DEVELOPMENT

May 5, 2022

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

RE: Request of DISH Wireless LLC for an Order to Approve the Shared Use of an Existing Tower
6 Shirley Street, Norwalk, CT 06850
Fairfield County
Latitude: 41° 06' 56" / Longitude: -73° 26' 04"

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, DISH Wireless LLC ("DISH") hereby requests an order from the Connecticut Siting Council ("Council") to approve the shared use by DISH of an existing telecommunication tower at 6 Shirley Street in Norwalk (the "Property"). The existing 341.5ft - guyed tower is owned by CTI Towers Inc. The underlying property is owned by the CTI Tower Assets II, LLC. DISH requests that the Council find that the proposed shared use of the CTI Towers Inc tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared use. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times. A copy of this filing is being sent to Steven Kleppin, Director of Planning and Zoning – City of Norwalk, William Ireland, Chief Building Official – City of Norwalk and Jason Peduto, Senior Account Manager - CTI Towers Inc.

Background

The existing CTI Tower Assets II, LLC facility consists of a 341.5ft - guyed tower within a 7514 sq.ft leased area. DISH is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. DISH and CTI Towers Inc have agreed to the proposed shared use of the 6 Shirley Street tower pursuant to mutually acceptable terms and conditions. Likewise, DISH and CTI Towers Inc have agreed to the proposed installation of equipment cabinets on the ground on the Southeast side of the tower within the existing

compound. CTI Towers Inc has authorized DISH to apply for all necessary permits and approvals that may be required to share the existing tower.

DISH proposes to install 3 antennas, 6 RRU radios, 1 OVP and 1 cable at the 110-foot level. In addition, DISH will install a ground equipment cabinet on a 5ft x 7ft concrete equipment platform. Included in the Construction Drawings are DISH's project specifications for locations of all proposed site improvements. The Construction Drawings also contain specifications for DISH's proposed antennas and ground work.

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 341.5-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 110-feet.

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

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 13.6742% as evidenced by Exhibit C.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if
the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such a shared use." DISH respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing CTI Towers Inc tower is structurally capable of supporting DISH's proposed improvements. The proposed shared use of this tower is, therefore, technically feasible. A Feasibility Structural Analysis Report ("Structural Report") prepared for this project confirms that this tower can support DISH's proposed loading. A copy of the Structural Report has been included in this application.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue order

approving the shared use of an existing tower such as the CTI Towers Inc tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to the other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use of the CTI Towers Inc tower would have a minimal environmental effect for the following reasons:

1. The proposed installation will have no visual impact on the area of the tower. DISH's equipment cabinet would be installed within the existing facility compound. DISH's shared use of this tower therefore will not cause any significant change or alteration in the physical or environmental characteristics of the existing site.

2. Operation of DISH's antennas at this site would not exceed the RF emissions standard adopted by the Federal Communications Commission ("FCC"). Included in the EME report of this filing are the approximation tables that demonstrate that DISH's proposed facility will operate well within the FCC RF emissions safety standards.

3. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the CTI Towers Inc facility other than periodic maintenance. The proposed shared use of the CTI Towers Inc tower, would, therefore, have a minimal environmental effect, and is environmentally feasible.

D. Economic Feasibility. As previously mentioned, DISH has entered into an agreement with CTI Towers Inc for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting DISH's full array of 3 antennas, 6 RRU radios, 1 OVP and 1 cable and all related equipment. DISH is not aware of any public safety concerns relative to the proposed sharing of the existing CTI Towers Inc tower.

Conclusion

DEVELOPMENT

For the reasons discussed above, the proposed shared use of the existing CTI Towers Inc tower at 6 Shirley Street satisfies the criteria stated in C.G.S. §16-50aa and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the proposed shared use.

Sincerely,

Michael Jones

President

M+K Development
140 Beach 137th St
Rockaway Beach, NY 11694
Mobile: 732-677-8881
Email: mjones@mandkdevelopment.com

CC:
Steven Kleppin, Director of Planning and Zoning – City of Norwalk,
William Ireland, Chief Building Official – City of Norwalk
Jason Peduto, Senior Account Manager - CTI Towers Inc.

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EXHIBIT A

Letter of Authorization

May 6, 2022

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Development Application for Dish Wireless, LLC
Site Address: 6 Shirley Street, Norwalk, Connecticut
CTI Site ID: 52010/Norwalk 1

Dear Sir/Madam:

CTI Towers Assets II, LLC ("CTI") owns the tower facility at 6 Shirley Street, Norwalk, Connecticut, and identified as Parcel Number 5-58-43-0 (the "Property"). CTI hereby authorizes Dish Wireless L.L.C. ("Dish") and its agent, M+K Development, to file applications for the sole purpose of gaining any and all building permit(s) to install new and replace existing telecommunications equipment ("Equipment") on an existing guyed tower on the Property. Dish and its aforementioned agents shall not have authority to agree to any stipulations associated with their business before the Building Department that results in a duty on the part of CTI that CTI has not expressly permitted in writing.

Please contact me at (919) 415-1899 or scrisler@ctitowers.com should you have any questions or concerns.

Sincerely,

Scott Crisler
Chief Operating Officer

MK DEVELOPMENT

EXHIBIT B

Property Card

SHIRLEY ST

Location	SHIRLEY ST	**Mblu**	5/ 58/ 43/ 0/
Acct#	20292	**Owner**	CTI TOWERS ASSETS II LLC
Assessment	$1,783,720	**Appraisal**	$2,548,180
PID	20292	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$1,608,760	$939,420	$2,548,180
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$1,126,130	$657,590	$1,783,720

Owner of Record

Owner	CTI TOWERS ASSETS II LLC	**Sale Price**	$1,062,373
Co-Owner		**Certificate**	
Address	C/O RYAN LLC/GLORIA BURKES PO BOX 460667 DEPT 100 HOUSTON, TX 77056	**Book & Page**	8425/253
		Sale Date	10/24/2016
		Instrument	0

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CTI TOWERS ASSETS II LLC	$1,062,373		8425/253	0	10/24/2016
CONNOISSEUR MEDIA OF CONNECTICUT LLC	$896,700		7826/111		05/15/2013
COMMODORE MEDIA OF NORWALK INC	$0		3225/304	25	06/27/1996
C R B OF NORWALK INC	$0		3225/304		06/27/1996
HANSON COMMUNICATIONS INC	$0		0/0		

Building Information

Building 1 : Section 1

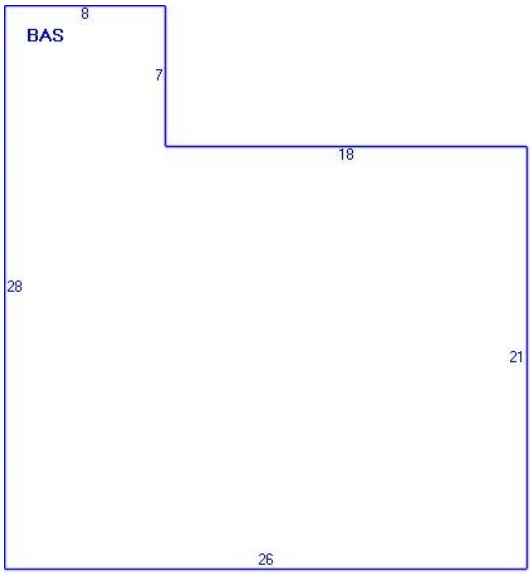
Year Built:	1948
Living Area:	602
Replacement Cost:	$35,644
Building Percent Good:	55
Replacement Cost Less Depreciation:	$19,600

Building Attributes	
Field	**Description**
Style:	Warehouse
Model:	Industrial
Grade	C
Stories:	1.00
Occupancy	1.00
Exterior Wall 1	Concrete
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Arch. Shingles
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air
AC Percent	100
Heat Percent	100
Bldg Use	Utility
Total Rooms	0
Bedrooms	0
Full Baths	0
Half Baths	0
Extra Fixtures	0
FBM Area	
Heat/AC	Heat/AC Pkg
Frame	Masonry
Plumbing	Average
Foundation	Poured Conc
Partitions	Average
Wall Height	7.00
% Sprinkler	0.00
# of Heat Systems	1
Insulation	Typical

Building Photo

(http://images.vgsi.com/photos/NorwalkCTPhotos//default.jpg)

Building Layout



(ParcelSketch.ashx?pid=20292&bid=20292)

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	602	602
		602	602

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	401
Description	Utility
Zone	B
Neighborhood	C344

Land Line Valuation

Size (Acres)	6.39
Frontage	
Depth	
Assessed Value	$657,590
Appraised Value	$939,420

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN6	Fence 6'			2700.00 L.F.	$24,540	1
SHD4	Cell Equip	FR	Frame	260.00 S.F.	$42,900	1
SHD4	Cell Equip	FR	Frame	180.00 S.F.	$29,700	1
CELL	Cell Site Carrier		Steel	3.00 UNITS	$742,500	1
CELL	Cell Site Carrier		Steel	12.00 UNITS	$45,360	1
ANT	Self Support	AT	Tower	326.00 L.F.	$704,160	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$1,608,760	$939,420	$2,548,180
2019	$1,608,760	$939,420	$2,548,180
2018	$1,608,760	$939,420	$2,548,180

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$1,126,130	$657,590	$1,783,720
2019	$1,126,130	$657,590	$1,783,720
2018	$1,126,130	$657,590	$1,783,720

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EXHIBIT C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

NJJER02029A

DISH Wireless L.L.C. SITE ADDRESS:

6 SHIRLEY STREET
NORWALK, CT 06850

CONNECTICUT CODE OF COMPLIANCE

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

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

SHEET INDEX

SCOPE OF WORK

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

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (3) PROPOSED ANTENNA SECTOR FRAMES
- 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)

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:	CTI TOWER ASSETS II, LLC
ADDRESS:	10520 CHAPEL HILL ROAD #1057, MORRISVILLE, NC 27560
TOWER TYPE:	GUYED TOWER
TOWER CO SITE ID:	52010
TOWER APP NUMBER:	TBD
COUNTY:	FAIRFIELD
LATITUDE (NAD 83):	41° 06' 56.0" N 41.115556
LONGITUDE (NAD 83):	73° 26' 04.0" W -73.434444
ZONING JURISDICTION:	FAIRFIELD COUNTY
ZONING DISTRICT:	B RESIDENCE
PARCEL NUMBER:	5-58-43-0
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:	M+K DEVELOPMENT 140 BEACH 137TH STREET ROCKAWAY, NY 11694
SITE DESIGNER:	M+K DEVELOPMENT 140 BEACH 137TH STREET ROCKAWAY, NY 11694
SITE ACQUISITION:	JOSEPH PAWELCZAK JOSEPH.PAWELCZAK@DISH.COM
CONSTRUCTION MANAGER:	OMAR ZEERBAN OMAR.ZEERBAN@DISH.COM
RF ENGINEER:	PAWAN MADAHAR PAWAN.MADAHAR@DISH.COM

DIRECTIONS

DIRECTIONS FROM 3 ADP BLVD:

GET ON I-280 E FROM LIVINGSTON AVE. HEAD NORTHEAST TOWARD ADP BLVD. TURN LEFT. TURN LEFT TOWARD ADP BLVD. TURN LEFT TOWARD ADP BLVD. TURN LEFT ONTO ADP BLVD. TURN RIGHT TOWARD CHOCTAW WAY. SLIGHT RIGHT ONTO CHOCTAW WAY. USE THE LEFT LANE TO TURN RIGHT ONTO LIVINGSTON AVE. USE THE RIGHT LANE TO TAKE THE RAMP ONTO I-280 E. MERGE ONTO I-280 E. TAKE EXIT 12 TOWARD ORATON PKWY. KEEP LEFT, FOLLOW SIGNS FOR GARDEN STATE PARKWAY AND MERGE ONTO GARDEN STATE PKWY. CONTINUE ONTO NJ-444 N/GARDEN STATE PKWY. CONTINUE ONTO GARDEN STATE PARKWAY CONNECTOR. TAKE EXIT 14-1 TO MERGE ONTO I-287 E/I-87 S. KEEP LEFT AT THE FORK TO CONTINUE ON I-287 E, FOLLOW SIGNS FOR WHITE PLAINS/RYE. MERGE ONTO I-95 N. ENTERING CONNECTICUT. TAKE EXIT 14 TOWARD FAIRFIELD AVE. TURN LEFT ONTO FAIRFIELD AVE. TURN RIGHT AT THE 1ST CROSS STREET ONTO CONNECTICUT AVE. TURN LEFT ONTO STUART AVE. TURN LEFT ONTO NOSTRUM RD. TURN RIGHT ONTO EAGLE RD. TURN LEFT ONTO ROCKMEADOW RD

VICINITY MAP

NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

M+K DEVELOPMENT
140 BEACH 137TH STREET
ROCKAWAY, NY 11694

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
PRI	---	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	01/28/2022	ISSUED FOR REVIEW
0	04/05/2022	ISSUED FOR CONSTRUCTION

TOWER CO ASSET #
52010

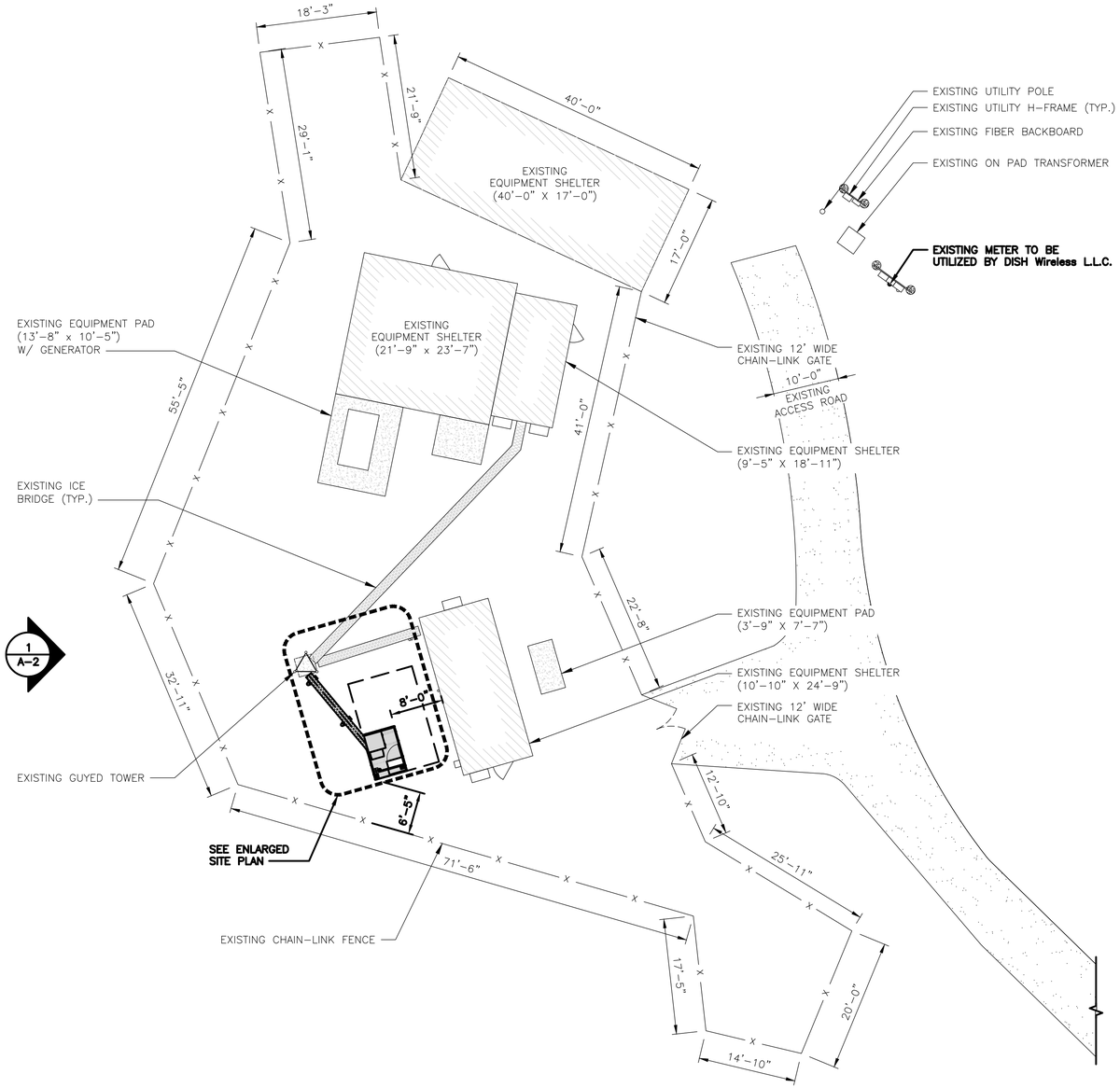
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02029A
6 SHIRLEY STREET
NORWALK, CT 06850

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

NOTES

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



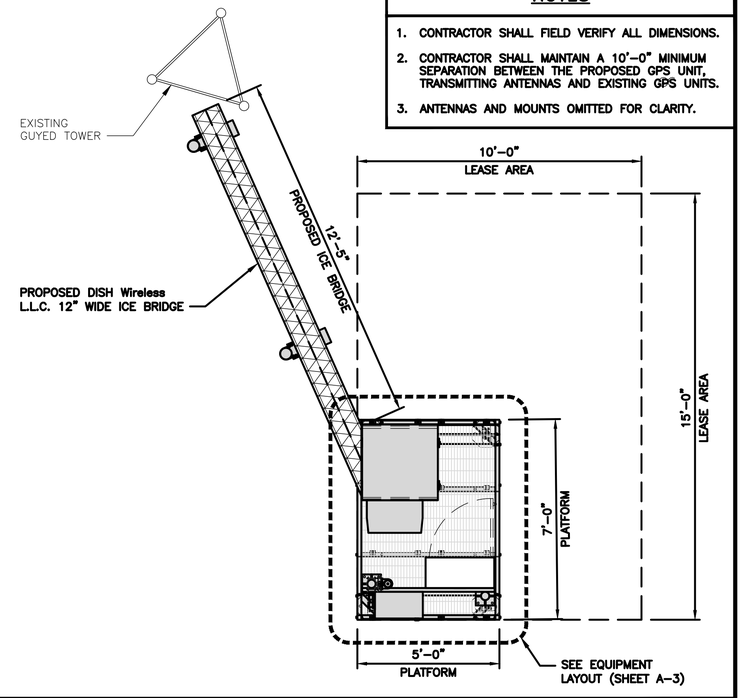
OVERALL SITE PLAN

12' 8' 4' 0 10' 20'
3/32"=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

AERIAL VIEW

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

MK DEVELOPMENT

140 BEACH 137TH STREET
ROCKAWAY, NY 11694

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PRI	---	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

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TOWER CO ASSET #

52010

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER02029A
6 SHIRLEY STREET
NORWALK, CT 06850

SHEET TITLE

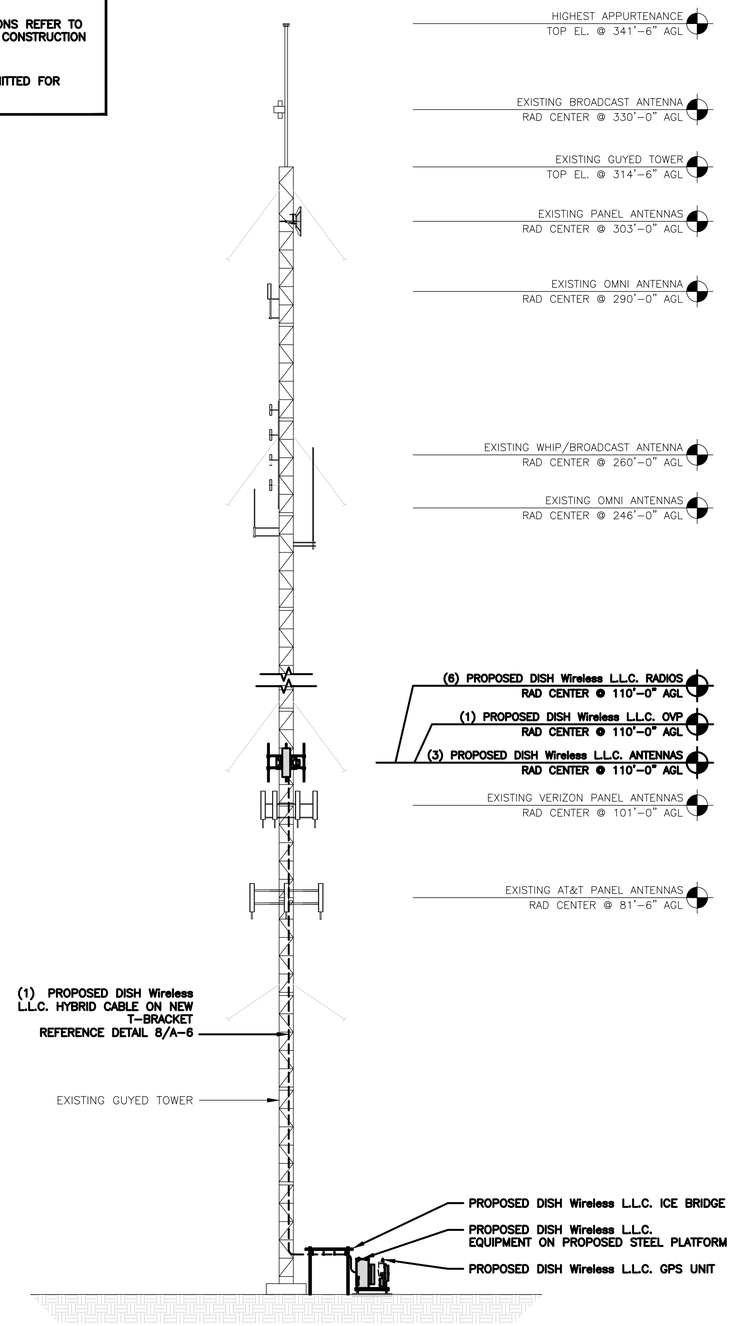
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

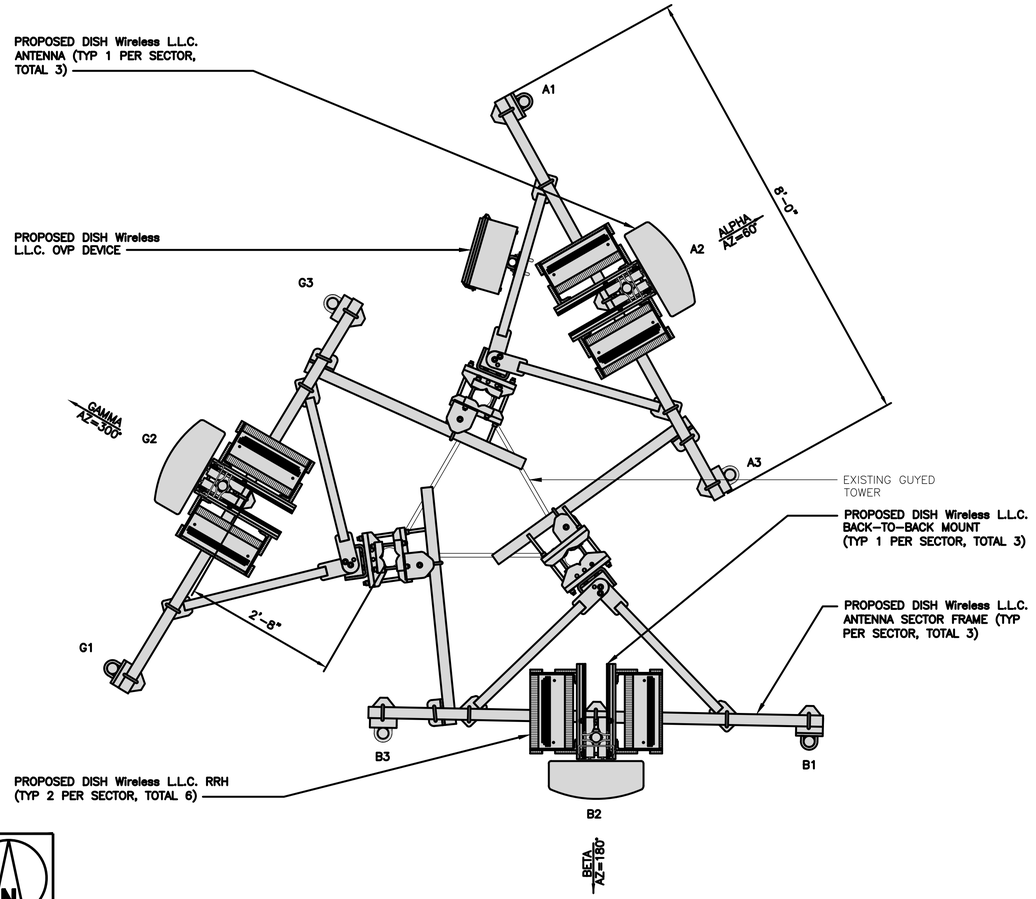
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED WEST ELEVATION

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					TRANSMISSION CABLE	RRH			OVP
	EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECH	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH	MANUFACTURER – MODEL NUMBER	TECH	POS.	MANUFACTURER MODEL
A2	PROPOSED	JMA – MX08FRO665-21	5G	60°	110'-0"	(1) HIGH-CAPACITY HYBRID CABLE CU12PSM6P4XXX_4AWG (146' LONG)	FUJITSU – TA08025-B604	N70/N66	A2	RAYCAP – RDIDC-9181-PF-48
							FUJITSU – TA08025-B605	N71/N29	A2	
B2	PROPOSED	JMA – MX08FRO665-21	5G	180°	110'-0"	SHARED	FUJITSU – TA08025-B604	N70/N66	B2	–
							FUJITSU – TA08025-B605	N71/N29	B2	
G2	PROPOSED	JMA – MX08FRO665-21	5G	300°	110'-0"	SHARED	FUJITSU – TA08025-B604	N70/N66	C2	–
							FUJITSU – TA08025-B605	N71/N29	C2	

NOTES

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

ANTENNA SCHEDULE

NO SCALE

3

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

MK DEVELOPMENT
140 BEACH 137TH STREET
ROCKAWAY, NY 11694

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RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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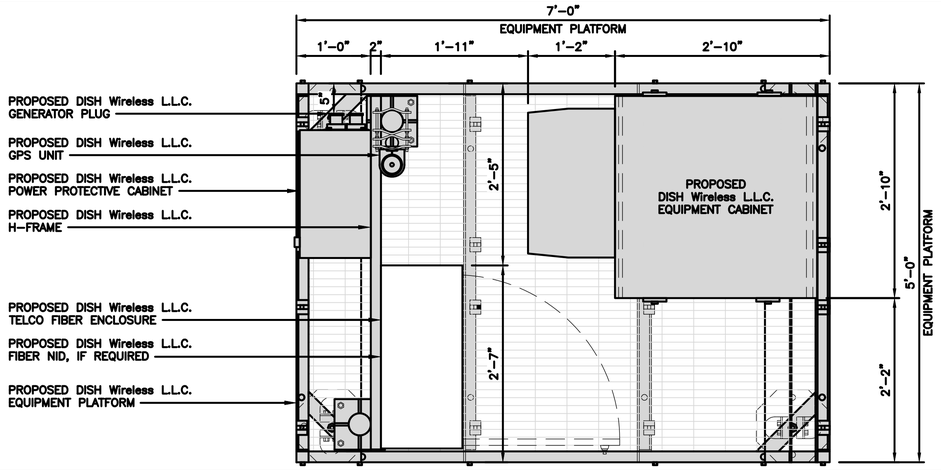
0	04/05/2022	ISSUED FOR CONSTRUCTION

TOWER CO ASSET #
52010

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02029A
6 SHIRLEY STREET
NORWALK, CT 06850

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



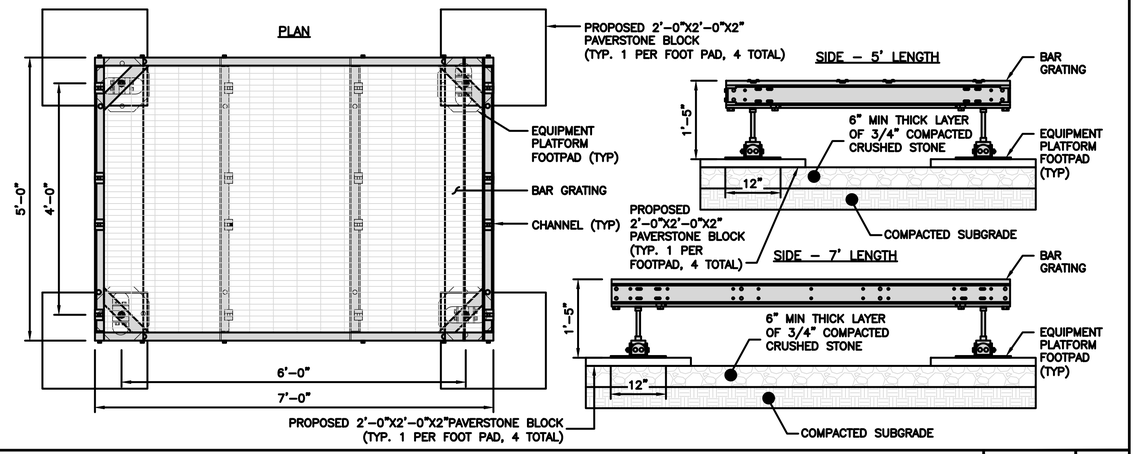
PLATFORM EQUIPMENT PLAN

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

1

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

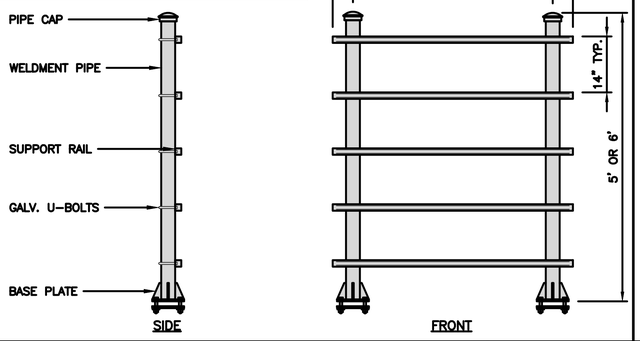
NOTE:
GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"



PLATFORM DETAIL | NO SCALE | 2

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

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

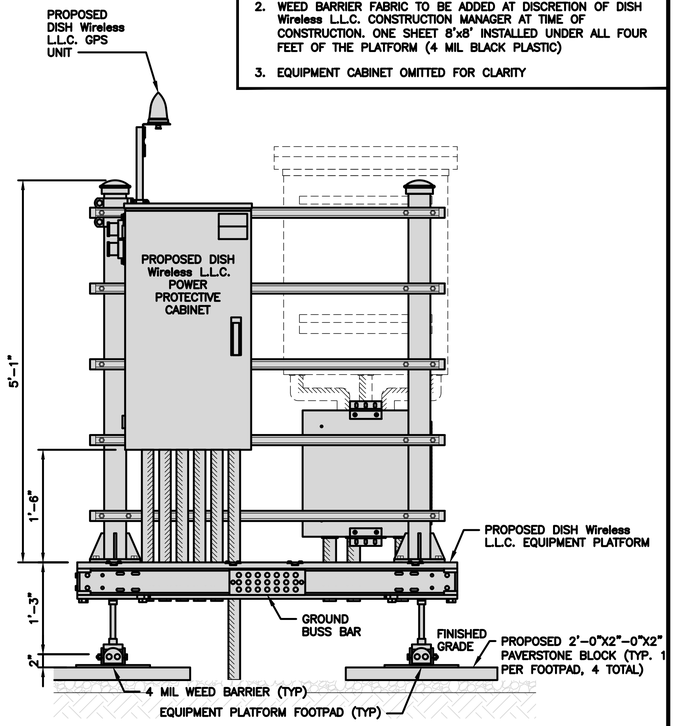


H-FRAME DETAIL | NO SCALE | 3

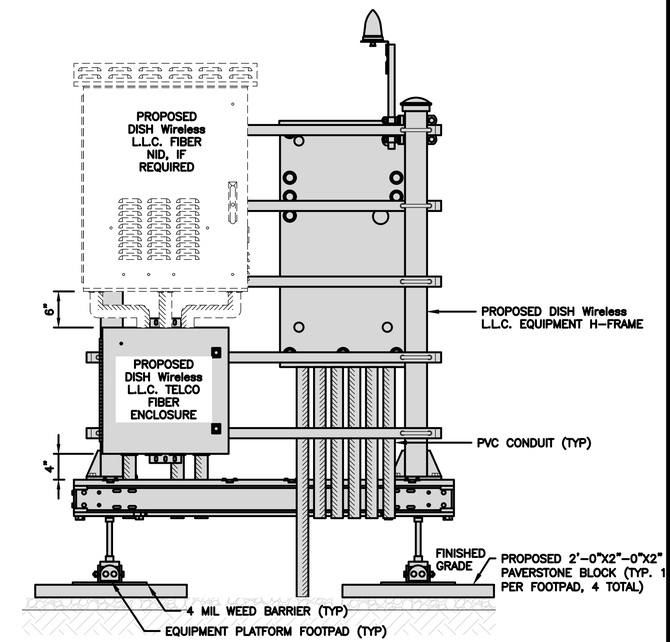
NOT USED | NO SCALE | 4

NOTES

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



FRONT ELEVATION



BACK ELEVATION

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

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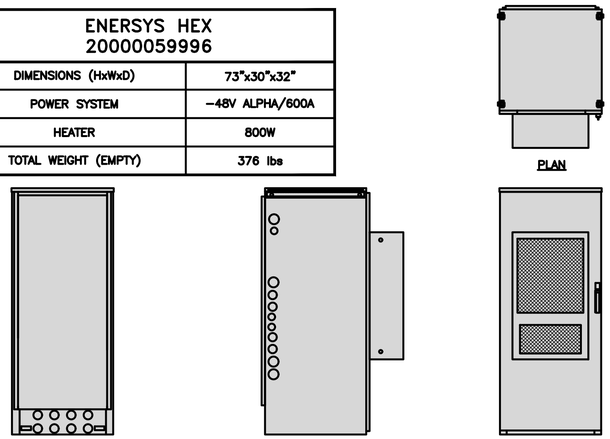
TOWER CO ASSET #
52010

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02029A
6 SHIRLEY STREET
NORWALK, CT 06850

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

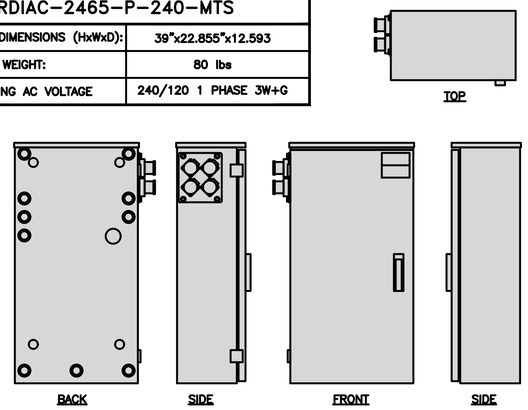
SHEET NUMBER
A-3

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



CABINET DETAIL | NO SCALE | 1

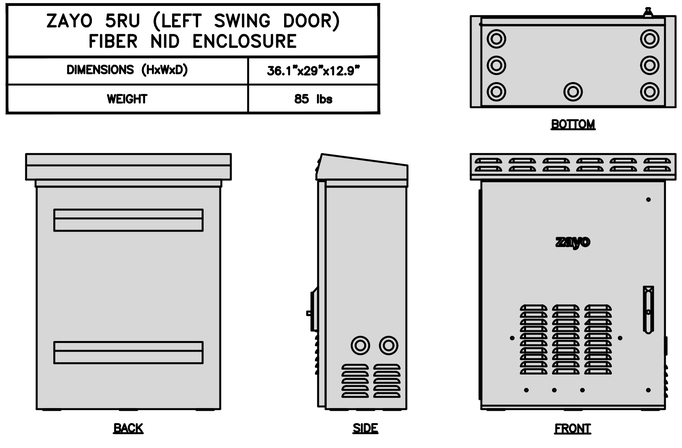
RAYCAP PPC RDIAC-2465-P-240-MTS	
ENCLOSURE DIMENSIONS (HxWxD):	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G



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

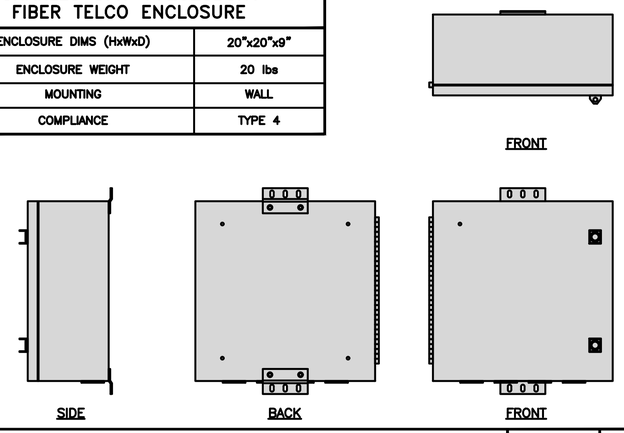
NOT USED | NO SCALE | 3

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



FIBER NID ENCLOSURE DETAIL | NO SCALE | 5

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

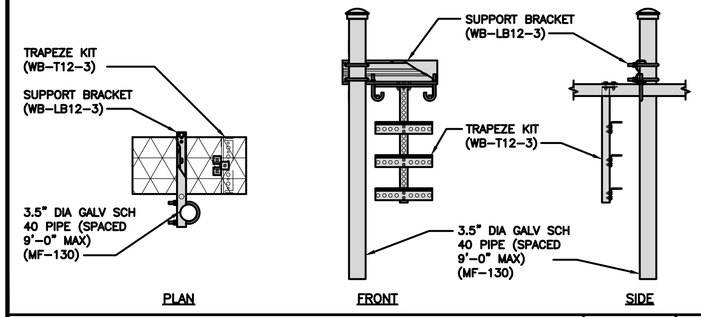


FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

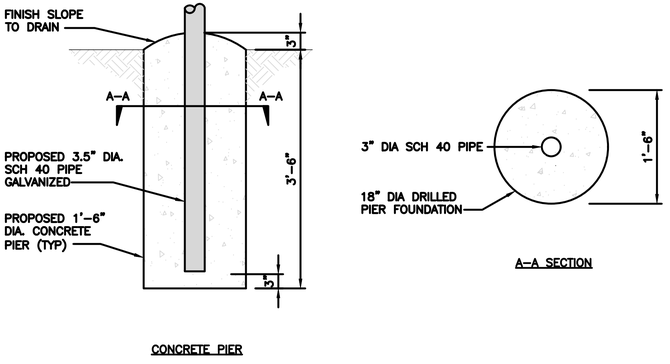
NOT USED | NO SCALE | 4

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

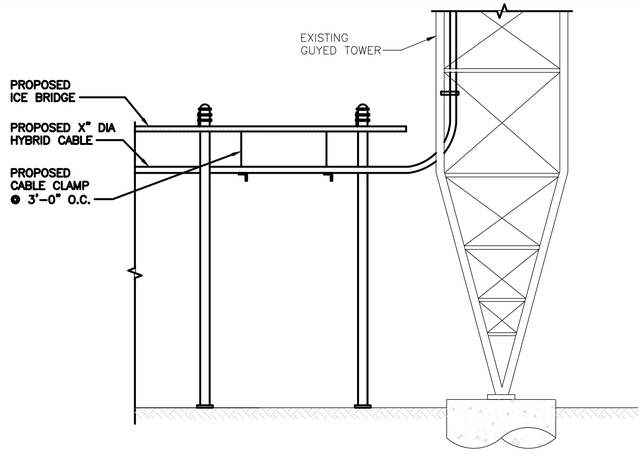
INCLUDED PRODUCTS:
- WB-T12-3 TRAPEZE KIT, 3 RUNGS
- WB-LB12-3 SUPPORT BRACKET
- MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"



ICE BRIDGE DETAIL | NO SCALE | 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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PROJECT INFORMATION

NJJER02029A
6 SHIRLEY STREET
NORWALK, CT 06850

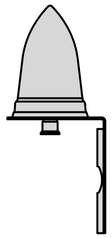
SHEET TITLE

EQUIPMENT DETAILS

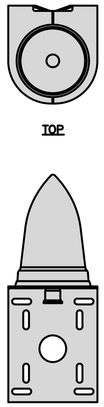
SHEET NUMBER

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



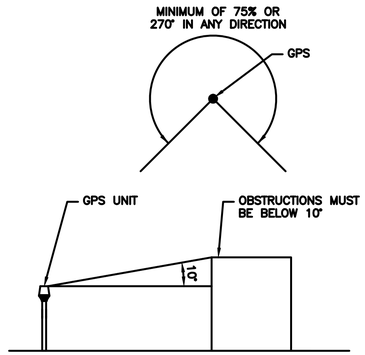
BACK



TOP SIDE

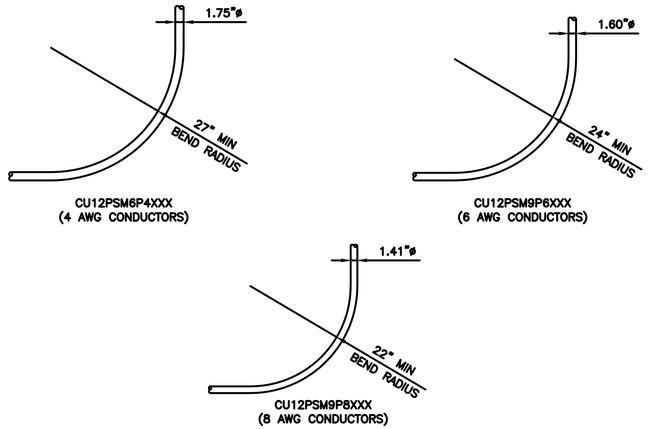
GPS DETAIL

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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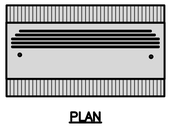
NJJER02029A
6 SHIRLEY STREET
NORWALK, CT 06850

SHEET TITLE
EQUIPMENT DETAILS

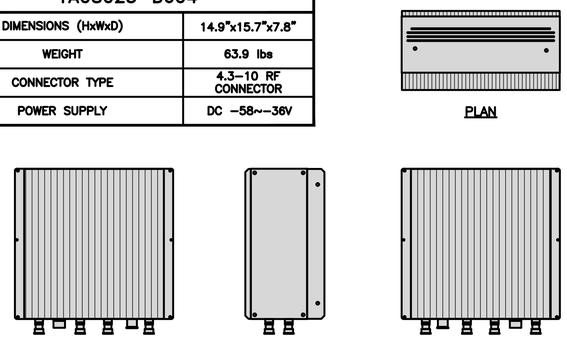
SHEET NUMBER
A-5

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



RRH DETAIL | NO SCALE | 1

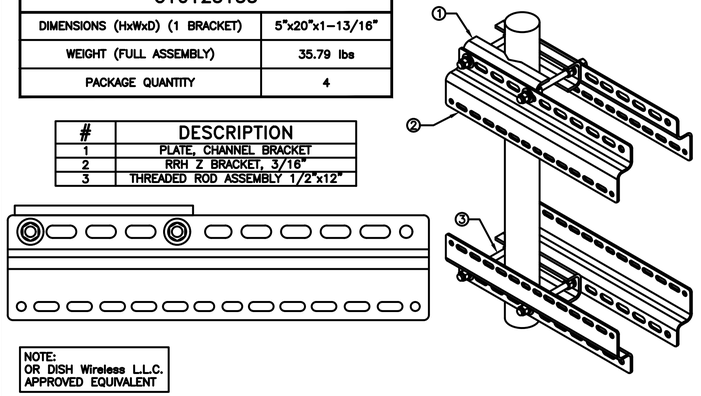
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



RRH DETAIL | NO SCALE | 2

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

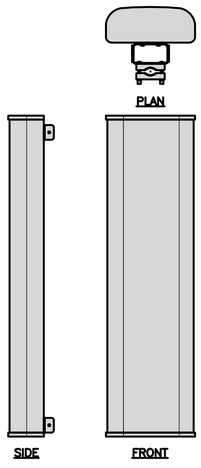
#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



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

RRH MOUNT DETAIL | NO SCALE | 3

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



ANTENNA DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

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

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

ANTENNA BRACKET NOT PART OF KIT

NOTE:
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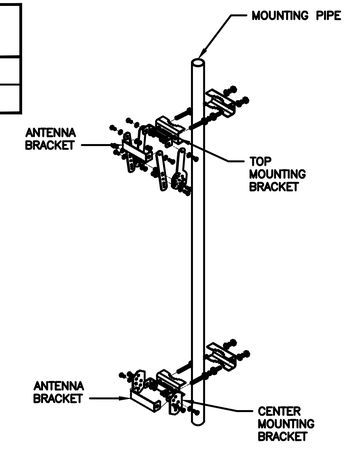
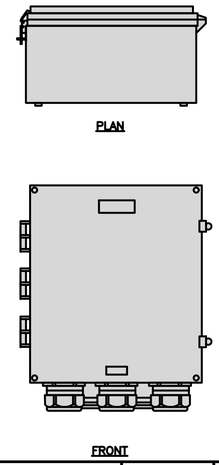
APPROVED EQUIVALENT



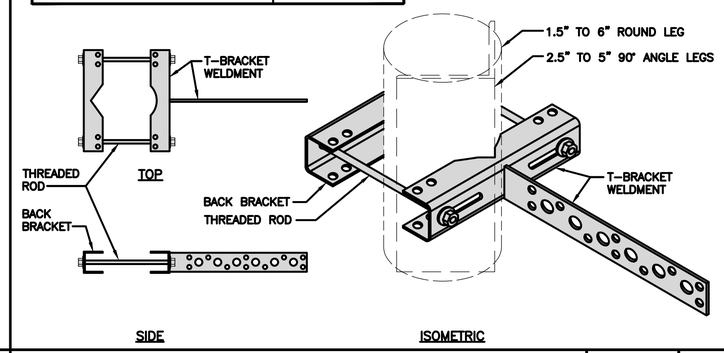
ANTENNA BRACKET DETAIL | NO SCALE | 6

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



SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

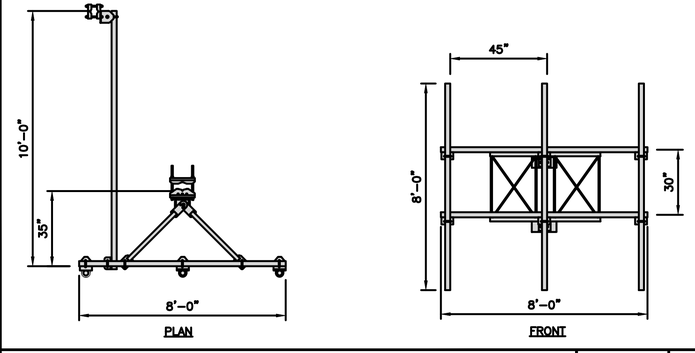
SITEPRO1 T600 UNIVERSAL T-BRACKET	
DIMENSIONS (HxWxL)	2.25"x10.0"x15.25"
WEIGHT/ VOLUME	5.60 LBS



VERTICAL CABLE SUPPORT DETAIL | NO SCALE | 8

COMMSCOPE V-FRAME MTC3975083	
FACE SIZE	8'-0"
WEIGHT	352.136 lbs

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



ANTENNA FRAME DETAIL | NO SCALE | 9

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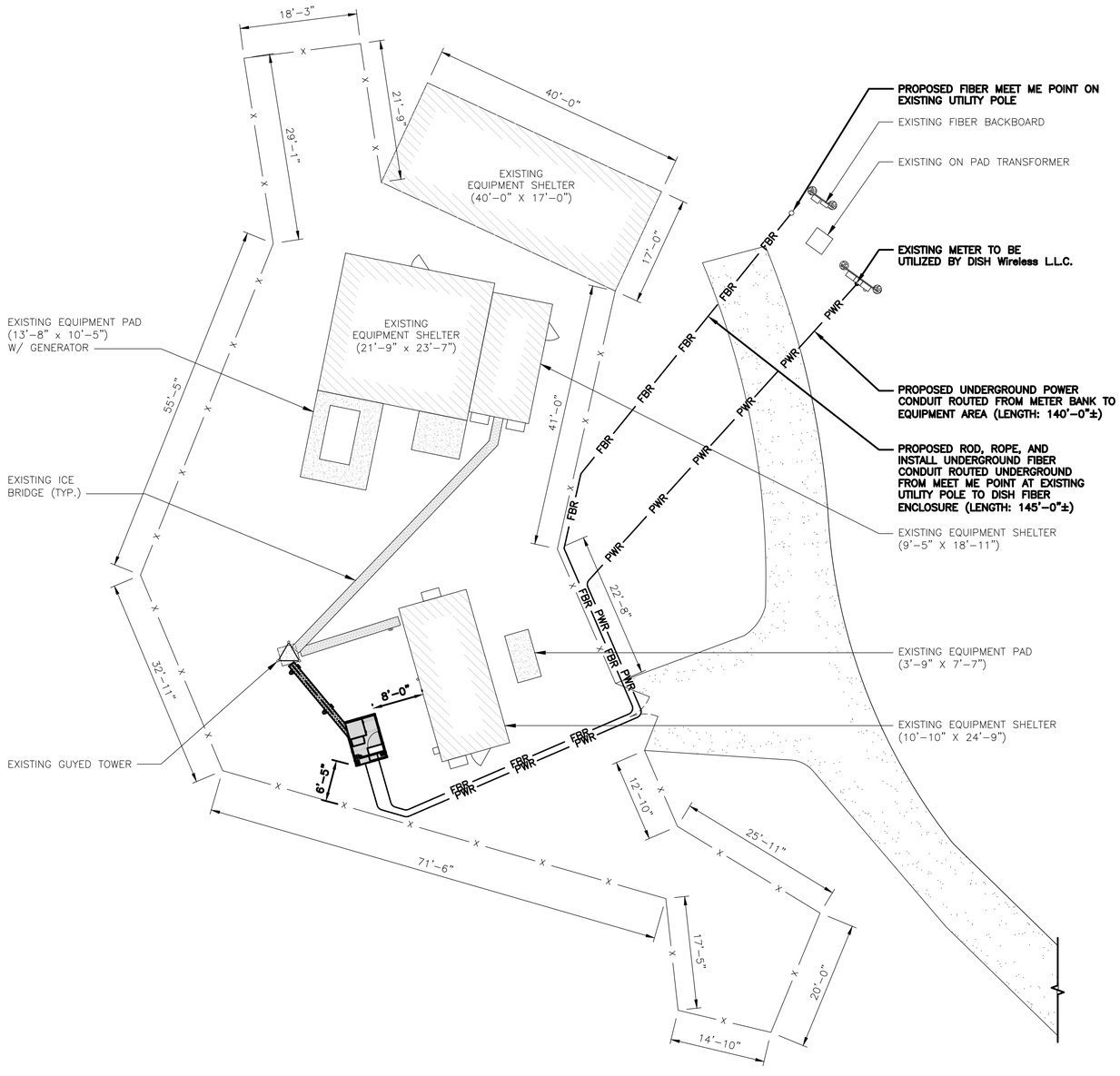
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02029A
6 SHIRLEY STREET
NORWALK, CT 06850

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE DOES NOT SPECIFY OUR 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 PLAEASE LOCATE AND FOLLOW EXSITING PATH. IF EXISTING PATH IS NOT AN OPTION PLEASE NOTIFY TOWER OWNER AS FURTHER COORINATION MAY BE NEEDED.



UTILITY ROUTE PLAN

12' 8' 4' 0 10' 20'
3/32"=1'-0"

1

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

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

ELECTRICAL NOTES

NO SCALE

2

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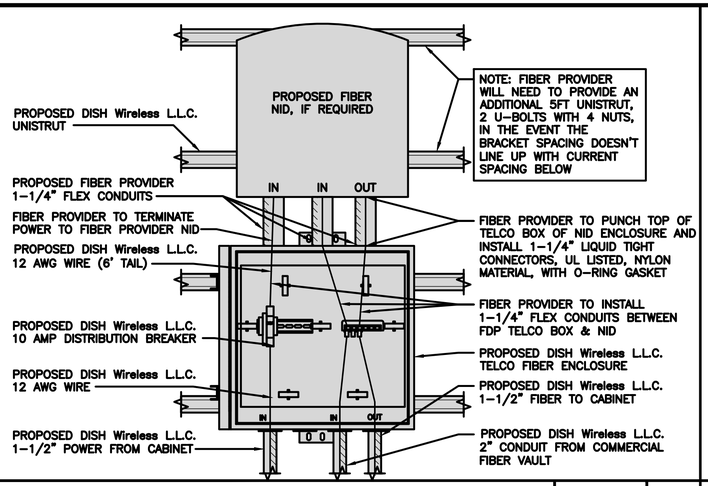
6 SHIRLEY STREET
NORWALK, CT 06850

SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

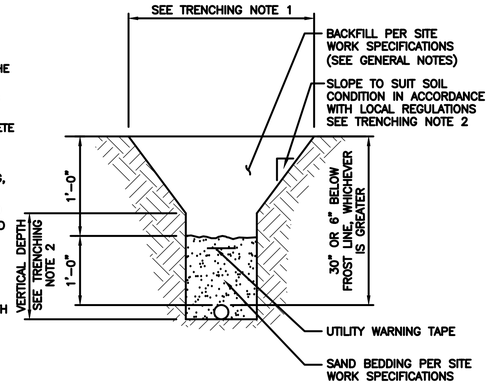
SHEET NUMBER
E-1



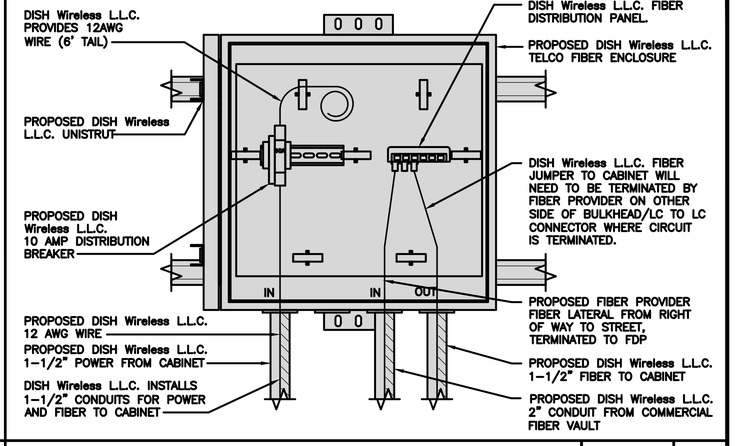
LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 1

TRENCHING NOTES

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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



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

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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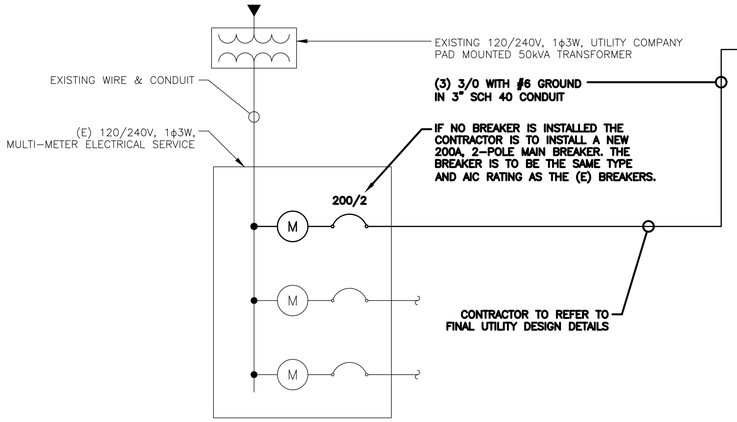
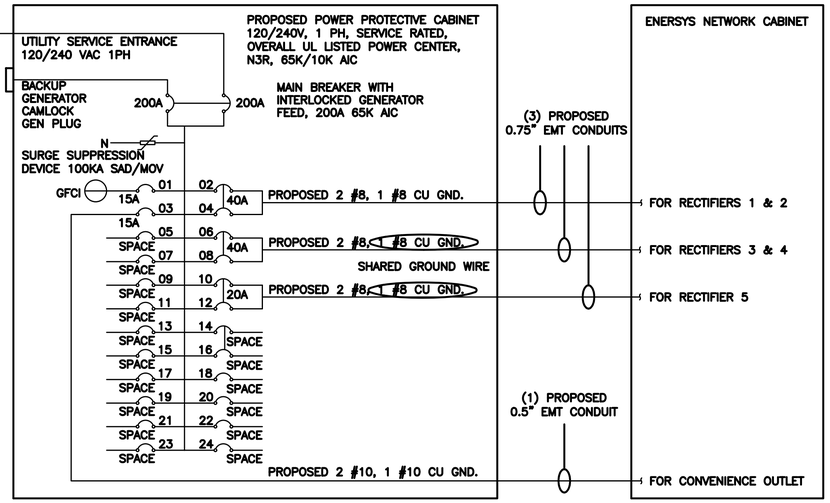
NJJER02029A
6 SHIRLEY STREET
NORWALK, CT 06850

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2





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

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

NOTES

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

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

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

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

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

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

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

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

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

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

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

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

PPC ONE-LINE DIAGRAM — NO SCALE — 1

PROPOSED ENERSYS PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	40A	3840		ENERSYS ALPHA CORDEX
ENERSYS GFCI OUTLET		180	20A	3	B	4			3840	RECTIFIERS 1 & 2
-SPACE-				5	A	6	40A	3840		ENERSYS ALPHA CORDEX
-SPACE-				7	B	8			3840	RECTIFIER 3 & 4
-SPACE-				9	A	10	20A	1920		ENERSYS ALPHA CORDEX
-SPACE-				11	B	12			1920	RECTIFIER 5
-SPACE-				13	A	14				-SPACE-
-SPACE-				15	B	16				-SPACE-
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						9600	9600	
200A MCB, 1ϕ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			9780		9780		VOLTAGE AMPS			
			81		81		AMPS			
			81				MAX AMPS			
			102				MAX 125%			

PANEL SCHEDULE — NO SCALE — 2

NOT USED — NO SCALE — 3

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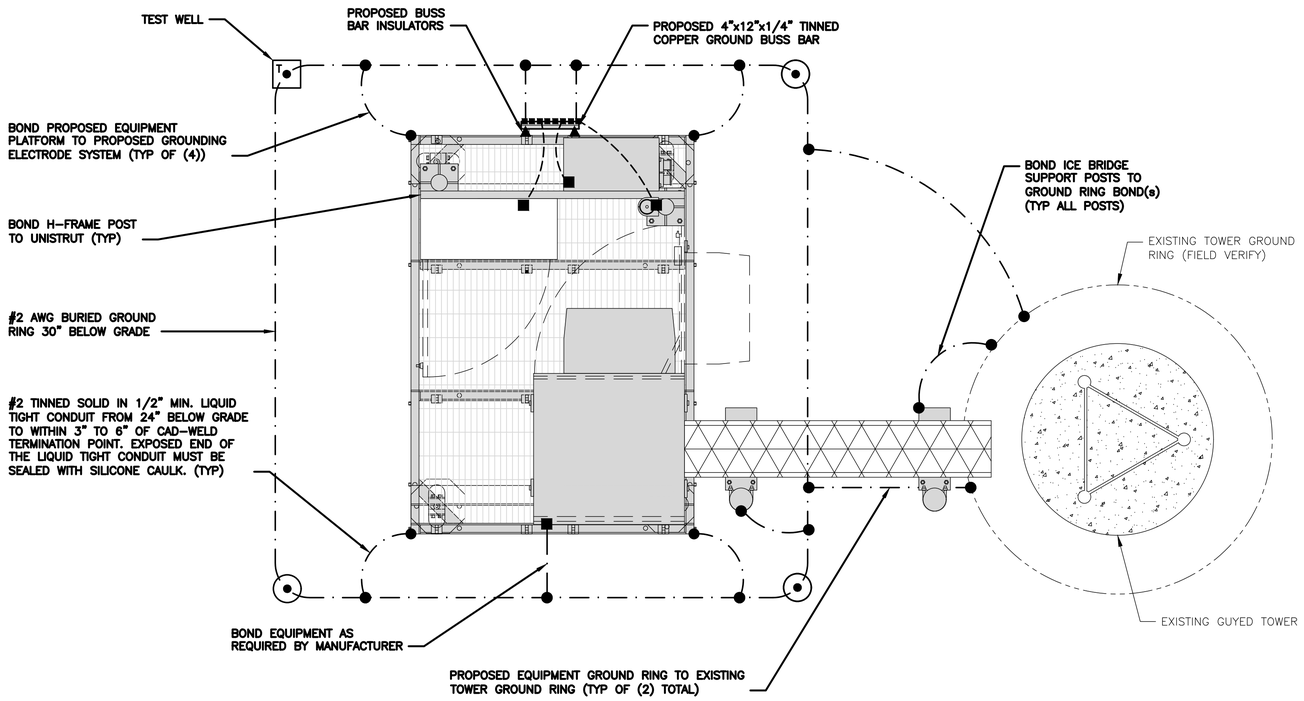
TOWER CO ASSET #
52010

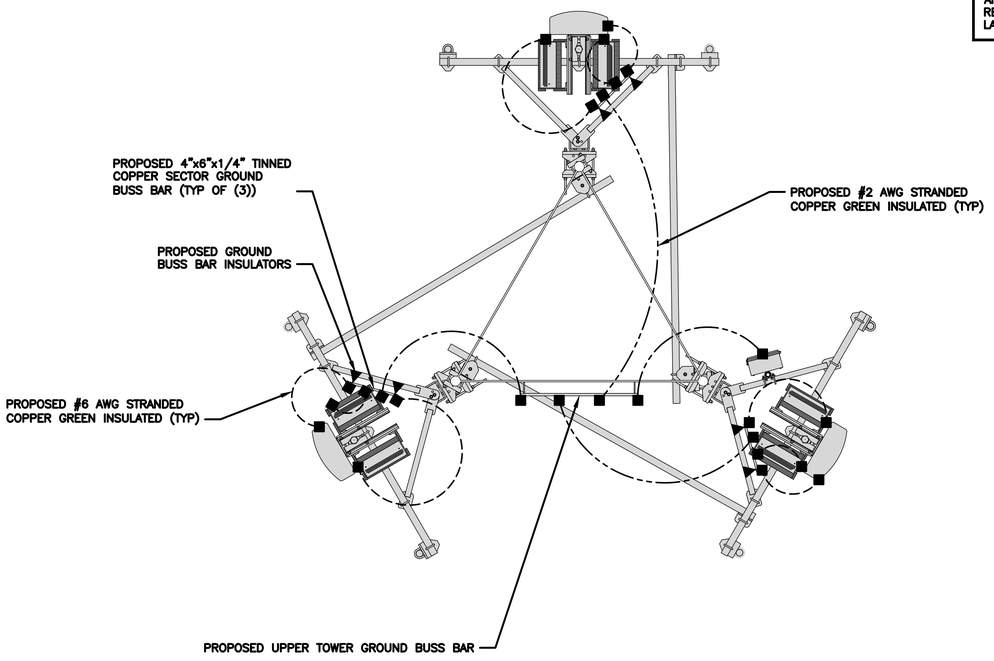
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02029A
6 SHIRLEY STREET
NORWALK, CT 06850

SHEET TITLE
ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN | NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2

NOTES

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

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GROUNDING KEY NOTES | NO SCALE | 3

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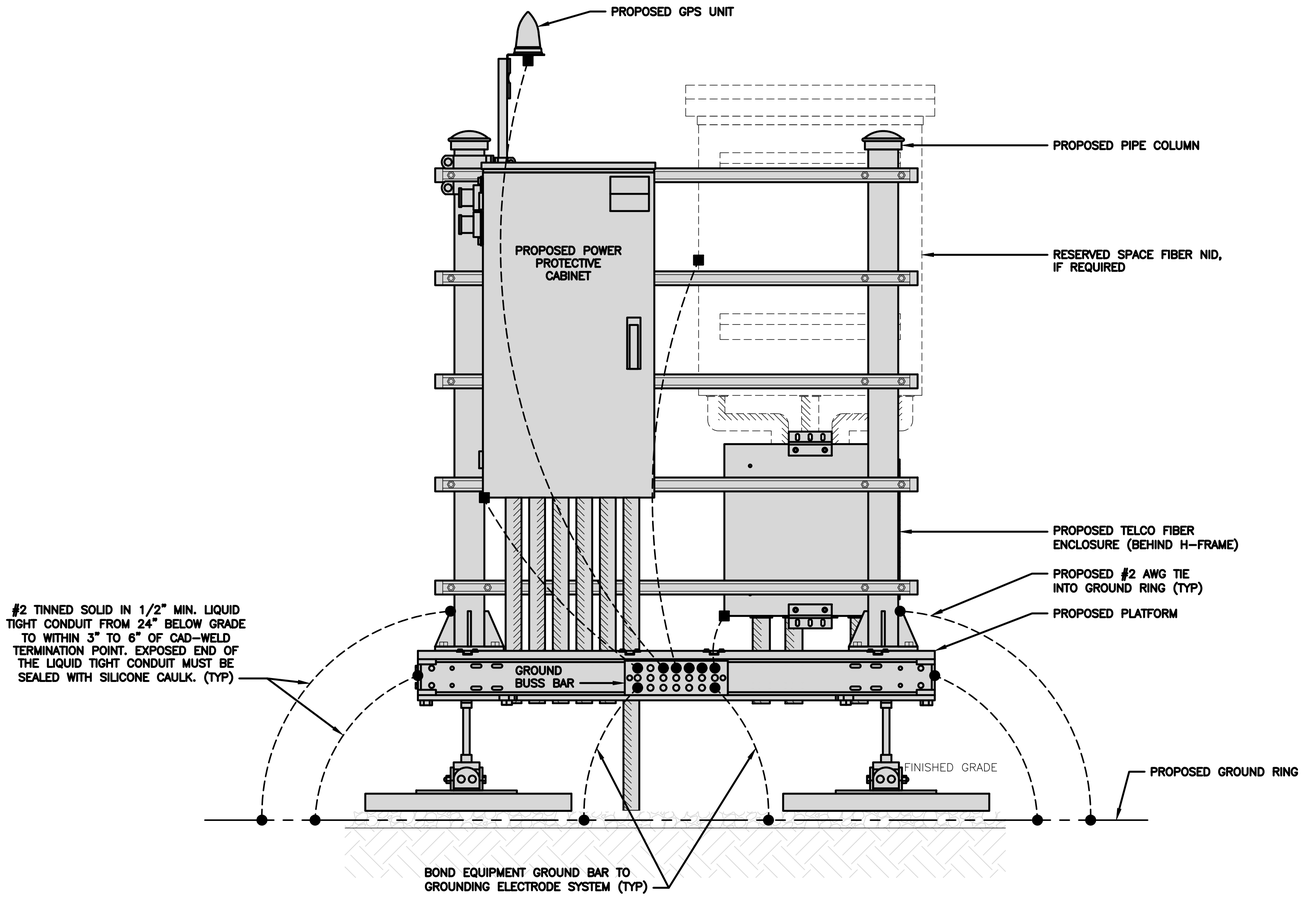
NJJER02029A
6 SHIRLEY STREET
NORWALK, CT 06850

SHEET TITLE
GROUNDING PLANS AND NOTES

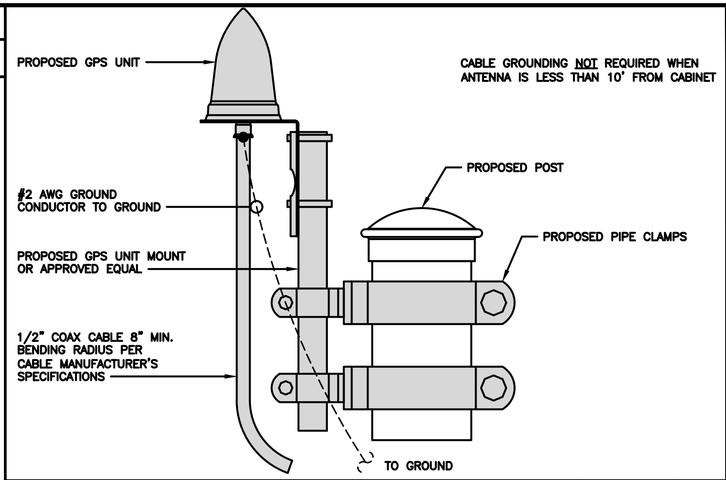
SHEET NUMBER
G-1

NOTES

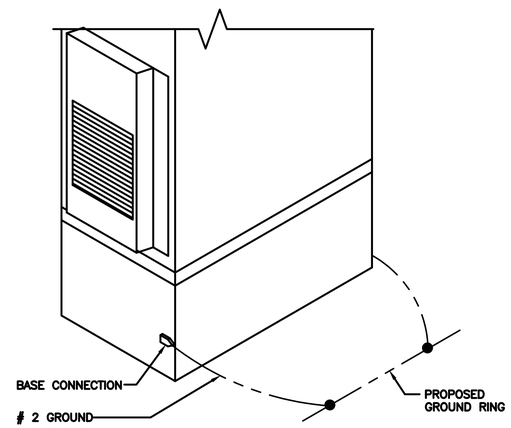
EQUIPMENT CABINET OMITTED FOR CLARITY



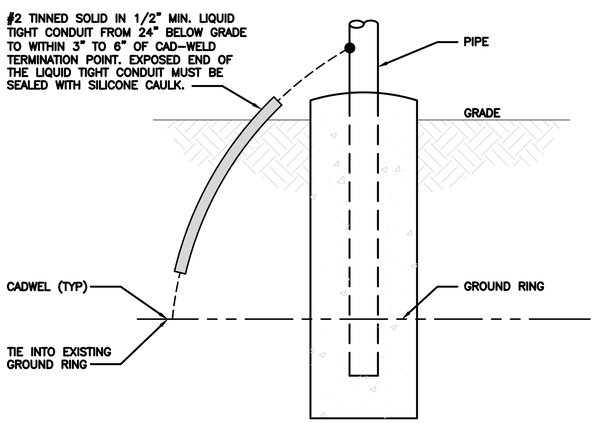
H-FRAME GROUNDING DETAIL | NO SCALE | 1



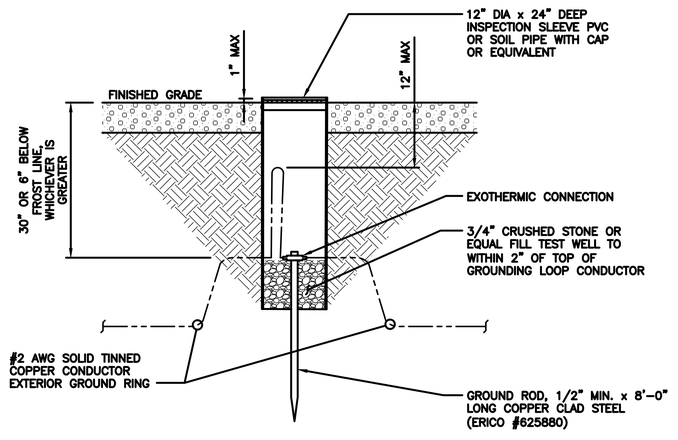
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



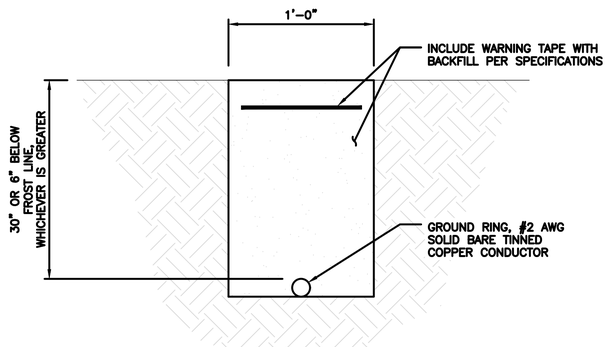
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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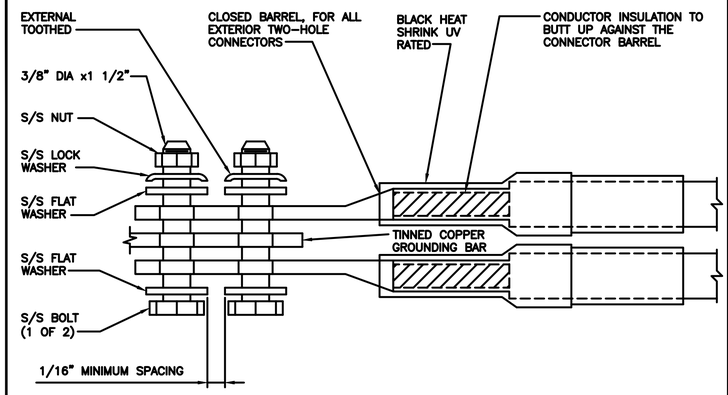
SHEET TITLE
GROUNDING DETAILS

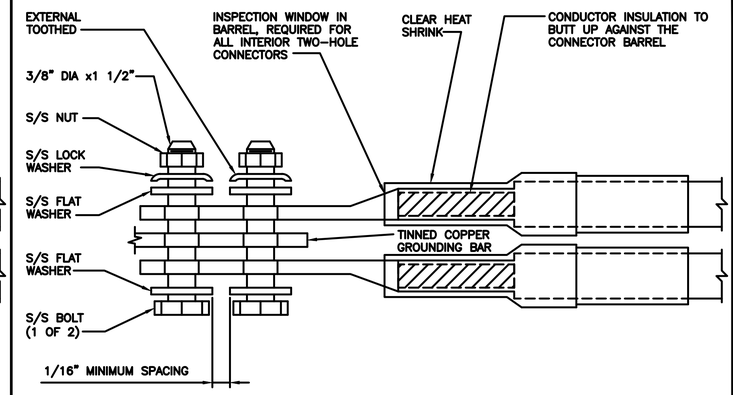
SHEET NUMBER
G-2

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

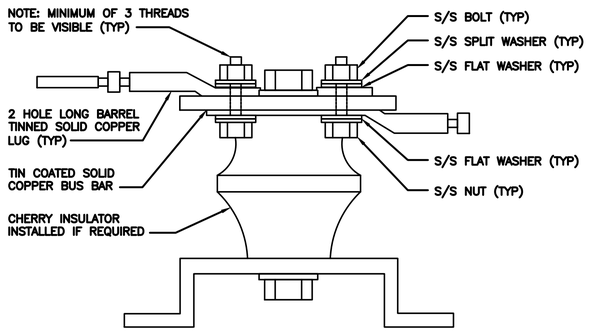
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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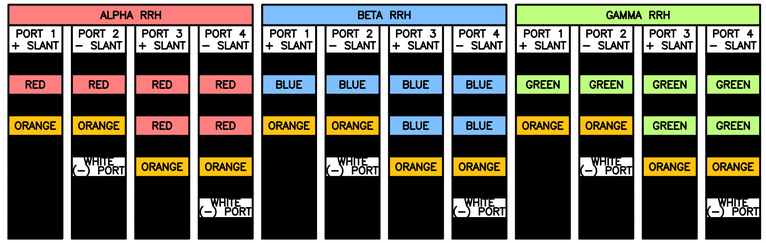
SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

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

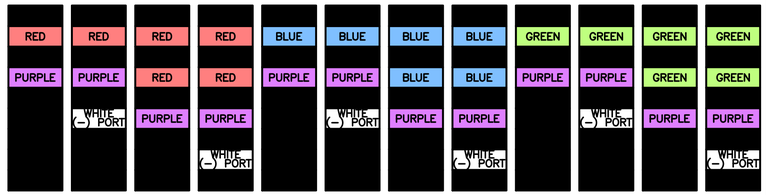
LOW–BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

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



MID–BAND RRH
(AWS BANDS N66+N70)

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



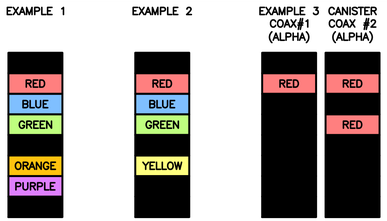
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

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

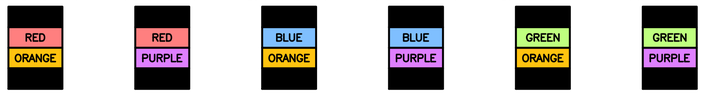
EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.



