%	
82.25 - 77.25	4150	n/a	4150	27.45	n/a	27.45	93.0%	
77.25 - 76.75	4185	n/a	4185	27.53	n/a	27.53	93.5%	
76.75 - 71.75	5408	n/a	5408	34.79	n/a	34.79	75.5%	
71.75 - 66.75	5859	n/a	5859	35.74	n/a	35.74	79.2%	
66.75 - 61.75	6335	n/a	6335	36.68	n/a	36.68	82.6%	
61.75 - 56.75	6836	n/a	6836	37.62	n/a	37.62	85.8%	
56.75 - 51.75	7362	n/a	7362	38.56	n/a	38.56	88.7%	
51.75 - 47.83	7793	n/a	7793	39.30	n/a	39.30	90.9%	
47.83 - 47.58	7821	n/a	7821	39.35	n/a	39.35	91.0%	
47.58 - 42.58	8397	n/a	8397	40.29	n/a	40.29	93.6%	
42.58 - 41	8584	n/a	8584	40.59	n/a	40.59	94.4%	
41 - 34.75	10684	n/a	10684	49.30	n/a	49.30	78.8%	
34.75 - 29.75	11436	n/a	11436	50.43	n/a	50.43	80.4%	
29.75 - 24.75	12222	n/a	12222	51.56	n/a	51.56	81.9%	
24.75 - 19.75	13044	n/a	13044	52.69	n/a	52.69	83.3%	
19.75 - 14.75	13902	n/a	13902	53.82	n/a	53.82	84.6%	
14.75 - 9.75	14797	n/a	14797	54.95	n/a	54.95	85.8%	
9.75 - 4.75	15729	n/a	15729	56.09	n/a	56.09	86.9%	
4.75 - 0	16650	n/a	16650	57.16	n/a	57.16	87.9%	

Note: Section capacity checked using 5 degree increments.
Rating per TIA-222-H Section 15.5.

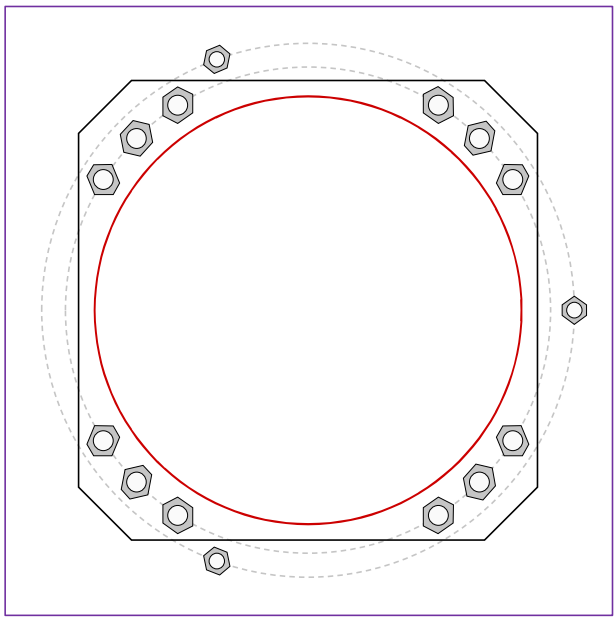
Monopole Base Plate Connection

Site Info	
BU #	876348
Site Name	Enfield
Order #	556604 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
l_{ar} (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	3488.34
Axial Force (kips)	49.63
Shear Force (kips)	31.02

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (12) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 55" BC

Anchor Spacing: 6 in

GROUP 2: (3) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 60.4" BC

Base Plate Data

52" W x 3" Plate (A572-50; Fy=50 ksi, Fu=65 ksi); Clip: 6 in

Stiffener Data

N/A

Pole Data

48.4" x 0.375" 18-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

GROUP 1:		
Pu_t = 216.97	ϕPn_t = 243.75	**Stress Rating**
Vu = 2.58	ϕVn = 149.1	**84.8%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_t = 140.31	ϕPn_t = 178.13	**Stress Rating**
Vu = 0	ϕVn = 112.75	**75.0%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	33.23	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**70.3%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

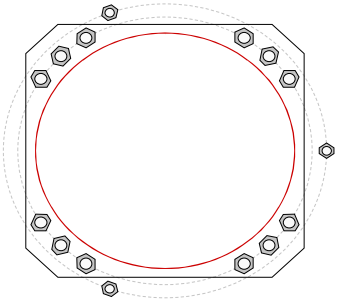
note: Bending interaction not considered when Grout Considered = "Yes"

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	No	No	
2	No	No	No	No	No	

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	32.474174	2.25	A615-75	55	0.5	0	N-Included		No
2	1	45	2.25	A615-75	55	0.5	0	N-Included		No
3	1	57.525826	2.25	A615-75	55	0.5	0	N-Included		No
4	1	122.47417	2.25	A615-75	55	0.5	0	N-Included		No
5	1	135	2.25	A615-75	55	0.5	0	N-Included		No
6	1	147.52583	2.25	A615-75	55	0.5	0	N-Included		No
7	1	212.47417	2.25	A615-75	55	0.5	0	N-Included		No
8	1	225	2.25	A615-75	55	0.5	0	N-Included		No
9	1	237.52583	2.25	A615-75	55	0.5	0	N-Included		No
10	1	302.47417	2.25	A615-75	55	0.5	0	N-Included		No
11	1	315	2.25	A615-75	55	0.5	0	N-Included		No
12	1	327.52583	2.25	A615-75	55	0.5	0	N-Included		No
13	2	110	1.75	A193 Gr. B7	60.4	0.5	0	N-Included		No
14	2	250	1.75	A193 Gr. B7	60.4	0.5	0	N-Included		No
15	2	360	1.75	A193 Gr. B7	60.4	0.5	0	N-Included		No

Plot Graphic



Pier and Pad Foundation

BU # :	876348
Site Name:	Enfield
App. Number:	556604 Rev. 0

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	49.65	kips
Base Shear, Vu_comp:	30.98	kips
Moment, M_u:	3488.34	ft-kips
Tower Height, **H**:	147.5	ft
BP Dist. Above Fdn, bp_{dist}:	6	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	8	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	24	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	12	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	9.8	ft
Pad Width, W_1:	23.8	ft
Pad Thickness, **T**:	2.8	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	23	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δc:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	115	pcf
Ultimate Gross Bearing, Qult:	6.500	ksf
Cohesion, **Cu**:	1.500	ksf
Friction Angle, φ:		degrees
SPT Blow Count, N_{blows}:	12	
Base Friction, μ:		
Neglected Depth, **N**:	4.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	900.85	30.98	**3.3%**	**Pass**
Bearing Pressure (ksf)	4.88	2.77	**54.2%**	**Pass**
*Overturning (kip*ft)*	6369.46	3822.92	**60.0%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	6922.48	3720.69	**51.2%**	**Pass**
Pier Compression (kip)	30551.04	136.05	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	2893.92	1119.56	**36.8%**	**Pass**
Pad Shear - 1-way (kips)	678.31	194.64	**27.3%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.038	**21.8%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	3915.02	2232.41	**54.3%**	**Pass**

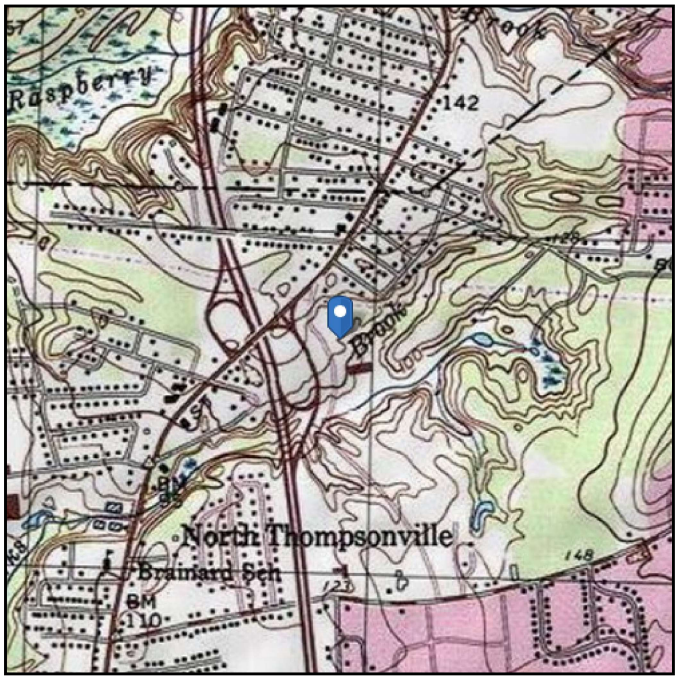
**Rating per TIA-222-H Section 15.5*

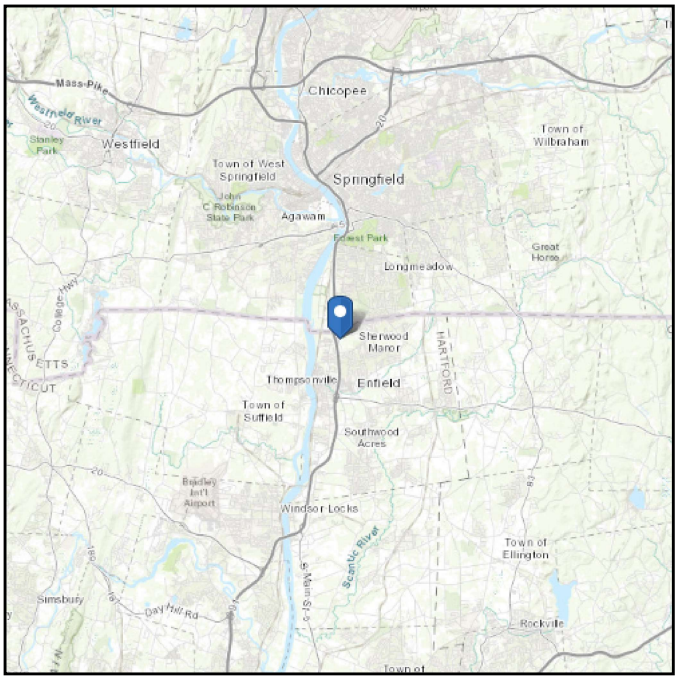
Structural Rating*:	**54.3%**
Soil Rating*:	**60.0%**

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	110.38 ft (NAVD 88)
Risk Category:	II	**Latitude:**	42.020808
Soil Class:	D - Stiff Soil	**Longitude:**	-72.585164





Wind

Results:

