



Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

October 14, 2021

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

RE: **Notice of Exempt Modification for T-Mobile: CTNH814A**
Crown Site ID: 876392
115 Industrial Park Road, New Hartford, CT 06057
Latitude: 41° 53' 10.48" / Longitude: -72° 57' 58.10"

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 157-foot mount on the existing 168-foot monopole tower located at 115 Industrial Park Road, New Hartford, CT. The property and tower are owned by Crown Castle. T-Mobile now intends to replace six (6) antennas, add three (3) new antennas and ancillary equipment at the 157ft level. 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.

Panned Modification:

Tower:

Installed New:

- (3) RFS - APXVAALL24_43-U-NA20 Antennas
- (3) Ericsson- AIR6449 B41 Antenna
- (3) RFS - APXV16DWV-S-E-A20 Antennas
- (3) Ericsson Radio 4460 B25 + B66 Remote Radios
- (3) Ericsson – Radio 4480 B71+B85
- (3) Hybrid Cables 6X24
- (1) Site Pro Handrail Kit and (3) Mount Pipes per Infinigy Mount Analysis 7/21/21

Remove:

- (3) RFS – APXTM14-C-120 Antenna
- (3) Commscope – DT465B-2XR Antennas
- (3) Alcatel Lucent – RRH2x50-800
- (3) Alcatel Lucent – TD-RRH8x20-25
- (9) RFS – ACU-A20-N

Ground:

Install New:

- (1) 6160 Site Support Cabinet
- (1) B160 Battery Cabinet
- (1) RBS 6601 IN SSC
- (1) DUG20 IN SSC

- (1.) CSR IXRE V2 Transport System
- (1) BB6648 IN 6160 SSC Cabinet

The facility was originally approved by the Town of New Hartford Planning and Zoning Commission on August 9, 2000 with no conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to The First Selectman, Mr. Daniel V. Jerran, for the Town of New Hartford, Mr. Michael Lucus, Zoning Enforcement Officer for the Town of New Hartford. Crown Castle is the tower land owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,


Jeffrey Barbadora

Site Acquisition Specialist

1800 W. Park Drive

Westborough, MA 01581

(781) 970-0053

Jeff.Barbadora@crowncastle.com

Melanie A. Bachman

Page 3

Attachments

cc:

Mr. Daniel V. Jerran, First Selectman
Town of New Hartford
530 Main Street
New Hartford, CT 06057
860-379-3389

Mr. Michael Lucas, Zoning Enforcement Officer
Town of New Hartford
530 Main Street
New Hartford, CT 06057
860-379-3677

Crown Castle is the Tower and Land Owner



Town of New Hartford, CT

Property Listing Report

Map Block Lot

038-134-15C

Bldg #

1

Sec #

1

PID

184722

Account

00284401

Property Information

Property Location	115 INDUSTRIAL PARK ROAD
Owner	FRAMINGHAM COMMONS LLC
Co-Owner	C/O GLOBAL SIGNAL ACQUISITION PMB 331
Mailing Address	4017 WASHINGTON ROAD MCMURRAY PA 15317
Land Use	4400 IND VACANT
Land Class	I
Zoning Code	IP
Census Tract	3061/1002

Neighborhood	C
Acreage	0.4
Utilities	Well,Septic
Lot Setting/Desc	Rural Level
Book / Page	0234/0515
Fire District	1

Primary Construction Details

Year Built	0
Building Desc.	IND VACANT
Building Style	UNKNOWN
Building Grade	
Stories	
Occupancy	
Exterior Walls	
Exterior Walls 2	NA
Roof Style	
Roof Cover	
Interior Walls	
Interior Walls 2	NA
Interior Floors 1	
Interior Floors 2	NA

Heating Fuel	
Heating Type	
AC Type	
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	
Fireplaces	

(*Industrial / Commercial Details)

Building Use	Vacant
Building Condition	
Sprinkler %	NA
Heat / AC	NA
Frame Type	NA
Baths / Plumbing	NA
Ceiling / Wall	NA
Rooms / Prtns	NA
Wall Height	NA
First Floor Use	NA
Foundation	NA

Photo



Sketch





Town of New Hartford, CT

Property Listing Report

Map Block Lot 038-134-15C Bldg # 1 Sec # 1 PID 184722 Account 00284401

Valuation Summary (Assessed value = 70% of Appraised Value)

Sub Areas

Table with 5 columns: Item, Appraised, Assessed, Subarea Type, Gross Area (sq ft), Living Area (sq ft). Rows include Buildings, Extras, Improvements, Outbuildings, Land, and Total.

Outbuilding and Extra Features

Table with 2 columns: Type, Description. Rows include Pre Cast Cell (300 S.F.), Pre Cast Cell (240 S.F.), Fence-8' Chain (400 L.F.), and several empty rows.

Table with 3 columns: Subarea Type, Gross Area (sq ft), Living Area (sq ft). Rows include several empty rows and a Total Area row with values 0, 0.

Sales History

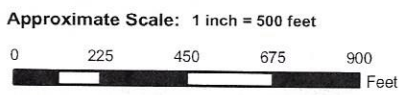
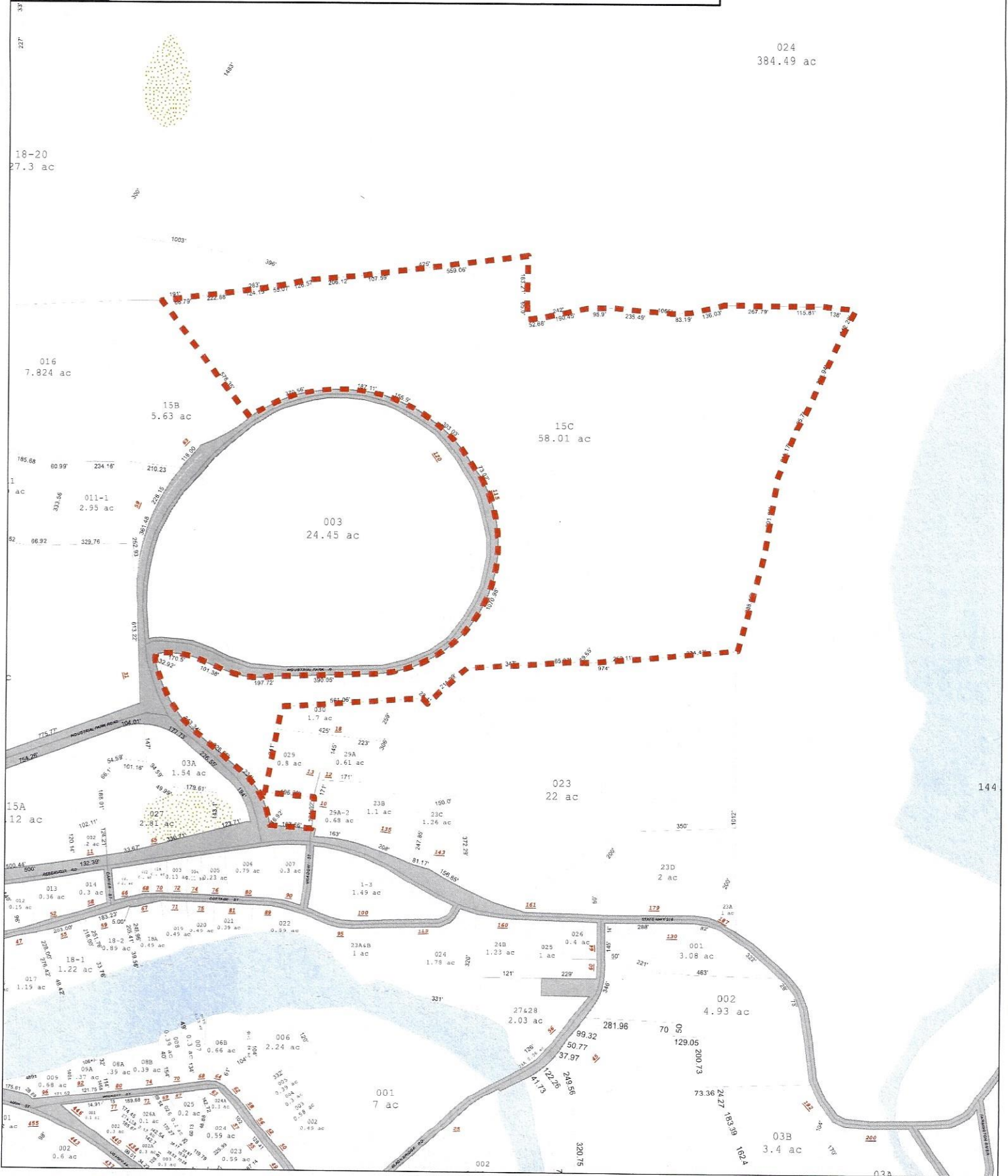
Table with 4 columns: Owner of Record, Book/ Page, Sale Date, Sale Price. Row: FRAMINGHAM COMMONS LLC, 0234/0515, 2005-05-10, 0.



Town of New Hartford, Connecticut - Assessment Parcel Map

Parcel: 038-134-15C-1

Address: 115 INDUSTRIAL PARK ROAD



Disclaimer: This map is for informational purposes only.
 All information is subject to verification by any user.
 The Town of New Hartford and its mapping contractors
 assume no legal responsibility for the
 information contained herein.

Map Produced August 2020



FAX COVER SHEET

DATE: August 16, 2000

THIS TRANSMISSION CONSISTS OF THIS COVER SHEET AND 1 PAGE(S).

DELIVER TO:	COMPANY/FIRM:	FAX NUMBER:	PHONE NUMBER:
KAREN J. NIELSEN	SPRINT PCS	201/ 684-4070	(201) 684-4064
RICH FEELEY	ATLANTIC WESTERN CONSULTING, INC.	401/949-8096	401/949-1605

FROM: THOMAS J. REGAN

TELEPHONE: DIRECT DIAL: (860) 509-6522

OUR FACSIMILE NUMBER IS: (860) 509-6501.

80563/1916/825

MESSAGE New Hartford, CT (CLASSIFICATION)	Attached is a copy of the "Notice of Decision" as published in the Hartford Courant on Wednesday, August 16, 2000. The appeal period on this matter expires on 8/31/00, at which time the Notice will be recorded on the New Hartford Land Records.
--	---

IF YOU DO NOT RECEIVE ALL PAGES, PLEASE CALL (860) 509-6542 AND ASK FOR OFFICE SERVICES.

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City Place I
185 Asylum Street
Hartford, CT
Tel:(860)509-6500
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#5

Decision Published
(New Hartford)

8/16/00

**LEGAL
PUBLIC NOTICES**

**NOTICE OF DECISIONS
TOWN OF NEW HARTFORD
PLANNING AND ZONING COMMISSION**

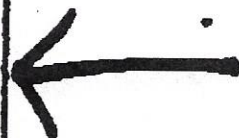
The Planning and Zoning Commission at a special meeting August 10th, 2000 at Berkshire Hall, Brodie Park, made the following decisions:

By unanimous vote, to approve the application of Mark & Holly Ryan, applicants/Willem Chitt, owner - 1 Lot subdivision with a special exception for an exterior lot to an R1Z2000 - Town Hill Road with one condition.

By unanimous vote, to approve the application of Serial Spectrum L.P. DBA Serial PCS applicant Executive Graphics Inc., Owner - Special Exception for a lot on West Hill Road IP zone - T18 Industrial Park Access Road with Site Plan approval with 2 conditions.

Copies of the applications are on file in the office of the Planning and Zoning Commission at the New Hartford Town Hall, Brodie Park, West Hill Road, New Hartford.

Dated this 10th day of August, 2000 by
Planning and Zoning Commission
Chairman, David Kruttnel.



Town of New Hartford

530 MAIN STREET • TOWN HALL
NEW HARTFORD, CT 06057

588

(Rec'd 8/23/00
from BRF+E)

PLANNING AND ZONING COMMISSION
(860) 379-7677

August 14, 2000

Sprint Spectrum LP dba Sprint PCS, applicant
Executive Greetings, Inc., owner
9 Barnes Industrial Road
Wallingford, CT. 06492

Appeal Period
Expires 8/31/00
Cert to be recorded
7/1 (File for BP)

Dear Sirs,

The Planning and Zoning Commission at a "Special" meeting, August 9, 2000 at Berkshire Hall, Brodie Park, made the following decision:

By unanimous approval, that the application of Sprint Spectrum L.P. DBA Sprint PCS applicant/Executive Greetings Inc., Owner -- Special Exception for a telecommunications tower in a IP zone -- 115 Industrial Park Access Road be approved in the method described in the written and oral testimony of the applicant and its representative and according to the site plan supplied "Sprint PCS Wireless Communications Facility -- CT33xC588, New Hartford, 115 Industrial Park Access Road, New Hartford, CT. prepared for Sprint Spectrum LP by Natcomm LLC, Branford, CT., dated 1/28/00, revised 2/24/00(issued for zoning) and 4/14/200(modified for wetlands commission and easement location) with the following conditions;

1. That the review comments of the Town Engineer (3/15/00 & 6/29/200), the Town Planner (7/7/2000), and the radio frequency engineer (7/12/00 & 8/9/00) shall be incorporated into the plans with final determination for compliance by the Zoning Enforcement Officer.
2. Soil testing (as provided for in the regulations) shall be furnished prior to the issuance of a building permit.
3. That the maximum 160 foot high monopole telecommunications tower be designed and constructed to allow additional co-locators.

The special exception for the telecommunications tower is approved according to the standards and criteria as set forth in Article VI, Antennas, Towers, and Wireless Communications Facilities of the Town of New Hartford Zoning Regulations and all of the above conditions as relating to special exception shall be in addition to the pertinent standards and criteria of Article V, Section 2. "General Standards and Requirements.

Enclosed please find a **GRANT OF SPECIAL EXCEPTION** that corresponds with your approval. This Grant of Special Exception should be filed in the Town Clerk's Office at your earliest convenience. This filing ensures that your permit is made a permanent record on the land records in the Town of New Hartford. A \$18.00 fee payable to the Town of New Hartford is due upon filing of the permit.

Please contact Karl Nilsen, ZEO, in New Hartford Town Hall if you have any questions concerning this matter.

Respectfully yours,

David Krimmel, Chairman
Planning and Zoning Commission

DK/kgu

CT 33XC588

BOOK 186 PAGE 0899

000344

**TOWN OF NEW HARTFORD
GRANT OF SPECIAL EXCEPTION**

On the application of

**Sprint Spectrum LP dba Sprint PCS applicant
Executive Greetings Inc, owner
9 Barnes Industrial Road
Wallingford, CT. 06492**

the **PLANNING AND ZONING COMMISSION**

did grant a _____ Special Permit

_____ **XXX** _____ Special Exception for a telecommunications tower in a IP zone

Street address: 115 Industrial Park Road

Description of Premises:

Assessor's Aerial Map 038

Block 134 Lot 15C

Volume 145 page 451

Owners of record: Executive Greetings Inc.

The application of Sprint Spectrum L.P. DBA Sprint PCS applicant/Executive Greetings Inc., Owner – Special Exception for a telecommunications tower in a IP zone – 115 Industrial Park Access Road is approved in the method described in the written and oral testimony of the applicant and its representative and according to the site plan supplied "Sprint PCS Wireless Communications Facility – CT33xC588, New Hartford, 115 Industrial Park Access Road, New Hartford, CT, prepared for Sprint Spectrum LP by Natcomm LLC, Branford, CT., dated 1/28/00, revised 2/24/00(issued for zoning) and 4/14/200(modified for wetlands commission and easement location) with the following conditions;

1. That the review comments of the Town Engineer (3/15/00 & 6/29/200), the Town Planner (7/7/2000), and the radio frequency engineer (7/12/00 & 8/9/00) shall be incorporated into the plans with final determination for compliance by the Zoning Enforcement Officer.
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Certified this 10th day of August, 2000

By

David Krimmel (KCR)

David Krimmel, Chairman

Planning and Zoning Commission

Received September 1, 2000
 At 10:10 A.M.
 Recorded in New Hartford Land
 Records Vol. 186 Page 899-900
Dena D. Casper
 Town Clerk

AFTER RECORDING, PLEASE RETURN TO:

Thomas J. Regan, Esquire
 Brown Rudnick Freed & Gesmer
 185 Asylum Street, 38th Floor
 Hartford, CT 06103-3402

TOWN OF NEW HARTFORD

**530 MAIN STREET- TOWN HALL
NEW HARTFORD, CT. 06057**

**INLAND WETLANDS COMMISSION
(860-379-8830)**

April 26, 2000

Sprint Spectrum LP.
9 Barnes Industrial Road
Wallingford, CT. 06492

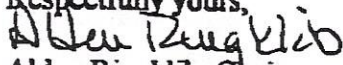
To whom it may concern:

The Inland Wetlands Commission, at its regular meeting at Berkshire Hall, Brodie Park, on April 24th, 2000, made the following decision:

By a majority vote, to approve the application of Sprint Spectrum LP., applicant/ Executive Greetings, owner - Crossing of an intermittent watercourse for the construction of a telecommunications tower - 120 Industrial Park Access Road as presented as the method described in the written and oral testimony of the applicant and according to the revised site plan provided as the method shows that there will no adverse effects to the watercourse or wetlands on the property.

Feasible and prudent alternatives were explored and the commission's approval is based on the belief that the revised application as presented is the most reasonable and prudent available. As part of the permit granted, proper soil and erosion controls must be in place prior to the start of any construction and those controls are to inspected and approved by the Inland Wetlands Enforcement Officer prior to and during all phases of construction

Any information or assistance required concerning this decision should be directed to Mr. Paul Volovski, Inland Wetlands Enforcement officer at 379-8830 during regular Town Hall business hours.

Respectfully yours,

Alden Ringklib, Chairman
Inland Wetlands Commission

AR/kgm
Cc/Thomas J Regan, Brown Rudnick Freed & Gesmer

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FROM Jeff Barbadora
1800 W. Park Drive
WESTBOROUGH, MA, US, 01581

TO Town of New Hartford
Zoning Enforcement Michael Lucas
530 Main Street
NEW HARTFORD, CT, US, 06057

REFERENCE 799001.7680

SHIPPER REFERENCE 799001.7680

SHIP DATE Thu 10/14/2021 06:41 PM

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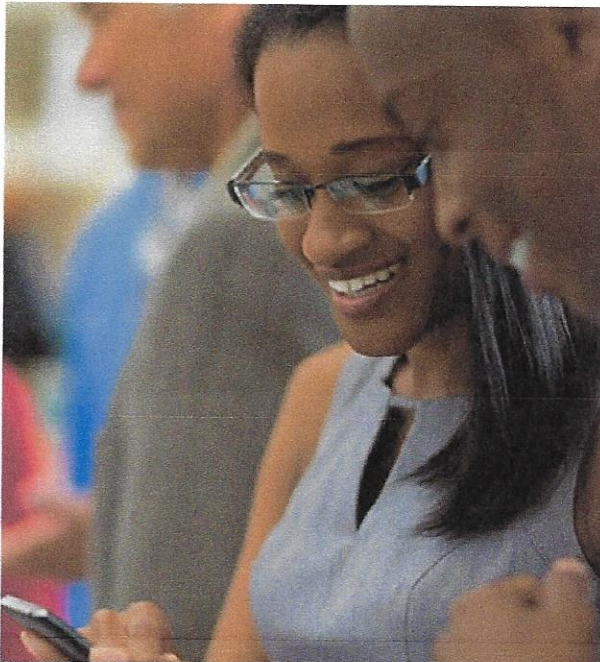
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FROM Jeff Barbadora
1800 W. Park Drive
WESTBOROUGH, MA, US, 01581

TO Town of New Hartford
First Selectman Daniel Jerran
530 Main Street
NEW HARTFORD, CT, US, 06057

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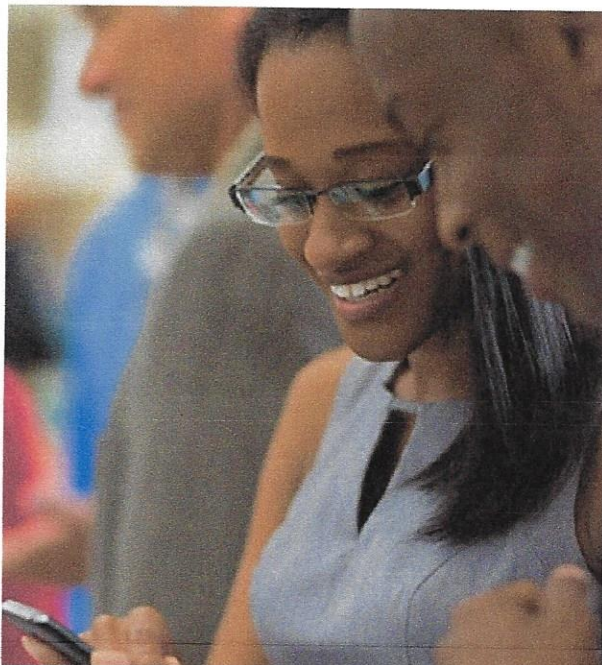
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TOTAL SHIPMENT WEIGHT 1.00 LB

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Date: **September 01, 2021**



Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000

Subject: **Structural Analysis Report**

Carrier Designation: **Sprint PCS Co-Locate**
Site Number: CTNH814A
Site Name: CT33XC588

Crown Castle Designation: **BU Number:** 876392
Site Name: NEW HARTFORD / EXECUTIVE GREET
JDE Job Number: 673847
Work Order Number: 1999969
Order Number: 575185 Rev. 0

Engineering Firm Designation: **Crown Castle Project Number:** 1999969

Site Data: **115 INDUSTRIAL PARK RD, NEW HARTFORD, LITCHFIELD County, CT**
Latitude 41° 53' 10.48", Longitude -72° 57' 58.1"
168 Foot - Monopole Tower

Crown Castle is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above-mentioned tower.