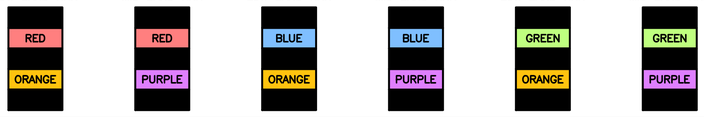
FIBER JUMPERS TO RRHs

LOW–BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.



POWER CABLES TO RRHs

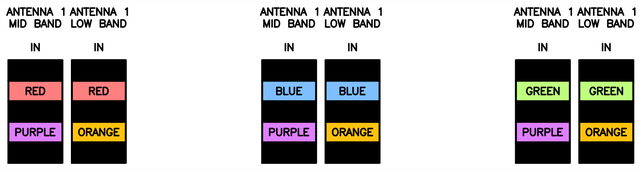
LOW–BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

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

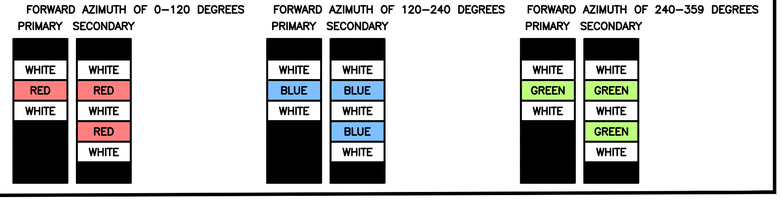
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



MICROWAVE RADIO LINKS

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

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



RF CABLE COLOR CODES | | 1

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

AWS (N66+N70+H–BLOCK): PURPLE

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED

BETA SECTOR: BLUE

GAMMA SECTOR: GREEN

COLOR IDENTIFIER | | 2

NOT USED | | 3

NOT USED | | 4

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A	01/28/2022	ISSUED FOR REVIEW
0	04/05/2022	ISSUED FOR CONSTRUCTION

TOWER CO ASSET #
52010

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02029A
6 SHIRLEY STREET
NORWALK, CT 06850

SHEET TITLE
CABLE COLOR CODES

SHEET NUMBER
RF-1

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH — $

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8 — F

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE — X X X X

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W W W W W

UNDERGROUND POWER — UGP UGP UGP UGP UGP

UNDERGROUND TELCO — UGT UGT UGT UGT UGT

OVERHEAD POWER — OHP OHP OHP OHP

OVERHEAD TELCO — OHT OHT OHT OHT

UNDERGROUND TELCO/POWER — UGT/P UGT/P UGT/P UGT/P

ABOVE GROUND POWER — AGP AGP AGP AGP AGP

ABOVE GROUND TELCO — AGT AGT AGT AGT AGT

ABOVE GROUND TELCO/POWER — AGT/P AGT/P AGT/P AGT/P

WORKPOINT — W.P.

SECTION REFERENCE — XX / X–X

DETAIL REFERENCE — XX / X–X

ABBREVIATIONS

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

MK DEVELOPMENT

140 BEACH 137TH STREET
ROCKAWAY, NY 11694

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SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

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SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

MK DEVELOPMENT
140 BEACH 137TH STREET
ROCKAWAY, NY 11694

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DRAWN BY:	CHECKED BY:	APPROVED BY:
PRI	---	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	01/28/2022	ISSUED FOR REVIEW
0	04/05/2022	ISSUED FOR CONSTRUCTION

TOWER CO ASSET #
52010

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02029A
6 SHIRLEY STREET
NORWALK, CT 06850

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

GROUNDING NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

MK DEVELOPMENT

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PROJECT INFORMATION

NJJER02029A
6 SHIRLEY STREET
NORWALK, CT 06850

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

MK DEVELOPMENT

EXHIBIT D

Structural Analysis

Date: **December 22, 2021**

ENGINEERED TOWER SOLUTIONS

Katherine Curtis
CTI Towers, Inc.
5000 CentreGreen Way, Suite 325
Cary, NC 57513

Engineered Tower Solutions, PLLC
3227 Wellington Court
Raleigh, NC 27615
(919) 782-2710

Subject:	**Structural Modification Analysis Report**	
Carrier Designation:	***Dish Wireless* Co-Locate**	
	Carrier Site Number:	-
	Carrier Site Name:	NJJER02029A
CTI Towers Designation:	***CTI Towers* Site Number:**	52010
	***CTI Towers* Site Name:**	Norwalk 1
Engineering Firm Designation:	**ETS, PLLC Job Number:**	21100389.STR.6340
Site Data:	**6 Shirley Street, Norwalk, Fairfield County, CT 06850** **Latitude *41° 06' 56"*, Longitude *-73° 26' 04"*** **341.5 Foot - Guyed Tower**	

Dear Katherine Curtis,

Engineered Tower Solutions is pleased to submit this **"Structural Modification 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:

Modified Structure w/ Existing + Proposed Equipment Configuration	**Tower:**	**97.4%**	**Sufficient Capacity**
	Foundation:	**30.2%**	**Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 120 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.

Structural analysis prepared by:

Helen Tesfaye
Structural Engineer I

Respectfully submitted by:

F. Geoffrey Bost, PE
President/Owner
CT License #: PEN.0029529

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 341.5 ft Guyed tower mapped by Delta Oaks Group in May of 2017. The original design code and wind speed are unknown.

The tower has been modified in the past to accommodate additional loading. These modifications have been considered as installed.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 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)
110.0* (Dish Wireless)	110.0	3	Commscope	FFVV-65B-R2	1	1-1/8
		3	Fujitsu	TA08025-B605		
		3	Fujitsu	TA08025-B604		
		1	Raycap	RDIDC-3045-PF48		
		3	Commscope	MTC3975083		

*Note: Full Leased Loading of 10,500 sq in (Sum of LxW, no drag factors, not including mounts) was considered for Dish at 110-ft in this analysis.

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)
330.0	330.0	1	Shively	6810 Broadcast Antenna	1	1-5/8”
303.0	303.0	1	Scala	3’ x 5.5’ Grid Dish	1	7/16”
		1	Tower Mounts	2.38” Dia x 5’ Pipe		
287.0	290.0	1	-	7.5” Dia x 3.5’ Omni	1	7/8
	287.0	1	-	10” x 8” x 4.25” Box	1	3/8
		1	Tower Mounts	5.5-ft Side Arm		
288.0	290.0	1	-	20’ x 2.36” Dia Dipole	1	7/8
273.0	280.0	1	Andrew	DB413-B	1	1-5/8”
	273.0	1	Tower Mount	15” Standoff		
260.0	260.0	-	-	1.62” Dia x 25’ Broadcast Antenna	1	1-5/8”
239.0	246.0	1	-	2.3” Dia x 20’ Omni	1	7/8”
	239.0	1	Tower Mount	3.5’ Standoff		
237.0	245.0	1	-	2.3” Dia x 20’ Omni	1	7/8”
	237.0	1	Tower Mount	3’ Standoff		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
183.0	183.0	1	-	15” x 26.5” Conduit Box	1	7/16
169.0	169.0	1	-	10”x10”x1.25” Detuner Box	1	7/16
145.5	145.5	1	-	14.875”x15.125”x0.5” Flat Panel	1	1/4"
141.0	141.0	1	-	4’ Gird Dish	1	7/8”
		1	Tower Mounts	2.38” Dia x 3.5’ Pipe Mount		
101.0 (Verizon)	102.5	3	CSS	X7C-FRO-660-V	2 13*	1-5/8 1-1/4
	101.0	6	JMA	MX06FRO-660-03		
		3	Samsung	MT6407-77A		
		3	Samsung	RFV01U-D1A		
		3	Samsung	RFV01U-D2A		
		1	Raycap	RRFDC-3315-PF-48		
		6*	-	6’ x 1’ Panel Antennas (Assumed)		
		3	Tower Mounts	12.5’ Sector Mounts		
		3	JMA	91900314-02 Mounts		
80.0	81.5	3	CCI	HPA-65R-BUU-H6	12 1 2	7/8” 10mm 0.795”
		6	CCI	OPA-65R-LCUU-H6		
		3	CCI	DTMABP7819VG12A		
		3	Ericsson	RRUS-11		
		3	Ericsson	RRUS-32		
		3	Ericsson	RRUS-E2		
		1	Raycap	DC6-48-60-18-8C		
	80.0	3	Tower Mounts	9’ Sector Frames		
33.0	33.0	1	-	26.5” x 15” Conduit Box	1	7/16
8.5	8.5	1	-	15”x15”x6.5” Detuner Box	1	7/16

* Note: (18) total leased antennas and (15) total leased coax have been considered for Verizon to 101-ft in this analysis.

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Tower Mapping Report	Delta Oaks Group (Proj. No. AGI17-00909-03	05/04/2017	CTI Towers
Geotechnical Investigation Report	Delta Oaks Group (Proj No. GEO17-00909-03)	05/04/2017	CTI Towers
Foundation Investigation Report	Delta Oaks Group (Proj No. BGI17-00909-03)	05/04/2017	CTI Towers
Previous Tower Modification Drawings	ETS, PLLC (Job No. 21093576.STR.5549)	08/20/2021	On File
Previous Structural Analysis Report	ETS, PLLC (Job No. 21100389.STR.5903)	12/10/2021	On File
Tower Modification Drawings	ETS, PLLC (Job No. 21100389.STR.6340)	12/22/2021	On File

3.1) Analysis Method

tnxTower (version 8.1.1), 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.

3.2) Assumptions

1) Tower and structures were built and have been maintained in accordance with the manufacturer's specifications.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
3) Post-Modification Inspection reports were not provided for the ETS, PLLC Modification Drawings dated August 20, 2021. The modifications in these reports have been assumed to be installed as specified.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	341.5 - 314.5	Pole	P8x.322	1	-1.34	264.58	49.3	Pass
T1	314.5 - 310.5	Leg	2 1/2	4	-13.07	143.51	9.1	Pass
T2	310.5 - 306.5	Leg	2 1/2	12	-16.31	143.51	11.4 39.6 (b)	Pass
T3	306.5 - 281.5	Leg	2 1/2	20	-22.01	112.60	19.5	Pass
T4	281.5 - 276.5	Leg	2 1/2	54	-24.18	186.65	13.0	Pass
T5	276.5 - 271.5	Leg	2 1/2	65	-26.49	186.65	14.2	Pass
T6	271.5 - 266.5	Leg	2 1/2	78	-30.01	112.60	26.7	Pass
T7	266.5 - 261.5	Leg	2 1/2	86	-33.10	112.60	29.4	Pass
T8	261.5 - 256.5	Leg	2 1/2	96	-37.52	112.60	33.3 35.4 (b)	Pass
T9	256.5 - 251.5	Leg	2 1/2	104	-41.47	112.60	36.8	Pass
T10	251.5 - 246.5	Leg	2 1/2	114	-47.19	112.60	41.9	Pass
T11	246.5 - 241.5	Leg	2 1/2	122	-48.37	186.65	25.9	Pass
T12	241.5 - 236.5	Leg	2 1/2	135	-45.12	186.65	24.2	Pass
T13	236.5 - 231.5	Leg	2 1/2	147	-41.53	186.65	22.3 36.1 (b)	Pass
T14	231.5 - 226.5	Leg	2 1/2	159	-38.53	186.65	20.6	Pass
T15	226.5 - 221.5	Leg	2 1/2	171	-36.78	186.65	19.7	Pass
T16	221.5 - 216.5	Leg	2 1/2	183	-34.78	186.65	18.6	Pass
T17	216.5 - 211.5	Leg	2 1/2	195	-34.31	186.65	18.4	Pass
T18	211.5 - 206.5	Leg	2 1/2	208	-33.34	186.65	17.9 29.0 (b)	Pass
T19	206.5 - 201.5	Leg	2 1/2	219	-34.04	186.65	18.2	Pass
T20	201.5 - 196.5	Leg	2 1/2	232	-34.20	186.65	18.3	Pass
T21	196.5 - 191.5	Leg	2 1/2	243	-35.96	186.65	19.3	Pass
T22	191.5 - 186.5	Leg	2 1/2	256	-37.19	186.65	19.9	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T23	186.5 - 181.5	Leg	2 1/2	267	-36.25	186.65	19.4 31.5 (b)	Pass
T24	181.5 - 176.5	Leg	2 1/4	280	-34.59	77.87	44.4	Pass
T25	176.5 - 171.5	Leg	2 1/4	289	-34.27	77.87	44.0	Pass
T26	171.5 - 166.5	Leg	2 1/4	296	-35.03	77.87	45.0	Pass
T27	166.5 - 161.5	Leg	2 1/4	307	-36.02	77.87	46.3	Pass
T28	161.5 - 156.5	Leg	2 1/4	315	-37.31	77.87	47.9	Pass
T29	156.5 - 151.5	Leg	2 1/4	324	-38.03	145.33	26.2	Pass
T30	151.5 - 146.5	Leg	2 1/4	336	-39.15	145.33	26.9	Pass
T31	146.5 - 141.5	Leg	2 1/4	348	-39.33	77.87	50.5	Pass
T32	141.5 - 136.5	Leg	2 1/4	357	-39.85	77.87	51.2	Pass
T33	136.5 - 131.5	Leg	2 1/4	366	-39.58	77.87	50.8	Pass
T34	131.5 - 126.5	Leg	2 1/4	375	-39.41	77.87	50.6	Pass
T35	126.5 - 121.5	Leg	2 1/4	384	-49.39	77.87	63.4	Pass
T36	121.5 - 116.5	Leg	2 1/4	393	-58.29	77.87	74.9	Pass
T37	116.5 - 111.5	Leg	2 1/4	402	-64.66	77.87	83.0	Pass
T38	111.5 - 106.5	Leg	2 1/4	411	-72.33	77.87	92.9	Pass
T39	106.5 - 101.5	Leg	2 1/4	421	-75.86	77.87	97.4	Pass
T40	101.5 - 96.5	Leg	2 1/4	429	-77.16	145.33	53.1	Pass
T41	96.5 - 91.5	Leg	2 1/4	442	-71.55	77.87	91.9	Pass
T42	91.5 - 86.5	Leg	2 1/4	450	-65.56	77.87	84.2	Pass
T43	86.5 - 81.5	Leg	2 1/4	458	-59.40	77.87	76.3	Pass
T44	81.5 - 76.5	Leg	2 1/4	468	-56.01	77.87	71.9	Pass
T45	76.5 - 71.5	Leg	2 1/4	476	-55.11	145.33	37.9	Pass
T46	71.5 - 66.5	Leg	2 1/4	488	-59.09	145.33	40.7	Pass
T47	66.5 - 61.5	Leg	2 1/4	500	-64.87	145.33	44.6	Pass
T48	61.5 - 56.5	Leg	2 1/4	512	-72.62	145.33	50.0	Pass
T49	56.5 - 51.5	Leg	2 1/4	524	-71.35	145.33	49.1 62.1 (b)	Pass
T50	51.5 - 46.5	Leg	2 1/4	536	-71.00	145.33	48.9	Pass
T51	46.5 - 41.5	Leg	2 1/4	548	-70.82	145.33	48.7	Pass
T52	41.5 - 36.5	Leg	2 1/4	562	-71.43	145.33	49.1	Pass
T53	36.5 - 31.5	Leg	2 1/4	574	-72.26	145.33	49.7 62.9 (b)	Pass
T54	31.5 - 6.5	Leg	2.25SR + BP9.5x0.25 (Norwalk)	586	-85.89	143.89	59.7	Pass
T55	6.5 - 0	Leg	W8x40	619	-97.08	351.00	33.0	Pass
T1	314.5 - 310.5	Diagonal	2L2x2x1/4x3/8	8	-2.42	42.20	5.7 13.4 (b)	Pass
T2	310.5 - 306.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	19	-2.44	8.85	27.6	Pass
T3	306.5 - 281.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	26	-1.87	6.65	28.2	Pass
T4	281.5 - 276.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	61	-1.87	6.65	28.1	Pass
T5	276.5 - 271.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	71	-2.36	6.65	35.4	Pass
T6	271.5 - 266.5	Diagonal	P1.5 STD	83	-2.85	15.44	18.5 21.3 (b)	Pass
T7	266.5 - 261.5	Diagonal	P1.5 STD	92	-3.01	15.44	19.5 23.1 (b)	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T8	261.5 - 256.5	Diagonal	P1.5 STD	101	-3.29	15.44	21.3 24.9 (b)	Pass
T9	256.5 - 251.5	Diagonal	P1.5x.2	110	-3.53	19.83	17.8 25.6 (b)	Pass
T10	251.5 - 246.5	Diagonal	P1.5x.2	119	-3.72	19.83	18.7 26.9 (b)	Pass
T11	246.5 - 241.5	Diagonal	2L2x2x1/4x3/8	129	-4.12	39.76	10.4 20.9 (b)	Pass
T12	241.5 - 236.5	Diagonal	2L2x2x1/4x3/8	141	-3.39	39.76	8.5 16.1 (b)	Pass
T13	236.5 - 231.5	Diagonal	2L2x2x1/4x3/8	154	-2.28	39.76	5.7 9.6 (b)	Pass
T14	231.5 - 226.5	Diagonal	2L2x2x1/4x3/8	164	-1.98	39.76	5.0 7.9 (b)	Pass
T15	226.5 - 221.5	Diagonal	P1.5 STD	178	-1.63	15.44	10.5 11.8 (b)	Pass
T16	221.5 - 216.5	Diagonal	P1.5 STD	188	-1.39	15.44	9.0 10.0 (b)	Pass
T17	216.5 - 211.5	Diagonal	P1.5 STD	202	-1.00	15.44	6.5 7.2 (b)	Pass
T18	211.5 - 206.5	Diagonal	P1.5 STD	212	-0.83	15.44	5.4 6.0 (b)	Pass
T19	206.5 - 201.5	Diagonal	P1.5 STD	225	-1.02	15.44	6.6 7.4 (b)	Pass
T20	201.5 - 196.5	Diagonal	P1.5 STD	237	-1.36	15.44	8.8 9.8 (b)	Pass
T21	196.5 - 191.5	Diagonal	P1.5 STD	249	-1.74	15.44	11.3 12.6 (b)	Pass
T22	191.5 - 186.5	Diagonal	P1.5 STD	261	-2.05	15.44	13.3 14.8 (b)	Pass
T23	186.5 - 181.5	Diagonal	P1.5 STD	272	-4.07	15.44	26.4 29.5 (b)	Pass
T24	181.5 - 176.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	284	-3.65	6.55	55.7	Pass
T25	176.5 - 171.5	Diagonal	P1.5 STD	293	-3.50	15.28	22.9 25.3 (b)	Pass
T26	171.5 - 166.5	Diagonal	P1.5 STD	302	-3.15	15.28	20.6 22.8 (b)	Pass
T27	166.5 - 161.5	Diagonal	2L2x2x1/4x3/8	311	-2.91	39.63	7.3 13.5 (b)	Pass
T28	161.5 - 156.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	320	-2.60	6.55	39.6	Pass
T29	156.5 - 151.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	329	-2.29	6.55	34.9	Pass
T30	151.5 - 146.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	341	-2.09	6.55	31.9	Pass
T31	146.5 - 141.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	353	-1.68	6.55	25.7	Pass
T32	141.5 - 136.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	362	-1.20	6.55	18.4	Pass
T33	136.5 - 131.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	372	-1.26	6.55	19.2	Pass
T34	131.5 - 126.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	382	-1.55	6.55	23.6	Pass
T35	126.5 - 121.5	Diagonal	L2x2x3/8	389	-6.83	13.69	49.9	Pass
T36	121.5 - 116.5	Diagonal	L2x2x3/8	398	-6.59	13.69	48.2	Pass
T37	116.5 - 111.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	407	-6.31	6.55	96.3	Pass
T38	111.5 - 106.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	416	-3.96	6.55	60.5	Pass
T39	106.5 - 101.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	425	-2.82	6.55	43.1	Pass
T40	101.5 - 96.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	435	-3.94	6.55	60.1	Pass
T41	96.5 - 91.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	447	-5.22	6.55	79.8	Pass
T42	91.5 - 86.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	456	-5.56	6.55	84.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T43	86.5 - 81.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	465	-5.70	6.55	87.0	Pass
T44	81.5 - 76.5	Diagonal	P1.5 STD	475	-9.34	15.28	61.1 73.1 (b)	Pass
T45	76.5 - 71.5	Diagonal	P1.5 STD	483	-11.23	25.48	44.1 86.7 (b)	Pass
T46	71.5 - 66.5	Diagonal	L2x2x3/8	495	10.91	35.19	31.0 82.6 (b)	Pass
T47	66.5 - 61.5	Diagonal	L2x2x3/8	507	11.23	35.19	31.9 86.5 (b)	Pass
T48	61.5 - 56.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	518	-2.60	6.55	39.6	Pass
T49	56.5 - 51.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	530	-2.44	6.55	37.2	Pass
T50	51.5 - 46.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	542	-2.03	6.55	30.9	Pass
T51	46.5 - 41.5	Diagonal	P1.5 STD	554	-1.83	15.28	12.0 13.3 (b)	Pass
T52	41.5 - 36.5	Diagonal	P1.5 STD	566	-1.41	15.28	9.2 10.2 (b)	Pass
T53	36.5 - 31.5	Diagonal	P1.5 STD	578	-1.35	15.28	8.8 9.8 (b)	Pass
T54	31.5 - 6.5	Diagonal	P1.5 STD	591	-4.15	17.16	24.2 30.1 (b)	Pass
T2	310.5 - 306.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	14	-0.34	14.75	2.3 3.3 (b)	Pass
T3	306.5 - 281.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	25	3.54	19.67	18.0 35.3 (b)	Pass
T4	281.5 - 276.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	56	-0.59	14.75	4.0 5.8 (b)	Pass
T5	276.5 - 271.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	70	-0.64	14.75	4.4 6.4 (b)	Pass
T6	271.5 - 266.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	80	-0.73	14.75	4.9 7.3 (b)	Pass
T7	266.5 - 261.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	91	-0.80	14.75	5.4 8.0 (b)	Pass
T8	261.5 - 256.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	98	-0.91	14.75	6.2 9.1 (b)	Pass
T9	256.5 - 251.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	109	-1.01	14.75	6.8 10.0 (b)	Pass
T10	251.5 - 246.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	116	-1.14	14.75	7.8 11.4 (b)	Pass
T11	246.5 - 241.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	127	5.25	19.67	26.7 52.4 (b)	Pass
T12	241.5 - 236.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	137	-1.09	14.75	7.4 10.9 (b)	Pass
T13	236.5 - 231.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	149	-1.01	14.75	6.8 10.0 (b)	Pass
T14	231.5 - 226.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	161	-0.93	14.75	6.3 9.3 (b)	Pass
T15	226.5 - 221.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	173	-0.89	14.75	6.0 8.9 (b)	Pass
T16	221.5 - 216.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	185	-0.84	14.75	5.7 8.4 (b)	Pass
T17	216.5 - 211.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	197	-0.83	14.75	5.6 8.3 (b)	Pass
T18	211.5 - 206.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	210	-0.81	14.75	5.5 8.1 (b)	Pass
T19	206.5 - 201.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	221	-0.83	14.75	5.6 8.2 (b)	Pass
T20	201.5 - 196.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	234	-0.83	14.75	5.6 8.3 (b)	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T21	196.5 - 191.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	245	-0.87	14.75	5.9 8.7 (b)	Pass
T22	191.5 - 186.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	258	-0.90	14.75	6.1 9.0 (b)	Pass
T23	186.5 - 181.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	271	3.35	19.67	17.1 33.5 (b)	Pass
T24	181.5 - 176.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	282	-0.91	14.69	6.2 9.1 (b)	Pass
T25	176.5 - 171.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	291	-0.90	14.69	6.1 9.0 (b)	Pass
T26	171.5 - 166.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	301	-0.92	14.69	6.3 9.2 (b)	Pass
T27	166.5 - 161.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	309	-0.95	14.69	6.4 9.5 (b)	Pass
T28	161.5 - 156.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	317	-0.98	14.69	6.7 9.8 (b)	Pass
T29	156.5 - 151.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	326	-1.00	14.69	6.8 10.0 (b)	Pass
T30	151.5 - 146.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	338	-1.03	14.69	7.0 10.3 (b)	Pass
T31	146.5 - 141.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	350	-1.03	14.69	7.0 10.3 (b)	Pass
T32	141.5 - 136.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	359	-1.05	14.69	7.1 10.5 (b)	Pass
T33	136.5 - 131.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	368	-1.04	14.69	7.1 10.4 (b)	Pass
T34	131.5 - 126.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	377	-1.04	14.69	7.1 10.3 (b)	Pass
T35	126.5 - 121.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	387	4.15	19.67	21.1 41.4 (b)	Pass
T36	121.5 - 116.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	395	-1.53	14.69	10.4 15.3 (b)	Pass
T37	116.5 - 111.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	404	-1.70	14.69	11.6 17.0 (b)	Pass
T38	111.5 - 106.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	413	-1.90	14.69	12.9 19.0 (b)	Pass
T39	106.5 - 101.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	423	-2.00	14.69	13.6 19.9 (b)	Pass
T40	101.5 - 96.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	431	-2.03	14.69	13.8 20.2 (b)	Pass
T41	96.5 - 91.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	444	-1.88	14.69	12.8 18.8 (b)	Pass
T42	91.5 - 86.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	452	-1.72	14.69	11.7 17.2 (b)	Pass
T43	86.5 - 81.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	463	-1.56	14.69	10.6 15.6 (b)	Pass
T44	81.5 - 76.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	470	-1.47	14.69	10.0 14.7 (b)	Pass
T45	76.5 - 71.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	481	-1.45	14.69	9.9 14.5 (b)	Pass
T46	71.5 - 66.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	493	-1.55	14.69	10.6 15.5 (b)	Pass
T47	66.5 - 61.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	505	-1.71	14.69	11.6 17.0 (b)	Pass
T48	61.5 - 56.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	515	7.10	19.67	36.1 70.8 (b)	Pass
T49	56.5 - 51.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	529	-1.88	14.69	12.8 18.7 (b)	Pass
T50	51.5 - 46.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	541	-1.87	14.69	12.7 18.6 (b)	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T51	46.5 - 41.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	553	-1.86	14.69	12.7	Pass
T52	41.5 - 36.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	564	-1.88	14.69	12.8	Pass
T53	36.5 - 31.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	576	-1.90	14.69	12.9	Pass
T54	31.5 - 6.5	Horizontal	P1.5x0.13	594	-1.49	16.55	9.0	Pass
T4	281.5 - 276.5	Secondary Horizontal	1	62	-0.59	16.01	3.7 6.6 (b)	Pass
T5	276.5 - 271.5	Secondary Horizontal	1	76	-0.64	16.01	4.0	Pass
T11	246.5 - 241.5	Secondary Horizontal	L2 1/2x2x1/4	133	-1.17	30.67	3.8 14.2 (b)	Pass
T12	241.5 - 236.5	Secondary Horizontal	2L2 1/2x2x1/4x3/8	143	-1.09	56.86	1.9 6.6 (b)	Pass
T13	236.5 - 231.5	Secondary Horizontal	2L2 1/2x2x1/4x3/8	155	-1.01	56.86	1.8 6.1 (b)	Pass
T14	231.5 - 226.5	Secondary Horizontal	L2 1/2x2x1/4	167	-0.93	30.67	3.0 11.3 (b)	Pass
T15	226.5 - 221.5	Secondary Horizontal	L2 1/2x2x1/4	179	-0.89	30.67	2.9 10.8 (b)	Pass
T16	221.5 - 216.5	Secondary Horizontal	L2 1/2x2x1/4	191	-0.84	30.67	2.8 10.2 (b)	Pass
T17	216.5 - 211.5	Secondary Horizontal	L2 1/2x2x1/4	203	-0.83	30.67	2.7 10.1 (b)	Pass
T18	211.5 - 206.5	Secondary Horizontal	L2 1/2x2x1/4	216	-0.81	30.67	2.6 9.8 (b)	Pass
T19	206.5 - 201.5	Secondary Horizontal	L2 1/2x2x1/4	227	-0.83	30.67	2.7 10.0 (b)	Pass
T20	201.5 - 196.5	Secondary Horizontal	L2 1/2x2x1/4	240	-0.83	30.67	2.7 10.0 (b)	Pass
T21	196.5 - 191.5	Secondary Horizontal	L2 1/2x2x1/4	251	-0.87	30.67	2.8 10.6 (b)	Pass
T22	191.5 - 186.5	Secondary Horizontal	L2 1/2x2x1/4	264	-0.90	30.67	2.9 10.9 (b)	Pass
T23	186.5 - 181.5	Secondary Horizontal	L2 1/2x2x1/4	275	-0.88	30.67	2.9	Pass
T29	156.5 - 151.5	Secondary Horizontal	1	332	-1.00	15.90	6.3 11.3 (b)	Pass
T30	151.5 - 146.5	Secondary Horizontal	1	344	-1.03	15.90	6.5	Pass
T40	101.5 - 96.5	Secondary Horizontal	1	437	-2.03	15.90	12.8	Pass
T45	76.5 - 71.5	Secondary Horizontal	L2 1/2x2x1/4	487	-1.45	30.56	4.7 17.5 (b)	Pass
T46	71.5 - 66.5	Secondary Horizontal	L2 1/2x2x1/4	499	-1.55	30.56	5.1 18.8 (b)	Pass
T47	66.5 - 61.5	Secondary Horizontal	L2 1/2x2x1/4	511	-1.71	30.56	5.6 20.6 (b)	Pass
T48	61.5 - 56.5	Secondary Horizontal	1	523	-1.91	15.90	12.0 21.6 (b)	Pass
T49	56.5 - 51.5	Secondary Horizontal	1	535	-1.88	15.90	11.8	Pass
T50	51.5 - 46.5	Secondary Horizontal	1	547	-1.87	15.90	11.7	Pass
T51	46.5 - 41.5	Secondary Horizontal	1	559	-1.86	15.90	11.7	Pass
T52	41.5 - 36.5	Secondary Horizontal	1	570	-1.88	15.90	11.8	Pass
T53	36.5 - 31.5	Secondary Horizontal	1	582	-1.90	15.90	12.0	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	314.5 - 310.5	Top Girt	L2x2x1/4	6	-0.27	25.97	1.0	Pass
T55	6.5 - 0	Top Girt	W16x50	621	-1.68	468.70	4.2	Pass
T3	306.5 - 281.5	Guy A@306.5	11/16 (24000)	625	13.55	30.00	45.2	Pass
T11	246.5 - 241.5	Guy A@246.5	7/8 (19000)	628	16.85	47.82	35.2	Pass
T23	186.5 - 181.5	Guy A@186.5	9/16 (23000)	631	8.80	21.00	41.9	Pass
T35	126.5 - 121.5	Guy A@126.5	5/8 (23000)	634	13.58	25.44	53.4	Pass
T48	61.5 - 56.5	Guy A@61.5	11/16 (24000)	637	15.70	30.00	52.3	Pass
T3	306.5 - 281.5	Guy B@306.5	11/16 (24000)	624	13.58	30.00	45.3	Pass
T11	246.5 - 241.5	Guy B@246.5	7/8 (19000)	627	16.88	47.82	35.3	Pass
T23	186.5 - 181.5	Guy B@186.5	9/16 (23000)	630	8.87	21.00	42.3	Pass
T35	126.5 - 121.5	Guy B@126.5	5/8 (23000)	633	13.57	25.44	53.4	Pass
T48	61.5 - 56.5	Guy B@61.5	11/16 (24000)	636	16.03	30.00	53.4	Pass
T3	306.5 - 281.5	Guy C@306.5	11/16 (24000)	623	13.50	30.00	45.0	Pass
T11	246.5 - 241.5	Guy C@246.5	7/8 (19000)	626	16.82	47.82	35.2	Pass
T23	186.5 - 181.5	Guy C@186.5	9/16 (23000)	629	8.78	21.00	41.8	Pass
T35	126.5 - 121.5	Guy C@126.5	5/8 (23000)	632	13.50	25.44	53.1	Pass
T48	61.5 - 56.5	Guy C@61.5	11/16 (24000)	635	15.75	30.00	52.5	Pass
							Summary	
						Pole (L1)	49.3	Pass
						Leg (T39)	97.4	Pass
						Diagonal (T37)	96.3	Pass
						Horizontal (T48)	70.8	Pass
						Secondary Horizontal (T48)	21.6	Pass
						Top Girt (T55)	4.2	Pass
						Guy A (T35)	53.4	Pass
						Guy B (T48)	53.4	Pass
						Guy C (T35)	53.1	Pass
						Bolt Checks	86.7	Pass
						RATING =	**97.4**	**Pass**

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Base Foundation Structural	0	6.3	Pass
1	Base Foundation Soil Interaction	0	8.6	Pass
1	Outer Guy Anchor Foundation Soil Interaction	0	21.1	Pass
1	Inner Guy Anchor Foundation Soil Interaction	0	30.2	Pass

Structure Rating (max from all components) =	97.4%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) Base foundation pier minimum steel reinforcement area was assumed per ACI 318-14 Section 16.3.4.1. Base foundation pad minimum steel reinforcement area was assumed per ACI 318-14 Section 7.6.1.1.

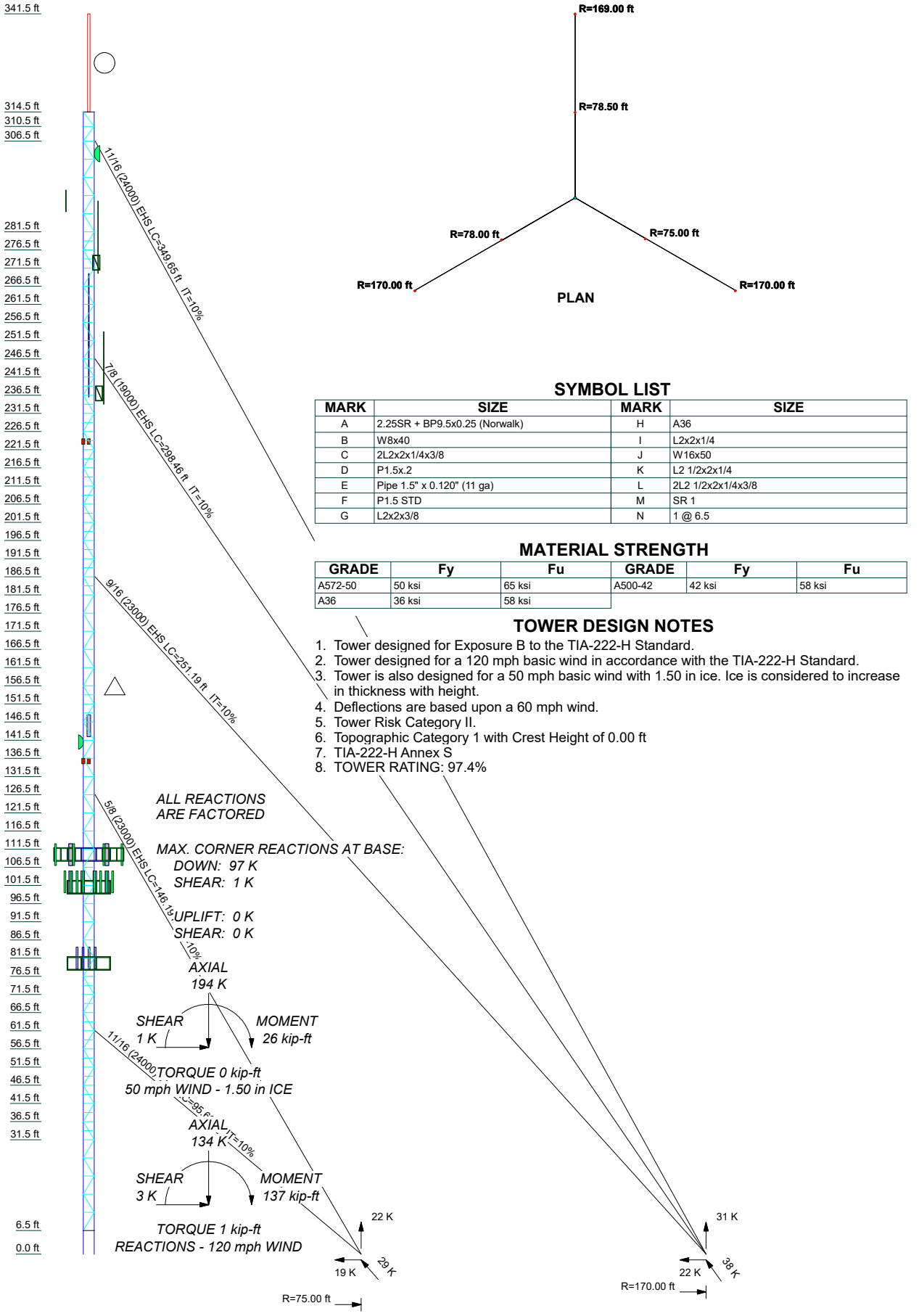
4.1) Recommendations

The tower and its foundations have sufficient capacity to carry the proposed load configuration once the proposed modifications are installed.

APPENDIX A

TNXTOWER OUTPUT

Section	L1	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23	T24	T25	T26	T27	T28	T29	T30	T31	T32	T33	T34	T35	T36	T37	T38	T39	T40	T41	T42	T43	T44	T45	T46	T47	T48	T49	T50	T51	T52	T53	T54	T55
Legs	P8x.322			SR 2 1/2																																		SR 2 1/4																			A	B
Leg Grade	A53-B-35			A572-50																																																						A36
Diagonals	N.A.	C	2 @ 4	1.5	N.A.	H				D														E																																P1.5 STD	N.A.
Diagonal Grade	N.A.	H			A500-42					P1.5 STD																																																A500-42	N.A.
Top Girts	N.A.	I			Pipe 1.5" x 0.120" (11 ga)																																																							J
Horizontals	0.71875	N.A.		N.A.																																																								P1.5x0.13	N.A.
Sec. Horizontals		N.A.			SR 1			N.A.				K		L																																														N.A.
Face Width (ft)	3				N.A.			SR 1						L2 1/2x2x1/4																																																	
# Panels @ (ft)	60 @ 5	N.A.	2 @ 4	1.5	Pipe 1.5" x 0.120" (11 ga)																																																								
Weight (K)	20.7	0.8	0.3	0.2	1.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.2



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	2.25SR + BP9.5x0.25 (Norwalk)	H	A36
B	W8x40	I	L2x2x1/4
C	2L2x2x1/4x3/8	J	W16x50
D	P1.5x.2	K	L2 1/2x2x1/4
E	Pipe 1.5" x 0.120" (11 ga)	L	2L2 1/2x2x1/4x3/8
F	P1.5 STD	M	SR 1
G	L2x2x3/8	N	1 @ 6.5

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A500-42	42 ksi	58 ksi
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-H Standard.
2. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TIA-222-H Annex S
8. TOWER RATING: 97.4%

ALL REACTIONS ARE FACTORED

Engineered Tower Solutions, PLLC
3227 Wellington Court
Raleigh, NC 27615
Phone: (919) 782-2710
FAX: (919) 435-0631
ETS,PLLC

Job: **52010 - Norwalk 1**			
Project: ***ETS Job No.21100389.STR.6340***			
Client: CTI Towers	Drawn by: Helen.Tesfaye	App'd:	
Code: TIA-222-H	Date: 12/22/21	Scale: NTS	
Path:		Dwg No. E-1	

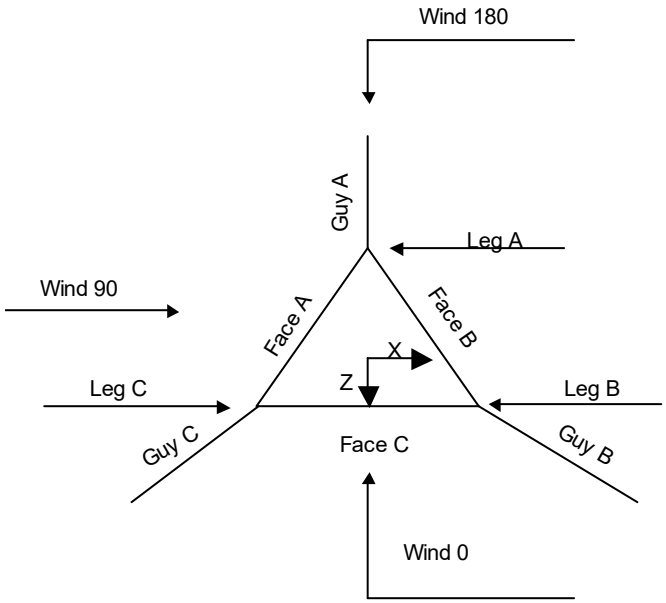
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 341.50 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.00 ft at the top and 3.00 ft at the base.
An index plate is provided at the 3x guyed -tower connection.
There is a pole section.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower base elevation above sea level: 118.00 ft.
Basic wind speed of 120 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.50 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Stress ratio used in tower member design is 1.
Safety factor used in guy 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.
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



Corner & Starmount Guyed Tower

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	341.50-314.50	27.00	P8x.322	A53-B-35 (35 ksi)	

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 341.50-314.50				1	1	1			

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	314.50-310.50			3.00	1	4.00
T2	310.50-306.50			3.00	1	4.00
T3	306.50-281.50			3.00	1	25.00
T4	281.50-276.50			3.00	1	5.00
T5	276.50-271.50			3.00	1	5.00
T6	271.50-266.50			3.00	1	5.00
T7	266.50-261.50			3.00	1	5.00
T8	261.50-256.50			3.00	1	5.00
T9	256.50-251.50			3.00	1	5.00
T10	251.50-246.50			3.00	1	5.00
T11	246.50-241.50			3.00	1	5.00
T12	241.50-236.50			3.00	1	5.00
T13	236.50-231.50			3.00	1	5.00
T14	231.50-226.50			3.00	1	5.00
T15	226.50-221.50			3.00	1	5.00
T16	221.50-216.50			3.00	1	5.00
T17	216.50-211.50			3.00	1	5.00
T18	211.50-206.50			3.00	1	5.00
T19	206.50-201.50			3.00	1	5.00
T20	201.50-196.50			3.00	1	5.00
T21	196.50-191.50			3.00	1	5.00
T22	191.50-186.50			3.00	1	5.00
T23	186.50-181.50			3.00	1	5.00
T24	181.50-176.50			3.00	1	5.00
T25	176.50-171.50			3.00	1	5.00
T26	171.50-166.50			3.00	1	5.00
T27	166.50-161.50			3.00	1	5.00
T28	161.50-156.50			3.00	1	5.00
T29	156.50-151.50			3.00	1	5.00
T30	151.50-146.50			3.00	1	5.00
T31	146.50-141.50			3.00	1	5.00
T32	141.50-136.50			3.00	1	5.00
T33	136.50-131.50			3.00	1	5.00
T34	131.50-126.50			3.00	1	5.00
T35	126.50-121.50			3.00	1	5.00
T36	121.50-116.50			3.00	1	5.00
T37	116.50-111.50			3.00	1	5.00
T38	111.50-106.50			3.00	1	5.00
T39	106.50-101.50			3.00	1	5.00
T40	101.50-96.50			3.00	1	5.00
T41	96.50-91.50			3.00	1	5.00
T42	91.50-86.50			3.00	1	5.00
T43	86.50-81.50			3.00	1	5.00
T44	81.50-76.50			3.00	1	5.00
T45	76.50-71.50			3.00	1	5.00
T46	71.50-66.50			3.00	1	5.00
T47	66.50-61.50			3.00	1	5.00
T48	61.50-56.50			3.00	1	5.00
T49	56.50-51.50			3.00	1	5.00
T50	51.50-46.50			3.00	1	5.00
T51	46.50-41.50			3.00	1	5.00
T52	41.50-36.50			3.00	1	5.00
T53	36.50-31.50			3.00	1	5.00
T54	31.50-6.50			3.00	1	25.00
T55	6.50-0.00			3.00	1	6.50

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	314.50-310.50	4.00	Diag Down	No	Yes	0.00	0.00
T2	310.50-306.50	4.00	Diag Up	No	Yes	0.00	0.00
T3	306.50-281.50	5.00	K Brace Right	No	Yes	0.00	0.00
T4	281.50-276.50	5.00	Diag Up	No	Yes	0.00	0.00
T5	276.50-271.50	5.00	Diag Down	No	Yes	0.00	0.00
T6	271.50-266.50	5.00	Diag Up	No	Yes	0.00	0.00
T7	266.50-261.50	5.00	Diag Down	No	Yes	0.00	0.00
T8	261.50-256.50	5.00	Diag Up	No	Yes	0.00	0.00
T9	256.50-251.50	5.00	Diag Down	No	Yes	0.00	0.00
T10	251.50-246.50	5.00	Diag Up	No	Yes	0.00	0.00
T11	246.50-241.50	5.00	Diag Down	No	Yes	0.00	0.00
T12	241.50-236.50	5.00	Diag Up	No	Yes	0.00	0.00
T13	236.50-231.50	5.00	Diag Down	No	Yes	0.00	0.00
T14	231.50-226.50	5.00	Diag Up	No	Yes	0.00	0.00
T15	226.50-221.50	5.00	Diag Down	No	Yes	0.00	0.00
T16	221.50-216.50	5.00	Diag Up	No	Yes	0.00	0.00
T17	216.50-211.50	5.00	Diag Down	No	Yes	0.00	0.00
T18	211.50-206.50	5.00	Diag Up	No	Yes	0.00	0.00
T19	206.50-201.50	5.00	Diag Down	No	Yes	0.00	0.00
T20	201.50-196.50	5.00	Diag Up	No	Yes	0.00	0.00
T21	196.50-191.50	5.00	Diag Down	No	Yes	0.00	0.00
T22	191.50-186.50	5.00	Diag Up	No	Yes	0.00	0.00
T23	186.50-181.50	5.00	Diag Down	No	Yes	0.00	0.00
T24	181.50-176.50	5.00	Diag Up	No	Yes	0.00	0.00
T25	176.50-171.50	5.00	Diag Down	No	Yes	0.00	0.00
T26	171.50-166.50	5.00	Diag Up	No	Yes	0.00	0.00
T27	166.50-161.50	5.00	Diag Down	No	Yes	0.00	0.00
T28	161.50-156.50	5.00	Diag Up	No	Yes	0.00	0.00
T29	156.50-151.50	5.00	Diag Down	No	Yes	0.00	0.00
T30	151.50-146.50	5.00	Diag Up	No	Yes	0.00	0.00
T31	146.50-141.50	5.00	Diag Down	No	Yes	0.00	0.00
T32	141.50-136.50	5.00	Diag Up	No	Yes	0.00	0.00
T33	136.50-131.50	5.00	Diag Down	No	Yes	0.00	0.00
T34	131.50-126.50	5.00	Diag Up	No	Yes	0.00	0.00
T35	126.50-121.50	5.00	Diag Down	No	Yes	0.00	0.00
T36	121.50-116.50	5.00	Diag Up	No	Yes	0.00	0.00
T37	116.50-111.50	5.00	Diag Down	No	Yes	0.00	0.00
T38	111.50-106.50	5.00	Diag Up	No	Yes	0.00	0.00
T39	106.50-101.50	5.00	Diag Down	No	Yes	0.00	0.00
T40	101.50-96.50	5.00	Diag Up	No	Yes	0.00	0.00
T41	96.50-91.50	5.00	Diag Down	No	Yes	0.00	0.00
T42	91.50-86.50	5.00	Diag Up	No	Yes	0.00	0.00
T43	86.50-81.50	5.00	Diag Down	No	Yes	0.00	0.00
T44	81.50-76.50	5.00	Diag Up	No	Yes	0.00	0.00
T45	76.50-71.50	5.00	Diag Down	No	Yes	0.00	0.00
T46	71.50-66.50	5.00	Diag Up	No	Yes	0.00	0.00
T47	66.50-61.50	5.00	Diag Down	No	Yes	0.00	0.00
T48	61.50-56.50	5.00	Diag Up	No	Yes	0.00	0.00
T49	56.50-51.50	5.00	Diag Down	No	Yes	0.00	0.00
T50	51.50-46.50	5.00	Diag Up	No	Yes	0.00	0.00
T51	46.50-41.50	5.00	Diag Down	No	Yes	0.00	0.00
T52	41.50-36.50	5.00	Diag Up	No	Yes	0.00	0.00
T53	36.50-31.50	5.00	Diag Down	No	Yes	0.00	0.00
T54	31.50-6.50	5.00	K Brace Left	No	Yes	0.00	0.00
T55	6.50-0.00	6.50	X Brace	No	Yes	0.00	0.00

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 314.50-310.50	Solid Round	2 1/2	A572-50 (50 ksi)	Double Equal Angle	2L2x2x1/4x3/8	A36 (36 ksi)
T2 310.50-306.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T3 306.50-281.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T4 281.50-276.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T5 276.50-271.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T6 271.50-266.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T7 266.50-261.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T8 261.50-256.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T9 256.50-251.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	P1.5x.2	A500-42 (42 ksi)
T10 251.50-246.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	P1.5x.2	A500-42 (42 ksi)
T11 246.50-241.50	Solid Round	2 1/2	A572-50 (50 ksi)	Double Equal Angle	2L2x2x1/4x3/8	A36 (36 ksi)
T12 241.50-236.50	Solid Round	2 1/2	A572-50 (50 ksi)	Double Equal Angle	2L2x2x1/4x3/8	A36 (36 ksi)
T13 236.50-231.50	Solid Round	2 1/2	A572-50 (50 ksi)	Double Equal Angle	2L2x2x1/4x3/8	A36 (36 ksi)
T14 231.50-226.50	Solid Round	2 1/2	A572-50 (50 ksi)	Double Equal Angle	2L2x2x1/4x3/8	A36 (36 ksi)
T15 226.50-221.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T16 221.50-216.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T17 216.50-211.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T18 211.50-206.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T19 206.50-201.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T20 201.50-196.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T21 196.50-191.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T22 191.50-186.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T23 186.50-181.50	Solid Round	2 1/2	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T24 181.50-176.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T25 176.50-171.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T26 171.50-166.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T27 166.50-161.50	Solid Round	2 1/4	A572-50 (50 ksi)	Double Equal Angle	2L2x2x1/4x3/8	A36 (36 ksi)
T28 161.50-156.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T29 156.50-151.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T30 151.50-146.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T31 146.50-141.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T32 141.50-136.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T33 136.50-131.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T34 131.50-126.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T35 126.50-121.50	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L2x2x3/8	A36 (36 ksi)
T36 121.50-116.50	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L2x2x3/8	A36 (36 ksi)
T37 116.50-111.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T38 111.50-106.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T39 106.50-101.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T40 101.50-96.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T41 96.50-91.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T42 91.50-86.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T43 86.50-81.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T44 81.50-76.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T45 76.50-71.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T46 71.50-66.50	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L2x2x3/8	A36 (36 ksi)
T47 66.50-61.50	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L2x2x3/8	A36 (36 ksi)
T48 61.50-56.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T49 56.50-51.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T50 51.50-46.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T51 46.50-41.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T52 41.50-36.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T53 36.50-31.50	Solid Round	2 1/4	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T54 31.50-6.50	Arbitrary Shape	2.25SR + BP9.5x0.25 (Norwalk)	A572-50 (50 ksi)	Pipe	P1.5 STD	A500-42 (42 ksi)
T55 6.50-0.00	Wide Flange	W8x40	A36 (36 ksi)	Pipe		A500-42 (42 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 314.50-310.50	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T55 6.50-0.00	Wide Flange	W16x50	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 314.50-310.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T2 310.50-306.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T3 306.50-281.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T4 281.50-276.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T5 276.50-271.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T6 271.50-266.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T7 266.50-261.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T8 261.50-256.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T9 256.50-251.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T10 251.50-246.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T11 246.50-241.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T12 241.50-236.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T13 236.50-231.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T14 231.50-226.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T15 226.50-221.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T16 221.50-216.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T17 216.50-211.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T18 211.50-206.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T19 206.50-201.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T20 201.50-196.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T21 196.50-191.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T22 191.50-186.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T23 186.50-181.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T24 181.50-176.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T25 176.50-171.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T26 171.50-166.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T27 166.50-161.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T28 161.50-156.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T29 156.50-151.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T30 151.50-146.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T31 146.50-141.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T32 141.50-136.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T33 136.50-131.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T34 131.50-126.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T35 126.50-121.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T36 121.50-116.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T37 116.50-111.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T38 111.50-106.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T39 106.50-101.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T40 101.50-96.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T41 96.50-91.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T42 91.50-86.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T43 86.50-81.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T44 81.50-76.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T45 76.50-71.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T46 71.50-66.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T47 66.50-61.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T48 61.50-56.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T49 56.50-51.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T50 51.50-46.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T51 46.50-41.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T52 41.50-36.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T53 36.50-31.50	None	Solid Round		A572-50 (50 ksi)	Pipe	Pipe 1.5" x 0.120" (11 ga)	A500-42 (42 ksi)
T54 31.50-6.50	None	Solid Round		A572-50 (50 ksi)	Pipe	P1.5x0.13	A500-42 (42 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T4 281.50-276.50	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T5 276.50-271.50	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T11 246.50-241.50	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T12 241.50-236.50	Double Angle	2L2 1/2x2x1/4x3/8	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T13 236.50-231.50	Double Angle	2L2 1/2x2x1/4x3/8	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T14 231.50-226.50	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T15 226.50-221.50	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T16 221.50-216.50	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T17 216.50-211.50	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T18 211.50-206.50	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T19 206.50-201.50	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T20 201.50-196.50	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T21 196.50-191.50	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T22 191.50-186.50	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T23 186.50-181.50	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T29 156.50-151.50	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T30 151.50-146.50	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T40 101.50-96.50	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T45 76.50-71.50	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T46 71.50-66.50	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T47 66.50-61.50	Single Angle	L2 1/2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T48 61.50-56.50	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T49 56.50-51.50	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T50 51.50-46.50	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T51 46.50-41.50	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T52 41.50-36.50	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T53 36.50-31.50	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 314.50-310.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T2 310.50-306.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T3 306.50-281.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T4 281.50-276.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T5 276.50-271.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T6 271.50-266.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T7 266.50-261.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T8 261.50-256.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T9 256.50-251.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T10 251.50-246.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T11 246.50-241.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T12 241.50-236.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T13 236.50-231.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T14 231.50-226.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T15 226.50-221.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T16 221.50-216.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T17 216.50-211.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T18 211.50-206.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T19	0.00	0.00	A36	1	1	1	36.00	36.00	36.00

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
206.50-201.50			(36 ksi)						
T20	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
201.50-196.50			(36 ksi)						
T21	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
196.50-191.50			(36 ksi)						
T22	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
191.50-186.50			(36 ksi)						
T23	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
186.50-181.50			(36 ksi)						
T24	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
181.50-176.50			(36 ksi)						
T25	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
176.50-171.50			(36 ksi)						
T26	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
171.50-166.50			(36 ksi)						
T27	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
166.50-161.50			(36 ksi)						
T28	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
161.50-156.50			(36 ksi)						
T29	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
156.50-151.50			(36 ksi)						
T30	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
151.50-146.50			(36 ksi)						
T31	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
146.50-141.50			(36 ksi)						
T32	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
141.50-136.50			(36 ksi)						
T33	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
136.50-131.50			(36 ksi)						
T34	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
131.50-126.50			(36 ksi)						
T35	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
126.50-121.50			(36 ksi)						
T36	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
121.50-116.50			(36 ksi)						
T37	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
116.50-111.50			(36 ksi)						
T38	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
111.50-106.50			(36 ksi)						
T39	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
106.50-101.50			(36 ksi)						
T40	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
101.50-96.50			(36 ksi)						
T41	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
96.50-91.50			(36 ksi)						
T42	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
91.50-86.50			(36 ksi)						
T43	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
86.50-81.50			(36 ksi)						
T44	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
81.50-76.50			(36 ksi)						
T45	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
76.50-71.50			(36 ksi)						
T46	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
71.50-66.50			(36 ksi)						
T47	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
66.50-61.50			(36 ksi)						
T48	0.00	0.00	A36	1	1	1	36.00	36.00	36.00
61.50-56.50			(36 ksi)						

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T49 56.50-51.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T50 51.50-46.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T51 46.50-41.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T52 41.50-36.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T53 36.50-31.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T54 31.50-6.50	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00
T55 6.50-0.00	0.00	0.00	A36 (36 ksi)	1	1	1	36.00	36.00	36.00

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 314.50-310.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 310.50-306.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 306.50-281.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 281.50-276.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 276.50-271.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 271.50-266.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 266.50-261.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 261.50-256.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 256.50-251.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T10 251.50-246.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T11 246.50-241.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T12 241.50-236.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T13 236.50-231.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T14 231.50-226.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T15 226.50-221.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T16 221.50-216.50	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T17	No	Yes	1	1	1	1	1	1	1	1
216.50-211.50				1	1	1	1	1	1	1
T18	No	Yes	1	1	1	1	1	1	1	1
211.50-206.50				1	1	1	1	1	1	1
T19	No	Yes	1	1	1	1	1	1	1	1
206.50-201.50				1	1	1	1	1	1	1
T20	No	Yes	1	1	1	1	1	1	1	1
201.50-196.50				1	1	1	1	1	1	1
T21	No	Yes	1	1	1	1	1	1	1	1
196.50-191.50				1	1	1	1	1	1	1
T22	No	Yes	1	1	1	1	1	1	1	1
191.50-186.50				1	1	1	1	1	1	1
T23	No	Yes	1	1	1	1	1	1	1	1
186.50-181.50				1	1	1	1	1	1	1
T24	No	Yes	1	1	1	1	1	1	1	1
181.50-176.50				1	1	1	1	1	1	1
T25	No	Yes	1	1	1	1	1	1	1	1
176.50-171.50				1	1	1	1	1	1	1
T26	No	Yes	1	1	1	1	1	1	1	1
171.50-166.50				1	1	1	1	1	1	1
T27	No	Yes	1	1	1	1	1	1	1	1
166.50-161.50				1	1	1	1	1	1	1
T28	No	Yes	1	1	1	1	1	1	1	1
161.50-156.50				1	1	1	1	1	1	1
T29	No	Yes	1	1	1	1	1	1	1	1
156.50-151.50				1	1	1	1	1	1	1
T30	No	Yes	1	1	1	1	1	1	1	1
151.50-146.50				1	1	1	1	1	1	1
T31	No	Yes	1	1	1	1	1	1	1	1
146.50-141.50				1	1	1	1	1	1	1
T32	No	Yes	1	1	1	1	1	1	1	1
141.50-136.50				1	1	1	1	1	1	1
T33	No	Yes	1	1	1	1	1	1	1	1
136.50-131.50				1	1	1	1	1	1	1
T34	No	Yes	1	1	1	1	1	1	1	1
131.50-126.50				1	1	1	1	1	1	1
T35	No	Yes	1	1	1	1	1	1	1	1
126.50-121.50				1	1	1	1	1	1	1
T36	No	Yes	1	1	1	1	1	1	1	1
121.50-116.50				1	1	1	1	1	1	1
T37	No	Yes	1	1	1	1	1	1	1	1
116.50-111.50				1	1	1	1	1	1	1
T38	No	Yes	1	1	1	1	1	1	1	1
111.50-106.50				1	1	1	1	1	1	1
T39	No	Yes	1	1	1	1	1	1	1	1
106.50-101.50				1	1	1	1	1	1	1
T40	No	Yes	1	1	1	1	1	1	1	1
101.50-96.50				1	1	1	1	1	1	1
T41	No	Yes	1	1	1	1	1	1	1	1
96.50-91.50				1	1	1	1	1	1	1
T42	No	Yes	1	1	1	1	1	1	1	1
91.50-86.50				1	1	1	1	1	1	1
T43	Yes	Yes	1	1	1	1	1	1	1	1
86.50-81.50				1	1	1	1	1	1	1
T44	No	Yes	1	1	1	1	1	1	1	1
81.50-76.50				1	1	1	1	1	1	1
T45	No	Yes	1	1	1	0.5	1	1	1	1
76.50-71.50				1	1	0.5	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T46	No	Yes	1	1	1	0.5	1	1	1	1
71.50-66.50				1	1	0.5	1	1	1	1
T47	No	Yes	1	1	1	0.5	1	1	1	1
66.50-61.50				1	1	0.5	1	1	1	1
T48	No	Yes	1	1	1	1	1	1	1	1
61.50-56.50				1	1	1	1	1	1	1
T49	No	Yes	1	1	1	1	1	1	1	1
56.50-51.50				1	1	1	1	1	1	1
T50	No	Yes	1	1	1	1	1	1	1	1
51.50-46.50				1	1	1	1	1	1	1
T51	No	Yes	1	1	1	1	1	1	1	1
46.50-41.50				1	1	1	1	1	1	1
T52	No	Yes	1	1	1	1	1	1	1	1
41.50-36.50				1	1	1	1	1	1	1
T53	No	Yes	1	1	1	1	1	1	1	1
36.50-31.50				1	1	1	1	1	1	1
T54	No	Yes	1.0173	1	1	1	1	1	1	1
31.50-6.50				1	1	1	1	1	1	1
T55 6.50-0.00	No	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
314.50-310.50														
T2	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
310.50-306.50														
T3	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
306.50-281.50														
T4	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
281.50-276.50														
T5	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
276.50-271.50														
T6	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
271.50-266.50														
T7	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
266.50-261.50														
T8	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
261.50-256.50														
T9	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
256.50-251.50														
T10	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
251.50-246.50														
T11	0.00	1	0.00	0.75	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
246.50-241.50														