Wind Speed:	120 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

Data Accessed: Tue Aug 3 2021

Date Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

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

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

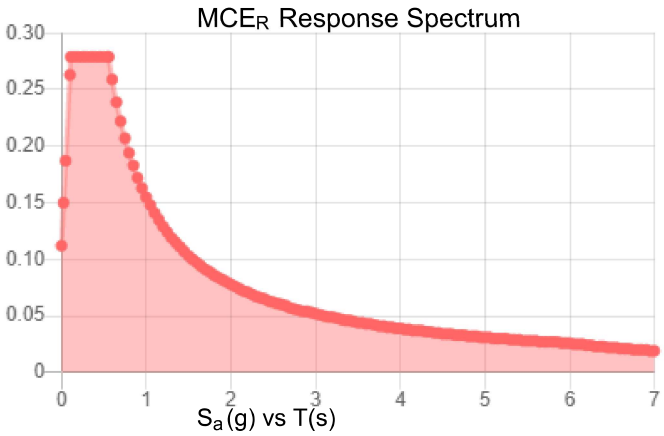
Seismic

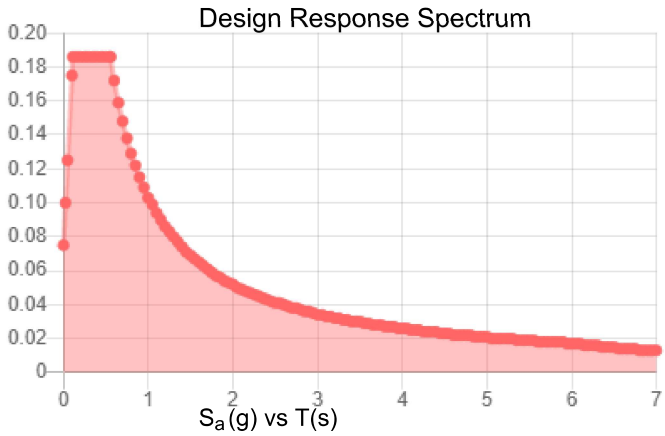
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.175	S_{DS} :	0.186
S_1 :	0.065	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.085
S_{MS} :	0.279	PGA_M :	0.137
S_{M1} :	0.155	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Aug 03 2021

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue Aug 03 2021

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

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

Exhibit E

Mount Analysis

Date: **November 2, 2021**

Kimley-Horn and Associates, Inc.
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000
CrownMounts@kimley-horn.com

Subject:	**Mount Analysis - Conditional Passing Report**	
Carrier Designation:	**DISH Network Equipment Change-Out**	
	Carrier Site Number:	BOBDL00093A
	Carrier Site Name:	CT-CCI-T-876348
Crown Castle Designation:	**BU Number:**	876348
	Site Name:	ENFIELD
	JDE Job Number:	650079
	Order Number:	556604, Rev. 2
Engineering Firm Designation:	**Kimley-Horn Project Number:**	019558057
Site Data:	**Bright Meadow Blvd., ENFIELD, Hartford County, CT 06082** **Latitude 42° 1' 14.91" Longitude -72° 35' 6.59"**	
Structure Information:	**Tower Height & Type:**	**147.5 ft Monopole**
	Mount Elevation:	**97 ft**
	Mount Type:	**8 ft Platform w/ Support Rails**

Kimley-Horn is pleased to submit this **"Mount Analysis - Conditional Passing Report"** to determine the structural integrity of DISH Network's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

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:

Platform w/ Support Rails **Sufficient**

*** See Section 4.1 for loading and structural modifications required for the mount to support the loading listed in Table 1.**

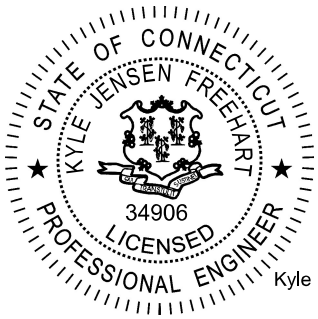
This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 116 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Saja Alkhafaji, E.I.

Respectfully Submitted by:

Kyle Freehart, P.E.

Lic. #PEN.0034906, Exp. 1/31/2022
Kimley-Horn and Associates, Inc. COA #PEC.0000738



Kyle Freehart

Digitally signed by Kyle Freehart
DN: C=US, E=kyle.freehart@kimley-horn.com, CN=Kyle Freehart
Date: 2021.11.03 09:10:57-04'00'

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Additional Calculations

9) APPENDIX E
Supplemental Drawings

1) INTRODUCTION

The mounting configuration consists of a proposed 8 ft Platform w/ Support Rails designed by CommScope.

2) ANALYSIS CRITERIA

Building Code:	2018 Connecticut State Building Code
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	116 mph
Exposure Category:	B
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 – Proposed Equipment Configuration

Elevation (ft)		Antennas			Mount / Modification Details
Mount	Centerline	#	Manufacturer	Model	
97	97	3	Fujitsu	TA08025-B604	Proposed 8 ft Platform w/ Support Rails designed by CommScope
		3	Fujitsu	TA08025-B605	
		3	Jma wireless	MX08FRO665-21	
		1	Raycap	RDIDC-9181-PF-48	

3) ANALYSIS PROCEDURE

Table 2 – Documents Provided

Document	Remarks	Reference	Source
Mount Design Drawings	CommScope	MC-PK8-DSH	On File
Photos	-	-	CCISites

3.1) Analysis Method

RISA-3D (version 17.02.00), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A proprietary tool internally developed by Kimley-Horn was used to calculate wind loading on all appurtenances, dishes and mount members for various load cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Mount Analysis* (Revision D).

3.2) Assumptions

1) The antenna mounting system (including any considered modifications) was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA standards, and/or manufacturer specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the provided reference information.
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) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members that could not be verified at this time.
5) Any referenced prior structural modifications to the tower mounting system are assumed to be installed as shown per available data unless noted otherwise.
6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (Gr. 36)
HSS (Rectangular)	ASTM A36 (Gr. 36)
Pipe	ASTM A53 (Gr. B-35)
Connection Bolts	ASTM A325
Threaded Rods	ASTM A36 (Gr. 36)

This analysis may be affected if any assumptions are not valid or have been made in error. Kimley-Horn should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2	Connections	-	97	31%	Pass
1, 2	Stand Off Horizontals	M12		20%	Pass
1, 2	Mount Pipes	MP8		14%	Pass
1, 2	Support Rails	M51		10%	Pass
1, 2	Platform Base	M48		8%	Pass

Structure Rating (max from all components) =	31%

Notes:
1) See additional documentation in Appendix C and Appendix D for calculations supporting the % capacity consumed.
2) Rating per TIA-222-H, Section 15.5.

4.1) Recommendations

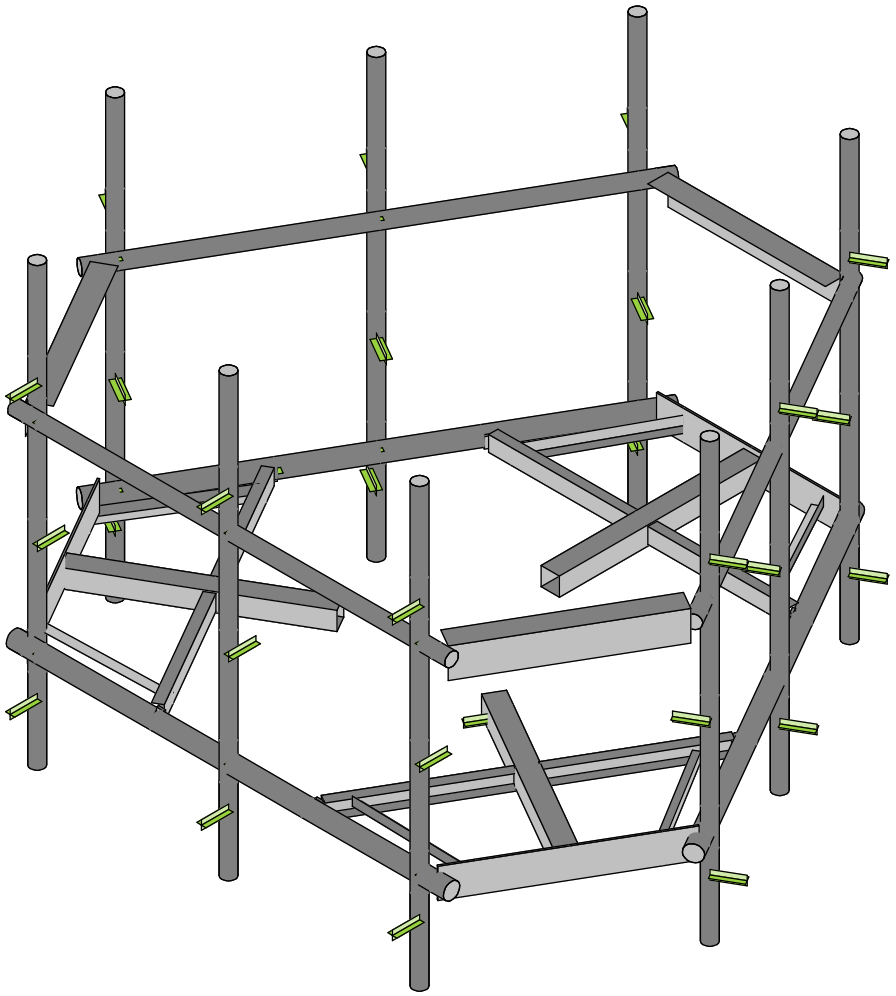
The mounting configuration will have sufficient capacity to carry the referenced loading once the following modifications are completed:

- **Install new Commscope MC-PK8-DSH platform. Vertically center antennas and mount pipes on mount face horizontals.**

No additional modifications are required at this time provided that the above-listed changes are completed.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

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SSA		Nov 2, 2021 at 12:33 PM
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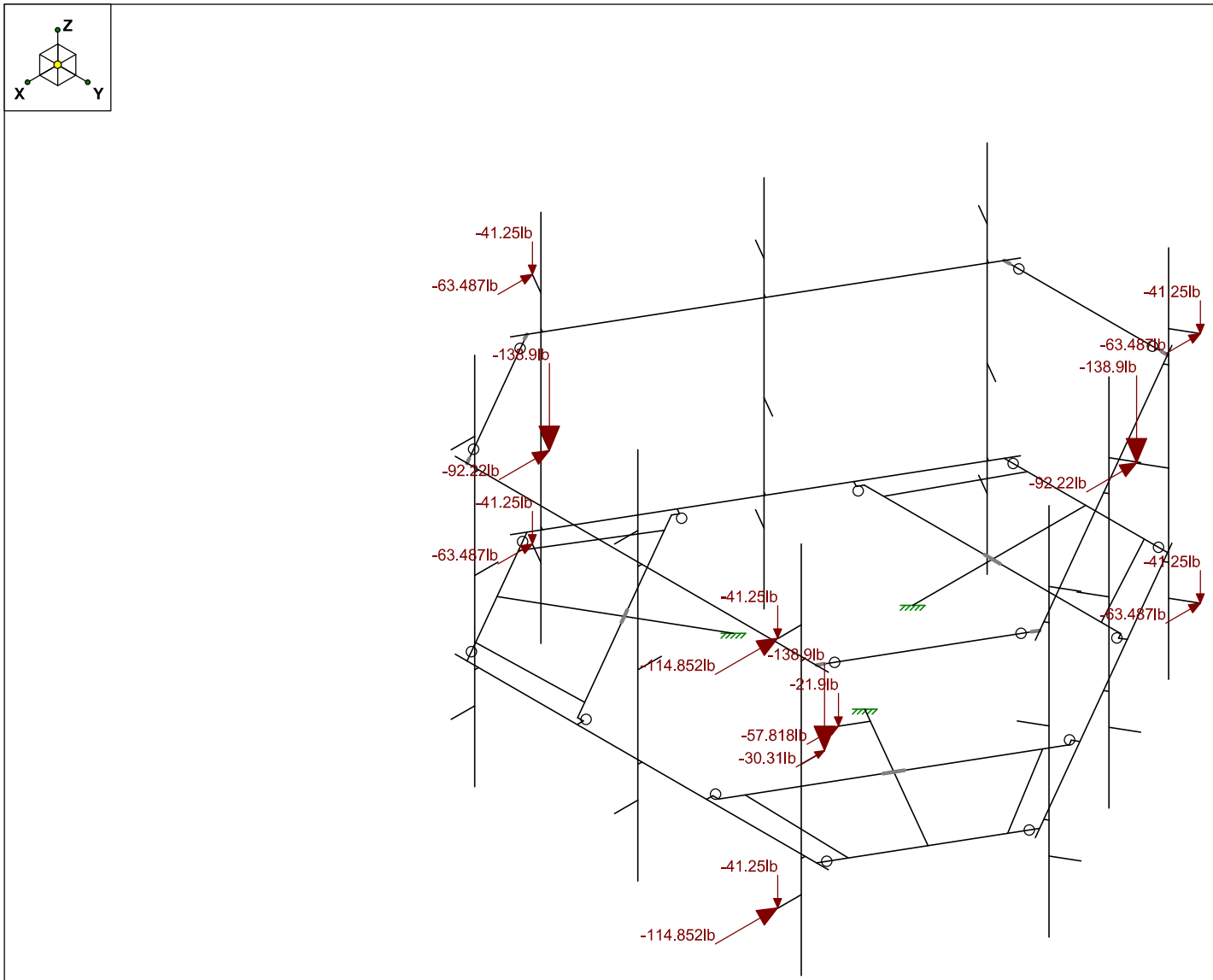