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

LC7: Proposed Equipment Configuration

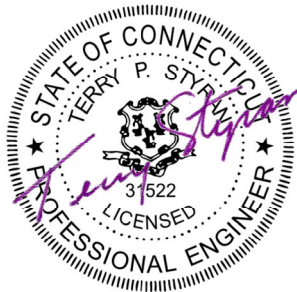
Sufficient Capacity - 99.1%

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 115 mph. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Melanie Atilis

Respectfully submitted by:

Terry P. Styran, P.E.
Senior Project Engineer



Terry P Styran
2021.09.01
17:30:44 -04'00'

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tnxTower Output

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Base Level Drawing

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Additional Calculations

1) INTRODUCTION

This tower is a 168 ft Monopole tower designed by SUMMIT. The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	115 mph
Exposure Category:	C
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)
157.0	157.0	3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe	3	1-5/8
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	RADIO 4480 B71_TMO		
		3	rfs celwave	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe		
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
		1	sitepro1	HRK14 handrail kit		
		1	tower mounts	Platform Mount [LP 1201-1_KCKR]		

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)
166.0	168.0	3	communication components inc.	DTMA-1819-DD-12	12	1-5/8
		3	rfs celwave	APX16PV-16PVL-E w/ Mount Pipe		
145.0	147.0	6	antel	LPA-80080/6CF w/ Mount Pipe	7	1-5/8
		3	quintel technology	QS6656-5D		
		3	quintel technology	QS6656-5D w/ Mount Pipe		
		1	rfs celwave	DB-C1-12C-24AB-0Z		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
	3	vzw	Sub6 Antenna - VZS01 w/ Mount Pipe			
	145.0	1	tower mounts	Platform Mount [LP 403-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
130.0	130.0	3	fujitsu	TA08025-B604	1	1-1/2
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		
120.0	120.0	2	andrew	SBNHH-1D65A w/ Mount Pipe	12 2 1 1	1-5/8 7/16 3/8 Conduit
		1	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe		
		3	ericsson	RRUS 11 B12		
		3	ericsson	RRUS 4415 B25		
		1	kathrein	800 10764 w/ Mount Pipe		
		1	kmw communications	AM-X-CD-14-65-00T-RET w/ Mount Pipe		
		1	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	LGP2140X		
		1	raycap	DC6-48-60-18-8F		
1	tower mounts	Platform Mount [LP 303-1_HR-1]				
102.0	102.0	3	rfs celwave	APXV18-206517S-C w/ Mount Pipe	6	1-5/8
74.0	75.0	1	lucent	KS24019-L112A	1	1/2
	74.0	1	tower mounts	Side Arm Mount [SO 702-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1532994	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1616556	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1441325	CCISITES
4-POST-MODIFICATION INSPECTION	2808249	CCISITES
4-POST-MODIFICATION INSPECTION	3839078	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3027354	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3375541	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3375535	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2920117	CCISITES

3.1) Analysis Method

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

calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L1	168 - 163	Pole	TP14x14x0.25	Pole	2.9%	Pass
L2	163 - 158	Pole	TP14x14x0.25	Pole	7.3%	Pass
L3	158 - 153	Pole	TP22.86x22x0.1875	Pole	8.2%	Pass
L4	153 - 148	Pole	TP23.72x22.86x0.1875	Pole	14.7%	Pass
L5	148 - 143	Pole	TP24.58x23.72x0.1875	Pole	24.7%	Pass
L6	143 - 138	Pole	TP25.44x24.58x0.1875	Pole	35.0%	Pass
L7	138 - 133	Pole	TP26.301x25.44x0.1875	Pole	44.6%	Pass
L8	133 - 128	Pole	TP27.161x26.301x0.1875	Pole	55.1%	Pass
L9	128 - 123	Pole	TP28.021x27.161x0.1875	Pole	66.3%	Pass
L10	123 - 120.25	Pole	TP29.139x28.021x0.1875	Pole	72.1%	Pass
L11	120.25 - 115.25	Pole	TP28.979x28.119x0.25	Pole	58.8%	Pass
L12	115.25 - 110.25	Pole	TP29.839x28.979x0.25	Pole	66.6%	Pass
L13	110.25 - 105.25	Pole	TP30.699x29.839x0.25	Pole	73.8%	Pass
L14	105.25 - 100.25	Pole	TP31.559x30.699x0.25	Pole	80.6%	Pass
L15	100.25 - 95.25	Pole	TP32.42x31.559x0.25	Pole	87.0%	Pass
L16	95.25 - 91.5	Pole	TP33.065x32.42x0.25	Pole	91.5%	Pass
L17	91.5 - 91.25	Pole	TP33.108x33.065x0.25	Pole	91.8%	Pass
L18	91.25 - 86.25	Pole	TP33.968x33.108x0.25	Pole	97.4%	Pass
L19	86.25 - 84.75	Pole	TP35x33.968x0.25	Pole	99.1%	Pass
L20	84.75 - 79.25	Pole	TP34.672x33.726x0.3125	Pole	80.1%	Pass
L21	79.25 - 74.25	Pole	TP35.532x34.672x0.3125	Pole	83.6%	Pass
L22	74.25 - 69.75	Pole	TP36.306x35.532x0.3125	Pole	86.5%	Pass
L23	69.75 - 69.5	Pole + Reinf.	TP36.349x36.306x0.4875	Reinf. 2 Tension Rupture	85.2%	Pass
L24	69.5 - 64.5	Pole + Reinf.	TP37.209x36.349x0.4875	Reinf. 2 Tension Rupture	88.4%	Pass
L25	64.5 - 59.5	Pole + Reinf.	TP38.07x37.209x0.475	Reinf. 2 Tension Rupture	91.3%	Pass
L26	59.5 - 54.5	Pole + Reinf.	TP38.93x38.07x0.475	Reinf. 2 Tension Rupture	94.1%	Pass
L27	54.5 - 53.75	Pole + Reinf.	TP39.059x38.93x0.475	Reinf. 2 Tension Rupture	94.5%	Pass
L28	53.75 - 53.5	Pole + Reinf.	TP39.102x39.059x0.475	Reinf. 3 Tension Rupture	94.6%	Pass
L29	53.5 - 48.5	Pole + Reinf.	TP39.962x39.102x0.475	Reinf. 3 Tension Rupture	97.2%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L30	48.5 - 45	Pole + Reinf.	TP41.467x39.962x0.4688	Reinf. 3 Tension Rupture	98.9%	Pass
L31	45 - 38.75	Pole	TP41.014x39.939x0.375	Pole	83.8%	Pass
L32	38.75 - 33.75	Pole	TP41.874x41.014x0.375	Pole	85.5%	Pass
L33	33.75 - 28.75	Pole	TP42.734x41.874x0.375	Pole	87.0%	Pass
L34	28.75 - 27.75	Pole	TP42.906x42.734x0.375	Pole	87.3%	Pass
L35	27.75 - 27.5	Pole + Reinf.	TP42.949x42.906x0.575	Reinf. 5 Tension Rupture	85.9%	Pass
L36	27.5 - 22.5	Pole + Reinf.	TP43.809x42.949x0.575	Reinf. 5 Tension Rupture	87.4%	Pass
L37	22.5 - 17.5	Pole + Reinf.	TP44.67x43.809x0.5625	Reinf. 5 Tension Rupture	88.8%	Pass
L38	17.5 - 12.5	Pole + Reinf.	TP45.53x44.67x0.5625	Reinf. 5 Tension Rupture	90.1%	Pass
L39	12.5 - 8.75	Pole + Reinf.	TP46.175x45.53x0.5625	Reinf. 5 Tension Rupture	91.0%	Pass
L40	8.75 - 8.5	Pole + Reinf.	TP46.218x46.175x0.5625	Reinf. 5 Tension Rupture	91.1%	Pass
L41	8.5 - 8.25	Pole + Reinf.	TP46.261x46.218x0.5625	Reinf. 5 Tension Rupture	91.1%	Pass
L42	8.25 - 8	Pole + Reinf.	TP46.304x46.261x0.5	Reinf. 5 Tension Rupture	92.4%	Pass
L43	8 - 3.25	Pole + Reinf.	TP47.121x46.304x0.5	Reinf. 5 Tension Rupture	93.4%	Pass
L44	3.25 - 3	Pole + Reinf.	TP47.164x47.121x0.4125	Pole	91.9%	Pass
L45	3 - 0	Pole + Reinf.	TP47.68x47.164x0.4125	Pole	92.5%	Pass
					Summary	
				Pole	99.1%	Pass
				Reinforcement	98.9%	Pass
				Overall	99.1%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	74.4	Pass
1	Base Plate	0	76.9	Pass
1	Base Foundation (Structure)	0	60.0	Pass
1	Base Foundation (Soil Interaction)	0	68.1	Pass
1	Flange Bolts	158	7.3	Pass
1	Flange Plate	158	17.8	Pass

Structure Rating (max from all components) =	99.1%
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Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Tower Input Data

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

- Tower is located in Litchfield County, Connecticut.
- Tower base elevation above sea level: 567.0000 ft.
- Basic wind speed of 115.00 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.0000 ft.
- Nominal ice thickness of 2.0000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.00 pcf.
- A wind speed of 50.00 mph is used in combination with ice.
- Temperature drop of 50.00 °F.
- Deflections calculated using a wind speed of 60.00 mph.
- TOWER RATING: 104.3%.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	168.0000- 163.0000	5.0000	0.00	Round	14.0000	14.0000	0.2500		A53-B-35 (35 ksi)
L2	163.0000- 158.0000	5.0000	0.00	Round	14.0000	14.0000	0.2500		A53-B-35 (35 ksi)
L3	158.0000- 153.0000	5.0000	0.00	18	22.0000	22.8601	0.1875	0.7500	A607-65 (65 ksi)
L4	153.0000- 148.0000	5.0000	0.00	18	22.8601	23.7202	0.1875	0.7500	A607-65 (65 ksi)
L5	148.0000- 143.0000	5.0000	0.00	18	23.7202	24.5804	0.1875	0.7500	A607-65 (65 ksi)
L6	143.0000- 138.0000	5.0000	0.00	18	24.5804	25.4405	0.1875	0.7500	A607-65 (65 ksi)
L7	138.0000- 133.0000	5.0000	0.00	18	25.4405	26.3006	0.1875	0.7500	A607-65 (65 ksi)
L8	133.0000- 128.0000	5.0000	0.00	18	26.3006	27.1607	0.1875	0.7500	A607-65 (65 ksi)
L9	128.0000- 123.0000	5.0000	0.00	18	27.1607	28.0208	0.1875	0.7500	A607-65 (65 ksi)
L10	123.0000- 116.5000	6.5000	3.75	18	28.0208	29.1390	0.1875	0.7500	A607-65 (65 ksi)
L11	116.5000- 115.2500	5.0000	0.00	18	28.1189	28.9790	0.2500	1.0000	A607-65 (65 ksi)
L12	115.2500- 110.2500	5.0000	0.00	18	28.9790	29.8392	0.2500	1.0000	A607-65 (65 ksi)
L13	110.2500- 105.2500	5.0000	0.00	18	29.8392	30.6993	0.2500	1.0000	A607-65 (65 ksi)
L14	105.2500- 100.2500	5.0000	0.00	18	30.6993	31.5595	0.2500	1.0000	A607-65 (65 ksi)
L15	100.2500- 95.2500	5.0000	0.00	18	31.5595	32.4196	0.2500	1.0000	A607-65 (65 ksi)
L16	95.2500- 91.5000	3.7500	0.00	18	32.4196	33.0647	0.2500	1.0000	A607-65 (65 ksi)
L17	91.5000- 91.2500	0.2500	0.00	18	33.0647	33.1077	0.2500	1.0000	A607-65 (65 ksi)
L18	91.2500- 86.2500	5.0000	0.00	18	33.1077	33.9678	0.2500	1.0000	A607-65 (65 ksi)
L19	86.2500- 80.2500	6.0000	4.50	18	33.9678	35.0000	0.2500	1.0000	A607-65 (65 ksi)
L20	80.2500- 79.2500	5.5000	0.00	18	33.7259	34.6720	0.3125	1.2500	A607-65 (65 ksi)
L21	79.2500- 74.2500	5.0000	0.00	18	34.6720	35.5321	0.3125	1.2500	A607-65 (65 ksi)
L22	74.2500- 69.7500	4.5000	0.00	18	35.5321	36.3063	0.3125	1.2500	A607-65 (65 ksi)
L23	69.7500- 69.5000	0.2500	0.00	18	36.3063	36.3493	0.4875	1.9500	A607-65 (65 ksi)
L24	69.5000- 64.5000	5.0000	0.00	18	36.3493	37.2094	0.4875	1.9500	A607-65 (65 ksi)
L25	64.5000- 59.5000	5.0000	0.00	18	37.2094	38.0695	0.4750	1.9000	A607-65 (65 ksi)
L26	59.5000- 54.5000	5.0000	0.00	18	38.0695	38.9296	0.4750	1.9000	A607-65 (65 ksi)
L27	54.5000- 53.7500	0.7500	0.00	18	38.9296	39.0587	0.4750	1.9000	A607-65 (65 ksi)
L28	53.7500- 53.5000	0.2500	0.00	18	39.0587	39.1017	0.4750	1.9000	A607-65 (65 ksi)
L29	53.5000- 48.5000	5.0000	0.00	18	39.1017	39.9618	0.4750	1.9000	A607-65 (65 ksi)
L30	48.5000- 39.7500	8.7500	5.25	18	39.9618	41.4670	0.4688	1.8750	A607-65 (65 ksi)
L31	39.7500- 38.7500	6.2500	0.00	18	39.9389	41.0140	0.3750	1.5000	A607-65 (65 ksi)
L32	38.7500- 33.7500	5.0000	0.00	18	41.0140	41.8742	0.3750	1.5000	A607-65 (65 ksi)
L33	33.7500- 28.7500	5.0000	0.00	18	41.8742	42.7343	0.3750	1.5000	A607-65 (65 ksi)
L34	28.7500- 27.7500	1.0000	0.00	18	42.7343	42.9063	0.3750	1.5000	A607-65 (65 ksi)
L35	27.7500-	0.2500	0.00	18	42.9063	42.9493	0.5750	2.3000	A607-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L36	27.5000 27.5000- 22.5000	5.0000	0.00	18	42.9493	43.8094	0.5750	2.3000	(65 ksi) A607-65
L37	22.5000- 17.5000	5.0000	0.00	18	43.8094	44.6696	0.5625	2.2500	(65 ksi) A607-65
L38	17.5000- 12.5000	5.0000	0.00	18	44.6696	45.5297	0.5625	2.2500	(65 ksi) A607-65
L39	12.5000- 8.7500	3.7500	0.00	18	45.5297	46.1748	0.5625	2.2500	(65 ksi) A607-65
L40	8.7500-8.5000	0.2500	0.00	18	46.1748	46.2178	0.5625	2.2500	(65 ksi) A607-65
L41	8.5000-8.2500	0.2500	0.00	18	46.2178	46.2608	0.5625	2.2500	(65 ksi) A607-65
L42	8.2500-8.0000	0.2500	0.00	18	46.2608	46.3038	0.5000	2.0000	(65 ksi) A607-65
L43	8.0000-3.2500	4.7500	0.00	18	46.3038	47.1209	0.5000	2.0000	(65 ksi) A607-65
L44	3.2500-3.0000	0.2500	0.00	18	47.1209	47.1639	0.4125	1.6500	(65 ksi) A607-65
L45	3.0000-0.0000	3.0000		18	47.1639	47.6800	0.4125	1.6500	(65 ksi) A607-65

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	14.0000	10.7992	255.3004	4.8622	7.0000	36.4715	510.6008	5.3964	0.0000	0
L2	14.0000	10.7992	255.3004	4.8622	7.0000	36.4715	510.6008	5.3964	0.0000	0
L3	22.3105	12.9812	780.3007	7.7434	11.1760	69.8193	1561.6281	6.4918	3.5420	18.891
L4	23.1838	13.4930	876.2959	8.0488	11.6129	75.4586	1753.7448	6.7478	3.6934	19.698
L5	24.0572	14.0049	979.8581	8.3541	12.0499	81.3168	1961.0055	7.0038	3.8448	20.505
L6	24.9306	14.5168	1091.2741	8.6595	12.4868	87.3941	2183.9842	7.2598	3.9961	21.313
L7	25.8040	15.0287	1210.8313	8.9648	12.9238	93.6903	2423.2559	7.5158	4.1475	22.12
L8	26.6774	15.5406	1338.8165	9.2702	13.3607	100.2055	2679.3946	7.7718	4.2989	22.927
L9	27.5508	16.0524	1475.5169	9.5755	13.7976	106.9397	2952.9752	8.0277	4.4503	23.735
L10	28.4242	16.5643	1621.2193	9.8808	14.2346	113.8930	3244.5718	8.2837	4.6017	24.542
L11	29.2985	17.0762	1778.2193	10.1888	14.7214	121.4731	3551.5267	8.6165	4.7985	25.592
L12	30.1692	17.5881	1937.1030	10.5042	15.1583	130.1297	3917.5525	8.9117	4.9889	26.536
L13	31.0400	18.1000	2100.0000	10.8095	15.5953	139.1478	4322.5525	9.1741	5.1845	27.500
L14	31.9107	18.6119	2267.2000	11.1149	16.0322	148.2189	4777.5525	9.4244	5.3794	28.484
L15	32.7814	19.1238	2439.2000	11.4202	16.4692	157.2900	5232.5525	9.6747	5.5742	29.468
L16	33.6521	19.6357	2616.2000	11.6492	16.9061	166.3611	5687.5525	9.9250	5.7690	30.452
L17	34.5228	20.1476	2799.2000	11.8782	17.3430	175.4322	6142.5525	10.1753	5.9638	31.436
L18	35.3935	20.6595	2988.2000	12.1072	17.7800	184.5033	6607.5525	10.4256	6.1586	32.420
L19	36.2642	21.1714	3182.2000	12.3363	18.2169	193.5744	7072.5525	10.6759	6.3534	33.404
L20	37.1349	21.6833	3381.2000	12.5653	18.6538	202.6455	7537.5525	10.9262	6.5482	34.388

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
	35.1587	34.0803	5083.1798	12.1976	17.6134	288.5976	10173.048	17.0434	5.5523	17.767
L21	35.1587	34.0803	5083.1798	12.1976	17.6134	288.5976	10173.048 1	17.0434	5.5523	17.767
	36.0321	34.9335	5474.5584	12.5030	18.0503	303.2941	10956.320 1	17.4701	5.7037	18.252
L22	36.0321	34.9335	5474.5584	12.5030	18.0503	303.2941	10956.320 4	17.4701	5.7037	18.252
	36.8181	35.7013	5843.5364	12.7778	18.4436	316.8332	11694.761 4	17.8540	5.8399	18.688
L23	36.7911	55.4233	8983.5987	12.7157	18.4436	487.0855	17979.018 9	27.7169	5.5319	11.347
	36.8348	55.4898	9015.9962	12.7309	18.4654	488.2637	18043.855 2	27.7502	5.5395	11.363
L24	36.8348	55.4898	9015.9962	12.7309	18.4654	488.2637	18043.855 9	27.7502	5.5395	11.363
	37.7082	56.8207	9680.4115	13.0363	18.9024	512.1270	19373.560 9	28.4157	5.6909	11.674
L25	37.7101	55.3826	9441.8312	13.0407	18.9024	499.5052	18896.086 8	27.6966	5.7129	12.027
	38.5835	56.6794	10120.714 3	13.3460	19.3393	523.3235	20254.745 2	28.3451	5.8642	12.346
L26	38.5835	56.6794	10120.714 3	13.3460	19.3393	523.3235	20254.745 7	28.3451	5.8642	12.346
	39.4569	57.9761	10831.384 3	13.6514	19.7763	547.6965	21677.020 7	28.9936	6.0156	12.664
L27	39.4569	57.9761	10831.384 2	13.6514	19.7763	547.6965	21677.020 6	28.9936	6.0156	12.664
	39.5879	58.1706	10940.771 4	13.6972	19.8418	551.4003	21895.939 6	29.0908	6.0383	12.712
L28	39.5879	58.1706	10940.771 4	13.6972	19.8418	551.4003	21895.939 0	29.0908	6.0383	12.712
	39.6316	58.2355	10977.396 5	13.7125	19.8636	552.6377	21969.237 0	29.1233	6.0459	12.728
L29	39.6316	58.2355	10977.396 5	13.7125	19.8636	552.6377	21969.237 4	29.1233	6.0459	12.728
	40.5050	59.5322	11727.169 7	14.0178	20.3006	577.6764	23469.770 2	29.7718	6.1973	13.047
L30	40.5059	58.7582	11578.361 0	14.0200	20.3006	570.3462	23171.957 0	29.3847	6.2083	13.244
	42.0344	60.9977	12953.335 4	14.5544	21.0652	614.9153	25923.715 2	30.5047	6.4732	13.809
L31	41.4142	47.0909	9312.6205	14.0452	20.2889	458.9997	18637.494 8	23.5499	6.3692	16.985
	41.5889	48.3706	10092.657 0	14.4269	20.8351	484.4059	20198.594 1	24.1899	6.5585	17.489
L32	41.5889	48.3706	10092.657 0	14.4269	20.8351	484.4059	20198.594 1	24.1899	6.5585	17.489
	42.4623	49.3944	10747.149 9	14.7322	21.2721	505.2235	21508.441 2	24.7019	6.7099	17.893
L33	42.4623	49.3944	10747.149 9	14.7322	21.2721	505.2235	21508.441 2	24.7019	6.7099	17.893
	43.3357	50.4181	11429.342 8	15.0375	21.7090	526.4792	22873.724 5	25.2139	6.8612	18.297
L34	43.3357	50.4181	11429.342 8	15.0375	21.7090	526.4792	22873.724 5	25.2139	6.8612	18.297
	43.5104	50.6229	11569.156 7	15.0986	21.7964	530.7829	23153.536 5	25.3163	6.8915	18.377
L35	43.4795	77.2567	17490.294 7	15.0276	21.7964	802.4395	35003.603 6	38.6357	6.5395	11.373
	43.5232	77.3352	17543.656 1	15.0429	21.8182	804.0818	35110.396 5	38.6750	6.5471	11.386
L36	43.5232	77.3352	17543.656 1	15.0429	21.8182	804.0818	35110.396 5	38.6750	6.5471	11.386
	44.3966	78.9050	18633.806 5	15.3482	22.2552	837.2790	37292.131 8	39.4600	6.6985	11.649
L37	44.3985	77.2120	18244.539 2	15.3527	22.2552	819.7880	36513.085 1	38.6133	6.7205	11.947
	45.2719	78.7476	19354.913 3	15.6580	22.6921	852.9348	38735.294 3	39.3813	6.8718	12.217