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T12 241.50-236.50	0.00	1	0.00	0.75	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T13 236.50-231.50	0.00	1	0.00	0.75	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T14 231.50-226.50	0.00	1	0.00	0.75	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T15 226.50-221.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T16 221.50-216.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T17 216.50-211.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T18 211.50-206.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T19 206.50-201.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T20 201.50-196.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T21 196.50-191.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T22 191.50-186.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T23 186.50-181.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T24 181.50-176.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T25 176.50-171.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T26 171.50-166.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T27 166.50-161.50	0.00	1	0.00	0.75	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T28 161.50-156.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T29 156.50-151.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T30 151.50-146.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T31 146.50-141.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T32 141.50-136.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T33 136.50-131.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T34 131.50-126.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T35 126.50-121.50	0.00	1	0.00	0.75	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T36 121.50-116.50	0.00	1	0.00	0.75	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T37 116.50-111.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T38 111.50-106.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T39 106.50-101.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T40 101.50-96.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T41 96.50-91.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T42 91.50-86.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T43 86.50-81.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T44 81.50-76.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T45 76.50-71.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T46 71.50-66.50	0.00	1	0.00	0.75	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T47 66.50-61.50	0.00	1	0.00	0.75	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T48 61.50-56.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T49 56.50-51.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T50 51.50-46.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T51 46.50-41.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T52 41.50-36.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T53 36.50-31.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T54 31.50-6.50	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T55 6.50-0.00	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 314.50-310.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T2 310.50-306.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T3 306.50-281.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T4 281.50-276.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T5 276.50-271.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T6 271.50-266.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T7 266.50-261.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T8 261.50-256.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T9 256.50-251.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T10 251.50-246.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T11 246.50-241.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T12 241.50-236.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T13 236.50-231.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T14 231.50-226.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T15 226.50-221.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T16 221.50-216.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T17 216.50-211.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T18 211.50-206.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T19 206.50-201.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T20 201.50-196.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T21 196.50-191.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T22 191.50-186.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T23 186.50-181.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T24 181.50-176.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T25 176.50-171.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T26 171.50-166.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T27 166.50-161.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T28 161.50-156.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T29 156.50-151.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T30 151.50-146.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T31 146.50-141.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T32 141.50-136.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T33 136.50-131.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T34 131.50-126.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T35 126.50-121.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T36 121.50-116.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T37 116.50-111.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T38 111.50-106.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T39 106.50-101.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T40 101.50-96.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T41 96.50-91.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T42 91.50-86.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T43 86.50-81.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T44 81.50-76.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T45 76.50-71.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T46 71.50-66.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T47 66.50-61.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T48 61.50-56.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T49 56.50-51.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T50 51.50-46.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T51 46.50-41.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T52 41.50-36.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T53 36.50-31.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T54 31.50-6.50	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T55 6.50-0.00	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 314.50-310.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	0
T2 310.50-306.50	Flange	0.50 A325N	3	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	0
T3 306.50-281.50	Flange	0.50 A325N	3	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	1
T4 281.50-276.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	1

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T5	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	0
276.50-271.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T6	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	0
271.50-266.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	0
266.50-261.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T8	Flange	0.50	3	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	0
261.50-256.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T9	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	0
256.50-251.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T10	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
251.50-246.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T11	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
246.50-241.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T12	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
241.50-236.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T13	Flange	0.50	3	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
236.50-231.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T14	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
231.50-226.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T15	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
226.50-221.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T16	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
221.50-216.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T17	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
216.50-211.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T18	Flange	0.50	3	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
211.50-206.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T19	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
206.50-201.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T20	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
201.50-196.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T21	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
196.50-191.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T22	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
191.50-186.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T23	Flange	0.50	3	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	0
186.50-181.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T24	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	0
181.50-176.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T25	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	0
176.50-171.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T26	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	0
171.50-166.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T27	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	0
166.50-161.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T28	Flange	0.50	3	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
161.50-156.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T29	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	1
156.50-151.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T30	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	0
151.50-146.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T31	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	0
146.50-141.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T32	Flange	0.50	0	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	0
141.50-136.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T33	Flange	0.50	3	0.63	1	0.63	0	0.63	0	0.63	0	0.63	1	0.50	0
136.50-131.50		A325N		A325N		A325N		A325N		A325N		A325N		A325N	

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T34 131.50-126.50	Flange	0.50 A325N	3	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	0
T35 126.50-121.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	1
T36 121.50-116.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	0
T37 116.50-111.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	0
T38 111.50-106.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	0
T39 106.50-101.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	0
T40 101.50-96.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	0
T41 96.50-91.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	0
T42 91.50-86.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	0
T43 86.50-81.50	Flange	0.50 A325N	3	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	1
T44 81.50-76.50	Flange	0.50 A325N	3	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	1
T45 76.50-71.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	1
T46 71.50-66.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	1
T47 66.50-61.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	1
T48 61.50-56.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	1
T49 56.50-51.50	Flange	0.50 A325N	3	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	0
T50 51.50-46.50	Flange	0.50 A325N	4	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	1	0.50 A325N	0
T51 46.50-41.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.50 A325N	0
T52 41.50-36.50	Flange	0.50 A325N	0	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.50 A325N	0
T53 36.50-31.50	Flange	0.50 A325N	3	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.50 A325N	0
T54 31.50-6.50	Flange	0.50 A325N	4	0.63 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.50 A325N	0
T55 6.50-0.00	Flange	0.50 A325N	0	0.50 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.50 A325N	0

Guy Data

Guy Elevation ft	Guy Grade	Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %

306.5	EHS	A	11/16 (24000)	5.00	10%	24000.00	0.98	348.92	169.00	0.00	0.00	100%
		B	11/16 (24000)	5.00	10%	24000.00	0.98	349.40	170.00	0.00	0.00	100%
		C	11/16 (24000)	5.00	10%	24000.00	0.98	349.40	170.00	0.00	0.00	100%
246.5	EHS	A	7/8 (19000)	7.97	10%	19000.00	1.58	297.63	169.00	0.00	0.00	100%
		B	7/8 (19000)	7.97	10%	19000.00	1.58	298.19	170.00	0.00	0.00	100%
		C	7/8 (19000)	7.97	10%	19000.00	1.58	298.19	170.00	0.00	0.00	100%
186.5	EHS	A	9/16 (23000)	3.50	10%	23000.00	0.67	250.33	169.00	0.00	0.00	100%
		B	9/16 (23000)	3.50	10%	23000.00	0.67	251.00	170.00	0.00	0.00	100%
		C	9/16 (23000)	3.50	10%	23000.00	0.67	251.00	170.00	0.00	0.00	100%
126.5	EHS	A	5/8 (23000)	4.24	10%	23000.00	0.81	147.86	78.50	0.00	0.00	100%
		B	5/8 (23000)	4.24	10%	23000.00	0.81	146.07	75.00	0.00	0.00	100%
		C	5/8 (23000)	4.24	10%	23000.00	0.81	147.60	78.00	0.00	0.00	100%
61.5	EHS	A	11/16 (24000)	5.00	10%	24000.00	0.98	98.29	78.50	0.00	0.00	100%
		B	11/16 (24000)	5.00	10%	24000.00	0.98	95.59	75.00	0.00	0.00	100%
		C	11/16 (24000)	5.00	10%	24000.00	0.98	97.90	78.00	0.00	0.00	100%

Guy Data*(cont'd)*

Guy Elevation ft	*Mount Type*	*Torque-Arm Spread ft*	*Torque-Arm Leg Angle °*	*Torque-Arm Style*	*Torque-Arm Grade*	*Torque-Arm Type*	*Torque-Arm Size*
306.5	Corner						
246.5	Corner						
186.5	Corner						
126.5	Corner						
61.5	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	*Diagonal Grade*	*Diagonal Type*	*Upper Diagonal Size*	*Lower Diagonal Size*	*Is Strap.*	*Pull-Off Grade*	*Pull-Off Type*	*Pull-Off Size*
306.50	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Flat Bar	
246.50	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Single Angle	
186.50	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Flat Bar	
126.50	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Flat Bar	
61.50	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Flat Bar	

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
306.5	0.34	0.34	0.34		11.54 5.9 sec/pulse	11.57 5.9 sec/pulse	11.57 5.9 sec/pulse	
246.5	0.47	0.47	0.47		8.59 5.1 sec/pulse	8.62 5.1 sec/pulse	8.62 5.1 sec/pulse	
186.5	0.17	0.17	0.17		5.91 4.2 sec/pulse	5.94 4.2 sec/pulse	5.94 4.2 sec/pulse	
126.5	0.12	0.12	0.12		2.07 2.5 sec/pulse	2.02 2.5 sec/pulse	2.07 2.5 sec/pulse	
61.5	0.10	0.09	0.10		0.94 1.7 sec/pulse	0.89 1.6 sec/pulse	0.93 1.7 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
306.5	No	No			1	1	1	1
246.5	No	No			1	1	1	1
186.5	No	No			1	1	1	1
126.5	No	No			1	1	1	1
61.5	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
306.5	0.63 A325N	0	0.00	0.75	0.63 A325N	0	0.00	0.75	0.63 A325N	0	0.00	0.75
246.5	0.00 A325N	0	0.00	1	0.63 A325N	0	0.00	0.75	0.63 A325N	0	0.00	0.75
186.5	0.63 A325N	0	0.00	0.75	0.63 A325N	0	0.00	0.75	0.63 A325N	0	0.00	0.75
126.5	0.63 A325N	0	0.00	0.75	0.63 A325N	0	0.00	0.75	0.63 A325N	0	0.00	0.75
61.5	0.63 A325N	0	0.00	0.75	0.63 A325N	0	0.00	0.75	0.63 A325N	0	0.00	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
306.5	A	153.25	33.09	5.75	1.49
	B	153.25	33.09	5.75	1.49
	C	153.25	33.09	5.75	1.49
246.5	A	123.25	31.09	5.40	1.45
	B	123.25	31.09	5.40	1.45
	C	123.25	31.09	5.40	1.45
186.5	A	93.25	28.71	4.98	1.41
	B	93.25	28.71	4.98	1.41
	C	93.25	28.71	4.98	1.41
126.5	A	63.25	25.70	4.46	1.36
	B	63.25	25.70	4.46	1.36
	C	63.25	25.70	4.46	1.36
61.5	A	30.75	20.91	3.63	1.27
	B	30.75	20.91	3.63	1.27
	C	30.75	20.91	3.63	1.27

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
1 5/8	A	No	Ar (CaAa)	314.50 - 0.00	1	1	0.000 0.000	1.98		0.82
1 5/8	A	No	Surface Ar (CaAa)	325.00 - 314.50	1	1	0.000 0.000	1.98		0.82
***										
7/16" Power	C	No	Ar (CaAa)	303.00 - 0.00	1	1	0.000 0.000	0.44		0.05
***										
3/8"	B	No	Ar (CaAa)	287.00 - 0.00	1	1	0.000 0.000	0.44		0.08
7/8"	C	No	Ar (CaAa)	287.00 - 0.00	1	1	0.000 0.000	1.09		0.33
***										
7/8"	C	No	Ar (CaAa)	288.00 - 0.00	1	1	0.000 0.000	1.09		0.33
***										
1 5/8	B	No	Ar (CaAa)	273.00 - 0.00	1	1	0.000 0.000	1.98		0.82
***										
1 5/8	B	No	Ar (CaAa)	260.00 - 0.00	1	1	0.000 0.000	1.98		0.82
***										
7/8"	C	No	Ar (CaAa)	239.00 - 0.00	1	1	0.000 0.000	1.09		0.33
***										
7/8"	C	No	Ar (CaAa)	237.00 - 0.00	1	1	0.000 0.000	1.09		0.33
***										
1" Conduit (Lighting)	A	No	Ar (CaAa)	223.00 - 0.00	1	1	0.000 0.000	1.00		1.13
***										
7/16" Power	C	No	Ar (CaAa)	183.00 - 0.00	1	1	0.000 0.000	0.44		0.05
***										
7/16" Power	C	No	Ar (CaAa)	169.00 - 0.00	1	1	0.000 0.000	0.44		0.05

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
***										
1/4" Fiber	C	No	Ar (CaAa)	145.50 - 0.00	1	1	0.000 0.000	0.34		0.06
***										
7/8"	C	No	Ar (CaAa)	141.00 - 0.00	1	1	0.000 0.000	1.09		0.33
***										
1" Conduit (Lighting)	A	No	Ar (CaAa)	135.00 - 0.00	1	1	0.000 0.000	1.00		1.13
***										
1 1/4"	C	No	Ar (CaAa)	101.00 - 0.00	15	5	0.000 0.000	1.55		0.66
***										
7/8"	B	No	Ar (CaAa)	80.00 - 0.00	3	2	0.000 0.000	1.09		0.33
7/8"	B	No	Ar (CaAa)	80.00 - 0.00	3	2	0.000 0.000	1.09		0.33
7/8"	C	No	Ar (CaAa)	80.00 - 0.00	3	2	0.000 0.000	1.09		0.33
10 mm	B	No	Ar (CaAa)	80.00 - 0.00	1	1	0.000 0.000	0.39		0.01
0.795"	B	No	Ar (CaAa)	80.00 - 0.00	2	2	0.000 0.000	0.80		0.33
7/8"	B	No	Ar (CaAa)	80.00 - 0.00	3	2	0.000 0.000	1.09		0.33
***										
7/16" Power	B	No	Ar (CaAa)	33.00 - 0.00	1	1	0.000 0.000	0.44		0.05
***										
7/16" Power	B	No	Ar (CaAa)	8.50 - 0.00	1	1	0.000 0.000	0.44		0.05
***										
1 1/8	C	No	Ar (CaAa)	110.00 - 0.00	1	1	0.000 0.000	1.13		0.66

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	341.50-314.50	A	0.000	0.000	2.079	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T1	314.50-310.50	A	0.000	0.000	0.792	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
T2	310.50-306.50	A	0.000	0.000	0.792	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
T3	306.50-281.50	A	0.000	0.000	4.950	0.000	0.02
		B	0.000	0.000	0.242	0.000	0.00
		C	0.000	0.000	2.249	0.000	0.01
T4	281.50-276.50	A	0.000	0.000	0.990	0.000	0.00
		B	0.000	0.000	0.220	0.000	0.00
		C	0.000	0.000	1.309	0.000	0.00
T5	276.50-271.50	A	0.000	0.000	0.990	0.000	0.00
		B	0.000	0.000	0.517	0.000	0.00

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
		C	0.000	0.000	1.309	0.000	0.00
T6	271.50-266.50	A	0.000	0.000	0.990	0.000	0.00
		B	0.000	0.000	1.210	0.000	0.00
		C	0.000	0.000	1.309	0.000	0.00
T7	266.50-261.50	A	0.000	0.000	0.990	0.000	0.00
		B	0.000	0.000	1.210	0.000	0.00
		C	0.000	0.000	1.309	0.000	0.00
T8	261.50-256.50	A	0.000	0.000	0.990	0.000	0.00
		B	0.000	0.000	1.903	0.000	0.01
		C	0.000	0.000	1.309	0.000	0.00
T9	256.50-251.50	A	0.000	0.000	0.990	0.000	0.00
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	1.309	0.000	0.00
T10	251.50-246.50	A	0.000	0.000	0.990	0.000	0.00
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	1.309	0.000	0.00
T11	246.50-241.50	A	0.000	0.000	0.990	0.000	0.00
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	1.309	0.000	0.00
T12	241.50-236.50	A	0.000	0.000	0.990	0.000	0.00
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	1.636	0.000	0.00
T13	236.50-231.50	A	0.000	0.000	0.990	0.000	0.00
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.399	0.000	0.01
T14	231.50-226.50	A	0.000	0.000	0.990	0.000	0.00
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.399	0.000	0.01
T15	226.50-221.50	A	0.000	0.000	1.140	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.399	0.000	0.01
T16	221.50-216.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.399	0.000	0.01
T17	216.50-211.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.399	0.000	0.01
T18	211.50-206.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.399	0.000	0.01
T19	206.50-201.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.399	0.000	0.01
T20	201.50-196.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.399	0.000	0.01
T21	196.50-191.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.399	0.000	0.01
T22	191.50-186.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.399	0.000	0.01
T23	186.50-181.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.464	0.000	0.01
T24	181.50-176.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.618	0.000	0.01
T25	176.50-171.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.618	0.000	0.01

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
T26	171.50-166.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.727	0.000	0.01
T27	166.50-161.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.836	0.000	0.01
T28	161.50-156.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.836	0.000	0.01
T29	156.50-151.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.836	0.000	0.01
T30	151.50-146.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.836	0.000	0.01
T31	146.50-141.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	2.974	0.000	0.01
T32	141.50-136.50	A	0.000	0.000	1.490	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	3.499	0.000	0.01
T33	136.50-131.50	A	0.000	0.000	1.840	0.000	0.01
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	3.554	0.000	0.01
T34	131.50-126.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	3.554	0.000	0.01
T35	126.50-121.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	3.554	0.000	0.01
T36	121.50-116.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	3.554	0.000	0.01
T37	116.50-111.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	3.554	0.000	0.01
T38	111.50-106.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	3.948	0.000	0.01
T39	106.50-101.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	4.116	0.000	0.01
T40	101.50-96.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	14.579	0.000	0.06
T41	96.50-91.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	15.741	0.000	0.06
T42	91.50-86.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	15.741	0.000	0.06
T43	86.50-81.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	2.200	0.000	0.01
		C	0.000	0.000	15.741	0.000	0.06
T44	81.50-76.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	6.328	0.000	0.02
		C	0.000	0.000	16.886	0.000	0.07
T45	76.50-71.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	8.097	0.000	0.03
		C	0.000	0.000	17.376	0.000	0.07
T46	71.50-66.50	A	0.000	0.000	1.990	0.000	0.02

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	8.097	0.000	0.03
		C	0.000	0.000	17.376	0.000	0.07
T47	66.50-61.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	8.097	0.000	0.03
		C	0.000	0.000	17.376	0.000	0.07
T48	61.50-56.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	8.097	0.000	0.03
		C	0.000	0.000	17.376	0.000	0.07
T49	56.50-51.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	8.097	0.000	0.03
		C	0.000	0.000	17.376	0.000	0.07
T50	51.50-46.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	8.097	0.000	0.03
		C	0.000	0.000	17.376	0.000	0.07
T51	46.50-41.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	8.097	0.000	0.03
		C	0.000	0.000	17.376	0.000	0.07
T52	41.50-36.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	8.097	0.000	0.03
		C	0.000	0.000	17.376	0.000	0.07
T53	36.50-31.50	A	0.000	0.000	1.990	0.000	0.02
		B	0.000	0.000	8.162	0.000	0.03
		C	0.000	0.000	17.376	0.000	0.07
T54	31.50-6.50	A	0.000	0.000	9.950	0.000	0.08
		B	0.000	0.000	41.666	0.000	0.14
		C	0.000	0.000	86.881	0.000	0.34
T55	6.50-0.00	A	0.000	0.000	2.587	0.000	0.02
		B	0.000	0.000	11.095	0.000	0.04
		C	0.000	0.000	22.589	0.000	0.09

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	341.50-314.50	A	1.604	0.000	0.000	5.448	0.000	0.08
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T1	314.50-310.50	A	1.596	0.000	0.000	2.069	0.000	0.03
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T2	310.50-306.50	A	1.594	0.000	0.000	2.067	0.000	0.03
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T3	306.50-281.50	A	1.587	0.000	0.000	12.883	0.000	0.19
		B		0.000	0.000	1.987	0.000	0.02
		C		0.000	0.000	12.879	0.000	0.15
T4	281.50-276.50	A	1.578	0.000	0.000	2.568	0.000	0.04
		B		0.000	0.000	1.798	0.000	0.02
		C		0.000	0.000	6.044	0.000	0.07
T5	276.50-271.50	A	1.576	0.000	0.000	2.566	0.000	0.04
		B		0.000	0.000	2.565	0.000	0.03
		C		0.000	0.000	6.035	0.000	0.07
T6	271.50-266.50	A	1.573	0.000	0.000	2.563	0.000	0.04
		B		0.000	0.000	4.355	0.000	0.06
		C		0.000	0.000	6.027	0.000	0.07
T7	266.50-261.50	A	1.570	0.000	0.000	2.560	0.000	0.04
		B		0.000	0.000	4.349	0.000	0.06

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
		C		0.000	0.000	6.018	0.000	0.07
T8	261.50-256.50	A	1.567	0.000	0.000	2.557	0.000	0.04
		B		0.000	0.000	6.133	0.000	0.08
		C		0.000	0.000	6.009	0.000	0.07
T9	256.50-251.50	A	1.564	0.000	0.000	2.554	0.000	0.04
		B		0.000	0.000	6.891	0.000	0.10
		C		0.000	0.000	6.000	0.000	0.07
T10	251.50-246.50	A	1.561	0.000	0.000	2.551	0.000	0.04
		B		0.000	0.000	6.882	0.000	0.10
		C		0.000	0.000	5.990	0.000	0.07
T11	246.50-241.50	A	1.557	0.000	0.000	2.547	0.000	0.04
		B		0.000	0.000	6.872	0.000	0.09
		C		0.000	0.000	5.981	0.000	0.07
T12	241.50-236.50	A	1.554	0.000	0.000	2.544	0.000	0.04
		B		0.000	0.000	6.863	0.000	0.09
		C		0.000	0.000	7.231	0.000	0.09
T13	236.50-231.50	A	1.551	0.000	0.000	2.541	0.000	0.04
		B		0.000	0.000	6.853	0.000	0.09
		C		0.000	0.000	10.153	0.000	0.13
T14	231.50-226.50	A	1.548	0.000	0.000	2.538	0.000	0.04
		B		0.000	0.000	6.843	0.000	0.09
		C		0.000	0.000	10.136	0.000	0.13
T15	226.50-221.50	A	1.544	0.000	0.000	3.147	0.000	0.05
		B		0.000	0.000	6.832	0.000	0.09
		C		0.000	0.000	10.119	0.000	0.12
T16	221.50-216.50	A	1.541	0.000	0.000	4.571	0.000	0.07
		B		0.000	0.000	6.822	0.000	0.09
		C		0.000	0.000	10.102	0.000	0.12
T17	216.50-211.50	A	1.537	0.000	0.000	4.564	0.000	0.07
		B		0.000	0.000	6.811	0.000	0.09
		C		0.000	0.000	10.084	0.000	0.12
T18	211.50-206.50	A	1.533	0.000	0.000	4.557	0.000	0.07
		B		0.000	0.000	6.800	0.000	0.09
		C		0.000	0.000	10.066	0.000	0.12
T19	206.50-201.50	A	1.530	0.000	0.000	4.550	0.000	0.07
		B		0.000	0.000	6.789	0.000	0.09
		C		0.000	0.000	10.048	0.000	0.12
T20	201.50-196.50	A	1.526	0.000	0.000	4.542	0.000	0.07
		B		0.000	0.000	6.778	0.000	0.09
		C		0.000	0.000	10.029	0.000	0.12
T21	196.50-191.50	A	1.522	0.000	0.000	4.534	0.000	0.07
		B		0.000	0.000	6.766	0.000	0.09
		C		0.000	0.000	10.009	0.000	0.12
T22	191.50-186.50	A	1.518	0.000	0.000	4.526	0.000	0.07
		B		0.000	0.000	6.754	0.000	0.09
		C		0.000	0.000	9.989	0.000	0.12
T23	186.50-181.50	A	1.514	0.000	0.000	4.518	0.000	0.07
		B		0.000	0.000	6.742	0.000	0.09
		C		0.000	0.000	10.489	0.000	0.13
T24	181.50-176.50	A	1.510	0.000	0.000	4.510	0.000	0.07
		B		0.000	0.000	6.730	0.000	0.09
		C		0.000	0.000	11.677	0.000	0.14
T25	176.50-171.50	A	1.506	0.000	0.000	4.501	0.000	0.06
		B		0.000	0.000	6.717	0.000	0.09
		C		0.000	0.000	11.651	0.000	0.14
T26	171.50-166.50	A	1.501	0.000	0.000	4.492	0.000	0.06
		B		0.000	0.000	6.704	0.000	0.09
		C		0.000	0.000	12.485	0.000	0.15
T27	166.50-161.50	A	1.497	0.000	0.000	4.483	0.000	0.06
		B		0.000	0.000	6.690	0.000	0.09
		C		0.000	0.000	13.313	0.000	0.16

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
T28	161.50-156.50	A	1.492	0.000	0.000	4.474	0.000	0.06
		B		0.000	0.000	6.676	0.000	0.09
		C		0.000	0.000	13.281	0.000	0.15
T29	156.50-151.50	A	1.487	0.000	0.000	4.465	0.000	0.06
		B		0.000	0.000	6.662	0.000	0.09
		C		0.000	0.000	13.248	0.000	0.15
T30	151.50-146.50	A	1.482	0.000	0.000	4.455	0.000	0.06
		B		0.000	0.000	6.647	0.000	0.09
		C		0.000	0.000	13.213	0.000	0.15
T31	146.50-141.50	A	1.477	0.000	0.000	4.445	0.000	0.06
		B		0.000	0.000	6.632	0.000	0.09
		C		0.000	0.000	14.498	0.000	0.17
T32	141.50-136.50	A	1.472	0.000	0.000	4.434	0.000	0.06
		B		0.000	0.000	6.617	0.000	0.09
		C		0.000	0.000	16.602	0.000	0.19
T33	136.50-131.50	A	1.467	0.000	0.000	5.800	0.000	0.08
		B		0.000	0.000	6.600	0.000	0.09
		C		0.000	0.000	16.755	0.000	0.19
T34	131.50-126.50	A	1.461	0.000	0.000	6.374	0.000	0.09
		B		0.000	0.000	6.584	0.000	0.09
		C		0.000	0.000	16.705	0.000	0.19
T35	126.50-121.50	A	1.455	0.000	0.000	6.356	0.000	0.09
		B		0.000	0.000	6.566	0.000	0.09
		C		0.000	0.000	16.653	0.000	0.19
T36	121.50-116.50	A	1.449	0.000	0.000	6.338	0.000	0.09
		B		0.000	0.000	6.548	0.000	0.09
		C		0.000	0.000	16.599	0.000	0.19
T37	116.50-111.50	A	1.443	0.000	0.000	6.320	0.000	0.09
		B		0.000	0.000	6.530	0.000	0.09
		C		0.000	0.000	16.543	0.000	0.19
T38	111.50-106.50	A	1.437	0.000	0.000	6.300	0.000	0.09
		B		0.000	0.000	6.510	0.000	0.09
		C		0.000	0.000	17.885	0.000	0.20
T39	106.50-101.50	A	1.430	0.000	0.000	6.280	0.000	0.09
		B		0.000	0.000	6.490	0.000	0.08
		C		0.000	0.000	18.417	0.000	0.21
T40	101.50-96.50	A	1.423	0.000	0.000	6.259	0.000	0.09
		B		0.000	0.000	6.469	0.000	0.08
		C		0.000	0.000	26.893	0.000	0.38
T41	96.50-91.50	A	1.416	0.000	0.000	6.237	0.000	0.09
		B		0.000	0.000	6.447	0.000	0.08
		C		0.000	0.000	27.757	0.000	0.40
T42	91.50-86.50	A	1.408	0.000	0.000	6.214	0.000	0.09
		B		0.000	0.000	6.424	0.000	0.08
		C		0.000	0.000	27.666	0.000	0.40
T43	86.50-81.50	A	1.400	0.000	0.000	6.190	0.000	0.09
		B		0.000	0.000	6.400	0.000	0.08
		C		0.000	0.000	27.571	0.000	0.40
T44	81.50-76.50	A	1.391	0.000	0.000	6.164	0.000	0.08
		B		0.000	0.000	21.470	0.000	0.23
		C		0.000	0.000	31.215	0.000	0.43
T45	76.50-71.50	A	1.382	0.000	0.000	6.137	0.000	0.08
		B		0.000	0.000	27.840	0.000	0.29
		C		0.000	0.000	32.698	0.000	0.44
T46	71.50-66.50	A	1.373	0.000	0.000	6.108	0.000	0.08
		B		0.000	0.000	27.733	0.000	0.29
		C		0.000	0.000	32.567	0.000	0.44
T47	66.50-61.50	A	1.362	0.000	0.000	6.077	0.000	0.08
		B		0.000	0.000	27.620	0.000	0.28
		C		0.000	0.000	32.429	0.000	0.44
T48	61.50-56.50	A	1.351	0.000	0.000	6.044	0.000	0.08

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	27.498	0.000	0.28
		C		0.000	0.000	32.280	0.000	0.43
T49	56.50-51.50	A	1.339	0.000	0.000	6.008	0.000	0.08
		B		0.000	0.000	27.366	0.000	0.28
		C		0.000	0.000	32.119	0.000	0.43
T50	51.50-46.50	A	1.326	0.000	0.000	5.969	0.000	0.08
		B		0.000	0.000	27.223	0.000	0.27
		C		0.000	0.000	31.944	0.000	0.43
T51	46.50-41.50	A	1.312	0.000	0.000	5.927	0.000	0.08
		B		0.000	0.000	27.066	0.000	0.27
		C		0.000	0.000	31.752	0.000	0.42
T52	41.50-36.50	A	1.296	0.000	0.000	5.879	0.000	0.08
		B		0.000	0.000	26.893	0.000	0.27
		C		0.000	0.000	31.540	0.000	0.42
T53	36.50-31.50	A	1.279	0.000	0.000	5.826	0.000	0.08
		B		0.000	0.000	27.147	0.000	0.27
		C		0.000	0.000	31.301	0.000	0.41
T54	31.50-6.50	A	1.207	0.000	0.000	28.048	0.000	0.36
		B		0.000	0.000	137.195	0.000	1.30
		C		0.000	0.000	151.626	0.000	1.94
T55	6.50-0.00	A	1.011	0.000	0.000	6.531	0.000	0.08
		B		0.000	0.000	34.066	0.000	0.29
		C		0.000	0.000	35.996	0.000	0.43

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	341.50-314.50	-0.70	-0.40	-0.67	-0.39
T1	314.50-310.50	-0.07	-1.82	-0.08	-2.07
T2	310.50-306.50	-0.09	-2.33	-0.09	-2.33
T3	306.50-281.50	-0.07	-1.76	0.51	-1.14
T4	281.50-276.50	-0.75	-0.68	-0.18	0.20
T5	276.50-271.50	-0.70	-1.23	-0.16	-0.27
T6	271.50-266.50	-0.62	-2.44	-0.12	-1.46
T7	266.50-261.50	-0.62	-2.44	-0.13	-1.47
T8	261.50-256.50	-0.48	-3.41	-0.03	-2.42
T9	256.50-251.50	-0.43	-3.79	0.01	-2.80
T10	251.50-246.50	-0.43	-3.79	0.01	-2.81
T11	246.50-241.50	-0.33	-3.10	0.01	-2.27
T12	241.50-236.50	0.01	-2.80	0.49	-1.90
T13	236.50-231.50	0.79	-2.17	1.55	-1.10
T14	231.50-226.50	0.79	-2.17	1.55	-1.10
T15	226.50-221.50	0.79	-2.38	1.48	-1.22
T16	221.50-216.50	0.61	-2.52	1.21	-1.44
T17	216.50-211.50	0.61	-2.52	1.21	-1.44
T18	211.50-206.50	0.61	-2.52	1.21	-1.44
T19	206.50-201.50	0.61	-2.52	1.21	-1.45
T20	201.50-196.50	0.61	-2.52	1.21	-1.45
T21	196.50-191.50	0.61	-2.52	1.21	-1.45
T22	191.50-186.50	0.61	-2.52	1.21	-1.45
T23	186.50-181.50	0.54	-2.46	1.03	-1.32
T24	181.50-176.50	0.48	-2.78	0.74	-1.24
T25	176.50-171.50	0.46	-2.70	0.73	-1.22
T26	171.50-166.50	0.33	-2.60	0.37	-0.98
T27	166.50-161.50	0.17	-2.31	0.02	-0.74

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T28	161.50-156.50	0.20	-2.56	0.02	-0.76
T29	156.50-151.50	0.19	-2.48	0.02	-0.70
T30	151.50-146.50	0.19	-2.48	0.02	-0.70
T31	146.50-141.50	0.02	-2.44	-0.54	-0.42
T32	141.50-136.50	0.54	-1.95	0.03	0.12
T33	136.50-131.50	0.24	-1.77	-0.34	0.28
T34	131.50-126.50	0.09	-1.71	-0.53	0.32
T35	126.50-121.50	0.08	-1.55	-0.50	0.31
T36	121.50-116.50	0.08	-1.55	-0.50	0.31
T37	116.50-111.50	0.09	-1.71	-0.52	0.31
T38	111.50-106.50	0.15	-1.39	-0.43	0.63
T39	106.50-101.50	0.17	-1.26	-0.40	0.75
T40	101.50-96.50	-0.79	1.15	-0.76	1.76
T41	96.50-91.50	-0.88	1.40	-0.85	2.01
T42	91.50-86.50	-0.88	1.40	-0.85	2.01
T43	86.50-81.50	-0.88	1.40	-0.85	2.01
T44	81.50-76.50	0.48	0.77	0.66	1.29
T45	76.50-71.50	0.85	0.54	1.04	0.99
T46	71.50-66.50	0.81	0.52	1.03	0.98
T47	66.50-61.50	0.81	0.52	1.03	0.98
T48	61.50-56.50	0.91	0.57	1.09	1.03
T49	56.50-51.50	0.91	0.57	1.09	1.03
T50	51.50-46.50	0.91	0.57	1.10	1.03
T51	46.50-41.50	0.90	0.57	1.09	1.02
T52	41.50-36.50	0.90	0.57	1.09	1.01
T53	36.50-31.50	0.90	0.52	1.09	0.90
T54	31.50-6.50	0.67	0.32	0.99	0.55
T55	6.50-0.00	0.48	0.16	0.78	0.19

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	1 5/8	314.50 - 325.00	1.0000	1.0000
T1	1	1 5/8	310.50 - 314.50	0.6000	0.4951
T2	1	1 5/8	306.50 - 310.50	0.6000	0.5178
T3	1	1 5/8	281.50 - 306.50	0.6000	0.5434
T3	4	7/16" Power	281.50 - 303.00	0.6000	0.5434
T3	6	3/8"	281.50 - 287.00	0.6000	0.5434
T3	7	7/8"	281.50 - 287.00	0.6000	0.5434
T3	9	7/8"	281.50 - 288.00	0.6000	0.5434
T4	1	1 5/8	276.50 - 281.50	0.6000	0.4890
T4	4	7/16" Power	276.50 -	0.6000	0.4890

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	6	3/8"	276.50 - 281.50	0.6000	0.4890
T4	7	7/8"	276.50 - 281.50	0.6000	0.4890
T4	9	7/8"	276.50 - 281.50	0.6000	0.4890
T5	1	1 5/8	271.50 - 276.50	0.6000	0.4895
T5	4	7/16" Power	271.50 - 276.50	0.6000	0.4895
T5	6	3/8"	271.50 - 276.50	0.6000	0.4895
T5	7	7/8"	271.50 - 276.50	0.6000	0.4895
T5	9	7/8"	271.50 - 276.50	0.6000	0.4895
T5	11	1 5/8	271.50 - 273.00	0.6000	0.4895
T6	1	1 5/8	266.50 - 271.50	0.6000	0.5351
T6	4	7/16" Power	266.50 - 271.50	0.6000	0.5351
T6	6	3/8"	266.50 - 271.50	0.6000	0.5351
T6	7	7/8"	266.50 - 271.50	0.6000	0.5351
T6	9	7/8"	266.50 - 271.50	0.6000	0.5351
T6	11	1 5/8	266.50 - 271.50	0.6000	0.5351
T7	1	1 5/8	261.50 - 266.50	0.6000	0.5356
T7	4	7/16" Power	261.50 - 266.50	0.6000	0.5356
T7	6	3/8"	261.50 - 266.50	0.6000	0.5356
T7	7	7/8"	261.50 - 266.50	0.6000	0.5356
T7	9	7/8"	261.50 - 266.50	0.6000	0.5356
T7	11	1 5/8	261.50 - 266.50	0.6000	0.5356
T8	1	1 5/8	256.50 - 261.50	0.6000	0.5360
T8	4	7/16" Power	256.50 - 261.50	0.6000	0.5360
T8	6	3/8"	256.50 - 261.50	0.6000	0.5360
T8	7	7/8"	256.50 - 261.50	0.6000	0.5360
T8	9	7/8"	256.50 - 261.50	0.6000	0.5360
T8	11	1 5/8	256.50 - 261.50	0.6000	0.5360
T8	13	1 5/8	256.50 - 260.00	0.6000	0.5360
T9	1	1 5/8	251.50 - 256.50	0.6000	0.5365
T9	4	7/16" Power	251.50 - 256.50	0.6000	0.5365
T9	6	3/8"	251.50 -	0.6000	0.5365

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	7	7/8"	251.50 - 256.50	0.6000	0.5365
T9	9	7/8"	251.50 - 256.50	0.6000	0.5365
T9	11	1 5/8	251.50 - 256.50	0.6000	0.5365
T9	13	1 5/8	251.50 - 256.50	0.6000	0.5365
T10	1	1 5/8	246.50 - 251.50	0.6000	0.5370
T10	4	7/16" Power	246.50 - 251.50	0.6000	0.5370
T10	6	3/8"	246.50 - 251.50	0.6000	0.5370
T10	7	7/8"	246.50 - 251.50	0.6000	0.5370
T10	9	7/8"	246.50 - 251.50	0.6000	0.5370
T10	11	1 5/8	246.50 - 251.50	0.6000	0.5370
T10	13	1 5/8	246.50 - 251.50	0.6000	0.5370
T11	1	1 5/8	241.50 - 246.50	0.6000	0.4595
T11	4	7/16" Power	241.50 - 246.50	0.6000	0.4595
T11	6	3/8"	241.50 - 246.50	0.6000	0.4595
T11	7	7/8"	241.50 - 246.50	0.6000	0.4595
T11	9	7/8"	241.50 - 246.50	0.6000	0.4595
T11	11	1 5/8	241.50 - 246.50	0.6000	0.4595
T11	13	1 5/8	241.50 - 246.50	0.6000	0.4595
T12	1	1 5/8	236.50 - 241.50	0.6000	0.4601
T12	4	7/16" Power	236.50 - 241.50	0.6000	0.4601
T12	6	3/8"	236.50 - 241.50	0.6000	0.4601
T12	7	7/8"	236.50 - 241.50	0.6000	0.4601
T12	9	7/8"	236.50 - 241.50	0.6000	0.4601
T12	11	1 5/8	236.50 - 241.50	0.6000	0.4601
T12	13	1 5/8	236.50 - 241.50	0.6000	0.4601
T12	15	7/8"	236.50 - 239.00	0.6000	0.4601
T12	17	7/8"	236.50 - 237.00	0.6000	0.4601
T13	1	1 5/8	231.50 - 236.50	0.6000	0.4607
T13	4	7/16" Power	231.50 - 236.50	0.6000	0.4607
T13	6	3/8"	231.50 - 236.50	0.6000	0.4607
T13	7	7/8"	231.50 -	0.6000	0.4607

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T13	9	7/8"	231.50 - 236.50	0.6000	0.4607
T13	11	1 5/8	231.50 - 236.50	0.6000	0.4607
T13	13	1 5/8	231.50 - 236.50	0.6000	0.4607
T13	15	7/8"	231.50 - 236.50	0.6000	0.4607
T13	17	7/8"	231.50 - 236.50	0.6000	0.4607
T14	1	1 5/8	226.50 - 231.50	0.6000	0.4613
T14	4	7/16" Power	226.50 - 231.50	0.6000	0.4613
T14	6	3/8"	226.50 - 231.50	0.6000	0.4613
T14	7	7/8"	226.50 - 231.50	0.6000	0.4613
T14	9	7/8"	226.50 - 231.50	0.6000	0.4613
T14	11	1 5/8	226.50 - 231.50	0.6000	0.4613
T14	13	1 5/8	226.50 - 231.50	0.6000	0.4613
T14	15	7/8"	226.50 - 231.50	0.6000	0.4613
T14	17	7/8"	226.50 - 231.50	0.6000	0.4613
T15	1	1 5/8	221.50 - 226.50	0.6000	0.4645
T15	4	7/16" Power	221.50 - 226.50	0.6000	0.4645
T15	6	3/8"	221.50 - 226.50	0.6000	0.4645
T15	7	7/8"	221.50 - 226.50	0.6000	0.4645
T15	9	7/8"	221.50 - 226.50	0.6000	0.4645
T15	11	1 5/8	221.50 - 226.50	0.6000	0.4645
T15	13	1 5/8	221.50 - 226.50	0.6000	0.4645
T15	15	7/8"	221.50 - 226.50	0.6000	0.4645
T15	17	7/8"	221.50 - 226.50	0.6000	0.4645
T15	19	1" Conduit (Lighting)	221.50 - 223.00	0.6000	0.4645
T16	1	1 5/8	216.50 - 221.50	0.6000	0.4651
T16	4	7/16" Power	216.50 - 221.50	0.6000	0.4651
T16	6	3/8"	216.50 - 221.50	0.6000	0.4651
T16	7	7/8"	216.50 - 221.50	0.6000	0.4651
T16	9	7/8"	216.50 - 221.50	0.6000	0.4651
T16	11	1 5/8	216.50 - 221.50	0.6000	0.4651
T16	13	1 5/8	216.50 -	0.6000	0.4651

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T16	15	7/8"	216.50 - 221.50	0.6000	0.4651
T16	17	7/8"	216.50 - 221.50	0.6000	0.4651
T16	19	1" Conduit (Lighting)	216.50 - 221.50	0.6000	0.4651
T17	1	1 5/8	211.50 - 216.50	0.6000	0.4657
T17	4	7/16" Power	211.50 - 216.50	0.6000	0.4657
T17	6	3/8"	211.50 - 216.50	0.6000	0.4657
T17	7	7/8"	211.50 - 216.50	0.6000	0.4657
T17	9	7/8"	211.50 - 216.50	0.6000	0.4657
T17	11	1 5/8	211.50 - 216.50	0.6000	0.4657
T17	13	1 5/8	211.50 - 216.50	0.6000	0.4657
T17	15	7/8"	211.50 - 216.50	0.6000	0.4657
T17	17	7/8"	211.50 - 216.50	0.6000	0.4657
T17	19	1" Conduit (Lighting)	211.50 - 216.50	0.6000	0.4657
T18	1	1 5/8	206.50 - 211.50	0.6000	0.4664
T18	4	7/16" Power	206.50 - 211.50	0.6000	0.4664
T18	6	3/8"	206.50 - 211.50	0.6000	0.4664
T18	7	7/8"	206.50 - 211.50	0.6000	0.4664
T18	9	7/8"	206.50 - 211.50	0.6000	0.4664
T18	11	1 5/8	206.50 - 211.50	0.6000	0.4664
T18	13	1 5/8	206.50 - 211.50	0.6000	0.4664
T18	15	7/8"	206.50 - 211.50	0.6000	0.4664
T18	17	7/8"	206.50 - 211.50	0.6000	0.4664
T18	19	1" Conduit (Lighting)	206.50 - 211.50	0.6000	0.4664
T19	1	1 5/8	201.50 - 206.50	0.6000	0.4670
T19	4	7/16" Power	201.50 - 206.50	0.6000	0.4670
T19	6	3/8"	201.50 - 206.50	0.6000	0.4670
T19	7	7/8"	201.50 - 206.50	0.6000	0.4670
T19	9	7/8"	201.50 - 206.50	0.6000	0.4670
T19	11	1 5/8	201.50 - 206.50	0.6000	0.4670
T19	13	1 5/8	201.50 - 206.50	0.6000	0.4670
T19	15	7/8"	201.50 -	0.6000	0.4670

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T19	17	7/8"	201.50 - 206.50	0.6000	0.4670
T19	19	1" Conduit (Lighting)	201.50 - 206.50	0.6000	0.4670
T20	1	1 5/8	196.50 - 201.50	0.6000	0.4677
T20	4	7/16" Power	196.50 - 201.50	0.6000	0.4677
T20	6	3/8"	196.50 - 201.50	0.6000	0.4677
T20	7	7/8"	196.50 - 201.50	0.6000	0.4677
T20	9	7/8"	196.50 - 201.50	0.6000	0.4677
T20	11	1 5/8	196.50 - 201.50	0.6000	0.4677
T20	13	1 5/8	196.50 - 201.50	0.6000	0.4677
T20	15	7/8"	196.50 - 201.50	0.6000	0.4677
T20	17	7/8"	196.50 - 201.50	0.6000	0.4677
T20	19	1" Conduit (Lighting)	196.50 - 201.50	0.6000	0.4677
T21	1	1 5/8	191.50 - 196.50	0.6000	0.4684
T21	4	7/16" Power	191.50 - 196.50	0.6000	0.4684
T21	6	3/8"	191.50 - 196.50	0.6000	0.4684
T21	7	7/8"	191.50 - 196.50	0.6000	0.4684
T21	9	7/8"	191.50 - 196.50	0.6000	0.4684
T21	11	1 5/8	191.50 - 196.50	0.6000	0.4684
T21	13	1 5/8	191.50 - 196.50	0.6000	0.4684
T21	15	7/8"	191.50 - 196.50	0.6000	0.4684
T21	17	7/8"	191.50 - 196.50	0.6000	0.4684
T21	19	1" Conduit (Lighting)	191.50 - 196.50	0.6000	0.4684
T22	1	1 5/8	186.50 - 191.50	0.6000	0.4691
T22	4	7/16" Power	186.50 - 191.50	0.6000	0.4691
T22	6	3/8"	186.50 - 191.50	0.6000	0.4691
T22	7	7/8"	186.50 - 191.50	0.6000	0.4691
T22	9	7/8"	186.50 - 191.50	0.6000	0.4691
T22	11	1 5/8	186.50 - 191.50	0.6000	0.4691
T22	13	1 5/8	186.50 - 191.50	0.6000	0.4691
T22	15	7/8"	186.50 - 191.50	0.6000	0.4691
T22	17	7/8"	186.50 -	0.6000	0.4691

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T22	19	1" Conduit (Lighting)	191.50 186.50 - 191.50	0.6000	0.4691
T23	1	1 5/8	181.50 - 186.50	0.6000	0.4698
T23	4	7/16" Power	181.50 - 186.50	0.6000	0.4698
T23	6	3/8"	181.50 - 186.50	0.6000	0.4698
T23	7	7/8"	181.50 - 186.50	0.6000	0.4698
T23	9	7/8"	181.50 - 186.50	0.6000	0.4698
T23	11	1 5/8	181.50 - 186.50	0.6000	0.4698
T23	13	1 5/8	181.50 - 186.50	0.6000	0.4698
T23	15	7/8"	181.50 - 186.50	0.6000	0.4698
T23	17	7/8"	181.50 - 186.50	0.6000	0.4698
T23	19	1" Conduit (Lighting)	181.50 - 186.50	0.6000	0.4698
T23	21	7/16" Power	181.50 - 183.00	0.6000	0.4698
T24	1	1 5/8	176.50 - 181.50	0.6000	0.5633
T24	4	7/16" Power	176.50 - 181.50	0.6000	0.5633
T24	6	3/8"	176.50 - 181.50	0.6000	0.5633
T24	7	7/8"	176.50 - 181.50	0.6000	0.5633
T24	9	7/8"	176.50 - 181.50	0.6000	0.5633
T24	11	1 5/8	176.50 - 181.50	0.6000	0.5633
T24	13	1 5/8	176.50 - 181.50	0.6000	0.5633
T24	15	7/8"	176.50 - 181.50	0.6000	0.5633
T24	17	7/8"	176.50 - 181.50	0.6000	0.5633
T24	19	1" Conduit (Lighting)	176.50 - 181.50	0.6000	0.5633
T24	21	7/16" Power	176.50 - 181.50	0.6000	0.5633
T25	1	1 5/8	171.50 - 176.50	0.6000	0.5533
T25	4	7/16" Power	171.50 - 176.50	0.6000	0.5533
T25	6	3/8"	171.50 - 176.50	0.6000	0.5533
T25	7	7/8"	171.50 - 176.50	0.6000	0.5533
T25	9	7/8"	171.50 - 176.50	0.6000	0.5533
T25	11	1 5/8	171.50 - 176.50	0.6000	0.5533
T25	13	1 5/8	171.50 - 176.50	0.6000	0.5533
T25	15	7/8"	171.50 -	0.6000	0.5533

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T25	17	7/8"	171.50 - 176.50	0.6000	0.5533
T25	19	1" Conduit (Lighting)	171.50 - 176.50	0.6000	0.5533
T25	21	7/16" Power	171.50 - 176.50	0.6000	0.5533
T26	1	1 5/8	166.50 - 171.50	0.6000	0.5540
T26	4	7/16" Power	166.50 - 171.50	0.6000	0.5540
T26	6	3/8"	166.50 - 171.50	0.6000	0.5540
T26	7	7/8"	166.50 - 171.50	0.6000	0.5540
T26	9	7/8"	166.50 - 171.50	0.6000	0.5540
T26	11	1 5/8	166.50 - 171.50	0.6000	0.5540
T26	13	1 5/8	166.50 - 171.50	0.6000	0.5540
T26	15	7/8"	166.50 - 171.50	0.6000	0.5540
T26	17	7/8"	166.50 - 171.50	0.6000	0.5540
T26	19	1" Conduit (Lighting)	166.50 - 171.50	0.6000	0.5540
T26	21	7/16" Power	166.50 - 171.50	0.6000	0.5540
T26	23	7/16" Power	166.50 - 169.00	0.6000	0.5540
T27	1	1 5/8	161.50 - 166.50	0.6000	0.5521
T27	4	7/16" Power	161.50 - 166.50	0.6000	0.5521
T27	6	3/8"	161.50 - 166.50	0.6000	0.5521
T27	7	7/8"	161.50 - 166.50	0.6000	0.5521
T27	9	7/8"	161.50 - 166.50	0.6000	0.5521
T27	11	1 5/8	161.50 - 166.50	0.6000	0.5521
T27	13	1 5/8	161.50 - 166.50	0.6000	0.5521
T27	15	7/8"	161.50 - 166.50	0.6000	0.5521
T27	17	7/8"	161.50 - 166.50	0.6000	0.5521
T27	19	1" Conduit (Lighting)	161.50 - 166.50	0.6000	0.5521
T27	21	7/16" Power	161.50 - 166.50	0.6000	0.5521
T27	23	7/16" Power	161.50 - 166.50	0.6000	0.5521
T28	1	1 5/8	156.50 - 161.50	0.6000	0.5661
T28	4	7/16" Power	156.50 - 161.50	0.6000	0.5661
T28	6	3/8"	156.50 - 161.50	0.6000	0.5661
T28	7	7/8"	156.50 -	0.6000	0.5661

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T28	9	7/8"	156.50 - 161.50	0.6000	0.5661
T28	11	1 5/8	156.50 - 161.50	0.6000	0.5661
T28	13	1 5/8	156.50 - 161.50	0.6000	0.5661
T28	15	7/8"	156.50 - 161.50	0.6000	0.5661
T28	17	7/8"	156.50 - 161.50	0.6000	0.5661
T28	19	1" Conduit (Lighting)	156.50 - 161.50	0.6000	0.5661
T28	21	7/16" Power	156.50 - 161.50	0.6000	0.5661
T28	23	7/16" Power	156.50 - 161.50	0.6000	0.5661
T29	1	1 5/8	151.50 - 156.50	0.6000	0.5126
T29	4	7/16" Power	151.50 - 156.50	0.6000	0.5126
T29	6	3/8"	151.50 - 156.50	0.6000	0.5126
T29	7	7/8"	151.50 - 156.50	0.6000	0.5126
T29	9	7/8"	151.50 - 156.50	0.6000	0.5126
T29	11	1 5/8	151.50 - 156.50	0.6000	0.5126
T29	13	1 5/8	151.50 - 156.50	0.6000	0.5126
T29	15	7/8"	151.50 - 156.50	0.6000	0.5126
T29	17	7/8"	151.50 - 156.50	0.6000	0.5126
T29	19	1" Conduit (Lighting)	151.50 - 156.50	0.6000	0.5126
T29	21	7/16" Power	151.50 - 156.50	0.6000	0.5126
T29	23	7/16" Power	151.50 - 156.50	0.6000	0.5126
T30	1	1 5/8	146.50 - 151.50	0.6000	0.5135
T30	4	7/16" Power	146.50 - 151.50	0.6000	0.5135
T30	6	3/8"	146.50 - 151.50	0.6000	0.5135
T30	7	7/8"	146.50 - 151.50	0.6000	0.5135
T30	9	7/8"	146.50 - 151.50	0.6000	0.5135
T30	11	1 5/8	146.50 - 151.50	0.6000	0.5135
T30	13	1 5/8	146.50 - 151.50	0.6000	0.5135
T30	15	7/8"	146.50 - 151.50	0.6000	0.5135
T30	17	7/8"	146.50 - 151.50	0.6000	0.5135
T30	19	1" Conduit (Lighting)	146.50 - 151.50	0.6000	0.5135
T30	21	7/16" Power	146.50 -	0.6000	0.5135

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T30	23	7/16" Power	151.50 - 146.50	0.6000	0.5135
T31	1	1 5/8	151.50 - 141.50	0.6000	0.5684
T31	4	7/16" Power	146.50 - 141.50	0.6000	0.5684
T31	6	3/8"	146.50 - 141.50	0.6000	0.5684
T31	7	7/8"	146.50 - 141.50	0.6000	0.5684
T31	9	7/8"	146.50 - 141.50	0.6000	0.5684
T31	11	1 5/8	146.50 - 141.50	0.6000	0.5684
T31	13	1 5/8	146.50 - 141.50	0.6000	0.5684
T31	15	7/8"	146.50 - 141.50	0.6000	0.5684
T31	17	7/8"	146.50 - 141.50	0.6000	0.5684
T31	19	1" Conduit (Lighting)	146.50 - 141.50	0.6000	0.5684
T31	21	7/16" Power	146.50 - 141.50	0.6000	0.5684
T31	23	7/16" Power	146.50 - 141.50	0.6000	0.5684
T31	25	1/4" Fiber	145.50 - 136.50	0.6000	0.5684
T32	1	1 5/8	141.50 - 136.50	0.6000	0.5692
T32	4	7/16" Power	141.50 - 136.50	0.6000	0.5692
T32	6	3/8"	141.50 - 136.50	0.6000	0.5692
T32	7	7/8"	141.50 - 136.50	0.6000	0.5692
T32	9	7/8"	141.50 - 136.50	0.6000	0.5692
T32	11	1 5/8	141.50 - 136.50	0.6000	0.5692
T32	13	1 5/8	141.50 - 136.50	0.6000	0.5692
T32	15	7/8"	141.50 - 136.50	0.6000	0.5692
T32	17	7/8"	141.50 - 136.50	0.6000	0.5692
T32	19	1" Conduit (Lighting)	141.50 - 136.50	0.6000	0.5692
T32	21	7/16" Power	141.50 - 136.50	0.6000	0.5692
T32	23	7/16" Power	141.50 - 136.50	0.6000	0.5692
T32	25	1/4" Fiber	141.50 - 136.50	0.6000	0.5692
T32	27	7/8"	141.50 - 141.00	0.6000	0.5692
T33	1	1 5/8	136.50 - 131.50	0.6000	0.5700
T33	4	7/16" Power	136.50 - 131.50	0.6000	0.5700
T33	6	3/8"	136.50 - 131.50	0.6000	0.5700

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T33	7	7/8"	131.50 - 136.50	0.6000	0.5700
T33	9	7/8"	131.50 - 136.50	0.6000	0.5700
T33	11	1 5/8	131.50 - 136.50	0.6000	0.5700
T33	13	1 5/8	131.50 - 136.50	0.6000	0.5700
T33	15	7/8"	131.50 - 136.50	0.6000	0.5700
T33	17	7/8"	131.50 - 136.50	0.6000	0.5700
T33	19	1" Conduit (Lighting)	131.50 - 136.50	0.6000	0.5700
T33	21	7/16" Power	131.50 - 136.50	0.6000	0.5700
T33	23	7/16" Power	131.50 - 136.50	0.6000	0.5700
T33	25	1/4" Fiber	131.50 - 136.50	0.6000	0.5700
T33	27	7/8"	131.50 - 136.50	0.6000	0.5700
T33	29	1" Conduit (Lighting)	131.50 - 135.00	0.6000	0.5700
T34	1	1 5/8	126.50 - 131.50	0.6000	0.5709
T34	4	7/16" Power	126.50 - 131.50	0.6000	0.5709
T34	6	3/8"	126.50 - 131.50	0.6000	0.5709
T34	7	7/8"	126.50 - 131.50	0.6000	0.5709
T34	9	7/8"	126.50 - 131.50	0.6000	0.5709
T34	11	1 5/8	126.50 - 131.50	0.6000	0.5709
T34	13	1 5/8	126.50 - 131.50	0.6000	0.5709
T34	15	7/8"	126.50 - 131.50	0.6000	0.5709
T34	17	7/8"	126.50 - 131.50	0.6000	0.5709
T34	19	1" Conduit (Lighting)	126.50 - 131.50	0.6000	0.5709
T34	21	7/16" Power	126.50 - 131.50	0.6000	0.5709
T34	23	7/16" Power	126.50 - 131.50	0.6000	0.5709
T34	25	1/4" Fiber	126.50 - 131.50	0.6000	0.5709
T34	27	7/8"	126.50 - 131.50	0.6000	0.5709
T34	29	1" Conduit (Lighting)	126.50 - 131.50	0.6000	0.5709
T35	1	1 5/8	121.50 - 126.50	0.6000	0.5585
T35	4	7/16" Power	121.50 - 126.50	0.6000	0.5585
T35	6	3/8"	121.50 - 126.50	0.6000	0.5585
T35	7	7/8"	121.50 -	0.6000	0.5585

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T35	9	7/8"	121.50 - 126.50	0.6000	0.5585
T35	11	1 5/8	121.50 - 126.50	0.6000	0.5585
T35	13	1 5/8	121.50 - 126.50	0.6000	0.5585
T35	15	7/8"	121.50 - 126.50	0.6000	0.5585
T35	17	7/8"	121.50 - 126.50	0.6000	0.5585
T35	19	1" Conduit (Lighting)	121.50 - 126.50	0.6000	0.5585
T35	21	7/16" Power	121.50 - 126.50	0.6000	0.5585
T35	23	7/16" Power	121.50 - 126.50	0.6000	0.5585
T35	25	1/4" Fiber	121.50 - 126.50	0.6000	0.5585
T35	27	7/8"	121.50 - 126.50	0.6000	0.5585
T35	29	1" Conduit (Lighting)	121.50 - 126.50	0.6000	0.5585
T36	1	1 5/8	116.50 - 121.50	0.6000	0.5594
T36	4	7/16" Power	116.50 - 121.50	0.6000	0.5594
T36	6	3/8"	116.50 - 121.50	0.6000	0.5594
T36	7	7/8"	116.50 - 121.50	0.6000	0.5594
T36	9	7/8"	116.50 - 121.50	0.6000	0.5594
T36	11	1 5/8	116.50 - 121.50	0.6000	0.5594
T36	13	1 5/8	116.50 - 121.50	0.6000	0.5594
T36	15	7/8"	116.50 - 121.50	0.6000	0.5594
T36	17	7/8"	116.50 - 121.50	0.6000	0.5594
T36	19	1" Conduit (Lighting)	116.50 - 121.50	0.6000	0.5594
T36	21	7/16" Power	116.50 - 121.50	0.6000	0.5594
T36	23	7/16" Power	116.50 - 121.50	0.6000	0.5594
T36	25	1/4" Fiber	116.50 - 121.50	0.6000	0.5594
T36	27	7/8"	116.50 - 121.50	0.6000	0.5594
T36	29	1" Conduit (Lighting)	116.50 - 121.50	0.6000	0.5594
T37	1	1 5/8	111.50 - 116.50	0.6000	0.5737
T37	4	7/16" Power	111.50 - 116.50	0.6000	0.5737
T37	6	3/8"	111.50 - 116.50	0.6000	0.5737
T37	7	7/8"	111.50 - 116.50	0.6000	0.5737
T37	9	7/8"	111.50 -	0.6000	0.5737

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T37	11	1 5/8	111.50 - 116.50	0.6000	0.5737
T37	13	1 5/8	111.50 - 116.50	0.6000	0.5737
T37	15	7/8"	111.50 - 116.50	0.6000	0.5737
T37	17	7/8"	111.50 - 116.50	0.6000	0.5737
T37	19	1" Conduit (Lighting)	111.50 - 116.50	0.6000	0.5737
T37	21	7/16" Power	111.50 - 116.50	0.6000	0.5737
T37	23	7/16" Power	111.50 - 116.50	0.6000	0.5737
T37	25	1/4" Fiber	111.50 - 116.50	0.6000	0.5737
T37	27	7/8"	111.50 - 116.50	0.6000	0.5737
T37	29	1" Conduit (Lighting)	111.50 - 116.50	0.6000	0.5737
T38	1	1 5/8	106.50 - 111.50	0.6000	0.5747
T38	4	7/16" Power	106.50 - 111.50	0.6000	0.5747
T38	6	3/8"	106.50 - 111.50	0.6000	0.5747
T38	7	7/8"	106.50 - 111.50	0.6000	0.5747
T38	9	7/8"	106.50 - 111.50	0.6000	0.5747
T38	11	1 5/8	106.50 - 111.50	0.6000	0.5747
T38	13	1 5/8	106.50 - 111.50	0.6000	0.5747
T38	15	7/8"	106.50 - 111.50	0.6000	0.5747
T38	17	7/8"	106.50 - 111.50	0.6000	0.5747
T38	19	1" Conduit (Lighting)	106.50 - 111.50	0.6000	0.5747
T38	21	7/16" Power	106.50 - 111.50	0.6000	0.5747
T38	23	7/16" Power	106.50 - 111.50	0.6000	0.5747
T38	25	1/4" Fiber	106.50 - 111.50	0.6000	0.5747
T38	27	7/8"	106.50 - 111.50	0.6000	0.5747
T38	29	1" Conduit (Lighting)	106.50 - 111.50	0.6000	0.5747
T38	44	1 1/8	106.50 - 110.00	0.6000	0.5747
T39	1	1 5/8	101.50 - 106.50	0.6000	0.5758
T39	4	7/16" Power	101.50 - 106.50	0.6000	0.5758
T39	6	3/8"	101.50 - 106.50	0.6000	0.5758
T39	7	7/8"	101.50 - 106.50	0.6000	0.5758
T39	9	7/8"	101.50 -	0.6000	0.5758

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			106.50		
T39	11	1 5/8	101.50 - 106.50	0.6000	0.5758
T39	13	1 5/8	101.50 - 106.50	0.6000	0.5758
T39	15	7/8"	101.50 - 106.50	0.6000	0.5758
T39	17	7/8"	101.50 - 106.50	0.6000	0.5758
T39	19	1" Conduit (Lighting)	101.50 - 106.50	0.6000	0.5758
T39	21	7/16" Power	101.50 - 106.50	0.6000	0.5758
T39	23	7/16" Power	101.50 - 106.50	0.6000	0.5758
T39	25	1/4" Fiber	101.50 - 106.50	0.6000	0.5758
T39	27	7/8"	101.50 - 106.50	0.6000	0.5758
T39	29	1" Conduit (Lighting)	101.50 - 106.50	0.6000	0.5758
T39	44	1 1/8	101.50 - 106.50	0.6000	0.5758
T40	1	1 5/8	96.50 - 101.50	0.6000	0.5242
T40	4	7/16" Power	96.50 - 101.50	0.6000	0.5242
T40	6	3/8"	96.50 - 101.50	0.6000	0.5242
T40	7	7/8"	96.50 - 101.50	0.6000	0.5242
T40	9	7/8"	96.50 - 101.50	0.6000	0.5242
T40	11	1 5/8	96.50 - 101.50	0.6000	0.5242
T40	13	1 5/8	96.50 - 101.50	0.6000	0.5242
T40	15	7/8"	96.50 - 101.50	0.6000	0.5242
T40	17	7/8"	96.50 - 101.50	0.6000	0.5242
T40	19	1" Conduit (Lighting)	96.50 - 101.50	0.6000	0.5242
T40	21	7/16" Power	96.50 - 101.50	0.6000	0.5242
T40	23	7/16" Power	96.50 - 101.50	0.6000	0.5242
T40	25	1/4" Fiber	96.50 - 101.50	0.6000	0.5242
T40	27	7/8"	96.50 - 101.50	0.6000	0.5242
T40	29	1" Conduit (Lighting)	96.50 - 101.50	0.6000	0.5242
T40	31	1 1/4"	96.50 - 101.00	0.6000	0.5242
T40	44	1 1/8	96.50 - 101.50	0.6000	0.5242
T41	1	1 5/8	91.50 - 96.50	0.6000	0.5780
T41	4	7/16" Power	91.50 - 96.50	0.6000	0.5780
T41	6	3/8"	91.50 - 96.50	0.6000	0.5780
T41	7	7/8"	91.50 - 96.50	0.6000	0.5780
T41	9	7/8"	91.50 - 96.50	0.6000	0.5780
T41	11	1 5/8	91.50 - 96.50	0.6000	0.5780
T41	13	1 5/8	91.50 - 96.50	0.6000	0.5780
T41	15	7/8"	91.50 - 96.50	0.6000	0.5780
T41	17	7/8"	91.50 - 96.50	0.6000	0.5780
T41	19	1" Conduit (Lighting)	91.50 - 96.50	0.6000	0.5780
T41	21	7/16" Power	91.50 - 96.50	0.6000	0.5780
T41	23	7/16" Power	91.50 - 96.50	0.6000	0.5780
T41	25	1/4" Fiber	91.50 - 96.50	0.6000	0.5780
T41	27	7/8"	91.50 - 96.50	0.6000	0.5780
T41	29	1" Conduit (Lighting)	91.50 - 96.50	0.6000	0.5780
T41	31	1 1/4"	91.50 - 96.50	0.6000	0.5780
T41	44	1 1/8	91.50 - 96.50	0.6000	0.5780
T42	1	1 5/8	86.50 - 91.50	0.6000	0.5793
T42	4	7/16" Power	86.50 - 91.50	0.6000	0.5793
T42	6	3/8"	86.50 - 91.50	0.6000	0.5793
T42	7	7/8"	86.50 - 91.50	0.6000	0.5793
T42	9	7/8"	86.50 - 91.50	0.6000	0.5793