Loads: LC 1, Summary: 1.0D + 1.0W
Envelope Only Solution

Kimley-Horn and Associates, Inc.	876348	SK - 1
SSA		Nov 2, 2021 at 12:33 PM
019558057		876348.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

General Criteria	
TIA Standard	H
IBC Edition	2018
Structure Class	-
Risk Category	II

Site-Specific Criteria	
Exposure Category	B
Topographic Factor, K_{zt}	1.00
Structure Base Elev. (AMSL), z_s (ft)	110.38
Ground Effect Factor, K_e	1.00

Mount & Structure Criteria	
Mount Elevation (AGL) (ft)	97.00
Structure Height (ft)	147.50
Structure Type	Monopole

Constants	
Wind Direction Probability Factor, K_d	0.95
Gust Effect Factor, G_h	1
Shielding Factor, K_a (antenna)	0.9
Shielding Factor, K_a (mount)	0.9

Wind Summary	
Basic Wind Speed w/o Ice, V (mph)	116.00
Velocity Pressure Coeff., K_z	0.98
Velocity Pressure, q_z (w/o Ice) (psf)	31.93

Ice Load Summary	
Basic Wind Speed w/ Ice, V_i (mph)	50.00
Design Ice Thick. (ASCE 7-16) , t_i (in)	1.5
Velocity Pressure, q_z (w/ Ice) (psf)	5.93
Escalated Ice Thick. @ Mount, t_{iz} (in)	1.67

Seismic Load Summary	
Spectral Response (Short Periods), S_s	-
Spectral Response (1-Sec. Period), S_1	-
Site Class	-
Seismic Design Category	-
Seismic Risk Category	-

Snow Load Summary	
Ground Snow Load, p_g (psf)	-
Snow Load on Flat Roofs, p_f (psf)	-

Kimley»Horn

Date	November 02, 2021
Client	Crown Castle
Site #	876348
Site Name	ENFIELD
Project #	19558057

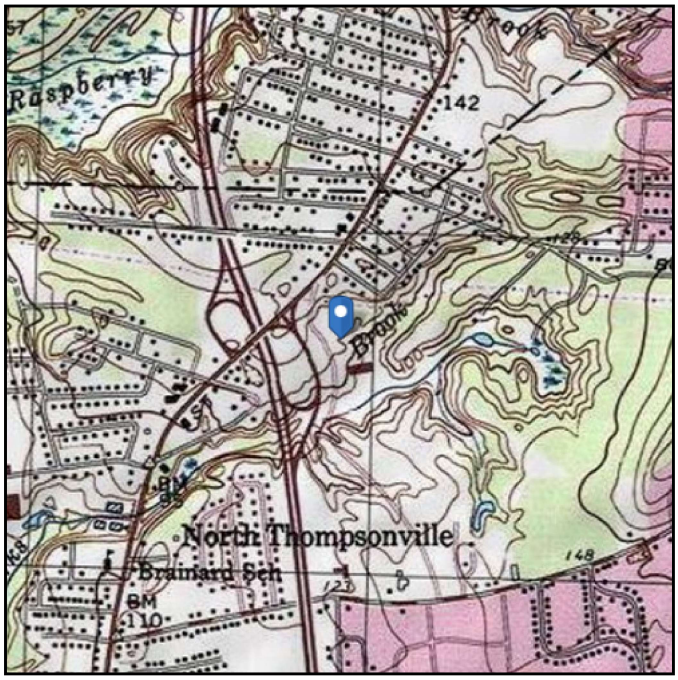
Antenna Name	Qty	Shape	Dimensions (in)			Weight (lb)	Joint Labels								EPA (ft²)		Wind Force, F_A (lb)			
																	No Ice		With Ice	
			H	W	D		Alpha		Beta		Gamma		Delta		Front	Side	Front	Side	Front	Side
MX08FRO665-21	3	Flat	72	20	8	82.5	A1B	A1T	B1B	B1T	G1B	G1T			7.99	3.23	229.7	92.73	51.43	24.12
TA08025-B604	3	Flat	15	15.8	7.9	63.9	A1R		B1R		G1R				0.49	1.96	14.1	56.43	4.56	15.55
TA08025-B605	3	Flat	15	15.8	9.1	75	A1R		B1R		G1R				0.56	1.96	16.21	56.43	5.05	15.55
RDIDC-9181-PF-48	1	Flat	16.6	14.6	8.5	21.9	RC								2.01	1.17	57.82	33.57	15.87	10.46

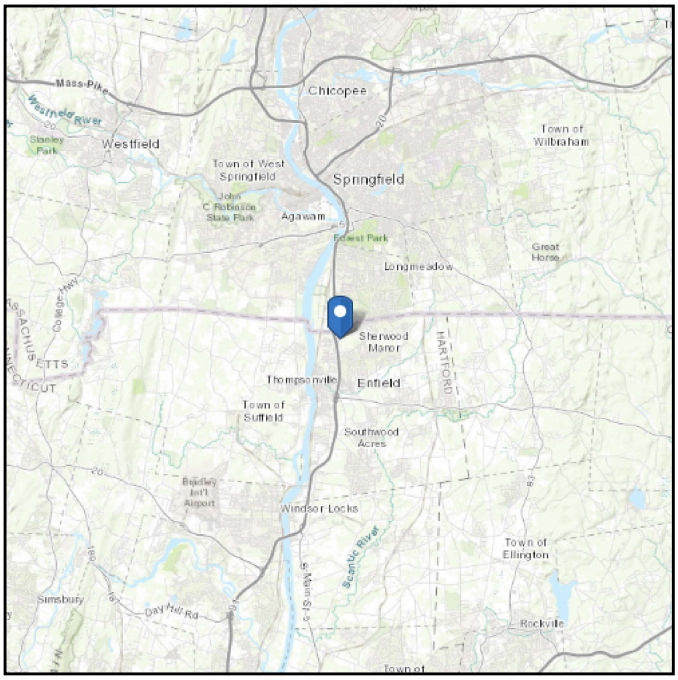
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 110.38 ft (NAVD 88)
Latitude: 42.020808
Longitude: -72.585164





Wind

Results:

Wind Speed:	116 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Tue Nov 02 2021

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

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

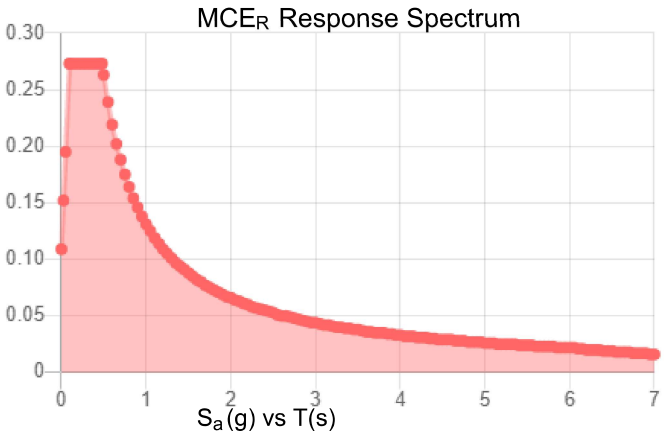
Seismic

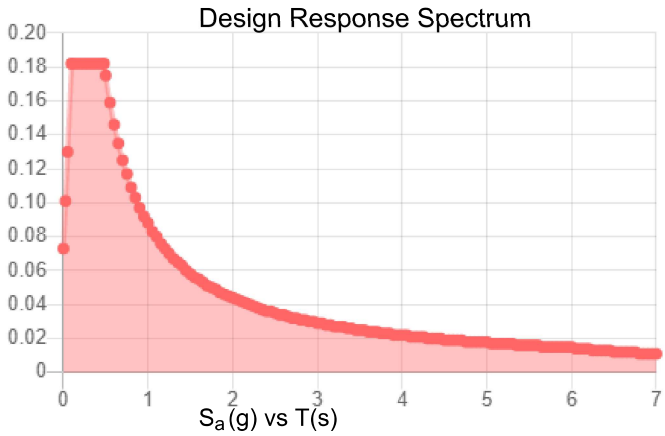
Site Soil Class: D - Stiff Soil

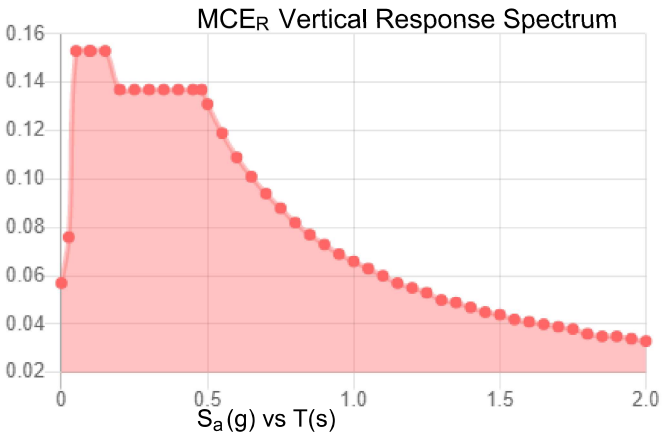
Results:

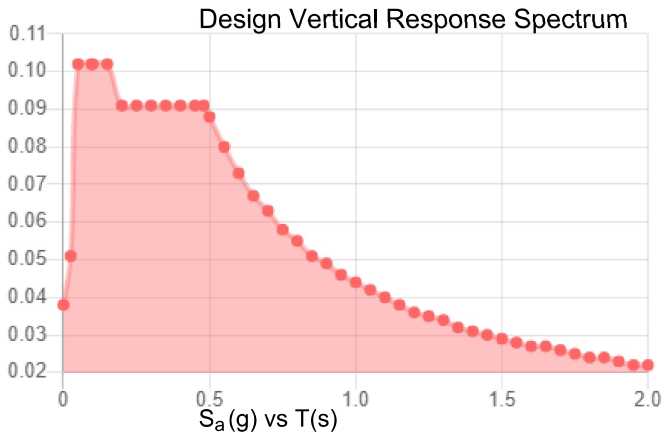
S_S :	0.171	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.089
F_v :	2.4	PGA_M :	0.143
S_{MS} :	0.273	F_{PGA} :	1.6
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.182	C_v :	0.7