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L38	45.2719	78.7476	19354.913 3	15.6580	22.6921	852.9348	38735.294 3	39.3813	6.8718	12.217
	46.1453	80.2833	20509.450 8	15.9634	23.1291	886.7387	41045.888 5	40.1493	7.0232	12.486
L39	46.1453	80.2833	20509.450 8	15.9634	23.1291	886.7387	41045.888 5	40.1493	7.0232	12.486
	46.8003	81.4350	21404.852 7	16.1924	23.4568	912.5227	42837.870 5	40.7253	7.1368	12.688
L40	46.8003	81.4350	21404.852 7	16.1924	23.4568	912.5227	42837.870 5	40.7253	7.1368	12.688
	46.8440	81.5118	21465.455 2	16.2076	23.4786	914.2548	42959.155 2	40.7636	7.1443	12.701
L41	46.8440	81.5118	21465.455 2	16.2076	23.4786	914.2548	42959.155 2	40.7636	7.1443	12.701
	46.8877	81.5886	21526.173 3	16.2229	23.5005	915.9886	43080.671 4	40.8020	7.1519	12.714
L42	46.8973	72.6224	19212.992 0	16.2451	23.5005	817.5573	38451.265 0	36.3181	7.2619	14.524
	46.9410	72.6906	19267.212 1	16.2603	23.5223	819.1030	38559.776 4	36.3522	7.2695	14.539
L43	46.9410	72.6906	19267.212 1	16.2603	23.5223	819.1030	38559.776 4	36.3522	7.2695	14.539
	47.7707	73.9874	20316.871 8	16.5504	23.9374	848.7492	40660.477 0	37.0007	7.4133	14.827
L44	47.7842	61.1542	16855.971 9	16.5815	23.9374	704.1681	33734.123 4	30.5829	7.5673	18.345
	47.8279	61.2105	16902.575 5	16.5968	23.9593	705.4711	33827.391 8	30.6111	7.5749	18.363
L45	47.8279	61.2105	16902.575 5	16.5968	23.9593	705.4711	33827.391 8	30.6111	7.5749	18.363
	48.3519	61.8862	17468.524 5	16.7800	24.2214	721.2009	34960.034 6	30.9490	7.6657	18.583

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 168.0000- 163.0000				1	1	1			
L2 163.0000- 158.0000				1	1	1			
L3 158.0000- 153.0000				1	1	1			
L4 153.0000- 148.0000				1	1	1			
L5 148.0000- 143.0000				1	1	1			
L6 143.0000- 138.0000				1	1	1			
L7 138.0000- 133.0000				1	1	1			
L8 133.0000- 128.0000				1	1	1			
L9 128.0000- 123.0000				1	1	1			
L10 123.0000- 116.5000				1	1	1			
L11 116.5000- 115.2500				1	1	1			
L12 115.2500- 110.2500				1	1	1			
L13 110.2500- 105.2500				1	1	1			
L14				1	1	1			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	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
ft	ft ²	in							
105.2500-100.2500									
L15				1	1	1			
100.2500-95.2500									
L16				1	1	1			
95.2500-91.5000									
L17				1	1	1			
91.5000-91.2500									
L18				1	1	1			
91.2500-86.2500									
L19				1	1	1			
86.2500-80.2500									
L20				1	1	1			
80.2500-79.2500									
L21				1	1	1			
79.2500-74.2500									
L22				1	1	1			
74.2500-69.7500									
L23				1	1	0.968549			
69.7500-69.5000									
L24				1	1	0.960878			
69.5000-64.5000									
L25				1	1	0.978326			
64.5000-59.5000									
L26				1	1	0.971159			
59.5000-54.5000									
L27				1	1	0.970111			
54.5000-53.7500									
L28				1	1	0.969764			
53.7500-53.5000									
L29				1	1	0.96297			
53.5000-48.5000									
L30				1	1	0.971015			
48.5000-39.7500									
L31				1	1	1			
39.7500-38.7500									
L32				1	1	1			
38.7500-33.7500									
L33				1	1	1			
33.7500-28.7500									
L34				1	1	1			
28.7500-27.7500									
L35				1	1	0.97045			
27.7500-27.5000									
L36				1	1	0.964118			
27.5000-22.5000									
L37				1	1	0.979045			
22.5000-17.5000									
L38				1	1	0.97307			
17.5000-12.5000									
L39				1	1	0.968736			
12.5000-8.7500									
L40				1	1	0.968452			
8.7500-8.5000									
L41				1	1	0.968168			
8.5000-8.2500									
L42				1	1	0.975605			
8.2500-8.0000									
L43				1	1	0.971651			
8.0000-3.2500									
L44				1	1	1.10383			
3.2500-3.0000									
L45				1	1	1.1017			
3.0000-0.0000									

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
561(1-5/8)	B	No	Surface Ar (CaAa)	166.0000 - 0.0000	12	6	-0.350 -0.150	1.6250		1.35

LCF158-50JL(1-5/8)	A	No	Surface Ar (CaAa)	102.0000 - 0.0000	6	6	-0.500 -0.300	1.9800		0.52

(Area) CCI-65FP-065125 (H)	C	No	Surface Af (CaAa)	30.5000 - 0.0000	1	1	0.000 0.000	6.5000	15.5000	0.00
(Area) CCI-65FP-065125 (H)	B	No	Surface Af (CaAa)	30.5000 - 0.0000	1	1	0.000 0.000	6.5000	15.5000	0.00
(Area) CCI-65FP-065125 (H)	A	No	Surface Af (CaAa)	30.5000 - 0.0000	1	1	0.000 0.000	6.5000	15.5000	0.00
(Area) CCI-65FP-060100 (H)	C	No	Surface Af (CaAa)	55.7500 - 25.7500	1	1	-0.170 -0.170	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	B	No	Surface Af (CaAa)	55.7500 - 25.7500	1	1	-0.170 -0.170	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	A	No	Surface Af (CaAa)	55.7500 - 25.7500	1	1	-0.170 -0.170	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	C	No	Surface Af (CaAa)	71.7500 - 51.7500	1	1	0.000 0.000	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	B	No	Surface Af (CaAa)	71.7500 - 51.7500	1	1	0.000 0.000	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	A	No	Surface Af (CaAa)	71.7500 - 51.7500	1	1	0.000 0.000	6.0000	14.0000	0.00
(Area) CCI-65FP-045100 (H)	C	No	Surface Af (CaAa)	93.0000 - 83.0000	1	1	0.000 0.000	4.5000	11.0000	0.00
(Area) CCI-65FP-045100 (H)	B	No	Surface Af (CaAa)	93.0000 - 83.0000	1	1	0.000 0.000	4.5000	11.0000	0.00
(Area) CCI-65FP-045100 (H)	A	No	Surface Af (CaAa)	93.0000 - 83.0000	1	1	0.000 0.000	4.5000	11.0000	0.00

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	CAAA	Weight	
							ft ² /ft	plf	

HB158-21U6S24-xxM_TMO(1-5/8)	C	No	No	Inside Pole	157.0000 - 0.0000	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	2.50 2.50 2.50 2.50

LDF7-50A(1-5/8")	C	No	No	Inside Pole	145.0000 - 0.0000	7	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.82 0.82 0.82 0.82

LDF7-50A(1-5/8")	C	No	No	Inside Pole	120.0000 - 0.0000	12	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.82 0.82 0.82 0.82
FB-L98B-002-75000(3/8)	C	No	No	Inside Pole	120.0000 - 0.0000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.06 0.06 0.06 0.06
WR-VG122ST-BRDA(7/16)	C	No	No	Inside Pole	120.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.14 0.14 0.14 0.14

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
2" Flexible Conduit	C	No	No	Inside Pole	120.0000 - 0.0000	1	No Ice	0.0000	0.34
							1/2" Ice	0.0000	0.34
							1" Ice	0.0000	0.34
							2" Ice	0.0000	0.34

LDF4-50A(1/2")	A	No	No	Inside Pole	74.0000 - 0.0000	1	No Ice	0.0000	0.15
							1/2" Ice	0.0000	0.15
							1" Ice	0.0000	0.15
							2" Ice	0.0000	0.15
**									
CU12PSM9P6XXX (1-1/2)	C	No	No	Inside Pole	130.0000 - 0.0000	1	No Ice	0.0000	2.35
							1/2" Ice	0.0000	2.35
							1" Ice	0.0000	2.35
							2" Ice	0.0000	2.35

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	168.0000-163.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.925	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.00
L2	163.0000-158.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.875	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.00
L3	158.0000-153.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.875	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.03
L4	153.0000-148.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.875	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.04
L5	148.0000-143.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.875	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.05
L6	143.0000-138.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.875	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.07
L7	138.0000-133.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.875	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.07
L8	133.0000-128.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.875	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.07
L9	128.0000-123.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.875	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.08
L10	123.0000-116.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	6.338	0.000	0.11
		C	0.000	0.000	0.000	0.000	0.14
L11	116.5000-115.2500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.219	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.03
L12	115.2500-110.2500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.875	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.13
L13	110.2500-105.2500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.875	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.13
L14	105.2500-100.2500	A	0.000	0.000	2.079	0.000	0.01
		B	0.000	0.000	4.875	0.000	0.08

Tower Sectio n	Tower Elevation ft	Face	A_R	A_F	C_{AA}	C_{AA}	Weight K
			ft ²	ft ²	In Face ft ²	Out Face ft ²	
L15	100.2500- 95.2500	C	0.000	0.000	0.000	0.000	0.13
		A	0.000	0.000	5.940	0.000	0.02
		B	0.000	0.000	4.875	0.000	0.08
L16	95.2500-91.5000	C	0.000	0.000	0.000	0.000	0.13
		A	0.000	0.000	5.580	0.000	0.01
		B	0.000	0.000	4.781	0.000	0.06
L17	91.5000-91.2500	C	0.000	0.000	1.125	0.000	0.10
		A	0.000	0.000	0.484	0.000	0.00
		B	0.000	0.000	0.431	0.000	0.00
L18	91.2500-86.2500	C	0.000	0.000	0.188	0.000	0.01
		A	0.000	0.000	9.690	0.000	0.02
		B	0.000	0.000	8.625	0.000	0.08
L19	86.2500-80.2500	C	0.000	0.000	3.750	0.000	0.13
		A	0.000	0.000	9.566	0.000	0.02
		B	0.000	0.000	8.287	0.000	0.10
L20	80.2500-79.2500	C	0.000	0.000	2.438	0.000	0.16
		A	0.000	0.000	1.188	0.000	0.00
		B	0.000	0.000	0.975	0.000	0.02
L21	79.2500-74.2500	C	0.000	0.000	0.000	0.000	0.03
		A	0.000	0.000	5.940	0.000	0.02
		B	0.000	0.000	4.875	0.000	0.08
L22	74.2500-69.7500	C	0.000	0.000	0.000	0.000	0.13
		A	0.000	0.000	7.346	0.000	0.01
		B	0.000	0.000	6.388	0.000	0.07
L23	69.7500-69.5000	C	0.000	0.000	2.000	0.000	0.12
		A	0.000	0.000	0.547	0.000	0.00
		B	0.000	0.000	0.494	0.000	0.00
L24	69.5000-64.5000	C	0.000	0.000	0.250	0.000	0.01
		A	0.000	0.000	10.940	0.000	0.02
		B	0.000	0.000	9.875	0.000	0.08
L25	64.5000-59.5000	C	0.000	0.000	5.000	0.000	0.13
		A	0.000	0.000	10.940	0.000	0.02
		B	0.000	0.000	9.875	0.000	0.08
L26	59.5000-54.5000	C	0.000	0.000	5.000	0.000	0.13
		A	0.000	0.000	12.190	0.000	0.02
		B	0.000	0.000	11.125	0.000	0.08
L27	54.5000-53.7500	C	0.000	0.000	6.250	0.000	0.13
		A	0.000	0.000	2.391	0.000	0.00
		B	0.000	0.000	2.231	0.000	0.01
L28	53.7500-53.5000	C	0.000	0.000	1.500	0.000	0.02
		A	0.000	0.000	0.797	0.000	0.00
		B	0.000	0.000	0.744	0.000	0.00
L29	53.5000-48.5000	C	0.000	0.000	0.500	0.000	0.01
		A	0.000	0.000	12.690	0.000	0.02
		B	0.000	0.000	11.625	0.000	0.08
L30	48.5000-39.7500	C	0.000	0.000	6.750	0.000	0.13
		A	0.000	0.000	19.145	0.000	0.03
		B	0.000	0.000	17.281	0.000	0.14
L31	39.7500-38.7500	C	0.000	0.000	8.750	0.000	0.23
		A	0.000	0.000	2.188	0.000	0.00
		B	0.000	0.000	1.975	0.000	0.02
L32	38.7500-33.7500	C	0.000	0.000	1.000	0.000	0.03
		A	0.000	0.000	10.940	0.000	0.02
		B	0.000	0.000	9.875	0.000	0.08
L33	33.7500-28.7500	C	0.000	0.000	5.000	0.000	0.13
		A	0.000	0.000	12.836	0.000	0.02
		B	0.000	0.000	11.771	0.000	0.08
L34	28.7500-27.7500	C	0.000	0.000	6.896	0.000	0.13
		A	0.000	0.000	3.271	0.000	0.00
		B	0.000	0.000	3.058	0.000	0.02
L35	27.7500-27.5000	C	0.000	0.000	2.083	0.000	0.03
		A	0.000	0.000	0.818	0.000	0.00
		B	0.000	0.000	0.765	0.000	0.00
L36	27.5000-22.5000	C	0.000	0.000	0.521	0.000	0.01
		A	0.000	0.000	13.107	0.000	0.02
		B	0.000	0.000	12.042	0.000	0.08
L37	22.5000-17.5000	C	0.000	0.000	7.167	0.000	0.13
		A	0.000	0.000	11.357	0.000	0.02
		B	0.000	0.000	10.292	0.000	0.08

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L38	17.5000-12.5000	C	0.000	0.000	5.417	0.000	0.13
		A	0.000	0.000	11.357	0.000	0.02
		B	0.000	0.000	10.292	0.000	0.08
L39	12.5000-8.7500	C	0.000	0.000	5.417	0.000	0.13
		A	0.000	0.000	8.518	0.000	0.01
		B	0.000	0.000	7.719	0.000	0.06
L40	8.7500-8.5000	C	0.000	0.000	4.063	0.000	0.10
		A	0.000	0.000	0.568	0.000	0.00
		B	0.000	0.000	0.515	0.000	0.00
L41	8.5000-8.2500	C	0.000	0.000	0.271	0.000	0.01
		A	0.000	0.000	0.568	0.000	0.00
		B	0.000	0.000	0.515	0.000	0.00
L42	8.2500-8.0000	C	0.000	0.000	0.271	0.000	0.01
		A	0.000	0.000	0.568	0.000	0.00
		B	0.000	0.000	0.515	0.000	0.00
L43	8.0000-3.2500	C	0.000	0.000	0.271	0.000	0.01
		A	0.000	0.000	10.789	0.000	0.02
		B	0.000	0.000	9.777	0.000	0.08
L44	3.2500-3.0000	C	0.000	0.000	5.146	0.000	0.12
		A	0.000	0.000	0.568	0.000	0.00
		B	0.000	0.000	0.515	0.000	0.00
L45	3.0000-0.0000	C	0.000	0.000	0.271	0.000	0.01
		A	0.000	0.000	6.814	0.000	0.01
		B	0.000	0.000	6.175	0.000	0.05
		C	0.000	0.000	3.250	0.000	0.08

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 _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	168.0000-163.0000	A	1.997	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	5.154	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L2	163.0000-158.0000	A	1.991	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	8.583	0.000	0.21
		C		0.000	0.000	0.000	0.000	0.00
L3	158.0000-153.0000	A	1.985	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	8.575	0.000	0.21
		C		0.000	0.000	0.000	0.000	0.03
L4	153.0000-148.0000	A	1.979	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	8.567	0.000	0.21
		C		0.000	0.000	0.000	0.000	0.04
L5	148.0000-143.0000	A	1.972	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	8.559	0.000	0.21
		C		0.000	0.000	0.000	0.000	0.05
L6	143.0000-138.0000	A	1.965	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	8.550	0.000	0.21
		C		0.000	0.000	0.000	0.000	0.07
L7	138.0000-133.0000	A	1.958	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	8.541	0.000	0.21
		C		0.000	0.000	0.000	0.000	0.07
L8	133.0000-128.0000	A	1.951	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	8.532	0.000	0.21
		C		0.000	0.000	0.000	0.000	0.07
L9	128.0000-123.0000	A	1.943	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	8.522	0.000	0.21
		C		0.000	0.000	0.000	0.000	0.08
L10	123.0000-116.5000	A	1.934	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	11.064	0.000	0.27
		C		0.000	0.000	0.000	0.000	0.14
L11	116.5000-115.2500	A	1.928	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.128	0.000	0.05
		C		0.000	0.000	0.000	0.000	0.03
L12	115.2500-110.2500	A	1.922	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	8.497	0.000	0.21

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L13	110.2500-105.2500	C		0.000	0.000	0.000	0.000	0.13
		A	1.914	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	8.486	0.000	0.21
		C		0.000	0.000	0.000	0.000	0.13
L14	105.2500-100.2500	A	1.904	0.000	0.000	3.432	0.000	0.05
		B		0.000	0.000	8.474	0.000	0.21
		C		0.000	0.000	0.000	0.000	0.13
L15	100.2500-95.2500	A	1.895	0.000	0.000	9.794	0.000	0.14
		B		0.000	0.000	8.462	0.000	0.21
		C		0.000	0.000	0.000	0.000	0.13
L16	95.2500-91.5000	A	1.886	0.000	0.000	8.774	0.000	0.13
		B		0.000	0.000	7.776	0.000	0.17
		C		0.000	0.000	1.437	0.000	0.12
L17	91.5000-91.2500	A	1.882	0.000	0.000	0.728	0.000	0.01
		B		0.000	0.000	0.662	0.000	0.01
		C		0.000	0.000	0.239	0.000	0.01
L18	91.2500-86.2500	A	1.877	0.000	0.000	14.557	0.000	0.21
		B		0.000	0.000	13.226	0.000	0.27
		C		0.000	0.000	4.786	0.000	0.20
L19	86.2500-80.2500	A	1.865	0.000	0.000	14.814	0.000	0.21
		B		0.000	0.000	13.217	0.000	0.29
		C		0.000	0.000	3.107	0.000	0.20
L20	80.2500-79.2500	A	1.857	0.000	0.000	1.951	0.000	0.03
		B		0.000	0.000	1.685	0.000	0.04
		C		0.000	0.000	0.000	0.000	0.03
L21	79.2500-74.2500	A	1.850	0.000	0.000	9.737	0.000	0.14
		B		0.000	0.000	8.406	0.000	0.20
		C		0.000	0.000	0.000	0.000	0.13
L22	74.2500-69.7500	A	1.838	0.000	0.000	11.485	0.000	0.15
		B		0.000	0.000	10.287	0.000	0.21
		C		0.000	0.000	2.735	0.000	0.15
L23	69.7500-69.5000	A	1.832	0.000	0.000	0.827	0.000	0.01
		B		0.000	0.000	0.761	0.000	0.01
		C		0.000	0.000	0.342	0.000	0.01
L24	69.5000-64.5000	A	1.825	0.000	0.000	16.531	0.000	0.21
		B		0.000	0.000	15.199	0.000	0.27
		C		0.000	0.000	6.825	0.000	0.20
L25	64.5000-59.5000	A	1.811	0.000	0.000	16.499	0.000	0.21
		B		0.000	0.000	15.168	0.000	0.27
		C		0.000	0.000	6.811	0.000	0.20
L26	59.5000-54.5000	A	1.795	0.000	0.000	18.164	0.000	0.23
		B		0.000	0.000	16.832	0.000	0.29
		C		0.000	0.000	8.494	0.000	0.22
L27	54.5000-53.7500	A	1.786	0.000	0.000	3.485	0.000	0.04
		B		0.000	0.000	3.285	0.000	0.05
		C		0.000	0.000	2.036	0.000	0.04
L28	53.7500-53.5000	A	1.785	0.000	0.000	1.161	0.000	0.01
		B		0.000	0.000	1.095	0.000	0.02
		C		0.000	0.000	0.678	0.000	0.01
L29	53.5000-48.5000	A	1.776	0.000	0.000	18.792	0.000	0.23
		B		0.000	0.000	17.460	0.000	0.29
		C		0.000	0.000	9.147	0.000	0.23
L30	48.5000-39.7500	A	1.750	0.000	0.000	28.634	0.000	0.35
		B		0.000	0.000	26.305	0.000	0.47
		C		0.000	0.000	11.813	0.000	0.35
L31	39.7500-38.7500	A	1.730	0.000	0.000	3.273	0.000	0.04
		B		0.000	0.000	3.006	0.000	0.05
		C		0.000	0.000	1.350	0.000	0.04
L32	38.7500-33.7500	A	1.716	0.000	0.000	16.286	0.000	0.20
		B		0.000	0.000	14.955	0.000	0.26
		C		0.000	0.000	6.716	0.000	0.20
L33	33.7500-28.7500	A	1.691	0.000	0.000	18.717	0.000	0.22
		B		0.000	0.000	17.385	0.000	0.28
		C		0.000	0.000	9.178	0.000	0.22
L34	28.7500-27.7500	A	1.674	0.000	0.000	4.656	0.000	0.05
		B		0.000	0.000	4.390	0.000	0.07
		C		0.000	0.000	2.753	0.000	0.05
L35	27.7500-27.5000	A	1.670	0.000	0.000	1.163	0.000	0.01
		B		0.000	0.000	1.097	0.000	0.02

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L36	27.5000-22.5000	C		0.000	0.000	0.688	0.000	0.01
		A	1.653	0.000	0.000	18.890	0.000	0.22
		B		0.000	0.000	17.559	0.000	0.28
L37	22.5000-17.5000	C		0.000	0.000	9.399	0.000	0.22
		A	1.617	0.000	0.000	16.480	0.000	0.19
		B		0.000	0.000	15.148	0.000	0.25
		C		0.000	0.000	7.034	0.000	0.20
L38	17.5000-12.5000	A	1.571	0.000	0.000	16.376	0.000	0.18
		B		0.000	0.000	15.045	0.000	0.25
		C		0.000	0.000	6.988	0.000	0.20
L39	12.5000-8.7500	A	1.518	0.000	0.000	12.193	0.000	0.13
		B		0.000	0.000	11.194	0.000	0.18
		C		0.000	0.000	5.201	0.000	0.14
L40	8.7500-8.5000	A	1.487	0.000	0.000	0.809	0.000	0.01
		B		0.000	0.000	0.743	0.000	0.01
		C		0.000	0.000	0.345	0.000	0.01
L41	8.5000-8.2500	A	1.482	0.000	0.000	0.809	0.000	0.01
		B		0.000	0.000	0.742	0.000	0.01
		C		0.000	0.000	0.345	0.000	0.01
L42	8.2500-8.0000	A	1.478	0.000	0.000	0.808	0.000	0.01
		B		0.000	0.000	0.742	0.000	0.01
		C		0.000	0.000	0.345	0.000	0.01
L43	8.0000-3.2500	A	1.424	0.000	0.000	15.244	0.000	0.16
		B		0.000	0.000	13.979	0.000	0.22
		C		0.000	0.000	6.499	0.000	0.18
L44	3.2500-3.0000	A	1.343	0.000	0.000	0.793	0.000	0.01
		B		0.000	0.000	0.727	0.000	0.01
		C		0.000	0.000	0.338	0.000	0.01
L45	3.0000-0.0000	A	1.248	0.000	0.000	9.389	0.000	0.09
		B		0.000	0.000	8.591	0.000	0.13
		C		0.000	0.000	3.999	0.000	0.11