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T42	11	1 5/8	86.50 - 91.50	0.6000	0.5793
T42	13	1 5/8	86.50 - 91.50	0.6000	0.5793
T42	15	7/8"	86.50 - 91.50	0.6000	0.5793
T42	17	7/8"	86.50 - 91.50	0.6000	0.5793
T42	19	1" Conduit (Lighting)	86.50 - 91.50	0.6000	0.5793
T42	21	7/16" Power	86.50 - 91.50	0.6000	0.5793
T42	23	7/16" Power	86.50 - 91.50	0.6000	0.5793
T42	25	1/4" Fiber	86.50 - 91.50	0.6000	0.5793
T42	27	7/8"	86.50 - 91.50	0.6000	0.5793
T42	29	1" Conduit (Lighting)	86.50 - 91.50	0.6000	0.5793
T42	31	1 1/4"	86.50 - 91.50	0.6000	0.5793
T42	44	1 1/8	86.50 - 91.50	0.6000	0.5793
T43	1	1 5/8	81.50 - 86.50	0.6000	0.5805
T43	4	7/16" Power	81.50 - 86.50	0.6000	0.5805
T43	6	3/8"	81.50 - 86.50	0.6000	0.5805
T43	7	7/8"	81.50 - 86.50	0.6000	0.5805
T43	9	7/8"	81.50 - 86.50	0.6000	0.5805
T43	11	1 5/8	81.50 - 86.50	0.6000	0.5805
T43	13	1 5/8	81.50 - 86.50	0.6000	0.5805
T43	15	7/8"	81.50 - 86.50	0.6000	0.5805
T43	17	7/8"	81.50 - 86.50	0.6000	0.5805
T43	19	1" Conduit (Lighting)	81.50 - 86.50	0.6000	0.5805
T43	21	7/16" Power	81.50 - 86.50	0.6000	0.5805
T43	23	7/16" Power	81.50 - 86.50	0.6000	0.5805
T43	25	1/4" Fiber	81.50 - 86.50	0.6000	0.5805
T43	27	7/8"	81.50 - 86.50	0.6000	0.5805
T43	29	1" Conduit (Lighting)	81.50 - 86.50	0.6000	0.5805
T43	31	1 1/4"	81.50 - 86.50	0.6000	0.5805
T43	44	1 1/8	81.50 - 86.50	0.6000	0.5805
T44	1	1 5/8	76.50 - 81.50	0.6000	0.5712
T44	4	7/16" Power	76.50 - 81.50	0.6000	0.5712
T44	6	3/8"	76.50 - 81.50	0.6000	0.5712
T44	7	7/8"	76.50 - 81.50	0.6000	0.5712
T44	9	7/8"	76.50 - 81.50	0.6000	0.5712
T44	11	1 5/8	76.50 - 81.50	0.6000	0.5712
T44	13	1 5/8	76.50 - 81.50	0.6000	0.5712
T44	15	7/8"	76.50 - 81.50	0.6000	0.5712
T44	17	7/8"	76.50 - 81.50	0.6000	0.5712
T44	19	1" Conduit (Lighting)	76.50 - 81.50	0.6000	0.5712
T44	21	7/16" Power	76.50 - 81.50	0.6000	0.5712
T44	23	7/16" Power	76.50 - 81.50	0.6000	0.5712
T44	25	1/4" Fiber	76.50 - 81.50	0.6000	0.5712
T44	27	7/8"	76.50 - 81.50	0.6000	0.5712
T44	29	1" Conduit (Lighting)	76.50 - 81.50	0.6000	0.5712
T44	31	1 1/4"	76.50 - 81.50	0.6000	0.5712
T44	33	7/8"	76.50 - 80.00	0.6000	0.5712
T44	34	7/8"	76.50 - 80.00	0.6000	0.5712
T44	35	7/8"	76.50 - 80.00	0.6000	0.5712
T44	36	10 mm	76.50 - 80.00	0.6000	0.5712
T44	37	0.795"	76.50 - 80.00	0.6000	0.5712
T44	38	7/8"	76.50 - 80.00	0.6000	0.5712
T44	44	1 1/8	76.50 - 81.50	0.6000	0.5712
T45	1	1 5/8	71.50 - 76.50	0.6000	0.5005
T45	4	7/16" Power	71.50 - 76.50	0.6000	0.5005
T45	6	3/8"	71.50 - 76.50	0.6000	0.5005
T45	7	7/8"	71.50 - 76.50	0.6000	0.5005
T45	9	7/8"	71.50 - 76.50	0.6000	0.5005
T45	11	1 5/8	71.50 - 76.50	0.6000	0.5005
T45	13	1 5/8	71.50 - 76.50	0.6000	0.5005
T45	15	7/8"	71.50 - 76.50	0.6000	0.5005
T45	17	7/8"	71.50 - 76.50	0.6000	0.5005
T45	19	1" Conduit (Lighting)	71.50 - 76.50	0.6000	0.5005

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T45	21	7/16" Power	71.50 - 76.50	0.6000	0.5005
T45	23	7/16" Power	71.50 - 76.50	0.6000	0.5005
T45	25	1/4" Fiber	71.50 - 76.50	0.6000	0.5005
T45	27	7/8"	71.50 - 76.50	0.6000	0.5005
T45	29	1" Conduit (Lighting)	71.50 - 76.50	0.6000	0.5005
T45	31	1 1/4"	71.50 - 76.50	0.6000	0.5005
T45	33	7/8"	71.50 - 76.50	0.6000	0.5005
T45	34	7/8"	71.50 - 76.50	0.6000	0.5005
T45	35	7/8"	71.50 - 76.50	0.6000	0.5005
T45	36	10 mm	71.50 - 76.50	0.6000	0.5005
T45	37	0.795"	71.50 - 76.50	0.6000	0.5005
T45	38	7/8"	71.50 - 76.50	0.6000	0.5005
T45	44	1 1/8	71.50 - 76.50	0.6000	0.5005
T46	1	1 5/8	66.50 - 71.50	0.6000	0.4995
T46	4	7/16" Power	66.50 - 71.50	0.6000	0.4995
T46	6	3/8"	66.50 - 71.50	0.6000	0.4995
T46	7	7/8"	66.50 - 71.50	0.6000	0.4995
T46	9	7/8"	66.50 - 71.50	0.6000	0.4995
T46	11	1 5/8	66.50 - 71.50	0.6000	0.4995
T46	13	1 5/8	66.50 - 71.50	0.6000	0.4995
T46	15	7/8"	66.50 - 71.50	0.6000	0.4995
T46	17	7/8"	66.50 - 71.50	0.6000	0.4995
T46	19	1" Conduit (Lighting)	66.50 - 71.50	0.6000	0.4995
T46	21	7/16" Power	66.50 - 71.50	0.6000	0.4995
T46	23	7/16" Power	66.50 - 71.50	0.6000	0.4995
T46	25	1/4" Fiber	66.50 - 71.50	0.6000	0.4995
T46	27	7/8"	66.50 - 71.50	0.6000	0.4995
T46	29	1" Conduit (Lighting)	66.50 - 71.50	0.6000	0.4995
T46	31	1 1/4"	66.50 - 71.50	0.6000	0.4995
T46	33	7/8"	66.50 - 71.50	0.6000	0.4995
T46	34	7/8"	66.50 - 71.50	0.6000	0.4995
T46	35	7/8"	66.50 - 71.50	0.6000	0.4995
T46	36	10 mm	66.50 - 71.50	0.6000	0.4995
T46	37	0.795"	66.50 - 71.50	0.6000	0.4995
T46	38	7/8"	66.50 - 71.50	0.6000	0.4995
T46	44	1 1/8	66.50 - 71.50	0.6000	0.4995
T47	1	1 5/8	61.50 - 66.50	0.6000	0.5014
T47	4	7/16" Power	61.50 - 66.50	0.6000	0.5014
T47	6	3/8"	61.50 - 66.50	0.6000	0.5014
T47	7	7/8"	61.50 - 66.50	0.6000	0.5014
T47	9	7/8"	61.50 - 66.50	0.6000	0.5014
T47	11	1 5/8	61.50 - 66.50	0.6000	0.5014
T47	13	1 5/8	61.50 - 66.50	0.6000	0.5014
T47	15	7/8"	61.50 - 66.50	0.6000	0.5014
T47	17	7/8"	61.50 - 66.50	0.6000	0.5014
T47	19	1" Conduit (Lighting)	61.50 - 66.50	0.6000	0.5014
T47	21	7/16" Power	61.50 - 66.50	0.6000	0.5014
T47	23	7/16" Power	61.50 - 66.50	0.6000	0.5014
T47	25	1/4" Fiber	61.50 - 66.50	0.6000	0.5014
T47	27	7/8"	61.50 - 66.50	0.6000	0.5014
T47	29	1" Conduit (Lighting)	61.50 - 66.50	0.6000	0.5014
T47	31	1 1/4"	61.50 - 66.50	0.6000	0.5014
T47	33	7/8"	61.50 - 66.50	0.6000	0.5014
T47	34	7/8"	61.50 - 66.50	0.6000	0.5014
T47	35	7/8"	61.50 - 66.50	0.6000	0.5014
T47	36	10 mm	61.50 - 66.50	0.6000	0.5014
T47	37	0.795"	61.50 - 66.50	0.6000	0.5014
T47	38	7/8"	61.50 - 66.50	0.6000	0.5014
T47	44	1 1/8	61.50 - 66.50	0.6000	0.5014
T48	1	1 5/8	56.50 - 61.50	0.6000	0.5374
T48	4	7/16" Power	56.50 - 61.50	0.6000	0.5374
T48	6	3/8"	56.50 - 61.50	0.6000	0.5374

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T48	7	7/8"	56.50 - 61.50	0.6000	0.5374
T48	9	7/8"	56.50 - 61.50	0.6000	0.5374
T48	11	1 5/8	56.50 - 61.50	0.6000	0.5374
T48	13	1 5/8	56.50 - 61.50	0.6000	0.5374
T48	15	7/8"	56.50 - 61.50	0.6000	0.5374
T48	17	7/8"	56.50 - 61.50	0.6000	0.5374
T48	19	1" Conduit (Lighting)	56.50 - 61.50	0.6000	0.5374
T48	21	7/16" Power	56.50 - 61.50	0.6000	0.5374
T48	23	7/16" Power	56.50 - 61.50	0.6000	0.5374
T48	25	1/4" Fiber	56.50 - 61.50	0.6000	0.5374
T48	27	7/8"	56.50 - 61.50	0.6000	0.5374
T48	29	1" Conduit (Lighting)	56.50 - 61.50	0.6000	0.5374
T48	31	1 1/4"	56.50 - 61.50	0.6000	0.5374
T48	33	7/8"	56.50 - 61.50	0.6000	0.5374
T48	34	7/8"	56.50 - 61.50	0.6000	0.5374
T48	35	7/8"	56.50 - 61.50	0.6000	0.5374
T48	36	10 mm	56.50 - 61.50	0.6000	0.5374
T48	37	0.795"	56.50 - 61.50	0.6000	0.5374
T48	38	7/8"	56.50 - 61.50	0.6000	0.5374
T48	44	1 1/8	56.50 - 61.50	0.6000	0.5374
T49	1	1 5/8	51.50 - 56.50	0.6000	0.5395
T49	4	7/16" Power	51.50 - 56.50	0.6000	0.5395
T49	6	3/8"	51.50 - 56.50	0.6000	0.5395
T49	7	7/8"	51.50 - 56.50	0.6000	0.5395
T49	9	7/8"	51.50 - 56.50	0.6000	0.5395
T49	11	1 5/8	51.50 - 56.50	0.6000	0.5395
T49	13	1 5/8	51.50 - 56.50	0.6000	0.5395
T49	15	7/8"	51.50 - 56.50	0.6000	0.5395
T49	17	7/8"	51.50 - 56.50	0.6000	0.5395
T49	19	1" Conduit (Lighting)	51.50 - 56.50	0.6000	0.5395
T49	21	7/16" Power	51.50 - 56.50	0.6000	0.5395
T49	23	7/16" Power	51.50 - 56.50	0.6000	0.5395
T49	25	1/4" Fiber	51.50 - 56.50	0.6000	0.5395
T49	27	7/8"	51.50 - 56.50	0.6000	0.5395
T49	29	1" Conduit (Lighting)	51.50 - 56.50	0.6000	0.5395
T49	31	1 1/4"	51.50 - 56.50	0.6000	0.5395
T49	33	7/8"	51.50 - 56.50	0.6000	0.5395
T49	34	7/8"	51.50 - 56.50	0.6000	0.5395
T49	35	7/8"	51.50 - 56.50	0.6000	0.5395
T49	36	10 mm	51.50 - 56.50	0.6000	0.5395
T49	37	0.795"	51.50 - 56.50	0.6000	0.5395
T49	38	7/8"	51.50 - 56.50	0.6000	0.5395
T49	44	1 1/8	51.50 - 56.50	0.6000	0.5395
T50	1	1 5/8	46.50 - 51.50	0.6000	0.5419
T50	4	7/16" Power	46.50 - 51.50	0.6000	0.5419
T50	6	3/8"	46.50 - 51.50	0.6000	0.5419
T50	7	7/8"	46.50 - 51.50	0.6000	0.5419
T50	9	7/8"	46.50 - 51.50	0.6000	0.5419
T50	11	1 5/8	46.50 - 51.50	0.6000	0.5419
T50	13	1 5/8	46.50 - 51.50	0.6000	0.5419
T50	15	7/8"	46.50 - 51.50	0.6000	0.5419
T50	17	7/8"	46.50 - 51.50	0.6000	0.5419
T50	19	1" Conduit (Lighting)	46.50 - 51.50	0.6000	0.5419
T50	21	7/16" Power	46.50 - 51.50	0.6000	0.5419
T50	23	7/16" Power	46.50 - 51.50	0.6000	0.5419
T50	25	1/4" Fiber	46.50 - 51.50	0.6000	0.5419
T50	27	7/8"	46.50 - 51.50	0.6000	0.5419
T50	29	1" Conduit (Lighting)	46.50 - 51.50	0.6000	0.5419
T50	31	1 1/4"	46.50 - 51.50	0.6000	0.5419
T50	33	7/8"	46.50 - 51.50	0.6000	0.5419
T50	34	7/8"	46.50 - 51.50	0.6000	0.5419
T50	35	7/8"	46.50 - 51.50	0.6000	0.5419

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T50	36	10 mm	46.50 - 51.50	0.6000	0.5419
T50	37	0.795"	46.50 - 51.50	0.6000	0.5419
T50	38	7/8"	46.50 - 51.50	0.6000	0.5419
T50	44	1 1/8	46.50 - 51.50	0.6000	0.5419
T51	1	1 5/8	41.50 - 46.50	0.6000	0.5338
T51	4	7/16" Power	41.50 - 46.50	0.6000	0.5338
T51	6	3/8"	41.50 - 46.50	0.6000	0.5338
T51	7	7/8"	41.50 - 46.50	0.6000	0.5338
T51	9	7/8"	41.50 - 46.50	0.6000	0.5338
T51	11	1 5/8	41.50 - 46.50	0.6000	0.5338
T51	13	1 5/8	41.50 - 46.50	0.6000	0.5338
T51	15	7/8"	41.50 - 46.50	0.6000	0.5338
T51	17	7/8"	41.50 - 46.50	0.6000	0.5338
T51	19	1" Conduit (Lighting)	41.50 - 46.50	0.6000	0.5338
T51	21	7/16" Power	41.50 - 46.50	0.6000	0.5338
T51	23	7/16" Power	41.50 - 46.50	0.6000	0.5338
T51	25	1/4" Fiber	41.50 - 46.50	0.6000	0.5338
T51	27	7/8"	41.50 - 46.50	0.6000	0.5338
T51	29	1" Conduit (Lighting)	41.50 - 46.50	0.6000	0.5338
T51	31	1 1/4"	41.50 - 46.50	0.6000	0.5338
T51	33	7/8"	41.50 - 46.50	0.6000	0.5338
T51	34	7/8"	41.50 - 46.50	0.6000	0.5338
T51	35	7/8"	41.50 - 46.50	0.6000	0.5338
T51	36	10 mm	41.50 - 46.50	0.6000	0.5338
T51	37	0.795"	41.50 - 46.50	0.6000	0.5338
T51	38	7/8"	41.50 - 46.50	0.6000	0.5338
T51	44	1 1/8	41.50 - 46.50	0.6000	0.5338
T52	1	1 5/8	36.50 - 41.50	0.6000	0.5367
T52	4	7/16" Power	36.50 - 41.50	0.6000	0.5367
T52	6	3/8"	36.50 - 41.50	0.6000	0.5367
T52	7	7/8"	36.50 - 41.50	0.6000	0.5367
T52	9	7/8"	36.50 - 41.50	0.6000	0.5367
T52	11	1 5/8	36.50 - 41.50	0.6000	0.5367
T52	13	1 5/8	36.50 - 41.50	0.6000	0.5367
T52	15	7/8"	36.50 - 41.50	0.6000	0.5367
T52	17	7/8"	36.50 - 41.50	0.6000	0.5367
T52	19	1" Conduit (Lighting)	36.50 - 41.50	0.6000	0.5367
T52	21	7/16" Power	36.50 - 41.50	0.6000	0.5367
T52	23	7/16" Power	36.50 - 41.50	0.6000	0.5367
T52	25	1/4" Fiber	36.50 - 41.50	0.6000	0.5367
T52	27	7/8"	36.50 - 41.50	0.6000	0.5367
T52	29	1" Conduit (Lighting)	36.50 - 41.50	0.6000	0.5367
T52	31	1 1/4"	36.50 - 41.50	0.6000	0.5367
T52	33	7/8"	36.50 - 41.50	0.6000	0.5367
T52	34	7/8"	36.50 - 41.50	0.6000	0.5367
T52	35	7/8"	36.50 - 41.50	0.6000	0.5367
T52	36	10 mm	36.50 - 41.50	0.6000	0.5367
T52	37	0.795"	36.50 - 41.50	0.6000	0.5367
T52	38	7/8"	36.50 - 41.50	0.6000	0.5367
T52	44	1 1/8	36.50 - 41.50	0.6000	0.5367
T53	1	1 5/8	31.50 - 36.50	0.6000	0.5400
T53	4	7/16" Power	31.50 - 36.50	0.6000	0.5400
T53	6	3/8"	31.50 - 36.50	0.6000	0.5400
T53	7	7/8"	31.50 - 36.50	0.6000	0.5400
T53	9	7/8"	31.50 - 36.50	0.6000	0.5400
T53	11	1 5/8	31.50 - 36.50	0.6000	0.5400
T53	13	1 5/8	31.50 - 36.50	0.6000	0.5400
T53	15	7/8"	31.50 - 36.50	0.6000	0.5400
T53	17	7/8"	31.50 - 36.50	0.6000	0.5400
T53	19	1" Conduit (Lighting)	31.50 - 36.50	0.6000	0.5400
T53	21	7/16" Power	31.50 - 36.50	0.6000	0.5400
T53	23	7/16" Power	31.50 - 36.50	0.6000	0.5400

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T53	25	1/4" Fiber	31.50 - 36.50	0.6000	0.5400
T53	27	7/8"	31.50 - 36.50	0.6000	0.5400
T53	29	1" Conduit (Lighting)	31.50 - 36.50	0.6000	0.5400
T53	31	1 1/4"	31.50 - 36.50	0.6000	0.5400
T53	33	7/8"	31.50 - 36.50	0.6000	0.5400
T53	34	7/8"	31.50 - 36.50	0.6000	0.5400
T53	35	7/8"	31.50 - 36.50	0.6000	0.5400
T53	36	10 mm	31.50 - 36.50	0.6000	0.5400
T53	37	0.795"	31.50 - 36.50	0.6000	0.5400
T53	38	7/8"	31.50 - 36.50	0.6000	0.5400
T53	40	7/16" Power	31.50 - 33.00	0.6000	0.5400
T53	44	1 1/8	31.50 - 36.50	0.6000	0.5400
T54	1	1 5/8	6.50 - 31.50	0.6000	0.5415
T54	4	7/16" Power	6.50 - 31.50	0.6000	0.5415
T54	6	3/8"	6.50 - 31.50	0.6000	0.5415
T54	7	7/8"	6.50 - 31.50	0.6000	0.5415
T54	9	7/8"	6.50 - 31.50	0.6000	0.5415
T54	11	1 5/8	6.50 - 31.50	0.6000	0.5415
T54	13	1 5/8	6.50 - 31.50	0.6000	0.5415
T54	15	7/8"	6.50 - 31.50	0.6000	0.5415
T54	17	7/8"	6.50 - 31.50	0.6000	0.5415
T54	19	1" Conduit (Lighting)	6.50 - 31.50	0.6000	0.5415
T54	21	7/16" Power	6.50 - 31.50	0.6000	0.5415
T54	23	7/16" Power	6.50 - 31.50	0.6000	0.5415
T54	25	1/4" Fiber	6.50 - 31.50	0.6000	0.5415
T54	27	7/8"	6.50 - 31.50	0.6000	0.5415
T54	29	1" Conduit (Lighting)	6.50 - 31.50	0.6000	0.5415
T54	31	1 1/4"	6.50 - 31.50	0.6000	0.5415
T54	33	7/8"	6.50 - 31.50	0.6000	0.5415
T54	34	7/8"	6.50 - 31.50	0.6000	0.5415
T54	35	7/8"	6.50 - 31.50	0.6000	0.5415
T54	36	10 mm	6.50 - 31.50	0.6000	0.5415
T54	37	0.795"	6.50 - 31.50	0.6000	0.5415
T54	38	7/8"	6.50 - 31.50	0.6000	0.5415
T54	40	7/16" Power	6.50 - 31.50	0.6000	0.5415
T54	42	7/16" Power	6.50 - 8.50	0.6000	0.5415
T54	44	1 1/8	6.50 - 31.50	0.6000	0.5415
T55	1	1 5/8	0.00 - 6.50	0.4961	0.4151
T55	4	7/16" Power	0.00 - 6.50	0.4961	0.4151
T55	6	3/8"	0.00 - 6.50	0.4961	0.4151
T55	7	7/8"	0.00 - 6.50	0.4961	0.4151
T55	9	7/8"	0.00 - 6.50	0.4961	0.4151
T55	11	1 5/8	0.00 - 6.50	0.4961	0.4151
T55	13	1 5/8	0.00 - 6.50	0.4961	0.4151
T55	15	7/8"	0.00 - 6.50	0.4961	0.4151
T55	17	7/8"	0.00 - 6.50	0.4961	0.4151
T55	19	1" Conduit (Lighting)	0.00 - 6.50	0.4961	0.4151
T55	21	7/16" Power	0.00 - 6.50	0.4961	0.4151
T55	23	7/16" Power	0.00 - 6.50	0.4961	0.4151
T55	25	1/4" Fiber	0.00 - 6.50	0.4961	0.4151
T55	27	7/8"	0.00 - 6.50	0.4961	0.4151
T55	29	1" Conduit (Lighting)	0.00 - 6.50	0.4961	0.4151
T55	31	1 1/4"	0.00 - 6.50	0.4961	0.4151
T55	33	7/8"	0.00 - 6.50	0.4961	0.4151
T55	34	7/8"	0.00 - 6.50	0.4961	0.4151
T55	35	7/8"	0.00 - 6.50	0.4961	0.4151
T55	36	10 mm	0.00 - 6.50	0.4961	0.4151
T55	37	0.795"	0.00 - 6.50	0.4961	0.4151
T55	38	7/8"	0.00 - 6.50	0.4961	0.4151
T55	40	7/16" Power	0.00 - 6.50	0.4961	0.4151
T55	42	7/16" Power	0.00 - 6.50	0.4961	0.4151
T55	44	1 1/8	0.00 - 6.50	0.4961	0.4151

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Shively 68010	C	From Leg	0.00 0.00 5.00	0.00	325.00	No Ice 1/2" Ice 1" Ice 2" Ice	22.30 40.14 57.98 93.66	22.30 40.14 57.98 93.66	0.35 0.46 0.57 0.79
***									
2SCH40x60"	B	From Leg	0.00 0.00 0.00	0.00	303.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.19 1.50 1.81 2.43	1.19 1.50 1.81 2.43	0.02 0.03 0.04 0.06
***									
10" x 8" x 4.25" Box	C	From Leg	5.50 0.00 0.00	0.00	287.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.67 0.77 0.87 1.07	0.35 0.44 0.53 0.71	0.01 0.02 0.03 0.05
7.5" Dia x 3.5' Omni	C	From Leg	5.50 0.00 3.00	0.00	287.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.24 1.92 2.60 3.96	1.24 1.92 2.60 3.96	0.03 0.04 0.05 0.07
Stand-off Arm	C	From Leg	2.75 0.00 0.00	0.00	287.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.50 4.20 4.90 6.30	3.50 4.20 4.90 6.30	0.10 0.13 0.16 0.22
***									
2.36" Dia. x 20' (4) Element Dipole	A	From Leg	0.00 0.00 2.00	0.00	288.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.72 6.75 8.78 12.84	4.72 6.75 8.78 12.84	0.04 0.07 0.10 0.16
***									
DB413-B	B	From Leg	1.25 0.00 7.00	0.00	273.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.55 4.59 6.63 10.71	2.55 4.59 6.63 10.71	0.03 0.04 0.05 0.07
Stand-off Arm	B	From Leg	0.63 0.00 0.00	0.00	273.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.50 4.20 4.90 6.30	3.50 4.20 4.90 6.30	0.10 0.13 0.16 0.22
***									
25' x 1.62" Dia. Broadcast Antenna	A	From Leg	0.00 0.00 0.00	0.00	260.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 6.57 9.09 14.13	4.05 6.57 9.09 14.13	0.07 0.10 0.13 0.19
***									
2.3" Dia. x 20' Omni	A	From Leg	3.50 0.00 7.00	0.00	239.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 6.63 8.66 12.72	4.60 6.63 8.66 12.72	0.04 0.07 0.10 0.16
Stand-off Arm	A	From Leg	1.75	0.00	239.00	No Ice	3.50	3.50	0.10

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	4.20	4.20	0.13
			0.00			1" Ice	4.90	4.90	0.16
						2" Ice	6.30	6.30	0.22
***									
2.3" Dia. x 20' Omni	B	From Leg	3.00	0.00	237.00	No Ice	4.60	4.60	0.04
			0.00			1/2" Ice	6.63	6.63	0.07
			7.00			1" Ice	8.66	8.66	0.10
						2" Ice	12.72	12.72	0.16
Stand-off Arm	B	From Leg	1.50	0.00	237.00	No Ice	3.50	3.50	0.10
			0.00			1/2" Ice	4.20	4.20	0.13
			0.00			1" Ice	4.90	4.90	0.16
						2" Ice	6.30	6.30	0.22
***									
L-810 Side Light	A	From Leg	0.00	0.00	223.00	No Ice	0.20	0.20	0.00
			0.00			1/2" Ice	0.28	0.28	0.01
			0.00			1" Ice	0.36	0.36	0.02
						2" Ice	0.52	0.52	0.03
L-810 Side Light	C	From Leg	0.00	0.00	223.00	No Ice	0.20	0.20	0.00
			0.00			1/2" Ice	0.28	0.28	0.01
			0.00			1" Ice	0.36	0.36	0.02
						2" Ice	0.52	0.52	0.03
***									
26.5" x 15" Conduit Box	B	From Leg	0.00	0.00	183.00	No Ice	3.31	1.42	0.01
			0.00			1/2" Ice	3.55	1.60	0.03
			0.00			1" Ice	3.79	1.78	0.05
						2" Ice	4.27	2.14	0.09
***									
10" x 10" x 1.25" Detuner Box	B	From Leg	0.00	0.00	169.00	No Ice	0.83	0.12	0.01
			0.00			1/2" Ice	0.95	0.19	0.01
			0.00			1" Ice	1.07	0.26	0.01
						2" Ice	1.31	0.40	0.01
***									
14.875x15.125"x0.5" Flat Panel	A	From Leg	0.00	0.00	145.50	No Ice	1.87	0.10	0.01
			0.00			1/2" Ice	2.05	0.20	0.02
			0.00			1" Ice	2.23	0.30	0.03
						2" Ice	2.59	0.50	0.05
***									
2SCH40 x 43"	C	From Leg	0.00	0.00	141.00	No Ice	0.74	0.74	0.02
			0.00			1/2" Ice	0.96	0.96	0.04
			0.00			1" Ice	1.18	1.18	0.05
						2" Ice	1.62	1.62	0.08
***									
L-810 Side Light	A	From Leg	0.00	0.00	135.00	No Ice	0.20	0.20	0.00
			0.00			1/2" Ice	0.28	0.28	0.01
			0.00			1" Ice	0.36	0.36	0.02
						2" Ice	0.52	0.52	0.03
L-810 Side Light	C	From Leg	0.00	0.00	135.00	No Ice	0.20	0.20	0.00
			0.00			1/2" Ice	0.28	0.28	0.01
			0.00			1" Ice	0.36	0.36	0.02
						2" Ice	0.52	0.52	0.03
***									
X7C-FRO-660 w/ Pipe	A	From Leg	3.00	0.00	101.00	No Ice	9.55	7.29	0.07
			0.00			1/2" Ice	10.02	8.25	0.14
			1.50			1" Ice	10.50	9.08	0.23
						2" Ice	11.47	10.80	0.42
X7C-FRO-660 w/ Pipe	B	From Leg	3.00	0.00	101.00	No Ice	9.55	7.29	0.07
			0.00			1/2" Ice	10.02	8.25	0.14

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
			1.50			1" Ice	10.50	9.08	0.23
						2" Ice	11.47	10.80	0.42
X7C-FRO-660 w/ Pipe	C	From Leg	3.00	0.00	101.00	No Ice	9.55	7.29	0.07
			0.00			1/2" Ice	10.02	8.25	0.14
			1.50			1" Ice	10.50	9.08	0.23
						2" Ice	11.47	10.80	0.42
Sector Mount [SM 303-3]	C	None		0.00	101.00	No Ice	43.57	43.57	1.88
						1/2" Ice	61.82	61.82	2.70
						1" Ice	80.07	80.07	3.52
						2" Ice	116.57	116.57	5.16
***									
HPA-65R-BUU-H6 w/ 7' MP	A	From Face	0.00	0.00	80.00	No Ice	9.72	7.15	0.07
			0.00			1/2" Ice	10.29	8.33	0.15
			1.50			1" Ice	10.83	9.23	0.23
						2" Ice	11.93	11.06	0.43
HPA-65R-BUU-H6 w/ 7' MP	B	From Face	0.00	0.00	80.00	No Ice	9.72	7.15	0.07
			0.00			1/2" Ice	10.29	8.33	0.15
			1.50			1" Ice	10.83	9.23	0.23
						2" Ice	11.93	11.06	0.43
HPA-65R-BUU-H6 w/ 7' MP	C	From Face	0.00	0.00	80.00	No Ice	9.72	7.15	0.07
			0.00			1/2" Ice	10.29	8.33	0.15
			1.50			1" Ice	10.83	9.23	0.23
						2" Ice	11.93	11.06	0.43
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	A	From Face	0.00	0.00	80.00	No Ice	9.19	6.21	0.11
			0.00			1/2" Ice	9.94	6.93	0.18
			1.50			1" Ice	10.71	7.66	0.26
						2" Ice	12.30	9.17	0.45
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	B	From Face	0.00	0.00	80.00	No Ice	9.19	6.21	0.11
			0.00			1/2" Ice	9.94	6.93	0.18
			1.50			1" Ice	10.71	7.66	0.26
						2" Ice	12.30	9.17	0.45
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	C	From Face	0.00	0.00	80.00	No Ice	9.19	6.21	0.11
			0.00			1/2" Ice	9.94	6.93	0.18
			1.50			1" Ice	10.71	7.66	0.26
						2" Ice	12.30	9.17	0.45
DTMABP7819VG12A	A	From Face	0.00	0.00	80.00	No Ice	0.98	0.34	0.02
			0.00			1/2" Ice	1.10	0.42	0.03
			1.50			1" Ice	1.23	0.51	0.04
						2" Ice	1.52	0.71	0.06
DTMABP7819VG12A	B	From Face	0.00	0.00	80.00	No Ice	0.98	0.34	0.02
			0.00			1/2" Ice	1.10	0.42	0.03
			1.50			1" Ice	1.23	0.51	0.04
						2" Ice	1.52	0.71	0.06
DTMABP7819VG12A	C	From Face	0.00	0.00	80.00	No Ice	0.98	0.34	0.02
			0.00			1/2" Ice	1.10	0.42	0.03
			1.50			1" Ice	1.23	0.51	0.04
						2" Ice	1.52	0.71	0.06
RRUS 11	A	From Face	0.00	0.00	80.00	No Ice	2.78	1.19	0.05
			0.00			1/2" Ice	2.99	1.33	0.07
			1.50			1" Ice	3.21	1.49	0.09
						2" Ice	3.66	1.83	0.15
RRUS 11	B	From Face	0.00	0.00	80.00	No Ice	2.78	1.19	0.05
			0.00			1/2" Ice	2.99	1.33	0.07
			1.50			1" Ice	3.21	1.49	0.09
						2" Ice	3.66	1.83	0.15
RRUS 11	C	From Face	0.00	0.00	80.00	No Ice	2.78	1.19	0.05
			0.00			1/2" Ice	2.99	1.33	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.50			1" Ice	3.21	1.49	0.09
						2" Ice	3.66	1.83	0.15
RRUS 32	A	From Face	0.00	0.00	80.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			1.50			1" Ice	3.32	2.17	0.10
						2" Ice	3.81	2.58	0.16
RRUS 32	B	From Face	0.00	0.00	80.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			1.50			1" Ice	3.32	2.17	0.10
						2" Ice	3.81	2.58	0.16
RRUS 32	C	From Face	0.00	0.00	80.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			1.50			1" Ice	3.32	2.17	0.10
						2" Ice	3.81	2.58	0.16
RRUS E2 B29	A	From Face	0.00	0.00	80.00	No Ice	3.15	1.29	0.06
			0.00			1/2" Ice	3.36	1.44	0.08
			1.50			1" Ice	3.59	1.60	0.11
						2" Ice	4.07	1.95	0.17
RRUS E2 B29	B	From Face	0.00	0.00	80.00	No Ice	3.15	1.29	0.06
			0.00			1/2" Ice	3.36	1.44	0.08
			1.50			1" Ice	3.59	1.60	0.11
						2" Ice	4.07	1.95	0.17
RRUS E2 B29	C	From Face	0.00	0.00	80.00	No Ice	3.15	1.29	0.06
			0.00			1/2" Ice	3.36	1.44	0.08
			1.50			1" Ice	3.59	1.60	0.11
						2" Ice	4.07	1.95	0.17
DC6-48-60-18-8C	C	From Face	0.00	0.00	80.00	No Ice	1.14	1.14	0.03
			0.00			1/2" Ice	1.79	1.79	0.05
			1.50			1" Ice	2.00	2.00	0.07
						2" Ice	2.45	2.45	0.13
Sector Mount [SM 103-3]	B	None		0.00	80.00	No Ice	50.40	50.40	1.54
						1/2" Ice	56.40	56.40	2.22
						1" Ice	62.48	62.48	3.01
						2" Ice	75.09	75.09	4.92
***									
26.5" x 15" Conduit Box	B	From Leg	0.00	0.00	33.00	No Ice	3.31	1.42	0.01
			0.00			1/2" Ice	3.55	1.60	0.03
			0.00			1" Ice	3.79	1.78	0.05
						2" Ice	4.27	2.14	0.09
***									
26.5" x 15" Conduit Box	C	From Face	0.00	0.00	8.50	No Ice	1.88	0.81	0.01
			0.00			1/2" Ice	2.05	0.94	0.02
			0.00			1" Ice	2.22	1.07	0.03
						2" Ice	2.56	1.33	0.05
***									
(2) MX06FRO660-03_TIA w/ Mount Pipe	A	From Leg	3.00	0.00	101.00	No Ice	10.11	8.99	0.10
			0.00			1/2" Ice	10.68	10.15	0.19
			0.00			1" Ice	11.22	11.03	0.29
						2" Ice	12.32	12.83	0.51
(2) MX06FRO660-03_TIA w/ Mount Pipe	B	From Leg	3.00	0.00	101.00	No Ice	10.11	8.99	0.10
			0.00			1/2" Ice	10.68	10.15	0.19
			0.00			1" Ice	11.22	11.03	0.29
						2" Ice	12.32	12.83	0.51
(2) MX06FRO660-03_TIA w/ Mount Pipe	C	From Leg	3.00	0.00	101.00	No Ice	10.11	8.99	0.10
			0.00			1/2" Ice	10.68	10.15	0.19
			0.00			1" Ice	11.22	11.03	0.29
						2" Ice	12.32	12.83	0.51

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
MT6407-77A w/ Pipe	A	From Leg	3.00 0.00 0.00	0.00	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.42 5.97 6.45 7.46	3.26 3.98 4.58 5.83	0.10 0.15 0.20 0.32
MT6407-77A w/ Pipe	B	From Leg	3.00 0.00 0.00	0.00	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.42 5.97 6.45 7.46	3.26 3.98 4.58 5.83	0.10 0.15 0.20 0.32
MT6407-77A w/ Pipe	C	From Leg	3.00 0.00 0.00	0.00	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.42 5.97 6.45 7.46	3.26 3.98 4.58 5.83	0.10 0.15 0.20 0.32
RFV01U-D1A	A	From Leg	3.00 0.00 0.00	0.00	101.00	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-D1A	B	From Leg	3.00 0.00 0.00	0.00	101.00	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-D1A	C	From Leg	3.00 0.00 0.00	0.00	101.00	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	3.00 0.00 0.00	0.00	101.00	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	3.00 0.00 0.00	0.00	101.00	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	3.00 0.00 0.00	0.00	101.00	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
(2) Panel Antenna (6'x1') w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.00	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.13 8.59 9.05 10.00	5.89 6.64 7.41 8.99	0.07 0.13 0.20 0.36
(2) Panel Antenna (6'x1') w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.00	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.13 8.59 9.05 10.00	5.89 6.64 7.41 8.99	0.07 0.13 0.20 0.36
(2) Panel Antenna (6'x1') w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.00	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.13 8.59 9.05 10.00	5.89 6.64 7.41 8.99	0.07 0.13 0.20 0.36
Dish 10,500 Sq inches	C	None		0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	53.50 64.20 74.90 96.30	53.50 54.20 54.90 56.30	1.63 1.96 2.28 2.93
Sector Mount [SM 308-3]	C	None		0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	20.73 29.32 37.85 54.81	20.73 29.32 37.85 54.81	0.38 0.81 1.37 2.94

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C_AA_A Front	C_AA_A Side	Weight
			ft ft ft	°	ft	ft^2	ft^2	K
***								

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter		Aperture Area	Weight
				ft	°	°	ft	ft		ft^2	K
3' x 5.5' Grid Dish	B	Grid	From Leg	0.00 0.00 0.00	0.00		303.00	4.58	No Ice 1/2" Ice 1" Ice 2" Ice	16.47 17.08 17.69 18.91	0.04 0.12 0.20 0.36
***											
4' Grid Dish	C	Grid	From Leg	0.00 0.00 0.00	0.00		141.00	4.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.57 13.10 13.63 14.69	0.10 0.15 0.20 0.30

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy

Comb. No.	Description
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

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	341.5 - 314.5	Pole	Max Tension	13	0.00	0.00	0.00
			Max. Compression	14	-2.32	0.29	-0.10
			Max. Mx	11	-1.34	28.28	0.29
			Max. My	8	-1.34	0.08	-28.36
			Max. Vy	11	-1.89	28.28	0.29
			Max. Vx	8	1.90	0.08	-28.36
			Max. Torque	13			0.45
T1	314.5 - 310.5	Leg	Max Tension	8	12.13	-0.05	-0.05
			Max. Compression	2	-13.07	-0.04	-0.02
			Max. Mx	20	-0.24	-0.13	-0.05
			Max. My	17	-3.81	0.01	0.14
			Max. Vy	19	-0.06	-0.13	-0.03
			Max. Vx	16	0.06	0.02	0.14
		Diagonal	Max Tension	11	2.44	0.00	0.00
			Max. Compression	5	-2.42	0.00	0.00
			Max. Mx	25	1.18	0.04	0.00
			Max. My	6	-0.14	0.00	0.00
			Max. Vy	25	-0.03	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
		Top Girt	Max Tension	25	0.00	0.00	0.00
			Max. Compression	25	-0.00	0.00	0.00
			Max. Mx	25	-0.00	-0.01	0.00
			Max. My	5	-0.00	0.00	0.00
			Max. Vy	25	0.02	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
T2	310.5 - 306.5	Leg	Max Tension	12	15.16	-0.08	0.03
			Max. Compression	6	-16.31	-0.14	-0.02
			Max. Mx	11	13.39	0.17	-0.02
			Max. My	8	14.66	-0.07	-0.17
			Max. Vy	12	-0.07	0.17	0.07
			Max. Vx	8	0.07	-0.07	-0.17
		Diagonal	Max Tension	9	2.45	0.00	0.00
			Max. Compression	3	-2.44	0.00	0.00
			Max. Mx	25	0.90	0.02	0.00
			Max. My	24	0.52	0.00	-0.00
			Max. Vy	25	-0.01	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
		Horizontal	Max Tension	18	0.11	0.00	0.00
			Max. Compression	8	-0.05	0.00	0.00
			Max. Mx	25	0.11	0.01	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. My	5	-0.02	0.00	-0.00
			Max. Vy	25	0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
T3	306.5 - 281.5	Leg	Max Tension	8	3.94	-0.07	-0.17
			Max. Compression	10	-22.01	0.07	0.08
			Max. Mx	11	2.20	0.17	-0.02
			Max. My	8	3.94	-0.07	-0.17
			Max. Vy	9	-0.17	0.09	-0.07
			Max. Vx	8	0.25	-0.07	-0.12
		Diagonal	Max Tension	2	1.40	0.00	0.00
			Max. Compression	6	-1.87	0.00	0.00
			Max. Mx	25	-0.15	0.02	0.00
			Max. My	24	0.28	0.00	-0.00
			Max. Vy	25	-0.01	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
		Horizontal	Max Tension	5	3.54	0.00	0.00
			Max. Compression	2	-0.26	0.00	0.00
			Max. Mx	17	0.03	0.01	0.00
			Max. My	5	0.09	0.00	-0.00
			Max. Vy	17	0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Guy A	Bottom Tension	8	13.25		
			Top Tension	8	13.55		
			Top Cable Vert	8	12.04		
			Top Cable Norm	8	6.21		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	-11.45		
			Bot Cable Norm	8	6.67		
			Bot Cable Tan	8	0.00		
		Guy B	Bottom Tension	12	13.29		
			Top Tension	12	13.58		
			Top Cable Vert	12	12.06		
			Top Cable Norm	12	6.26		
			Top Cable Tan	12	0.00		
			Bot Cable Vert	12	-11.47		
			Bot Cable Norm	12	6.72		
			Bot Cable Tan	12	0.00		
		Guy C	Bottom Tension	4	13.20		
			Top Tension	4	13.50		
			Top Cable Vert	4	11.98		
			Top Cable Norm	4	6.22		
			Top Cable Tan	4	0.00		
			Bot Cable Vert	4	-11.39		
			Bot Cable Norm	4	6.67		
			Bot Cable Tan	4	0.00		
T4	281.5 - 276.5	Leg	Max Tension	12	4.16	0.04	-0.03
			Max. Compression	6	-24.18	-0.10	0.07
			Max. Mx	13	-20.31	0.14	0.02
			Max. My	3	-6.42	-0.03	0.14
			Max. Vy	3	-0.05	-0.11	0.01
			Max. Vx	3	-0.05	-0.03	0.14
		Diagonal	Max Tension	6	1.80	0.00	0.00
			Max. Compression	2	-1.87	0.00	0.00
			Max. Mx	25	-0.03	0.02	0.00
			Max. My	24	0.06	0.00	-0.00
			Max. Vy	25	0.01	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
		Horizontal	Max Tension	3	0.12	0.00	0.00
			Max. Compression	9	-0.01	0.00	0.00
			Max. Mx	25	0.07	0.01	0.00
			Max. My	11	0.11	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. Vy	25	-0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	0.00	0.00	0.00
			Max. Compression	10	-0.00	0.00	0.00
			Max. Mx	25	0.00	0.01	0.00
			Max. My	5	0.00	0.00	-0.00
			Max. Vy	25	-0.01	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
T5	276.5 - 271.5	Leg	Max Tension	8	5.22	-0.06	-0.07
			Max. Compression	10	-26.49	0.14	0.09
			Max. Mx	10	-0.18	0.15	-0.08
			Max. My	7	-22.77	0.04	-0.16
			Max. Vy	10	-0.12	0.15	-0.08
			Max. Vx	8	0.14	0.09	-0.15
		Diagonal	Max Tension	11	1.97	0.00	0.00
			Max. Compression	6	-2.36	0.00	0.00
			Max. Mx	25	0.68	0.02	0.00
			Max. My	24	-0.15	0.00	-0.00
			Max. Vy	25	-0.01	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
		Horizontal	Max Tension	4	0.18	0.00	0.00
			Max. Compression	10	-0.07	0.00	0.00
			Max. Mx	17	0.07	0.01	0.00
			Max. My	5	0.17	0.00	-0.00
			Max. Vy	17	-0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	8	0.01	0.00	0.00
			Max. Compression	10	-0.00	0.00	0.00
			Max. Mx	25	0.00	0.01	0.00
			Max. My	5	0.00	0.00	-0.00
			Max. Vy	25	-0.01	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
T6	271.5 - 266.5	Leg	Max Tension	12	7.80	0.08	-0.01
			Max. Compression	6	-30.01	-0.10	0.10
			Max. Mx	10	3.24	0.15	-0.08
			Max. My	7	-25.66	0.04	-0.16
			Max. Vy	4	-0.06	-0.12	0.00
			Max. Vx	7	-0.06	0.04	-0.16
		Diagonal	Max Tension	5	2.58	0.00	0.00
			Max. Compression	11	-2.85	0.00	0.00
			Max. Mx	25	0.29	0.02	0.00
			Max. My	5	-0.62	0.00	0.00
			Max. Vy	25	0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Horizontal	Max Tension	8	0.27	0.00	0.00
			Max. Compression	2	-0.16	0.00	0.00
			Max. Mx	25	0.06	0.01	0.00
			Max. My	11	0.23	0.00	-0.00
			Max. Vy	25	-0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
T7	266.5 - 261.5	Leg	Max Tension	8	9.85	0.04	-0.03
			Max. Compression	10	-33.10	0.13	0.08
			Max. Mx	4	-17.89	-0.17	-0.01
			Max. My	6	-32.37	0.02	-0.18
			Max. Vy	4	0.07	-0.17	-0.01
			Max. Vx	6	0.07	0.02	-0.18
		Diagonal	Max Tension	11	2.80	0.00	0.00
			Max. Compression	5	-3.01	0.00	0.00
			Max. Mx	25	0.95	0.02	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. My	24	-0.27	0.00	-0.00
			Max. Vy	25	-0.01	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
		Horizontal	Max Tension	9	0.14	0.00	0.00
			Max. Compression	3	-0.03	0.00	0.00
			Max. Mx	14	0.08	0.01	0.00
			Max. My	5	0.12	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
T8	261.5 - 256.5	Leg	Max Tension	12	13.55	0.06	0.01
			Max. Compression	6	-37.52	-0.15	0.09
			Max. Mx	13	-32.04	0.18	0.04
			Max. My	10	-36.50	-0.02	-0.19
			Max. Vy	4	-0.12	-0.17	-0.01
			Max. Vx	6	-0.11	0.02	-0.18
		Diagonal	Max Tension	5	3.01	0.00	0.00
			Max. Compression	11	-3.29	0.00	0.00
			Max. Mx	25	0.62	0.02	0.00
			Max. My	5	-1.18	0.00	0.00
			Max. Vy	25	-0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Horizontal	Max Tension	4	0.22	0.00	0.00
			Max. Compression	10	-0.10	0.00	0.00
			Max. Mx	14	0.08	0.01	0.00
			Max. My	11	0.14	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
T9	256.5 - 251.5	Leg	Max Tension	8	16.59	0.02	-0.08
			Max. Compression	10	-41.47	0.14	0.12
			Max. Mx	13	-35.54	0.18	0.04
			Max. My	6	-41.32	0.04	-0.19
			Max. Vy	13	0.08	0.18	0.04
			Max. Vx	10	-0.08	-0.02	-0.19
		Diagonal	Max Tension	11	3.33	0.00	0.00
			Max. Compression	5	-3.53	0.00	0.00
			Max. Mx	25	1.16	0.02	0.00
			Max. My	12	0.30	0.00	-0.00
			Max. Vy	25	-0.02	0.00	0.00
			Max. Vx	12	0.00	0.00	0.00
		Horizontal	Max Tension	9	0.19	0.00	0.00
			Max. Compression	3	-0.09	0.00	0.00
			Max. Mx	14	0.08	0.01	0.00
			Max. My	5	0.14	0.00	-0.00
			Max. Vy	14	0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
T10	251.5 - 246.5	Leg	Max Tension	12	21.46	-0.00	0.02
			Max. Compression	6	-47.19	-0.20	0.16
			Max. Mx	6	8.36	-0.22	-0.01
			Max. My	10	-46.27	-0.02	-0.23
			Max. Vy	13	-0.08	0.22	0.05
			Max. Vx	10	0.08	-0.02	-0.23
		Diagonal	Max Tension	5	3.45	0.00	0.00
			Max. Compression	11	-3.72	0.00	0.00
			Max. Mx	25	0.89	0.02	0.00
			Max. My	11	1.22	0.00	-0.00
			Max. Vy	25	-0.02	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Horizontal	Max Tension	7	0.16	0.00	0.00
			Max. Compression	13	-0.05	0.00	0.00
			Max. Mx	26	0.12	0.01	0.00
			Max. My	12	-0.05	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. Vy	26	-0.01	0.00	0.00
			Max. Vx	12	-0.00	0.00	0.00
T11	246.5 - 241.5	Leg	Max Tension	8	6.64	-0.00	-0.17
			Max. Compression	10	-48.37	0.14	0.10
			Max. Mx	4	-27.83	-0.28	-0.05
			Max. My	6	-48.02	0.09	-0.28
			Max. Vy	3	0.11	-0.10	0.12
			Max. Vx	6	0.12	-0.06	-0.13
		Diagonal	Max Tension	13	3.81	0.00	0.00
			Max. Compression	7	-4.12	0.00	0.00
			Max. Mx	21	-1.45	0.04	0.00
			Max. My	12	0.49	0.00	-0.00
			Max. Vy	21	-0.03	0.00	0.00
			Max. Vx	12	0.00	0.00	0.00
		Horizontal	Max Tension	5	5.25	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	23	2.76	0.01	0.00
			Max. My	12	2.48	0.00	0.00
			Max. Vy	23	0.01	0.00	0.00
			Max. Vx	12	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	5	0.09	0.00	0.00
			Max. Compression	10	-0.03	0.00	0.00
			Max. Mx	19	0.06	-0.02	0.00
			Max. My	12	0.01	0.00	-0.00
			Max. Vy	19	0.02	0.00	0.00
			Max. Vx	12	0.00	0.00	0.00
		Guy A	Bottom Tension	8	16.46		
			Top Tension	8	16.85		
			Top Cable Vert	8	14.14		
			Top Cable Norm	8	9.18		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	-13.40		
			Bot Cable Norm	8	9.57		
			Bot Cable Tan	8	0.00		
		Guy B	Bottom Tension	12	16.49		
			Top Tension	12	16.88		
			Top Cable Vert	12	14.13		
			Top Cable Norm	12	9.23		
			Top Cable Tan	12	0.00		
			Bot Cable Vert	12	-13.40		
			Bot Cable Norm	12	9.62		
			Bot Cable Tan	12	0.00		
		Guy C	Bottom Tension	4	16.43		
			Top Tension	4	16.82		
			Top Cable Vert	4	14.08		
			Top Cable Norm	4	9.20		
			Top Cable Tan	4	0.00		
			Bot Cable Vert	4	-13.35		
			Bot Cable Norm	4	9.58		
			Bot Cable Tan	4	0.00		
T12	241.5 - 236.5	Leg	Max Tension	12	3.20	-0.01	0.22
			Max. Compression	6	-45.12	-0.17	0.08
			Max. Mx	12	-27.25	0.35	-0.01
			Max. My	10	-44.23	-0.05	-0.29
			Max. Vy	13	-0.30	0.32	0.05
			Max. Vx	2	-0.33	-0.01	0.28
		Diagonal	Max Tension	7	2.93	0.00	0.00
			Max. Compression	13	-3.39	0.00	0.00
			Max. Mx	17	-1.33	0.04	0.00
			Max. My	12	-2.74	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. Vy	17	-0.03	0.00	0.00
			Max. Vx	12	0.00	0.00	0.00
		Horizontal	Max Tension	4	0.29	0.00	0.00
			Max. Compression	12	-0.15	0.00	0.00
			Max. Mx	19	0.15	0.01	0.00
			Max. My	12	-0.15	0.00	0.00
			Max. Vy	19	0.01	0.00	0.00
			Max. Vx	12	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	4	0.02	0.00	0.00
			Max. Compression	7	-0.00	0.00	0.00
			Max. Mx	17	0.01	0.02	0.00
			Max. My	12	0.02	0.00	0.00
			Max. Vy	17	-0.03	0.00	0.00
			Max. Vx	12	0.00	0.00	0.00
T13	236.5 - 231.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-41.53	0.08	-0.20
			Max. Mx	12	-27.33	0.35	-0.01
			Max. My	10	-40.44	-0.05	-0.29
			Max. Vy	12	0.12	0.35	-0.01
			Max. Vx	10	-0.11	-0.05	-0.29
		Diagonal	Max Tension	6	1.76	0.00	0.00
			Max. Compression	2	-2.28	0.00	0.00
			Max. Mx	21	-0.86	0.04	0.00
			Max. My	12	-0.48	0.00	-0.00
			Max. Vy	21	-0.03	0.00	0.00
			Max. Vx	12	0.00	0.00	0.00
		Horizontal	Max Tension	13	0.50	0.00	0.00
			Max. Compression	7	-0.29	0.00	0.00
			Max. Mx	19	0.14	0.01	0.00
			Max. My	12	0.48	0.00	0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	12	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	0.01	0.00	0.00
			Max. Compression	6	-0.01	0.00	0.00
			Max. Mx	19	0.01	0.02	0.00
			Max. My	12	0.01	0.00	0.00
			Max. Vy	19	0.03	0.00	0.00
			Max. Vx	12	0.00	0.00	0.00
T14	231.5 - 226.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-38.53	-0.16	0.16
			Max. Mx	25	-28.39	0.27	-0.01
			Max. My	25	-28.49	0.11	0.24
			Max. Vy	25	-0.11	0.27	-0.01
			Max. Vx	10	0.10	-0.07	-0.22
		Diagonal	Max Tension	2	1.45	0.00	0.00
			Max. Compression	6	-1.98	0.00	0.00
			Max. Mx	17	-0.92	0.04	0.00
			Max. My	12	-1.30	0.00	-0.00
			Max. Vy	17	-0.03	0.00	0.00
			Max. Vx	12	0.00	0.00	0.00
		Horizontal	Max Tension	11	0.22	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	0.16	0.01	0.00
			Max. My	12	0.06	0.00	0.00
			Max. Vy	19	0.01	0.00	0.00
			Max. Vx	12	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	0.01	0.00	0.00
			Max. Compression	10	-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. Mx	19	0.01	-0.01	0.00
			Max. My	12	0.01	0.00	-0.00
			Max. Vy	19	-0.02	0.00	0.00
			Max. Vx	12	0.00	0.00	0.00
T15	226.5 - 221.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-36.78	0.08	-0.21
			Max. Mx	25	-28.41	0.27	-0.01
			Max. My	17	-28.12	-0.12	0.23
			Max. Vy	25	0.11	0.27	-0.01
			Max. Vx	16	0.09	-0.11	0.23
		Diagonal	Max Tension	6	1.13	0.00	0.00
			Max. Compression	2	-1.63	0.00	0.00
			Max. Mx	21	-0.66	0.02	0.00
			Max. My	12	-0.50	0.00	-0.00
			Max. Vy	21	-0.01	0.00	0.00
			Max. Vx	12	0.00	0.00	0.00
		Horizontal	Max Tension	12	0.25	0.00	0.00
			Max. Compression	6	-0.01	0.00	0.00
			Max. Mx	19	0.17	0.01	0.00
			Max. My	12	0.25	0.00	0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	12	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	10	0.01	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	0.01	-0.01	0.00
			Max. My	12	0.01	0.00	-0.00
			Max. Vy	19	0.02	0.00	0.00
			Max. Vx	12	0.00	0.00	0.00
T16	221.5 - 216.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-34.78	-0.13	0.17
			Max. Mx	25	-28.42	0.26	-0.02
			Max. My	17	-27.84	-0.12	0.23
			Max. Vy	25	-0.10	0.26	-0.02
			Max. Vx	16	-0.09	-0.11	0.23
		Diagonal	Max Tension	2	0.79	0.00	0.00
			Max. Compression	6	-1.39	0.00	0.00
			Max. Mx	22	-0.26	0.02	0.00
			Max. My	24	0.19	0.00	-0.00
			Max. Vy	22	-0.01	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
		Horizontal	Max Tension	4	0.23	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	22	0.12	0.01	0.00
			Max. My	12	0.04	0.00	0.00
			Max. Vy	22	-0.01	0.00	0.00
			Max. Vx	12	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	6	0.01	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	16	0.01	-0.01	0.00
			Max. My	12	0.01	0.00	-0.00
			Max. Vy	16	0.02	0.00	0.00
			Max. Vx	12	0.00	0.00	0.00
T17	216.5 - 211.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-34.31	0.08	-0.20
			Max. Mx	25	-28.38	0.26	-0.02
			Max. My	25	-28.04	0.12	0.23
			Max. Vy	25	0.11	0.26	-0.02
			Max. Vx	16	0.09	-0.11	0.23
		Diagonal	Max Tension	6	0.58	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	2	-1.00	0.00	0.00
			Max. Mx	23	-0.28	0.02	0.00
			Max. My	12	-0.57	0.00	-0.00
			Max. Vy	23	0.01	0.00	0.00
			Max. Vx	12	0.00	0.00	0.00
		Horizontal	Max Tension	12	0.24	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	26	0.20	0.01	0.00
			Max. My	12	0.24	0.00	0.00
			Max. Vy	26	-0.01	0.00	0.00
			Max. Vx	12	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	10	0.01	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.01	-0.01	0.00
			Max. My	12	0.01	0.00	-0.00
			Max. Vy	14	0.02	0.00	0.00
			Max. Vx	12	0.00	0.00	0.00
T18	211.5 - 206.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-33.34	0.21	0.03
			Max. Mx	25	-28.84	0.26	-0.01
			Max. My	17	-28.22	-0.12	0.23
			Max. Vy	25	-0.11	0.26	-0.01
			Max. Vx	16	-0.09	-0.11	0.23
		Diagonal	Max Tension	13	0.26	0.00	0.00
			Max. Compression	6	-0.83	0.00	0.00
			Max. Mx	15	-0.28	0.02	0.00
			Max. My	24	-0.09	0.00	-0.00
			Max. Vy	15	-0.01	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
		Horizontal	Max Tension	4	0.23	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	20	0.20	0.01	0.00
			Max. My	11	0.03	0.00	-0.00
			Max. Vy	20	0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	6	0.01	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.01	-0.01	0.00
			Max. My	11	0.00	0.00	0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
T19	206.5 - 201.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-34.04	0.08	-0.20
			Max. Mx	17	-28.88	-0.26	-0.01
			Max. My	25	-28.59	0.12	0.23
			Max. Vy	25	0.11	0.26	-0.01
			Max. Vx	16	0.10	-0.11	0.23
		Diagonal	Max Tension	8	0.49	0.00	0.00
			Max. Compression	12	-1.02	0.00	0.00
			Max. Mx	23	-0.56	0.02	0.00
			Max. My	24	-0.40	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	24	-0.00	0.00	0.00
		Horizontal	Max Tension	12	0.24	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.16	0.01	0.00
			Max. My	11	0.15	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	11	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
		Secondary Horizontal	Max Tension	10	0.01	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	23	0.01	-0.01	0.00
			Max. My	11	0.00	0.00	0.00
			Max. Vy	23	-0.02	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
T20	201.5 - 196.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-34.20	0.22	0.03
			Max. Mx	25	-29.68	0.27	-0.01
			Max. My	17	-29.03	-0.12	0.24
			Max. Vy	25	-0.11	0.27	-0.01
			Max. Vx	16	-0.10	-0.11	0.24
		Diagonal	Max Tension	12	0.91	0.00	0.00
			Max. Compression	7	-1.36	0.00	0.00
			Max. Mx	15	-0.52	0.02	0.00
			Max. My	6	-0.65	0.00	0.00
			Max. Vy	15	-0.01	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
		Horizontal	Max Tension	4	0.23	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	23	0.18	0.01	0.00
			Max. My	11	0.04	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	6	0.01	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	23	0.01	-0.01	0.00
			Max. My	6	0.00	0.00	-0.00
			Max. Vy	23	0.02	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
T21	196.5 - 191.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-35.96	0.10	-0.19
			Max. Mx	25	-29.54	0.27	-0.01
			Max. My	17	-29.33	-0.12	0.24
			Max. Vy	25	0.11	0.27	-0.01
			Max. Vx	16	0.10	-0.11	0.24
		Diagonal	Max Tension	7	1.28	0.00	0.00
			Max. Compression	13	-1.74	0.00	0.00
			Max. Mx	23	-0.83	0.02	0.00
			Max. My	11	-1.24	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Horizontal	Max Tension	12	0.24	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	23	0.18	0.01	0.00
			Max. My	6	0.18	0.00	0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	5	0.01	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	23	0.01	-0.01	0.00
			Max. My	6	0.00	0.00	-0.00
			Max. Vy	23	-0.02	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
T22	191.5 - 186.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-37.19	0.26	0.07
			Max. Mx	13	-35.48	0.29	0.05
			Max. My	16	-27.58	-0.07	0.27