Seismic Design Category B









Data Accessed: Tue Nov 02 2021

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

Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Nov 02 2021

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

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

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E..	Density[lb/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	490	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	490	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	490	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	490	50	1.4	65	1.3
8	A913 Gr.65	29000	11154	.3	.65	490	65	1.1	80	1.1
9	A500 Gr.C Rnd	29000	11154	.3	.65	490	46	1.6	62	1.2
10	A500 Gr.C Rect	29000	11154	.3	.65	490	50	1.5	62	1.2
11	A529 Gr. 50	29000	11154	.3	.65	490	50	1.1	65	1.1
12	A1011-33 ksi	29000	11154	.3	.65	490	33	1.5	58	1.2
13	A1011 36 ksi	29000	11154	.3	.65	490	36	1.5	58	1.2
14	A1018 50 ksi	29000	11154	.3	.65	490	50	1.5	65	1.2
15	Q235	29000	11154	.3	.65	490	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Corner Plate	PL6-1/2x3/8	Beam	None	A1011 36 ksi	Typical	2.438	.029	8.582	.11
2	Side Plate	PL2-3/8x1/2	Beam	None	A1011 36 ksi	Typical	1.188	.025	.558	.086
3	Grating Horiz	L2x2x4	Beam	None	A529 Gr. 50	Typical	.944	.346	.346	.021
4	Face Horiz	HSS3.500x0.1...	Beam	None	A500 Gr.C Rnd	Typical	1.729	2.409	2.409	4.819
5	Mount Pipe	HSS2.875x0.1...	Column	None	A500 Gr.C Rnd	Typical	1.039	.987	.987	1.975
6	Cross Horiz	C3.38x2.06x1/4	Beam	None	A1011 36 ksi	Typical	1.75	.715	3.026	.034
7	Stand-Off Horiz	HSS4X4X6	Beam	None	A500 Gr.C Rect	Typical	4.78	10.3	10.3	17.5
8	Support Rail	HSS2.875x0.1...	Beam	None	A500 Gr.C Rnd	Typical	1.039	.987	.987	1.975
9	SR Corner Brace	L6.6x4.46x0.25	Beam	None	A1011 36 ksi	Typical	2.703	4.759	12.473	.055

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M3	Grating Horiz	27.295			Lbyy						Lateral
2	M8	Grating Horiz	27.295			Lbyy						Lateral
3	M13	Grating Horiz	27.295			Lbyy						Lateral
4	M28	SR Corner ...	42			Lbyy						Lateral
5	M29	SR Corner ...	42			Lbyy						Lateral
6	M30	SR Corner ...	42			Lbyy						Lateral
7	M63A	Cross Horiz	33			Lbyy						Lateral
8	M61B	Cross Horiz	33			Lbyy						Lateral
9	M63B	Cross Horiz	33			Lbyy						Lateral
10	M25	Support Rail	96			Lbyy						Lateral
11	M51	Support Rail	96			Lbyy						Lateral
12	M65A	Support Rail	96			Lbyy						Lateral
13	M2	Stand-Off H...	44.5			Lbyy						Lateral
14	M7	Stand-Off H...	44.5			Lbyy						Lateral
15	M12	Stand-Off H...	44.5			Lbyy						Lateral
16	MP9	Mount Pipe	96			Lbyy						Lateral
17	MP7	Mount Pipe	96			Lbyy						Lateral
18	MP8	Mount Pipe	96			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
19	MP3	Mount Pipe	96			Lbyy						Lateral
20	MP1	Mount Pipe	96			Lbyy						Lateral
21	MP6	Mount Pipe	96			Lbyy						Lateral
22	MP4	Mount Pipe	96			Lbyy						Lateral
23	MP2	Mount Pipe	96			Lbyy						Lateral
24	MP5	Mount Pipe	96			Lbyy						Lateral
25	M4	Grating Horiz	27.295			Lbyy						Lateral
26	M9	Grating Horiz	27.295			Lbyy						Lateral
27	M14	Grating Horiz	27.295			Lbyy						Lateral
28	M18	Face Horiz	96			Lbyy						Lateral
29	M48	Face Horiz	96			Lbyy						Lateral
30	M62	Face Horiz	96			Lbyy						Lateral
31	M61A	Cross Horiz	33			Lbyy						Lateral
32	M60A	Cross Horiz	33			Lbyy						Lateral
33	M62A	Cross Horiz	33			Lbyy						Lateral
34	M5	Corner Plate	42			Lbyy						Lateral
35	M10	Corner Plate	42			Lbyy						Lateral
36	M15	Corner Plate	42			Lbyy						Lateral
37	M88A	Side Plate	1.5			Lbyy						Lateral
38	M89A	Side Plate	1.5			Lbyy						Lateral
39	M90A	Side Plate	1.5			Lbyy						Lateral
40	M91A	Side Plate	1.5			Lbyy						Lateral
41	M92A	Side Plate	1.5			Lbyy						Lateral
42	M93A	Side Plate	1.5			Lbyy						Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Dead	DL			-1	13				
2	Dead of Ice	RL				13		42		
4	Structure Wind (0)	None						84		
5	Structure Wind (30)	None						84		
6	Structure Wind (45)	None						84		
7	Structure Wind (60)	None						84		
8	Structure Wind (90)	None						84		
9	Structure Wind (120)	None						84		
10	Structure Wind (135)	None						84		
11	Structure Wind (150)	None						84		
12	Structure Wind w/ Ice (0)	None						84		
13	Structure Wind w/ Ice (30)	None						84		
14	Structure Wind w/ Ice (45)	None						84		
15	Structure Wind w/ Ice (60)	None						84		
16	Structure Wind w/ Ice (90)	None						84		
17	Structure Wind w/ Ice (120)	None						84		
18	Structure Wind w/ Ice (135)	None						84		
19	Structure Wind w/ Ice (150)	None						84		
20	Antenna Wind (0)	None				26				
21	Antenna Wind (30)	None				26				
22	Antenna Wind (45)	None				26				
23	Antenna Wind (60)	None				26				
24	Antenna Wind (90)	None				26				

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area (Me...	Surface(...
25	Antenna Wind (120)	None				26				
26	Antenna Wind (135)	None				26				
27	Antenna Wind (150)	None				26				
28	Antenna Wind w/ Ice (0)	None				26				
29	Antenna Wind w/ Ice (30)	None				26				
30	Antenna Wind w/ Ice (45)	None				26				
31	Antenna Wind w/ Ice (60)	None				26				
32	Antenna Wind w/ Ice (90)	None				26				
33	Antenna Wind w/ Ice (120)	None				26				
34	Antenna Wind w/ Ice (135)	None				26				
35	Antenna Wind w/ Ice (150)	None				26				
36	Maintenance Live Lm (1)	OL1				1				
37	Maintenance Live Lm (2)	OL2				1				
38	Maintenance Live Lm (3)	OL3				1				
41	Maintenance Live Lv (1)	OL6					1			

Load Combinations

	Description	So..	P...	SRSS	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	Summary: 1.0D + 1...	Yes	Y		DL	1	20	1																		
2	1.4D	Yes	Y		DL	1.4																				
3	1.2D + 1.0W(0)	Yes	Y		DL	1.2	4	1	20	1																
4	1.2D + 1.0W(30)	Yes	Y		DL	1.2	5	1	21	1																
5	1.2D + 1.0W(45)	Yes	Y		DL	1.2	6	1	22	1																
6	1.2D + 1.0W(60)	Yes	Y		DL	1.2	7	1	23	1																
7	1.2D + 1.0W(90)	Yes	Y		DL	1.2	8	1	24	1																
8	1.2D + 1.0W(120)	Yes	Y		DL	1.2	9	1	25	1																
9	1.2D + 1.0W(135)	Yes	Y		DL	1.2	10	1	26	1																
10	1.2D + 1.0W(150)	Yes	Y		DL	1.2	11	1	27	1																
11	1.2D + 1.0W(180)	Yes	Y		DL	1.2	4	-1	20	-1																
12	1.2D + 1.0W(210)	Yes	Y		DL	1.2	5	-1	21	-1																
13	1.2D + 1.0W(225)	Yes	Y		DL	1.2	6	-1	22	-1																
14	1.2D + 1.0W(240)	Yes	Y		DL	1.2	7	-1	23	-1																
15	1.2D + 1.0W(270)	Yes	Y		DL	1.2	8	-1	24	-1																
16	1.2D + 1.0W(300)	Yes	Y		DL	1.2	9	-1	25	-1																
17	1.2D + 1.0W(315)	Yes	Y		DL	1.2	10	-1	26	-1																
18	1.2D + 1.0W(330)	Yes	Y		DL	1.2	11	-1	27	-1																
19	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	12	1	28	1														
20	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	13	1	29	1														
21	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	14	1	30	1														
22	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	15	1	31	1														
23	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	16	1	32	1														
24	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	17	1	33	1														
25	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	18	1	34	1														
26	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	19	1	35	1														
27	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	12	-1	28	-1														
28	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	13	-1	39	-1														
29	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	14	-1	30	-1														
30	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	15	-1	31	-1														
31	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	16	-1	32	-1														
32	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	17	-1	33	-1														

Load Combinations (Continued)

	Description	So..	P...	SRSS	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
33	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	18	-1	34	-1														
34	1.2D + 1.0Di + 1.0...	Yes	Y		DL	1.2	RL	1	19	-1	35	-1														
35	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	4	.067	20	.067	OL1	1.5														
36	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	5	.067	21	.067	OL1	1.5														
37	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	6	.067	22	.067	OL1	1.5														
38	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	7	.067	23	.067	OL1	1.5														
39	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	8	.067	24	.067	OL1	1.5														
40	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	9	.067	25	.067	OL1	1.5														
41	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	10	.067	26	.067	OL1	1.5														
42	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	11	.067	27	.067	OL1	1.5														
43	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	4	-.067	20	-.067	OL1	1.5														
44	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	5	-.067	21	-.067	OL1	1.5														
45	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	6	-.067	22	-.067	OL1	1.5														
46	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	7	-.067	23	-.067	OL1	1.5														
47	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	8	-.067	24	-.067	OL1	1.5														
48	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	9	-.067	25	-.067	OL1	1.5														
49	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	10	-.067	26	-.067	OL1	1.5														
50	1.2D + 1.5Lm(1) + ...	Yes	Y		DL	1.2	11	-.067	27	-.067	OL1	1.5														
51	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	4	.067	20	.067	OL2	1.5														
52	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	5	.067	21	.067	OL2	1.5														
53	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	6	.067	22	.067	OL2	1.5														
54	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	7	.067	23	.067	OL2	1.5														
55	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	8	.067	24	.067	OL2	1.5														
56	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	9	.067	25	.067	OL2	1.5														
57	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	10	.067	26	.067	OL2	1.5														
58	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	11	.067	27	.067	OL2	1.5														
59	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	4	-.067	20	-.067	OL2	1.5														
60	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	5	-.067	21	-.067	OL2	1.5														
61	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	6	-.067	22	-.067	OL2	1.5														
62	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	7	-.067	23	-.067	OL2	1.5														
63	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	8	-.067	24	-.067	OL2	1.5														
64	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	9	-.067	25	-.067	OL2	1.5														
65	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	10	-.067	26	-.067	OL2	1.5														
66	1.2D + 1.5Lm(2) + ...	Yes	Y		DL	1.2	11	-.067	27	-.067	OL2	1.5														
67	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	4	.067	20	.067	OL3	1.5														
68	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	5	.067	21	.067	OL3	1.5														
69	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	6	.067	22	.067	OL3	1.5														
70	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	7	.067	23	.067	OL3	1.5														
71	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	8	.067	24	.067	OL3	1.5														
72	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	9	.067	25	.067	OL3	1.5														
73	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	10	.067	26	.067	OL3	1.5														
74	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	11	.067	27	.067	OL3	1.5														
75	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	4	-.067	20	-.067	OL3	1.5														
76	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	5	-.067	21	-.067	OL3	1.5														
77	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	6	-.067	22	-.067	OL3	1.5														
78	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	7	-.067	23	-.067	OL3	1.5														
79	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	8	-.067	24	-.067	OL3	1.5														
80	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	9	-.067	25	-.067	OL3	1.5														
81	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	10	-.067	26	-.067	OL3	1.5														
82	1.2D + 1.5Lm(3) + ...	Yes	Y		DL	1.2	11	-.067	27	-.067	OL3	1.5														
83	1.2D + 1.5Lv(1) + 1...	Yes	Y		DL	1.2	4	.067	20	.067	OL6	1.5														
84	1.2D + 1.5Lv(1) + 1...	Yes	Y		DL	1.2	5	.067	21	.067	OL6	1.5														