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	168.0000-163.0000	1.9633	-3.4005	1.3671	-2.3679
L2	163.0000-158.0000	2.5103	-4.3479	1.7560	-3.0414
L3	158.0000-153.0000	2.6537	-4.5963	2.1648	-3.7495
L4	153.0000-148.0000	2.6822	-4.6457	2.1994	-3.8094
L5	148.0000-143.0000	2.7094	-4.6928	2.2327	-3.8672
L6	143.0000-138.0000	2.7355	-4.7380	2.2649	-3.9230
L7	138.0000-133.0000	2.7605	-4.7813	2.2960	-3.9767
L8	133.0000-128.0000	2.7845	-4.8229	2.3260	-4.0287
L9	128.0000-123.0000	2.8076	-4.8628	2.3549	-4.0788
L10	123.0000-116.5000	2.8330	-4.9068	2.3869	-4.1343
L11	116.5000-115.2500	2.8408	-4.9205	2.3972	-4.1521
L12	115.2500-110.2500	2.8540	-4.9433	2.4130	-4.1795
L13	110.2500-105.2500	2.8744	-4.9786	2.4389	-4.2243
L14	105.2500-100.2500	0.5370	-3.7355	0.5355	-3.1656

Section	Elevation	CP _x	CP _z	CP _x	CP _z
	ft	in	in	Ice in	Ice in
L15	100.2500-95.2500	-2.5626	-2.0892	-1.9290	-1.7924
L16	95.2500-91.5000	-2.1330	-1.7355	-1.7289	-1.6026
L17	91.5000-91.2500	-1.6970	-1.3795	-1.4828	-1.3730
L18	91.2500-86.2500	-1.7120	-1.3902	-1.4967	-1.3839
L19	86.2500-80.2500	-2.0695	-1.6767	-1.7177	-1.5836
L20	80.2500-79.2500	-2.6614	-2.1557	-2.0219	-1.8636
L21	79.2500-74.2500	-2.6801	-2.1683	-2.0396	-1.8762
L22	74.2500-69.7500	-2.0768	-1.6771	-1.7191	-1.5775
L23	69.7500-69.5000	-1.6203	-1.3074	-1.4318	-1.3123
L24	69.5000-64.5000	-1.6337	-1.3169	-1.4444	-1.3221
L25	64.5000-59.5000	-1.6590	-1.3350	-1.4681	-1.3405
L26	59.5000-54.5000	-1.5316	-1.2304	-1.3853	-1.2617
L27	54.5000-53.7500	-1.2161	-0.9760	-1.1526	-1.0483
L28	53.7500-53.5000	-1.2181	-0.9775	-1.1546	-1.0498
L29	53.5000-48.5000	-1.5055	-1.2071	-1.3730	-1.2469
L30	48.5000-39.7500	-1.7466	-1.3976	-1.5506	-1.4033
L31	39.7500-38.7500	-1.7524	-1.4016	-1.5564	-1.4080
L32	38.7500-33.7500	-1.7666	-1.4118	-1.5701	-1.4166
L33	33.7500-28.7500	-1.5615	-1.2462	-1.4338	-1.2901
L34	28.7500-27.7500	-1.2736	-1.0156	-1.2213	-1.0969
L35	27.7500-27.5000	-1.2762	-1.0175	-1.2238	-1.0988
L36	27.5000-22.5000	-1.5605	-1.2433	-1.4447	-1.2950
L37	22.5000-17.5000	-1.7855	-1.4208	-1.6128	-1.4409
L38	17.5000-12.5000	-1.8077	-1.4366	-1.6344	-1.4547
L39	12.5000-8.7500	-1.8268	-1.4503	-1.6533	-1.4656
L40	8.7500-8.5000	-1.8355	-1.4565	-1.6621	-1.4701
L41	8.5000-8.2500	-1.8366	-1.4573	-1.6632	-1.4706
L42	8.2500-8.0000	-1.8375	-1.4579	-1.6642	-1.4710
L43	8.0000-3.2500	-1.8483	-1.4656	-1.6754	-1.4754
L44	3.2500-3.0000	-1.8588	-1.4731	-1.6870	-1.4777
L45	3.0000-0.0000	-1.8657	-1.4781	-1.6957	-1.4763

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	1	561(1-5/8)	163.00 - 166.00	1.0000	1.0000
L2	1	561(1-5/8)	158.00 - 163.00	1.0000	1.0000
L3	1	561(1-5/8)	153.00 - 158.00	1.0000	1.0000
L4	1	561(1-5/8)	148.00 - 153.00	1.0000	1.0000
L5	1	561(1-5/8)	143.00 - 148.00	1.0000	1.0000
L6	1	561(1-5/8)	138.00 - 143.00	1.0000	1.0000
L7	1	561(1-5/8)	133.00 - 138.00	1.0000	1.0000
L8	1	561(1-5/8)	128.00 - 133.00	1.0000	1.0000
L9	1	561(1-5/8)	123.00 - 128.00	1.0000	1.0000
L10	1	561(1-5/8)	116.50 - 123.00	1.0000	1.0000
L11	1	561(1-5/8)	115.25 - 116.50	1.0000	1.0000
L12	1	561(1-5/8)	110.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L13	1	561(1-5/8)	115.25 105.25 - 110.25	1.0000	1.0000
L14	1	561(1-5/8)	100.25 - 105.25	1.0000	1.0000
L14	14	LCF158-50JL(1-5/8)	100.25 - 102.00	1.0000	1.0000
L15	1	561(1-5/8)	95.25 - 100.25	1.0000	1.0000
L15	14	LCF158-50JL(1-5/8)	95.25 - 100.25	1.0000	1.0000
L16	1	561(1-5/8)	91.50 - 95.25	1.0000	1.0000
L16	14	LCF158-50JL(1-5/8)	91.50 - 95.25	1.0000	1.0000
L16	27	(Area) CCI-65FP-045100 (H)	91.50 - 93.00	1.0000	1.0000
L16	28	(Area) CCI-65FP-045100 (H)	91.50 - 93.00	1.0000	1.0000
L16	29	(Area) CCI-65FP-045100 (H)	91.50 - 93.00	1.0000	1.0000
L17	1	561(1-5/8)	91.25 - 91.50	1.0000	1.0000
L17	14	LCF158-50JL(1-5/8)	91.25 - 91.50	1.0000	1.0000
L17	27	(Area) CCI-65FP-045100 (H)	91.25 - 91.50	1.0000	1.0000
L17	28	(Area) CCI-65FP-045100 (H)	91.25 - 91.50	1.0000	1.0000
L17	29	(Area) CCI-65FP-045100 (H)	91.25 - 91.50	1.0000	1.0000
L18	1	561(1-5/8)	86.25 - 91.25	1.0000	1.0000
L18	14	LCF158-50JL(1-5/8)	86.25 - 91.25	1.0000	1.0000
L18	27	(Area) CCI-65FP-045100 (H)	86.25 - 91.25	1.0000	1.0000
L18	28	(Area) CCI-65FP-045100 (H)	86.25 - 91.25	1.0000	1.0000
L18	29	(Area) CCI-65FP-045100 (H)	86.25 - 91.25	1.0000	1.0000
L19	1	561(1-5/8)	80.25 - 86.25	1.0000	1.0000
L19	14	LCF158-50JL(1-5/8)	80.25 - 86.25	1.0000	1.0000
L19	27	(Area) CCI-65FP-045100 (H)	83.00 - 86.25	1.0000	1.0000
L19	28	(Area) CCI-65FP-045100 (H)	83.00 - 86.25	1.0000	1.0000
L19	29	(Area) CCI-65FP-045100 (H)	83.00 - 86.25	1.0000	1.0000
L20	1	561(1-5/8)	79.25 - 80.25	1.0000	1.0000
L20	14	LCF158-50JL(1-5/8)	79.25 - 80.25	1.0000	1.0000
L21	1	561(1-5/8)	74.25 - 79.25	1.0000	1.0000
L21	14	LCF158-50JL(1-5/8)	74.25 - 79.25	1.0000	1.0000
L22	1	561(1-5/8)	69.75 - 74.25	1.0000	1.0000
L22	14	LCF158-50JL(1-5/8)	69.75 - 74.25	1.0000	1.0000
L22	24	(Area) CCI-65FP-060100 (H)	69.75 - 71.75	1.0000	1.0000
L22	25	(Area) CCI-65FP-060100 (H)	69.75 - 71.75	1.0000	1.0000
L22	26	(Area) CCI-65FP-060100 (H)	69.75 - 71.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L23	1	561(1-5/8)	69.50 - 69.75	1.0000	1.0000
L23	14	LCF158-50JL(1-5/8)	69.50 - 69.75	1.0000	1.0000
L23	24	(Area) CCI-65FP-060100 (H)	69.50 - 69.75	1.0000	1.0000
L23	25	(Area) CCI-65FP-060100 (H)	69.50 - 69.75	1.0000	1.0000
L23	26	(Area) CCI-65FP-060100 (H)	69.50 - 69.75	1.0000	1.0000
L24	1	561(1-5/8)	64.50 - 69.50	1.0000	1.0000
L24	14	LCF158-50JL(1-5/8)	64.50 - 69.50	1.0000	1.0000
L24	24	(Area) CCI-65FP-060100 (H)	64.50 - 69.50	1.0000	1.0000
L24	25	(Area) CCI-65FP-060100 (H)	64.50 - 69.50	1.0000	1.0000
L24	26	(Area) CCI-65FP-060100 (H)	64.50 - 69.50	1.0000	1.0000
L25	1	561(1-5/8)	59.50 - 64.50	1.0000	1.0000
L25	14	LCF158-50JL(1-5/8)	59.50 - 64.50	1.0000	1.0000
L25	24	(Area) CCI-65FP-060100 (H)	59.50 - 64.50	1.0000	1.0000
L25	25	(Area) CCI-65FP-060100 (H)	59.50 - 64.50	1.0000	1.0000
L25	26	(Area) CCI-65FP-060100 (H)	59.50 - 64.50	1.0000	1.0000
L26	1	561(1-5/8)	54.50 - 59.50	1.0000	1.0000
L26	14	LCF158-50JL(1-5/8)	54.50 - 59.50	1.0000	1.0000
L26	21	(Area) CCI-65FP-060100 (H)	54.50 - 55.75	1.0000	1.0000
L26	22	(Area) CCI-65FP-060100 (H)	54.50 - 55.75	1.0000	1.0000
L26	23	(Area) CCI-65FP-060100 (H)	54.50 - 55.75	1.0000	1.0000
L26	24	(Area) CCI-65FP-060100 (H)	54.50 - 59.50	1.0000	1.0000
L26	25	(Area) CCI-65FP-060100 (H)	54.50 - 59.50	1.0000	1.0000
L26	26	(Area) CCI-65FP-060100 (H)	54.50 - 59.50	1.0000	1.0000
L27	1	561(1-5/8)	53.75 - 54.50	1.0000	1.0000
L27	14	LCF158-50JL(1-5/8)	53.75 - 54.50	1.0000	1.0000
L27	21	(Area) CCI-65FP-060100 (H)	53.75 - 54.50	1.0000	1.0000
L27	22	(Area) CCI-65FP-060100 (H)	53.75 - 54.50	1.0000	1.0000
L27	23	(Area) CCI-65FP-060100 (H)	53.75 - 54.50	1.0000	1.0000
L27	24	(Area) CCI-65FP-060100 (H)	53.75 - 54.50	1.0000	1.0000
L27	25	(Area) CCI-65FP-060100 (H)	53.75 - 54.50	1.0000	1.0000
L27	26	(Area) CCI-65FP-060100 (H)	53.75 - 54.50	1.0000	1.0000
L28	1	561(1-5/8)	53.50 - 53.75	1.0000	1.0000
L28	14	LCF158-50JL(1-5/8)	53.50 - 53.75	1.0000	1.0000
L28	21	(Area) CCI-65FP-060100 (H)	53.50 - 53.75	1.0000	1.0000
L28	22	(Area) CCI-65FP-060100	53.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L28	23	(H) (Area) CCI-65FP-060100	53.75 53.50 -	1.0000	1.0000
L28	24	(H) (Area) CCI-65FP-060100	53.75 53.50 -	1.0000	1.0000
L28	25	(H) (Area) CCI-65FP-060100	53.75 53.50 -	1.0000	1.0000
L28	26	(H) (Area) CCI-65FP-060100	53.75 53.50 -	1.0000	1.0000
L29	1	(H) 561(1-5/8)	53.75 48.50 -	1.0000	1.0000
L29	14	(H) LCF158-50JL(1-5/8)	53.50 48.50 -	1.0000	1.0000
L29	21	(H) (Area) CCI-65FP-060100	53.50 48.50 -	1.0000	1.0000
L29	22	(H) (Area) CCI-65FP-060100	53.50 48.50 -	1.0000	1.0000
L29	23	(H) (Area) CCI-65FP-060100	53.50 48.50 -	1.0000	1.0000
L29	24	(H) (Area) CCI-65FP-060100	53.50 51.75 -	1.0000	1.0000
L29	25	(H) (Area) CCI-65FP-060100	53.50 51.75 -	1.0000	1.0000
L29	26	(H) (Area) CCI-65FP-060100	53.50 51.75 -	1.0000	1.0000
L30	1	(H) 561(1-5/8)	53.50 39.75 -	1.0000	1.0000
L30	14	(H) LCF158-50JL(1-5/8)	48.50 39.75 -	1.0000	1.0000
L30	21	(H) (Area) CCI-65FP-060100	48.50 39.75 -	1.0000	1.0000
L30	22	(H) (Area) CCI-65FP-060100	48.50 39.75 -	1.0000	1.0000
L30	23	(H) (Area) CCI-65FP-060100	48.50 39.75 -	1.0000	1.0000
L31	1	(H) 561(1-5/8)	48.50 38.75 -	1.0000	1.0000
L31	14	(H) LCF158-50JL(1-5/8)	39.75 38.75 -	1.0000	1.0000
L31	21	(H) (Area) CCI-65FP-060100	39.75 38.75 -	1.0000	1.0000
L31	22	(H) (Area) CCI-65FP-060100	39.75 38.75 -	1.0000	1.0000
L31	23	(H) (Area) CCI-65FP-060100	39.75 38.75 -	1.0000	1.0000
L32	1	(H) 561(1-5/8)	39.75 33.75 -	1.0000	1.0000
L32	14	(H) LCF158-50JL(1-5/8)	38.75 33.75 -	1.0000	1.0000
L32	21	(H) (Area) CCI-65FP-060100	38.75 33.75 -	1.0000	1.0000
L32	22	(H) (Area) CCI-65FP-060100	38.75 33.75 -	1.0000	1.0000
L32	23	(H) (Area) CCI-65FP-060100	38.75 33.75 -	1.0000	1.0000
L33	1	(H) 561(1-5/8)	38.75 28.75 -	1.0000	1.0000
L33	14	(H) LCF158-50JL(1-5/8)	33.75 28.75 -	1.0000	1.0000
L33	18	(H) (Area) CCI-65FP-065125	33.75 28.75 -	1.0000	1.0000
L33	19	(H) (Area) CCI-65FP-065125	30.50 28.75 -	1.0000	1.0000
L33	20	(H) (Area) CCI-65FP-065125	30.50 28.75 -	1.0000	1.0000
L33	21	(H) (Area) CCI-65FP-060100	30.50 28.75 -	1.0000	1.0000
L33	22	(H) (Area) CCI-65FP-060100	33.75 28.75 -	1.0000	1.0000
		(H)	33.75		

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L33	23	(Area) CCI-65FP-060100 (H)	28.75 - 33.75	1.0000	1.0000
L34	1	561(1-5/8)	27.75 - 28.75	1.0000	1.0000
L34	14	LCF158-50JL(1-5/8)	27.75 - 28.75	1.0000	1.0000
L34	18	(Area) CCI-65FP-065125 (H)	27.75 - 28.75	1.0000	1.0000
L34	19	(Area) CCI-65FP-065125 (H)	27.75 - 28.75	1.0000	1.0000
L34	20	(Area) CCI-65FP-065125 (H)	27.75 - 28.75	1.0000	1.0000
L34	21	(Area) CCI-65FP-060100 (H)	27.75 - 28.75	1.0000	1.0000
L34	22	(Area) CCI-65FP-060100 (H)	27.75 - 28.75	1.0000	1.0000
L34	23	(Area) CCI-65FP-060100 (H)	27.75 - 28.75	1.0000	1.0000
L35	1	561(1-5/8)	27.50 - 27.75	1.0000	1.0000
L35	14	LCF158-50JL(1-5/8)	27.50 - 27.75	1.0000	1.0000
L35	18	(Area) CCI-65FP-065125 (H)	27.50 - 27.75	1.0000	1.0000
L35	19	(Area) CCI-65FP-065125 (H)	27.50 - 27.75	1.0000	1.0000
L35	20	(Area) CCI-65FP-065125 (H)	27.50 - 27.75	1.0000	1.0000
L35	21	(Area) CCI-65FP-060100 (H)	27.50 - 27.75	1.0000	1.0000
L35	22	(Area) CCI-65FP-060100 (H)	27.50 - 27.75	1.0000	1.0000
L35	23	(Area) CCI-65FP-060100 (H)	27.50 - 27.75	1.0000	1.0000
L36	1	561(1-5/8)	22.50 - 27.50	1.0000	1.0000
L36	14	LCF158-50JL(1-5/8)	22.50 - 27.50	1.0000	1.0000
L36	18	(Area) CCI-65FP-065125 (H)	22.50 - 27.50	1.0000	1.0000
L36	19	(Area) CCI-65FP-065125 (H)	22.50 - 27.50	1.0000	1.0000
L36	20	(Area) CCI-65FP-065125 (H)	22.50 - 27.50	1.0000	1.0000
L36	21	(Area) CCI-65FP-060100 (H)	25.75 - 27.50	1.0000	1.0000
L36	22	(Area) CCI-65FP-060100 (H)	25.75 - 27.50	1.0000	1.0000
L36	23	(Area) CCI-65FP-060100 (H)	25.75 - 27.50	1.0000	1.0000
L37	1	561(1-5/8)	17.50 - 22.50	1.0000	1.0000
L37	14	LCF158-50JL(1-5/8)	17.50 - 22.50	1.0000	1.0000
L37	18	(Area) CCI-65FP-065125 (H)	17.50 - 22.50	1.0000	1.0000
L37	19	(Area) CCI-65FP-065125 (H)	17.50 - 22.50	1.0000	1.0000
L37	20	(Area) CCI-65FP-065125 (H)	17.50 - 22.50	1.0000	1.0000
L38	1	561(1-5/8)	12.50 - 17.50	1.0000	1.0000
L38	14	LCF158-50JL(1-5/8)	12.50 - 17.50	1.0000	1.0000
L38	18	(Area) CCI-65FP-065125 (H)	12.50 - 17.50	1.0000	1.0000
L38	19	(Area) CCI-65FP-065125 (H)	12.50 - 17.50	1.0000	1.0000
L38	20	(Area) CCI-65FP-065125	12.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
		(H)	17.50		
L39	1	561(1-5/8)	8.75 - 12.50	1.0000	1.0000
L39	14	LCF158-50JL(1-5/8)	8.75 - 12.50	1.0000	1.0000
L39	18	(Area) CCI-65FP-065125	8.75 - 12.50	1.0000	1.0000
		(H)			
L39	19	(Area) CCI-65FP-065125	8.75 - 12.50	1.0000	1.0000
		(H)			
L39	20	(Area) CCI-65FP-065125	8.75 - 12.50	1.0000	1.0000
		(H)			
L40	1	561(1-5/8)	8.50 - 8.75	1.0000	1.0000
L40	14	LCF158-50JL(1-5/8)	8.50 - 8.75	1.0000	1.0000
L40	18	(Area) CCI-65FP-065125	8.50 - 8.75	1.0000	1.0000
		(H)			
L40	19	(Area) CCI-65FP-065125	8.50 - 8.75	1.0000	1.0000
		(H)			
L40	20	(Area) CCI-65FP-065125	8.50 - 8.75	1.0000	1.0000
		(H)			
L41	1	561(1-5/8)	8.25 - 8.50	1.0000	1.0000
L41	14	LCF158-50JL(1-5/8)	8.25 - 8.50	1.0000	1.0000
L41	18	(Area) CCI-65FP-065125	8.25 - 8.50	1.0000	1.0000
		(H)			
L41	19	(Area) CCI-65FP-065125	8.25 - 8.50	1.0000	1.0000
		(H)			
L41	20	(Area) CCI-65FP-065125	8.25 - 8.50	1.0000	1.0000
		(H)			
L42	1	561(1-5/8)	8.00 - 8.25	1.0000	1.0000
L42	14	LCF158-50JL(1-5/8)	8.00 - 8.25	1.0000	1.0000
L42	18	(Area) CCI-65FP-065125	8.00 - 8.25	1.0000	1.0000
		(H)			
L42	19	(Area) CCI-65FP-065125	8.00 - 8.25	1.0000	1.0000
		(H)			
L42	20	(Area) CCI-65FP-065125	8.00 - 8.25	1.0000	1.0000
		(H)			
L43	1	561(1-5/8)	3.25 - 8.00	1.0000	1.0000
L43	14	LCF158-50JL(1-5/8)	3.25 - 8.00	1.0000	1.0000
L43	18	(Area) CCI-65FP-065125	3.25 - 8.00	1.0000	1.0000
		(H)			
L43	19	(Area) CCI-65FP-065125	3.25 - 8.00	1.0000	1.0000
		(H)			
L43	20	(Area) CCI-65FP-065125	3.25 - 8.00	1.0000	1.0000
		(H)			
L44	1	561(1-5/8)	3.00 - 3.25	1.0000	1.0000
L44	14	LCF158-50JL(1-5/8)	3.00 - 3.25	1.0000	1.0000
L44	18	(Area) CCI-65FP-065125	3.00 - 3.25	1.0000	1.0000
		(H)			
L44	19	(Area) CCI-65FP-065125	3.00 - 3.25	1.0000	1.0000
		(H)			
L44	20	(Area) CCI-65FP-065125	3.00 - 3.25	1.0000	1.0000
		(H)			
L45	1	561(1-5/8)	0.00 - 3.00	1.0000	1.0000
L45	14	LCF158-50JL(1-5/8)	0.00 - 3.00	1.0000	1.0000
L45	18	(Area) CCI-65FP-065125	0.00 - 3.00	1.0000	1.0000
		(H)			
L45	19	(Area) CCI-65FP-065125	0.00 - 3.00	1.0000	1.0000
		(H)			
L45	20	(Area) CCI-65FP-065125	0.00 - 3.00	1.0000	1.0000
		(H)			