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	13	-0.12	0.29	0.05
			Max. Vx	21	-0.12	-0.04	-0.05
		Diagonal	Max Tension	12	1.57	0.00	0.00
			Max. Compression	7	-2.05	0.00	0.00
			Max. Mx	23	-0.71	0.02	0.00
			Max. My	6	-0.73	0.00	0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
		Horizontal	Max Tension	20	0.17	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.15	0.01	0.00
			Max. My	6	0.07	0.00	0.00
			Max. Vy	14	0.01	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	5	0.08	0.00	0.00
			Max. Compression	6	-0.02	0.00	0.00
			Max. Mx	24	0.05	-0.01	0.00
			Max. My	6	-0.02	0.00	-0.00
			Max. Vy	24	-0.02	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
T23	186.5 - 181.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-36.25	0.07	-0.19
			Max. Mx	13	-34.30	0.29	0.05
			Max. My	16	-33.22	-0.07	0.27
			Max. Vy	13	0.12	0.29	0.05
			Max. Vx	21	0.12	-0.04	-0.06
		Diagonal	Max Tension	5	3.54	0.00	0.00
			Max. Compression	11	-4.07	0.00	0.00
			Max. Mx	15	0.84	0.02	0.00
			Max. My	24	0.24	0.00	-0.00
			Max. Vy	15	0.01	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
		Horizontal	Max Tension	5	3.35	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	17	2.02	0.01	0.00
			Max. My	6	0.46	0.00	0.00
			Max. Vy	17	0.01	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	5	0.08	0.00	0.00
			Max. Compression	6	-0.02	0.00	0.00
			Max. Mx	20	0.05	-0.01	0.00
			Max. My	11	0.07	0.00	-0.00
			Max. Vy	20	0.02	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Guy A	Bottom Tension	8	8.67		
			Top Tension	8	8.80		
			Top Cable Vert	8	6.64		
			Top Cable Norm	8	5.77		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	-6.35		
			Bot Cable Norm	8	5.91		
			Bot Cable Tan	8	0.00		
		Guy B	Bottom Tension	12	8.75		
			Top Tension	12	8.87		
			Top Cable Vert	12	6.68		
			Top Cable Norm	12	5.84		
			Top Cable Tan	12	0.00		
			Bot Cable Vert	12	-6.38		
			Bot Cable Norm	12	5.98		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Bot Cable Tan	12	0.00		
		Guy C	Bottom Tension	4	8.65		
			Top Tension	4	8.78		
			Top Cable Vert	4	6.61		
			Top Cable Norm	4	5.77		
			Top Cable Tan	4	0.00		
			Bot Cable Vert	4	-6.31		
			Bot Cable Norm	4	5.92		
			Bot Cable Tan	4	0.00		
T24	181.5 - 176.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	17	-34.59	0.27	0.01
			Max. Mx	17	-34.44	-0.27	-0.01
			Max. My	25	-34.42	0.13	0.24
			Max. Vy	18	-0.11	-0.27	-0.02
			Max. Vx	26	0.10	0.12	0.24
		Diagonal	Max Tension	11	3.25	0.00	0.00
			Max. Compression	5	-3.65	0.00	0.00
			Max. Mx	23	0.83	0.02	0.00
			Max. My	24	-0.68	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
		Horizontal	Max Tension	8	0.20	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	22	0.17	0.01	0.00
			Max. My	11	0.19	0.00	0.00
			Max. Vy	22	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T25	176.5 - 171.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	24	-34.27	-0.27	0.00
			Max. Mx	18	-33.45	-0.28	0.00
			Max. My	21	-33.64	0.14	-0.24
			Max. Vy	18	0.11	-0.28	0.00
			Max. Vx	21	0.10	0.14	-0.24
		Diagonal	Max Tension	6	2.98	0.00	0.00
			Max. Compression	11	-3.50	0.00	0.00
			Max. Mx	15	0.60	0.02	0.00
			Max. My	11	0.53	0.00	-0.00
			Max. Vy	15	0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Horizontal	Max Tension	12	0.21	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.16	0.01	0.00
			Max. My	6	0.15	0.00	0.00
			Max. Vy	14	0.01	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
T26	171.5 - 166.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-35.03	-0.14	-0.25
			Max. Mx	19	-34.56	0.28	-0.00
			Max. My	24	-34.81	-0.14	0.25
			Max. Vy	18	-0.12	-0.28	0.00
			Max. Vx	21	-0.10	0.14	-0.24
		Diagonal	Max Tension	11	2.69	0.00	0.00
			Max. Compression	6	-3.15	0.00	0.00
			Max. Mx	23	0.57	0.02	0.00
			Max. My	6	-0.72	0.00	0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
		Horizontal	Max Tension	4	0.23	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	25	0.13	0.01	0.00
			Max. My	11	0.21	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. Vy	25	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T27	166.5 - 161.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	22	-36.02	-0.28	-0.01
			Max. Mx	20	-35.65	-0.28	-0.00
			Max. My	23	-35.17	0.14	-0.25
			Max. Vy	18	0.12	-0.28	0.01
			Max. Vx	15	-0.10	0.15	0.25
		Diagonal	Max Tension	6	2.46	0.00	0.00
			Max. Compression	11	-2.91	0.00	0.00
			Max. Mx	15	0.33	0.04	0.00
			Max. My	11	0.08	0.00	-0.00
			Max. Vy	15	-0.03	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Horizontal	Max Tension	12	0.23	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	25	0.14	0.01	0.00
			Max. My	6	0.16	0.00	0.00
			Max. Vy	25	-0.01	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
T28	161.5 - 156.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	24	-37.31	-0.14	0.25
			Max. Mx	20	-36.45	-0.28	-0.00
			Max. My	23	-36.48	0.14	-0.25
			Max. Vy	18	-0.12	-0.28	0.01
			Max. Vx	22	-0.10	0.13	-0.25
		Diagonal	Max Tension	11	2.08	0.00	0.00
			Max. Compression	6	-2.60	0.00	0.00
			Max. Mx	23	0.29	0.02	0.00
			Max. My	24	-0.33	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	24	-0.00	0.00	0.00
		Horizontal	Max Tension	4	0.23	0.00	0.00
			Max. Compression	10	-0.00	0.00	0.00
			Max. Mx	20	0.16	0.01	0.00
			Max. My	11	0.21	0.00	0.00
			Max. Vy	20	0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T29	156.5 - 151.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-38.03	0.14	-0.24
			Max. Mx	21	-37.97	-0.28	-0.01
			Max. My	18	-37.67	0.13	0.25
			Max. Vy	23	0.12	0.27	0.01
			Max. Vx	16	-0.10	0.14	0.24
		Diagonal	Max Tension	6	1.92	0.00	0.00
			Max. Compression	11	-2.29	0.00	0.00
			Max. Mx	15	0.02	0.02	0.00
			Max. My	24	-0.27	0.00	-0.00
			Max. Vy	15	-0.01	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
		Horizontal	Max Tension	12	0.22	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.16	0.01	0.00
			Max. My	6	0.15	0.00	0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	0.00	0.00	0.00
			Max. Compression	2	-0.00	0.00	0.00
			Max. Mx	20	0.00	0.01	0.00
			Max. My	11	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. Vy	20	-0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
T30	151.5 - 146.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-39.15	-0.14	0.25
			Max. Mx	20	-37.93	0.28	-0.01
			Max. My	24	-38.96	-0.14	0.25
			Max. Vy	19	-0.12	-0.28	0.00
			Max. Vx	16	0.10	0.14	0.24
		Diagonal	Max Tension	11	1.51	0.00	0.00
			Max. Compression	6	-2.09	0.00	0.00
			Max. Mx	15	-0.01	0.02	0.00
			Max. My	16	-0.02	0.00	-0.00
			Max. Vy	15	-0.01	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Horizontal	Max Tension	4	0.23	0.00	0.00
			Max. Compression	10	-0.01	0.00	0.00
			Max. Mx	18	0.20	0.01	0.00
			Max. My	11	0.20	0.00	0.00
			Max. Vy	18	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	6	0.01	0.00	0.00
			Max. Compression	10	-0.00	0.00	0.00
			Max. Mx	18	0.00	0.01	0.00
			Max. My	11	-0.00	0.00	0.00
			Max. Vy	18	-0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
T31	146.5 - 141.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-39.33	0.14	-0.25
			Max. Mx	22	-38.72	-0.29	-0.01
			Max. My	18	-38.73	0.14	0.25
			Max. Vy	19	0.12	-0.28	0.01
			Max. Vx	26	0.11	-0.15	0.24
		Diagonal	Max Tension	6	1.39	0.00	0.00
			Max. Compression	11	-1.68	0.00	0.00
			Max. Mx	15	-0.29	0.02	0.00
			Max. My	16	-0.32	0.00	-0.00
			Max. Vy	15	0.01	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Horizontal	Max Tension	12	0.23	0.00	0.00
			Max. Compression	2	-0.01	0.00	0.00
			Max. Mx	14	0.16	0.01	0.00
			Max. My	6	0.15	0.00	0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
T32	141.5 - 136.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-39.85	-0.14	0.25
			Max. Mx	21	-38.89	0.29	-0.00
			Max. My	23	-38.43	-0.13	0.25
			Max. Vy	19	-0.15	-0.28	0.01
			Max. Vx	2	0.16	0.13	0.16
		Diagonal	Max Tension	13	0.63	0.00	0.00
			Max. Compression	6	-1.20	0.00	0.00
			Max. Mx	26	-0.30	0.02	0.00
			Max. My	16	-0.49	0.00	-0.00
			Max. Vy	26	-0.01	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Horizontal	Max Tension	12	0.32	0.00	0.00
			Max. Compression	6	-0.09	0.00	0.00
			Max. Mx	17	0.25	0.01	0.00
			Max. My	11	0.29	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. Vy	17	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T33	136.5 - 131.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-39.58	0.13	-0.26
			Max. Mx	23	-37.51	-0.29	0.00
			Max. My	25	-39.58	0.13	-0.26
			Max. Vy	23	0.12	0.28	0.01
			Max. Vx	20	-0.10	-0.14	-0.25
		Diagonal	Max Tension	4	0.81	0.00	0.00
			Max. Compression	12	-1.26	0.00	0.00
			Max. Mx	22	0.02	0.02	0.00
			Max. My	16	-0.45	0.00	-0.00
			Max. Vy	22	0.01	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Horizontal	Max Tension	8	0.24	0.00	0.00
			Max. Compression	2	-0.02	0.00	0.00
			Max. Mx	14	0.16	0.01	0.00
			Max. Vy	14	0.01	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
T34	131.5 - 126.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-39.41	-0.13	0.28
			Max. Mx	24	-36.78	0.32	0.01
			Max. My	25	-39.41	-0.13	0.28
			Max. Vy	24	-0.13	0.32	0.01
			Max. Vx	26	-0.11	-0.14	0.28
		Diagonal	Max Tension	12	1.02	0.00	0.00
			Max. Compression	4	-1.55	0.00	0.00
			Max. Mx	21	0.12	0.02	0.00
			Max. My	16	-0.87	0.00	-0.00
			Max. Vy	21	-0.01	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Horizontal	Max Tension	5	0.22	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	16	0.21	0.01	0.00
			Max. Vy	16	-0.01	0.00	0.00
T35	126.5 - 121.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	13	-49.39	0.15	-0.25
			Max. Mx	22	-46.63	-0.35	0.01
			Max. My	25	-47.92	0.16	-0.31
			Max. Vy	23	0.14	0.32	-0.01
			Max. Vx	26	0.12	-0.14	0.28
		Diagonal	Max Tension	5	6.46	0.00	0.00
			Max. Compression	11	-6.83	0.00	0.00
			Max. Mx	25	-2.06	-0.03	0.00
			Max. My	11	-6.80	0.00	0.00
			Max. Vy	25	0.02	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
		Horizontal	Max Tension	9	4.15	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	15	1.96	0.01	0.00
			Max. Vy	15	-0.01	0.00	0.00
		Guy A	Bottom Tension	8	13.47		
			Top Tension	8	13.58		
			Top Cable Vert	8	11.64		
			Top Cable Norm	8	6.99		
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	-11.44		
			Bot Cable Norm	8	7.11		
			Bot Cable Tan	8	0.00		
		Guy B	Bottom Tension	12	13.47		
			Top Tension	12	13.57		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Top Cable Vert	12	11.78		
			Top Cable Norm	12	6.75		
			Top Cable Tan	12	0.00		
			Bot Cable Vert	12	-11.58		
			Bot Cable Norm	12	6.88		
			Bot Cable Tan	12	0.00		
		Guy C	Bottom Tension	4	13.39		
			Top Tension	4	13.50		
			Top Cable Vert	4	11.59		
			Top Cable Norm	4	6.91		
			Top Cable Tan	4	0.00		
			Bot Cable Vert	4	-11.40		
			Bot Cable Norm	4	7.04		
			Bot Cable Tan	4	0.00		
T36	121.5 - 116.5	Leg	Max Tension	2	6.26	-0.18	-0.04
			Max. Compression	11	-58.29	-0.16	0.29
			Max. Mx	20	-49.33	0.37	-0.00
			Max. My	23	-47.81	-0.17	0.32
			Max. Vy	22	-0.14	0.35	0.02
			Max. Vx	23	-0.13	0.14	-0.30
		Diagonal	Max Tension	11	5.96	0.00	0.00
			Max. Compression	5	-6.59	0.00	0.00
			Max. Mx	21	-1.96	-0.03	0.00
			Max. My	11	-2.73	0.00	0.00
			Max. Vy	21	0.02	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Horizontal	Max Tension	5	0.26	0.00	0.00
			Max. Compression	10	-0.04	0.00	0.00
			Max. Mx	18	0.17	0.01	0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
T37	116.5 - 111.5	Leg	Max Tension	2	14.65	0.16	-0.06
			Max. Compression	13	-64.66	0.31	-0.10
			Max. Mx	6	-51.57	-0.46	-0.01
			Max. My	9	-33.93	0.14	-0.43
			Max. Vy	6	0.18	-0.46	-0.01
			Max. Vx	9	0.15	0.14	-0.43
		Diagonal	Max Tension	5	5.92	0.00	0.00
			Max. Compression	11	-6.31	0.00	0.00
			Max. Mx	25	-1.85	0.02	0.00
			Max. My	16	0.44	0.00	-0.00
			Max. Vy	25	-0.01	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Horizontal	Max Tension	21	0.22	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.17	0.01	0.00
			Max. My	11	0.06	0.00	-0.00
			Max. Vy	14	0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
T38	111.5 - 106.5	Leg	Max Tension	2	20.62	-0.15	0.18
			Max. Compression	12	-72.33	-0.13	0.32
			Max. Mx	11	-34.85	-0.64	0.10
			Max. My	2	-57.36	-0.24	-0.63
			Max. Vy	5	-0.59	-0.44	0.09
			Max. Vx	2	0.57	0.22	0.40
		Diagonal	Max Tension	11	3.33	0.00	0.00
			Max. Compression	5	-3.96	0.00	0.00
			Max. Mx	25	-0.90	0.02	0.00
			Max. My	16	-0.75	0.00	-0.00
			Max. Vy	25	0.01	0.00	0.00
			Max. Vx	16	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
		Horizontal	Max Tension	4	0.88	0.00	0.00
			Max. Compression	10	-0.69	0.00	0.00
			Max. Mx	23	0.30	0.01	0.00
			Max. My	11	0.73	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
T39	106.5 - 101.5	Leg	Max Tension	2	23.55	0.14	0.04
			Max. Compression	8	-75.86	-0.36	-0.16
			Max. Mx	6	-58.98	-0.44	0.00
			Max. My	3	-73.53	0.13	0.41
			Max. Vy	20	0.16	-0.42	-0.02
			Max. Vx	10	0.14	0.22	-0.39
		Diagonal	Max Tension	5	2.45	0.00	0.00
			Max. Compression	11	-2.82	0.00	0.00
			Max. Mx	24	-0.87	0.02	0.00
			Max. My	16	-0.19	0.00	-0.00
			Max. Vy	24	-0.01	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Horizontal	Max Tension	11	0.45	0.00	0.00
			Max. Compression	6	-0.25	0.00	0.00
			Max. Mx	17	0.13	0.01	0.00
			Max. My	5	0.36	0.00	-0.00
			Max. Vy	17	-0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
T40	101.5 - 96.5	Leg	Max Tension	2	22.02	-0.14	0.15
			Max. Compression	12	-77.16	-0.07	0.35
			Max. Mx	11	-38.82	-0.71	-0.01
			Max. My	2	-62.45	-0.00	-0.69
			Max. Vy	5	-1.38	-0.41	0.09
			Max. Vx	2	1.38	0.23	0.38
		Diagonal	Max Tension	13	3.55	0.00	0.00
			Max. Compression	7	-3.94	0.00	0.00
			Max. Mx	22	0.75	0.02	0.00
			Max. My	16	0.23	0.00	-0.00
			Max. Vy	22	0.01	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Horizontal	Max Tension	8	1.76	0.00	0.00
			Max. Compression	2	-1.54	0.00	0.00
			Max. Mx	17	-0.05	0.01	0.00
			Max. My	11	1.52	0.00	-0.00
			Max. Vy	17	0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	0.06	0.00	0.00
			Max. Compression	13	-0.14	0.00	0.00
			Max. Mx	23	0.01	0.01	0.00
			Max. My	11	-0.11	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T41	96.5 - 91.5	Leg	Max Tension	2	14.05	0.16	0.10
			Max. Compression	8	-71.55	-0.33	0.06
			Max. Mx	23	-54.03	0.42	0.01
			Max. My	7	-35.44	-0.11	-0.38
			Max. Vy	23	0.17	0.42	0.01
			Max. Vx	7	-0.16	-0.11	-0.38
		Diagonal	Max Tension	7	4.58	0.00	0.00
			Max. Compression	13	-5.22	0.00	0.00
			Max. Mx	24	1.13	0.02	0.00
			Max. My	16	-1.19	0.00	-0.00
			Max. Vy	24	-0.01	0.00	0.00
			Max. Vx	16	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
		Horizontal	Max Tension	8	0.55	0.00	0.00
			Max. Compression	2	-0.26	0.00	0.00
			Max. Mx	23	0.23	0.01	0.00
			Max. My	5	0.48	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
T42	91.5 - 86.5	Leg	Max Tension	2	6.34	-0.18	-0.07
			Max. Compression	13	-65.56	-0.26	0.15
			Max. Mx	19	-53.10	0.43	-0.00
			Max. My	16	-56.87	-0.20	-0.38
			Max. Vy	21	-0.17	0.42	0.03
			Max. Vx	23	-0.15	0.17	-0.35
		Diagonal	Max Tension	13	5.11	0.00	0.00
			Max. Compression	7	-5.56	0.00	0.00
			Max. Mx	22	1.34	0.02	0.00
			Max. My	16	0.52	0.00	-0.00
			Max. Vy	22	-0.01	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Horizontal	Max Tension	13	0.31	0.00	0.00
			Max. Compression	2	-0.05	0.00	0.00
			Max. Mx	17	0.16	0.01	0.00
			Max. My	11	0.25	0.00	-0.00
			Max. Vy	17	-0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
T43	86.5 - 81.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	3	-59.40	-0.01	0.59
			Max. Mx	5	-38.80	-0.66	0.04
			Max. My	2	-52.78	0.19	0.62
			Max. Vy	5	0.22	-0.66	0.04
			Max. Vx	2	-0.21	0.19	0.62
		Diagonal	Max Tension	7	5.01	0.00	0.00
			Max. Compression	13	-5.70	0.00	0.00
			Max. Mx	24	1.44	0.02	0.00
			Max. My	16	-1.38	0.00	-0.00
			Max. Vy	24	-0.01	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Horizontal	Max Tension	21	0.24	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	23	0.20	0.01	0.00
			Max. My	5	0.16	0.00	-0.00
			Max. Vy	23	0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
T44	81.5 - 76.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.01	-0.19	0.42
			Max. Mx	11	-41.47	-0.84	0.01
			Max. My	2	-49.32	-0.16	-0.83
			Max. Vy	5	-0.85	-0.66	0.04
			Max. Vx	2	0.84	0.19	0.62
		Diagonal	Max Tension	13	8.85	0.00	0.00
			Max. Compression	3	-9.34	0.00	0.00
			Max. Mx	22	2.40	0.02	0.00
			Max. My	2	-0.31	0.00	-0.00
			Max. Vy	22	-0.01	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Horizontal	Max Tension	8	1.28	0.00	0.00
			Max. Compression	2	-1.00	0.00	0.00
			Max. Mx	19	0.33	0.01	0.00
			Max. My	11	1.13	0.00	-0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
T45	76.5 - 71.5	Leg	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	25	-55.11	0.22	0.40
			Max. Mx	11	-32.01	0.49	0.01
			Max. My	2	-34.33	-0.16	0.46
			Max. Vy	24	0.19	0.03	0.02
			Max. Vx	21	-0.17	0.02	-0.03
		Diagonal	Max Tension	7	10.50	0.00	0.00
			Max. Compression	13	-11.23	0.00	0.00
			Max. Mx	24	2.92	0.02	0.00
			Max. My	6	0.17	0.00	0.00
			Max. Vy	24	-0.01	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
		Horizontal	Max Tension	4	0.69	0.00	0.00
			Max. Compression	10	-0.39	0.00	0.00
			Max. Mx	17	0.13	0.01	0.00
			Max. My	5	0.61	0.00	-0.00
			Max. Vy	17	-0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	8	0.01	0.00	0.00
			Max. Compression	12	-0.01	0.00	0.00
			Max. Mx	19	0.00	-0.01	0.00
			Max. My	11	-0.00	0.00	0.00
			Max. Vy	19	0.02	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
T46	71.5 - 66.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	22	-59.09	-0.24	-0.39
			Max. Mx	26	-58.69	0.46	-0.02
			Max. My	17	-57.96	-0.20	0.41
			Max. Vy	17	-0.19	-0.45	-0.01
			Max. Vx	15	-0.17	-0.18	0.40
		Diagonal	Max Tension	13	10.91	0.00	0.00
			Max. Compression	7	-11.40	0.00	0.00
			Max. Mx	26	3.06	-0.03	0.00
			Max. My	2	-0.24	0.00	0.00
			Max. Vy	26	0.02	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	8	0.24	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	0.21	0.01	0.00
			Max. My	11	0.22	0.00	-0.00
			Max. Vy	19	0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	8	0.02	0.00	0.00
			Max. Compression	13	-0.00	0.00	0.00
			Max. Mx	19	0.01	-0.01	0.00
			Max. My	11	0.00	0.00	0.00
			Max. Vy	19	-0.02	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
T47	66.5 - 61.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	23	-64.87	0.24	0.43
			Max. Mx	16	-63.67	-0.50	-0.01
			Max. My	25	-61.30	0.22	0.45
			Max. Vy	26	0.20	0.02	0.07
			Max. Vx	22	-0.19	0.05	-0.06
		Diagonal	Max Tension	7	11.23	0.00	0.00
			Max. Compression	13	-11.94	0.00	0.00
			Max. Mx	24	3.16	-0.03	0.00
			Max. My	6	0.16	0.00	-0.00
			Max. Vy	24	0.02	0.00	0.00
			Max. Vx	6	-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
		Horizontal	Max Tension	3	0.22	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	17	0.17	0.01	0.00
			Max. My	5	0.19	0.00	-0.00
			Max. Vy	17	0.01	0.00	0.00
			Max. Vx	5	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	3	0.12	0.00	0.00
			Max. Compression	2	-0.05	0.00	0.00
			Max. Mx	14	0.03	-0.01	0.00
			Max. My	11	-0.05	0.00	0.00
			Max. Vy	14	-0.02	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
T48	61.5 - 56.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-72.62	-0.19	-0.32
			Max. Mx	16	-68.07	-0.50	-0.01
			Max. My	25	-64.78	0.22	0.45
			Max. Vy	26	-0.21	0.06	0.06
			Max. Vx	22	0.20	0.03	-0.09
		Diagonal	Max Tension	12	2.06	0.00	0.00
			Max. Compression	4	-2.60	0.00	0.00
			Max. Mx	26	-1.18	0.02	0.00
			Max. My	16	-0.83	0.00	-0.00
			Max. Vy	26	0.01	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Horizontal	Max Tension	3	7.10	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	3.80	0.01	0.00
			Max. My	11	0.39	0.00	-0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	3	0.11	0.00	0.00
			Max. Compression	2	-0.04	0.00	0.00
			Max. Mx	19	0.05	0.01	0.00
			Max. My	11	-0.04	0.00	-0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Guy A	Bottom Tension	9	15.64		
			Top Tension	9	15.70		
			Top Cable Vert	9	9.85		
			Top Cable Norm	9	12.23		
			Top Cable Tan	9	0.01		
			Bot Cable Vert	9	-9.71		
			Bot Cable Norm	9	12.26		
			Bot Cable Tan	9	0.05		
		Guy B	Bottom Tension	13	15.97		
			Top Tension	13	16.03		
			Top Cable Vert	13	10.34		
			Top Cable Norm	13	12.26		
			Top Cable Tan	13	0.01		
			Bot Cable Vert	13	-10.21		
			Bot Cable Norm	13	12.29		
			Bot Cable Tan	13	0.05		
		Guy C	Bottom Tension	3	15.69		
			Top Tension	3	15.75		
			Top Cable Vert	3	9.92		
			Top Cable Norm	3	12.24		
			Top Cable Tan	3	0.01		
			Bot Cable Vert	3	-9.79		
			Bot Cable Norm	3	12.27		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Bot Cable Tan	3	0.05		
T49	56.5 - 51.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-71.35	0.23	0.33
			Max. Mx	16	-67.29	-0.51	0.00
			Max. My	25	-64.43	0.25	0.45
			Max. Vy	16	0.20	-0.03	0.01
			Max. Vx	16	0.19	-0.20	0.43
		Diagonal	Max Tension	4	1.80	0.00	0.00
			Max. Compression	12	-2.44	0.00	0.00
			Max. Mx	24	-0.99	0.01	0.00
			Max. My	16	-0.16	0.00	-0.00
			Max. Vy	24	-0.01	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Horizontal	Max Tension	17	0.19	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	0.19	0.01	0.00
			Max. My	6	0.13	0.00	0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	3	0.02	0.00	0.00
			Max. Compression	2	-0.01	0.00	0.00
			Max. Mx	19	0.01	0.01	0.00
			Max. My	11	-0.01	0.00	-0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T50	51.5 - 46.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-71.00	-0.18	-0.37
			Max. Mx	26	-67.00	0.52	-0.01
			Max. My	17	-64.04	-0.25	0.46
			Max. Vy	17	-0.21	-0.51	-0.01
			Max. Vx	25	0.19	0.25	0.45
		Diagonal	Max Tension	12	1.47	0.00	0.00
			Max. Compression	4	-2.03	0.00	0.00
			Max. Mx	26	-0.99	0.01	0.00
			Max. My	16	-0.71	0.00	-0.00
			Max. Vy	26	-0.01	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Horizontal	Max Tension	8	0.26	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	0.22	0.01	0.00
			Max. My	11	0.22	0.00	-0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	11	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	0.01	0.00	0.00
			Max. Compression	13	-0.01	0.00	0.00
			Max. Mx	19	0.01	0.01	0.00
			Max. My	11	-0.00	0.00	-0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T51	46.5 - 41.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-70.82	0.24	0.36
			Max. Mx	16	-66.91	-0.55	0.00
			Max. My	25	-64.47	0.26	0.48
			Max. Vy	26	0.22	0.52	-0.01
			Max. Vx	17	0.20	-0.25	0.46
		Diagonal	Max Tension	4	1.06	0.00	0.00
			Max. Compression	12	-1.83	0.00	0.00
			Max. Mx	24	-0.76	0.02	0.00
			Max. My	16	-0.35	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. Vy	24	-0.01	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Horizontal	Max Tension	3	0.26	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	0.23	0.01	0.00
			Max. My	6	0.11	0.00	0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	0.01	0.00	0.00
			Max. Compression	2	-0.01	0.00	0.00
			Max. Mx	25	0.00	0.01	0.00
			Max. My	11	-0.00	0.00	-0.00
			Max. Vy	25	0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T52	41.5 - 36.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-71.43	0.48	0.02
			Max. Mx	26	-66.93	0.60	-0.01
			Max. My	17	-64.15	-0.28	0.52
			Max. Vy	16	-0.24	-0.55	0.00
			Max. Vx	25	0.22	0.26	0.48
		Diagonal	Max Tension	12	0.82	0.00	0.00
			Max. Compression	4	-1.41	0.00	0.00
			Max. Mx	26	-0.82	0.02	0.00
			Max. My	2	-0.26	0.00	-0.00
			Max. Vy	26	-0.01	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Horizontal	Max Tension	8	0.28	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	0.24	0.01	0.00
			Max. My	2	0.11	0.00	0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	0.01	0.00	0.00
			Max. Compression	2	-0.01	0.00	0.00
			Max. Mx	19	0.01	0.01	0.00
			Max. My	11	0.00	0.00	-0.00
			Max. Vy	19	0.01	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T53	36.5 - 31.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-72.26	-0.56	0.06
			Max. Mx	17	-64.29	-0.71	-0.01
			Max. My	25	-64.72	0.35	0.63
			Max. Vy	26	0.30	0.60	-0.01
			Max. Vx	17	0.27	-0.28	0.52
		Diagonal	Max Tension	6	0.41	0.00	0.00
			Max. Compression	12	-1.35	0.00	0.00
			Max. Mx	24	-0.71	0.02	0.00
			Max. My	16	-0.67	0.00	-0.00
			Max. Vy	24	-0.01	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Horizontal	Max Tension	3	0.29	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	0.29	0.01	0.00
			Max. My	6	0.17	0.00	0.00
			Max. Vy	19	0.01	0.00	0.00
			Max. Vx	6	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	3	0.01	0.00	0.00
			Max. Compression	2	-0.02	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. Mx	14	0.00	0.01	0.00
			Max. My	2	0.01	0.00	0.00
			Max. Vy	14	0.01	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
T54	31.5 - 6.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-85.89	0.44	-1.41
			Max. Mx	2	-22.18	-0.47	-1.32
			Max. My	17	-65.14	0.00	-1.67
			Max. Vy	2	0.14	-0.47	-1.32
			Max. Vx	17	0.66	0.00	-1.67
		Diagonal	Max Tension	2	0.92	0.00	0.00
			Max. Compression	6	-4.15	0.00	0.00
			Max. Mx	26	-1.40	0.02	0.00
			Max. My	2	-0.64	0.00	-0.00
			Max. Vy	26	-0.01	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Horizontal	Max Tension	15	1.11	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	1.06	0.01	0.00
			Max. My	2	0.28	0.00	0.00
			Max. Vy	14	0.01	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
T55	6.5 - 0	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-97.22	-0.00	-0.00
			Max. Mx	2	-96.94	-9.18	0.44
			Max. My	9	-33.39	1.03	-3.10
			Max. Vy	2	-1.46	-0.00	-0.00
			Max. Vx	9	-0.52	-0.00	-0.00
		Top Girt	Max Tension	6	0.98	4.84	0.01
			Max. Compression	2	-0.27	-7.40	-0.00
			Max. Mx	2	-0.27	-7.40	-0.00
			Max. My	3	0.18	-3.48	-0.02
			Max. Vy	2	-4.99	-7.40	-0.00
			Max. Vx	3	-0.01	3.07	0.01

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	10	94.69	1.13	-0.61
	Max. H_x	10	94.69	1.13	-0.61
	Max. H_z	2	18.39	-0.44	0.72
	Min. Vert	3	11.08	-0.75	0.66
	Min. H_x	5	12.62	-0.86	0.30
	Min. H_z	10	94.69	1.13	-0.61
Leg B	Max. Vert	6	93.94	-1.07	-0.72
	Max. H_x	11	12.13	0.87	0.28
	Max. H_z	2	17.89	0.38	0.85
	Min. Vert	13	10.81	0.69	0.77
	Min. H_x	6	93.94	-1.07	-0.72
	Min. H_z	7	83.93	-0.81	-0.73
Leg A	Max. Vert	2	97.25	0.06	1.40
	Max. H_x	11	34.75	0.45	-0.14
	Max. H_z	2	97.25	0.06	1.40
	Min. Vert	8	11.04	-0.10	-0.98
	Min. H_x	6	19.36	-0.53	-0.69

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. H_z	8	11.04	-0.10	-0.98
Guy C @ 170 ft Elev 0 ft Azimuth 240 deg	Max. Vert	10	-3.89	-1.80	1.04
	Max. H_x	10	-3.89	-1.80	1.04
	Max. H_z	4	-31.05	-19.20	11.09
	Min. Vert	4	-31.05	-19.20	11.09
	Min. H_x	4	-31.05	-19.20	11.09
	Min. H_z	10	-3.89	-1.80	1.04
Guy B @ 170 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-3.82	1.77	1.02
	Max. H_x	12	-31.25	19.33	11.16
	Max. H_z	12	-31.25	19.33	11.16
	Min. Vert	12	-31.25	19.33	11.16
	Min. H_x	6	-3.82	1.77	1.02
	Min. H_z	6	-3.82	1.77	1.02
Guy A @ 169 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-3.95	0.00	-2.10
	Max. H_x	11	-18.02	0.90	-12.51
	Max. H_z	2	-3.95	0.00	-2.10
	Min. Vert	8	-31.19	-0.00	-22.15
	Min. H_x	5	-18.12	-0.90	-12.58
	Min. H_z	8	-31.19	-0.00	-22.15
Guy C @ 78 ft Elev 0 ft Azimuth 240 deg	Max. Vert	10	-0.38	-0.20	0.12
	Max. H_x	10	-0.38	-0.20	0.12
	Max. H_z	3	-21.13	-16.62	9.75
	Min. Vert	3	-21.13	-16.62	9.75
	Min. H_x	3	-21.13	-16.62	9.75
	Min. H_z	10	-0.38	-0.20	0.12
Guy B @ 75 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-0.40	0.19	0.11
	Max. H_x	13	-21.72	16.49	9.68
	Max. H_z	13	-21.72	16.49	9.68
	Min. Vert	13	-21.72	16.49	9.68
	Min. H_x	6	-0.40	0.19	0.11
	Min. H_z	6	-0.40	0.19	0.11
Guy A @ 78.5 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-0.37	0.00	-0.23
	Max. H_x	10	-17.29	0.21	-15.91
	Max. H_z	2	-0.37	0.00	-0.23
	Min. Vert	9	-21.06	0.13	-19.30
	Min. H_x	6	-17.24	-0.21	-15.87
	Min. H_z	9	-21.06	0.13	-19.30

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	97.85	-0.00	-0.01	-0.29	0.42	-0.03
1.2 Dead+1.0 Wind 0 deg - No	133.53	-0.00	-2.97	-137.03	0.74	0.36

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
Ice+1.0 Guy						
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	129.64	0.95	-2.26	-107.84	-34.14	0.41
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	122.33	1.56	-0.92	-37.00	-63.27	0.04
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	129.18	2.22	0.27	22.58	-104.35	-0.43
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	132.74	2.37	1.36	64.65	-111.76	-0.50
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	129.39	1.46	1.93	82.81	-74.58	-0.38
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	122.48	-0.00	1.98	77.40	0.93	-0.53
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	129.64	-1.46	1.95	83.28	76.49	-0.57
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	133.16	-2.36	1.35	64.46	113.70	-0.21
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	129.80	-2.22	0.26	22.12	106.17	0.28
1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy	122.93	-1.56	-0.93	-37.68	64.78	0.42
1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy	129.98	-0.94	-2.26	-108.01	35.19	0.25
1.2 Dead+1.0 Ice+1.0 Temp+Guy	191.07	-0.02	-0.05	-0.89	0.94	-0.10
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	193.63	-0.04	-0.52	-26.23	1.06	0.05
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	193.71	0.16	-0.45	-21.99	-9.61	0.20
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	193.81	0.32	-0.25	-11.85	-18.04	0.09
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	193.57	0.41	-0.02	0.52	-22.35	-0.11
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	193.38	0.38	0.19	11.76	-20.50	-0.14
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	193.57	0.22	0.32	18.83	-11.81	-0.13
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	193.83	-0.02	0.35	21.17	1.06	-0.27
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	193.75	-0.26	0.31	18.80	13.97	-0.39
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	193.66	-0.42	0.18	11.60	22.80	-0.26
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	193.85	-0.45	-0.03	0.35	24.42	-0.11
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	194.02	-0.36	-0.26	-12.04	19.94	-0.12
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	193.82	-0.21	-0.45	-22.15	11.48	-0.13
Dead+Wind 0 deg - Service+Guy	98.48	-0.00	-0.64	-20.58	0.48	0.10
Dead+Wind 30 deg - Service+Guy	98.51	0.27	-0.50	-16.98	-9.06	0.09
Dead+Wind 60 deg - Service+Guy	98.53	0.43	-0.27	-9.33	-15.42	-0.04
Dead+Wind 90 deg - Service+Guy	98.46	0.51	-0.01	-0.06	-17.87	-0.18
Dead+Wind 120 deg - Service+Guy	98.39	0.50	0.28	9.40	-16.29	-0.20
Dead+Wind 150 deg - Service+Guy	98.45	0.28	0.47	16.23	-9.32	-0.16

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
Dead+Wind 180 deg - Service+Guy	98.53	-0.00	0.54	18.93	0.39	-0.18
Dead+Wind 210 deg - Service+Guy	98.49	-0.29	0.47	16.24	10.18	-0.17
Dead+Wind 240 deg - Service+Guy	98.46	-0.50	0.28	9.24	17.15	-0.05
Dead+Wind 270 deg - Service+Guy	98.53	-0.51	-0.01	-0.27	18.74	0.09
Dead+Wind 300 deg - Service+Guy	98.59	-0.44	-0.27	-9.52	16.30	0.11
Dead+Wind 330 deg - Service+Guy	98.54	-0.27	-0.50	-17.00	9.92	0.07

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	-37.38	0.00	0.00	37.37	0.00	0.010%
2	-0.06	-44.26	-36.01	0.06	44.26	35.98	0.052%
3	17.72	-44.14	-30.66	-17.72	44.13	30.63	0.050%
4	30.38	-44.01	-17.46	-30.37	44.01	17.46	0.024%
5	35.13	-44.14	0.07	-35.10	44.13	-0.05	0.048%
6	30.92	-44.26	17.86	-30.89	44.26	-17.84	0.051%
7	17.78	-44.13	30.72	-17.76	44.13	-30.71	0.047%
8	0.07	-44.00	35.50	-0.06	44.00	-35.48	0.032%
9	-17.68	-44.13	30.68	17.65	44.13	-30.67	0.048%
10	-30.84	-44.26	17.74	30.82	44.26	-17.73	0.051%
11	-35.13	-44.13	-0.04	35.11	44.13	0.06	0.047%
12	-30.44	-44.00	-17.57	30.43	44.00	17.57	0.027%
13	-17.80	-44.13	-30.72	17.80	44.13	30.69	0.049%
14	0.00	-114.19	0.00	-0.01	114.19	0.01	0.007%
15	-0.07	-114.30	-15.46	0.06	114.30	15.44	0.010%
16	7.72	-114.19	-13.27	-7.71	114.19	13.26	0.008%
17	13.32	-114.08	-7.67	-13.32	114.08	7.66	0.007%
18	15.40	-114.19	-0.04	-15.39	114.19	0.04	0.007%
19	13.42	-114.31	7.65	-13.41	114.31	-7.65	0.009%
20	7.69	-114.19	13.30	-7.68	114.19	-13.29	0.007%
21	0.02	-114.07	15.34	-0.02	114.07	-15.33	0.007%
22	-7.66	-114.19	13.27	7.65	114.19	-13.26	0.007%
23	-13.43	-114.30	7.59	13.42	114.30	-7.58	0.010%
24	-15.41	-114.19	-0.10	15.41	114.19	0.09	0.008%
25	-13.36	-114.07	-7.71	13.36	114.07	7.71	0.008%
26	-7.79	-114.19	-13.30	7.78	114.19	13.29	0.007%
27	-0.02	-37.41	-9.57	0.02	37.41	9.56	0.017%
28	4.71	-37.38	-8.15	-4.70	37.38	8.14	0.029%
29	8.08	-37.34	-4.64	-8.07	37.34	4.64	0.020%
30	9.34	-37.38	0.02	-9.33	37.38	-0.02	0.014%
31	8.22	-37.41	4.75	-8.21	37.41	-4.74	0.010%
32	4.73	-37.38	8.17	-4.72	37.38	-8.16	0.016%
33	0.02	-37.34	9.43	-0.02	37.34	-9.43	0.022%
34	-4.70	-37.37	8.16	4.69	37.37	-8.15	0.031%
35	-8.20	-37.41	4.72	8.19	37.41	-4.71	0.013%
36	-9.34	-37.37	-0.01	9.33	37.37	0.01	0.013%
37	-8.09	-37.34	-4.67	8.09	37.34	4.67	0.014%
38	-4.73	-37.38	-8.16	4.73	37.38	8.16	0.013%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	7	0.00000001	0.00018719
2	Yes	82	0.00019369	0.00005239
3	Yes	73	0.00019573	0.00004920
4	Yes	26	0.00018118	0.00012083
5	Yes	76	0.00019875	0.00005801
6	Yes	84	0.00019875	0.00005896
7	Yes	76	0.00019663	0.00005706
8	Yes	24	0.00018639	0.00013287
9	Yes	74	0.00019190	0.00004988
10	Yes	83	0.00019074	0.00005288
11	Yes	76	0.00019071	0.00005334
12	Yes	26	0.00018360	0.00013360
13	Yes	75	0.00019421	0.00005276
14	Yes	11	0.00020000	0.00006145
15	Yes	49	0.00000001	0.00001668
16	Yes	55	0.00000001	0.00002700
17	Yes	58	0.00018936	0.00002964
18	Yes	57	0.00000001	0.00002652
19	Yes	51	0.00000001	0.00001902
20	Yes	57	0.00000001	0.00002718
21	Yes	58	0.00019074	0.00003036
22	Yes	56	0.00000001	0.00002621
23	Yes	50	0.00000001	0.00001670
24	Yes	56	0.00000001	0.00002677
25	Yes	57	0.00019910	0.00003175
26	Yes	56	0.00000001	0.00002682
27	Yes	18	0.00000001	0.00006464
28	Yes	16	0.00000001	0.00006135
29	Yes	21	0.00000001	0.00005353
30	Yes	22	0.00000001	0.00005836
31	Yes	22	0.00000001	0.00005447
32	Yes	21	0.00000001	0.00005502
33	Yes	20	0.00000001	0.00005459
34	Yes	16	0.00000001	0.00006591
35	Yes	20	0.00000001	0.00005664
36	Yes	23	0.00000001	0.00005695
37	Yes	24	0.00000001	0.00005487
38	Yes	22	0.00000001	0.00005624

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	341.5 - 314.5	3.95	33	0.36	0.19
T1	314.5 - 310.5	2.20	33	0.10	0.20
T2	310.5 - 306.5	2.12	33	0.09	0.20
T3	306.5 - 281.5	2.03	33	0.09	0.21
T4	281.5 - 276.5	1.62	33	0.07	0.25
T5	276.5 - 271.5	1.54	33	0.07	0.24
T6	271.5 - 266.5	1.47	33	0.06	0.27
T7	266.5 - 261.5	1.40	33	0.06	0.26

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T8	261.5 - 256.5	1.34	33	0.05	0.28
T9	256.5 - 251.5	1.28	33	0.05	0.27
T10	251.5 - 246.5	1.23	33	0.04	0.29
T11	246.5 - 241.5	1.19	33	0.03	0.29
T12	241.5 - 236.5	1.16	33	0.03	0.33
T13	236.5 - 231.5	1.14	33	0.02	0.28
T14	231.5 - 226.5	1.12	33	0.02	0.33
T15	226.5 - 221.5	1.10	33	0.01	0.28
T16	221.5 - 216.5	1.09	33	0.01	0.32
T17	216.5 - 211.5	1.09	37	0.01	0.27
T18	211.5 - 206.5	1.08	37	0.01	0.31
T19	206.5 - 201.5	1.08	37	0.01	0.26
T20	201.5 - 196.5	1.09	37	0.01	0.31
T21	196.5 - 191.5	1.09	37	0.01	0.26
T22	191.5 - 186.5	1.10	37	0.02	0.30
T23	186.5 - 181.5	1.12	37	0.02	0.25
T24	181.5 - 176.5	1.14	37	0.03	0.30
T25	176.5 - 171.5	1.17	37	0.03	0.25
T26	171.5 - 166.5	1.20	37	0.03	0.30
T27	166.5 - 161.5	1.24	37	0.03	0.24
T28	161.5 - 156.5	1.26	37	0.03	0.29
T29	156.5 - 151.5	1.29	37	0.03	0.22
T30	151.5 - 146.5	1.32	37	0.03	0.28
T31	146.5 - 141.5	1.35	37	0.02	0.20
T32	141.5 - 136.5	1.37	37	0.02	0.26
T33	136.5 - 131.5	1.38	37	0.02	0.18
T34	131.5 - 126.5	1.40	37	0.02	0.24
T35	126.5 - 121.5	1.41	37	0.02	0.16
T36	121.5 - 116.5	1.42	37	0.01	0.25
T37	116.5 - 111.5	1.43	37	0.00	0.15
T38	111.5 - 106.5	1.43	37	0.02	0.24
T39	106.5 - 101.5	1.41	37	0.03	0.14
T40	101.5 - 96.5	1.38	37	0.05	0.22
T41	96.5 - 91.5	1.31	37	0.07	0.12
T42	91.5 - 86.5	1.22	37	0.08	0.20
T43	86.5 - 81.5	1.12	38	0.09	0.10
T44	81.5 - 76.5	1.01	38	0.10	0.18
T45	76.5 - 71.5	0.89	38	0.11	0.09
T46	71.5 - 66.5	0.76	27	0.11	0.17
T47	66.5 - 61.5	0.64	27	0.10	0.09
T48	61.5 - 56.5	0.53	27	0.09	0.15
T49	56.5 - 51.5	0.45	27	0.08	0.08
T50	51.5 - 46.5	0.38	27	0.07	0.16
T51	46.5 - 41.5	0.31	27	0.06	0.07
T52	41.5 - 36.5	0.25	27	0.05	0.15
T53	36.5 - 31.5	0.20	27	0.05	0.06
T54	31.5 - 6.5	0.15	27	0.04	0.15
T55	6.5 - 0	0.02	27	0.01	0.01

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
325.00	Shively 68010	33	2.67	0.16	0.20	4423
306.50	Guy	33	2.03	0.09	0.21	83470
303.00	3' x 5.5' Grid Dish	33	1.96	0.09	0.22	28342

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
288.00	2.36" Dia. x 20' (4) Element Dipole	33	1.72	0.08	0.26	135360
287.00	10" x 8" x 4.25" Box	33	1.70	0.08	0.26	180268
273.00	DB413-B	33	1.49	0.07	0.26	67879
260.00	25' x 1.62" Dia. Broadcast Antenna	33	1.32	0.05	0.28	48728
246.50	Guy	33	1.19	0.03	0.29	21507
239.00	2.3" Dia. x 20' Omni	33	1.15	0.02	0.30	67444
237.00	2.3" Dia. x 20' Omni	33	1.14	0.02	0.28	64303
223.00	L-810 Side Light	33	1.10	0.01	0.31	87351
186.50	Guy	37	1.12	0.02	0.25	24461
183.00	26.5" x 15" Conduit Box	37	1.14	0.02	0.30	38673
169.00	10" x 10" x 1.25" Detuner Box	37	1.22	0.03	0.25	262848
145.50	14.875x15.125"x0.5" Flat Panel	37	1.35	0.02	0.20	79779
141.00	4' Grid Dish	37	1.37	0.02	0.26	73176
135.00	L-810 Side Light	37	1.39	0.02	0.19	71885
126.50	Guy	37	1.41	0.02	0.16	48787
110.00	10,500 Sq inches	37	1.43	0.02	0.21	13944
101.00	X7C-FRO-660 w/ Pipe	37	1.37	0.05	0.21	9561
80.00	HPA-65R-BUU-H6 w/ 7' MP	38	0.97	0.10	0.15	26975
61.50	Guy	27	0.53	0.09	0.15	10237
33.00	26.5" x 15" Conduit Box	27	0.17	0.04	0.09	42330
8.50	26.5" x 15" Conduit Box	27	0.02	0.01	0.03	79253

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	341.5 - 314.5	18.07	6	1.28	0.56
T1	314.5 - 310.5	11.77	6	0.44	0.60
T2	310.5 - 306.5	11.40	6	0.43	0.60
T3	306.5 - 281.5	11.03	6	0.42	0.61
T4	281.5 - 276.5	9.01	6	0.35	0.75
T5	276.5 - 271.5	8.64	6	0.33	0.76
T6	271.5 - 266.5	8.29	6	0.31	0.83
T7	266.5 - 261.5	7.97	6	0.28	0.82
T8	261.5 - 256.5	7.67	6	0.26	0.88
T9	256.5 - 251.5	7.40	6	0.24	0.87
T10	251.5 - 246.5	7.17	6	0.21	0.91
T11	246.5 - 241.5	6.98	6	0.17	0.91
T12	241.5 - 236.5	6.86	6	0.15	0.97
T13	236.5 - 231.5	6.78	6	0.12	0.91
T14	231.5 - 226.5	6.72	6	0.10	0.97
T15	226.5 - 221.5	6.68	6	0.09	0.90
T16	221.5 - 216.5	6.68	6	0.07	0.96
T17	216.5 - 211.5	6.69	10	0.06	0.89
T18	211.5 - 206.5	6.74	10	0.05	0.94
T19	206.5 - 201.5	6.80	10	0.07	0.87
T20	201.5 - 196.5	6.88	10	0.09	0.92
T21	196.5 - 191.5	6.98	2	0.11	0.84
T22	191.5 - 186.5	7.10	2	0.12	0.88
T23	186.5 - 181.5	7.23	2	0.15	0.81
T24	181.5 - 176.5	7.41	2	0.16	0.87
T25	176.5 - 171.5	7.62	2	0.17	0.78
T26	171.5 - 166.5	7.81	2	0.17	0.83
T27	166.5 - 161.5	8.01	2	0.17	0.74
T28	161.5 - 156.5	8.19	2	0.16	0.81

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T29	156.5 - 151.5	8.37	2	0.15	0.70
T30	151.5 - 146.5	8.53	2	0.13	0.74
T31	146.5 - 141.5	8.67	2	0.11	0.63
T32	141.5 - 136.5	8.78	2	0.08	0.67
T33	136.5 - 131.5	8.86	2	0.06	0.56
T34	131.5 - 126.5	8.91	2	0.03	0.62
T35	126.5 - 121.5	8.93	2	0.02	0.49
T36	121.5 - 116.5	8.94	2	0.04	0.61
T37	116.5 - 111.5	8.89	2	0.09	0.47
T38	111.5 - 106.5	8.82	2	0.16	0.56
T39	106.5 - 101.5	8.64	2	0.23	0.41
T40	101.5 - 96.5	8.38	2	0.31	0.49
T41	96.5 - 91.5	7.98	2	0.39	0.35
T42	91.5 - 86.5	7.50	2	0.46	0.43
T43	86.5 - 81.5	6.94	2	0.51	0.29
T44	81.5 - 76.5	6.33	2	0.56	0.37
T45	76.5 - 71.5	5.68	2	0.59	0.24
T46	71.5 - 66.5	4.99	2	0.60	0.34
T47	66.5 - 61.5	4.33	2	0.58	0.22
T48	61.5 - 56.5	3.69	2	0.54	0.31
T49	56.5 - 51.5	3.15	2	0.50	0.20
T50	51.5 - 46.5	2.66	2	0.46	0.29
T51	46.5 - 41.5	2.20	2	0.42	0.16
T52	41.5 - 36.5	1.78	2	0.38	0.29
T53	36.5 - 31.5	1.40	2	0.34	0.13
T54	31.5 - 6.5	1.07	2	0.29	0.28
T55	6.5 - 0	0.10	2	0.03	0.03

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
325.00	Shively 68010	6	13.57	0.64	0.59	1393
306.50	Guy	6	11.03	0.42	0.61	28037
303.00	3' x 5.5' Grid Dish	6	10.71	0.40	0.64	9082
288.00	2.36" Dia. x 20' (4) Element Dipole	6	9.49	0.37	0.74	27373
287.00	10" x 8" x 4.25" Box	6	9.42	0.36	0.74	31550
273.00	DB413-B	6	8.39	0.32	0.81	12633
260.00	25' x 1.62" Dia. Broadcast Antenna	6	7.58	0.25	0.88	9146
246.50	Guy	6	6.98	0.17	0.91	4326
239.00	2.3" Dia. x 20' Omni	6	6.82	0.13	0.94	11646
237.00	2.3" Dia. x 20' Omni	6	6.78	0.12	0.91	11103
223.00	L-810 Side Light	6	6.68	0.08	0.95	13895
186.50	Guy	2	7.23	0.15	0.81	5998
183.00	26.5" x 15" Conduit Box	2	7.35	0.16	0.86	8871
169.00	10" x 10" x 1.25" Detuner Box	2	7.91	0.17	0.77	26593
145.50	14.875x15.125"x0.5" Flat Panel	2	8.70	0.10	0.61	10457
141.00	4' Grid Dish	2	8.79	0.08	0.67	9474
135.00	L-810 Side Light	2	8.88	0.05	0.56	8933
126.50	Guy	2	8.93	0.02	0.49	15614
110.00	10,500 Sq inches	2	8.78	0.18	0.52	3014
101.00	X7C-FRO-660 w/ Pipe	2	8.35	0.32	0.49	2206
80.00	HPA-65R-BUU-H6 w/ 7' MP	2	6.14	0.57	0.34	6216
61.50	Guy	2	3.69	0.54	0.31	2630
33.00	26.5" x 15" Conduit Box	2	1.16	0.31	0.17	6191
8.50	26.5" x 15" Conduit Box	2	0.14	0.05	0.06	8654

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	314.5	Diagonal	A325N	0.63	1	2.44	18.22	0.134	1	Member Block Shear
T2	310.5	Leg	A325N	0.50	3	5.05	12.77	0.396	1	Bolt Tension
		Diagonal	A325N	0.63	1	2.45	10.02	0.245	1	Member Bearing
		Horizontal	A325N	0.63	1	0.34	10.02	0.033	1	Member Bearing
T3	306.5	Leg	A325N	0.50	3	2.45	12.77	0.191	1	Bolt Tension
		Diagonal	A325N	0.63	1	1.40	10.02	0.140	1	Member Bearing
		Horizontal	A325N	0.63	1	3.54	10.02	0.353	1	Member Bearing
T4	281.5	Diagonal	A325N	0.63	1	1.80	10.02	0.179	1	Member Bearing
		Horizontal	A325N	0.63	1	0.59	10.02	0.058	1	Member Bearing
		Secondary Horizontal	A325N	0.50	1	0.59	8.84	0.066	1	Bolt Shear
T5	276.5	Diagonal	A325N	0.63	1	1.97	10.02	0.197	1	Member Bearing
		Horizontal	A325N	0.63	1	0.64	10.02	0.064	1	Member Bearing
T6	271.5	Diagonal	A325N	0.63	1	2.58	12.11	0.213	1	Member Bearing
		Horizontal	A325N	0.63	1	0.73	10.02	0.073	1	Member Bearing
T7	266.5	Diagonal	A325N	0.63	1	2.80	12.11	0.231	1	Member Bearing
		Horizontal	A325N	0.63	1	0.80	10.02	0.080	1	Member Bearing
T8	261.5	Leg	A325N	0.50	3	4.52	12.77	0.354	1	Bolt Tension
		Diagonal	A325N	0.63	1	3.01	12.11	0.249	1	Member Bearing
		Horizontal	A325N	0.63	1	0.91	10.02	0.091	1	Member Bearing
T9	256.5	Diagonal	A325N	0.63	1	3.53	13.81	0.256	1	Bolt Shear
		Horizontal	A325N	0.63	1	1.01	10.02	0.100	1	Member Bearing
T10	251.5	Diagonal	A325N	0.63	1	3.72	13.81	0.269	1	Bolt Shear
		Horizontal	A325N	0.63	1	1.14	10.02	0.114	1	Member Bearing
T11	246.5	Diagonal	A325N	0.63	1	3.81	18.22	0.209	1	Member Block Shear
		Horizontal	A325N	0.63	1	5.25	10.02	0.524	1	Member Bearing
		Secondary Horizontal	A325N	0.50	1	1.17	8.27	0.142	1	Member Bearing
T12	241.5	Diagonal	A325N	0.63	1	2.93	18.22	0.161	1	Member Block Shear
		Horizontal	A325N	0.63	1	1.09	10.02	0.109	1	Member Bearing
		Secondary Horizontal	A325N	0.50	1	1.09	16.53	0.066	1	Member Bearing
T13	236.5	Leg	A325N	0.50	3	4.61	12.77	0.361	1	Bolt Tension
		Diagonal	A325N	0.63	1	1.76	18.22	0.096	1	Member Block Shear
		Horizontal	A325N	0.63	1	1.01	10.02	0.100	1	Member Bearing
		Secondary Horizontal	A325N	0.50	1	1.01	16.53	0.061	1	Member Bearing
T14	231.5	Diagonal	A325N	0.63	1	1.45	18.22	0.079	1	Member Block Shear
		Horizontal	A325N	0.63	1	0.93	10.02	0.093	1	Member Bearing
		Secondary Horizontal	A325N	0.50	1	0.93	8.27	0.113	1	Member Bearing
T15	226.5	Diagonal	A325N	0.63	1	1.63	13.81	0.118	1	Bolt Shear
		Horizontal	A325N	0.63	1	0.89	10.02	0.089	1	Member Bearing
		Secondary Horizontal	A325N	0.50	1	0.89	8.27	0.108	1	Member Bearing
T16	221.5	Diagonal	A325N	0.63	1	1.39	13.81	0.100	1	Bolt Shear
		Horizontal	A325N	0.63	1	0.84	10.02	0.084	1	Member Bearing
		Secondary	A325N	0.50	1	0.84	8.27	0.102	1	Member Bearing

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Horizontal								
T17	216.5	Diagonal	A325N	0.63	1	1.00	13.81	0.072	1	Bolt Shear
		Horizontal	A325N	0.63	1	0.83	10.02	0.083	1	Member Bearing
		Secondary	A325N	0.50	1	0.83	8.27	0.101	1	Member Bearing
		Horizontal								
T18	211.5	Leg	A325N	0.50	3	3.70	12.77	0.290	1	Bolt Tension
		Diagonal	A325N	0.63	1	0.83	13.81	0.060	1	Bolt Shear
		Horizontal	A325N	0.63	1	0.81	10.02	0.081	1	Member Bearing
		Secondary	A325N	0.50	1	0.81	8.27	0.098	1	Member Bearing
		Horizontal								
T19	206.5	Diagonal	A325N	0.63	1	1.02	13.81	0.074	1	Bolt Shear
		Horizontal	A325N	0.63	1	0.83	10.02	0.082	1	Member Bearing
		Secondary	A325N	0.50	1	0.83	8.27	0.100	1	Member Bearing
		Horizontal								
T20	201.5	Diagonal	A325N	0.63	1	1.36	13.81	0.098	1	Bolt Shear
		Horizontal	A325N	0.63	1	0.83	10.02	0.083	1	Member Bearing
		Secondary	A325N	0.50	1	0.83	8.27	0.100	1	Member Bearing
		Horizontal								
T21	196.5	Diagonal	A325N	0.63	1	1.74	13.81	0.126	1	Bolt Shear
		Horizontal	A325N	0.63	1	0.87	10.02	0.087	1	Member Bearing
		Secondary	A325N	0.50	1	0.87	8.27	0.106	1	Member Bearing
		Horizontal								
T22	191.5	Diagonal	A325N	0.63	1	2.05	13.81	0.148	1	Bolt Shear
		Horizontal	A325N	0.63	1	0.90	10.02	0.090	1	Member Bearing
		Secondary	A325N	0.50	1	0.90	8.27	0.109	1	Member Bearing
		Horizontal								
T23	186.5	Leg	A325N	0.50	3	4.03	12.77	0.315	1	Bolt Tension
		Diagonal	A325N	0.63	1	4.07	13.81	0.295	1	Bolt Shear
		Horizontal	A325N	0.63	1	3.35	10.02	0.335	1	Member Bearing
T24	181.5	Diagonal	A325N	0.63	1	3.25	10.02	0.324	1	Member Bearing
		Horizontal	A325N	0.63	1	0.91	10.02	0.091	1	Member Bearing
T25	176.5	Diagonal	A325N	0.63	1	3.50	13.81	0.253	1	Bolt Shear
		Horizontal	A325N	0.63	1	0.90	10.02	0.090	1	Member Bearing
T26	171.5	Diagonal	A325N	0.63	1	3.15	13.81	0.228	1	Bolt Shear
		Horizontal	A325N	0.63	1	0.92	10.02	0.092	1	Member Bearing
T27	166.5	Diagonal	A325N	0.63	1	2.46	18.22	0.135	1	Member Block Shear
		Horizontal	A325N	0.63	1	0.95	10.02	0.095	1	Member Bearing
T28	161.5	Leg	A325N	0.50	3	4.15	12.77	0.325	1	Bolt Tension
		Diagonal	A325N	0.63	1	2.08	10.02	0.208	1	Member Bearing
		Horizontal	A325N	0.63	1	0.98	10.02	0.098	1	Member Bearing
T29	156.5	Diagonal	A325N	0.63	1	1.92	10.02	0.192	1	Member Bearing
		Horizontal	A325N	0.63	1	1.00	10.02	0.100	1	Member Bearing
		Secondary	A325N	0.50	1	1.00	8.84	0.113	1	Bolt Shear
		Horizontal								
T30	151.5	Diagonal	A325N	0.63	1	2.09	13.81	0.151	1	Bolt Shear
		Horizontal	A325N	0.63	1	1.03	10.02	0.103	1	Member Bearing
T31	146.5	Diagonal	A325N	0.63	1	1.39	10.02	0.139	1	Member Bearing
		Horizontal	A325N	0.63	1	1.03	10.02	0.103	1	Member Bearing
T32	141.5	Diagonal	A325N	0.63	1	1.20	13.81	0.087	1	Bolt Shear
		Horizontal	A325N	0.63	1	1.05	10.02	0.105	1	Member Bearing
T33	136.5	Leg	A325N	0.50	3	4.40	12.77	0.344	1	Bolt Tension
		Diagonal	A325N	0.63	1	1.26	13.81	0.091	1	Bolt Shear
		Horizontal	A325N	0.63	1	1.04	10.02	0.104	1	Member Bearing
T34	131.5	Leg	A325N	0.50	3	4.38	12.77	0.343	1	Bolt Tension
		Diagonal	A325N	0.63	1	1.55	13.81	0.112	1	Bolt Shear
		Horizontal	A325N	0.63	1	1.04	10.02	0.103	1	Member Bearing
T35	126.5	Diagonal	A325N	0.63	1	6.83	13.81	0.495	1	Bolt Shear
		Horizontal	A325N	0.63	1	4.15	10.02	0.414	1	Member Bearing
T36	121.5	Diagonal	A325N	0.63	1	6.59	13.81	0.477	1	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Horizontal	A325N	0.63	1	1.53	10.02	0.153	1	Member Bearing
T37	116.5	Diagonal	A325N	0.63	1	5.92	10.02	0.590	1	Member Bearing
		Horizontal	A325N	0.63	1	1.70	10.02	0.170	1	Member Bearing
T38	111.5	Diagonal	A325N	0.63	1	3.33	10.02	0.332	1	Member Bearing
		Horizontal	A325N	0.63	1	1.90	10.02	0.190	1	Member Bearing
T39	106.5	Diagonal	A325N	0.63	1	2.45	10.02	0.245	1	Member Bearing
		Horizontal	A325N	0.63	1	2.00	10.02	0.199	1	Member Bearing
T40	101.5	Diagonal	A325N	0.63	1	3.55	10.02	0.354	1	Member Bearing
		Horizontal	A325N	0.63	1	2.03	10.02	0.202	1	Member Bearing
T41	96.5	Diagonal	A325N	0.63	1	4.58	10.02	0.457	1	Member Bearing
		Horizontal	A325N	0.63	1	1.88	10.02	0.188	1	Member Bearing
T42	91.5	Diagonal	A325N	0.63	1	5.11	10.02	0.510	1	Member Bearing
		Horizontal	A325N	0.63	1	1.72	10.02	0.172	1	Member Bearing
T43	86.5	Leg	A325N	0.50	3	6.60	12.77	0.517	1	Bolt Tension
		Diagonal	A325N	0.63	1	5.01	10.02	0.500	1	Member Bearing
		Horizontal	A325N	0.63	1	1.56	10.02	0.156	1	Member Bearing
T44	81.5	Leg	A325N	0.50	3	6.22	12.77	0.487	1	Bolt Tension
		Diagonal	A325N	0.63	1	8.85	12.11	0.731	1	Member Bearing
		Horizontal	A325N	0.63	1	1.47	10.02	0.147	1	Member Bearing
T45	76.5	Diagonal	A325N	0.63	1	10.49	12.11	0.867	1	Member Bearing
		Horizontal	A325N	0.63	1	1.45	10.02	0.145	1	Member Bearing
		Secondary Horizontal	A325N	0.50	1	1.45	8.27	0.175	1	Member Bearing
T46	71.5	Diagonal	A325N	0.63	1	11.40	13.81	0.826	1	Bolt Shear
		Horizontal	A325N	0.63	1	1.55	10.02	0.155	1	Member Bearing
		Secondary Horizontal	A325N	0.50	1	1.55	8.27	0.188	1	Member Bearing
T47	66.5	Diagonal	A325N	0.63	1	11.94	13.81	0.865	1	Bolt Shear
		Horizontal	A325N	0.63	1	1.71	10.02	0.170	1	Member Bearing
		Secondary Horizontal	A325N	0.50	1	1.71	8.27	0.206	1	Member Bearing
T48	61.5	Diagonal	A325N	0.63	1	2.06	10.02	0.206	1	Member Bearing
		Horizontal	A325N	0.63	1	7.10	10.02	0.708	1	Member Bearing
		Secondary Horizontal	A325N	0.50	1	1.91	8.84	0.216	1	Bolt Shear
T49	56.5	Leg	A325N	0.50	3	7.93	12.77	0.621	1	Bolt Tension
		Diagonal	A325N	0.63	1	1.80	10.02	0.180	1	Member Bearing
		Horizontal	A325N	0.63	1	1.88	10.02	0.187	1	Member Bearing
T50	51.5	Leg	A325N	0.50	4	5.92	12.77	0.463	1	Bolt Tension
		Diagonal	A325N	0.63	1	1.47	10.02	0.147	1	Member Bearing
		Horizontal	A325N	0.63	1	1.87	10.02	0.186	1	Member Bearing
T51	46.5	Diagonal	A325N	0.63	1	1.83	13.81	0.133	1	Bolt Shear
T52	41.5	Diagonal	A325N	0.63	1	1.41	13.81	0.102	1	Bolt Shear
T53	36.5	Leg	A325N	0.50	3	8.03	12.77	0.629	1	Bolt Tension
		Diagonal	A325N	0.63	1	1.35	13.81	0.098	1	Bolt Shear
T54	31.5	Leg	A325N	0.50	4	7.16	12.77	0.560	1	Bolt Tension
		Diagonal	A325N	0.63	1	4.15	13.81	0.301	1	Bolt Shear

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T3	306.50 (A)	11/16	5.00	50.00	13.55	30.00	1.000	2.215

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
	(625)	(24000) EHS						
	306.50 (B)	11/16	5.00	50.00	13.58	30.00	1.000	2.208
	(624)	(24000) EHS						
	306.50 (C)	11/16	5.00	50.00	13.50	30.00	1.000	2.222
	(623)	(24000) EHS						
T11	246.50 (A)	7/8 (19000)	7.97	79.70	16.85	47.82	1.000	2.837
	(628)	EHS						
	246.50 (B)	7/8 (19000)	7.97	79.70	16.88	47.82	1.000	2.833
	(627)	EHS						
	246.50 (C)	7/8 (19000)	7.97	79.70	16.82	47.82	1.000	2.843
	(626)	EHS						
T23	186.50 (A)	9/16 (23000)	3.50	35.00	8.80	21.00	1.000	2.387
	(631)	EHS						
	186.50 (B)	9/16 (23000)	3.50	35.00	8.87	21.00	1.000	2.367
	(630)	EHS						
	186.50 (C)	9/16 (23000)	3.50	35.00	8.78	21.00	1.000	2.393
	(629)	EHS						
T35	126.50 (A)	5/8 (23000)	4.24	42.40	13.58	25.44	1.000	1.874
	(634)	EHS						
	126.50 (B)	5/8 (23000)	4.24	42.40	13.57	25.44	1.000	1.874
	(633)	EHS						
	126.50 (C)	5/8 (23000)	4.24	42.40	13.50	25.44	1.000	1.885
	(632)	EHS						
T48	61.50 (A)	11/16	5.00	50.00	15.70	30.00	1.000	1.911
	(637)	(24000) EHS						
	61.50 (B) (636)	11/16	5.00	50.00	16.03	30.00	1.000	1.871
		(24000) EHS						
	61.50 (C) (635)	11/16	5.00	50.00	15.75	30.00	1.000	1.905
		(24000) EHS						

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	341.5 - 314.5 (1)	P8x.322	27.00	0.00	0.0	8.40	-1.34	264.58	0.005

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	341.5 - 314.5 (1)	P8x.322	28.38	58.30	0.487	0.00	58.30	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	341.5 - 314.5 (1)	P8x.322	1.90	79.37	0.024	0.39	57.94	0.007

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	341.5 - 314.5 (1)	0.005	0.487	0.000	0.024	0.007	0.493	1.000	4.8.2

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	314.5 - 310.5	2 1/2	4.00	4.00	76.8 K=1.00	4.91	-13.07	143.51	0.091 [1]
T2	310.5 - 306.5	2 1/2	4.00	4.00	76.8 K=1.00	4.91	-16.31	143.51	0.114 [1]
T3	306.5 - 281.5	2 1/2	25.00	5.00	96.0 K=1.00	4.91	-22.01	112.60	0.195 [1]
T4	281.5 - 276.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-24.18	186.65	0.130 [1]
T5	276.5 - 271.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-26.49	186.65	0.142 [1]
T6	271.5 - 266.5	2 1/2	5.00	5.00	96.0 K=1.00	4.91	-30.01	112.60	0.267 [1]
T7	266.5 - 261.5	2 1/2	5.00	5.00	96.0 K=1.00	4.91	-33.10	112.60	0.294 [1]
T8	261.5 - 256.5	2 1/2	5.00	5.00	96.0 K=1.00	4.91	-37.52	112.60	0.333 [1]
T9	256.5 - 251.5	2 1/2	5.00	5.00	96.0 K=1.00	4.91	-41.47	112.60	0.368 [1]
T10	251.5 - 246.5	2 1/2	5.00	5.00	96.0 K=1.00	4.91	-47.19	112.60	0.419 [1]
T11	246.5 - 241.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-48.37	186.65	0.259 [1]
T12	241.5 - 236.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-45.12	186.65	0.242 [1]
T13	236.5 - 231.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-41.53	186.65	0.223 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T14	231.5 - 226.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-38.53	186.65	0.206 [1]
T15	226.5 - 221.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-36.78	186.65	0.197 [1]
T16	221.5 - 216.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-34.78	186.65	0.186 [1]
T17	216.5 - 211.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-34.31	186.65	0.184 [1]
T18	211.5 - 206.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-33.34	186.65	0.179 [1]
T19	206.5 - 201.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-34.04	186.65	0.182 [1]
T20	201.5 - 196.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-34.20	186.65	0.183 [1]
T21	196.5 - 191.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-35.96	186.65	0.193 [1]
T22	191.5 - 186.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-37.19	186.65	0.199 [1]
T23	186.5 - 181.5	2 1/2	5.00	2.50	48.0 K=1.00	4.91	-36.25	186.65	0.194 [1]
T24	181.5 - 176.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-34.59	77.87	0.444 [1]
T25	176.5 - 171.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-34.27	77.87	0.440 [1]
T26	171.5 - 166.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-35.03	77.87	0.450 [1]
T27	166.5 - 161.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-36.02	77.87	0.463 [1]
T28	161.5 - 156.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-37.31	77.87	0.479 [1]
T29	156.5 - 151.5	2 1/4	5.00	2.50	53.3 K=1.00	3.98	-38.03	145.33	0.262 [1]
T30	151.5 - 146.5	2 1/4	5.00	2.50	53.3 K=1.00	3.98	-39.15	145.33	0.269 [1]
T31	146.5 - 141.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-39.33	77.87	0.505 [1]
T32	141.5 - 136.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-39.85	77.87	0.512 [1]
T33	136.5 - 131.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-39.58	77.87	0.508 [1]
T34	131.5 - 126.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-39.41	77.87	0.506 [1]
T35	126.5 - 121.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-49.39	77.87	0.634 [1]
T36	121.5 - 116.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-58.29	77.87	0.749 [1]
T37	116.5 - 111.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-64.66	77.87	0.830 [1]
T38	111.5 - 106.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-72.33	77.87	0.929 [1]
T39	106.5 - 101.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-75.86	77.87	0.974 [1]
T40	101.5 - 96.5	2 1/4	5.00	2.50	53.3 K=1.00	3.98	-77.16	145.33	0.531 [1]
T41	96.5 - 91.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-71.55	77.87	0.919 [1]
T42	91.5 - 86.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-65.56	77.87	0.842 [1]
T43	86.5 - 81.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-59.40	77.87	0.763 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T44	81.5 - 76.5	2 1/4	5.00	5.00	106.7 K=1.00	3.98	-56.01	77.87	0.719 [1]
T45	76.5 - 71.5	2 1/4	5.00	2.50	53.3 K=1.00	3.98	-55.11	145.33	0.379 [1]
T46	71.5 - 66.5	2 1/4	5.00	2.50	53.3 K=1.00	3.98	-59.09	145.33	0.407 [1]
T47	66.5 - 61.5	2 1/4	5.00	2.50	53.3 K=1.00	3.98	-64.87	145.33	0.446 [1]
T48	61.5 - 56.5	2 1/4	5.00	2.50	53.3 K=1.00	3.98	-72.62	145.33	0.500 [1]
T49	56.5 - 51.5	2 1/4	5.00	2.50	53.3 K=1.00	3.98	-71.35	145.33	0.491 [1]
T50	51.5 - 46.5	2 1/4	5.00	2.50	53.3 K=1.00	3.98	-71.00	145.33	0.489 [1]
T51	46.5 - 41.5	2 1/4	5.00	2.50	53.3 K=1.00	3.98	-70.82	145.33	0.487 [1]
T52	41.5 - 36.5	2 1/4	5.00	2.50	53.3 K=1.00	3.98	-71.43	145.33	0.491 [1]
T53	36.5 - 31.5	2 1/4	5.00	2.50	53.3 K=1.00	3.98	-72.26	145.33	0.497 [1]
T54	31.5 - 6.5	2.25SR + BP9.5x0.25 (Norwalk)	25.00	5.00	54.6 K=1.02	3.98	-85.89	143.89	0.597 [1]
T55	6.5 - 0	W8x40	6.50	6.50	38.2 K=1.00	11.70	-97.08	351.00	0.277