Load Combinations (Continued)

	Description	So..	P...	SRSS	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
85	1.2D + 1.5Lv(1) + 1..	Yes	Y		DL	1.2	6	.067	22	.067	OL6	1.5												
86	1.2D + 1.5Lv(1) + 1..	Yes	Y		DL	1.2	7	.067	23	.067	OL6	1.5												
87	1.2D + 1.5Lv(1) + 1..	Yes	Y		DL	1.2	8	.067	24	.067	OL6	1.5												
88	1.2D + 1.5Lv(1) + 1..	Yes	Y		DL	1.2	9	.067	25	.067	OL6	1.5												
89	1.2D + 1.5Lv(1) + 1..	Yes	Y		DL	1.2	10	.067	26	.067	OL6	1.5												
90	1.2D + 1.5Lv(1) + 1..	Yes	Y		DL	1.2	11	.067	27	.067	OL6	1.5												
91	1.2D + 1.5Lv(1) + 1..	Yes	Y		DL	1.2	4	-.067	20	-.067	OL6	1.5												
92	1.2D + 1.5Lv(1) + 1..	Yes	Y		DL	1.2	5	-.067	21	-.067	OL6	1.5												
93	1.2D + 1.5Lv(1) + 1..	Yes	Y		DL	1.2	6	-.067	22	-.067	OL6	1.5												
94	1.2D + 1.5Lv(1) + 1..	Yes	Y		DL	1.2	7	-.067	23	-.067	OL6	1.5												
95	1.2D + 1.5Lv(1) + 1..	Yes	Y		DL	1.2	8	-.067	24	-.067	OL6	1.5												
96	1.2D + 1.5Lv(1) + 1..	Yes	Y		DL	1.2	9	-.067	25	-.067	OL6	1.5												
97	1.2D + 1.5Lv(1) + 1..	Yes	Y		DL	1.2	10	-.067	26	-.067	OL6	1.5												
98	1.2D + 1.5Lv(1) + 1..	Yes	Y		DL	1.2	11	-.067	27	-.067	OL6	1.5												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	P24	max	789.851	18	660.968	16	1864.242	30	-170.923	6	185.299	6	1361.784	18
2		min	-788.727	10	-659.408	8	195.549	6	-4595.123	30	-2764.324	78	-1356.113	10
3	P13	max	504.184	3	917.281	15	1820.197	19	869.603	31	4731.431	19	1331.487	7
4		min	-512.907	11	-922.259	7	184.907	11	-58.477	87	48.228	11	-1329.016	15
5	P1	max	905.201	3	608.538	15	1872.688	24	3512.02	24	-238.807	16	1311.364	12
6		min	-898.306	11	-604.434	7	201.37	16	-134.374	16	-3285.612	40	-1320.661	4
7	Totals:	max	2190.062	3	2165.953	15	5152.826	26						
8		min	-2190.059	11	-2165.952	7	1663.568	1						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M62A	C3.38x2.06...	.261	0	30	.058	26.1...	y	21	48281.4...	56700	2203.138	5751	1...	H1-1b
2	M61A	C3.38x2.06...	.253	0	24	.056	26.1...	y	32	48281.4...	56700	2203.138	5751	1...	H1-1b
3	M60A	C3.38x2.06...	.250	0	19	.055	26.1...	y	27	48281.4...	56700	2203.138	5751	1...	H1-1b
4	M63A	C3.38x2.06...	.210	0	25	.038	0	y	19	48281.4...	56700	2203.138	5751	1...	H1-1b
5	M12	HSS4X4X6	.208	44.5	31	.072	23.8...	y	27	201121....	215100	23962.5	23962.5	2...	H1-1b
6	M61B	C3.38x2.06...	.205	0	3	.038	0	y	29	48281.4...	56700	2203.138	5751	1...	H1-1b
7	M63B	C3.38x2.06...	.204	0	30	.037	0	y	24	48281.4...	56700	2203.138	5751	1...	H1-1b
8	M7	HSS4X4X6	.204	44.5	21	.073	23.8...	y	32	201121....	215100	23962.5	23962.5	2...	H1-1b
9	M2	HSS4X4X6	.195	44.5	23	.097	44.5	y	39	201121....	215100	23962.5	23962.5	2...	H1-1b
10	M10	PL6-1/2x3/8	.188	21	3	.124	36.0...	y	31	3658.14	78975	616.993	8213.987	1...	H1-1b
11	M15	PL6-1/2x3/8	.185	21	14	.089	36.0...	y	8	3658.14	78975	616.993	8202.589	1...	H1-1b
12	M5	PL6-1/2x3/8	.178	21	8	.111	36.0...	y	35	3658.14	78975	616.993	8217.795	1...	H1-1b
13	MP8	HSS2.875x...	.151	26.2...	4	.044	26.2...		12	22397.2...	43014.6	3142.95	3142.95	3...	H1-1b
14	M93A	PL2-3/8x1/2	.149	1.5	3	.239	0	y	22	38256.8...	38475	400.783	1903.711	1...	H1-1b
15	M89A	PL2-3/8x1/2	.148	1.5	16	.248	0	y	27	38256.8...	38475	400.783	1903.711	1...	H1-1b
16	M92A	PL2-3/8x1/2	.146	1.5	18	.167	0	y	21	38256.8...	38475	400.783	1903.711	2...	H1-1b
17	M91A	PL2-3/8x1/2	.146	1.5	5	.242	0	y	34	38256.8...	38475	400.783	1903.711	2...	H1-1b
18	MP2	HSS2.875x...	.145	26.2...	15	.045	26.2...		7	22397.2...	43014.6	3142.95	3142.95	4...	H1-1b
19	M88A	PL2-3/8x1/2	.143	1.5	7	.191	0	y	58	38256.8...	38475	400.783	1903.711	2...	H1-1b
20	MP6	HSS2.875x...	.142	26.2...	10	.046	26.2...		7	22397.2...	43014.6	3142.95	3142.95	3...	H1-1b
21	M90A	PL2-3/8x1/2	.142	1.5	12	.176	0	y	31	38256.8...	38475	400.783	1903.711	2...	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
22	MP5	HSS2.875x...	.138	26.2...	10	.050	26.2...		18	22397.2...	43014.6	3142.95	3142.95	3...	H1-1b
23	MP9	HSS2.875x...	.135	26.2...	4	.060	26.2...		3	22397.2...	43014.6	3142.95	3142.95	3...	H1-1b
24	MP3	HSS2.875x...	.132	26.2...	7	.048	26.2...		13	22397.2...	43014.6	3142.95	3142.95	3...	H1-1b
25	MP4	HSS2.875x...	.132	26.2...	18	.048	26.2...		12	22397.2...	43014.6	3142.95	3142.95	3...	H1-1b
26	M8	L2x2x4	.132	0	3	.009	0	y	11	29527.5...	42480	959.63	2190.068	2...	H2-1
27	M3	L2x2x4	.123	0	9	.009	0	y	16	29527.5...	42480	959.63	2190.068	2...	H2-1
28	MP1	HSS2.875x...	.123	26.2...	7	.050	26.2...		9	22397.2...	43014.6	3142.95	3142.95	4...	H1-1b
29	M13	L2x2x4	.121	0	14	.010	27.2...	z	67	29527.5...	42480	959.63	2190.068	2...	H2-1
30	MP7	HSS2.875x...	.119	26.2...	12	.051	26.2...		15	22397.2...	43014.6	3142.95	3142.95	4...	H1-1b
31	M29	L6.6x4.46x...	.115	39	3	.017	39	z	11	51434.5...	87561	2464.809	7125.374	1...	H2-1
32	M30	L6.6x4.46x...	.107	39	8	.017	39	z	16	51434.5...	87561	2464.809	7125.374	1...	H2-1
33	M28	L6.6x4.46x...	.104	39	13	.016	39	z	6	51434.5...	87561	2464.809	7125.374	1...	H2-1
34	M14	L2x2x4	.103	0	6	.019	27.2...	y	26	29527.5...	42480	959.63	2190.068	2...	H2-1
35	M4	L2x2x4	.103	0	16	.018	27.2...	y	20	29527.5...	42480	959.63	2190.068	2...	H2-1
36	M25	HSS2.875x...	.102	6.063	12	.046	92.4...		9	22397.2...	43014.6	3142.95	3142.95	1...	H1-1b
37	M65A	HSS2.875x...	.100	6.063	18	.047	92.4...		7	22397.2...	43014.6	3142.95	3142.95	1...	H1-1b
38	M51	HSS2.875x...	.098	6.063	7	.045	92.4...		12	22397.2...	43014.6	3142.95	3142.95	1...	H1-1b
39	M9	L2x2x4	.095	0	11	.019	27.2...	y	31	29527.5...	42480	959.63	2190.068	2...	H2-1
40	M62	HSS3.500x...	.080	31.3...	3	.037	92.4...		33	45873.0...	71580.6	6337.65	6337.65	2...	H1-1b
41	M18	HSS3.500x...	.079	31.3...	14	.034	92.4...		27	45873.0...	71580.6	6337.65	6337.65	1...	H1-1b
42	M48	HSS3.500x...	.079	31.3...	8	.043	92.4...		39	45873.0...	71580.6	6337.65	6337.65	2...	H1-1b

APPENDIX D

ADDITIONAL CALCULATIONS

Square/Rectangular Flange Connection

TIA-222-H

Kimley»Horn

Site Number	876348
Job number	19558057
Code	TIA-222-H

Member/Node Under Consideration	P24
Controlling Load Combination (X-Direction)	LC 30
Controlling Load Combination (Y-Direction)	

Normalize usages per TIA-222-H, Sec. 15.5	☑

X and Y Reactions Simultaneous?	No

REACTIONS (ABOUT X - HORIZONTAL)	
Moment, Mu (kip-ft)	4.856
Axial, Pu (kips) - *Negative for tension*	-0.132
Shear, Vu (kips)	1.864