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L16	27	(Area) CCI-65FP-045100 (H)	91.50 - 93.00	Auto	0.0000
L16	28	(Area) CCI-65FP-045100 (H)	91.50 - 93.00	Auto	0.0000
L16	29	(Area) CCI-65FP-045100 (H)	91.50 - 93.00	Auto	0.0000
L17	27	(Area) CCI-65FP-045100 (H)	91.25 - 91.50	Auto	0.0000
L17	28	(Area) CCI-65FP-045100 (H)	91.25 - 91.50	Auto	0.0000
L17	29	(Area) CCI-65FP-045100 (H)	91.25 - 91.50	Auto	0.0000
L18	27	(Area) CCI-65FP-045100 (H)	86.25 - 91.25	Auto	0.0000
L18	28	(Area) CCI-65FP-045100 (H)	86.25 - 91.25	Auto	0.0000
L18	29	(Area) CCI-65FP-045100 (H)	86.25 - 91.25	Auto	0.0000
L19	27	(Area) CCI-65FP-045100 (H)	83.00 - 86.25	Auto	0.0000
L19	28	(Area) CCI-65FP-045100 (H)	83.00 - 86.25	Auto	0.0000
L19	29	(Area) CCI-65FP-045100 (H)	83.00 - 86.25	Auto	0.0000
L22	24	(Area) CCI-65FP-060100 (H)	69.75 - 71.75	Auto	0.0317
L22	25	(Area) CCI-65FP-060100 (H)	69.75 - 71.75	Auto	0.0317
L22	26	(Area) CCI-65FP-060100 (H)	69.75 - 71.75	Auto	0.0317
L23	24	(Area) CCI-65FP-060100 (H)	69.50 - 69.75	Auto	0.0774
L23	25	(Area) CCI-65FP-060100 (H)	69.50 - 69.75	Auto	0.0774
L23	26	(Area) CCI-65FP-060100 (H)	69.50 - 69.75	Auto	0.0774
L24	24	(Area) CCI-65FP-060100 (H)	64.50 - 69.50	Auto	0.0641
L24	25	(Area) CCI-65FP-060100 (H)	64.50 - 69.50	Auto	0.0641
L24	26	(Area) CCI-65FP-060100 (H)	64.50 - 69.50	Auto	0.0641
L25	24	(Area) CCI-65FP-060100 (H)	59.50 - 64.50	Auto	0.0352
L25	25	(Area) CCI-65FP-060100 (H)	59.50 - 64.50	Auto	0.0352
L25	26	(Area) CCI-65FP-060100 (H)	59.50 - 64.50	Auto	0.0352
L26	21	(Area) CCI-65FP-060100 (H)	54.50 - 55.75	Auto	0.0011
L26	22	(Area) CCI-65FP-060100 (H)	54.50 - 55.75	Auto	0.0011
L26	23	(Area) CCI-65FP-060100 (H)	54.50 - 55.75	Auto	0.0011
L26	24	(Area) CCI-65FP-060100 (H)	54.50 - 59.50	Auto	0.0101
L26	25	(Area) CCI-65FP-060100 (H)	54.50 - 59.50	Auto	0.0101
L26	26	(Area) CCI-65FP-060100 (H)	54.50 - 59.50	Auto	0.0101
L27	21	(Area) CCI-65FP-060100 (H)	53.75 - 54.50	Auto	0.0000
L27	22	(Area) CCI-65FP-060100 (H)	53.75 - 54.50	Auto	0.0000
L27	23	(Area) CCI-65FP-060100 (H)	53.75 - 54.50	Auto	0.0000
L27	24	(Area) CCI-65FP-060100 (H)	53.75 - 54.50	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L27	25	(Area) CCI-65FP-060100 (H)	53.75 - 54.50	Auto	0.0000
L27	26	(Area) CCI-65FP-060100 (H)	53.75 - 54.50	Auto	0.0000
L28	21	(Area) CCI-65FP-060100 (H)	53.50 - 53.75	Auto	0.0000
L28	22	(Area) CCI-65FP-060100 (H)	53.50 - 53.75	Auto	0.0000
L28	23	(Area) CCI-65FP-060100 (H)	53.50 - 53.75	Auto	0.0000
L28	24	(Area) CCI-65FP-060100 (H)	53.50 - 53.75	Auto	0.0000
L28	25	(Area) CCI-65FP-060100 (H)	53.50 - 53.75	Auto	0.0000
L28	26	(Area) CCI-65FP-060100 (H)	53.50 - 53.75	Auto	0.0000
L29	21	(Area) CCI-65FP-060100 (H)	48.50 - 53.50	Auto	0.0000
L29	22	(Area) CCI-65FP-060100 (H)	48.50 - 53.50	Auto	0.0000
L29	23	(Area) CCI-65FP-060100 (H)	48.50 - 53.50	Auto	0.0000
L29	24	(Area) CCI-65FP-060100 (H)	51.75 - 53.50	Auto	0.0000
L29	25	(Area) CCI-65FP-060100 (H)	51.75 - 53.50	Auto	0.0000
L29	26	(Area) CCI-65FP-060100 (H)	51.75 - 53.50	Auto	0.0000
L30	21	(Area) CCI-65FP-060100 (H)	39.75 - 48.50	Auto	0.0000
L30	22	(Area) CCI-65FP-060100 (H)	39.75 - 48.50	Auto	0.0000
L30	23	(Area) CCI-65FP-060100 (H)	39.75 - 48.50	Auto	0.0000
L31	21	(Area) CCI-65FP-060100 (H)	38.75 - 39.75	Auto	0.0000
L31	22	(Area) CCI-65FP-060100 (H)	38.75 - 39.75	Auto	0.0000
L31	23	(Area) CCI-65FP-060100 (H)	38.75 - 39.75	Auto	0.0000
L32	21	(Area) CCI-65FP-060100 (H)	33.75 - 38.75	Auto	0.0000
L32	22	(Area) CCI-65FP-060100 (H)	33.75 - 38.75	Auto	0.0000
L32	23	(Area) CCI-65FP-060100 (H)	33.75 - 38.75	Auto	0.0000
L33	18	(Area) CCI-65FP-065125 (H)	28.75 - 30.50	Auto	0.0000
L33	19	(Area) CCI-65FP-065125 (H)	28.75 - 30.50	Auto	0.0000
L33	20	(Area) CCI-65FP-065125 (H)	28.75 - 30.50	Auto	0.0000
L33	21	(Area) CCI-65FP-060100 (H)	28.75 - 33.75	Auto	0.0000
L33	22	(Area) CCI-65FP-060100 (H)	28.75 - 33.75	Auto	0.0000
L33	23	(Area) CCI-65FP-060100 (H)	28.75 - 33.75	Auto	0.0000
L34	18	(Area) CCI-65FP-065125 (H)	27.75 - 28.75	Auto	0.0000
L34	19	(Area) CCI-65FP-065125 (H)	27.75 - 28.75	Auto	0.0000
L34	20	(Area) CCI-65FP-065125 (H)	27.75 - 28.75	Auto	0.0000
L34	21	(Area) CCI-65FP-060100 (H)	27.75 - 28.75	Auto	0.0000
L34	22	(Area) CCI-65FP-060100 (H)	27.75 - 28.75	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L34	23	(Area) CCI-65FP-060100 (H)	27.75 - 28.75	Auto	0.0000
L35	18	(Area) CCI-65FP-065125 (H)	27.50 - 27.75	Auto	0.0000
L35	19	(Area) CCI-65FP-065125 (H)	27.50 - 27.75	Auto	0.0000
L35	20	(Area) CCI-65FP-065125 (H)	27.50 - 27.75	Auto	0.0000
L35	21	(Area) CCI-65FP-060100 (H)	27.50 - 27.75	Auto	0.0000
L35	22	(Area) CCI-65FP-060100 (H)	27.50 - 27.75	Auto	0.0000
L35	23	(Area) CCI-65FP-060100 (H)	27.50 - 27.75	Auto	0.0000
L36	18	(Area) CCI-65FP-065125 (H)	22.50 - 27.50	Auto	0.0000
L36	19	(Area) CCI-65FP-065125 (H)	22.50 - 27.50	Auto	0.0000
L36	20	(Area) CCI-65FP-065125 (H)	22.50 - 27.50	Auto	0.0000
L36	21	(Area) CCI-65FP-060100 (H)	25.75 - 27.50	Auto	0.0000
L36	22	(Area) CCI-65FP-060100 (H)	25.75 - 27.50	Auto	0.0000
L36	23	(Area) CCI-65FP-060100 (H)	25.75 - 27.50	Auto	0.0000
L37	18	(Area) CCI-65FP-065125 (H)	17.50 - 22.50	Auto	0.0000
L37	19	(Area) CCI-65FP-065125 (H)	17.50 - 22.50	Auto	0.0000
L37	20	(Area) CCI-65FP-065125 (H)	17.50 - 22.50	Auto	0.0000
L38	18	(Area) CCI-65FP-065125 (H)	12.50 - 17.50	Auto	0.0000
L38	19	(Area) CCI-65FP-065125 (H)	12.50 - 17.50	Auto	0.0000
L38	20	(Area) CCI-65FP-065125 (H)	12.50 - 17.50	Auto	0.0000
L39	18	(Area) CCI-65FP-065125 (H)	8.75 - 12.50	Auto	0.0000
L39	19	(Area) CCI-65FP-065125 (H)	8.75 - 12.50	Auto	0.0000
L39	20	(Area) CCI-65FP-065125 (H)	8.75 - 12.50	Auto	0.0000
L40	18	(Area) CCI-65FP-065125 (H)	8.50 - 8.75	Auto	0.0000
L40	19	(Area) CCI-65FP-065125 (H)	8.50 - 8.75	Auto	0.0000
L40	20	(Area) CCI-65FP-065125 (H)	8.50 - 8.75	Auto	0.0000
L41	18	(Area) CCI-65FP-065125 (H)	8.25 - 8.50	Auto	0.0000
L41	19	(Area) CCI-65FP-065125 (H)	8.25 - 8.50	Auto	0.0000
L41	20	(Area) CCI-65FP-065125 (H)	8.25 - 8.50	Auto	0.0000
L42	18	(Area) CCI-65FP-065125 (H)	8.00 - 8.25	Auto	0.0000
L42	19	(Area) CCI-65FP-065125 (H)	8.00 - 8.25	Auto	0.0000
L42	20	(Area) CCI-65FP-065125 (H)	8.00 - 8.25	Auto	0.0000
L43	18	(Area) CCI-65FP-065125 (H)	3.25 - 8.00	Auto	0.0000
L43	19	(Area) CCI-65FP-065125 (H)	3.25 - 8.00	Auto	0.0000
L43	20	(Area) CCI-65FP-065125 (H)	3.25 - 8.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L44	18	(Area) CCI-65FP-065125 (H)	3.00 - 3.25	Auto	0.0000
L44	19	(Area) CCI-65FP-065125 (H)	3.00 - 3.25	Auto	0.0000
L44	20	(Area) CCI-65FP-065125 (H)	3.00 - 3.25	Auto	0.0000
L45	18	(Area) CCI-65FP-065125 (H)	0.00 - 3.00	Auto	0.0000
L45	19	(Area) CCI-65FP-065125 (H)	0.00 - 3.00	Auto	0.0000
L45	20	(Area) CCI-65FP-065125 (H)	0.00 - 3.00	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement
			Horz	Lateral Vert		
			ft	ft	°	ft
Lightning Rod 5/8x4' *****	C	None			0.0000	170.0000
APX16PV-16PVL-E w/ Mount Pipe	A	From Leg	1.0000	0.00	0.0000	166.0000
APX16PV-16PVL-E w/ Mount Pipe	B	From Leg	1.0000	0.00	0.0000	166.0000
APX16PV-16PVL-E w/ Mount Pipe	C	From Leg	1.0000	0.00	0.0000	166.0000
DTMA-1819-DD-12	A	From Leg	1.0000	0.00	0.0000	166.0000
DTMA-1819-DD-12	B	From Leg	1.0000	0.00	0.0000	166.0000
DTMA-1819-DD-12	C	From Leg	1.0000	0.00	0.0000	166.0000

AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.0000	0.00	0.0000	157.0000
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.0000	0.00	0.0000	157.0000
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.0000	0.00	0.0000	157.0000
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	A	From Leg	4.0000	0.00	0.0000	157.0000
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	B	From Leg	4.0000	0.00	0.0000	157.0000
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	C	From Leg	4.0000	0.00	0.0000	157.0000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	157.0000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	157.0000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	157.0000
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.0000 0.00 0.00	0.0000	157.0000
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.0000 0.00 0.00	0.0000	157.0000
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.0000 0.00 0.00	0.0000	157.0000
RADIO 4480 B71_TMO	A	From Leg	4.0000 0.00 0.00	0.0000	157.0000
RADIO 4480 B71_TMO	B	From Leg	4.0000 0.00 0.00	0.0000	157.0000
RADIO 4480 B71_TMO	C	From Leg	4.0000 0.00 0.00	0.0000	157.0000
Platform Mount [LP 1201-1_KCKR-HR-1]	C	None		0.0000	157.0000
2.4" Dia. x 5'6" Pipe	A	From Centroid-Face	4.0000 3.00 0.00	0.0000	157.0000
2.4" Dia. x 5'6" Pipe	B	From Centroid-Face	4.0000 3.00 0.00	0.0000	157.0000
2.4" Dia. x 5'6" Pipe	C	From Centroid-Face	4.0000 3.00 0.00	0.0000	157.0000
*** ***					
(2) LPA-80080/6CF w/ Mount Pipe	A	From Centroid-Face	4.0000 0.00 2.00	-30.0000	145.0000
(2) LPA-80080/6CF w/ Mount Pipe	B	From Centroid-Face	4.0000 0.00 2.00	-30.0000	145.0000
(2) LPA-80080/6CF w/ Mount Pipe	C	From Centroid-Face	4.0000 0.00 2.00	-30.0000	145.0000
QS6656-5D w/ Mount Pipe	A	From Centroid-Face	4.0000 -3.00 2.00	-30.0000	145.0000
QS6656-5D	A	From Centroid-Face	4.0000 -3.00 2.00	-30.0000	145.0000
QS6656-5D w/ Mount Pipe	B	From Centroid-Face	4.0000 -3.00 2.00	-30.0000	145.0000
QS6656-5D	B	From Centroid-Face	4.0000 -3.00 2.00	-30.0000	145.0000
QS6656-5D w/ Mount Pipe	C	From Centroid-Face	4.0000 -3.00 2.00	-15.0000	145.0000
QS6656-5D	C	From Centroid-Face	4.0000 -3.00	-15.0000	145.0000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
Sub6 Antenna - VZS01 w/ Mount Pipe	A	From Centroid-Face	2.00 4.0000	-30.0000	145.0000
Sub6 Antenna - VZS01 w/ Mount Pipe	B	From Centroid-Face	3.00 2.00 4.0000	-30.0000	145.0000
Sub6 Antenna - VZS01 w/ Mount Pipe	C	From Centroid-Face	3.00 2.00 4.0000	-15.0000	145.0000
RFV01U-D1A	A	From Centroid-Face	3.00 2.00 4.0000	-30.0000	145.0000
RFV01U-D1A	B	From Centroid-Face	-3.00 2.00 4.0000	-30.0000	145.0000
RFV01U-D1A	C	From Centroid-Face	2.00 4.0000	-15.0000	145.0000
RFV01U-D2A	A	From Centroid-Face	-3.00 2.00 4.0000	-30.0000	145.0000
RFV01U-D2A	B	From Centroid-Face	-6.00 2.00 4.0000	-30.0000	145.0000
RFV01U-D2A	C	From Centroid-Face	-6.00 2.00 4.0000	-30.0000	145.0000
DB-C1-12C-24AB-0Z	B	From Centroid-Face	2.00 4.0000	-30.0000	145.0000
Platform Mount [LP 403-1] ***	C	None	-3.00 2.00	0.0000	145.0000
7770.00 w/ Mount Pipe	A	From Centroid-Leg	4.0000	30.0000	120.0000
7770.00 w/ Mount Pipe	B	From Centroid-Leg	-6.00 0.00 4.0000	30.0000	120.0000
7770.00 w/ Mount Pipe	C	From Centroid-Leg	-6.00 0.00 4.0000	30.0000	120.0000
AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Centroid-Leg	0.00 4.0000	30.0000	120.0000
AM-X-CD-14-65-00T-RET w/ Mount Pipe	B	From Centroid-Leg	-3.00 0.00 4.0000	30.0000	120.0000
800 10764 w/ Mount Pipe	C	From Centroid-Leg	-3.00 0.00 4.0000	30.0000	120.0000
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Centroid-Leg	6.00 0.00 4.0000	30.0000	120.0000
SBNHH-1D65A w/ Mount Pipe	B	From Centroid-Leg	4.0000	30.0000	120.0000
SBNHH-1D65A w/ Mount Pipe	C	From Centroid-Leg	3.00 0.00 4.0000	30.0000	120.0000
(2) LGP2140X	A	From Centroid-Leg	0.00 4.0000	30.0000	120.0000
(2) LGP2140X	B	From Centroid-Leg	-6.00 0.00 4.0000	30.0000	120.0000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
(2) LGP2140X	C	From Centroid-Leg	0.00 4.0000	30.0000	120.0000
DC6-48-60-18-8F	A	From Centroid-Leg	-6.00 0.00 4.0000	30.0000	120.0000
RRUS 11 B12	A	From Centroid-Leg	3.00 0.00 4.0000	30.0000	120.0000
RRUS 11 B12	B	From Centroid-Leg	-3.00 0.00 4.0000	30.0000	120.0000
RRUS 11 B12	C	From Centroid-Leg	-3.00 0.00 4.0000	30.0000	120.0000
RRUS 4415 B25	A	From Centroid-Leg	0.00 4.0000	30.0000	120.0000
RRUS 4415 B25	B	From Centroid-Leg	6.00 0.00 4.0000	30.0000	120.0000
RRUS 4415 B25	C	From Centroid-Leg	3.00 0.00 4.0000	30.0000	120.0000
Platform Mount [LP 303-1_HR-1] 2.4" Dia. x 6-ft	C	None	0.00	0.0000	120.0000
	A	From Centroid-Leg	4.0000	0.0000	120.0000
2.4" Dia. x 6-ft	B	From Centroid-Leg	3.00 0.00 4.0000	0.0000	120.0000
2.4" Dia. x 6-ft	C	From Centroid-Leg	6.00 0.00 4.0000	0.0000	120.0000
2.4" Dia. x 6-ft	A	From Centroid-Leg	0.00 2.0000 0.00	0.0000	120.0000
2.4" Dia. x 6-ft	B	From Centroid-Leg	0.00 2.0000 0.00	0.0000	120.0000
2.4" Dia. x 6-ft	C	From Centroid-Leg	0.00 2.0000 0.00	0.0000	120.0000

APXV18-206517S-C w/ Mount Pipe	A	From Leg	1.0000 0.00 0.00	30.0000	102.0000
APXV18-206517S-C w/ Mount Pipe	B	From Leg	1.0000 0.00 0.00	30.0000	102.0000
APXV18-206517S-C w/ Mount Pipe	C	From Leg	1.0000 0.00 0.00	30.0000	102.0000

KS24019-L112A	C	From Leg	3.0000 0.00 1.00	-20.0000	74.0000
Side Arm Mount [SO 702-1] *** **	C	None		0.0000	74.0000
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	130.0000
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.0000	0.0000	130.0000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.00		
			0.00		
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.0000	0.0000	130.0000
			0.00		
			0.00		
TA08025-B604	A	From Leg	4.0000	0.0000	130.0000
			0.00		
			0.00		
TA08025-B604	B	From Leg	4.0000	0.0000	130.0000
			0.00		
			0.00		
TA08025-B604	C	From Leg	4.0000	0.0000	130.0000
			0.00		
			0.00		
TA08025-B605	A	From Leg	4.0000	0.0000	130.0000
			0.00		
			0.00		
TA08025-B605	B	From Leg	4.0000	0.0000	130.0000
			0.00		
			0.00		
TA08025-B605	C	From Leg	4.0000	0.0000	130.0000
			0.00		
			0.00		
RDIDC-9181-PF-48	A	From Leg	4.0000	0.0000	130.0000
			0.00		
			0.00		
(2) 8' x 2" Mount Pipe	A	From Leg	4.0000	0.0000	130.0000
			0.00		
			0.00		
(2) 8' x 2" Mount Pipe	B	From Leg	4.0000	0.0000	130.0000
			0.00		
			0.00		
(2) 8' x 2" Mount Pipe	C	From Leg	4.0000	0.0000	130.0000
			0.00		
			0.00		
Commscope MC-PK8-DSH ***	C	None		0.0000	130.0000

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice

Comb. No.	Description
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	168 - 163	Pole	Max Tension	26	0.00	0.00	-0.00
			Max. Compression	26	-1.62	-0.09	0.05
			Max. Mx	8	-0.46	-3.35	0.02
			Max. My	2	-0.46	-0.04	3.33
			Max. Vy	8	0.77	-3.35	0.02
			Max. Vx	2	-0.77	-0.04	3.33
			Max. Torque	24			0.00
L2	163 - 158	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-2.26	-0.24	0.15
			Max. Mx	8	-0.74	-7.85	0.06
			Max. My	2	-0.75	-0.10	7.74
			Max. Vy	10	1.08	-7.43	-4.18
			Max. Vx	2	-0.98	-0.10	7.74
			Max. Torque	11			0.07
L3	158 - 153	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.54	-0.51	0.33
			Max. Mx	8	-5.67	-34.54	0.14
			Max. My	2	-5.68	-0.22	34.25
			Max. Vy	8	6.54	-34.54	0.14
			Max. Vx	2	-6.51	-0.22	34.25
			Max. Torque	11			0.07
L4	153 - 148	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-17.40	-0.81	0.54
			Max. Mx	8	-6.05	-68.26	0.22
			Max. My	2	-6.05	-0.34	67.81
			Max. Vy	8	6.92	-68.26	0.22
			Max. Vx	2	-6.89	-0.34	67.81
			Max. Torque	11			0.07