[1] $P_u / \phi P_n$ controls

Leg Bending Design Data (Compression)

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 $\frac{M_{uy}}{\phi M_{ny}}$
T1	314.5 - 310.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T2	310.5 - 306.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T3	306.5 - 281.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T4	281.5 - 276.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T5	276.5 - 271.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T6	271.5 - 266.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T7	266.5 - 261.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T8	261.5 - 256.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T9	256.5 - 251.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T10	251.5 - 246.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T11	246.5 - 241.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T12	241.5 - 236.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T13	236.5 - 231.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T14	231.5 - 226.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T15	226.5 - 221.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T16	221.5 - 216.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T17	216.5 - 211.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T18	211.5 - 206.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T19	206.5 - 201.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T20	201.5 - 196.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T21	196.5 - 191.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T22	191.5 - 186.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T23	186.5 - 181.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T24	181.5 - 176.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T25	176.5 - 171.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T26	171.5 - 166.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T27	166.5 - 161.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T28	161.5 - 156.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T29	156.5 - 151.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T30	151.5 - 146.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T31	146.5 - 141.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T32	141.5 - 136.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T33	136.5 - 131.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T34	131.5 - 126.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T35	126.5 - 121.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T36	121.5 - 116.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T37	116.5 - 111.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T38	111.5 - 106.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T39	106.5 - 101.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T40	101.5 - 96.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T41	96.5 - 91.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T42	91.5 - 86.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T43	86.5 - 81.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T44	81.5 - 76.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T45	76.5 - 71.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T46	71.5 - 66.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T47	66.5 - 61.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T48	61.5 - 56.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T49	56.5 - 51.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T50	51.5 - 46.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T51	46.5 - 41.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T52	41.5 - 36.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T53	36.5 - 31.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T54	31.5 - 6.5	2.25SR + BP9.5x0.25 (Norwalk)	0.00	10.65	0.000	0.00	10.65	0.000
T55	6.5 - 0	W8x40	-9.18	107.46	0.085	0.44	49.41	0.009

Leg Interaction Design Data (Compression)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	314.5 - 310.5	2 1/2	0.091	0.000	0.000	0.091 [1]	1.000	4.8.1
T2	310.5 - 306.5	2 1/2	0.114	0.000	0.000	0.114 [1]	1.000	4.8.1
T3	306.5 - 281.5	2 1/2	0.195	0.000	0.000	0.195 [1]	1.000	4.8.1
T4	281.5 - 276.5	2 1/2	0.130	0.000	0.000	0.130 [1]	1.000	4.8.1
T5	276.5 - 271.5	2 1/2	0.142	0.000	0.000	0.142 [1]	1.000	4.8.1
T6	271.5 - 266.5	2 1/2	0.267	0.000	0.000	0.267 [1]	1.000	4.8.1
T7	266.5 - 261.5	2 1/2	0.294	0.000	0.000	0.294 [1]	1.000	4.8.1
T8	261.5 - 256.5	2 1/2	0.333	0.000	0.000	0.333 [1]	1.000	4.8.1
T9	256.5 - 251.5	2 1/2	0.368	0.000	0.000	0.368 [1]	1.000	4.8.1
T10	251.5 - 246.5	2 1/2	0.419	0.000	0.000	0.419 [1]	1.000	4.8.1
T11	246.5 - 241.5	2 1/2	0.259	0.000	0.000	0.259 [1]	1.000	4.8.1
T12	241.5 - 236.5	2 1/2	0.242	0.000	0.000	0.242 [1]	1.000	4.8.1
T13	236.5 - 231.5	2 1/2	0.223	0.000	0.000	0.223 [1]	1.000	4.8.1
T14	231.5 - 226.5	2 1/2	0.206	0.000	0.000	0.206 [1]	1.000	4.8.1
T15	226.5 - 221.5	2 1/2	0.197	0.000	0.000	0.197 [1]	1.000	4.8.1
T16	221.5 - 216.5	2 1/2	0.186	0.000	0.000	0.186 [1]	1.000	4.8.1
T17	216.5 - 211.5	2 1/2	0.184	0.000	0.000	0.184 [1]	1.000	4.8.1
T18	211.5 - 206.5	2 1/2	0.179	0.000	0.000	0.179 [1]	1.000	4.8.1

Section No.	Elevation ft	Size	Ratio $P_u / \phi P_n$	Ratio $M_{ux} / \phi M_{nx}$	Ratio $M_{uy} / \phi M_{ny}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T19	206.5 - 201.5	2 1/2	0.182	0.000	0.000	0.182 [1]	1.000	4.8.1
T20	201.5 - 196.5	2 1/2	0.183	0.000	0.000	0.183 [1]	1.000	4.8.1
T21	196.5 - 191.5	2 1/2	0.193	0.000	0.000	0.193 [1]	1.000	4.8.1
T22	191.5 - 186.5	2 1/2	0.199	0.000	0.000	0.199 [1]	1.000	4.8.1
T23	186.5 - 181.5	2 1/2	0.194	0.000	0.000	0.194 [1]	1.000	4.8.1
T24	181.5 - 176.5	2 1/4	0.444	0.000	0.000	0.444 [1]	1.000	4.8.1
T25	176.5 - 171.5	2 1/4	0.440	0.000	0.000	0.440 [1]	1.000	4.8.1
T26	171.5 - 166.5	2 1/4	0.450	0.000	0.000	0.450 [1]	1.000	4.8.1
T27	166.5 - 161.5	2 1/4	0.463	0.000	0.000	0.463 [1]	1.000	4.8.1
T28	161.5 - 156.5	2 1/4	0.479	0.000	0.000	0.479 [1]	1.000	4.8.1
T29	156.5 - 151.5	2 1/4	0.262	0.000	0.000	0.262 [1]	1.000	4.8.1
T30	151.5 - 146.5	2 1/4	0.269	0.000	0.000	0.269 [1]	1.000	4.8.1
T31	146.5 - 141.5	2 1/4	0.505	0.000	0.000	0.505 [1]	1.000	4.8.1
T32	141.5 - 136.5	2 1/4	0.512	0.000	0.000	0.512 [1]	1.000	4.8.1
T33	136.5 - 131.5	2 1/4	0.508	0.000	0.000	0.508 [1]	1.000	4.8.1
T34	131.5 - 126.5	2 1/4	0.506	0.000	0.000	0.506 [1]	1.000	4.8.1
T35	126.5 - 121.5	2 1/4	0.634	0.000	0.000	0.634 [1]	1.000	4.8.1
T36	121.5 - 116.5	2 1/4	0.749	0.000	0.000	0.749 [1]	1.000	4.8.1
T37	116.5 - 111.5	2 1/4	0.830	0.000	0.000	0.830 [1]	1.000	4.8.1
T38	111.5 - 106.5	2 1/4	0.929	0.000	0.000	0.929 [1]	1.000	4.8.1
T39	106.5 - 101.5	2 1/4	0.974	0.000	0.000	0.974 [1]	1.000	4.8.1
T40	101.5 - 96.5	2 1/4	0.531	0.000	0.000	0.531 [1]	1.000	4.8.1
T41	96.5 - 91.5	2 1/4	0.919	0.000	0.000	0.919 [1]	1.000	4.8.1
T42	91.5 - 86.5	2 1/4	0.842	0.000	0.000	0.842 [1]	1.000	4.8.1
T43	86.5 - 81.5	2 1/4	0.763	0.000	0.000	0.763 [1]	1.000	4.8.1
T44	81.5 - 76.5	2 1/4	0.719	0.000	0.000	0.719 [1]	1.000	4.8.1
T45	76.5 - 71.5	2 1/4	0.379	0.000	0.000	0.379 [1]	1.000	4.8.1
T46	71.5 - 66.5	2 1/4	0.407	0.000	0.000	0.407 [1]	1.000	4.8.1
T47	66.5 - 61.5	2 1/4	0.446	0.000	0.000	0.446 [1]	1.000	4.8.1
T48	61.5 - 56.5	2 1/4	0.500	0.000	0.000	0.500 [1]	1.000	4.8.1
T49	56.5 - 51.5	2 1/4	0.491	0.000	0.000	0.491 [1]	1.000	4.8.1
T50	51.5 - 46.5	2 1/4	0.489	0.000	0.000	0.489 [1]	1.000	4.8.1
T51	46.5 - 41.5	2 1/4	0.487	0.000	0.000	0.487 [1]	1.000	4.8.1
T52	41.5 - 36.5	2 1/4	0.491	0.000	0.000	0.491 [1]	1.000	4.8.1
T53	36.5 - 31.5	2 1/4	0.497	0.000	0.000	0.497 [1]	1.000	4.8.1
T54	31.5 - 6.5	2.25SR + BP9.5x0.25 (Norwalk)	0.597	0.000	0.000	0.597 [1]	1.000	4.8.1
T55	6.5 - 0	W8x40	0.277	0.085	0.009	0.330	1.000	4.8.1

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $P_u / \phi P_n$
T1	314.5 - 310.5	2L2x2x1/4x3/8 2L 'a' > 26.89 in - 8	5.00	4.65	108.0 K=1.00	1.88	-2.42	42.20	0.057 [1]
T2	310.5 - 306.5	Pipe 1.5" x 0.120" (11 ga)	5.00	4.65	114.0 K=1.00	0.52	-2.44	8.85	0.276 [1]
T3	306.5 - 281.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.43	133.0 K=1.00	0.52	-1.87	6.65	0.282 [1]
T4	281.5 - 276.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.43	133.0 K=1.00	0.52	-1.87	6.65	0.281 [1]
T5	276.5 - 271.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.43	133.0	0.52	-2.36	6.65	0.354 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T6	271.5 - 266.5	P1.5 STD	5.83	5.43	K=1.00 104.6	0.80	-2.85	15.44	0.185 [1]
T7	266.5 - 261.5	P1.5 STD	5.83	5.43	K=1.00 104.6	0.80	-3.01	15.44	0.195 [1]
T8	261.5 - 256.5	P1.5 STD	5.83	5.43	K=1.00 104.6	0.80	-3.29	15.44	0.213 [1]
T9	256.5 - 251.5	P1.5x.2	5.83	5.43	K=1.00 107.6	1.07	-3.53	19.83	0.178 [1]
T10	251.5 - 246.5	P1.5x.2	5.83	5.43	K=1.00 107.6	1.07	-3.72	19.83	0.187 [1]
T11	246.5 - 241.5	2L2x2x1/4x3/8	5.83	5.43	K=1.00 113.2	1.88	-4.12	39.76	0.104 [1]
T12	241.5 - 236.5	2L 'a' > 31.35 in - 129 2L2x2x1/4x3/8	5.83	5.43	K=1.00 113.2	1.88	-3.39	39.76	0.085 [1]
T13	236.5 - 231.5	2L 'a' > 31.35 in - 141 2L2x2x1/4x3/8	5.83	5.43	K=1.00 113.2	1.88	-2.28	39.76	0.057 [1]
T14	231.5 - 226.5	2L 'a' > 31.35 in - 154 2L2x2x1/4x3/8	5.83	5.43	K=1.00 113.2	1.88	-1.98	39.76	0.050 [1]
T15	226.5 - 221.5	2L 'a' > 31.35 in - 164 P1.5 STD	5.83	5.43	K=1.00 104.6	0.80	-1.63	15.44	0.105 [1]
T16	221.5 - 216.5	P1.5 STD	5.83	5.43	K=1.00 104.6	0.80	-1.39	15.44	0.090 [1]
T17	216.5 - 211.5	P1.5 STD	5.83	5.43	K=1.00 104.6	0.80	-1.00	15.44	0.065 [1]
T18	211.5 - 206.5	P1.5 STD	5.83	5.43	K=1.00 104.6	0.80	-0.83	15.44	0.054 [1]
T19	206.5 - 201.5	P1.5 STD	5.83	5.43	K=1.00 104.6	0.80	-1.02	15.44	0.066 [1]
T20	201.5 - 196.5	P1.5 STD	5.83	5.43	K=1.00 104.6	0.80	-1.36	15.44	0.088 [1]
T21	196.5 - 191.5	P1.5 STD	5.83	5.43	K=1.00 104.6	0.80	-1.74	15.44	0.113 [1]
T22	191.5 - 186.5	P1.5 STD	5.83	5.43	K=1.00 104.6	0.80	-2.05	15.44	0.133 [1]
T23	186.5 - 181.5	P1.5 STD	5.83	5.43	K=1.00 104.6	0.80	-4.07	15.44	0.264 [1]
T24	181.5 - 176.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	K=1.00 133.9	0.52	-3.65	6.55	0.557 [1]
T25	176.5 - 171.5	P1.5 STD	5.83	5.47	K=1.00 105.4	0.80	-3.50	15.28	0.229 [1]
T26	171.5 - 166.5	P1.5 STD	5.83	5.47	K=1.00 105.4	0.80	-3.15	15.28	0.206 [1]
T27	166.5 - 161.5	2L2x2x1/4x3/8	5.83	5.47	K=1.00 113.5	1.88	-2.91	39.63	0.073 [1]
T28	161.5 - 156.5	2L 'a' > 31.59 in - 311 Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	K=1.00 133.9	0.52	-2.60	6.55	0.396 [1]
T29	156.5 - 151.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	K=1.00 133.9	0.52	-2.29	6.55	0.349 [1]
T30	151.5 - 146.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	K=1.00 133.9	0.52	-2.09	6.55	0.319 [1]
T31	146.5 - 141.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	K=1.00 133.9	0.52	-1.68	6.55	0.257 [1]
T32	141.5 - 136.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	K=1.00 133.9	0.52	-1.20	6.55	0.184 [1]
					K=1.00				

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T33	136.5 - 131.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9 K=1.00	0.52	-1.26	6.55	0.192 [1]
T34	131.5 - 126.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9 K=1.00	0.52	-1.55	6.55	0.236 [1]
T35	126.5 - 121.5	L2x2x3/8	5.83	5.47	168.6 K=1.00	1.36	-6.83	13.69	0.499 [1]
T36	121.5 - 116.5	L2x2x3/8	5.83	5.47	168.6 K=1.00	1.36	-6.59	13.69	0.482 [1]
T37	116.5 - 111.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9 K=1.00	0.52	-6.31	6.55	0.963 [1]
T38	111.5 - 106.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9 K=1.00	0.52	-3.96	6.55	0.605 [1]
T39	106.5 - 101.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9 K=1.00	0.52	-2.82	6.55	0.431 [1]
T40	101.5 - 96.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9 K=1.00	0.52	-3.94	6.55	0.601 [1]
T41	96.5 - 91.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9 K=1.00	0.52	-5.22	6.55	0.798 [1]
T42	91.5 - 86.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9 K=1.00	0.52	-5.56	6.55	0.848 [1]
T43	86.5 - 81.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9 K=1.00	0.52	-5.70	6.55	0.870 [1]
T44	81.5 - 76.5	P1.5 STD	5.83	5.47	105.4 K=1.00	0.80	-9.34	15.28	0.611 [1]
T45	76.5 - 71.5	P1.5 STD	5.83	5.47	52.7 K=0.50	0.80	-11.23	25.48	0.441 [1]
T46	71.5 - 66.5	L2x2x3/8	5.83	5.47	84.3 K=0.50	1.36	-11.40	38.02	0.300 [1]
T47	66.5 - 61.5	L2x2x3/8	5.83	5.47	84.3 K=0.50	1.36	-11.94	38.02	0.314 [1]
T48	61.5 - 56.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9 K=1.00	0.52	-2.60	6.55	0.396 [1]
T49	56.5 - 51.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9 K=1.00	0.52	-2.44	6.55	0.372 [1]
T50	51.5 - 46.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9 K=1.00	0.52	-2.03	6.55	0.309 [1]
T51	46.5 - 41.5	P1.5 STD	5.83	5.47	105.4 K=1.00	0.80	-1.83	15.28	0.120 [1]
T52	41.5 - 36.5	P1.5 STD	5.83	5.47	105.4 K=1.00	0.80	-1.41	15.28	0.092 [1]
T53	36.5 - 31.5	P1.5 STD	5.83	5.47	105.4 K=1.00	0.80	-1.35	15.28	0.088 [1]
T54	31.5 - 6.5	P1.5 STD	5.83	4.98	96.0 K=1.00	0.80	-4.15	17.16	0.242 [1]

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	310.5 - 306.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.34	14.75	0.023 [1]
T3	306.5 - 281.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.53	14.75	0.036 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	281.5 - 276.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.59	14.75	0.040 [1]
T5	276.5 - 271.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.64	14.75	0.044 [1]
T6	271.5 - 266.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.73	14.75	0.049 [1]
T7	266.5 - 261.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.80	14.75	0.054 [1]
T8	261.5 - 256.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.91	14.75	0.062 [1]
T9	256.5 - 251.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-1.01	14.75	0.068 [1]
T10	251.5 - 246.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-1.14	14.75	0.078 [1]
T11	246.5 - 241.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-1.17	14.75	0.079 [1]
T12	241.5 - 236.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-1.09	14.75	0.074 [1]
T13	236.5 - 231.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-1.01	14.75	0.068 [1]
T14	231.5 - 226.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.93	14.75	0.063 [1]
T15	226.5 - 221.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.89	14.75	0.060 [1]
T16	221.5 - 216.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.84	14.75	0.057 [1]
T17	216.5 - 211.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.83	14.75	0.056 [1]
T18	211.5 - 206.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.81	14.75	0.055 [1]
T19	206.5 - 201.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.83	14.75	0.056 [1]
T20	201.5 - 196.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.83	14.75	0.056 [1]
T21	196.5 - 191.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.87	14.75	0.059 [1]
T22	191.5 - 186.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.90	14.75	0.061 [1]
T23	186.5 - 181.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4 K=1.00	0.52	-0.88	14.75	0.060 [1]
T24	181.5 - 176.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-0.91	14.69	0.062 [1]
T25	176.5 - 171.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-0.90	14.69	0.061 [1]
T26	171.5 - 166.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-0.92	14.69	0.063 [1]
T27	166.5 - 161.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-0.95	14.69	0.064 [1]
T28	161.5 - 156.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-0.98	14.69	0.067 [1]
T29	156.5 - 151.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.00	14.69	0.068 [1]
T30	151.5 - 146.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.03	14.69	0.070 [1]
T31	146.5 - 141.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.03	14.69	0.070 [1]
T32	141.5 - 136.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.05	14.69	0.071 [1]
T33	136.5 - 131.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.04	14.69	0.071 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T34	131.5 - 126.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.04	14.69	0.071 [1]
T35	126.5 - 121.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.30	14.69	0.088 [1]
T36	121.5 - 116.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.53	14.69	0.104 [1]
T37	116.5 - 111.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.70	14.69	0.116 [1]
T38	111.5 - 106.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.90	14.69	0.129 [1]
T39	106.5 - 101.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-2.00	14.69	0.136 [1]
T40	101.5 - 96.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-2.03	14.69	0.138 [1]
T41	96.5 - 91.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.88	14.69	0.128 [1]
T42	91.5 - 86.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.72	14.69	0.117 [1]
T43	86.5 - 81.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.56	14.69	0.106 [1]
T44	81.5 - 76.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.47	14.69	0.100 [1]
T45	76.5 - 71.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.45	14.69	0.099 [1]
T46	71.5 - 66.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.55	14.69	0.106 [1]
T47	66.5 - 61.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.71	14.69	0.116 [1]
T48	61.5 - 56.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.91	14.69	0.130 [1]
T49	56.5 - 51.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.88	14.69	0.128 [1]
T50	51.5 - 46.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.87	14.69	0.127 [1]
T51	46.5 - 41.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.86	14.69	0.127 [1]
T52	41.5 - 36.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.88	14.69	0.128 [1]
T53	36.5 - 31.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9 K=1.00	0.52	-1.90	14.69	0.129 [1]
T54	31.5 - 6.5	P1.5x0.13	3.00	2.56	63.2 K=1.00	0.56	-1.49	16.55	0.090 [1]

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	281.5 - 276.5	1	3.00	2.79	93.8 K=0.70	0.79	-0.59	16.01	0.037 [1]
T5	276.5 - 271.5	1	3.00	2.79	93.8 K=0.70	0.79	-0.64	16.01	0.040 [1]
T11	246.5 - 241.5	L2 1/2x2x1/4	3.00	2.79	79.0 K=1.00	1.06	-1.17	30.67	0.038 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T12	241.5 - 236.5	2L2 1/2x2x1/4x3/8	3.00	2.79	86.8 K=1.00	2.13	-1.09	56.86	0.019 [1]
T13	236.5 - 231.5	2L 'a' > 13.59 in - 143 2L2 1/2x2x1/4x3/8 2L 'a' > 13.59 in - 155	3.00	2.79	86.8 K=1.00	2.13	-1.01	56.86	0.018 [1]
T14	231.5 - 226.5	L2 1/2x2x1/4	3.00	2.79	79.0 K=1.00	1.06	-0.93	30.67	0.030 [1]
T15	226.5 - 221.5	L2 1/2x2x1/4	3.00	2.79	79.0 K=1.00	1.06	-0.89	30.67	0.029 [1]
T16	221.5 - 216.5	L2 1/2x2x1/4	3.00	2.79	79.0 K=1.00	1.06	-0.84	30.67	0.028 [1]
T17	216.5 - 211.5	L2 1/2x2x1/4	3.00	2.79	79.0 K=1.00	1.06	-0.83	30.67	0.027 [1]
T18	211.5 - 206.5	L2 1/2x2x1/4	3.00	2.79	79.0 K=1.00	1.06	-0.81	30.67	0.026 [1]
T19	206.5 - 201.5	L2 1/2x2x1/4	3.00	2.79	79.0 K=1.00	1.06	-0.83	30.67	0.027 [1]
T20	201.5 - 196.5	L2 1/2x2x1/4	3.00	2.79	79.0 K=1.00	1.06	-0.83	30.67	0.027 [1]
T21	196.5 - 191.5	L2 1/2x2x1/4	3.00	2.79	79.0 K=1.00	1.06	-0.87	30.67	0.028 [1]
T22	191.5 - 186.5	L2 1/2x2x1/4	3.00	2.79	79.0 K=1.00	1.06	-0.90	30.67	0.029 [1]
T23	186.5 - 181.5	L2 1/2x2x1/4	3.00	2.79	79.0 K=1.00	1.06	-0.88	30.67	0.029 [1]
T29	156.5 - 151.5	1	3.00	2.81	94.5 K=0.70	0.79	-1.00	15.90	0.063 [1]
T30	151.5 - 146.5	1	3.00	2.81	94.5 K=0.70	0.79	-1.03	15.90	0.065 [1]
T40	101.5 - 96.5	1	3.00	2.81	94.5 K=0.70	0.79	-2.03	15.90	0.128 [1]
T45	76.5 - 71.5	L2 1/2x2x1/4	3.00	2.81	79.6 K=1.00	1.06	-1.45	30.56	0.047 [1]
T46	71.5 - 66.5	L2 1/2x2x1/4	3.00	2.81	79.6 K=1.00	1.06	-1.55	30.56	0.051 [1]
T47	66.5 - 61.5	L2 1/2x2x1/4	3.00	2.81	79.6 K=1.00	1.06	-1.71	30.56	0.056 [1]
T48	61.5 - 56.5	1	3.00	2.81	94.5 K=0.70	0.79	-1.91	15.90	0.120 [1]
T49	56.5 - 51.5	1	3.00	2.81	94.5 K=0.70	0.79	-1.88	15.90	0.118 [1]
T50	51.5 - 46.5	1	3.00	2.81	94.5 K=0.70	0.79	-1.87	15.90	0.117 [1]
T51	46.5 - 41.5	1	3.00	2.81	94.5 K=0.70	0.79	-1.86	15.90	0.117 [1]
T52	41.5 - 36.5	1	3.00	2.81	94.5 K=0.70	0.79	-1.88	15.90	0.118 [1]
T53	36.5 - 31.5	1	3.00	2.81	94.5 K=0.70	0.79	-1.90	15.90	0.120 [1]

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	314.5 - 310.5	L2x2x1/4	3.00	2.79	85.7 K=1.00	0.94	-0.27	25.97	0.010 [1]
T55	6.5 - 0	W16x50	3.00	2.31	17.5 K=1.00	14.70	-1.68	468.70	0.004

[1] P_u / ϕP_n controls

Top Girt 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 $\frac{M_{uy}}{\phi M_{ny}}$
T1	314.5 - 310.5	L2x2x1/4	0.00	1.69	0.000	0.00	0.87	0.000
T55	6.5 - 0	W16x50	-7.40	248.40	0.030	-0.00	42.52	0.000

Top Girt Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	314.5 - 310.5	L2x2x1/4	0.010	0.000	0.000	0.010 [1]	1.000	4.8.1
T55	6.5 - 0	W16x50	0.004	0.030	0.000	0.032	1.000	4.8.1

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	314.5 - 310.5	2 1/2	4.00	4.00	76.8	4.91	12.13	220.89	0.055 [1]
T2	310.5 - 306.5	2 1/2	4.00	4.00	76.8	4.91	15.16	220.89	0.069 [1]
T3	306.5 - 281.5	2 1/2	25.00	5.00	96.0	4.91	3.94	220.89	0.018 [1]
T4	281.5 - 276.5	2 1/2	5.00	2.50	48.0	4.91	4.16	220.89	0.019 [1]
T5	276.5 - 271.5	2 1/2	5.00	2.50	48.0	4.91	5.22	220.89	0.024 [1]
T6	271.5 - 266.5	2 1/2	5.00	5.00	96.0	4.91	7.80	220.89	0.035 [1]
T7	266.5 - 261.5	2 1/2	5.00	5.00	96.0	4.91	9.85	220.89	0.045 [1]
T8	261.5 - 256.5	2 1/2	5.00	5.00	96.0	4.91	13.55	220.89	0.061 [1]
T9	256.5 - 251.5	2 1/2	5.00	5.00	96.0	4.91	16.59	220.89	0.075 [1]
T10	251.5 - 246.5	2 1/2	5.00	5.00	96.0	4.91	21.46	220.89	0.097 [1]
T11	246.5 - 241.5	2 1/2	5.00	2.50	48.0	4.91	6.64	220.89	0.030 [1]
T12	241.5 - 236.5	2 1/2	5.00	2.50	48.0	4.91	3.20	220.89	0.015 [1]
T36	121.5 - 116.5	2 1/4	5.00	5.00	106.7	3.98	6.26	178.92	0.035 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T37	116.5 - 111.5	2 1/4	5.00	5.00	106.7	3.98	14.65	178.92	0.082 [1]
T38	111.5 - 106.5	2 1/4	5.00	5.00	106.7	3.98	20.62	178.92	0.115 [1]
T39	106.5 - 101.5	2 1/4	5.00	5.00	106.7	3.98	23.55	178.92	0.132 [1]
T40	101.5 - 96.5	2 1/4	5.00	2.50	53.3	3.98	22.02	178.92	0.123 [1]
T41	96.5 - 91.5	2 1/4	5.00	5.00	106.7	3.98	14.05	178.92	0.079 [1]
T42	91.5 - 86.5	2 1/4	5.00	5.00	106.7	3.98	6.34	178.92	0.035 [1]

[1] $P_u / \phi P_n$ controls

Leg Bending Design Data (Tension)

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 $\frac{M_{uy}}{\phi M_{ny}}$
T1	314.5 - 310.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T2	310.5 - 306.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T3	306.5 - 281.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T4	281.5 - 276.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T5	276.5 - 271.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T6	271.5 - 266.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T7	266.5 - 261.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T8	261.5 - 256.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T9	256.5 - 251.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T10	251.5 - 246.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T11	246.5 - 241.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T12	241.5 - 236.5	2 1/2	0.00	9.77	0.000	0.00	9.77	0.000
T36	121.5 - 116.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T37	116.5 - 111.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T38	111.5 - 106.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T39	106.5 - 101.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T40	101.5 - 96.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T41	96.5 - 91.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000
T42	91.5 - 86.5	2 1/4	0.00	7.12	0.000	0.00	7.12	0.000

Leg Interaction Design Data (Tension)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	314.5 - 310.5	2 1/2	0.055	0.000	0.000	0.055 [1]	1.000	4.8.1
T2	310.5 - 306.5	2 1/2	0.069	0.000	0.000	0.069 [1]	1.000	4.8.1
T3	306.5 - 281.5	2 1/2	0.018	0.000	0.000	0.018 [1]	1.000	4.8.1
T4	281.5 - 276.5	2 1/2	0.019	0.000	0.000	0.019 [1]	1.000	4.8.1
T5	276.5 - 271.5	2 1/2	0.024	0.000	0.000	0.024 [1]	1.000	4.8.1
T6	271.5 - 266.5	2 1/2	0.035	0.000	0.000	0.035 [1]	1.000	4.8.1
T7	266.5 - 261.5	2 1/2	0.045	0.000	0.000	0.045 [1]	1.000	4.8.1
T8	261.5 - 256.5	2 1/2	0.061	0.000	0.000	0.061 [1]	1.000	4.8.1
T9	256.5 - 251.5	2 1/2	0.075	0.000	0.000	0.075 [1]	1.000	4.8.1
T10	251.5 - 246.5	2 1/2	0.097	0.000	0.000	0.097 [1]	1.000	4.8.1
T11	246.5 - 241.5	2 1/2	0.030	0.000	0.000	0.030 [1]	1.000	4.8.1
T12	241.5 - 236.5	2 1/2	0.015	0.000	0.000	0.015 [1]	1.000	4.8.1
T36	121.5 - 116.5	2 1/4	0.035	0.000	0.000	0.035 [1]	1.000	4.8.1

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T37	116.5 - 111.5	2 1/4	0.082	0.000	0.000	0.082 [1]	1.000	4.8.1
T38	111.5 - 106.5	2 1/4	0.115	0.000	0.000	0.115 [1]	1.000	4.8.1
T39	106.5 - 101.5	2 1/4	0.132	0.000	0.000	0.132 [1]	1.000	4.8.1
T40	101.5 - 96.5	2 1/4	0.123	0.000	0.000	0.123 [1]	1.000	4.8.1
T41	96.5 - 91.5	2 1/4	0.079	0.000	0.000	0.079 [1]	1.000	4.8.1
T42	91.5 - 86.5	2 1/4	0.035	0.000	0.000	0.035 [1]	1.000	4.8.1

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	314.5 - 310.5	2L2x2x1/4x3/8 2L 'a' > 26.89 in - 8	5.00	4.65	91.7	1.88	2.44	60.91	0.040 [1]
T2	310.5 - 306.5	Pipe 1.5" x 0.120" (11 ga)	5.00	4.65	114.0	0.52	2.45	19.67	0.125 [1]
T3	306.5 - 281.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.43	133.0	0.52	1.40	19.67	0.071 [1]
T4	281.5 - 276.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.43	133.0	0.52	1.80	19.67	0.091 [1]
T5	276.5 - 271.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.43	133.0	0.52	1.97	19.67	0.100 [1]
T6	271.5 - 266.5	P1.5 STD	5.83	5.43	104.6	0.80	2.58	30.22	0.085 [1]
T7	266.5 - 261.5	P1.5 STD	5.83	5.43	104.6	0.80	2.80	30.22	0.093 [1]
T8	261.5 - 256.5	P1.5 STD	5.83	5.43	104.6	0.80	3.01	30.22	0.100 [1]
T9	256.5 - 251.5	P1.5x.2	5.83	5.43	107.6	1.07	3.33	40.38	0.083 [1]
T10	251.5 - 246.5	P1.5x.2	5.83	5.43	107.6	1.07	3.45	40.38	0.085 [1]
T11	246.5 - 241.5	2L2x2x1/4x3/8 2L 'a' > 31.35 in - 129	5.83	5.43	106.9	1.13	3.81	49.10	0.078 [1]
T12	241.5 - 236.5	2L2x2x1/4x3/8 2L 'a' > 31.35 in - 141	5.83	5.43	106.9	1.13	2.93	49.10	0.060 [1]
T13	236.5 - 231.5	2L2x2x1/4x3/8 2L 'a' > 31.35 in - 152	5.83	5.43	106.9	1.13	1.76	49.10	0.036 [1]
T14	231.5 - 226.5	2L2x2x1/4x3/8 2L 'a' > 31.35 in - 166	5.83	5.43	106.9	1.13	1.45	49.10	0.029 [1]
T15	226.5 - 221.5	P1.5 STD	5.83	5.43	104.6	0.80	1.13	30.22	0.037 [1]
T16	221.5 - 216.5	P1.5 STD	5.83	5.43	104.6	0.80	0.79	30.22	0.026 [1]
T17	216.5 - 211.5	P1.5 STD	5.83	5.43	104.6	0.80	0.58	30.22	0.019 [1]
T18	211.5 - 206.5	P1.5 STD	5.83	5.43	104.6	0.80	0.26	30.22	0.009 [1]
T19	206.5 - 201.5	P1.5 STD	5.83	5.43	104.6	0.80	0.49	30.22	0.016 [1]
T20	201.5 - 196.5	P1.5 STD	5.83	5.43	104.6	0.80	0.91	30.22	0.030 [1]
T21	196.5 - 191.5	P1.5 STD	5.83	5.43	104.6	0.80	1.28	30.22	0.042 [1]
T22	191.5 - 186.5	P1.5 STD	5.83	5.43	104.6	0.80	1.57	30.22	0.052 [1]
T23	186.5 - 181.5	P1.5 STD	5.83	5.43	104.6	0.80	3.54	30.22	0.117 [1]
T24	181.5 - 176.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	3.25	19.67	0.165 [1]
T25	176.5 - 171.5	P1.5 STD	5.83	5.47	105.4	0.80	2.98	30.22	0.099 [1]
T26	171.5 - 166.5	P1.5 STD	5.83	5.47	105.4	0.80	2.69	30.22	0.089 [1]
T27	166.5 - 161.5	2L2x2x1/4x3/8 2L 'a' > 31.59 in - 311	5.83	5.47	107.7	1.13	2.46	49.10	0.050 [1]
T28	161.5 - 156.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	2.08	19.67	0.106 [1]
T29	156.5 - 151.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	1.92	19.67	0.098 [1]
T30	151.5 - 146.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	1.51	19.67	0.077 [1]
T31	146.5 - 141.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	1.39	19.67	0.071 [1]
T32	141.5 - 136.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	0.63	19.67	0.032 [1]
T33	136.5 - 131.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	0.81	19.67	0.041 [1]
T34	131.5 - 126.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	1.02	19.67	0.052 [1]
T35	126.5 - 121.5	L2x2x3/8	5.83	5.47	110.4	0.81	6.46	35.19	0.183 [1]
T36	121.5 - 116.5	L2x2x3/8	5.83	5.47	110.4	0.81	5.96	35.19	0.169 [1]

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T37	116.5 - 111.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	5.92	19.67	0.301 [1]
T38	111.5 - 106.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	3.33	19.67	0.169 [1]
T39	106.5 - 101.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	2.45	19.67	0.125 [1]
T40	101.5 - 96.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	3.55	19.67	0.180 [1]
T41	96.5 - 91.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	4.58	19.67	0.233 [1]
T42	91.5 - 86.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	5.11	19.67	0.260 [1]
T43	86.5 - 81.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	5.01	19.67	0.255 [1]
T44	81.5 - 76.5	P1.5 STD	5.83	5.47	105.4	0.80	8.85	30.22	0.293 [1]
T45	76.5 - 71.5	P1.5 STD	5.83	5.47	105.4	0.80	10.49	30.22	0.347 [1]
T46	71.5 - 66.5	L2x2x3/8	5.83	5.47	110.4	0.81	10.91	35.19	0.310 [1]
T47	66.5 - 61.5	L2x2x3/8	5.83	5.47	110.4	0.81	11.23	35.19	0.319 [1]
T48	61.5 - 56.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	2.06	19.67	0.105 [1]
T49	56.5 - 51.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	1.80	19.67	0.092 [1]
T50	51.5 - 46.5	Pipe 1.5" x 0.120" (11 ga)	5.83	5.47	133.9	0.52	1.47	19.67	0.075 [1]
T51	46.5 - 41.5	P1.5 STD	5.83	5.47	105.4	0.80	1.06	30.22	0.035 [1]
T52	41.5 - 36.5	P1.5 STD	5.83	5.47	105.4	0.80	0.82	30.22	0.027 [1]
T53	36.5 - 31.5	P1.5 STD	5.83	5.47	105.4	0.80	0.41	30.22	0.014 [1]
T54	31.5 - 6.5	P1.5 STD	5.83	4.98	96.0	0.80	0.92	30.22	0.030 [1]

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T2	310.5 - 306.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.34	19.67	0.017 [1]
T3	306.5 - 281.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	3.54	19.67	0.180 [1]
T4	281.5 - 276.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.59	19.67	0.030 [1]
T5	276.5 - 271.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.64	19.67	0.033 [1]
T6	271.5 - 266.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.73	19.67	0.037 [1]
T7	266.5 - 261.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.80	19.67	0.041 [1]
T8	261.5 - 256.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.91	19.67	0.046 [1]
T9	256.5 - 251.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	1.01	19.67	0.051 [1]
T10	251.5 - 246.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	1.14	19.67	0.058 [1]
T11	246.5 - 241.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	5.25	19.67	0.267 [1]
T12	241.5 - 236.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	1.09	19.67	0.056 [1]
T13	236.5 - 231.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	1.01	19.67	0.051 [1]
T14	231.5 - 226.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.93	19.67	0.048 [1]
T15	226.5 - 221.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.89	19.67	0.045 [1]
T16	221.5 - 216.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.84	19.67	0.043 [1]
T17	216.5 - 211.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.83	19.67	0.042 [1]
T18	211.5 - 206.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.81	19.67	0.041 [1]
T19	206.5 - 201.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.83	19.67	0.042 [1]
T20	201.5 - 196.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.83	19.67	0.042 [1]
T21	196.5 - 191.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.87	19.67	0.044 [1]
T22	191.5 - 186.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	0.90	19.67	0.046 [1]
T23	186.5 - 181.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.79	68.4	0.52	3.35	19.67	0.171 [1]
T24	181.5 - 176.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	0.91	19.67	0.046 [1]
T25	176.5 - 171.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	0.90	19.67	0.046 [1]
T26	171.5 - 166.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	0.92	19.67	0.047 [1]
T27	166.5 - 161.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	0.95	19.67	0.048 [1]
T28	161.5 - 156.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	0.98	19.67	0.050 [1]
T29	156.5 - 151.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.00	19.67	0.051 [1]
T30	151.5 - 146.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.03	19.67	0.052 [1]
T31	146.5 - 141.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.03	19.67	0.053 [1]

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T32	141.5 - 136.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.05	19.67	0.053 [1]
T33	136.5 - 131.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.04	19.67	0.053 [1]
T34	131.5 - 126.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.04	19.67	0.053 [1]
T35	126.5 - 121.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	4.15	19.67	0.211 [1]
T36	121.5 - 116.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.53	19.67	0.078 [1]
T37	116.5 - 111.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.70	19.67	0.086 [1]
T38	111.5 - 106.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.90	19.67	0.097 [1]
T39	106.5 - 101.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	2.00	19.67	0.101 [1]
T40	101.5 - 96.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	2.03	19.67	0.103 [1]
T41	96.5 - 91.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.88	19.67	0.096 [1]
T42	91.5 - 86.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.72	19.67	0.088 [1]
T43	86.5 - 81.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.56	19.67	0.079 [1]
T44	81.5 - 76.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.47	19.67	0.075 [1]
T45	76.5 - 71.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.45	19.67	0.074 [1]
T46	71.5 - 66.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.55	19.67	0.079 [1]
T47	66.5 - 61.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.71	19.67	0.087 [1]
T48	61.5 - 56.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	7.10	19.67	0.361 [1]
T49	56.5 - 51.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.88	19.67	0.095 [1]
T50	51.5 - 46.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.87	19.67	0.095 [1]
T51	46.5 - 41.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.86	19.67	0.095 [1]
T52	41.5 - 36.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.88	19.67	0.096 [1]
T53	36.5 - 31.5	Pipe 1.5" x 0.120" (11 ga)	3.00	2.81	68.9	0.52	1.90	19.67	0.097 [1]
T54	31.5 - 6.5	P1.5x0.13	3.00	2.56	63.2	0.56	1.49	21.15	0.070 [1]

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T4	281.5 - 276.5	1	3.00	2.79	134.0	0.79	0.59	25.45	0.023 [1]
T5	276.5 - 271.5	1	3.00	2.79	134.0	0.79	0.64	25.45	0.025 [1]
T11	246.5 - 241.5	L2 1/2x2x1/4	3.00	2.79	56.5	1.06	1.17	34.34	0.034 [1]
T12	241.5 - 236.5	2L2 1/2x2x1/4x3/8 2L 'a' > 13.59 in - 143	3.00	2.79	42.7	2.13	1.09	69.01	0.016 [1]
T13	236.5 - 231.5	2L2 1/2x2x1/4x3/8 2L 'a' > 13.59 in - 155	3.00	2.79	42.7	2.13	1.01	69.01	0.015 [1]
T14	231.5 - 226.5	L2 1/2x2x1/4	3.00	2.79	56.5	1.06	0.93	34.34	0.027 [1]
T15	226.5 - 221.5	L2 1/2x2x1/4	3.00	2.79	56.5	1.06	0.89	34.34	0.026 [1]
T16	221.5 - 216.5	L2 1/2x2x1/4	3.00	2.79	56.5	1.06	0.84	34.34	0.025 [1]
T17	216.5 - 211.5	L2 1/2x2x1/4	3.00	2.79	56.5	1.06	0.83	34.34	0.024 [1]
T18	211.5 - 206.5	L2 1/2x2x1/4	3.00	2.79	56.5	1.06	0.81	34.34	0.024 [1]
T19	206.5 - 201.5	L2 1/2x2x1/4	3.00	2.79	56.5	1.06	0.83	34.34	0.024 [1]
T20	201.5 - 196.5	L2 1/2x2x1/4	3.00	2.79	56.5	1.06	0.83	34.34	0.024 [1]
T21	196.5 - 191.5	L2 1/2x2x1/4	3.00	2.79	56.5	1.06	0.87	34.34	0.025 [1]
T22	191.5 - 186.5	L2 1/2x2x1/4	3.00	2.79	56.5	1.06	0.90	34.34	0.026 [1]
T23	186.5 - 181.5	L2 1/2x2x1/4	3.00	2.79	56.5	1.06	0.88	34.34	0.026 [1]
T29	156.5 - 151.5	1	3.00	2.81	135.0	0.79	1.00	25.45	0.039 [1]
T30	151.5 - 146.5	1	3.00	2.81	135.0	0.79	1.03	25.45	0.040 [1]
T40	101.5 - 96.5	1	3.00	2.81	135.0	0.79	2.03	25.45	0.080 [1]
T45	76.5 - 71.5	L2 1/2x2x1/4	3.00	2.81	57.0	1.06	1.45	34.34	0.042 [1]
T46	71.5 - 66.5	L2 1/2x2x1/4	3.00	2.81	57.0	1.06	1.55	34.34	0.045 [1]
T47	66.5 - 61.5	L2 1/2x2x1/4	3.00	2.81	57.0	1.06	1.71	34.34	0.050 [1]
T48	61.5 - 56.5	1	3.00	2.81	135.0	0.79	1.91	25.45	0.075 [1]
T49	56.5 - 51.5	1	3.00	2.81	135.0	0.79	1.88	25.45	0.074 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T50	51.5 - 46.5	1	3.00	2.81	135.0	0.79	1.87	25.45	0.073 [1]
T51	46.5 - 41.5	1	3.00	2.81	135.0	0.79	1.86	25.45	0.073 [1]
T52	41.5 - 36.5	1	3.00	2.81	135.0	0.79	1.88	25.45	0.074 [1]
T53	36.5 - 31.5	1	3.00	2.81	135.0	0.79	1.90	25.45	0.075 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	314.5 - 310.5	L2x2x1/4	3.00	2.79	55.0	0.94	0.27	30.39	0.009 [1]
T55	6.5 - 0	W16x50	3.00	2.31	17.5	14.70	1.68	476.28	0.004

[1] P_u / ϕP_n controls

Top Girt 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 $\frac{M_{uy}}{\phi M_{ny}}$
T1	314.5 - 310.5	L2x2x1/4	0.00	1.69	0.000	0.00	0.87	0.000
T55	6.5 - 0	W16x50	-7.40	248.40	0.030	-0.00	42.52	0.000

Top Girt Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	314.5 - 310.5	L2x2x1/4	0.009	0.000	0.000	0.009 [1]	1.000	4.8.1
T55	6.5 - 0	W16x50	0.004	0.030	0.000	0.032	1.000	4.8.1

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	341.5 - 314.5	Pole	P8x.322	1	-1.34	264.58	49.3	Pass
T1	314.5 - 310.5	Leg	2 1/2	4	-13.07	143.51	9.1	Pass
T2	310.5 - 306.5	Leg	2 1/2	12	-16.31	143.51	11.4	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
							39.6 (b)	
T3	306.5 - 281.5	Leg	2 1/2	20	-22.01	112.60	19.5	Pass
T4	281.5 - 276.5	Leg	2 1/2	54	-24.18	186.65	13.0	Pass
T5	276.5 - 271.5	Leg	2 1/2	65	-26.49	186.65	14.2	Pass
T6	271.5 - 266.5	Leg	2 1/2	78	-30.01	112.60	26.7	Pass
T7	266.5 - 261.5	Leg	2 1/2	86	-33.10	112.60	29.4	Pass
T8	261.5 - 256.5	Leg	2 1/2	96	-37.52	112.60	33.3	Pass
							35.4 (b)	
T9	256.5 - 251.5	Leg	2 1/2	104	-41.47	112.60	36.8	Pass
T10	251.5 - 246.5	Leg	2 1/2	114	-47.19	112.60	41.9	Pass
T11	246.5 - 241.5	Leg	2 1/2	122	-48.37	186.65	25.9	Pass
T12	241.5 - 236.5	Leg	2 1/2	135	-45.12	186.65	24.2	Pass
T13	236.5 - 231.5	Leg	2 1/2	147	-41.53	186.65	22.3	Pass
							36.1 (b)	
T14	231.5 - 226.5	Leg	2 1/2	159	-38.53	186.65	20.6	Pass
T15	226.5 - 221.5	Leg	2 1/2	171	-36.78	186.65	19.7	Pass
T16	221.5 - 216.5	Leg	2 1/2	183	-34.78	186.65	18.6	Pass
T17	216.5 - 211.5	Leg	2 1/2	195	-34.31	186.65	18.4	Pass
T18	211.5 - 206.5	Leg	2 1/2	208	-33.34	186.65	17.9	Pass
							29.0 (b)	
T19	206.5 - 201.5	Leg	2 1/2	219	-34.04	186.65	18.2	Pass
T20	201.5 - 196.5	Leg	2 1/2	232	-34.20	186.65	18.3	Pass
T21	196.5 - 191.5	Leg	2 1/2	243	-35.96	186.65	19.3	Pass
T22	191.5 - 186.5	Leg	2 1/2	256	-37.19	186.65	19.9	Pass
T23	186.5 - 181.5	Leg	2 1/2	267	-36.25	186.65	19.4	Pass
							31.5 (b)	
T24	181.5 - 176.5	Leg	2 1/4	280	-34.59	77.87	44.4	Pass
T25	176.5 - 171.5	Leg	2 1/4	289	-34.27	77.87	44.0	Pass
T26	171.5 - 166.5	Leg	2 1/4	296	-35.03	77.87	45.0	Pass
T27	166.5 - 161.5	Leg	2 1/4	307	-36.02	77.87	46.3	Pass
T28	161.5 - 156.5	Leg	2 1/4	315	-37.31	77.87	47.9	Pass
T29	156.5 - 151.5	Leg	2 1/4	324	-38.03	145.33	26.2	Pass
T30	151.5 - 146.5	Leg	2 1/4	336	-39.15	145.33	26.9	Pass
T31	146.5 - 141.5	Leg	2 1/4	348	-39.33	77.87	50.5	Pass
T32	141.5 - 136.5	Leg	2 1/4	357	-39.85	77.87	51.2	Pass
T33	136.5 - 131.5	Leg	2 1/4	366	-39.58	77.87	50.8	Pass
T34	131.5 - 126.5	Leg	2 1/4	375	-39.41	77.87	50.6	Pass
T35	126.5 - 121.5	Leg	2 1/4	384	-49.39	77.87	63.4	Pass
T36	121.5 - 116.5	Leg	2 1/4	393	-58.29	77.87	74.9	Pass
T37	116.5 - 111.5	Leg	2 1/4	402	-64.66	77.87	83.0	Pass
T38	111.5 - 106.5	Leg	2 1/4	411	-72.33	77.87	92.9	Pass
T39	106.5 - 101.5	Leg	2 1/4	421	-75.86	77.87	97.4	Pass
T40	101.5 - 96.5	Leg	2 1/4	429	-77.16	145.33	53.1	Pass
T41	96.5 - 91.5	Leg	2 1/4	442	-71.55	77.87	91.9	Pass
T42	91.5 - 86.5	Leg	2 1/4	450	-65.56	77.87	84.2	Pass
T43	86.5 - 81.5	Leg	2 1/4	458	-59.40	77.87	76.3	Pass
T44	81.5 - 76.5	Leg	2 1/4	468	-56.01	77.87	71.9	Pass
T45	76.5 - 71.5	Leg	2 1/4	476	-55.11	145.33	37.9	Pass
T46	71.5 - 66.5	Leg	2 1/4	488	-59.09	145.33	40.7	Pass
T47	66.5 - 61.5	Leg	2 1/4	500	-64.87	145.33	44.6	Pass
T48	61.5 - 56.5	Leg	2 1/4	512	-72.62	145.33	50.0	Pass
T49	56.5 - 51.5	Leg	2 1/4	524	-71.35	145.33	49.1	Pass
							62.1 (b)	
T50	51.5 - 46.5	Leg	2 1/4	536	-71.00	145.33	48.9	Pass
T51	46.5 - 41.5	Leg	2 1/4	548	-70.82	145.33	48.7	Pass
T52	41.5 - 36.5	Leg	2 1/4	562	-71.43	145.33	49.1	Pass
T53	36.5 - 31.5	Leg	2 1/4	574	-72.26	145.33	49.7	Pass
							62.9 (b)	
T54	31.5 - 6.5	Leg	2.25SR + BP9.5x0.25 (Norwalk)	586	-85.89	143.89	59.7	Pass
T55	6.5 - 0	Leg	W8x40	619	-97.08	351.00	33.0	Pass
T1	314.5 - 310.5	Diagonal	2L2x2x1/4x3/8	8	-2.42	42.20	5.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
							13.4 (b)	
T2	310.5 - 306.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	19	-2.44	8.85	27.6	Pass
T3	306.5 - 281.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	26	-1.87	6.65	28.2	Pass
T4	281.5 - 276.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	61	-1.87	6.65	28.1	Pass
T5	276.5 - 271.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	71	-2.36	6.65	35.4	Pass
T6	271.5 - 266.5	Diagonal	P1.5 STD	83	-2.85	15.44	18.5	Pass
							21.3 (b)	
T7	266.5 - 261.5	Diagonal	P1.5 STD	92	-3.01	15.44	19.5	Pass
							23.1 (b)	
T8	261.5 - 256.5	Diagonal	P1.5 STD	101	-3.29	15.44	21.3	Pass
							24.9 (b)	
T9	256.5 - 251.5	Diagonal	P1.5x.2	110	-3.53	19.83	17.8	Pass
							25.6 (b)	
T10	251.5 - 246.5	Diagonal	P1.5x.2	119	-3.72	19.83	18.7	Pass
							26.9 (b)	
T11	246.5 - 241.5	Diagonal	2L2x2x1/4x3/8	129	-4.12	39.76	10.4	Pass
							20.9 (b)	
T12	241.5 - 236.5	Diagonal	2L2x2x1/4x3/8	141	-3.39	39.76	8.5	Pass
							16.1 (b)	
T13	236.5 - 231.5	Diagonal	2L2x2x1/4x3/8	154	-2.28	39.76	5.7	Pass
							9.6 (b)	
T14	231.5 - 226.5	Diagonal	2L2x2x1/4x3/8	164	-1.98	39.76	5.0	Pass
							7.9 (b)	
T15	226.5 - 221.5	Diagonal	P1.5 STD	178	-1.63	15.44	10.5	Pass
							11.8 (b)	
T16	221.5 - 216.5	Diagonal	P1.5 STD	188	-1.39	15.44	9.0	Pass
							10.0 (b)	
T17	216.5 - 211.5	Diagonal	P1.5 STD	202	-1.00	15.44	6.5	Pass
							7.2 (b)	
T18	211.5 - 206.5	Diagonal	P1.5 STD	212	-0.83	15.44	5.4	Pass
							6.0 (b)	
T19	206.5 - 201.5	Diagonal	P1.5 STD	225	-1.02	15.44	6.6	Pass
							7.4 (b)	
T20	201.5 - 196.5	Diagonal	P1.5 STD	237	-1.36	15.44	8.8	Pass
							9.8 (b)	
T21	196.5 - 191.5	Diagonal	P1.5 STD	249	-1.74	15.44	11.3	Pass
							12.6 (b)	
T22	191.5 - 186.5	Diagonal	P1.5 STD	261	-2.05	15.44	13.3	Pass
							14.8 (b)	
T23	186.5 - 181.5	Diagonal	P1.5 STD	272	-4.07	15.44	26.4	Pass
							29.5 (b)	
T24	181.5 - 176.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	284	-3.65	6.55	55.7	Pass
T25	176.5 - 171.5	Diagonal	P1.5 STD	293	-3.50	15.28	22.9	Pass
							25.3 (b)	
T26	171.5 - 166.5	Diagonal	P1.5 STD	302	-3.15	15.28	20.6	Pass
							22.8 (b)	
T27	166.5 - 161.5	Diagonal	2L2x2x1/4x3/8	311	-2.91	39.63	7.3	Pass
							13.5 (b)	
T28	161.5 - 156.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	320	-2.60	6.55	39.6	Pass
T29	156.5 - 151.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	329	-2.29	6.55	34.9	Pass
T30	151.5 - 146.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	341	-2.09	6.55	31.9	Pass
T31	146.5 - 141.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	353	-1.68	6.55	25.7	Pass
T32	141.5 - 136.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	362	-1.20	6.55	18.4	Pass
T33	136.5 - 131.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	372	-1.26	6.55	19.2	Pass
T34	131.5 - 126.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	382	-1.55	6.55	23.6	Pass
T35	126.5 - 121.5	Diagonal	L2x2x3/8	389	-6.83	13.69	49.9	Pass
T36	121.5 - 116.5	Diagonal	L2x2x3/8	398	-6.59	13.69	48.2	Pass
T37	116.5 - 111.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	407	-6.31	6.55	96.3	Pass
T38	111.5 - 106.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	416	-3.96	6.55	60.5	Pass
T39	106.5 - 101.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	425	-2.82	6.55	43.1	Pass
T40	101.5 - 96.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	435	-3.94	6.55	60.1	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T41	96.5 - 91.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	447	-5.22	6.55	79.8	Pass
T42	91.5 - 86.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	456	-5.56	6.55	84.8	Pass
T43	86.5 - 81.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	465	-5.70	6.55	87.0	Pass
T44	81.5 - 76.5	Diagonal	P1.5 STD	475	-9.34	15.28	61.1	Pass
							73.1 (b)	
T45	76.5 - 71.5	Diagonal	P1.5 STD	483	-11.23	25.48	44.1	Pass
							86.7 (b)	
T46	71.5 - 66.5	Diagonal	L2x2x3/8	495	10.91	35.19	31.0	Pass
							82.6 (b)	
T47	66.5 - 61.5	Diagonal	L2x2x3/8	507	11.23	35.19	31.9	Pass
							86.5 (b)	
T48	61.5 - 56.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	518	-2.60	6.55	39.6	Pass
T49	56.5 - 51.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	530	-2.44	6.55	37.2	Pass
T50	51.5 - 46.5	Diagonal	Pipe 1.5" x 0.120" (11 ga)	542	-2.03	6.55	30.9	Pass
T51	46.5 - 41.5	Diagonal	P1.5 STD	554	-1.83	15.28	12.0	Pass
							13.3 (b)	
T52	41.5 - 36.5	Diagonal	P1.5 STD	566	-1.41	15.28	9.2	Pass
							10.2 (b)	
T53	36.5 - 31.5	Diagonal	P1.5 STD	578	-1.35	15.28	8.8	Pass
							9.8 (b)	
T54	31.5 - 6.5	Diagonal	P1.5 STD	591	-4.15	17.16	24.2	Pass
							30.1 (b)	
T2	310.5 - 306.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	14	-0.34	14.75	2.3	Pass
							3.3 (b)	
T3	306.5 - 281.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	25	3.54	19.67	18.0	Pass
							35.3 (b)	
T4	281.5 - 276.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	56	-0.59	14.75	4.0	Pass
							5.8 (b)	
T5	276.5 - 271.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	70	-0.64	14.75	4.4	Pass
							6.4 (b)	
T6	271.5 - 266.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	80	-0.73	14.75	4.9	Pass
							7.3 (b)	
T7	266.5 - 261.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	91	-0.80	14.75	5.4	Pass
							8.0 (b)	
T8	261.5 - 256.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	98	-0.91	14.75	6.2	Pass
							9.1 (b)	
T9	256.5 - 251.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	109	-1.01	14.75	6.8	Pass
							10.0 (b)	
T10	251.5 - 246.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	116	-1.14	14.75	7.8	Pass
							11.4 (b)	
T11	246.5 - 241.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	127	5.25	19.67	26.7	Pass
							52.4 (b)	
T12	241.5 - 236.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	137	-1.09	14.75	7.4	Pass
							10.9 (b)	
T13	236.5 - 231.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	149	-1.01	14.75	6.8	Pass
							10.0 (b)	
T14	231.5 - 226.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	161	-0.93	14.75	6.3	Pass
							9.3 (b)	
T15	226.5 - 221.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	173	-0.89	14.75	6.0	Pass
							8.9 (b)	
T16	221.5 - 216.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	185	-0.84	14.75	5.7	Pass
							8.4 (b)	
T17	216.5 - 211.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	197	-0.83	14.75	5.6	Pass
							8.3 (b)	
T18	211.5 - 206.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	210	-0.81	14.75	5.5	Pass
							8.1 (b)	
T19	206.5 - 201.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	221	-0.83	14.75	5.6	Pass
							8.2 (b)	
T20	201.5 - 196.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	234	-0.83	14.75	5.6	Pass
							8.3 (b)	
T21	196.5 - 191.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	245	-0.87	14.75	5.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T22	191.5 - 186.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	258	-0.90	14.75	8.7 (b) 6.1	Pass
T23	186.5 - 181.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	271	3.35	19.67	9.0 (b) 17.1	Pass
T24	181.5 - 176.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	282	-0.91	14.69	33.5 (b) 6.2	Pass
T25	176.5 - 171.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	291	-0.90	14.69	9.1 (b) 6.1	Pass
T26	171.5 - 166.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	301	-0.92	14.69	9.0 (b) 6.3	Pass
T27	166.5 - 161.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	309	-0.95	14.69	9.2 (b) 6.4	Pass
T28	161.5 - 156.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	317	-0.98	14.69	9.5 (b) 6.7	Pass
T29	156.5 - 151.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	326	-1.00	14.69	9.8 (b) 6.8	Pass
T30	151.5 - 146.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	338	-1.03	14.69	10.0 (b) 7.0	Pass
T31	146.5 - 141.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	350	-1.03	14.69	10.3 (b) 7.0	Pass
T32	141.5 - 136.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	359	-1.05	14.69	10.3 (b) 7.1	Pass
T33	136.5 - 131.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	368	-1.04	14.69	10.5 (b) 7.1	Pass
T34	131.5 - 126.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	377	-1.04	14.69	10.4 (b) 7.1	Pass
T35	126.5 - 121.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	387	4.15	19.67	10.3 (b) 21.1	Pass
T36	121.5 - 116.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	395	-1.53	14.69	41.4 (b) 10.4	Pass
T37	116.5 - 111.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	404	-1.70	14.69	15.3 (b) 11.6	Pass
T38	111.5 - 106.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	413	-1.90	14.69	17.0 (b) 12.9	Pass
T39	106.5 - 101.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	423	-2.00	14.69	19.0 (b) 13.6	Pass
T40	101.5 - 96.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	431	-2.03	14.69	19.9 (b) 13.8	Pass
T41	96.5 - 91.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	444	-1.88	14.69	20.2 (b) 12.8	Pass
T42	91.5 - 86.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	452	-1.72	14.69	18.8 (b) 11.7	Pass
T43	86.5 - 81.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	463	-1.56	14.69	17.2 (b) 10.6	Pass
T44	81.5 - 76.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	470	-1.47	14.69	15.6 (b) 10.0	Pass
T45	76.5 - 71.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	481	-1.45	14.69	14.7 (b) 9.9	Pass
T46	71.5 - 66.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	493	-1.55	14.69	14.5 (b) 10.6	Pass
T47	66.5 - 61.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	505	-1.71	14.69	15.5 (b) 11.6	Pass
T48	61.5 - 56.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	515	7.10	19.67	17.0 (b) 36.1	Pass
T49	56.5 - 51.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	529	-1.88	14.69	70.8 (b) 12.8	Pass
T50	51.5 - 46.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	541	-1.87	14.69	18.7 (b) 12.7	Pass
T51	46.5 - 41.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	553	-1.86	14.69	18.6 (b) 12.7	Pass
T52	41.5 - 36.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	564	-1.88	14.69	12.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T53	36.5 - 31.5	Horizontal	Pipe 1.5" x 0.120" (11 ga)	576	-1.90	14.69	12.9	Pass
T54	31.5 - 6.5	Horizontal	P1.5x0.13	594	-1.49	16.55	9.0	Pass
T4	281.5 - 276.5	Secondary Horizontal	1	62	-0.59	16.01	3.7	Pass
							6.6 (b)	
T5	276.5 - 271.5	Secondary Horizontal	1	76	-0.64	16.01	4.0	Pass
T11	246.5 - 241.5	Secondary Horizontal	L2 1/2x2x1/4	133	-1.17	30.67	3.8	Pass
							14.2 (b)	
T12	241.5 - 236.5	Secondary Horizontal	2L2 1/2x2x1/4x3/8	143	-1.09	56.86	1.9	Pass
							6.6 (b)	
T13	236.5 - 231.5	Secondary Horizontal	2L2 1/2x2x1/4x3/8	155	-1.01	56.86	1.8	Pass
							6.1 (b)	
T14	231.5 - 226.5	Secondary Horizontal	L2 1/2x2x1/4	167	-0.93	30.67	3.0	Pass
							11.3 (b)	
T15	226.5 - 221.5	Secondary Horizontal	L2 1/2x2x1/4	179	-0.89	30.67	2.9	Pass
							10.8 (b)	
T16	221.5 - 216.5	Secondary Horizontal	L2 1/2x2x1/4	191	-0.84	30.67	2.8	Pass
							10.2 (b)	
T17	216.5 - 211.5	Secondary Horizontal	L2 1/2x2x1/4	203	-0.83	30.67	2.7	Pass
							10.1 (b)	
T18	211.5 - 206.5	Secondary Horizontal	L2 1/2x2x1/4	216	-0.81	30.67	2.6	Pass
							9.8 (b)	
T19	206.5 - 201.5	Secondary Horizontal	L2 1/2x2x1/4	227	-0.83	30.67	2.7	Pass
							10.0 (b)	
T20	201.5 - 196.5	Secondary Horizontal	L2 1/2x2x1/4	240	-0.83	30.67	2.7	Pass
							10.0 (b)	
T21	196.5 - 191.5	Secondary Horizontal	L2 1/2x2x1/4	251	-0.87	30.67	2.8	Pass
							10.6 (b)	
T22	191.5 - 186.5	Secondary Horizontal	L2 1/2x2x1/4	264	-0.90	30.67	2.9	Pass
							10.9 (b)	
T23	186.5 - 181.5	Secondary Horizontal	L2 1/2x2x1/4	275	-0.88	30.67	2.9	Pass
T29	156.5 - 151.5	Secondary Horizontal	1	332	-1.00	15.90	6.3	Pass
							11.3 (b)	
T30	151.5 - 146.5	Secondary Horizontal	1	344	-1.03	15.90	6.5	Pass
T40	101.5 - 96.5	Secondary Horizontal	1	437	-2.03	15.90	12.8	Pass
T45	76.5 - 71.5	Secondary Horizontal	L2 1/2x2x1/4	487	-1.45	30.56	4.7	Pass
							17.5 (b)	
T46	71.5 - 66.5	Secondary Horizontal	L2 1/2x2x1/4	499	-1.55	30.56	5.1	Pass
							18.8 (b)	
T47	66.5 - 61.5	Secondary Horizontal	L2 1/2x2x1/4	511	-1.71	30.56	5.6	Pass
							20.6 (b)	
T48	61.5 - 56.5	Secondary Horizontal	1	523	-1.91	15.90	12.0	Pass
							21.6 (b)	
T49	56.5 - 51.5	Secondary Horizontal	1	535	-1.88	15.90	11.8	Pass
T50	51.5 - 46.5	Secondary Horizontal	1	547	-1.87	15.90	11.7	Pass
T51	46.5 - 41.5	Secondary Horizontal	1	559	-1.86	15.90	11.7	Pass
T52	41.5 - 36.5	Secondary Horizontal	1	570	-1.88	15.90	11.8	Pass
T53	36.5 - 31.5	Secondary Horizontal	1	582	-1.90	15.90	12.0	Pass
T1	314.5 - 310.5	Top Girt	L2x2x1/4	6	-0.27	25.97	1.0	Pass
T55	6.5 - 0	Top Girt	W16x50	621	-1.68	468.70	4.2	Pass
T3	306.5 - 281.5	Guy A@306.5	11/16 (24000)	625	13.55	30.00	45.2	Pass
T11	246.5 - 241.5	Guy A@246.5	7/8 (19000)	628	16.85	47.82	35.2	Pass
T23	186.5 - 181.5	Guy A@186.5	9/16 (23000)	631	8.80	21.00	41.9	Pass
T35	126.5 - 121.5	Guy A@126.5	5/8 (23000)	634	13.58	25.44	53.4	Pass
T48	61.5 - 56.5	Guy A@61.5	11/16 (24000)	637	15.70	30.00	52.3	Pass
T3	306.5 - 281.5	Guy B@306.5	11/16 (24000)	624	13.58	30.00	45.3	Pass
T11	246.5 - 241.5	Guy B@246.5	7/8 (19000)	627	16.88	47.82	35.3	Pass
T23	186.5 - 181.5	Guy B@186.5	9/16 (23000)	630	8.87	21.00	42.3	Pass
T35	126.5 - 121.5	Guy B@126.5	5/8 (23000)	633	13.57	25.44	53.4	Pass
T48	61.5 - 56.5	Guy B@61.5	11/16 (24000)	636	16.03	30.00	53.4	Pass
T3	306.5 - 281.5	Guy C@306.5	11/16 (24000)	623	13.50	30.00	45.0	Pass
T11	246.5 - 241.5	Guy C@246.5	7/8 (19000)	626	16.82	47.82	35.2	Pass