REACTIONS (ABOUT Y - VERTICAL)	
Moment, Mu (kip-ft)	0.089
Axial, Pu (kips) - *Negative for tension*	0.730
Shear, Vu (kips)	0.061

BOLT CONFIGURATION	
Bolt Quantity, n_b	4
Bolt Diameter, d_b (in)	0.625
Bolt Grade	A325
Width between bolts, s (in)	7.00

BOLT USAGE	
Maximum Tension in Bolt, Tub (kip)	4.195
Nominal Tensile Strength, ϕRnt (kip)	20.340
Tensile Usage (Section 4.9.6.1)	**20%**

PLATE CONFIGURATION	
Plate Shape	Square
Plate Grade	A572-50
Thickness of plate, t (in)	0.750
Width of plate, w (in)	9.00

PLATE USAGE	
Ultimate flexural load in plate, Mu (kip-in)	9.424
Factored flexural capacity, ϕMn (kip-in)	28.430
Flexural Usage	**32%**

SUPPORT ARM CONFIGURATION	
Member Shape	Square
Member Grade	A500-50
Thickness of Member, t (in)	0.375
Width of member, w (in)	4.000

SUPPORT ARM USAGE	
Ultimate flexural load in member, Mu (kip-ft)	4.856
Factored flexural capacity, ϕMn (kip-ft)	27.817
Flexural Usage	**17%**

Stiffeners present?	☐

APPENDIX E

SUPPLEMENTAL DRAWINGS

NOTES:

1.0 GENERAL
- 1.1 ALL METRIC DIMENSIONS ARE IN BRACKETS
- 1.2 FOR PATENTS, SEE WWW.CS-PAT.COM

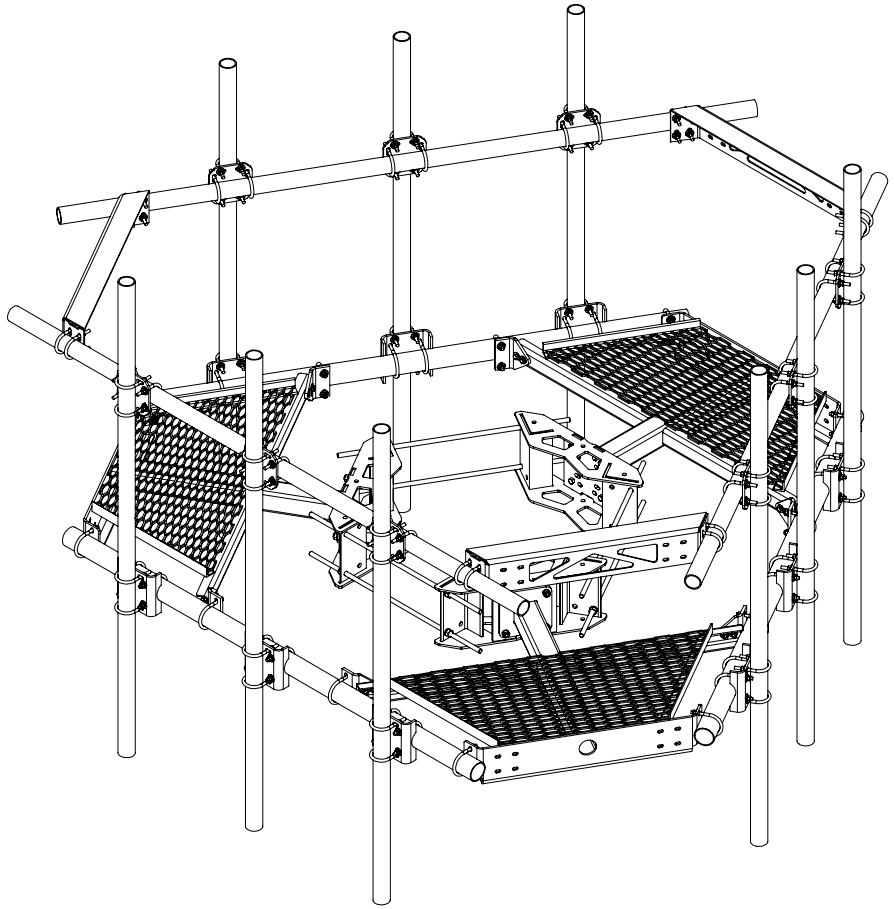
2.0 DESIGN NOTES
- 2.1 TORQUE U-BOLTS TO 44 FT-LBS

3.0 MANUFACTURING/SPECIAL REQUIREMENTS

4.0 TEST

5.0 PACKAGING

REVISIONS				
REV.	ECN	DESCRIPTION	BY	DATE
A	10272PC	INITIAL RELEASE	HDAI	03/08/2021



PATENT PENDING

COMMSCOPE, INC. OF NORTH CAROLINA

TOLERANCES				SAP MATERIAL MASTER
1 PLACE .X ±	.25	3 PLACE .XXX ±	0.06	MC-PK8-DSH
2 PLACE .XX ±	0.12	ANGLES ±	2°	

FINISH	MATERIAL
GALV A123	A500, A1011/A1018

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES INTERPRET PER ANSI Y14.5M-1994

	NAME	DATE
CE	MRC	02/17/20
RW	ROGHANSON	03/16/2021
AD	BCROSS	03/17/2021
RE	FA1024	02/27/2020
ECN	10272PC	

TITLE: **LOW PROFILE PLATFORM FACE**

SCALE: 1:32

DOCUMENT NO.: MC-PK8-DSH

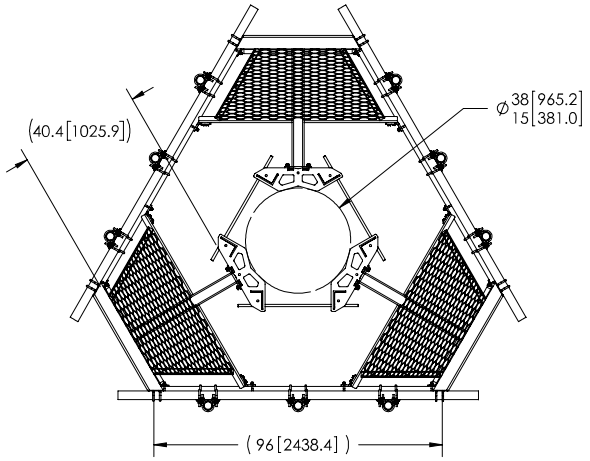
DENSITY	lbs/in³
MASS	lbs
VOLUME	in³
SURFACE AREA	in²
HEIGHT	96"
LENGTH	46"
WIDTH	29'

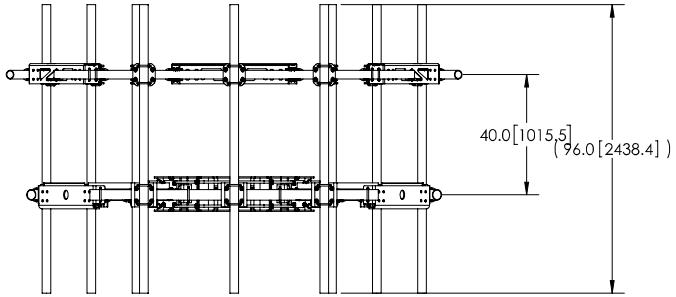
SIZE: C

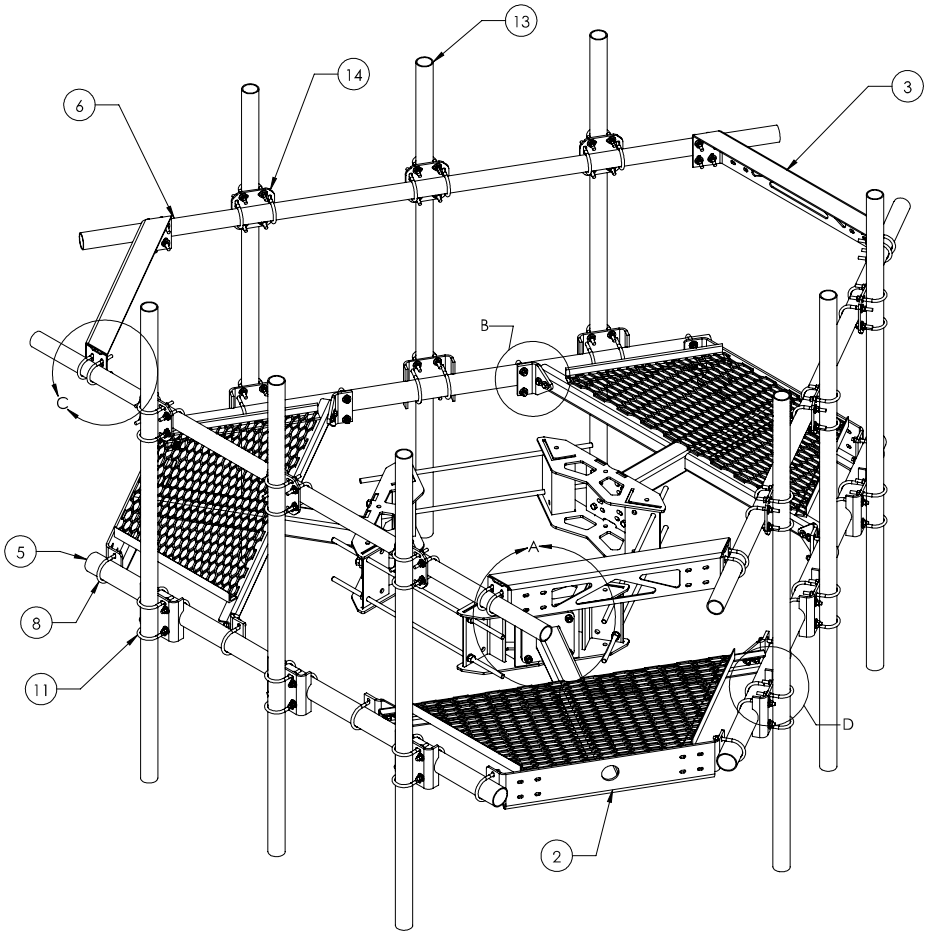
Auth Group: INSL

MODEL			DRAWING			SHEET
VERSION	STATUS	REVISION	VERSION	STATUS	REVISION	
01	AD		00	AD	A	1 OF 3

NOTES:







ITEM	PART NO.	DESCRIPTION	QTY.
1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1
2	MTC300602	SECTOR WELDMENT FOR SNUB NOSE PLATFORM	3
3	MT195801	Corner Weldment Snub Nose Handrail	3
4	GB-0520A	5/8" X 2" GALV BOLT KIT (A325)	12
5	MT54796	3.50" OD X 96" GALV PIPE	3
6	MT546120	2.875" O.D. X 120" PIPE	3
7	GWF-04	1/2" GALV FLAT WASHER	12
8	GUB-4355	1/2" X 3-5/8" X 5" GALV U-BOLT	12
9	MTC300618	MOUNTING PLATE FOR MT-196	6
10	GB-04205	1/2" X 2" GALV BOLT KIT	12
11	MT-219M-H	3.5" OD X 2-7/8" OD Clamp Bracket Assembly	9
12	GUB-4352	1/2" X 3" X 5-1/4" GALV U-BOLT	12
13	MT54696	Ø2.875" O.D. X 96 PIPE	9
14	XP-2525	CROSSOVER PLATE KIT, 2-7/8 OD X 2-7/8 OD	9