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L5	148 - 143	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29.05	-1.53	1.72
			Max. Mx	8	-9.65	-119.84	0.53
			Max. My	2	-9.64	-0.66	119.56
			Max. Vy	8	11.95	-119.84	0.53
			Max. Vx	2	-11.99	-0.66	119.56
L6	143 - 138	Pole	Max. Torque	22			-0.77
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29.98	-1.89	1.99
			Max. Mx	8	-10.11	-180.63	0.83
			Max. My	2	-10.10	-0.99	180.49
			Max. Vy	8	12.33	-180.63	0.83
L7	138 - 133	Pole	Max. Vx	2	-12.37	-0.99	180.49
			Max. Torque	22			-0.77
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.94	-2.25	2.26
			Max. Mx	8	-10.59	-243.31	1.12
			Max. My	2	-10.58	-1.33	243.31
L8	133 - 128	Pole	Max. Vy	8	12.71	-243.31	1.12
			Max. Vx	2	-12.75	-1.33	243.31
			Max. Torque	22			-0.77
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.83	-2.62	3.14
			Max. Mx	8	-13.92	-314.52	1.51
L9	128 - 123	Pole	Max. My	2	-13.91	-1.68	314.86
			Max. Vy	8	16.41	-314.52	1.51
			Max. Vx	2	-16.48	-1.68	314.86
			Max. Torque	22			-0.98
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.84	-3.01	3.44
L10	123 - 116.5	Pole	Max. Mx	8	-14.49	-397.51	1.82
			Max. My	2	-14.47	-2.03	398.18
			Max. Vy	8	16.76	-397.51	1.82
			Max. Vx	2	-16.84	-2.03	398.18
			Max. Torque	22			-0.98
			Max Tension	1	0.00	0.00	0.00
L11	116.5 - 115.25	Pole	Max. Compression	26	-40.42	-3.23	3.60
			Max. Mx	8	-14.83	-443.92	1.99
			Max. My	2	-14.81	-2.23	444.76
			Max. Vy	8	16.96	-443.92	1.99
			Max. Vx	2	-17.04	-2.23	444.76
			Max. Torque	22			-0.98
L12	115.25 - 110.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.61	-5.30	5.14
			Max. Mx	8	-18.52	-545.61	2.67
			Max. My	2	-18.50	-3.05	546.81
			Max. Vy	8	20.62	-545.61	2.67
			Max. Vx	2	-20.74	-3.05	546.81
L13	110.25 - 105.25	Pole	Max. Torque	22			-2.01
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.84	-5.71	5.45
			Max. Mx	8	-19.32	-649.66	3.21
			Max. My	2	-19.30	-3.64	651.37
			Max. Vy	8	20.98	-649.66	3.21
L14	105.25 - 100.25	Pole	Max. Vx	2	-21.09	-3.64	651.37
			Max. Torque	22			-2.01
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.09	-6.13	5.77
			Max. Mx	8	-20.15	-755.47	3.74
			Max. My	2	-20.13	-4.23	757.71
L14	105.25 - 100.25	Pole	Max. Vy	8	21.33	-755.47	3.74
			Max. Vx	2	-21.44	-4.23	757.71
L14	105.25 - 100.25	Pole	Max. Torque	22			-2.01
			Max Tension	1	0.00	0.00	0.00
L14	105.25 - 100.25	Pole	Max. Compression	26	-55.24	-6.47	6.11

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L15	100.25 - 95.25	Pole	Max. Mx	8	-21.16	-863.64	4.28
			Max. My	2	-21.15	-4.81	866.40
			Max. Vy	8	22.03	-863.64	4.28
			Max. Vx	2	-22.15	-4.81	866.40
			Max. Torque	22			-2.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.67	-6.70	6.51
			Max. Mx	8	-22.07	-974.65	4.83
			Max. My	2	-22.05	-5.38	977.97
			Max. Vy	8	22.36	-974.65	4.83
L16	95.25 - 91.5	Pole	Max. Vx	2	-22.48	-5.38	977.97
			Max. Torque	22			-2.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.82	-6.87	6.81
			Max. Mx	8	-22.75	-1058.98	5.24
			Max. My	2	-22.74	-5.80	1062.71
			Max. Vy	8	22.61	-1058.98	5.24
			Max. Vx	2	-22.72	-5.80	1062.71
			Max. Torque	22			-2.00
			Max Tension	1	0.00	0.00	0.00
L17	91.5 - 91.25	Pole	Max. Compression	26	-57.90	-6.88	6.84
			Max. Mx	8	-22.82	-1064.64	5.26
			Max. My	2	-22.80	-5.83	1068.39
			Max. Vy	8	22.61	-1064.64	5.26
			Max. Vx	2	-22.72	-5.83	1068.39
			Max. Torque	22			-2.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.57	-7.09	7.23
			Max. Mx	8	-23.75	-1178.54	5.81
			Max. My	2	-23.73	-6.39	1182.84
L18	91.25 - 86.25	Pole	Max. Vy	8	22.93	-1178.54	5.81
			Max. Vx	2	-23.05	-6.39	1182.84
			Max. Torque	22			-2.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.05	-7.15	7.34
			Max. Mx	8	-24.03	-1213.01	5.97
			Max. My	2	-24.01	-6.56	1217.48
			Max. Vy	8	23.03	-1213.01	5.97
			Max. Vx	2	-23.15	-6.56	1217.48
			Max. Torque	22			-1.99
L19	86.25 - 80.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.81	-7.38	7.78
			Max. Mx	8	-25.66	-1341.02	6.57
			Max. My	2	-25.64	-7.18	1346.09
			Max. Vy	8	23.50	-1341.02	6.57
			Max. Vx	2	-23.61	-7.18	1346.09
			Max. Torque	22			-1.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.45	-7.58	8.16
			Max. Mx	8	-26.76	-1459.33	7.11
L20	80.25 - 79.25	Pole	Max. My	2	-26.75	-7.74	1464.95
			Max. Vy	8	23.82	-1459.33	7.11
			Max. Vx	2	-23.93	-7.74	1464.95
			Max. Torque	22			-1.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.17	-7.71	8.48
			Max. Mx	8	-27.80	-1567.42	7.58
			Max. My	2	-27.79	-8.23	1573.54
			Max. Vy	8	24.17	-1567.42	7.58
			Max. Vx	2	-24.28	-8.23	1573.54
L21	79.25 - 74.25	Pole	Max. Torque	22			-1.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.28	-7.73	8.51
			Max. Mx	8	-27.80	-1567.42	7.58
			Max. My	2	-27.79	-8.23	1573.54
			Max. Vy	8	24.17	-1567.42	7.58
			Max. Vx	2	-24.28	-8.23	1573.54
			Max. Torque	22			-1.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.28	-7.73	8.51
L22	74.25 - 69.75	Pole	Max. Mx	8	-27.80	-1567.42	7.58
			Max. My	2	-27.79	-8.23	1573.54
			Max. Vy	8	24.17	-1567.42	7.58
			Max. Vx	2	-24.28	-8.23	1573.54
			Max. Torque	22			-1.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.28	-7.73	8.51
			Max. Mx	8	-27.80	-1567.42	7.58
			Max. My	2	-27.79	-8.23	1573.54
			Max. Vy	8	24.17	-1567.42	7.58
L23	69.75 - 69.5	Pole	Max. Vx	2	-24.28	-8.23	1573.54
			Max. Torque	22			-1.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.28	-7.73	8.51
			Max. Mx	8	-27.80	-1567.42	7.58
			Max. My	2	-27.79	-8.23	1573.54
			Max. Vy	8	24.17	-1567.42	7.58
			Max. Vx	2	-24.28	-8.23	1573.54
			Max. Torque	22			-1.99
			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
L24	69.5 - 64.5	Pole	Max. Mx	8	-27.89	-1573.46	7.61
			Max. My	2	-27.88	-8.26	1579.61
			Max. Vy	8	24.17	-1573.46	7.61
			Max. Vx	2	-24.28	-8.26	1579.61
			Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.56	-7.91	8.88
			Max. Mx	8	-29.34	-1695.37	8.15
			Max. My	2	-29.33	-8.82	1702.06
			Max. Vy	8	24.57	-1695.37	8.15
L25	64.5 - 59.5	Pole	Max. Vx	2	-24.68	-8.82	1702.06
			Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.85	-8.10	9.27
			Max. Mx	8	-30.81	-1819.19	8.69
			Max. My	2	-30.80	-9.38	1826.43
			Max. Vy	8	24.94	-1819.19	8.69
			Max. Vx	2	-25.06	-9.38	1826.43
			Max. Torque	22			-1.97
			L26	59.5 - 54.5	Pole	Max Tension	1
Max. Compression	26	-73.21				-8.28	9.65
Max. Mx	8	-32.31				-1944.88	9.23
Max. My	2	-32.30				-9.94	1952.66
Max. Vy	8	25.31				-1944.88	9.23
Max. Vx	2	-25.42				-9.94	1952.66
Max. Torque	22						-1.97
Max Tension	1	0.00				0.00	0.00
Max. Compression	26	-73.60				-8.31	9.71
L27	54.5 - 53.75	Pole				Max. Mx	8
			Max. My	2	-32.53	-10.03	1971.75
			Max. Vy	8	25.36	-1963.89	9.31
			Max. Vx	2	-25.47	-10.03	1971.75
			Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.72	-8.33	9.73
			Max. Mx	8	-32.62	-1970.24	9.34
			Max. My	2	-32.61	-10.06	1978.12
			L28	53.75 - 53.5	Pole	Max. Vy	8
Max. Vx	2	-25.49				-10.06	1978.12
Max. Torque	22						-1.97
Max Tension	1	0.00				0.00	0.00
Max. Compression	26	-73.72				-8.33	9.73
Max. Mx	8	-32.62				-1970.24	9.34
Max. My	2	-32.61				-10.06	1978.12
Max. Vy	8	25.37				-1970.24	9.34
Max. Vx	2	-25.49				-10.06	1978.12
L29	53.5 - 48.5	Pole				Max. Torque	22
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.13	-8.50	10.10
			Max. Mx	8	-34.14	-2098.09	9.88
			Max. My	2	-34.13	-10.62	2106.52
			Max. Vy	8	25.74	-2098.09	9.88
			Max. Vx	2	-25.85	-10.62	2106.52
			Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			L30	48.5 - 39.75	Pole	Max. Compression	26
Max. Mx	8	-35.22				-2188.63	10.26
Max. My	2	-35.21				-11.01	2197.43
Max. Vy	8	25.98				-2188.63	10.26
Max. Vx	2	-26.09				-11.01	2197.43
Max. Torque	22						-1.97
Max Tension	1	0.00				0.00	0.00
Max. Compression	26	-82.19				-8.85	10.84
Max. Mx	8	-38.11				-2352.74	10.94
L31	39.75 - 38.75	Pole				Max. My	2
			Max. Vy	8	26.50	-2352.74	10.94
			Max. Vx	2	-26.61	-11.72	2362.21
			Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-84.35	-9.03	11.21
			Max. Mx	8	-39.52	-2485.85	11.48
			Max. My	2	-39.52	-12.28	2495.86
			Max. Vy	8	26.74	-2485.85	11.48
			L32	38.75 - 33.75	Pole	Max. Vx	2

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L33	33.75 - 28.75	Pole	Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.60	-9.20	11.57
			Max. Mx	8	-40.96	-2620.16	12.01
			Max. My	2	-40.95	-12.83	2630.69
			Max. Vy	8	26.97	-2620.16	12.01
			Max. Vx	2	-27.08	-12.83	2630.69
L34	28.75 - 27.75	Pole	Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-87.08	-9.23	11.64
			Max. Mx	8	-41.25	-2647.15	12.12
			Max. My	2	-41.24	-12.94	2657.79
			Max. Vy	8	27.02	-2647.15	12.12
			Max. Vx	2	-27.13	-12.94	2657.79
L35	27.75 - 27.5	Pole	Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-87.22	-9.24	11.67
			Max. Mx	8	-41.35	-2653.91	12.15
			Max. My	2	-41.35	-12.97	2664.58
			Max. Vy	8	27.01	-2653.91	12.15
			Max. Vx	2	-27.12	-12.97	2664.58
L36	27.5 - 22.5	Pole	Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.99	-9.39	12.00
			Max. Mx	8	-43.25	-2789.82	12.68
			Max. My	2	-43.25	-13.53	2801.01
			Max. Vy	8	27.32	-2789.82	12.68
			Max. Vx	2	-27.43	-13.53	2801.01
L37	22.5 - 17.5	Pole	Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.69	-9.53	12.32
			Max. Mx	8	-45.18	-2927.13	13.21
			Max. My	2	-45.18	-14.08	2938.84
			Max. Vy	8	27.59	-2927.13	13.21
			Max. Vx	2	-27.69	-14.08	2938.84
L38	17.5 - 12.5	Pole	Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-95.40	-9.67	12.64
			Max. Mx	8	-47.13	-3065.71	13.74
			Max. My	2	-47.13	-14.64	3077.94
			Max. Vy	8	27.83	-3065.71	13.74
			Max. Vx	2	-27.93	-14.64	3077.94
L39	12.5 - 8.75	Pole	Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-97.43	-9.78	12.88
			Max. Mx	8	-48.61	-3170.43	14.14
			Max. My	2	-48.61	-15.05	3183.05
			Max. Vy	8	28.01	-3170.43	14.14
			Max. Vx	2	-28.11	-15.05	3183.05
L40	8.75 - 8.5	Pole	Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-97.56	-9.79	12.90
			Max. Mx	8	-48.72	-3177.43	14.17
			Max. My	2	-48.71	-15.08	3190.08
			Max. Vy	8	28.00	-3177.43	14.17
			Max. Vx	2	-28.11	-15.08	3190.08
L41	8.5 - 8.25	Pole	Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-97.70	-9.80	12.91
			Max. Mx	8	-48.82	-3184.44	14.19
			Max. My	2	-48.81	-15.11	3197.11
			Max. Vy	8	28.01	-3184.44	14.19
			Max. Vx	2	-28.12	-15.11	3197.11
L42	8.25 - 8	Pole	Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-97.82	-9.80	12.93
			Max. Mx	8	-48.91	-3191.45	14.22

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L43	8 - 3.25	Pole	Max. My	2	-48.91	-15.13	3204.15
			Max. Vy	8	28.02	-3191.45	14.22
			Max. Vx	2	-28.13	-15.13	3204.15
			Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-100.21	-9.94	13.22
			Max. Mx	8	-50.65	-3325.15	14.72
			Max. My	2	-50.64	-15.66	3338.33
			Max. Vy	8	28.24	-3325.15	14.72
			Max. Vx	2	-28.35	-15.66	3338.33
L44	3.25 - 3	Pole	Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-100.33	-9.95	13.24
			Max. Mx	8	-50.75	-3332.21	14.75
			Max. My	2	-50.74	-15.68	3345.42
			Max. Vy	8	28.23	-3332.21	14.75
			Max. Vx	2	-28.34	-15.68	3345.42
			Max. Torque	22			-1.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-101.73	-10.04	13.41
L45	3 - 0	Pole	Max. Mx	8	-51.81	-3417.12	15.06
			Max. My	2	-51.81	-16.01	3430.63
			Max. Vy	8	28.35	-3417.12	15.06
			Max. Vx	2	-28.45	-16.01	3430.63
			Max. Torque	22			-1.97

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	101.73	-0.02	9.90
	Max. H _x	21	38.87	28.32	-0.08
	Max. H _z	2	51.83	-0.08	28.43
	Max. M _x	2	3430.63	-0.08	28.43
	Max. M _z	8	3417.12	-28.32	0.08
	Max. Torsion	10	1.96	-24.91	-14.40
	Min. Vert	11	38.87	-24.91	-14.40
	Min. H _x	8	51.83	-28.32	0.08
	Min. H _z	14	51.83	0.08	-28.43
	Min. M _x	14	-3423.45	0.08	-28.43
	Min. M _z	20	-3408.05	28.32	-0.08
	Min. Torsion	22	-1.97	24.91	14.40

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	43.19	0.00	-0.00	-2.92	-3.68	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	51.83	0.08	-28.43	-3430.63	-16.01	1.45
0.9 Dead+1.0 Wind 0 deg - No Ice	38.87	0.08	-28.43	-3364.40	-14.57	1.44
1.2 Dead+1.0 Wind 30 deg - No Ice	51.83	14.22	-24.66	-2977.21	-1718.16	0.57
0.9 Dead+1.0 Wind 30 deg - No Ice	38.87	14.22	-24.66	-2919.61	-1684.31	0.57
1.2 Dead+1.0 Wind 60 deg - No Ice	51.83	24.54	-14.28	-1727.06	-2961.19	-0.46
0.9 Dead+1.0 Wind 60 deg - No Ice	38.87	24.54	-14.28	-1693.28	-2903.68	-0.45

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
No Ice						
1.2 Dead+1.0 Wind 90 deg - No Ice	51.83	28.32	-0.08	-15.06	-3417.12	-1.37
0.9 Dead+1.0 Wind 90 deg - No Ice	38.87	28.32	-0.08	-13.88	-3350.90	-1.35
1.2 Dead+1.0 Wind 120 deg - No Ice	51.83	24.91	14.40	1742.16	-3022.69	-1.96
0.9 Dead+1.0 Wind 120 deg - No Ice	38.87	24.91	14.40	1709.76	-2963.84	-1.95
1.2 Dead+1.0 Wind 150 deg - No Ice	51.83	14.39	25.12	2995.54	-1719.62	-1.92
0.9 Dead+1.0 Wind 150 deg - No Ice	38.87	14.39	25.12	2939.64	-1685.91	-1.91
1.2 Dead+1.0 Wind 180 deg - No Ice	51.83	-0.08	28.43	3423.45	6.95	-1.44
0.9 Dead+1.0 Wind 180 deg - No Ice	38.87	-0.08	28.43	3359.13	7.93	-1.43
1.2 Dead+1.0 Wind 210 deg - No Ice	51.83	-14.22	24.66	2970.03	1709.08	-0.57
0.9 Dead+1.0 Wind 210 deg - No Ice	38.87	-14.22	24.66	2914.35	1677.66	-0.57
1.2 Dead+1.0 Wind 240 deg - No Ice	51.83	-24.54	14.28	1719.89	2952.11	0.45
0.9 Dead+1.0 Wind 240 deg - No Ice	38.87	-24.54	14.28	1688.02	2897.02	0.44
1.2 Dead+1.0 Wind 270 deg - No Ice	51.83	-28.32	0.08	7.90	3408.05	1.35
0.9 Dead+1.0 Wind 270 deg - No Ice	38.87	-28.32	0.08	8.63	3344.25	1.34
1.2 Dead+1.0 Wind 300 deg - No Ice	51.83	-24.91	-14.40	-1749.32	3013.64	1.97
0.9 Dead+1.0 Wind 300 deg - No Ice	38.87	-24.91	-14.40	-1715.02	2957.20	1.95
1.2 Dead+1.0 Wind 330 deg - No Ice	51.83	-14.39	-25.12	-3002.72	1710.57	1.94
0.9 Dead+1.0 Wind 330 deg - No Ice	38.87	-14.39	-25.12	-2944.90	1679.27	1.93
1.2 Dead+1.0 Ice+1.0 Temp	101.73	0.00	-0.00	-13.41	-10.04	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	101.73	0.02	-9.90	-1355.45	-12.57	0.43
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	101.73	4.95	-8.58	-1176.90	-681.07	0.13
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	101.73	8.55	-4.96	-686.61	-1169.79	-0.21
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	101.73	9.87	-0.02	-15.96	-1347.77	-0.50
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	101.73	8.56	4.95	658.24	-1172.33	-0.66
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	101.73	4.92	8.56	1147.45	-676.81	-0.62
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	101.73	-0.02	9.90	1328.47	-7.63	-0.43
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	101.73	-4.95	8.58	1149.92	660.88	-0.13
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	101.73	-8.55	4.96	659.63	1149.61	0.21
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	101.73	-9.87	0.02	-11.03	1327.59	0.49
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	101.73	-8.56	-4.95	-685.23	1152.14	0.66
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	101.73	-4.92	-8.56	-1174.44	656.61	0.62
Dead+Wind 0 deg - Service	43.19	0.02	-7.29	-872.89	-6.67	0.38
Dead+Wind 30 deg - Service	43.19	3.65	-6.32	-757.81	-438.75	0.15
Dead+Wind 60 deg - Service	43.19	6.29	-3.66	-440.46	-754.27	-0.12
Dead+Wind 90 deg - Service	43.19	7.26	-0.02	-5.89	-869.99	-0.36
Dead+Wind 120 deg - Service	43.19	6.39	3.69	440.20	-769.97	-0.52
Dead+Wind 150 deg - Service	43.19	3.69	6.44	758.36	-439.14	-0.51

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
Service						
Dead+Wind 180 deg - Service	43.19	-0.02	7.29	866.94	-0.85	-0.38
Dead+Wind 210 deg - Service	43.19	-3.65	6.32	751.85	431.23	-0.15
Dead+Wind 240 deg - Service	43.19	-6.29	3.66	434.50	746.75	0.12
Dead+Wind 270 deg - Service	43.19	-7.26	0.02	-0.07	862.47	0.36
Dead+Wind 300 deg - Service	43.19	-6.39	-3.69	-446.16	762.45	0.52
Dead+Wind 330 deg - Service	43.19	-3.69	-6.44	-764.31	431.62	0.51