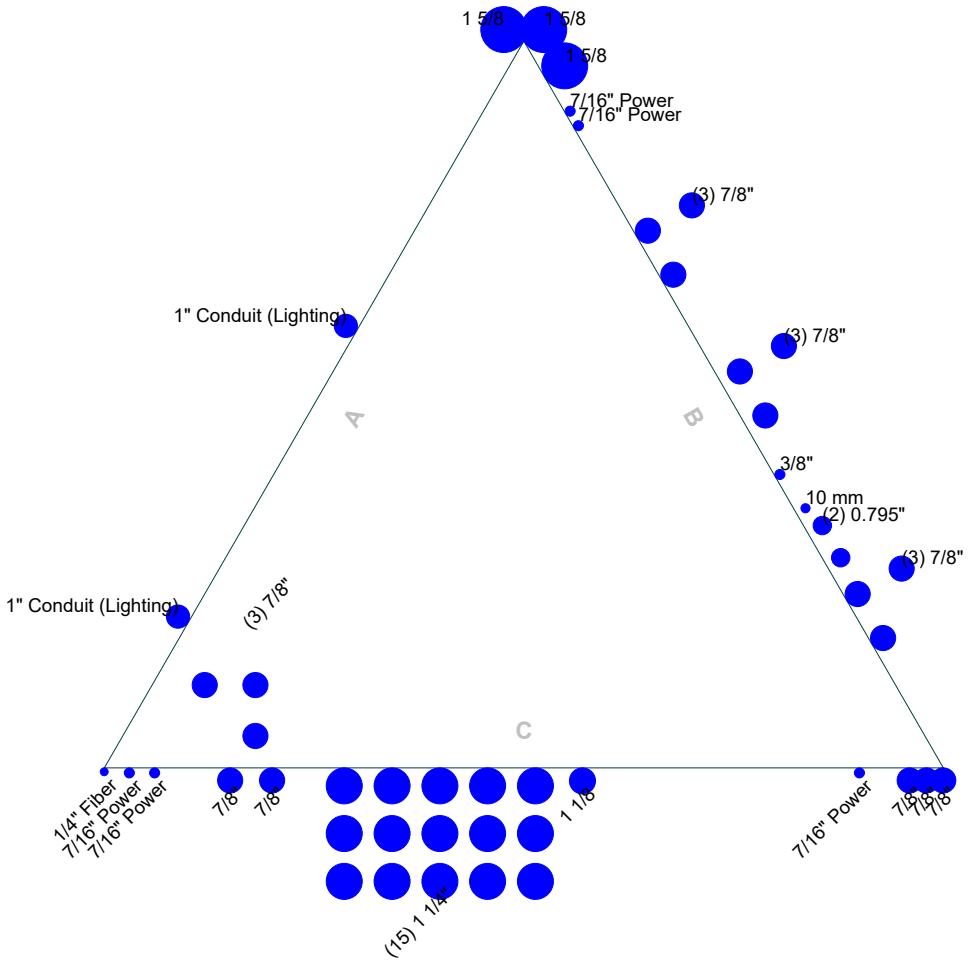
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T23	186.5 - 181.5	Guy C@186.5	9/16 (23000)	629	8.78	21.00	41.8	Pass
T35	126.5 - 121.5	Guy C@126.5	5/8 (23000)	632	13.50	25.44	53.1	Pass
T48	61.5 - 56.5	Guy C@61.5	11/16 (24000)	635	15.75	30.00	52.5	Pass
							Summary	
						Pole (L1)	49.3	Pass
						Leg (T39)	97.4	Pass
						Diagonal (T37)	96.3	Pass
						Horizontal (T48)	70.8	Pass
						Secondary Horizontal (T48)	21.6	Pass
						Top Girt (T55)	4.2	Pass
						Guy A (T35)	53.4	Pass
						Guy B (T48)	53.4	Pass
						Guy C (T35)	53.1	Pass
						Bolt Checks	86.7	Pass
						RATING =	**97.4**	**Pass**

APPENDIX B

BASE LEVEL DRAWING

Feed Line Plan

Round Flat App In Face App Out Face



Engineered Tower Solutions, PLLC
3227 Wellington Court
Raleigh, NC 27615
Phone: (919) 782-2710
FAX: (919) 435-0631
ETS,PLLC

Job:	***52010 - Norwalk 1***		
Project:	***ETS Job No. 21100389.STR.5903***		
Client: CTI Towers	Drawn by: Helen.Tesfaye	App'd:	
Code: TIA-222-H	Date: 12/10/21	Scale: NTS	
Path:		Dwg No. E-7	

APPENDIX C

ADDITIONAL CALCULATIONS

Leg Built-Up Member Compression Capacity

Tower Section	6.5 to 31.5-ft
P_u	85.89 kip
Code	H
ø Factor	0.90
Controlling Load Case	Ice
Allowable Stress Increase	1.00
F_y	50 ksi
F_u	65 ksi
E	29,000 ksi
Effective Length Factor, "K_{eff}"	1.00
Stitch Connection Type	Bolted

Member Type	Member	Area (in^2)	Moment of Inertia (in^4)	Radius of Gyration (in)	Unbraced Length (in)	KL/r	$a_i/r_i \leq 0.75(KL/r)_o$
Original Member	2.25 SR	3.976	1.258	0.56	60.000	106.67	-
Additional Member	BP9.5x0.25	2.483	3.548	1.20	12.000	10.04	10.04
Built-Up Member	Built Up Leg	3.976	4.970	1.12	60.000	53.67	40.25
							Sufficient

Bolted Option	
r_{ib}	1.195 in
$KL/r_{r.m}$	54.60
F_a	23.62 ksi
F_e	96.02 ksi
λ_c	0.72
F_{cr}	40.21 ksi
øPn	143.88 kip

Compression Capacity	59.7%

tnxTower Inputs	
Effective Length Factor	1.0173

Pier and Pad Foundation

Site # :	52010
Site Name:	Norwalk 1

TIA-222 Revision:	H
Tower Type:	Guyed

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	133.53	kips
Base Shear, Vu_comp:	2.97	kips
Moment, M_u:	137.03	ft-kips
Tower Height, **H**:	341.5	ft
BP Dist. Above Fdn, bp_{dist}:	2	in
Bolt Circle / Bearing Plate Width, **BC**:	5.5	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	6	ft
Ext. Above Grade, **E**:	1.6	ft
Pier Rebar Size, **Sc**:	9	
Pier Rebar Quantity, **mc**:	26	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral (Sliding) (kips)	157.81	2.97	**1.9%**	**Pass**
Bearing Pressure (ksf)	24.57	2.11	**8.6%**	**Pass**
*Overturning (kip*ft)*	2257.44	165.74	**7.3%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	3672.58	151.88	**4.1%**	**Pass**
Pier Compression (kip)	17184.96	165.93	**1.0%**	**Pass**
*Pad Flexure (kip*ft)*	3251.93	204.25	**6.3%**	**Pass**
Pad Shear - 1-way (kips)	631.97	23.38	**3.7%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.005	**2.7%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	3251.93	91.13	**2.8%**	**Pass**

Structural Rating:	**6.3%**
Soil Rating:	**8.6%**

Pad Properties		
Depth, **D**:	7.9	ft
Pad Width, W_1:	13	ft
Pad Width, W_2:	18.7	ft
Pad Thickness, **T**:	4.5	ft
Pad Rebar Size (Top dir. 1), Sp_{top1}:	9	
Pad Rebar Quantity (Top dir 1), mp_{top1}:	0	
Pad Rebar Size (Top dir.2), Sp_{top2}:	9	
Pad Rebar Quantity (Top dir. 2), mp_{top2}:	0	
Pad Rebar Size (Bottom dir. 1), Sp_1:	9	
Pad Rebar Quantity (Bottom dir. 1), mp_1:	15	
Pad Rebar Size (Bottom dir. 2), Sp_2:	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	15	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3.0	ksi
Dry Concrete Density, **δc**:	150	pcf

Soil Properties		
Total Soil Unit Weight, **γ**:	120	pcf
Ultimate Net Bearing, Qnet:	40.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, **ϕ**:	34	degrees
SPT Blow Count, N_{blows}:	100	
Base Friction, **μ**:	0.35	
Neglected Depth, **N**:	3.30	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Version 4.1.1

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

Site Name:	Norwalk 1
Location:	Inner, B-2
TIA-222 Revision:	H

Design Reactions		
Shear, **S**:	19.12	kips
Uplift, **Ua**:	21.72	kips
Resultant Force, **Rf**:	28.94	kips
Tower Height, **H**:	341.50	ft
Guy Anchor Radius, **R**:	75.00	ft
Resultant Angle to Horizontal, **θ**:	48.6	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	5.75	ft
Anchor Width, **Wa**:	6	ft
Anchor Thickness, **Ta**:	2.5	ft
Anchor Length, **La**:	16	ft
Concrete Volume, **Vc**:	8.9	yd^3
Toe Width, **toe**:	0	ft

Material Properties		
Wt. Avg.Concrete Density, **δx**:	0.150	kcf

Design Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral Capacity (kips):	63.36	19.12	**30.2%**	**Pass**
Uplift Capacity (kips):	105.44	21.72	**20.6%**	**Pass**

Anchor Shaft Rating:	**N/A**
Structural Rating:	**N/A**
Soil Rating:	**30.2%**

Neglect Depth, **Neg**:	3.3	ft
Groundwater Level, **gw**:	6	ft

Soil Properties:			**No. of Soil Layers:** 4			
Layer	**φ, deg**	**cu, ksf**	**δ, pcf**	**Depth, ft**	**Ultimate fs (ksf)**	**N (blows/ft)**
1	35	0.000	120	3.25	0.000	
2	36	0.000	120	3.30	0.000	
3	36	0.000	120	4.00		29
4	35	0.000	120	5.75		29

*key: φ = *Internal Angle of Friction*
cu = Cohesion / Undrained Shear Strength
δ = *Buoyant Soil Unit Weight*
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

Version 4.0.0

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

Site Name:	Norwalk 1
Location:	Outer, B-2
TIA-222 Revision:	H

Design Reactions		
Shear, **S**:	22.32	kips
Uplift, **Ua**:	31.25	kips
Resultant Force, **Rf**:	38.40	kips
Tower Height, **H**:	341.50	ft
Guy Anchor Radius, **R**:	170.00	ft
Resultant Angle to Horizontal, **θ**:	54.5	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	7.5	ft
Anchor Width, **Wa**:	6	ft
Anchor Thickness, **Ta**:	2.5	ft
Anchor Length, **La**:	16	ft
Concrete Volume, **Vc**:	8.9	yd^3
Toe Width, **toe**:	0	ft

Material Properties		
Wt. Avg.Concrete Density, **δx**:	0.113	kcf

Design Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral Capacity (kips):	139.76	22.32	**16.0%**	**Pass**
Uplift Capacity (kips):	148.34	31.25	**21.1%**	**Pass**

Anchor Shaft Rating:	**N/A**
Structural Rating:	**N/A**
Soil Rating:	**21.1%**

Neglect Depth, **Neg**:	3.3	ft
Groundwater Level, **gw**:	6	ft

Soil Properties:				No. of Soil Layers: 5		
Layer	**φ, deg**	**cu, ksf**	**δ, pcf**	**Depth, ft**	**Ultimate fs (ksf)**	**N (blows/ft)**
1	35	0.000	120	3.30	0.000	
2	36	0.000	120	4.00		30
3	35	0.000	120	5.00		29
4	35	0.000	120	6.00		29
5	36	0.000	120	7.50		33

*key: φ = *Internal Angle of Friction*
cu = Cohesion / Undrained Shear Strength
δ = *Buoyant Soil Unit Weight*
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

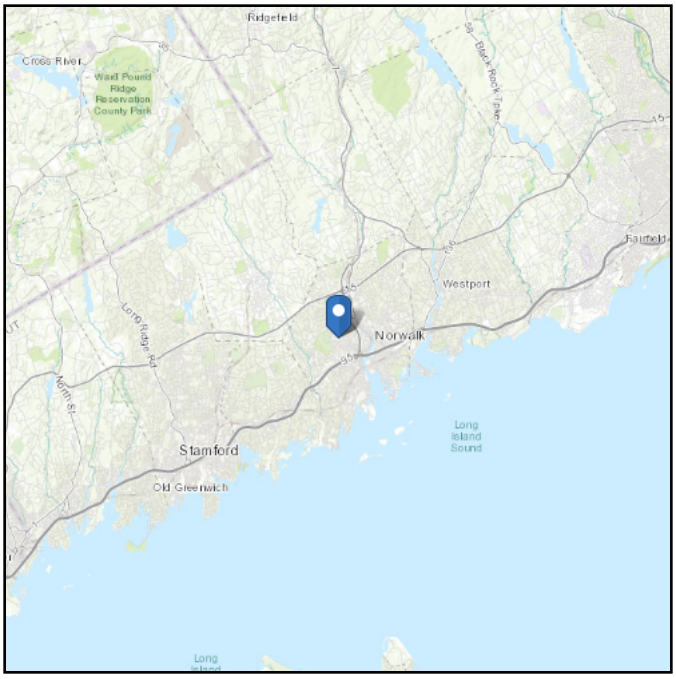
Version 4.0.0

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 118.45 ft (NAVD 88)
Latitude: 41.11556
Longitude: -73.43436



Wind

Results:

Wind Speed:	120 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	91 Vmph
100-year MRI	98 Vmph

Data 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

Date Accessed: Wed Jun 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 7-10 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.

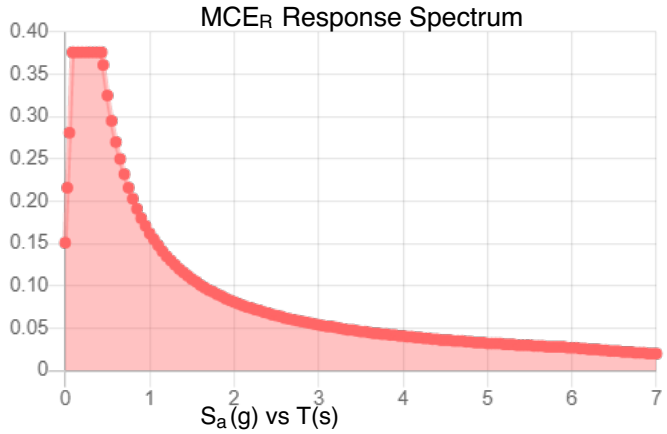
Seismic

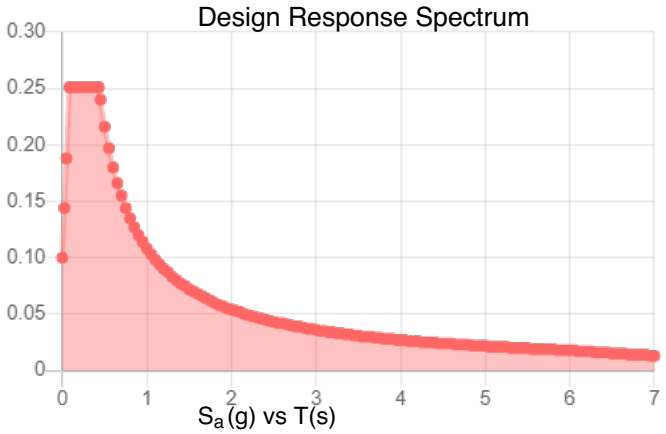
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.235	S_{DS} :	0.251
S_1 :	0.068	S_{D1} :	0.108
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.134
S_{MS} :	0.376	PGA_M :	0.205
S_{M1} :	0.162	F_{PGA} :	1.532
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Jun 02 2021

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed Jun 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 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.

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

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In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

APPENDIX D

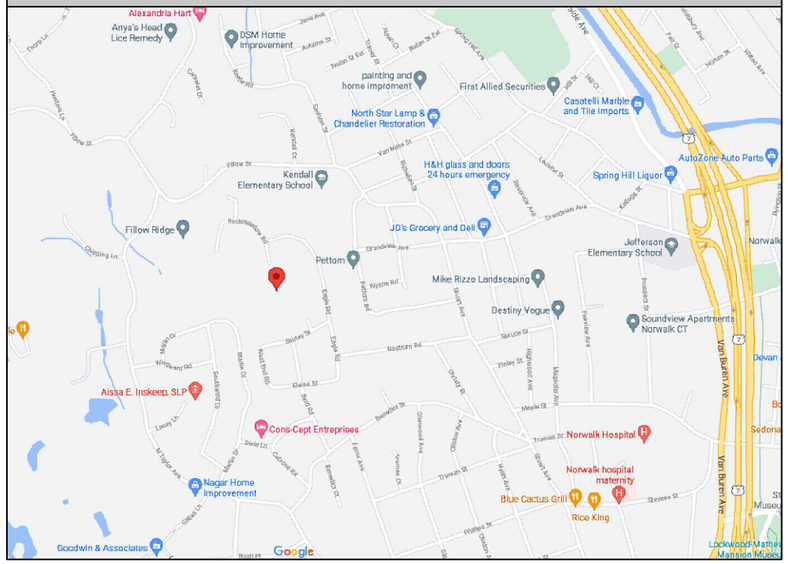
TOWER MODIFICATION DRAWINGS

TOWER MODIFICATION DRAWINGS

SITE INFORMATION

SITE NAME	NORWALK 1
SITE NUMBER	52010
SITE ADDRESS	6 SHIRLEY STREET NORWALK, CT 06850 FAIRFIELD COUNTY
LAT. / LONG.	N 41.115556°, W 73.434444°
ETS JOB#:	21100389.STR.6340
ETS FAILING REPORT JOB#:	21100389.STR.5903
TOWER MANUFACTURER	UNKNOWN
TOWER TYPE	GUYED TOWER
TOWER HEIGHT	341.5 FT

LOCATION MAP



DRIVING DIRECTIONS

FROM NORWALK, HEAD NORTH ON EAST AVE TOWARD E WALL ST (26 FT). TURN LEFT ONTO E WALL ST (0.1 MI). E WALL ST TURNS SLIGHTLY LEFT AND BECOMES WALL STREET (0.2 MI). TURN RIGHT ONTO BELDEN AVE (0.4 MI). CONTINUE STRAIGHT ONTO SPRING HILL AVE (384 FT). TURN LEFT ONTO KELLOGG ST (410 FT). TURN RIGHT ONTO GRANDVIEW AVE (203 FT). SLIGHT LEFT TO STAY ON GRANDVIEW AVE (0.3 MI). TURN LEFT ONTO STUART AVE (0.2 MI). TURN RIGHT ONTO NOSTRUM RD (0.2 MI). TURN RIGHT ONTO EAGLE RD (0.3 MI). TURN LEFT ONTO ROCKMEADOW RD (217 FT). TOWER WILL BE STRAIGHT AHEAD.

PROJECT CONTACTS

1. CLIENT REPRESENTATIVE

   JENNIFER BOCCELLA
   OPERATIONS COORDINATOR

   CTI TOWERS, INC.
   5000 CENTREGREEN WAY, SUITE 325
   CARY, NC 27513
   OFFICE: (919) 893-2841 EXT. 430

   JBOCCELLA@CTITOWERS.COM

2. CONSTRUCTION MANAGER
   TBD

3. ENGINEER OF RECORD (EOR)

   FREDERIC G. BOST, P.E.

   3227 WELLINGTON CT.
   RALEIGH, NC 27615
   OFFICE: (919) 782-2710

   GEOFF.BOST@ETS-PLLC.COM

CODE COMPLIANCE

THIS REINFORCEMENT DESIGN IS BASED ON THE REQUIREMENTS OF TIA STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES USING:

TIA CODE	TIA-222-H
BUILDING CODE	2018 CONNECTICUT STATE BUILDING CODE (2015 IBC)
ULTIMATE WIND SPEED	120 MPH
ICE THICKNESS	1.50 IN
WIND SPEED WITH ICE	50 MPH
SERVICE LOAD WIND SPEED	60 MPH
EXPOSURE CATEGORY	B
RISK CATEGORY	II
TOPOGRAPHIC CATEGORY	1
SPECIAL NOTES	-

SHEET INDEX

SHEET #	REV. (DATE)	DESCRIPTION
T-1	0 - 12/21/2021	TITLE PAGE
N-1	0 - 12/21/2021	MODIFICATION INSPECTION CHECKLIST
N-2	0 - 12/21/2021	PROJECT NOTES
S-1	0 - 12/21/2021	TOWER ELEVATION AND MODIFICATION SCHEDULE
S-2	0 - 12/21/2021	DIAGONAL REPLACEMENT DETAILS
-	-	-
-	-	-
-	-	-
-	-	-
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-	-	-
-	-	-
-	-	-
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-	-	-
-	-	-
-	-	-
-	-	-

PREPARED BY:

ETS
ENGINEERED TOWER SOLUTIONS, PLLC
3227 WELLINGTON COURT
RALEIGH, NC 27615
o: 919-782-2710, f: 919-435-0631
www.engineeredtowersolutions.com

PREPARED FOR:

CTI TOWERS

SITE NAME:

Norwalk 1

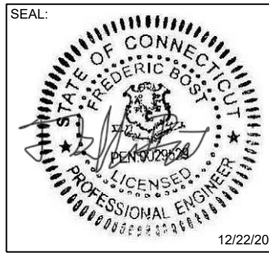
SITE NUMBER:

52010

SITE ADDRESS:
6 SHIRLEY STREET
NORWALK, CT 06850

LATITUDE/LONGITUDE:
N 41.115556°, W 73.434444°

SEAL:



12/22/2021

REV	DATE	DETAILS
0	12/22/2021	FOR CONSTRUCTION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		

DRAWN BY: EDR | CHECKED BY: HHT

SHEET TITLE:

TITLE PAGE

SHEET # **T-1** | CURRENT REV #: **0** | ETS #: 21100389.STR.6340

MI CHECKLIST		
REQUIRED	REPORT ITEM	BRIEF DESCRIPTION
PRE-CONSTRUCTION		
X	MI CHECKLIST DRAWING	THIS CHECKLIST SHALL BE INCLUDED IN THE MI REPORT.
N/A	EOR APPROVED SHOP DRAWINGS	ONCE THE PRE-MODIFICATION MAPPING IS COMPLETE AND PRIOR TO FABRICATION, THE CONTRACTOR SHALL PROVIDE DETAILED ASSEMBLY DRAWINGS AND/OR SHOP DRAWINGS. THESE ARE TO INCLUDE, BUT ARE NOT LIMITED TO, A VISUAL LAYOUT OF NEW REINFORCEMENT, EXISTING REINFORCEMENT CONFIGURATION, PORTHOLES, MOUNTS, STEP PEGS, SAFETY CLIMBS AND ANY OTHER MISCELLANEOUS ITEMS WHICH MAY AFFECT SUCCESSFUL INSTALLATION OF MODIFICATIONS ON THE TOWER. THESE DRAWINGS SHALL BE SUBMITTED TO THE EOR FOR APPROVAL. APPROVED ASSEMBLY/SHOP DRAWINGS SHALL BE SUBMITTED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATION INSPECTION	A LETTER FROM THE FABRICATOR, STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS, SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATOR CERTIFIED WELD INSPECTION	A CWI SHALL INSPECT ALL WELDING PERFORMED ON STRUCTURAL MEMBERS DURING FABRICATION. A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	MATERIAL TEST REPORTS (MTR)	MATERIAL TEST REPORTS SHALL BE PROVIDED FOR MATERIAL USED. MTRS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATOR NDE INSPECTION REPORT	CRITICAL SHOP WELDS THAT REQUIRE TESTING ARE NOTED ON THESE CONTRACT DRAWINGS. A CERTIFIED NDT INSPECTOR SHALL PERFORM NON-DESTRUCTIVE EXAMINATION AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	NDE OF MONOPOLE BASE PLATE SEAM WELD	A NDE OF THE POLE TO BASE PLATE CONNECTION IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PACKING SLIPS	THE MATERIAL SHIPPING LIST SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
ADDITIONAL TESTING AND INSPECTIONS:		
N/A		
CONSTRUCTION		
N/A	FOUNDATION INSPECTIONS	A VISUAL OBSERVATION OF THE EXCAVATION AND REBAR SHALL BE PERFORMED BEFORE PLACING THE CONCRETE. A VISUAL OBSERVATION OF THE REBAR SHALL BE PERFORMED BEFORE PLACING THE EPOXY. A SEALED WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	CONCRETE COMP. STRENGTH AND SLUMP TEST	THE CONCRETE MIX DESIGN, SLUMP TEST, AND COMPRESSIVE STRENGTH TESTS SHALL BE PROVIDED AS PART OF THE FOUNDATION REPORT.
N/A	EARTHWORK	FOUNDATION SUB-GRADES SHALL BE INSPECTED AND APPROVED BY AN APPROVED FOUNDATION INSPECTOR AND RESULTS INCLUDED AS PART OF THE FOUNDATION REPORT.
N/A	MICROPILE/ROCK ANCHOR	MICROPILES/ROCK ANCHORS SHALL BE INSPECTED BY THE FOUNDATION INSPECTION VENDOR AND SHALL BE INCLUDED AS PART OF THE FOUNDATION INSPECTION REPORT, ADDITIONAL TESTING AND/OR INSPECTION REQUIREMENTS ARE NOTED IN THESE CONTRACT DOCUMENTS.
N/A	POST-INSTALLED ANCHOR ROD VERIFICATION	POST INSTALLED ANCHOR ROD VERIFICATION SHALL BE PERFORMED IN ACCORDANCE WITH REQUIREMENTS AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	BASE PLATE GROUT VERIFICATION	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR THAT CERTIFIES THAT THE GROUT WAS REMOVED AND/OR INSTALLED IN ACCORDANCE WITH APPLICABLE REQUIREMENTS FOR INCLUSION IN THE MI REPORT.
N/A	FIELD CERTIFIED WELD INSPECTION	A CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST FIELD WELDS. A REPORT SHALL BE PROVIDED. NDE OF FIELD WELDS SHALL BE PERFORMED IF EXPLICITLY REQUIRED WITHIN CONTRACT DOCUMENTS. THE NDE REPORT SHALL BE INCLUDED IN THE CWI REPORT.
X	ON-SITE COLD GALVANIZING VERIFICATION	THE GENERAL CONTRACTOR SHALL PROVIDE WRITTEN AND PHOTOGRAPHIC DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON-SITE COLD GALVANIZING WAS APPLIED PER MANUFACTURER SPECIFICATIONS AND APPLICABLE STANDARDS.
N/A	TENSION TWIST AND PLUMB	THE GENERAL CONTRACTOR SHALL PROVIDE A REPORT IN ACCORDANCE WITH APPLICABLE STANDARDS DOCUMENTING TENSION TWIST AND PLUMB.
X	GC AS-BUILT DRAWINGS	THE GENERAL CONTRACTOR SHALL SUBMIT A LEGIBLE COPY OF THE ORIGINAL DESIGN DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD. EOR/RFI FORMS APPROVING ALL CHANGES SHALL BE SUBMITTED WHEN THE EOR IS SPECIFYING ADDITIONAL INSPECTIONS DESCRIPTION AND APPLICABLE STANDARDS SHALL BE APPLIED.
ADDITIONAL TESTING AND INSPECTIONS:		
N/A		
POST-CONSTRUCTION		
X	CONSTRUCTION COMPLIANCE LETTER	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE CONTRACT DRAWINGS, INCLUDING LISTING ADDITIONAL PARTIES TO THE MODIFICATION PROCESS.
N/A	POST-INSTALLED ANCHOR ROD PULL TESTS	POST-INSTALLED ANCHOR RODS SHALL BE TESTED BY AN APPROVED PULL TEST INSPECTOR AND A REPORT SHALL BE PROVIDED INDICATING TESTING RESULTS.
X	PHOTOGRAPHS	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI. PHOTOS SHALL DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
X	BOLT INSTALLATION VERIFICATION REPORT	THE MI INSPECTOR SHALL VERIFY THE INSTALLATION AND TIGHTNESS 10% OF ALL NON PRE-TENSIONED BOLTS INSTALLED AS PART OF THE MODIFICATION. THE MI INSPECTOR SHALL LOOSEN THE NUT AND VERIFY THE BOLT HOLE SIZE AND CONDITION. THE MI REPORT SHALL CONTAIN THE COMPLETED BOLT INSTALLATION VERIFICATION REPORT, INCLUDING THE SUPPORTING PHOTOGRAPHS.
X	PUNCHLIST DEVELOPMENT AND CORRECTION DOCUMENTATION	FINAL PUNCHLIST INDICATING ALL NONCONFORMANCE(S) IDENTIFIED AND THE FINAL RESOLUTION AND APPROVAL.
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)	THE MI INSPECTOR SHALL OBSERVE AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACTOR'S REDLINE DRAWING AND THE ACTUAL COMPLETED INSTALLATION.
ADDITIONAL TESTING AND INSPECTIONS:		
N/A		

MODIFICATION INSPECTION NOTES

GENERAL

THE MI IS AN ON-SITE VISUAL AND HANDS-ON INSPECTION OF TOWER MODIFICATIONS INCLUDING A REVIEW OF CONSTRUCTION REPORTS AND ADDITIONAL PERTINENT DOCUMENTATION PROVIDED BY THE GENERAL CONTRACTOR (GC), AS WELL AS ANY INSPECTION DOCUMENTS PROVIDED BY 3RD PARTY INSPECTORS. THE MI IS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS; IN ACCORDANCE WITH APPLICABLE STANDARDS; AND AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

NO DOCUMENT, CODE OR POLICY CAN ANTICIPATE EVERY SITUATION THAT MAY ARISE. ACCORDINGLY, THIS CHECKLIST IS INTENDED TO SERVE AS A SOURCE OF GUIDING PRINCIPLES IN ESTABLISHING GUIDELINES FOR MODIFICATION INSPECTION.

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, AND THE MI INSPECTOR DOES NOT TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES. THE MI INSPECTOR SHALL INSPECT AND NOTE CONFORMANCE/NONCONFORMANCE AND PROVIDE TO THE POINT OF CONTACT FOR EVALUATION.

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PURCHASE ORDER (PO) IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN THE GC AND/OR INSPECTOR SHALL CONTACT THE POINT OF CONTACT (POC).

SERVICE LEVEL COMMITMENT

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING AN MI REPORT:

- THE GC SHALL PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY MINOR DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

REQUIRED PHOTOS

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
  - RAW MATERIALS
  - PHOTOS OF ALL CRITICAL DETAILS
  - FOUNDATION MODIFICATIONS
  - WELD PREPARATION
  - BOLT INSTALLATION
  - FINAL INSTALLED CONDITION
  - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
  - FINAL INFIELD CONDITION

PHOTOS OF ELEVATED MODIFICATIONS TAKEN ONLY FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

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PREPARED FOR:

CTI TOWERS

SITE NAME:

Norwalk 1

SITE NUMBER:

52010

SITE ADDRESS:
6 SHIRLEY STREET
NORWALK, CT 06850

LATITUDE/LONGITUDE:
N 41.115556°, W 73.434444°

SEAL:

12/22/2021

REV	DATE	DETAILS
0	12/22/2021	FOR CONSTRUCTION
1		
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DRAWN BY: EDR | CHECKED BY: HHT

SHEET TITLE:

MODIFICATION INSPECTION CHECKLIST

SHEET # **N-1** | CURRENT REV #: **0**
ETS #: 21100389.STR.6340

GENERAL NOTES:

1. ALL REFERENCES TO THE OWNER IN THESE DOCUMENTS SHALL BE CONSIDERED CTI TOWERS, INC. OR ITS DESIGNATED REPRESENTATIVE.
2. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE OF CONNECTICUT.
3. WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE 2018 CONNECTICUT STATE BUILDING CODE (2015 IBC).
4. UNLESS SHOWN OR NOTED OTHERWISE ON THE CONTRACT DRAWINGS, OR IN THE SPECIFICATIONS, THE FOLLOWING NOTES SHALL APPLY TO THE MATERIALS LISTED HEREIN, AND TO THE PROCEDURES TO BE USED ON THIS PROJECT.
5. ALL HARDWARE ASSEMBLY MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERSEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.
6. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO INSURE THE SAFETY OF THE STRUCTURE AND IT'S COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.
7. ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO BEGINNING ANY MATERIALS ORDERING, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. CONTRACTOR SHALL NOT SCALE CONTRACT DRAWINGS IN LIEU OF FIELD VERIFICATIONS. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S ENGINEER. THE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR IS TO PROCEED WITH THE WORK. THE CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE ENGINEER SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE PROCEDURES.
8. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.
10. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIALS ACCESS, WITH THE RESIDENT LEASING AGENT FOR APPROVAL.
11. ALL PERMITS THAT MUST BE OBTAINED ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
12. IF APPLICABLE, ALL CONCRETE WORK SHALL COMPLY TO LOCAL CODES AND THE ACI 318-14, "BUILDING REQUIREMENTS FOR STRUCTURAL CONCRETE".
13. 24 HOURS PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, THE CONTRACTOR MUST NOTIFY THE APPLICABLE JURISDICTIONAL (STATE, COUNTY OR CITY) ENGINEER.

WELDING NOTES:

1. ALL WELDING SHALL BE IN ACCORDANCE WITH THE AWS D1.1/D1.1M: 2015 "STRUCTURAL WELDING CODE-STEEL".
2. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS.
3. CONTRACTOR SHALL RETAIN AN AWS CERTIFIED WELD INSPECTOR TO PERFORM VISUAL INSPECTIONS ON FIELD WELDS. A LETTER AND REPORT SHALL BE ISSUED TO THE CONTRACTOR. CONTRACTOR SHALL SUBMIT LETTER AND REPORT TO TOWER OWNER.
4. GRIND THE SURFACE ADJACENT TO THE WELD FOR A DISTANCE OF 2" MINIMUM ALL AROUND. GRIND THE SURFACE OF THE ROD TO BE INSTALLED FOR A DISTANCE OF 2" MINIMUM ALL AROUND THE AREA TO BE WELDED. ENSURE BOTH AREAS ARE 100% FREE OF ALL GALVANIZING. SURFACES TO BE WELDED SHALL BE FREE FROM SCALE, SLAG, RUST, MOISTURE, GREASE OR ANY OTHER FOREIGN MATERIAL THAT WOULD PREVENT PROPER WELDING.
5. DO NOT WELD IF THE TEMPERATURE OF THE STEEL IN THE VICINITY OF THE WELD AREA IS BELOW 0°F. WHEN THE TEMPERATURE IS BETWEEN 0°F AND 32°F, PREHEAT AND MAINTAIN THE STEEL IN THE VICINITY OF THE WELD AREA AT 70°F DURING THE WELDING PROCESS.
6. DO NOT WELD ON WET OR FROST-COVERED SURFACES & PROVIDE ADEQUATE PROTECTION FROM HIGH WINDS.
7. FOR ALL WELDING, USE E70XX ELECTRODES.
8. AFTER FINAL INSPECTION, THE AREA OF THE WELDS, THE INSTALLATION AND ALL SURFACES DAMAGED BY WELDING OR GRINDING SHALL RECEIVE A COLD-GALVANIZED COATING. THIS COATING SHALL BE APPLIED BY BRUSH. THE GALVANIZING COMPOUND SHALL CONTAIN A MINIMUM OF 95% ± PURE ZINC. THE FINISHED COATING SHALL BE A MINIMUM THICKNESS OF 3 MILS.

STRUCTURAL STEEL NOTES:

1. THE FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATION FOR MANUAL OF STEEL CONSTRUCTION, LOAD AND RESISTANCE FACTOR DESIGN, 15TH EDITION.
2. UNLESS OTHERWISE NOTED, ALL STRUCTURAL ELEMENTS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
   A. STRUCTURAL STEEL:
      - ANGLE: ASTM A36
      - PIPE/TUBE: ASTM A53 GR. B (FY = 42 KSI)
      - PLATE: ASTM A36 (SELF SUPPORTING AND GUYED TOWERS)
      - PLATE: ASTM A572-65 (MONOPOLE)
      - GUYED WIRES: ASTM A475 (EHS CABLES)
      - GUYED WIRES: ASTM A586 OR A603 (BRIDGE STRAND)

   B. ALL BOLTS, ASTM A325 TYPE I GALVANIZED HIGH STRENGTH BOLTS.
   C. ALL U-BOLTS, ASTM A193 GRADE B7
   D. ALL NUTS, ASTM A563 CARBON AND ALLOY STEEL NUTS.
   E. ALL WASHERS, ASTM F436 HARDENED STEEL WASHERS.
3. ALL CONNECTIONS NOT FULLY DETAILED ON THESE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH AISC SPECIFICATION FOR MANUAL OF STEEL CONSTRUCTION, LOAD AND RESISTANCE FACTOR DESIGN, 15TH EDITION.
4. HOLES SHALL NOT BE FLAME CUT THRU STEEL UNLESS APPROVED BY THE ENGINEER.
5. HOT-DIP GALVANIZE ALL ITEMS UNLESS OTHERWISE NOTED, AFTER FABRICATION WHERE PRACTICABLE. GALVANIZING: ASTM A123, ASTM, A153/A153M OR ASTM A653/A653M, G90, AS APPLICABLE.
6. REPAIR DAMAGED SURFACES WITH GALVANIZING REPAIR METHOD AND PAINT CONFORMING TO ASTM A780 OR BY APPLICATION OF STICK OR THICK PASTED MATERIAL SPECIFICALLY DESIGNED FOR REPAIR OF GALVANIZING. CLEAN AREAS TO BE REPAIRED AND REMOVE SLAG FROM WELDS. HEAT SURFACES TO WHICH STICK OR PASTE MATERIAL IS APPLIED, WITH A TORCH TO A TEMPERATURE SUFFICIENT TO MELT THE METALLICS IN STICK OR PASTED; SPREAD MOLTEN MATERIAL UNIFORMLY OVER SURFACES TO BE COATED AND WIPE OFF EXCESS MATERIAL.
7. A NUT LOCKING DEVICE SHALL BE INSTALLED ON ALL PROPOSED AND/OR REPLACED BOLTS.
8. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH TO EXCLUDE THE THREADS FROM THE SHEAR PLANE.
9. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
10. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.

BOLT TIGHTENING PROCEDURE:

1. CONNECTION BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8.2 OF THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS, LOCATED IN THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS PARAPHRASED AS FOLLOWS:
2. FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8.2.1 THROUGH 8.2.4.

   8.2.1 TURN-OF-THE-NUT TIGHTENING

   BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1, UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY FROM THE MOST RIGID PART OF THE JOINT IN A MANNER THAT WILL MINIMIZE RELAXATION OF PREVIOUSLY PRETENSIONED BOLTS.
3. TIGHTEN CONNECTION BOLTS BY AISC - "TURN OF THE NUT" METHOD, USING THE CHART BELOW.

BOLT LENGTHS UP TO AND INCLUDING FOUR DIA.		
½"	BOLTS UP TO AND INCLUDING 2.0 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT
⅝"	BOLTS UP TO AND INCLUDING 2.5 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT
¾"	BOLTS UP TO AND INCLUDING 3.0 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT
⅞"	BOLTS UP TO AND INCLUDING 3.5 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT
1"	BOLTS UP TO AND INCLUDING 4.0 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT
BOLT LENGTHS OVER FOUR DIA. BUT NOT EXCEEDING EIGHT DIA.		
½"	BOLTS 2.25 TO 4.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT
⅝"	BOLTS 2.75 TO 5.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT
¾"	BOLTS 3.25 TO 6.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT
⅞"	BOLTS 3.75 TO 7.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT
1"	BOLTS 4.25 TO 8.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT

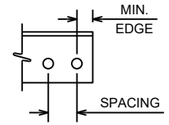
4. ALL OTHER BOLTED CONNECTIONS SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1 OF THE SPECIFICATION.

NOMINAL HOLE DIMENSIONS

BOLT DIAMETER	STANDARD HOLE	SHORT SLOT
½	9/16	9/16 x 1 1/16
⅝	11/16	11/16 x ⅞
¾	13/16	13/16 x 1
⅞	15/16	15/16 x 1⅛
1	1 1/16	1 1/16 x 1 5/16

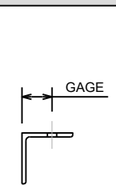
BOLT EDGE AND SPACING

BOLT DIAMETER	MIN EDGE	SPACING
½	⅞	1½
⅝	1⅛	1⅞
¾	1¼	2¼
⅞	1½	2⅝
1	1¾	3

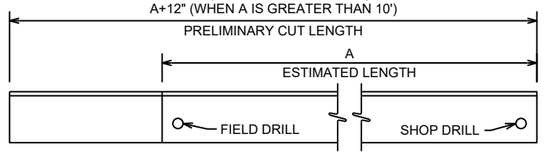


WORKABLE GAGES

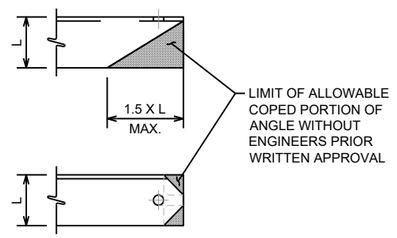
LEG LENGTH	GAGE
4	2½
3½	2
3	1¾
2½	1⅜
2	1⅛
1¾	1



MEMBER LENGTHS



ALLOWABLE ANGLE COPE



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SEAL:

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REV	DATE	DETAILS
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DRAWN BY: EDR | CHECKED BY: HHT

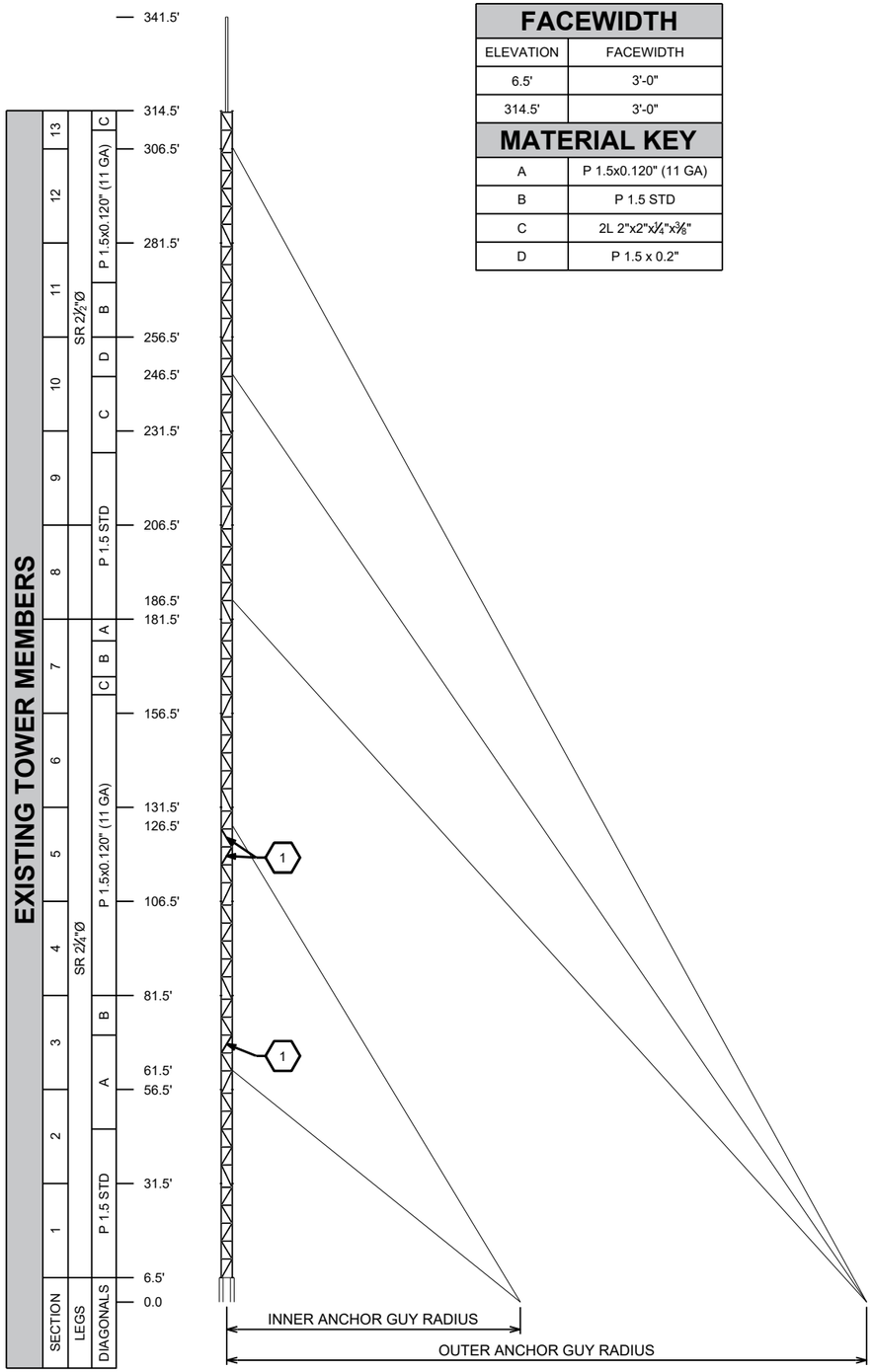
SHEET TITLE:

PROJECT NOTES

SHEET # **N-2**

CURRENT REV #: **0**

ETS #: 21100389.STR.6340



FACEWIDTH	
ELEVATION	FACEWIDTH
6.5'	3'-0"
314.5'	3'-0"

MATERIAL KEY	
A	P 1.5x0.120" (11 GA)
B	P 1.5 STD
C	2L 2"x2"x¼"x⅜"
D	P 1.5 x 0.2"

MODIFICATION SCHEDULE

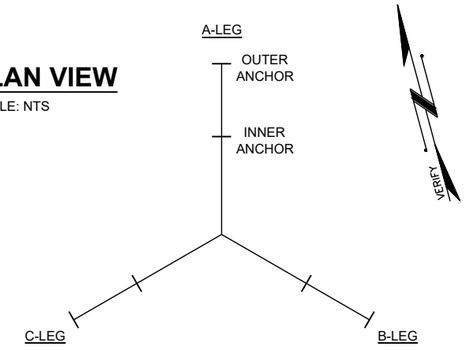
NO.	MODIFICATION DESCRIPTION	ELEVATIONS (FT.)	DETAIL SHEET #
1	REPLACE EXISTING DIAGONALS	66.5 - 71.5 116.5 - 126.5	S-2

NOTES:

1. ANTENNAS AND OTHER APPURTENANCES MAY NEED TO BE TEMPORARILY REMOVED OR MOVED DURING MODIFICATION INSTALLATION.
2. FIELD VERIFICATION OF ALL MEASUREMENTS REQUIRED PRIOR TO FABRICATION.

GUY PLAN VIEW

SCALE: NTS



GUY RADIUS / RELATIVE ELEVATION

	ANCHOR	RADIUS (FT)	REL. ELEV.		ANCHOR	RADIUS (FT)	REL. ELEV.
INNER	A-LEG	78.5	0.0	OUTER	A-LEG	169.0	0.0
	B-LEG	75.0	0.0		B-LEG	170.0	0.0
	C-LEG	78.0	0.0		C-LEG	170.0	0.0

TOWER ELEVATION

SCALE: 1" = 40'

0 40 80

SCALE IN FEET

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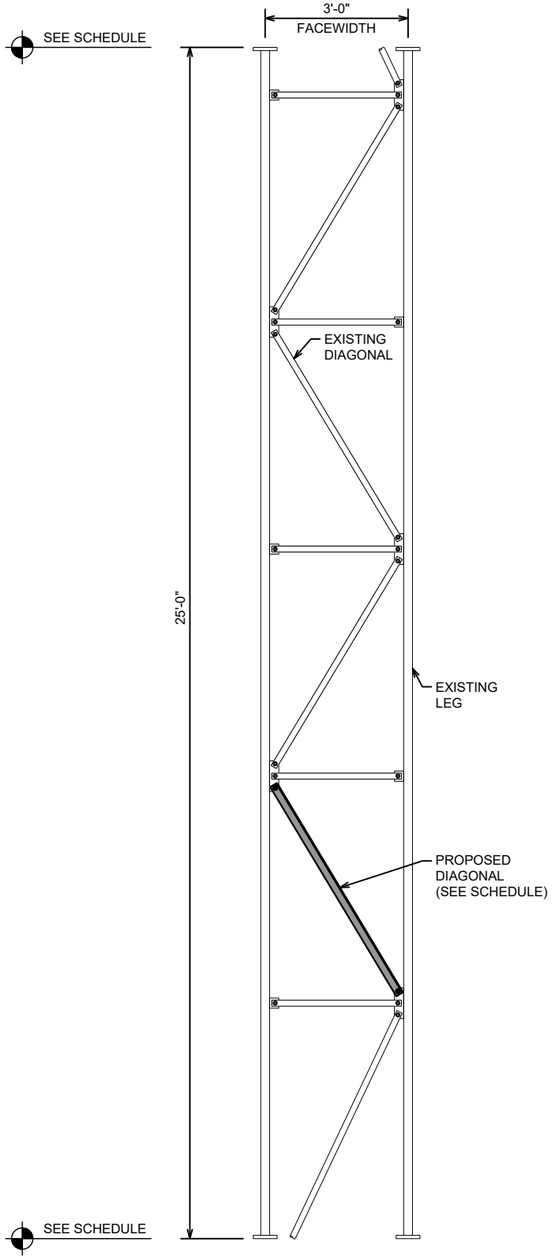
DRAWN BY: EDR | CHECKED BY: HHT

SHEET TITLE:

TOWER ELEVATION AND MODIFICATION SCHEDULE

SHEET # **S-1** | CURRENT REV #: **0** | ETS #: 21100389.STR.6340



SECTION 2 ELEVATION

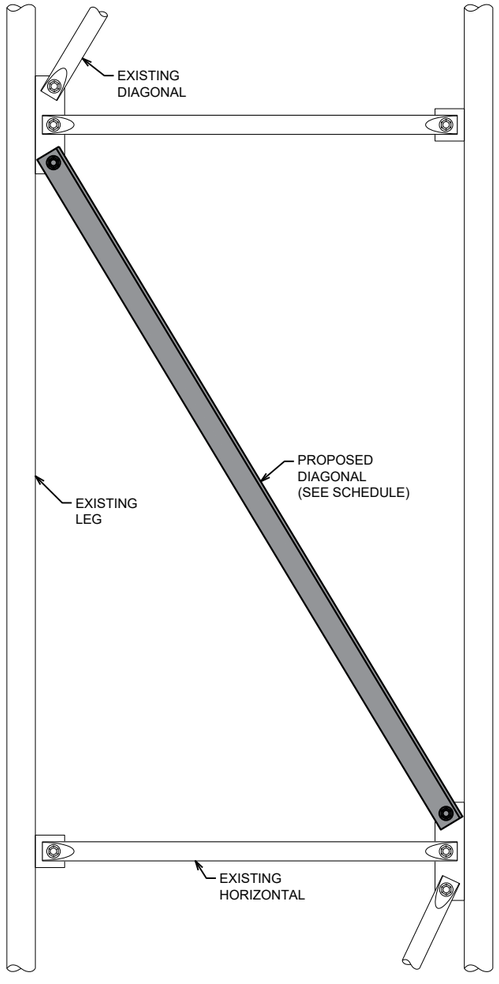
SCALE: 5/16" = 1'-0"

DIAGONAL REPLACEMENT SCHEDULE

SECTION	BAY	ELEVATION (FT)	EXISTING DIAGONAL	PROPOSED BRACING			PROPOSED CONNECTION	
				SIZE	LENGTH	QTY.	SIZE	QTY.
3	3 (of 5)	66.5 - 71.5	P 1.5x0.120" (11 GA)	L 2"x2"x3/8"	5'-7"± (FIELD VERIFY)	3	5/8"Ø A325N	6
5	3 (of 5)	116.5 - 121.5	P 1.5x0.120" (11 GA)	L 2"x2"x3/8"	5'-7"± (FIELD VERIFY)	3	5/8"Ø A325N	6
	4 (of 5)	121.5 - 126.5	P 1.5x0.120" (11 GA)	L 2"x2"x3/8"	5'-7"± (FIELD VERIFY)	3	5/8"Ø A325N	6

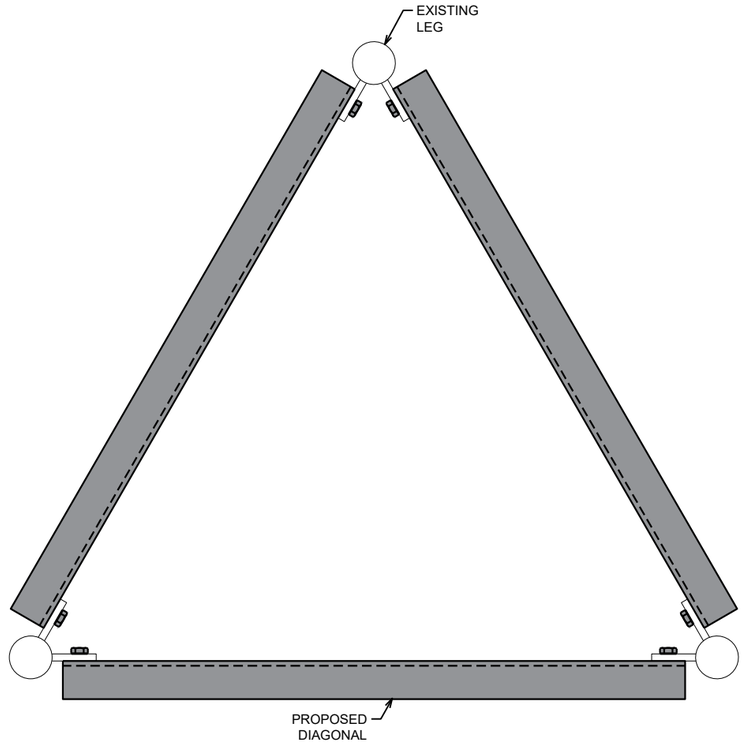
NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO MEASURE ALL RELEVANT EXISTING MEMBERS PRIOR TO ORDERING MATERIALS.
2. PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS.
3. ALL CONNECTIONS NOT FULLY DETAILED ON THESE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH AISC SPECIFICATION FOR MANUAL OF STEEL CONSTRUCTION, LOAD AND RESISTANCE FACTOR DESIGN 15TH EDITION.



BRACING DETAIL (ELEVATION VIEW)

SCALE: 1" = 1'-0"



BRACING DETAIL (PLAN VIEW)

SCALE: 1" = 1'-0"

PREPARED BY:
ENGINEERED TOWER SOLUTIONS, PLLC
3227 WELLINGTON COURT
RALEIGH, NC 27615
o: 919-782-2710, f: 919-435-0631
www.engineeredtowersolutions.com

PREPARED FOR:
CTI TOWERS

SITE NAME:
Norwalk 1

SITE NUMBER:
52010

SITE ADDRESS:
6 SHIRLEY STREET
NORWALK, CT 06850

LATITUDE/LONGITUDE:
N 41.115556°, W 73.434444°

SEAL:
STATE OF CONNECTICUT
FREDERIC BOLL
PEN.0029529
LICENSED PROFESSIONAL ENGINEER
12/22/2021

REV	DATE	DETAILS
0	12/22/2021	FOR CONSTRUCTION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		

DRAWN BY: EDR | CHECKED BY: HHT

SHEET TITLE:
DIAGONAL REPLACEMENT DETAILS

SHEET # **S-2** | CURRENT REV #: **0** | ETS #: 21100389.STR.6340

DEVELOPMENT

EXHIBIT E

Antenna Mount Analysis

April 22, 2022

PASS

RE: **Structural Analysis for Antenna Mounts**

Location: **6 Shirley Street Norwalk, CT 06850**

Site ID: **NJJER02029A**

Dish Wireless LLC,

Per your request, we have performed a structural analysis of the proposed antenna mounts. This site consists of three (3) proposed antenna mounts that will be installed on the existing guyed tower. This review determines if the antenna mounts can support the proposed loads.

1.0 Assumptions:

CATEGORY	DATA	CODE
Structure Type	Guyed Tower	
RAD Center	110'-0"	
Structure Class	II	ASCE 7-16
Exposure Class	C	ASCE 7-16
Kzt Factor	1.0	ASCE 7-16
Basic Wind Speed	120	ASCE 7-16
Ice Thickness	1"	ASCE 7-16
Ice Windspeed	50 MPH	ASCE 7-16
Seismic Design Category	B	ASCE 7-16
S_{DS}	.26	ASCE 7-16

2.0 Existing Documents:

DOCUMENT	COMPANY	DATE
Proposed Drawings	M&K Development	4/11/2021
Site Visit Photos	M&K Development	12/7/2021

3.0 Proposed Equipment:

MANUFACTURER	EQUIPMENT	WEIGHTS
CommScope	**(3) MTC3975083**	**352 lbs**
CommScope	**(3) FFVV-65B-R2**	**70.8 lbs**
Fujitsu	**(3) TA08025-B604**	**63.9 lbs**
Fujitsu	**(3) TA08025-B605**	**74.9 lbs**
RayCap	**(1) OVP RDIDC-3045-PF-48**	**32 lbs**

Bold represents equipment to be added

We are installing (3) proposed MTC3975083 mounts on the existing guyed tower. After performing an analysis on the proposed mounts, it has been determined that they are **ADEQUATE** for the proposed loads.

This report does not address the structural stability of any other mounts, or portion of the structure, nor does it provide any warranty either express or implied, for any portion of the proposed mounts or structure.

Please note that we have not had a professional engineer perform an independent visit to confirm existing structural conditions and the outcome of this analysis is based solely on the information provided in the previous photos and drawing details. If the existing conditions are modified, in disrepair or not properly represented, contact our office immediately for an amended report since this analysis may be inaccurate.

If you have any questions, feel free to contact us at any time.

Sincerely,

Magaram Engineering

Brett Magaram
Connecticut License # 33678
Brett@MagaramEngineering.com
Phone: 914-450-8416

(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS												
				Wind Design Parameters								
Municipality	**Ground Snow Load** (psf)	**MCE Spectral Accelerations** (%g)		**Ultimate Design Wind Speeds,** V_{ult} (mph)			**Nominal Design Wind Speeds,** V_{asd} (mph)			**Wind-Borne Debris Regions[1]**		**Hurricane-Prone Regions**
		S_s	S_1	Risk Cat.I	Risk Cat.II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat III Occup I-2 & Risk Cat. IV	
Middlebury	35	0.191	0.064	110	120	130	85	93	101			Yes
Middlefield	30	0.181	0.063	115	125	135	89	97	105			Yes
Middletown	30	0.180	0.063	115	130	135	89	101	105			Yes
Milford	30	0.194	0.063	115	125	135	89	97	105		Type B	Yes
Monroe	30	0.205	0.065	110	120	130	85	93	101			Yes
Montville	30	0.165	0.059	125	135	145	97	105	112		Type A	Yes
Morris	35	0.187	0.065	110	120	125	85	93	97			Yes
Naugatuck	30	0.190	0.064	110	125	135	85	97	105			Yes
New Britain	30	0.183	0.064	115	125	135	89	97	105			Yes
New Canaan	30	0.240	0.068	110	120	130	85	93	101			Yes
New Fairfield	35	0.212	0.067	105	115	125	81	89	97			
New Hartford	40	0.180	0.065	110	120	130	85	93	101			Yes
New Haven	30	0.186	0.062	115	125	135	89	97	105		Type C	Yes
Newington	30	0.182	0.064	115	125	135	89	97	105			Yes
New London	30	0.161	0.058	125	135	145	97	105	112	Type B	Type A	Yes
New Milford	35	0.198	0.066	105	115	125	81	89	97			
Newtown	30	0.208	0.066	110	120	130	85	93	101			Yes
Norfolk	40	0.175	0.065	105	115	125	81	89	97			
North Branford	30	0.179	0.061	120	130	140	93	101	108			Yes
North Canaan	40	0.173	0.065	105	115	120	81	89	93			
North Haven	30	0.184	0.062	115	125	135	89	97	105			Yes
North Stonington	30	0.163	0.059	125	135	145	97	105	112		Type A	Yes
Norwalk	30	0.232	0.067	110	120	130	85	93	101			Yes
Norwich	30	0.168	0.060	125	135	145	97	105	112		Type A	Yes
Old Lyme	30	0.164	0.059	125	135	145	97	105	112	Type B	Type A	Yes
Old Saybrook	30	0.164	0.059	125	135	145	97	105	112	Type B	Type A	Yes
Orange	30	0.192	0.063	115	125	135	89	97	105			Yes
Oxford	30	0.196	0.064	110	125	130	85	97	101			Yes
Plainfield	35	0.170	0.061	125	135	145	97	105	112		Type A	Yes
Plainville	35	0.184	0.064	115	125	135	89	97	105			Yes
Plymouth	35	0.186	0.064	110	120	130	85	93	101			Yes
Pomfret	40	0.172	0.063	120	130	140	93	101	108			Yes
Portland	30	0.180	0.063	115	130	135	89	101	105			Yes
Preston	30	0.167	0.060	125	135	145	97	105	112		Type A	Yes
Prospect	30	0.188	0.064	115	125	135	89	97	105			Yes
Putnam	40	0.172	0.063	120	130	140	93	101	108			Yes
Redding	30	0.220	0.067	110	120	130	85	93	101			Yes
Ridgefield	30	0.230	0.068	110	120	125	85	93	97			Yes

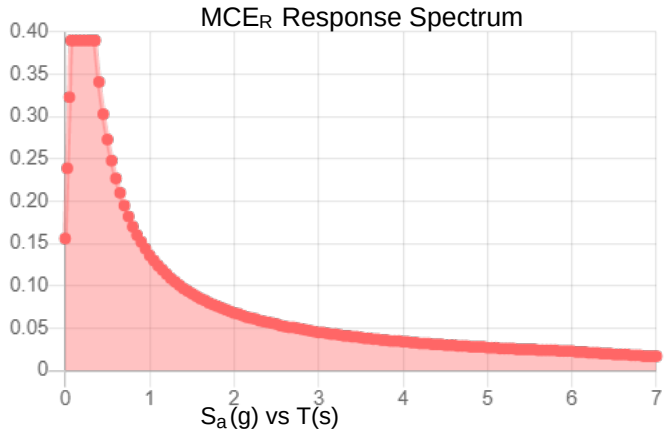
Seismic

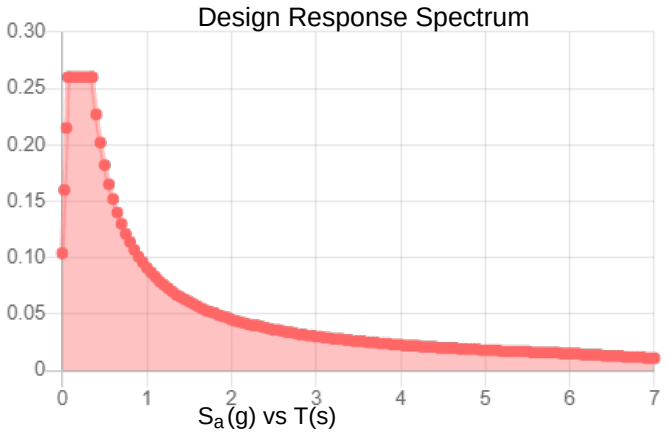
Site Soil Class: D - Default (see Section 11.4.3)

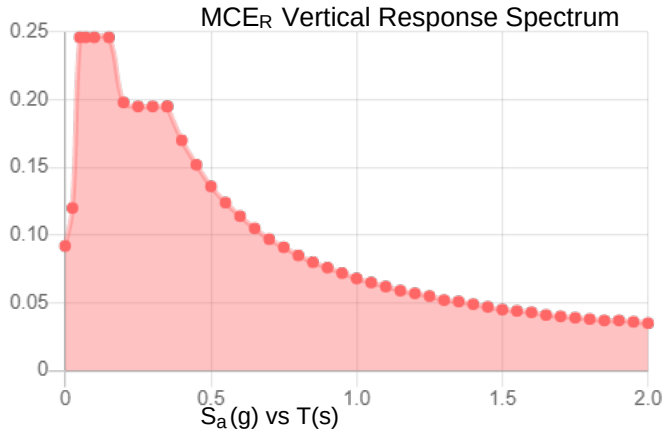
Results:

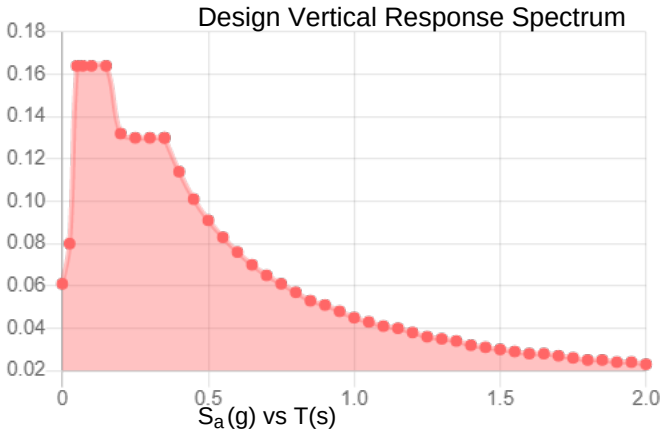
S_S :	0.244	S_{D1} :	0.091
S_1 :	0.057	T_L :	6
F_a :	1.6	PGA :	0.144
F_v :	2.4	PGA_M :	0.218
S_{MS} :	0.39	F_{PGA} :	1.512
S_{M1} :	0.136	I_e :	1
S_{DS} :	0.26	C_v :	0.787

Seismic Design Category B









Data Accessed: **Fri Apr 22 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri Apr 22 2022

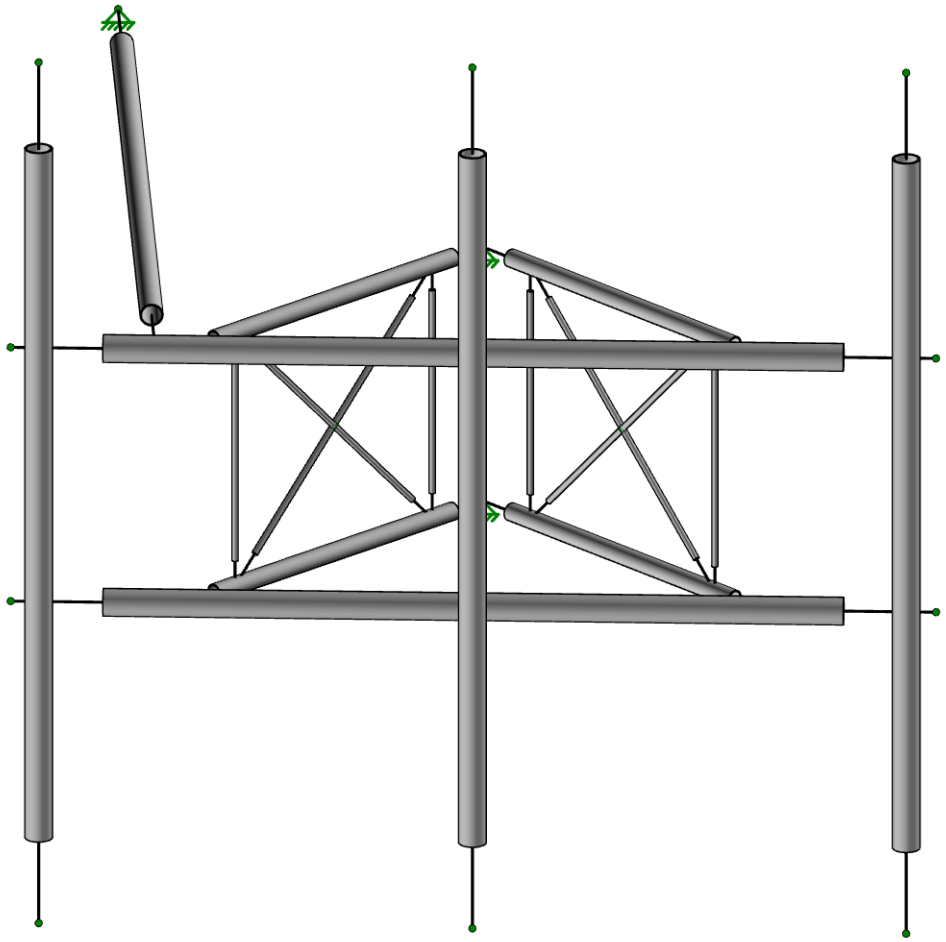
Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 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.