COMMSCOPE, INC. OF NORTH CAROLINA

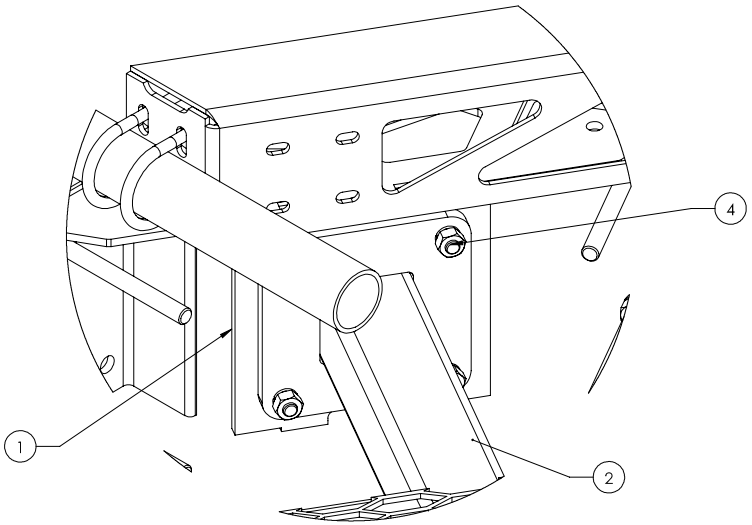
TITLE

LOW PROFILE PLATFORM FACE

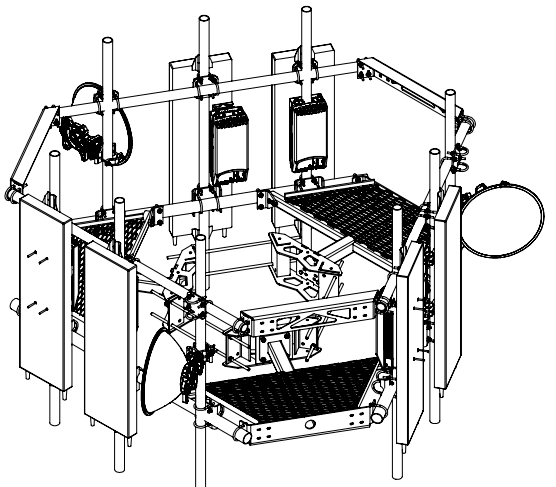
SIZE	SCALE	DOCUMENT NO.
C	1:32	MC-PK8-DSH

DRAWING			SHEET
VERSION	STATUS	REVISION	
00	AD	A	

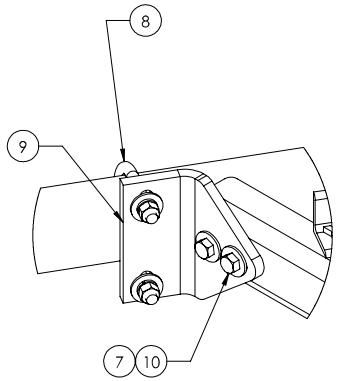
NOTES:



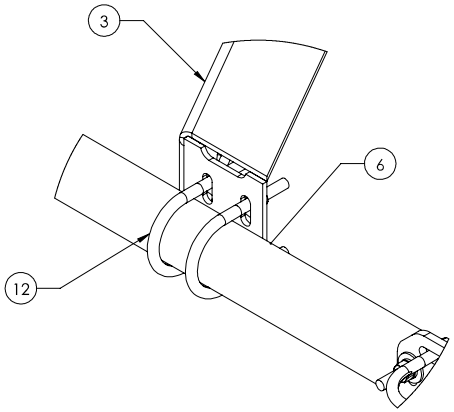
DETAIL A
SCALE 1 : 4



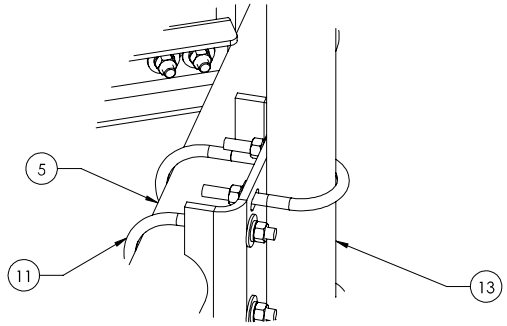
WITH ANTENNAS



DETAIL B
SCALE 1 : 4



DETAIL C
SCALE 1 : 4



DETAIL D
SCALE 1 : 4

COMMSCOPE, INC. OF NORTH CAROLINA			
TITLE: LOW PROFILE PLATFORM FACE			
SIZE: C	SCALE: 1:24	DOCUMENT NO.: MC-PK8-DSH	
		DRAWING: VERSION 00 / STATUS AD / REVISION A	SHEET: 3 OF 3

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

Dish Wireless Existing Facility

Site ID: BOBDL00093A

876348
Bright Meadow Boulevard
Enfield, Connecticut 06082

January 10, 2022

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**22.84%**

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

January 10, 2022

Dish Wireless

Emissions Analysis for Site: BOBDL00093A - 876348

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **Bright Meadow Boulevard** in **Enfield, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at Bright Meadow Boulevard in Enfield, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

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

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

5) A conservative roof attenuation factor of 10 dB, in which a radiofrequency signal is reduced by a factor of 10 due to intervening roof building materials, was also included. For purposes of this analysis, it is assumed that the roof building material is comprised of a poured concrete and steel underlayment with a rubber fabric roof membrane.

6) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline of the proposed antennas is 97 feet above ground level (AGL).

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

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

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz
Gain:	17.45 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd
Height (AGL):	97 feet	Height (AGL):	97 feet	Height (AGL):	97 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	280 Watts	Total TX Power (W):	280 Watts	Total TX Power (W):	280 Watts
ERP (W):	3,065.51	ERP (W):	3,065.51	ERP (W):	3,065.51
Antenna A1 MPE %:	**1.91%**	Antenna B1 MPE %:	**1.91%**	Antenna C1 MPE %:	**1.91%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	1.91%
AT&T	3.88%
T-Mobile	5.54%
Clearwire	0.09%
Sprint	0.32%
Verizon	10.59%
Nextel	0.39%
XM Sat Radio	0.12%
Site Total MPE % :	22.84%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.91%
Dish Wireless Sector B Total:	1.91%
Dish Wireless Sector C Total:	1.91%
Site Total MPE % :	22.84%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	97.0	3.88	600 MHz n71	400	0.97%
Dish Wireless 1900 MHz n70	4	542.70	97.0	9.42	1900 MHz n70	1000	0.94%
						Total:	**1.91%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

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

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

Dish Wireless Sector	Power Density Value (%)
Sector A:	1.91%
Sector B:	1.91%
Sector C:	1.91%
Dish Wireless Maximum MPE % (Sector A):	1.91%
Site Total:	22.84%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **22.84%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

Letter of Authorization

4545 E River Rd, Suite 320
West Henrietta, NY 14586

Phone: (585) 445-5896
Fax: (724) 416-4461
www.crowncastle.com

Crown Castle Letter of Authorization

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

Re: Tower Share Application
Crown Castle telecommunications site at:
BRIGHT MEADOW BLVD., ENFIELD, CT 06082

GLOBAL SIGNAL ACQUISITIONS II LLC ("Crown Castle") hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CT - CONNECTICUT SITING COUNCIL for the existing wireless communications site described below:

Crown Site ID/Name:	**876348/ENFIELD**
Customer Site ID:	**BOBDL00093A/CT-CCI-T-876348**
Site Address:	**Bright Meadow Blvd., ENFIELD, CT 06082**

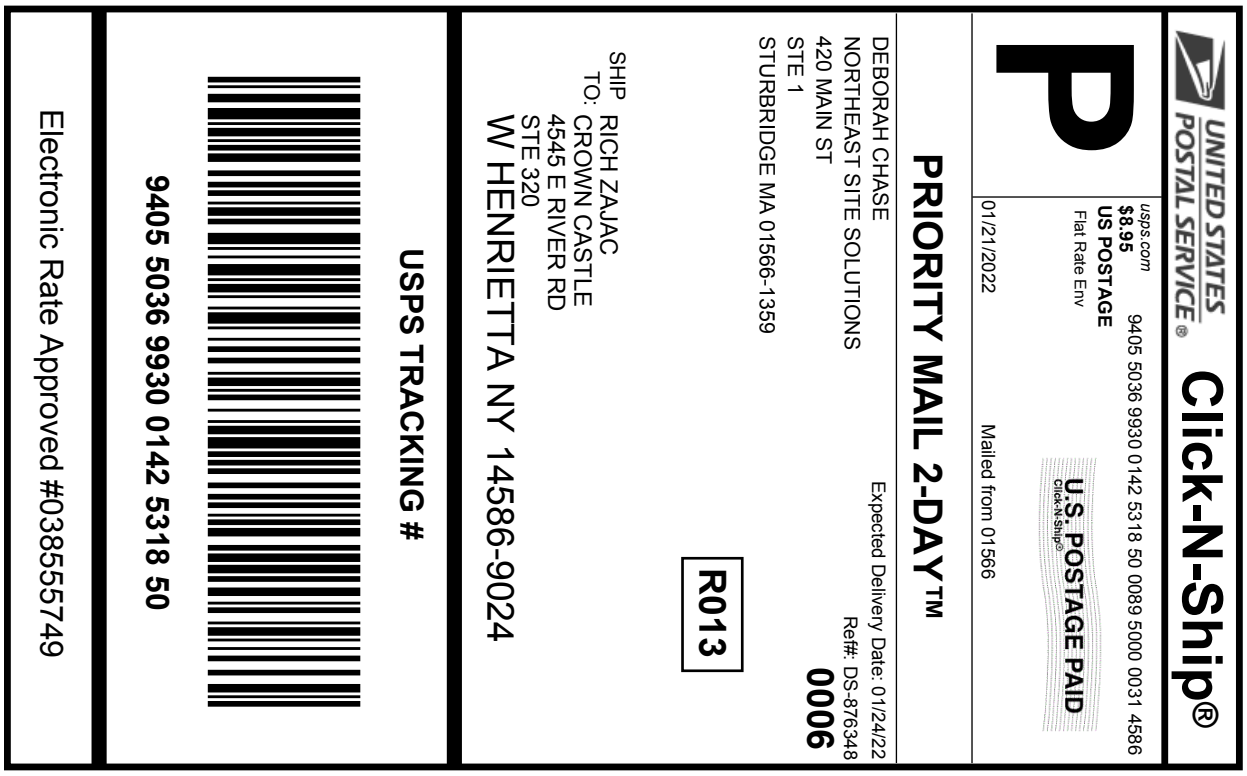
Crown Castle

By: _____ Date: 1/20/2022

Richard Zajac
Site Acquisition Specialist

Exhibit H

Recipient Mailings



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Instructions

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

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USPS TRACKING # :
9405 5036 9930 0142 5318 50

Trans. #:	554594903
Print Date:	01/21/2022
Ship Date:	01/21/2022
Expected Delivery Date:	01/24/2022