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-43.19	0.00	-0.00	43.19	0.00	0.000%
2	0.08	-51.83	-28.43	-0.08	51.83	28.43	0.000%
3	0.08	-38.87	-28.43	-0.08	38.87	28.43	0.000%
4	14.22	-51.83	-24.66	-14.22	51.83	24.66	0.000%
5	14.22	-38.87	-24.66	-14.22	38.87	24.66	0.000%
6	24.54	-51.83	-14.28	-24.54	51.83	14.28	0.000%
7	24.54	-38.87	-14.28	-24.54	38.87	14.28	0.000%
8	28.32	-51.83	-0.08	-28.32	51.83	0.08	0.000%
9	28.32	-38.87	-0.08	-28.32	38.87	0.08	0.000%
10	24.91	-51.83	14.40	-24.91	51.83	-14.40	0.000%
11	24.91	-38.87	14.40	-24.91	38.87	-14.40	0.000%
12	14.39	-51.83	25.12	-14.39	51.83	-25.12	0.000%
13	14.39	-38.87	25.12	-14.39	38.87	-25.12	0.000%
14	-0.08	-51.83	28.43	0.08	51.83	-28.43	0.000%
15	-0.08	-38.87	28.43	0.08	38.87	-28.43	0.000%
16	-14.22	-51.83	24.66	14.22	51.83	-24.66	0.000%
17	-14.22	-38.87	24.66	14.22	38.87	-24.66	0.000%
18	-24.54	-51.83	14.28	24.54	51.83	-14.28	0.000%
19	-24.54	-38.87	14.28	24.54	38.87	-14.28	0.000%
20	-28.32	-51.83	0.08	28.32	51.83	-0.08	0.000%
21	-28.32	-38.87	0.08	28.32	38.87	-0.08	0.000%
22	-24.91	-51.83	-14.40	24.91	51.83	14.40	0.000%
23	-24.91	-38.87	-14.40	24.91	38.87	14.40	0.000%
24	-14.39	-51.83	-25.12	14.39	51.83	25.12	0.000%
25	-14.39	-38.87	-25.12	14.39	38.87	25.12	0.000%
26	0.00	-101.73	0.00	-0.00	101.73	0.00	0.000%
27	0.02	-101.73	-9.90	-0.02	101.73	9.90	0.000%
28	4.95	-101.73	-8.58	-4.95	101.73	8.58	0.000%
29	8.55	-101.73	-4.96	-8.55	101.73	4.96	0.000%
30	9.87	-101.73	-0.02	-9.87	101.73	0.02	0.000%
31	8.56	-101.73	4.95	-8.56	101.73	-4.95	0.000%
32	4.92	-101.73	8.56	-4.92	101.73	-8.56	0.000%
33	-0.02	-101.73	9.90	0.02	101.73	-9.90	0.000%
34	-4.95	-101.73	8.58	4.95	101.73	-8.58	0.000%
35	-8.55	-101.73	4.96	8.55	101.73	-4.96	0.000%
36	-9.87	-101.73	0.02	9.87	101.73	-0.02	0.000%
37	-8.56	-101.73	-4.95	8.56	101.73	4.95	0.000%
38	-4.92	-101.73	-8.56	4.92	101.73	8.56	0.000%
39	0.02	-43.19	-7.29	-0.02	43.19	7.29	0.000%
40	3.65	-43.19	-6.32	-3.65	43.19	6.32	0.000%
41	6.29	-43.19	-3.66	-6.29	43.19	3.66	0.000%
42	7.26	-43.19	-0.02	-7.26	43.19	0.02	0.000%
43	6.39	-43.19	3.69	-6.39	43.19	-3.69	0.000%
44	3.69	-43.19	6.44	-3.69	43.19	-6.44	0.000%
45	-0.02	-43.19	7.29	0.02	43.19	-7.29	0.000%
46	-3.65	-43.19	6.32	3.65	43.19	-6.32	0.000%
47	-6.29	-43.19	3.66	6.29	43.19	-3.66	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
48	-7.26	-43.19	0.02	7.26	43.19	-0.02	0.000%
49	-6.39	-43.19	-3.69	6.39	43.19	3.69	0.000%
50	-3.69	-43.19	-6.44	3.69	43.19	6.44	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.0000001	0.0001673
2	Yes	6	0.0000001	0.00032490
3	Yes	6	0.0000001	0.00010824
4	Yes	7	0.0000001	0.00062702
5	Yes	7	0.0000001	0.00014399
6	Yes	7	0.0000001	0.00062594
7	Yes	7	0.0000001	0.00014379
8	Yes	6	0.0000001	0.00031041
9	Yes	6	0.0000001	0.00010351
10	Yes	7	0.0000001	0.00061986
11	Yes	7	0.0000001	0.00014003
12	Yes	7	0.0000001	0.00063724
13	Yes	7	0.0000001	0.00014699
14	Yes	6	0.0000001	0.00020477
15	Yes	6	0.0000001	0.00006721
16	Yes	7	0.0000001	0.00061328
17	Yes	7	0.0000001	0.00014089
18	Yes	7	0.0000001	0.00061356
19	Yes	7	0.0000001	0.00014105
20	Yes	6	0.0000001	0.00019162
21	Yes	5	0.0000001	0.00094553
22	Yes	7	0.0000001	0.00065322
23	Yes	7	0.0000001	0.00014910
24	Yes	7	0.0000001	0.00060357
25	Yes	7	0.0000001	0.00013796
26	Yes	5	0.0000001	0.00087434
27	Yes	8	0.0000001	0.00068617
28	Yes	9	0.0000001	0.00028661
29	Yes	9	0.0000001	0.00028696
30	Yes	8	0.0000001	0.00068381
31	Yes	9	0.0000001	0.00027317
32	Yes	9	0.0000001	0.00027783
33	Yes	8	0.0000001	0.00066832
34	Yes	9	0.0000001	0.00026765
35	Yes	9	0.0000001	0.00026689
36	Yes	8	0.0000001	0.00066763
37	Yes	9	0.0000001	0.00028155
38	Yes	9	0.0000001	0.00027217
39	Yes	5	0.0000001	0.00029213
40	Yes	6	0.0000001	0.00014024
41	Yes	6	0.0000001	0.00013953
42	Yes	5	0.0000001	0.00028497
43	Yes	6	0.0000001	0.00013476
44	Yes	6	0.0000001	0.00014510
45	Yes	5	0.0000001	0.00027434
46	Yes	6	0.0000001	0.00013009
47	Yes	6	0.0000001	0.00013020
48	Yes	5	0.0000001	0.00026713
49	Yes	6	0.0000001	0.00015225
50	Yes	6	0.0000001	0.00012678

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	168 - 163	42.154	43	2.2253	0.0052
L2	163 - 158	39.826	43	2.2233	0.0052
L3	158 - 153	37.502	43	2.2150	0.0051
L4	153 - 148	35.187	43	2.2062	0.0051
L5	148 - 143	32.888	43	2.1852	0.0051
L6	143 - 138	30.616	43	2.1523	0.0049
L7	138 - 133	28.388	43	2.1034	0.0046
L8	133 - 128	26.217	43	2.0412	0.0043
L9	128 - 123	24.118	43	1.9678	0.0041
L10	123 - 116.5	22.102	43	1.8821	0.0038
L11	120.25 - 115.25	21.033	43	1.8303	0.0036
L12	115.25 - 110.25	19.141	43	1.7758	0.0033
L13	110.25 - 105.25	17.328	43	1.6865	0.0030
L14	105.25 - 100.25	15.612	43	1.5905	0.0026
L15	100.25 - 95.25	14.000	43	1.4890	0.0023
L16	95.25 - 91.5	12.496	43	1.3828	0.0020
L17	91.5 - 91.25	11.442	43	1.3008	0.0018
L18	91.25 - 86.25	11.374	43	1.2953	0.0018
L19	86.25 - 80.25	10.076	43	1.1831	0.0015
L20	84.75 - 79.25	9.710	43	1.1490	0.0015
L21	79.25 - 74.25	8.421	43	1.0822	0.0013
L22	74.25 - 69.75	7.339	43	0.9842	0.0011
L23	69.75 - 69.5	6.453	43	0.8953	0.0010
L24	69.5 - 64.5	6.406	43	0.8921	0.0010
L25	64.5 - 59.5	5.506	43	0.8275	0.0009
L26	59.5 - 54.5	4.674	43	0.7611	0.0008
L27	54.5 - 53.75	3.912	43	0.6948	0.0007
L28	53.75 - 53.5	3.803	43	0.6849	0.0007
L29	53.5 - 48.5	3.768	43	0.6816	0.0007
L30	48.5 - 39.75	3.089	43	0.6154	0.0006
L31	45 - 38.75	2.655	43	0.5687	0.0005
L32	38.75 - 33.75	1.942	43	0.5120	0.0005
L33	33.75 - 28.75	1.451	43	0.4263	0.0004
L34	28.75 - 27.75	1.049	43	0.3413	0.0003
L35	27.75 - 27.5	0.979	43	0.3245	0.0003
L36	27.5 - 22.5	0.962	43	0.3217	0.0003
L37	22.5 - 17.5	0.654	43	0.2662	0.0002
L38	17.5 - 12.5	0.405	43	0.2101	0.0002
L39	12.5 - 8.75	0.214	43	0.1546	0.0001
L40	8.75 - 8.5	0.109	43	0.1134	0.0001
L41	8.5 - 8.25	0.103	43	0.1107	0.0001
L42	8.25 - 8	0.097	43	0.1079	0.0001
L43	8 - 3.25	0.092	43	0.1049	0.0001
L44	3.25 - 3	0.016	43	0.0471	0.0000
L45	3 - 0	0.014	43	0.0435	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170.0000	Lightning Rod 5/8x4'	43	42.154	2.2253	0.0052	57378
166.0000	APX16PV-16PVL-E w/ Mount Pipe	43	41.222	2.2251	0.0052	57378
157.0000	AIR6449 B41_T-MOBILE w/ Mount Pipe	43	37.038	2.2135	0.0051	31562
145.0000	(2) LPA-80080/6CF w/ Mount Pipe	43	31.521	2.1671	0.0050	8198
130.0000	MX08FRO665-21 w/ Mount Pipe	43	24.949	1.9983	0.0042	3875
120.0000	7770.00 w/ Mount Pipe	43	20.937	1.8266	0.0036	4180
102.0000	APXV18-206517S-C w/ Mount Pipe	43	14.552	1.5252	0.0024	2810
74.0000	KS24019-L112A	43	7.287	0.9785	0.0011	2915

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	168 - 163	165.599	10	8.7779	0.0197
L2	163 - 158	156.472	10	8.7702	0.0197
L3	158 - 153	147.364	10	8.7381	0.0195
L4	153 - 148	138.288	10	8.7036	0.0194
L5	148 - 143	129.273	10	8.6211	0.0193
L6	143 - 138	120.365	10	8.4913	0.0187
L7	138 - 133	111.624	10	8.2985	0.0175
L8	133 - 128	103.109	10	8.0533	0.0165
L9	128 - 123	94.869	10	7.7634	0.0154
L10	123 - 116.5	86.953	10	7.4253	0.0143
L11	120.25 - 115.25	82.754	10	7.2207	0.0137
L12	115.25 - 110.25	75.322	10	7.0053	0.0127
L13	110.25 - 105.25	68.198	10	6.6531	0.0112
L14	105.25 - 100.25	61.452	10	6.2740	0.0099
L15	100.25 - 95.25	55.111	10	5.8731	0.0087
L16	95.25 - 91.5	49.196	10	5.4540	0.0076
L17	91.5 - 91.25	45.049	10	5.1300	0.0068
L18	91.25 - 86.25	44.782	10	5.1082	0.0068
L19	86.25 - 80.25	39.674	10	4.6654	0.0058
L20	84.75 - 79.25	38.232	10	4.5306	0.0055
L21	79.25 - 74.25	33.156	10	4.2672	0.0050
L22	74.25 - 69.75	28.896	10	3.8801	0.0043
L23	69.75 - 69.5	25.409	10	3.5291	0.0037
L24	69.5 - 64.5	25.224	10	3.5164	0.0037
L25	64.5 - 59.5	21.679	10	3.2614	0.0033
L26	59.5 - 54.5	18.404	10	2.9996	0.0030
L27	54.5 - 53.75	15.402	10	2.7378	0.0026
L28	53.75 - 53.5	14.975	10	2.6988	0.0026
L29	53.5 - 48.5	14.834	10	2.6857	0.0026
L30	48.5 - 39.75	12.160	10	2.4247	0.0022
L31	45 - 38.75	10.451	10	2.2403	0.0020
L32	38.75 - 33.75	7.644	10	2.0169	0.0018
L33	33.75 - 28.75	5.710	10	1.6790	0.0014
L34	28.75 - 27.75	4.127	10	1.3440	0.0011
L35	27.75 - 27.5	3.853	10	1.2778	0.0011
L36	27.5 - 22.5	3.786	10	1.2668	0.0010
L37	22.5 - 17.5	2.575	10	1.0480	0.0008
L38	17.5 - 12.5	1.593	10	0.8269	0.0006
L39	12.5 - 8.75	0.842	10	0.6083	0.0005
L40	8.75 - 8.5	0.428	10	0.4462	0.0003
L41	8.5 - 8.25	0.405	10	0.4354	0.0003
L42	8.25 - 8	0.382	10	0.4247	0.0003
L43	8 - 3.25	0.360	10	0.4127	0.0003
L44	3.25 - 3	0.063	10	0.1854	0.0001
L45	3 - 0	0.054	10	0.1711	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170.0000	Lightning Rod 5/8x4'	10	165.599	8.7779	0.0197	15618
166.0000	APX16PV-16PVL-E w/ Mount Pipe	10	161.947	8.7772	0.0197	15618
157.0000	AIR6449 B41_T-MOBILE w/ Mount Pipe	10	145.545	8.7323	0.0195	8528
145.0000	(2) LPA-80080/6CF w/ Mount Pipe	10	123.912	8.5499	0.0190	2183
130.0000	MX08FRO665-21 w/ Mount Pipe	10	98.129	7.8838	0.0158	1023

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
120.0000	7770.00 w/ Mount Pipe	10	82.377	7.2059	0.0137	1097
102.0000	APXV18-206517S-C w/ Mount Pipe	10	57.283	6.0164	0.0091	729
74.0000	KS24019-L112A	10	28.694	3.8575	0.0043	746

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L1	168 - 163 (1)	TP14x14x0.25	5.0000	0.0000	0.0	10.799 2	-0.45	340.18	0.001
L2	163 - 158 (2)	TP14x14x0.25	5.0000	0.0000	0.0	10.799 2	-0.70	340.18	0.002
L3	158 - 153 (3)	TP22.8601x22x0.1875	5.0000	0.0000	0.0	13.493 0	-5.60	789.34	0.007
L4	153 - 148 (4)	TP23.7202x22.8601x0.18 75	5.0000	0.0000	0.0	14.004 9	-5.98	819.29	0.007
L5	148 - 143 (5)	TP24.5804x23.7202x0.18 75	5.0000	0.0000	0.0	14.516 8	-9.55	849.23	0.011
L6	143 - 138 (6)	TP25.4405x24.5804x0.18 75	5.0000	0.0000	0.0	15.028 7	-10.01	879.18	0.011
L7	138 - 133 (7)	TP26.3006x25.4405x0.18 75	5.0000	0.0000	0.0	15.540 6	-10.49	909.12	0.012
L8	133 - 128 (8)	TP27.1607x26.3006x0.18 75	5.0000	0.0000	0.0	16.052 4	-13.81	939.07	0.015
L9	128 - 123 (9)	TP28.0208x27.1607x0.18 75	5.0000	0.0000	0.0	16.564 3	-14.38	969.01	0.015
L10	123 - 116.5 (10)	TP29.139x28.0208x0.187 5	6.5000	0.0000	0.0	16.845 9	-14.71	985.48	0.015
L11	116.5 - 115.25 (11)	TP28.979x28.1189x0.25	5.0000	0.0000	0.0	22.796 5	-18.40	1333.60	0.014
L12	115.25 - 110.25 (12)	TP29.8392x28.979x0.25	5.0000	0.0000	0.0	23.479 0	-19.21	1373.52	0.014
L13	110.25 - 105.25 (13)	TP30.6993x29.8392x0.25	5.0000	0.0000	0.0	24.161 5	-20.04	1413.45	0.014
L14	105.25 - 100.25 (14)	TP31.5595x30.6993x0.25	5.0000	0.0000	0.0	24.844 1	-21.06	1453.38	0.014
L15	100.25 - 95.25 (15)	TP32.4196x31.5595x0.25	5.0000	0.0000	0.0	25.526 6	-21.97	1493.30	0.015
L16	95.25 - 91.5 (16)	TP33.0647x32.4196x0.25	3.7500	0.0000	0.0	26.038 5	-22.66	1523.25	0.015
L17	91.5 - 91.25 (17)	TP33.1077x33.0647x0.25	0.2500	0.0000	0.0	26.072 6	-22.73	1525.25	0.015
L18	91.25 - 86.25 (18)	TP33.9678x33.1077x0.25	5.0000	0.0000	0.0	26.755 1	-23.67	1565.17	0.015
L19	86.25 - 80.25 (19)	TP35x33.9678x0.25	6.0000	0.0000	0.0	26.959 9	-23.95	1577.15	0.015
L20	80.25 - 79.25 (20)	TP34.672x33.7259x0.312 5	5.5000	0.0000	0.0	34.080 3	-25.58	1993.70	0.013
L21	79.25 - 74.25 (21)	TP35.5321x34.672x0.312 5	5.0000	0.0000	0.0	34.933 5	-26.69	2043.61	0.013
L22	74.25 - 69.75 (22)	TP36.3063x35.5321x0.31 25	4.5000	0.0000	0.0	35.701 3	-27.74	2088.53	0.013
L23	69.75 - 69.5 (23)	TP36.3493x36.3063x0.48 75	0.2500	0.0000	0.0	55.489 8	-27.83	3246.15	0.009
L24	69.5 - 64.5 (24)	TP37.2094x36.3493x0.48 75	5.0000	0.0000	0.0	56.820 7	-29.28	3324.01	0.009
L25	64.5 - 59.5 (25)	TP38.0695x37.2094x0.47 5	5.0000	0.0000	0.0	56.679 4	-30.76	3315.74	0.009

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L26	59.5 - 54.5 (26)	TP38.9296x38.0695x0.47 5	5.0000	0.0000	0.0	57.976 1	-32.26	3391.60	0.010
L27	54.5 - 53.75 (27)	TP39.0587x38.9296x0.47 5	0.7500	0.0000	0.0	58.170 6	-32.49	3402.98	0.010
L28	53.75 - 53.5 (28)	TP39.1017x39.0587x0.47 5	0.2500	0.0000	0.0	58.235 5	-32.58	3406.78	0.010
L29	53.5 - 48.5 (29)	TP39.9618x39.1017x0.47 5	5.0000	0.0000	0.0	59.532 2	-34.10	3482.64	0.010
L30	48.5 - 39.75 (30)	TP41.467x39.9618x0.468 8	8.7500	0.0000	0.0	59.654 0	-35.18	3489.76	0.010
L31	39.75 - 38.75 (31)	TP41.014x39.9389x0.375	6.2500	0.0000	0.0	48.370 6	-38.07	2829.68	0.013
L32	38.75 - 33.75 (32)	TP41.8742x41.014x0.375	5.0000	0.0000	0.0	49.394 4	-39.49	2889.57	0.014
L33	33.75 - 28.75 (33)	TP42.7343x41.8742x0.37 5	5.0000	0.0000	0.0	50.418 1	-40.93	2949.46	0.014
L34	28.75 - 27.75 (34)	TP42.9063x42.7343x0.37 5	1.0000	0.0000	0.0	50.622 9	-41.22	2961.44	0.014
L35	27.75 - 27.5 (35)	TP42.9493x42.9063x0.57 5	0.2500	0.0000	0.0	77.335 2	-41.33	4524.11	0.009
L36	27.5 - 22.5 (36)	TP43.8094x42.9493x0.57 5	5.0000	0.0000	0.0	78.905 0	-43.23	4615.94	0.009
L37	22.5 - 17.5 (37)	TP44.6696x43.8094x0.56 25	5.0000	0.0000	0.0	78.747 6	-45.16	4606.74	0.010
L38	17.5 - 12.5 (38)	TP45.5297x44.6696x0.56 25	5.0000	0.0000	0.0	80.283 3	-47.12	4696.57	0.010
L39	12.5 - 8.75 (39)	TP46.1748x45.5297x0.56 25	3.7500	0.0000	0.0	81.435 0	-48.60	4763.95	0.010
L40	8.75 - 8.5 (40)	TP46.2178x46.1748x0.56 25	0.2500	0.0000	0.0	81.511 8	-48.71	4768.44	0.010
L41	8.5 - 8.25 (41)	TP46.2608x46.2178x0.56 25	0.2500	0.0000	0.0	81.588 6	-48.81	4772.93	0.010
L42	8.25 - 8 (42)	TP46.3038x46.2608x0.5	0.2500	0.0000	0.0	72.690 6	-48.90	4252.40	0.011
L43	8 - 3.25 (43)	TP47.1209x46.3038x0.5	4.7500	0.0000	0.0	73.987 4	-50.64	4328.26	0.012
L44	3.25 - 3 (44)	TP47.1639x47.1209x0.41 25	0.2500	0.0000	0.0	61.210 5	-50.74	3580.81	0.014
L45	3 - 0 (45)	TP47.68x47.1639x0.4125	3.0000	0.0000	0.0	61.886 2	-51.81	3620.34	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio M _{ux} / φM _{nx}	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio M _{uy} / φM _{ny}
L1	168 - 163 (1)	TP14x14x0.25	3.38	124.09	0.027	0.00	124.09	0.000
L2	163 - 158 (2)	TP14x14x0.25	8.52	124.09	0.069	0.00	124.09	0.000
L3	158 - 153 (3)	TP22.8601x22x0.1875	36.58	436.89	0.084	0.00	436.89	0.000
L4	153 - 148 (4)	TP23.7202x22.8601x0.18 75	71.88	465.02	0.155	0.00	465.02	0.000
L5	148 - 143 (5)	TP24.5804x23.7202x0.18 75	125.09	493.55	0.253	0.00	493.55	0.000
L6	143 - 138 (6)	TP25.4405x24.5804x0.18 75	187.77	522.43	0.359	0.00	522.43	0.000
L7	138 - 133 (7)	TP26.3006x25.4405x0.18 75	252.48	551.62	0.458	0.00	551.62	0.000
L8	133 - 128 (8)	TP27.1607x26.3006x0.18 75	325.80	581.08	0.561	0.00	581.08	0.000
L9	128 - 123 (9)	TP28.0208x27.1607x0.18 75	411.13	610.75	0.673	0.00	610.75	0.000
L10	123 - 116.5 (10)	TP29.139x28.0208x0.187 5	458.86	627.14	0.732	0.00	627.14	0.000
L11	116.5 - 115.25 (11)	TP28.979x28.1189x0.25	562.74	949.95	0.592	0.00	949.95	0.000