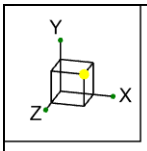
The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated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

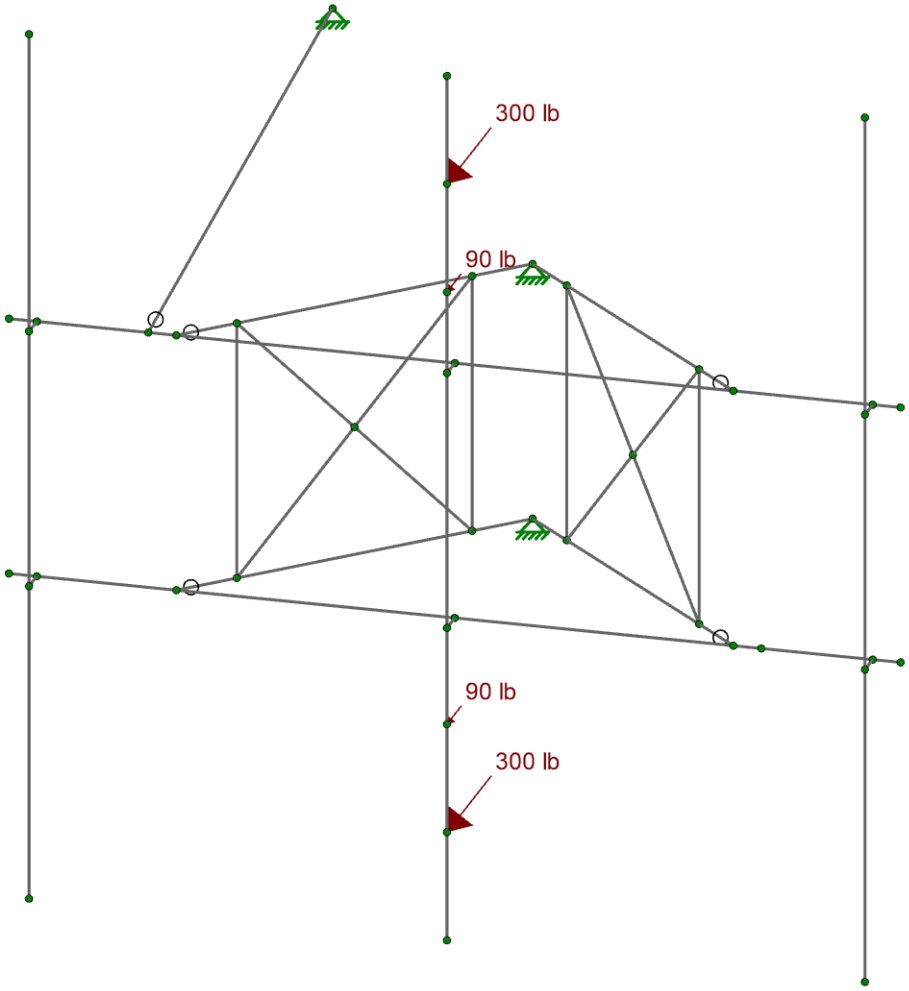
ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.



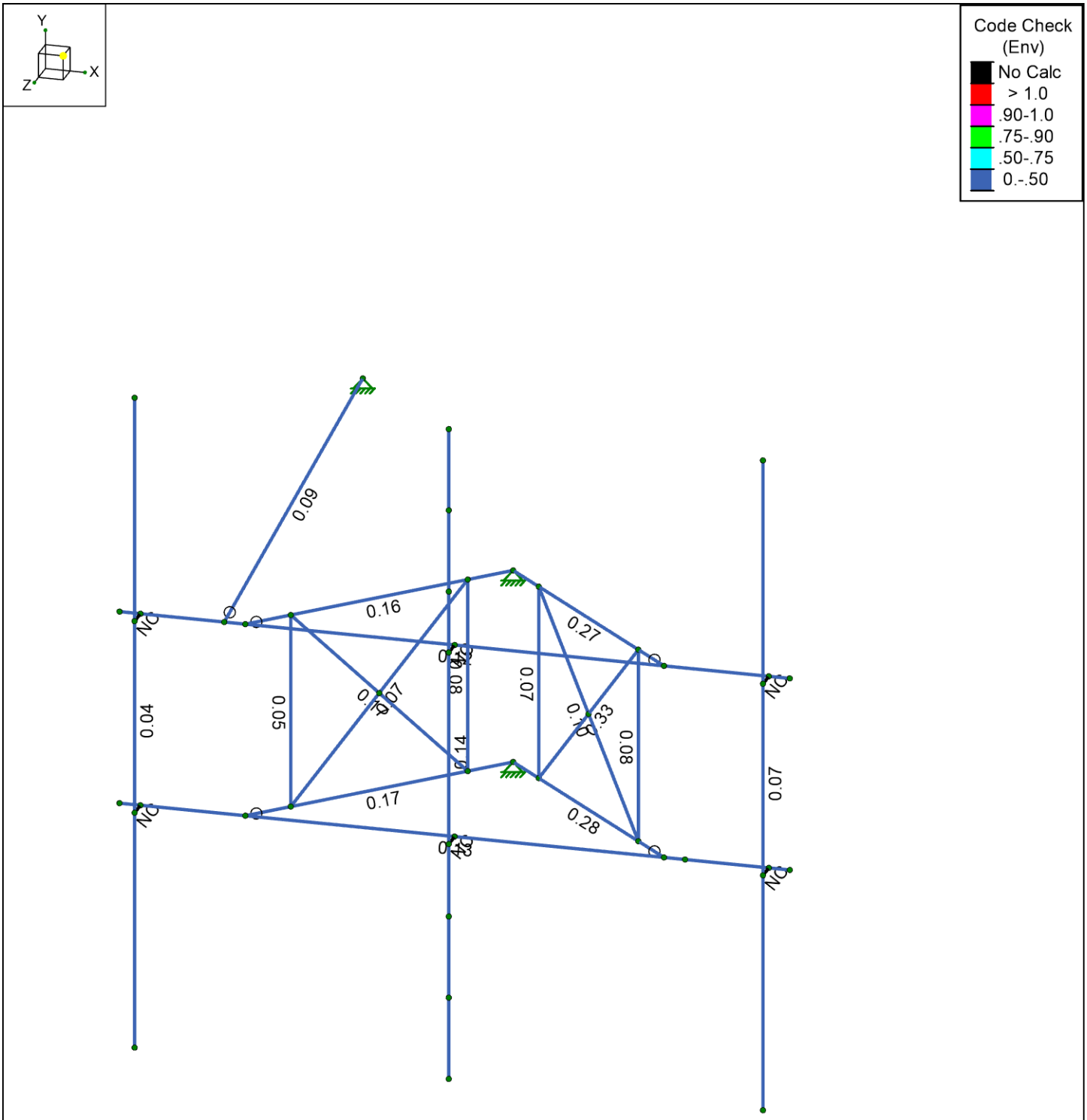
Magaram Engineering	NJJER02029A	SK-1
BJM		Apr 22, 2022
		NJJER02029A.r3d





Loads: BLC 4, Telco Wz

Magaram Engineering	NJJER02029A	SK-2
BJM		Apr 22, 2022
		NJJER02029A.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Magaram Engineering	NJJER02029A	SK-3
BJM		Apr 22, 2022
		NJJER02029A.r3d

Node Loads and Enforced Displacements (BLC 19 : Lm)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N33	L	Y	-500

Node Loads and Enforced Displacements (BLC 20 : Lv)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N15A	L	Y	-250
2	N17	L	Y	-250

Member Point Loads

No Data to Print...

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Distributed
1	Telco DL	DL		4	
2	Telco DLi	OL1		4	
3	Telco Wx	WLX		4	
4	Telco Wz	WLZ		4	
5	Telco Wxi	WLXP1		4	
6	Telco Wzi	WLZP1		4	
7	Telco Wxm	WLXP2			
8	Telco Wzm	WLZP2			
9	-	None			
10	Mount DL	DL	-1.1		
11	Mount DLi	OL1			18
12	Mount Wx	WLX			18
13	Mount Wz	WLZ			18
14	Mount Wxi	WLXP1			18
15	Mount Wzi	WLZP1			18
16	Mount Wxm	WLXP2			
17	Mount Wzm	WLZP2			
18	-	None			
19	Lm	None		1	
20	Lv	None		2	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4D	Yes	Y	DL	1.4						
2	Wind LCs (Case 1)										
3	1.2D +1.0W (0)	Yes	Y	DL	1.2			WLX	1	WLZ	
4	1.2D + 1.0W (30)	Yes	Y	DL	1.2			WLX	0.866	WLZ	0.5
5	1.2D + 1.0W (45)	Yes	Y	DL	1.2			WLX	0.707	WLZ	0.707
6	1.2D + 1.0W (60)	Yes	Y	DL	1.2			WLX	0.5	WLZ	0.866
7	1.2D + 1.0W (90)	Yes	Y	DL	1.2			WLX		WLZ	1
8	1.2D + 1.0W (120)	Yes	Y	DL	1.2			WLX	-0.5	WLZ	0.866
9	1.2D + 1.0W (135)	Yes	Y	DL	1.2			WLX	-0.707	WLZ	0.707
10	1.2D + 1.0W (150)	Yes	Y	DL	1.2			WLX	-0.866	WLZ	0.5
11	1.2D + 1.0W (180)	Yes	Y	DL	1.2			WLX	-1	WLZ	
12	1.2D + 1.0W (210)	Yes	Y	DL	1.2			WLX	-0.866	WLZ	-0.5
13	1.2D + 1.0W (225)	Yes	Y	DL	1.2			WLX	-0.707	WLZ	-0.707
14	1.2D + 1.0W (240)	Yes	Y	DL	1.2			WLX	-0.5	WLZ	-0.866
15	1.2D + 1.0W (270)	Yes	Y	DL	1.2			WLX		WLZ	-1

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
16	1.2D + 1.0W (300)	Yes	Y	DL	1.2			WLX	0.5	WLZ	-0.866
17	1.2D + 1.0W (315)	Yes	Y	DL	1.2			WLX	0.707	WLZ	-0.707
18	1.2D + 1.0W (330)	Yes	Y	DL	1.2			WLX	0.866	WLZ	-0.5
19	Uplift LCs (Case 2)										
20	1.2D +1.0W (0)	Yes	Y	DL	0.9			WLX	1	WLZ	
21	1.2D + 1.0W (30)	Yes	Y	DL	0.9			WLX	0.866	WLZ	0.5
22	1.2D + 1.0W (45)	Yes	Y	DL	0.9			WLX	0.707	WLZ	0.707
23	1.2D + 1.0W (60)	Yes	Y	DL	0.9			WLX	0.5	WLZ	0.866
24	1.2D + 1.0W (90)	Yes	Y	DL	0.9			WLX		WLZ	1
25	1.2D + 1.0W (120)	Yes	Y	DL	0.9			WLX	-0.5	WLZ	0.866
26	1.2D + 1.0W (135)	Yes	Y	DL	0.9			WLX	-0.707	WLZ	0.707
27	1.2D + 1.0W (150)	Yes	Y	DL	0.9			WLX	-0.866	WLZ	0.5
28	1.2D + 1.0W (180)	Yes	Y	DL	0.9			WLX	-1	WLZ	
29	1.2D + 1.0W (210)	Yes	Y	DL	0.9			WLX	-0.866	WLZ	-0.5
30	1.2D + 1.0W (225)	Yes	Y	DL	0.9			WLX	-0.707	WLZ	-0.707
31	1.2D + 1.0W (240)	Yes	Y	DL	0.9			WLX	-0.5	WLZ	-0.866
32	1.2D + 1.0W (270)	Yes	Y	DL	0.9			WLX		WLZ	-1
33	1.2D + 1.0W (300)	Yes	Y	DL	0.9			WLX	0.5	WLZ	-0.866
34	1.2D + 1.0W (315)	Yes	Y	DL	0.9			WLX	0.707	WLZ	-0.707
35	1.2D + 1.0W (330)	Yes	Y	DL	0.9			WLX	0.866	WLZ	-0.5
36	Ice LCs (Case 3)										
37	1.2D + 1.0Di +1.0Wi (0)	Yes	Y	DL	1.2	OL1	1	WLXP1	1	WLZP1	
38	1.2D + 1.0W (30)	Yes	Y	DL	1.2	OL1	1	WLXP1	0.866	WLZP1	0.5
39	1.2D + 1.0W (45)	Yes	Y	DL	1.2	OL1	1	WLXP1	0.707	WLZP1	0.707
40	1.2D + 1.0W (60)	Yes	Y	DL	1.2	OL1	1	WLXP1	0.5	WLZP1	0.866
41	1.2D + 1.0W (90)	Yes	Y	DL	1.2	OL1	1	WLXP1		WLZP1	1
42	1.2D + 1.0W (120)	Yes	Y	DL	1.2	OL1	1	WLXP1	-0.5	WLZP1	0.866
43	1.2D + 1.0W (135)	Yes	Y	DL	1.2	OL1	1	WLXP1	-0.707	WLZP1	0.707
44	1.2D + 1.0W (150)	Yes	Y	DL	1.2	OL1	1	WLXP1	-0.866	WLZP1	0.5
45	1.2D + 1.0W (180)	Yes	Y	DL	1.2	OL1	1	WLXP1	-1	WLZP1	
46	1.2D + 1.0W (210)	Yes	Y	DL	1.2	OL1	1	WLXP1	-0.866	WLZP1	-0.5
47	1.2D + 1.0W (225)	Yes	Y	DL	1.2	OL1	1	WLXP1	-0.707	WLZP1	-0.707
48	1.2D + 1.0W (240)	Yes	Y	DL	1.2	OL1	1	WLXP1	-0.5	WLZP1	-0.866
49	1.2D + 1.0W (270)	Yes	Y	DL	1.2	OL1	1	WLXP1		WLZP1	-1
50	1.2D + 1.0W (300)	Yes	Y	DL	1.2	OL1	1	WLXP1	0.5	WLZP1	-0.866
51	1.2D + 1.0W (315)	Yes	Y	DL	1.2	OL1	1	WLXP1	0.707	WLZP1	-0.707
52	1.2D + 1.0W (330)	Yes	Y	DL	1.2	OL1	1	WLXP1	0.866	WLZP1	-0.5
53	Maintenance LCs (Case 3)										
54	1.2D + 1.0Di +1.0Wi (0)	Yes	Y	DL	1.2	19	1.5	WLXP2	1	WLZP2	
55	1.2D + 1.0W (30)	Yes	Y	DL	1.2	19	1.5	WLXP2	0.866	WLZP2	0.5
56	1.2D + 1.0W (45)	Yes	Y	DL	1.2	19	1.5	WLXP2	0.707	WLZP2	0.707
57	1.2D + 1.0W (60)	Yes	Y	DL	1.2	19	1.5	WLXP2	0.5	WLZP2	0.866
58	1.2D + 1.0W (90)	Yes	Y	DL	1.2	19	1.5	WLXP2		WLZP2	1
59	1.2D + 1.0W (120)	Yes	Y	DL	1.2	19	1.5	WLXP2	-0.5	WLZP2	0.866
60	1.2D + 1.0W (135)	Yes	Y	DL	1.2	19	1.5	WLXP2	-0.707	WLZP2	0.707
61	1.2D + 1.0W (150)	Yes	Y	DL	1.2	19	1.5	WLXP2	-0.866	WLZP2	0.5
62	1.2D + 1.0W (180)	Yes	Y	DL	1.2	19	1.5	WLXP2	-1	WLZP2	
63	1.2D + 1.0W (210)	Yes	Y	DL	1.2	19	1.5	WLXP2	-0.866	WLZP2	-0.5
64	1.2D + 1.0W (225)	Yes	Y	DL	1.2	19	1.5	WLXP2	-0.707	WLZP2	-0.707
65	1.2D + 1.0W (240)	Yes	Y	DL	1.2	19	1.5	WLXP2	-0.5	WLZP2	-0.866
66	1.2D + 1.0W (270)	Yes	Y	DL	1.2	19	1.5	WLXP2		WLZP2	-1
67	1.2D + 1.0W (300)	Yes	Y	DL	1.2	19	1.5	WLXP2	0.5	WLZP2	-0.866
68	1.2D + 1.0W (315)	Yes	Y	DL	1.2	19	1.5	WLXP2	0.707	WLZP2	-0.707
69	1.2D + 1.0W (330)	Yes	Y	DL	1.2	19	1.5	WLXP2	0.866	WLZP2	-0.5
70	1.2D + 1.5Lv	Yes	Y	DL	1.2	20	1.5				

Load Combinations (Continued)

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

Load Combination Design

	Description	Service	Hot Rolled	Cold Formed	Wood	Concrete	Masonry	Aluminum	Stainless	Connection
1	1.4D		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	Wind LCs (Case 1)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	1.2D +1.0W (0)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	1.2D + 1.0W (30)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	1.2D + 1.0W (45)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	1.2D + 1.0W (60)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	1.2D + 1.0W (90)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	1.2D + 1.0W (120)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	1.2D + 1.0W (135)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10	1.2D + 1.0W (150)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11	1.2D + 1.0W (180)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12	1.2D + 1.0W (210)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	1.2D + 1.0W (225)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
14	1.2D + 1.0W (240)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
15	1.2D + 1.0W (270)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
16	1.2D + 1.0W (300)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
17	1.2D + 1.0W (315)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
18	1.2D + 1.0W (330)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
19	Uplift LCs (Case 2)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
20	1.2D +1.0W (0)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
21	1.2D + 1.0W (30)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
22	1.2D + 1.0W (45)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
23	1.2D + 1.0W (60)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
24	1.2D + 1.0W (90)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
25	1.2D + 1.0W (120)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
26	1.2D + 1.0W (135)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
27	1.2D + 1.0W (150)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
28	1.2D + 1.0W (180)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
29	1.2D + 1.0W (210)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
30	1.2D + 1.0W (225)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
31	1.2D + 1.0W (240)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
32	1.2D + 1.0W (270)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
33	1.2D + 1.0W (300)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
34	1.2D + 1.0W (315)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
35	1.2D + 1.0W (330)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
36	Ice LCs (Case 3)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
37	1.2D + 1.0Di +1.0Wi (0)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
38	1.2D + 1.0W (30)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
39	1.2D + 1.0W (45)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
40	1.2D + 1.0W (60)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
41	1.2D + 1.0W (90)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
42	1.2D + 1.0W (120)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
43	1.2D + 1.0W (135)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
44	1.2D + 1.0W (150)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
45	1.2D + 1.0W (180)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
46	1.2D + 1.0W (210)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
47	1.2D + 1.0W (225)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
48	1.2D + 1.0W (240)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
49	1.2D + 1.0W (270)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
50	1.2D + 1.0W (300)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
51	1.2D + 1.0W (315)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
52	1.2D + 1.0W (330)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
53	Maintenance LCs (Case 3)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
54	1.2D + 1.0Di +1.0Wi (0)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
55	1.2D + 1.0W (30)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Load Combination Design (Continued)

	Description	Service	Hot Rolled	Cold Formed	Wood	Concrete	Masonry	Aluminum	Stainless	Connection
56	1.2D + 1.0W (45)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
57	1.2D + 1.0W (60)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
58	1.2D + 1.0W (90)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
59	1.2D + 1.0W (120)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
60	1.2D + 1.0W (135)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
61	1.2D + 1.0W (150)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
62	1.2D + 1.0W (180)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
63	1.2D + 1.0W (210)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
64	1.2D + 1.0W (225)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
65	1.2D + 1.0W (240)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
66	1.2D + 1.0W (270)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
67	1.2D + 1.0W (300)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
68	1.2D + 1.0W (315)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
69	1.2D + 1.0W (330)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
70	1.2D + 1.5Lv		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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

No Data to Print...

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	579.217	11	723.729	70	786.606	35	0	70	0	70	0	70
2		min	-1253.429	70	218.618	24	-2064.854	10	0	1	0	1	0	1
3	N6	max	1253.4	70	708.137	69	1683.042	49	0	70	0	70	0	70
4		min	-683.294	3	216.384	32	-222.318	24	0	1	0	1	0	1
5	N38	max	126.586	28	35.614	37	1134.672	28	0	70	0	70	0	70
6		min	-126.93	20	11.415	30	-1135.479	20	0	1	0	1	0	1
7	Totals:	max	1353.729	11	1444.351	69	1480.146	15						
8		min	-1353.729	20	520.761	31	-1480.145	24						

Envelope Node Displacements

	Node Label		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
1	N1	max	0	70	0	24	0	10	4.068e-3	69	7.419e-4	20	1.325e-3	3
2		min	0	11	0	70	0	35	1.344e-3	35	-7.902e-4	11	-3.056e-3	70
3	N2	max	0.013	21	-0.005	21	0.017	11	1.512e-3	6	2.714e-3	23	1.499e-3	69
4		min	-0.015	12	-0.085	70	-0.013	20	-1.17e-3	31	-2.746e-3	14	-1.768e-3	70
5	N3	max	0.012	20	-0.001	20	0.016	11	2.595e-3	69	2.738e-4	23	9.142e-4	21
6		min	-0.014	11	-0.045	70	-0.012	20	2.086e-4	28	-3.313e-4	14	-3.607e-3	70
7	N4	max	0.004	20	-0.001	20	0.004	11	3.008e-3	69	6.919e-4	20	1.285e-3	3
8		min	-0.004	11	-0.032	70	-0.004	20	8.563e-4	29	-8.097e-4	11	-2.037e-3	70
9	N6	max	0	3	0	32	0	24	4.069e-3	69	1.883e-3	20	1.312e-3	3
10		min	0	70	0	54	0	49	1.352e-3	22	-1.916e-3	11	-3.057e-3	70
11	N7	max	0.045	20	0.002	20	0.044	28	1.625e-3	16	3.018e-3	23	1.494e-3	69
12		min	-0.046	11	-0.085	70	-0.045	3	-1.276e-3	25	-3.067e-3	14	-1.766e-3	70
13	N8	max	0.039	20	-0.001	20	0.038	28	2.589e-3	69	1.145e-3	20	1.138e-3	35
14		min	-0.04	11	-0.045	70	-0.039	3	5.333e-4	22	-1.177e-3	11	-3.603e-3	70
15	N9	max	0.01	20	-0.001	20	0.009	28	3.009e-3	69	1.841e-3	3	1.122e-3	3
16		min	-0.01	11	-0.032	70	-0.01	3	8.6e-4	27	-1.81e-3	28	-2.032e-3	70
17	N10	max	0.012	21	-0.009	27	0.01	5	1.711e-3	9	2.316e-3	31	5.001e-4	20
18		min	-0.014	12	-0.051	54	-0.01	30	-1.404e-3	34	-2.391e-3	6	-1.463e-3	54
19	N11	max	0.012	21	-0.004	28	0.011	4	2.609e-3	69	2.712e-5	24	1.521e-3	18
20		min	-0.014	12	-0.028	37	-0.01	29	-7.506e-7	20	-1.283e-4	37	-1.079e-3	70
21	N12	max	0.004	20	-0.002	28	0.004	4	3.077e-3	70	7.335e-4	4	9.806e-4	20

Envelope Node Displacements (Continued)

	Node Label		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
22		min	-0.004	11	-0.021	37	-0.003	29	6.855e-4	20	-7.192e-4	12	-2.607e-3	70
23	N14	max	0.045	20	-0.002	28	0.043	20	1.827e-3	13	2.246e-3	32	-3.61e-5	35
24		min	-0.046	11	-0.05	54	-0.046	11	-1.504e-3	22	-2.284e-3	7	-1.452e-3	54
25	N15	max	0.039	20	-0.004	28	0.037	20	2.583e-3	69	1.138e-3	20	1.687e-3	4
26		min	-0.04	11	-0.028	37	-0.04	11	6.014e-4	23	-1.183e-3	11	-1.195e-3	29
27	N16	max	0.01	3	-0.002	28	0.009	20	3.081e-3	70	1.79e-3	20	8.155e-4	20
28		min	-0.01	11	-0.021	37	-0.01	11	7.414e-4	21	-1.883e-3	11	-2.606e-3	70
29	N15A	max	0.013	21	0.015	20	0.062	13	1.339e-3	4	2.69e-3	23	1.186e-3	3
30		min	-0.015	12	-0.123	70	-0.057	22	-1.078e-3	29	-2.811e-3	14	-1.928e-3	70
31	N16A	max	0.012	21	0.012	28	0.031	15	1.784e-3	10	2.05e-3	15	1.078e-3	20
32		min	-0.014	12	-0.048	37	-0.031	24	-1.577e-3	35	-2.035e-3	24	-1.256e-3	70
33	N17	max	0.045	20	0.015	20	0.084	29	1.443e-3	18	2.76e-3	6	9.786e-4	3
34		min	-0.046	11	-0.123	70	-0.085	4	-1.178e-3	27	-2.721e-3	31	-1.925e-3	70
35	N18	max	0.045	20	0.011	28	0.055	35	1.898e-3	12	1.976e-3	32	8.8e-4	20
36		min	-0.046	11	-0.048	37	-0.06	10	-1.669e-3	21	-2.112e-3	7	-1.239e-3	70
37	N19	max	0.062	70	0.009	20	0.019	15	1.453e-3	5	2.69e-3	23	9.93e-4	3
38		min	-0.023	17	-0.114	70	-0.027	70	-1.193e-3	30	-2.811e-3	14	-1.878e-3	70
39	N20	max	0.089	3	0.009	20	0.1	28	1.57e-3	17	2.76e-3	6	1.203e-3	3
40		min	-0.102	70	-0.114	70	-0.11	3	-1.306e-3	26	-2.721e-3	31	-1.875e-3	70
41	N21	max	0.041	70	0.003	70	0.057	11	1.881e-3	10	2.05e-3	15	8.85e-4	20
42		min	-0.02	20	-0.046	37	-0.05	20	-1.674e-3	35	-2.035e-3	24	-1.256e-3	70
43	N22	max	0.081	20	0.003	70	0.1	20	2.009e-3	12	1.977e-3	32	1.104e-3	20
44		min	-0.087	11	-0.046	37	-0.112	11	-1.781e-3	21	-2.112e-3	7	-1.239e-3	70
45	N23	max	0.024	20	-0.001	20	0.025	11	4.573e-4	20	9.94e-4	20	5.596e-4	3
46		min	-0.025	11	-0.037	70	-0.024	20	-1.51e-3	70	-1.042e-3	11	-3.101e-4	28
47	N24	max	0.024	21	-0.002	28	0.024	21	5.277e-4	28	9.214e-4	20	2.813e-4	20
48		min	-0.025	12	-0.024	37	-0.024	12	-1.111e-3	3	-9.669e-4	11	-5.404e-4	11
49	N25	max	0.012	21	0.008	28	0.025	15	1.784e-3	10	2.05e-3	15	1.078e-3	20
50		min	-0.014	12	-0.047	37	-0.025	24	-1.577e-3	35	-2.035e-3	24	-1.256e-3	70
51	N26	max	0.013	21	0.012	20	0.054	13	1.339e-3	4	2.69e-3	23	1.186e-3	3
52		min	-0.015	12	-0.117	70	-0.049	22	-1.078e-3	29	-2.811e-3	14	-1.878e-3	70
53	N27	max	0.045	20	0.008	28	0.052	35	1.898e-3	12	1.977e-3	32	8.799e-4	20
54		min	-0.046	11	-0.047	37	-0.057	10	-1.669e-3	21	-2.112e-3	7	-1.239e-3	70
55	N28	max	0.045	20	0.012	20	0.077	29	1.443e-3	18	2.76e-3	6	9.787e-4	3
56		min	-0.046	11	-0.117	70	-0.077	4	-1.178e-3	27	-2.721e-3	31	-1.875e-3	70
57	N33	max	0.081	20	-0.026	20	0.196	7	4.691e-3	7	7.919e-4	20	2.48e-3	11
58		min	-0.084	11	-0.095	54	-0.178	32	-4.29e-3	32	-8.475e-4	11	-2.445e-3	20
59	N34	max	0.185	20	-0.026	20	0.205	24	5.305e-3	15	1.61e-3	20	4.438e-3	3
60		min	-0.185	11	-0.094	54	-0.223	15	-4.896e-3	24	-1.647e-3	11	-4.415e-3	28
61	N35	max	0.013	21	-0.02	23	0.056	7	2.421e-3	7	7.919e-4	20	2.111e-4	11
62		min	-0.015	12	-0.092	54	-0.051	32	-2.021e-3	32	-8.475e-4	11	-1.17e-3	70
63	N36	max	0.045	20	-0.02	33	0.054	24	2.633e-3	15	1.61e-3	20	1.766e-3	3
64		min	-0.046	11	-0.092	54	-0.058	15	-2.223e-3	24	-1.647e-3	11	-1.742e-3	28
65	N37	max	0.012	21	-0.006	27	0.005	3	1.704e-3	9	2.262e-3	31	6.581e-4	20
66		min	-0.014	12	-0.047	54	-0.005	28	-1.417e-3	34	-2.304e-3	6	-1.337e-3	70
67	N38	max	0	20	0	30	0	20	2.617e-3	37	2.8e-3	20	5.096e-4	20
68		min	0	28	0	37	0	28	6.888e-4	28	-2.817e-3	11	-1.322e-3	70
69	N65	max	0.045	20	0.003	20	0.049	28	1.558e-3	16	2.923e-3	23	1.252e-3	69
70		min	-0.046	11	-0.091	70	-0.049	3	-1.227e-3	25	-2.941e-3	14	-2.009e-3	70
71	N67	max	0.011	20	0.003	70	0.025	15	1.784e-3	10	2.05e-3	15	1.078e-3	20
72		min	-0.012	11	-0.046	37	-0.025	24	-1.577e-3	35	-2.035e-3	24	-1.256e-3	70
73	N68	max	0.02	21	0.009	20	0.054	13	1.339e-3	4	2.69e-3	23	1.186e-3	3
74		min	-0.022	12	-0.114	70	-0.049	22	-1.078e-3	29	-2.811e-3	14	-1.878e-3	70
75	N69	max	0.045	20	0.003	70	0.052	35	1.898e-3	12	1.977e-3	32	8.799e-4	20
76		min	-0.046	11	-0.046	37	-0.057	10	-1.669e-3	21	-2.112e-3	7	-1.239e-3	70

Envelope Node Displacements (Continued)

	Node Label		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
77	N70	max	0.049	20	0.009	20	0.077	29	1.443e-3	18	2.76e-3	6	9.787e-4	3
78		min	-0.05	11	-0.114	70	-0.077	4	-1.178e-3	27	-2.721e-3	31	-1.875e-3	70
79	N73	max	0.015	21	-0.026	20	0.056	7	2.421e-3	7	7.919e-4	20	2.111e-4	11
80		min	-0.017	12	-0.094	54	-0.051	32	-2.021e-3	32	-8.475e-4	11	-1.17e-3	70
81	N74	max	0.05	20	-0.026	20	0.054	24	2.633e-3	15	1.61e-3	20	1.766e-3	3
82		min	-0.051	11	-0.094	54	-0.058	15	-2.223e-3	24	-1.647e-3	11	-1.742e-3	28
83	N42	max	0.051	20	-0.026	20	0.14	7	4.682e-3	7	7.919e-4	20	2.471e-3	11
84		min	-0.054	11	-0.095	54	-0.127	32	-4.281e-3	32	-8.475e-4	11	-2.436e-3	20
85	N43	max	0.131	20	-0.026	20	0.146	24	5.296e-3	15	1.61e-3	20	4.429e-3	3
86		min	-0.132	11	-0.094	54	-0.159	15	-4.886e-3	24	-1.647e-3	11	-4.406e-3	28
87	N44	max	0.024	20	-0.026	20	0.086	7	3.974e-3	7	7.919e-4	20	1.763e-3	11
88		min	-0.027	11	-0.094	54	-0.078	32	-3.573e-3	32	-8.475e-4	11	-1.729e-3	20
89	N45	max	0.081	20	-0.026	20	0.09	24	4.59e-3	15	1.61e-3	20	3.722e-3	3
90		min	-0.082	11	-0.094	54	-0.098	15	-4.18e-3	24	-1.647e-3	11	-3.699e-3	28

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	M1	1.9" ODx0.12"	0.267	35.333	70	0.095	42.4	70	20499.094	27779.4	1.314	1.314	1.833	H1-1b
2	M2	1.9" ODx0.12"	0.28	35.333	70	0.095	42.4	70	20499.094	27779.4	1.314	1.314	1.833	H1-1b
3	M3	0.63" SR	0.078	28.3	70	0.006	28.3	70	5162.835	14027.625	0.147	0.147	2.273	H1-1b
4	M4	0.63" SR	0.073	0	41	0.007	28.3	3	5162.835	14027.625	0.147	0.147	2.271	H1-1b
5	M5	0.63" SR	0.099	39.811	70	0.014	19.905	69	2249.534	14027.625	0.147	0.147	2.448	H1-1b
6	M6	0.63" SR	0.325	0	70	0.015	39.811	52	4409.088	14027.625	0.147	0.147	2.448	H1-1a
7	M7	1.9" ODx0.12"	0.16	35.333	69	0.073	42.4	37	20499.094	27779.4	1.314	1.314	1.835	H1-1b
8	M8	1.9" ODx0.12"	0.173	35.333	37	0.071	42.4	38	20499.094	27779.4	1.314	1.314	1.834	H1-1b
9	M9	0.63" SR	0.054	28.3	69	0.007	28.3	3	5162.835	14027.625	0.147	0.147	2.27	H1-1b
10	M10	0.63" SR	0.079	0	70	0.008	28.3	70	5162.835	14027.625	0.147	0.147	2.273	H1-1b
11	M11	0.63" SR	0.073	0	39	0.02	19.905	70	2249.534	14027.625	0.147	0.147	2.152	H1-1b
12	M12	0.63" SR	0.174	39.811	52	0.02	19.905	70	4409.088	14027.625	0.147	0.147	2.085	H1-1b*
13	M13	PIPE_2.5	0.124	48	6	0.077	18	3	62325.909	66654	4.727	4.727	2.87	H1-1b
14	M14	PIPE_2.5	0.134	48	6	0.051	19	17	33487.322	66654	4.727	4.727	1.763	H1-1b
15	MP1	PIPE_2.5	0.045	35	17	0.015	63	11	33487.322	66654	4.727	4.727	3	H1-1b
16	MP3	PIPE_2.5	0.073	63	70	0.026	63	70	33487.322	66654	4.727	4.727	3	H1-1b
17	MP2	PIPE_2.5	0.144	34	11	0.04	63	3	33487.322	66654	4.727	4.727	1.945	H1-1b
18	M27A	Pipe2.38X0.12	0.087	48.127	11	0.004	96.255	11	13288.958	35272.8	2.115	2.115	1.136	H1-1b

Material Take-Off

	Material	Size	Pieces	Length[in]	Weight[K]
1	General Members				
2	RIGID		6	18	0
3	Total General		6	18	0
4					
5	Hot Rolled Steel				
6	A500 Gr.46	1.9" ODx0.12"	4	169.6	0.032
7	A500 Gr.46	PIPE_2.5	5	480	0.219
8	A500 Gr.46	Pipe2.38X0.12	1	96.3	0.023
9	A529 Gr.50	0.63" SR	8	272.4	0.024
10	Total HR Steel		18	1018.3	0.299

Warning Log

No Data to Print...

MK DEVELOPMENT

EXHIBIT F

NIERS Study

APPROVED
By Pawan Madahar at 5:37 pm, May 02, 2022

Pinnacle Telecom Group

Professional and Technical Services

Antenna Site FCC RF Compliance Assessment and Report for Municipal Submission

Prepared for:	DISH Wireless, LLC
Site ID:	NJJER02029A
Site Address:	6 Shirley Street Norwalk, CT
Latitude:	N 41.115556
Longitude:	W 73.434444
Structure type:	Guyed tower
Report date:	April 28, 2022
Compliance Conclusion:	DISH Wireless, LLC will be in compliance with the rules and regulations as described in OET Bulletin 65, following the implementation of the proposed mitigation as detailed in the report.

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

Contents

Introduction and Summary

At the request of DISH Wireless, LLC ("DISH"), Pinnacle Telecom Group has performed an independent expert assessment of radiofrequency (RF) levels and related FCC compliance for proposed wireless base station antenna operations on an existing lattice tower located at 6 Shirley Street in Norwalk, CT. DISH refers to the antenna site by the code "NJJER02029B", and its proposed operation involves directional panel antennas and transmission in the 600 MHz, 2000 MHz and 2100 MHz frequency bands licensed to it by the FCC.

The FCC requires all wireless antenna operators to perform an assessment of potential human exposure to radiofrequency (RF) fields emanating from all the transmitting antennas at a site whenever antenna operations are added or modified, and to ensure compliance with the Maximum Permissible Exposure (MPE) limit in the FCC's regulations. In this case, the compliance assessment needs to take into account the RF effects of other existing antenna operations at the site by AT&T, Verizon Wireless, AM Spectrum Holdings LLC, Sacred Heart University Inc., K-60118 (News 12 Connecticut), WFOX-FM (Connoisseur Media Licenses, LLC), and WNLK (Veritas Catholic Network, Inc.). Note that FCC regulations require any future antenna collocators to assess and assure continuing compliance based on the cumulative effects of all then-proposed and then-existing antennas at the site.

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

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

consistently below 100 percent serve as a clear and sufficient demonstration of compliance with the MPE limit. We can (and will) also describe the overall worst-case result via the “plain-English” equivalent “times-below-the-limit” factor.

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

- At street level, the conservatively calculated maximum RF level from the combination of proposed and existing non-broadcast antenna operations at the site is 4.9742 percent of the FCC general population MPE limit. The result of the existing broadcast operations at this site is 8.700 percent of the same MPE limit. Summing the 8.700-percent worst-case result for the broadcast operation with the 4.9742-percent worst-case result for the non-broadcast operations yields an overall result of 13.6742 percent – well below the 100-percent reference for compliance.
- A supplemental analysis of the RF levels at the same height as the DISH antennas indicate that the FCC MPE limit is potentially exceeded. Therefore, it is recommended that Caution and NOC Information signs be at the base of the tower.
- The results of the calculations, along with the proposed mitigation, combine to satisfy the FCC requirements and associated guidelines on RF compliance at street level around the site and on the subject roof. Moreover, because of the significant conservatism incorporated in the analysis, RF levels actually caused by the antennas will be lower than these calculations indicate.

The remainder of this report provides the following:

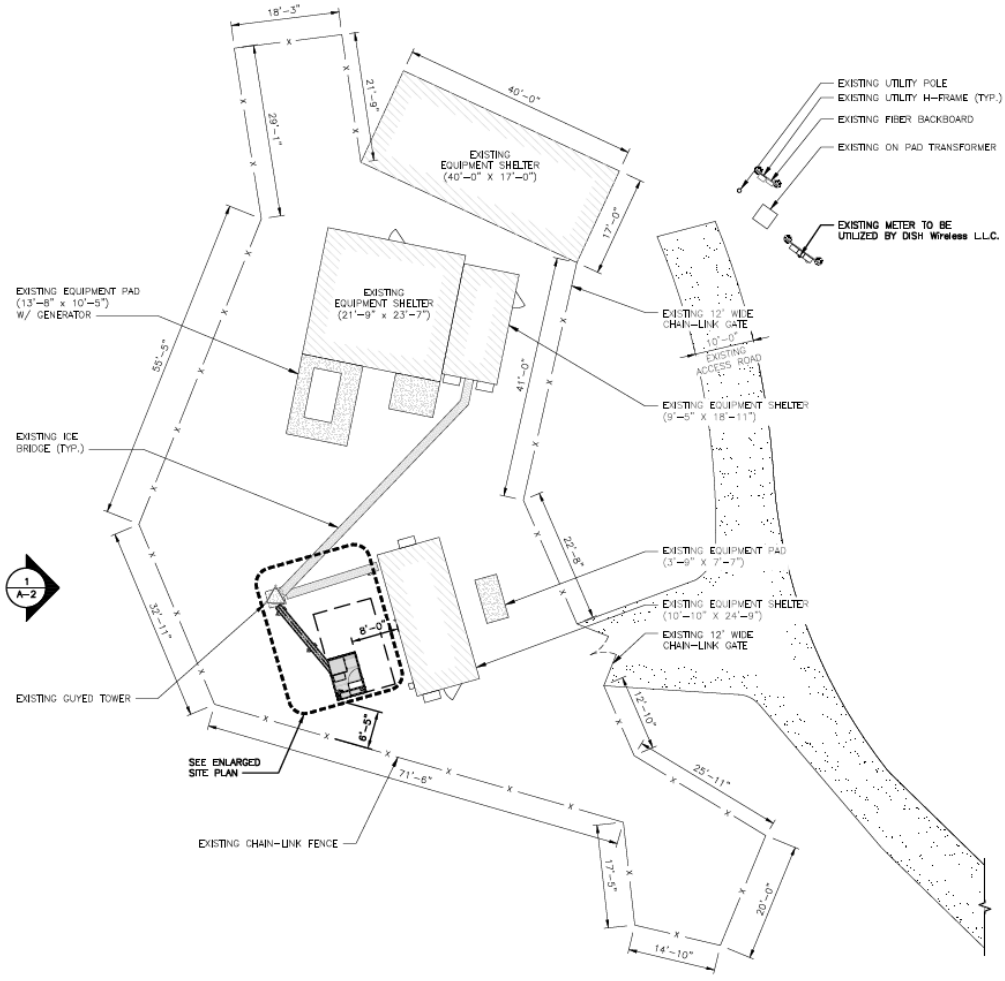
- relevant technical data on the proposed DISH antenna operations at the site, as well as on the other existing antenna operations;
- a description of the applicable FCC mathematical model for calculating RF levels, and application of the relevant technical data to that model;
- analysis of the results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

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

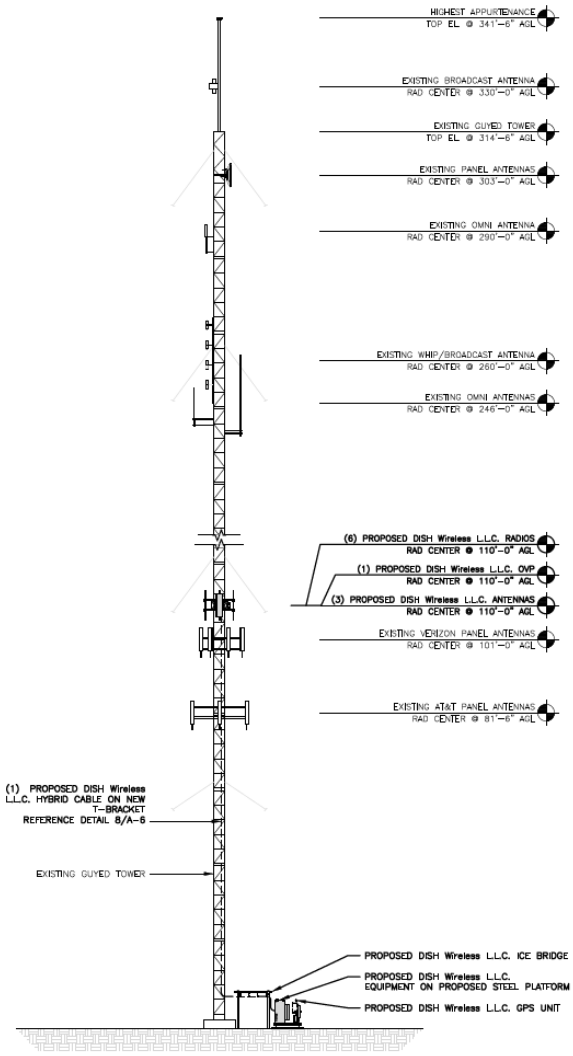
Antenna and Transmission Data

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

Plan View:



Elevation View:



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

Ant. ID	Carrier	Antenna Manufacturer	Antenna Model	Type	Freq (MHz)	Ant. Dim. (ft.)	Total Input Power (watts)	Total ERP (watts)	Z AGL (ft)	Ant. Gain (dBd)	B/W	Azimuth	EDT	MDT
❶	DISH	Commscope	FFVV-65B-R2	Panel	600	6	120	2110	110.0	12.46	64	60	2	0
❶	DISH	Commscope	FFVV-65B-R2	Panel	2000	6	160	7396	110.0	16.66	67	60	2	0
❶	DISH	Commscope	FFVV-65B-R2	Panel	2100	6	160	7396	110.0	16.66	67	60	2	0
❷	DISH	Commscope	FFVV-65B-R2	Panel	600	6	120	2110	110.0	12.46	64	180	2	0
❷	DISH	Commscope	FFVV-65B-R2	Panel	2000	6	160	7396	110.0	16.66	67	180	2	0
❷	DISH	Commscope	FFVV-65B-R2	Panel	2100	6	160	7396	110.0	16.66	67	180	2	0
❸	DISH	Commscope	FFVV-65B-R2	Panel	600	6	120	2110	110.0	12.46	64	300	2	0
❸	DISH	Commscope	FFVV-65B-R2	Panel	2000	6	160	7396	110.0	16.66	67	300	2	0
❸	DISH	Commscope	FFVV-65B-R2	Panel	2100	6	160	7396	110.0	16.66	67	300	2	0

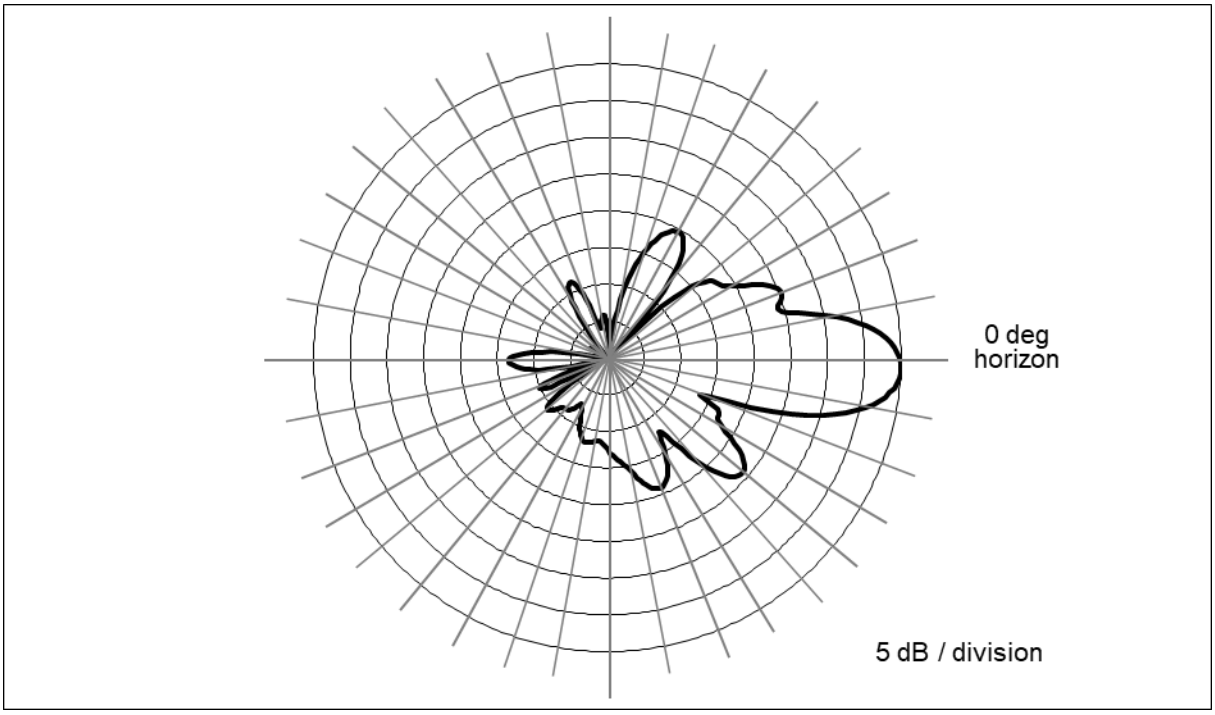
The area below the antennas, at street level, is of interest in terms of potential "uncontrolled" exposure of the general public, so the antenna's vertical-plane emission characteristic is used in the calculations, as it is a key determinant of the relative amount of RF emissions in the "downward" direction.

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

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

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

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



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

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

Carrier	*Antenna Manufacturer*	*Antenna Model*	*Type*	*Freq (MHz)*	*Total ERP (watts)*	*Ant. Gain (dBd)*	*Azimuth*
AT&T	Generic	Generic	Panel	700	4945	11.26	N/A
AT&T	Generic	Generic	Panel	850	2400	11.76	N/A
AT&T	Generic	Generic	Panel	1900	5756	15.56	N/A
AT&T	Generic	Generic	Panel	2100	5890	15.66	N/A
AT&T	Generic	Generic	Panel	2300	4131	16.16	N/A
Verizon Wireless	Generic	Generic	Panel	746	2400	11.76	N/A
Verizon Wireless	Generic	Generic	Panel	869	5166	12.36	N/A
Verizon Wireless	Generic	Generic	Panel	1900	5372	15.26	N/A
Verizon Wireless	Generic	Generic	Panel	2100	5625	15.46	N/A
AMS Spectrum Holding	Generic	Generic	Omnidirectional	931	568	6.0	N/A
Sacred Heart University	Generic	Generic	Point-to-Point	948	4	19.86	N/A
News 12 Connecticut	Generic	Generic	Point-to-Point	12000	1	25.0	N/A
Connoisseur Media Licenses	Generic	Generic	Broadcast	959	3000	N/A	N/A

We also note that existence of an AM Broadcast radio antenna operation at the site. An analysis of the RF effects of that operation using the operations parameters in the FCC license and the compliance-assessment methodology described in FCC Bulletin OET65A, indicate that the RF effects of that operation in areas of normal public access are insignificant.

Compliance Analysis

FCC Office of Engineering and Technology Bulletin 65 ("OET Bulletin 65") provides guidelines for mathematical models to calculate the RF levels at various points around transmitting antennas. Different models apply to the broadcast and non-broadcast operations, and this compliance assessment will be based on the worst-case results of the analyses of each type of operation. We will address the non-broadcast operations first.

Analysis of Non-Broadcast Operations

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

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

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

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

where

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

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

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

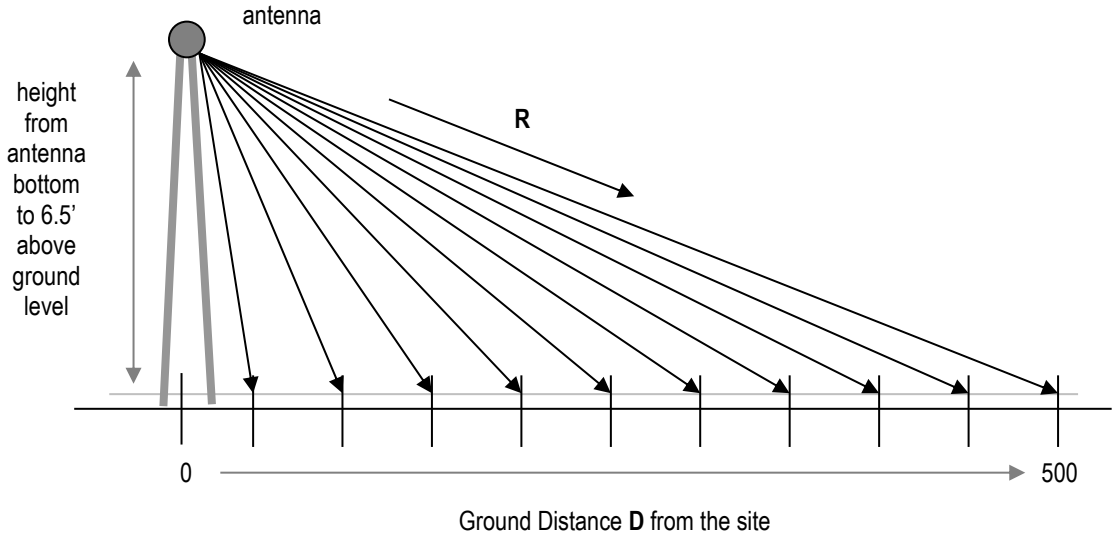


Figure 2. Street-level MPE% Calculation Geometry

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

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

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

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

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

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

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

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

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

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

Ground Distance (ft)	**DISH 600 MHz MPE%**	**DISH 2000 MHz MPE%**	**DISH 2100 MHz MPE%**	**AT&T MPE%**	**Verizon Wireless MPE%**	**AMS Spectrum Holdings MPE%**	**Sacred Hear Univ. MPE%**	**KB-60118 MPE%**	**Total MPE%**
0	0.0482	0.0023	0.0004	0.2190	0.0636	0.0003	0.0003	0.0002	0.3343
20	0.1031	0.0057	0.0084	0.4309	0.1543	0.0039	0.0003	0.0002	0.7068
40	0.1955	0.0216	0.0349	0.8514	0.4325	0.0129	0.0003	0.0002	1.5493
60	0.0682	0.0178	0.1403	1.0967	0.3586	0.0232	0.0002	0.0002	1.7052
80	0.0667	0.2663	0.1231	1.7681	0.8220	0.0314	0.0002	0.0002	3.0780
100	0.2542	0.1873	0.3755	2.1210	0.7190	0.0349	0.0001	0.0002	3.6922
120	0.2866	0.2580	0.3512	2.3488	1.3005	0.0359	0.0001	0.0001	4.5812
140	0.1431	0.0182	0.1045	2.1837	1.1761	0.0313	0.0003	0.0001	3.6573
160	0.0608	0.0362	0.0261	1.1667	0.6656	0.0247	0.0002	0.0001	1.9804
180	0.0340	0.0038	0.0439	0.5859	0.2867	0.0165	0.0002	0.0001	0.9711
200	0.0275	0.1064	0.0891	0.5461	0.0749	0.0088	0.0002	0.0001	0.8531
220	0.0177	0.0342	0.1323	0.5318	0.1448	0.0037	0.0003	0.0001	0.8649
240	0.0094	0.0380	0.0261	0.8719	0.4953	0.0010	0.0002	0.0001	1.4420
260	0.0101	0.0860	0.0238	1.2156	0.7243	0.0006	0.0002	0.0001	2.0607
280	0.0369	0.1061	0.1205	1.6799	0.9776	0.0018	0.0002	0.0001	2.9231
300	0.0643	0.0581	0.1189	2.1815	1.2627	0.0036	0.0004	0.0001	3.6896
320	0.1029	0.0183	0.0783	2.6101	1.5445	0.0072	0.0004	0.0001	4.3618
340	0.1521	0.0049	0.0343	2.3251	1.3758	0.0082	0.0003	0.0001	3.9008
360	0.2119	0.0046	0.0107	2.6015	1.6482	0.0123	0.0003	0.0001	4.4896
380	**0.2802**	**0.0036**	**0.0035**	**2.7698**	**1.9030**	**0.0137**	**0.0003**	**0.0001**	**4.9742**
400	0.2545	0.0033	0.0032	2.5084	1.7234	0.0192	0.0002	0.0000	4.5122
420	0.3234	0.0066	0.0020	2.6641	1.9328	0.0215	0.0002	0.0000	4.9506
440	0.3957	0.0257	0.0099	2.4337	1.7657	0.0241	0.0005	0.0000	4.6553
460	0.3636	0.0236	0.0091	2.6773	1.6192	0.0258	0.0004	0.0000	4.7190
480	0.4318	0.0548	0.0321	2.4637	1.8388	0.0283	0.0004	0.0000	4.8499
500	0.3993	0.0507	0.0297	2.2745	1.6977	0.0304	0.0004	0.0000	4.4827

As indicated, the maximum calculated overall RF level is 4.9742 percent of the FCC MPE limit – well below the 100-percent reference for compliance.

Analysis of Broadcast Operations

For compliance analysis of FM broadcast antenna operations, the FCC has made publicly available a software program called "FM Model". Inputs to the program include transmission parameters taken from the FCC licenses. We'll use 150 meters as the maximum calculation distance, as that approximates the 500-foot distance we apply in the analysis of the wireless antennas.

The FM Model program also has a pop-up feature that reports the maximum calculated RF level, which we will use – independent of the particular distance at which that occurs – to analyze compliance. We'll convert the result to a percentage of the 0.2 watt/cm^2 MPE limit that applies to all FM broadcast operations.

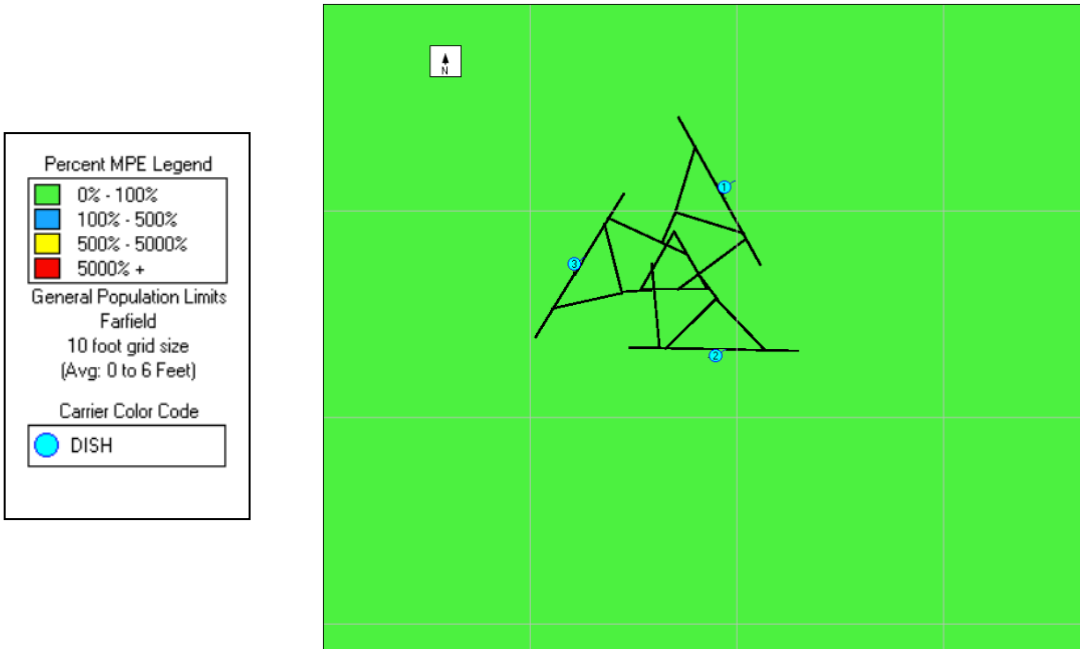
We input the appropriate data to the FCC program, including the maximum ERP (3,000 watts), and the antenna height (84 meters).

The table that follows provides the results of the analysis of the FM broadcast operation at the site.

Ground Distance (ft)	MPE%
0	7.5000
20	7.8000
40	8.4500
60	**8.7000**
80	8.3000
100	7.3000
120	5.7500
140	3.9000
160	2.0500
180	0.7500
200	0.1000
220	0.1000
240	0.2500
260	0.3500
280	0.4000
300	0.3000
320	0.2000
340	0.0500
360	0.0000
380	0.0000
400	0.0500
420	0.1000
440	0.1500
460	0.1500
480	0.1500
500	0.1500

Summing the 8.700-percent worst-case result for the broadcast operation with the earlier 4.9742-percent worst-case result for the non-broadcast operations yields an overall result of 13.6742 percent – well below the 100-percent reference for compliance.

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

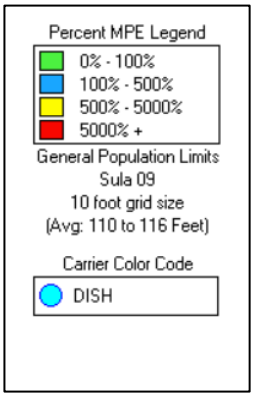


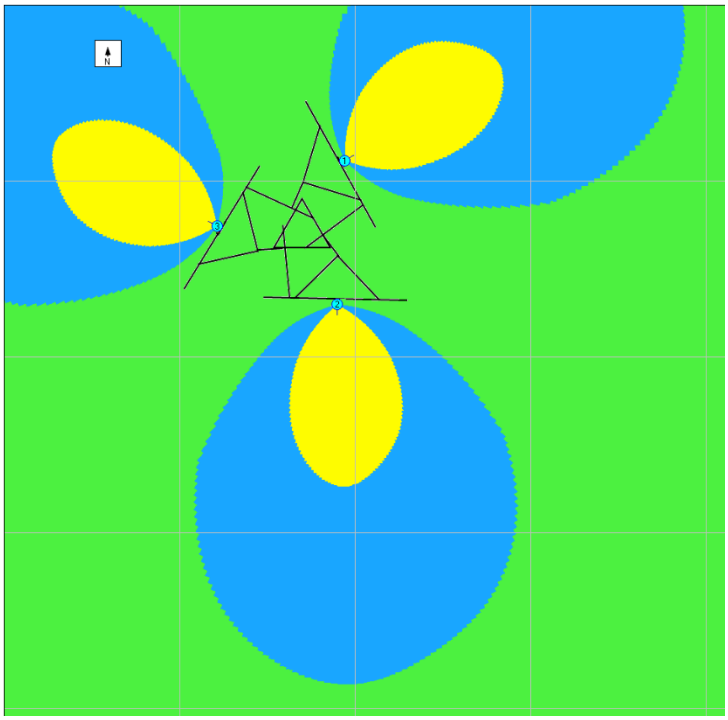
Near-field Analysis

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

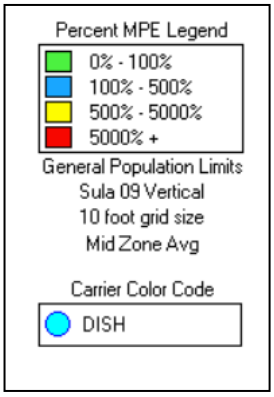
RF levels in the near field of an antenna depend on the power input to the antenna, the antenna's length and horizontal beamwidth, the mounting height of the antenna above nearby roof, and one's position and distance from the antenna. RF levels in front of a directional antenna are higher than they are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

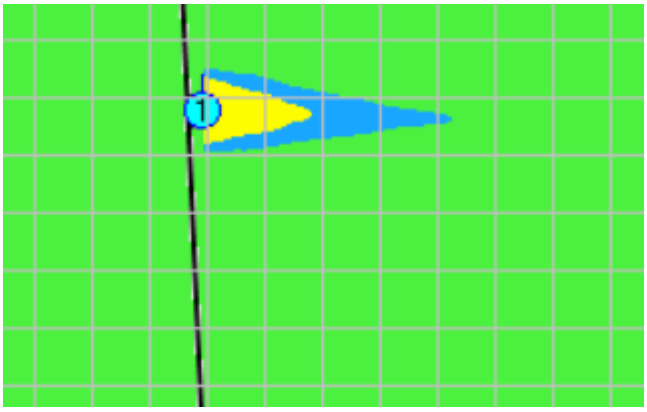
The RoofMaster graphic outputs for the same height as the DISH antennas are reproduced on the next page.





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





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

Compliance Conclusion

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

The conservative analysis in this case shows that the maximum calculated RF level from the combination of proposed and existing antenna operations at street level around the site is 13.6742 percent of the FCC general population MPE limit. At the same height as the antennas, the analysis shows that the calculated RF levels potentially exceed the FCC MPE limit. Per DISH guidelines, and consistent with FCC guidance on compliance, it is recommended that Caution and NOC Information signs be at the base of the tower.

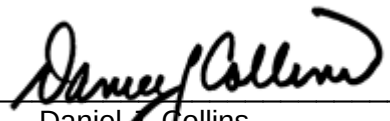
The results of the calculations, along with the described RF mitigation, combine to satisfy the FCC's RF compliance requirements and associated guidelines on compliance.

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

Certification

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

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



4/28/22

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

Date

Appendix A. Documents Used to Prepare the Analysis

RFDS: RFDS-NJJER02029A-Final-20220425-v.0_20220425070514

CD: NJJER02029A_FinalStampedCDs_20220414185044

Appendix B. Background on the FCC MPE Limit

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

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

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

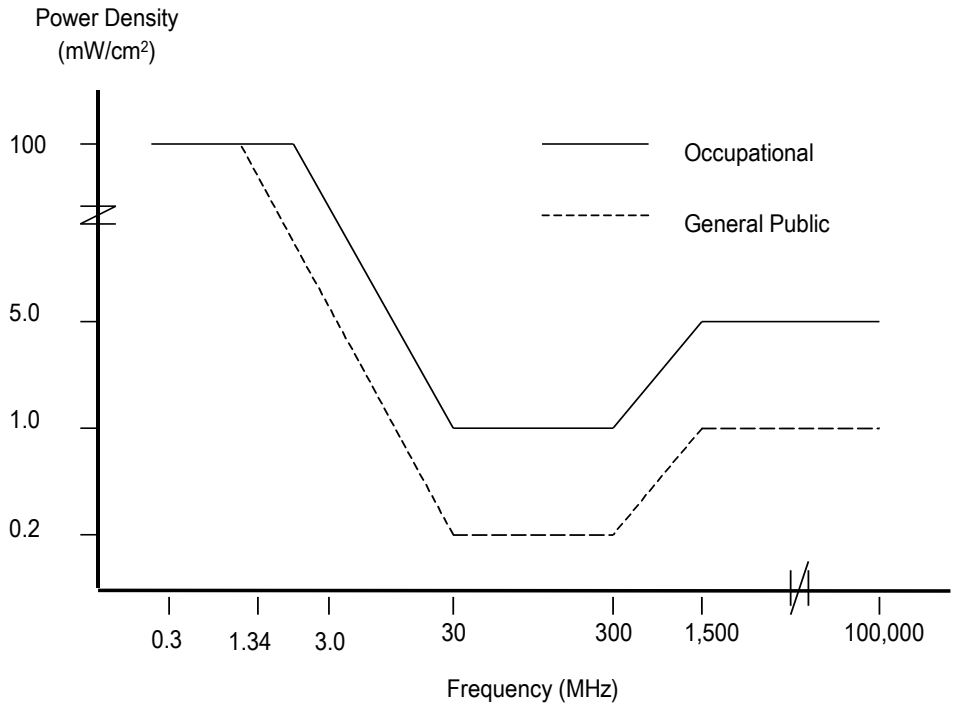
The specified continuous exposure MPE limits are based on known variation of human body susceptibility in different frequency ranges, and a Specific Absorption Rate (SAR) of 4 watts per kilogram, which is universally considered to accurately represent human capacity to dissipate incident RF energy (in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

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

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

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

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



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

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

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

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

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

FCC References on RF Compliance

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

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

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

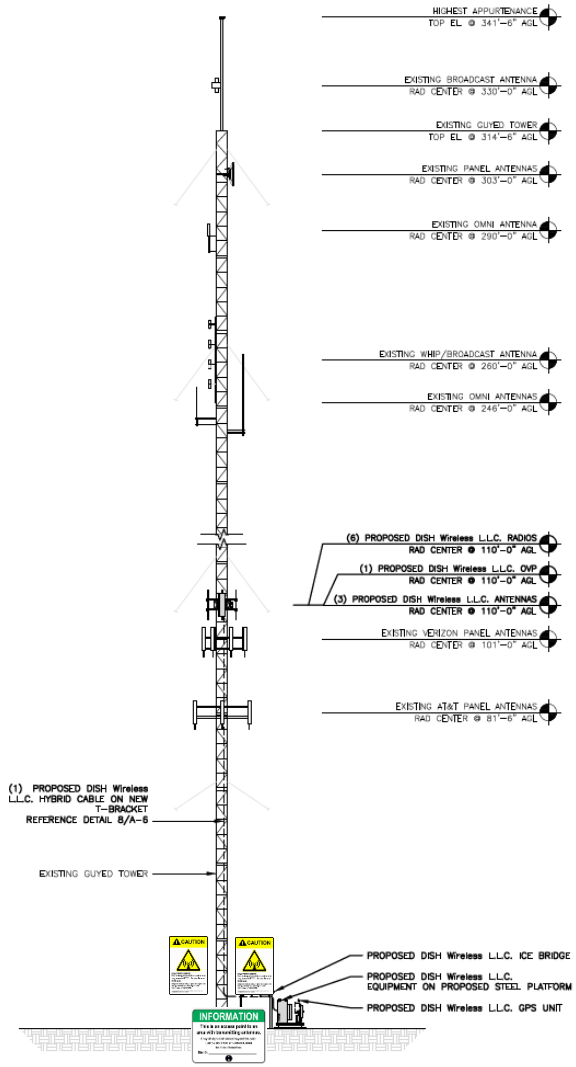
FCC Report and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released August 1, 1996.

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

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

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

Appendix C. Proposed Signage



NOC Information Sign		Caution Sign	
Guidelines Sign		Warning Sign	
Notice Sign			

Appendix D. Summary of Expert Qualifications

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

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

MK DEVELOPMENT

EXHIBIT G

Proof of Notification

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