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

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

Ref#: DS-876348

To: RICH ZAJAC
CROWN CASTLE
4545 E RIVER RD
STE 320
W HENRIETTA NY 14586-9024

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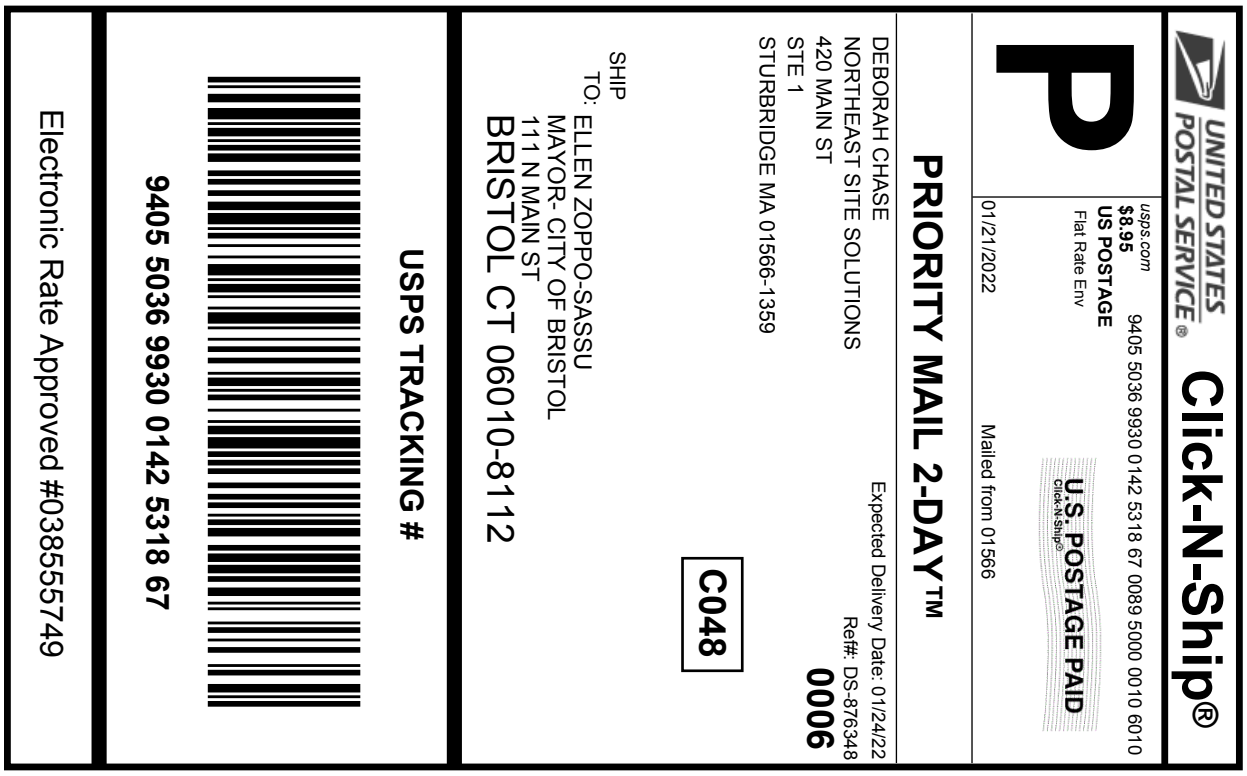

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9405 5036 9930 0142 5318 67

Trans. #:	554594903
Print Date:	01/21/2022
Ship Date:	01/21/2022
Expected Delivery Date:	01/24/2022

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

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

Ref#: DS-876348

To: ELLEN ZOPPO-SASSU
MAYOR- CITY OF BRISTOL
111 N MAIN ST
BRISTOL CT 06010-8112

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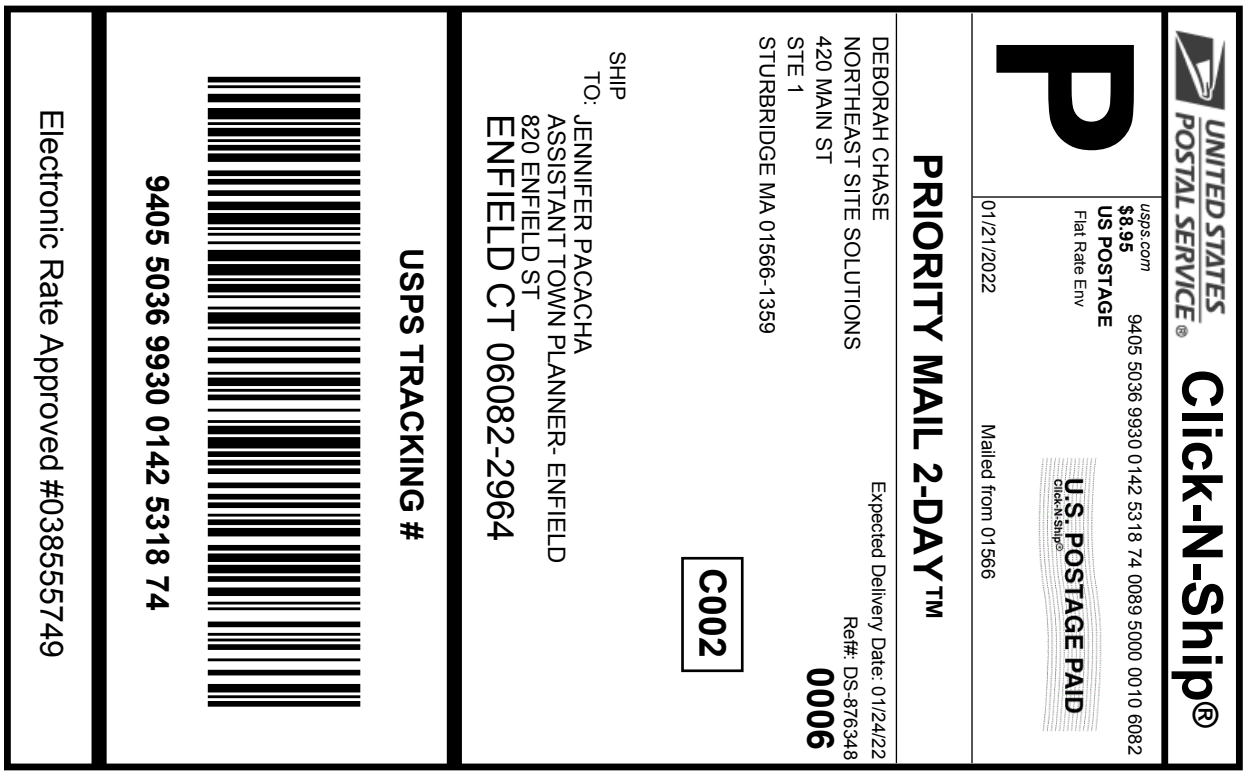

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0142 5318 74

Trans. #:	554594903
Print Date:	01/21/2022
Ship Date:	01/21/2022
Expected Delivery Date:	01/24/2022

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

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

Ref#: DS-876348

To: JENNIFER PACACHA
ASSISTANT TOWN PLANNER- ENFIELD
820 ENFIELD ST
ENFIELD CT 06082-2964

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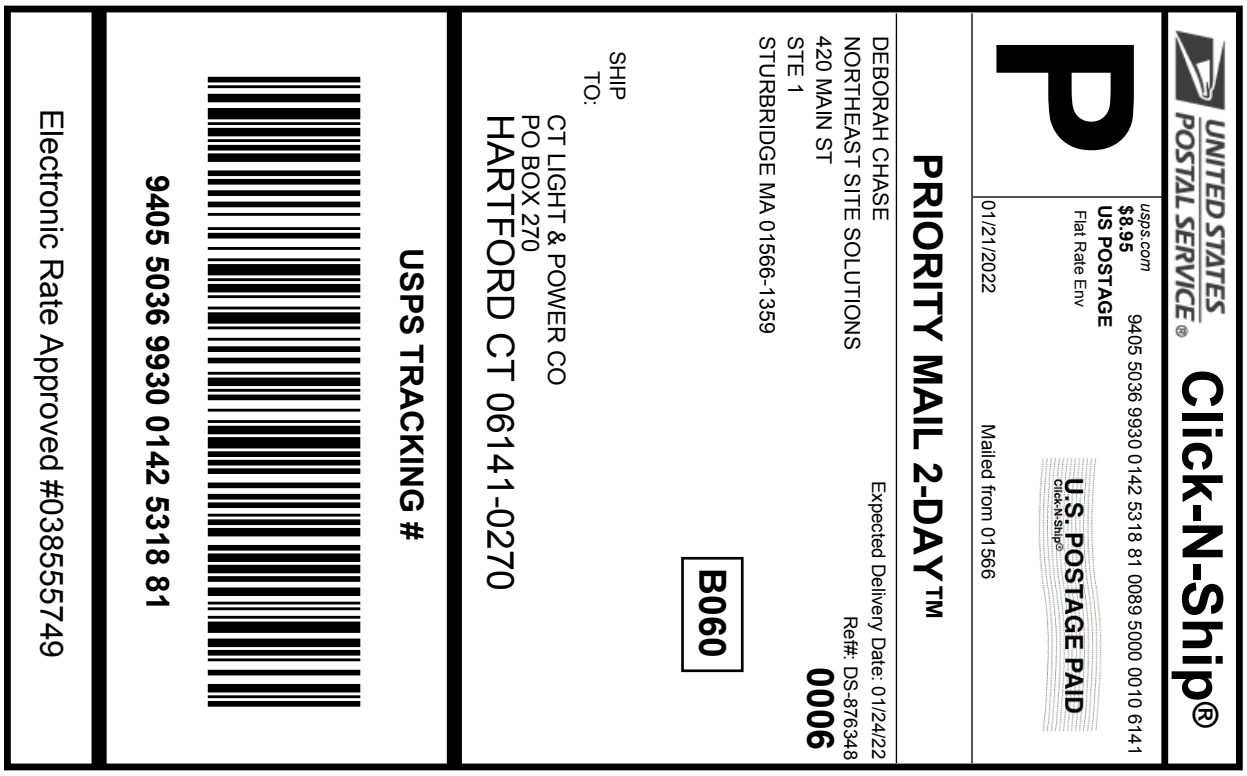

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Click-N-Ship® Label Record

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Trans. #:	554594903
Print Date:	01/21/2022
Ship Date:	01/21/2022
Expected Delivery Date:	01/24/2022

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

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

Ref#: DS-876348

To: CT LIGHT & POWER CO
PO BOX 270
HARTFORD CT 06141-0270

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876348

UNITED STATES POSTAL SERVICE.

UNIONVILLE
24 MILL ST
UNIONVILLE, CT 06085-9998
(800)275-8777

01/26/2022 12:13 PM

Product	Qty	Unit Price	Price
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 1.90 oz Acceptance Date: Wed 01/26/2022 Tracking #: 9405 5036 9930 0142 5318 50	1		$0.00
Prepaid Mail Bristol, CT 06010 Weight: 0 lb 7.70 oz Acceptance Date: Wed 01/26/2022 Tracking #: 9405 5036 9930 0142 5318 67	1		$0.00
Prepaid Mail Enfield, CT 06082 Weight: 0 lb 7.70 oz Acceptance Date: Wed 01/26/2022 Tracking #: 9405 5036 9930 0142 5318 74	1		$0.00
Prepaid Mail Hartford, CT 06141 Weight: 0 lb 7.70 oz Acceptance Date: Wed 01/26/2022 Tracking #: 9405 5036 9930 0142 5318 81	1		$0.00