Section No.	Elevation ft	Size	M_{ux}	ϕM_{nx}	Ratio	M_{uy}	ϕM_{ny}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$
L12	115.25 - 110.25 (12)	TP29.8392x28.979x0.25	669.20	998.78	0.670	0.00	998.78	0.000
L13	110.25 - 105.25 (13)	TP30.6993x29.8392x0.25	777.46	1048.25	0.742	0.00	1048.25	0.000
L14	105.25 - 100.25 (14)	TP31.5595x30.6993x0.25	888.09	1098.31	0.809	0.00	1098.31	0.000
L15	100.25 - 95.25 (15)	TP32.4196x31.5595x0.25	1001.57	1148.90	0.872	0.00	1148.90	0.000
L16	95.25 - 91.5 (16)	TP33.0647x32.4196x0.25	1087.74	1187.18	0.916	0.00	1187.18	0.000
L17	91.5 - 91.25 (17)	TP33.1077x33.0647x0.25	1093.52	1189.73	0.919	0.00	1189.73	0.000
L18	91.25 - 86.25 (18)	TP33.9678x33.1077x0.25	1209.86	1241.18	0.975	0.00	1241.18	0.000
L19	86.25 - 80.25 (19)	TP35x33.9678x0.25	1245.06	1256.70	0.991	0.00	1256.70	0.000
L20	80.25 - 79.25 (20)	TP34.672x33.7259x0.3125	1375.74	1720.08	0.800	0.00	1720.08	0.000
L21	79.25 - 74.25 (21)	TP35.5321x34.672x0.3125	1496.47	1794.71	0.834	0.00	1794.71	0.000
L22	74.25 - 69.75 (22)	TP36.3063x35.5321x0.3125	1606.74	1862.63	0.863	0.00	1862.63	0.000
L23	69.75 - 69.5 (23)	TP36.3493x36.3063x0.4875	1612.91	3022.97	0.534	0.00	3022.97	0.000
L24	69.5 - 64.5 (24)	TP37.2094x36.3493x0.4875	1737.21	3170.71	0.548	0.00	3170.71	0.000
L25	64.5 - 59.5 (25)	TP38.0695x37.2094x0.475	1863.43	3240.03	0.575	0.00	3240.03	0.000
L26	59.5 - 54.5 (26)	TP38.9296x38.0695x0.475	1991.50	3390.93	0.587	0.00	3390.93	0.000
L27	54.5 - 53.75 (27)	TP39.0587x38.9296x0.475	2010.87	3413.86	0.589	0.00	3413.86	0.000
L28	53.75 - 53.5 (28)	TP39.1017x39.0587x0.475	2017.33	3421.52	0.590	0.00	3421.52	0.000
L29	53.5 - 48.5 (29)	TP39.9618x39.1017x0.475	2147.56	3576.54	0.600	0.00	3576.54	0.000
L30	48.5 - 39.75 (30)	TP41.467x39.9618x0.4688	2239.74	3640.28	0.615	0.00	3640.28	0.000
L31	39.75 - 38.75 (31)	TP41.014x39.9389x0.375	2406.80	2898.99	0.830	0.00	2898.99	0.000
L32	38.75 - 33.75 (32)	TP41.8742x41.014x0.375	2542.25	3005.58	0.846	0.00	3005.58	0.000
L33	33.75 - 28.75 (33)	TP42.7343x41.8742x0.375	2678.88	3113.28	0.860	0.00	3113.28	0.000
L34	28.75 - 27.75 (34)	TP42.9063x42.7343x0.375	2706.32	3134.96	0.863	0.00	3134.96	0.000
L35	27.75 - 27.5 (35)	TP42.9493x42.9063x0.575	2713.20	4978.27	0.545	0.00	4978.27	0.000
L36	27.5 - 22.5 (36)	TP43.8094x42.9493x0.575	2851.40	5183.80	0.550	0.00	5183.80	0.000
L37	22.5 - 17.5 (37)	TP44.6696x43.8094x0.5625	2990.99	5280.73	0.566	0.00	5280.73	0.000
L38	17.5 - 12.5 (38)	TP45.5297x44.6696x0.5625	3131.83	5490.02	0.570	0.00	5490.02	0.000
L39	12.5 - 8.75 (39)	TP46.1748x45.5297x0.5625	3238.23	5649.66	0.573	0.00	5649.66	0.000
L40	8.75 - 8.5 (40)	TP46.2178x46.1748x0.5625	3245.35	5660.38	0.573	0.00	5660.38	0.000
L41	8.5 - 8.25 (41)	TP46.2608x46.2178x0.5625	3252.47	5671.12	0.574	0.00	5671.12	0.000
L42	8.25 - 8 (42)	TP46.3038x46.2608x0.5	3259.59	5071.27	0.643	0.00	5071.27	0.000
L43	8 - 3.25 (43)	TP47.1209x46.3038x0.5	3395.40	5254.82	0.646	0.00	5254.82	0.000
L44	3.25 - 3 (44)	TP47.1639x47.1209x0.4125	3402.57	4167.59	0.816	0.00	4167.59	0.000
L45	3 - 0 (45)	TP47.68x47.1639x0.4125	3488.81	4246.51	0.822	0.00	4246.51	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual	ϕV_n	Ratio	Actual	ϕT_n	Ratio
			V_u K	K	$\frac{V_u}{\phi V_n}$	T_u kip-ft	$\frac{T_u}{\phi T_n}$	
L1	168 - 163 (1)	TP14x14x0.25	0.79	102.05	0.008	0.00	123.37	0.000
L2	163 - 158 (2)	TP14x14x0.25	1.25	102.05	0.012	0.07	123.37	0.001
L3	158 - 153 (3)	TP22.8601x22x0.1875	6.84	236.80	0.029	0.07	470.19	0.000
L4	153 - 148 (4)	TP23.7202x22.8601x0.1875	7.26	245.79	0.030	0.07	506.54	0.000
L5	148 - 143 (5)	TP24.5804x23.7202x0.1875	12.33	254.77	0.048	0.77	544.24	0.001
L6	143 - 138 (6)	TP25.4405x24.5804x0.1875	12.73	263.75	0.048	0.77	583.30	0.001
L7	138 - 133 (7)	TP26.3006x25.4405x0.1875	13.14	272.74	0.048	0.77	623.71	0.001
L8	133 - 128 (8)	TP27.1607x26.3006x0.1875	16.88	281.72	0.060	0.98	665.47	0.001
L9	128 - 123 (9)	TP28.0208x27.1607x0.1875	17.25	290.70	0.059	0.98	708.59	0.001
L10	123 - 116.5 (10)	TP29.139x28.0208x0.1875	17.45	295.64	0.059	0.98	732.88	0.001
L11	116.5 - 115.25 (11)	TP28.979x28.1189x0.25	21.11	400.08	0.053	2.00	1006.58	0.002
L12	115.25 - 110.25 (12)	TP29.8392x28.979x0.25	21.48	412.06	0.052	2.00	1067.75	0.002
L13	110.25 - 105.25 (13)	TP30.6993x29.8392x0.25	21.83	424.04	0.051	2.00	1130.73	0.002
L14	105.25 - 100.25 (14)	TP31.5595x30.6993x0.25	22.54	436.01	0.052	2.00	1195.52	0.002
L15	100.25 - 95.25 (15)	TP32.4196x31.5595x0.25	22.87	447.99	0.051	2.00	1262.10	0.002
L16	95.25 - 91.5 (16)	TP33.0647x32.4196x0.25	23.11	456.98	0.051	1.99	1313.23	0.002
L17	91.5 - 91.25 (17)	TP33.1077x33.0647x0.25	23.12	457.57	0.051	1.99	1316.68	0.002
L18	91.25 - 86.25 (18)	TP33.9678x33.1077x0.25	23.43	469.55	0.050	1.99	1386.51	0.001
L19	86.25 - 80.25 (19)	TP35x33.9678x0.25	23.53	473.15	0.050	1.99	1407.82	0.001
L20	80.25 - 79.25 (20)	TP34.672x33.7259x0.3125	23.99	598.11	0.040	1.99	1799.73	0.001
L21	79.25 - 74.25 (21)	TP35.5321x34.672x0.3125	24.31	613.08	0.040	1.99	1890.97	0.001
L22	74.25 - 69.75 (22)	TP36.3063x35.5321x0.3125	24.66	626.56	0.039	1.97	1975.01	0.001
L23	69.75 - 69.5 (23)	TP36.3493x36.3063x0.4875	24.67	973.85	0.025	1.97	3058.45	0.001
L24	69.5 - 64.5 (24)	TP37.2094x36.3493x0.4875	25.06	997.20	0.025	1.97	3206.93	0.001
L25	64.5 - 59.5 (25)	TP38.0695x37.2094x0.475	25.44	994.72	0.026	1.97	3274.97	0.001
L26	59.5 - 54.5 (26)	TP38.9296x38.0695x0.475	25.80	1017.48	0.025	1.97	3426.53	0.001
L27	54.5 - 53.75 (27)	TP39.0587x38.9296x0.475	25.85	1020.89	0.025	1.97	3449.57	0.001
L28	53.75 - 53.5 (28)	TP39.1017x39.0587x0.475	25.87	1022.03	0.025	1.97	3457.26	0.001
L29	53.5 - 48.5 (29)	TP39.9618x39.1017x0.475	26.23	1044.79	0.025	1.97	3612.94	0.001
L30	48.5 - 39.75 (30)	TP41.467x39.9618x0.4688	26.46	1046.93	0.025	1.97	3676.11	0.001
L31	39.75 - 38.75 (31)	TP41.014x39.9389x0.375	26.98	848.90	0.032	1.97	3021.22	0.001
L32	38.75 - 33.75 (32)	TP41.8742x41.014x0.375	27.22	866.87	0.031	1.97	3150.46	0.001
L33	33.75 - 28.75 (33)	TP42.7343x41.8742x0.375	27.45	884.84	0.031	1.96	3282.41	0.001
L34	28.75 - 27.75 (34)	TP42.9063x42.7343x0.375	27.49	888.43	0.031	1.96	3309.13	0.001
L35	27.75 - 27.5	TP42.9493x42.9063x0.57	27.49	1357.23	0.020	1.96	5036.60	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L36	(35) 27.5 - 22.5	5 TP43.8094x42.9493x0.57	27.79	1384.78	0.020	1.96	5243.14	0.000
L37	(36) 22.5 - 17.5	5 TP44.6696x43.8094x0.56	28.06	1382.02	0.020	1.96	5338.30	0.000
L38	(37) 17.5 - 12.5	25 TP45.5297x44.6696x0.56	28.29	1408.97	0.020	1.96	5548.53	0.000
L39	(38) 12.5 - 8.75	25 TP46.1748x45.5297x0.56	28.47	1429.18	0.020	1.96	5708.87	0.000
L40	(39) 8.75 - 8.5 (40)	25 TP46.2178x46.1748x0.56	28.46	1430.53	0.020	1.96	5719.64	0.000
L41	8.5 - 8.25 (41)	25 TP46.2608x46.2178x0.56	28.48	1431.88	0.020	1.96	5730.42	0.000
L42	8.25 - 8 (42)	TP46.3038x46.2608x0.5	28.49	1275.72	0.022	1.96	5117.26	0.000
L43	8 - 3.25 (43)	TP47.1209x46.3038x0.5	28.70	1298.48	0.022	1.96	5301.47	0.000
L44	3.25 - 3 (44)	25 TP47.1639x47.1209x0.41	28.69	1074.24	0.027	1.96	4398.23	0.000
L45	3 - 0 (45)	25 TP47.68x47.1639x0.4125	28.80	1086.10	0.027	1.96	4495.87	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	168 - 163 (1)	0.001	0.027	0.000	0.008	0.000	0.029	1.050	4.8.2
L2	163 - 158 (2)	0.002	0.069	0.000	0.012	0.001	0.071	1.050	4.8.2
L3	158 - 153 (3)	0.007	0.084	0.000	0.029	0.000	0.092	1.050	4.8.2
L4	153 - 148 (4)	0.007	0.155	0.000	0.030	0.000	0.163	1.050	4.8.2
L5	148 - 143 (5)	0.011	0.253	0.000	0.048	0.001	0.267	1.050	4.8.2
L6	143 - 138 (6)	0.011	0.359	0.000	0.048	0.001	0.373	1.050	4.8.2
L7	138 - 133 (7)	0.012	0.458	0.000	0.048	0.001	0.472	1.050	4.8.2
L8	133 - 128 (8)	0.015	0.561	0.000	0.060	0.001	0.579	1.050	4.8.2
L9	128 - 123 (9)	0.015	0.673	0.000	0.059	0.001	0.692	1.050	4.8.2
L10	123 - 116.5 (10)	0.015	0.732	0.000	0.059	0.001	0.750	1.050	4.8.2
L11	116.5 - 115.25 (11)	0.014	0.592	0.000	0.053	0.002	0.609	1.050	4.8.2
L12	115.25 - 110.25 (12)	0.014	0.670	0.000	0.052	0.002	0.687	1.050	4.8.2
L13	110.25 - 105.25 (13)	0.014	0.742	0.000	0.051	0.002	0.759	1.050	4.8.2
L14	105.25 - 100.25 (14)	0.014	0.809	0.000	0.052	0.002	0.826	1.050	4.8.2
L15	100.25 - 95.25 (15)	0.015	0.872	0.000	0.051	0.002	0.889	1.050	4.8.2
L16	95.25 - 91.5 (16)	0.015	0.916	0.000	0.051	0.002	0.934	1.050	4.8.2
L17	91.5 - 91.25 (17)	0.015	0.919	0.000	0.051	0.002	0.937	1.050	4.8.2
L18	91.25 - 86.25 (18)	0.015	0.975	0.000	0.050	0.001	0.993	1.050	4.8.2
L19	86.25 - 80.25 (19)	0.015	0.991	0.000	0.050	0.001	1.009	1.050	4.8.2
L20	80.25 - 79.25 (20)	0.013	0.800	0.000	0.040	0.001	0.814	1.050	4.8.2
L21	79.25 - 74.25 (21)	0.013	0.834	0.000	0.040	0.001	0.849	1.050	4.8.2
L22	74.25 - 69.75 (22)	0.013	0.863	0.000	0.039	0.001	0.878	1.050	4.8.2
L23	69.75 - 69.5 (23)	0.009	0.534	0.000	0.025	0.001	0.543	1.050	4.8.2
L24	69.5 - 64.5 (24)	0.009	0.548	0.000	0.025	0.001	0.557	1.050	4.8.2

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u	M_{ux}	M_{uy}	V_u	T_u			
L25	64.5 - 59.5 (25)	0.009	0.575	0.000	0.026	0.001	0.585	1.050	4.8.2
L26	59.5 - 54.5 (26)	0.010	0.587	0.000	0.025	0.001	0.597	1.050	4.8.2
L27	54.5 - 53.75 (27)	0.010	0.589	0.000	0.025	0.001	0.599	1.050	4.8.2
L28	53.75 - 53.5 (28)	0.010	0.590	0.000	0.025	0.001	0.600	1.050	4.8.2
L29	53.5 - 48.5 (29)	0.010	0.600	0.000	0.025	0.001	0.611	1.050	4.8.2
L30	48.5 - 39.75 (30)	0.010	0.615	0.000	0.025	0.001	0.626	1.050	4.8.2
L31	39.75 - 38.75 (31)	0.013	0.830	0.000	0.032	0.001	0.845	1.050	4.8.2
L32	38.75 - 33.75 (32)	0.014	0.846	0.000	0.031	0.001	0.861	1.050	4.8.2
L33	33.75 - 28.75 (33)	0.014	0.860	0.000	0.031	0.001	0.875	1.050	4.8.2
L34	28.75 - 27.75 (34)	0.014	0.863	0.000	0.031	0.001	0.878	1.050	4.8.2
L35	27.75 - 27.5 (35)	0.009	0.545	0.000	0.020	0.000	0.555	1.050	4.8.2
L36	27.5 - 22.5 (36)	0.009	0.550	0.000	0.020	0.000	0.560	1.050	4.8.2
L37	22.5 - 17.5 (37)	0.010	0.566	0.000	0.020	0.000	0.577	1.050	4.8.2
L38	17.5 - 12.5 (38)	0.010	0.570	0.000	0.020	0.000	0.581	1.050	4.8.2
L39	12.5 - 8.75 (39)	0.010	0.573	0.000	0.020	0.000	0.584	1.050	4.8.2
L40	8.75 - 8.5 (40)	0.010	0.573	0.000	0.020	0.000	0.584	1.050	4.8.2
L41	8.5 - 8.25 (41)	0.010	0.574	0.000	0.020	0.000	0.584	1.050	4.8.2
L42	8.25 - 8 (42)	0.011	0.643	0.000	0.022	0.000	0.655	1.050	4.8.2
L43	8 - 3.25 (43)	0.012	0.646	0.000	0.022	0.000	0.658	1.050	4.8.2
L44	3.25 - 3 (44)	0.014	0.816	0.000	0.027	0.000	0.831	1.050	4.8.2
L45	3 - 0 (45)	0.014	0.822	0.000	0.027	0.000	0.837	1.050	4.8.2

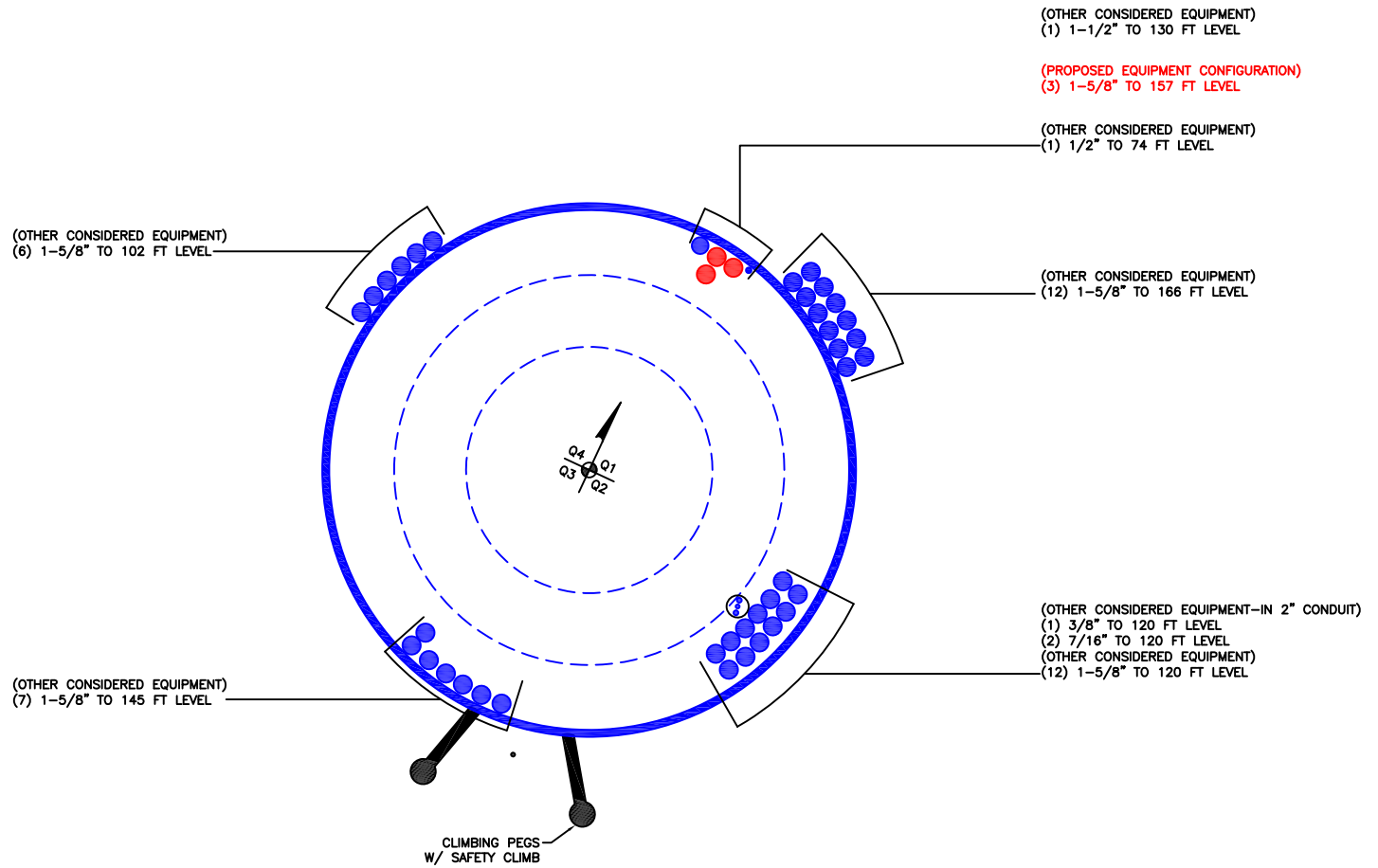
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	168 - 163	Pole	TP14x14x0.25	1	-0.45	357.18	2.7	Pass
L2	163 - 158	Pole	TP14x14x0.25	2	-0.70	357.18	6.8	Pass
L3	158 - 153	Pole	TP22.8601x22x0.1875	3	-5.60	828.81	8.7	Pass
L4	153 - 148	Pole	TP23.7202x22.8601x0.1875	4	-5.98	860.25	15.5	Pass
L5	148 - 143	Pole	TP24.5804x23.7202x0.1875	5	-9.55	891.69	25.4	Pass
L6	143 - 138	Pole	TP25.4405x24.5804x0.1875	6	-10.01	923.14	35.5	Pass
L7	138 - 133	Pole	TP26.3006x25.4405x0.1875	7	-10.49	954.58	44.9	Pass
L8	133 - 128	Pole	TP27.1607x26.3006x0.1875	8	-13.81	986.02	55.2	Pass
L9	128 - 123	Pole	TP28.0208x27.1607x0.1875	9	-14.38	1017.46	65.9	Pass
L10	123 - 116.5	Pole	TP29.139x28.0208x0.1875	10	-14.71	1034.76	71.5	Pass
L11	116.5 - 115.25	Pole	TP28.979x28.1189x0.25	11	-18.40	1400.28	58.0	Pass
L12	115.25 - 110.25	Pole	TP29.8392x28.979x0.25	12	-19.21	1442.20	65.4	Pass
L13	110.25 - 105.25	Pole	TP30.6993x29.8392x0.25	13	-20.04	1484.12	72.3	Pass
L14	105.25 - 100.25	Pole	TP31.5595x30.6993x0.25	14	-21.06	1526.05	78.7	Pass
L15	100.25 - 95.25	Pole	TP32.4196x31.5595x0.25	15	-21.97	1567.96	84.7	Pass
L16	95.25 - 91.5	Pole	TP33.0647x32.4196x0.25	16	-22.66	1599.41	88.9	Pass
L17	91.5 - 91.25	Pole	TP33.1077x33.0647x0.25	17	-22.73	1601.51	89.2	Pass
L18	91.25 - 86.25	Pole	TP33.9678x33.1077x0.25	18	-23.67	1643.43	94.5	Pass
L19	86.25 - 80.25	Pole	TP35x33.9678x0.25	19	-23.95	1656.01	96.1	Pass
L20	80.25 - 79.25	Pole	TP34.672x33.7259x0.3125	20	-25.58	2093.38	77.6	Pass
L21	79.25 - 74.25	Pole	TP35.5321x34.672x0.3125	21	-26.69	2145.79	80.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	σP_{allow} K	% Capacity	Pass Fail	
L22	74.25 - 69.75	Pole	TP36.3063x35.5321x0.3125	22	-27.74	2192.96	83.6	Pass	
L23	69.75 - 69.5	Pole	TP36.3493x36.3063x0.4875	23	-27.83	3408.46	51.7	Pass	
L24	69.5 - 64.5	Pole	TP37.2094x36.3493x0.4875	24	-29.28	3490.21	53.1	Pass	
L25	64.5 - 59.5	Pole	TP38.0695x37.2094x0.475	25	-30.76	3481.53	55.7	Pass	
L26	59.5 - 54.5	Pole	TP38.9296x38.0695x0.475	26	-32.26	3561.18	56.9	Pass	
L27	54.5 - 53.75	Pole	TP39.0587x38.9296x0.475	27	-32.49	3573.13	57.1	Pass	
L28	53.75 - 53.5	Pole	TP39.1017x39.0587x0.475	28	-32.58	3577.12	57.1	Pass	
L29	53.5 - 48.5	Pole	TP39.9618x39.1017x0.475	29	-34.10	3656.77	58.2	Pass	
L30	48.5 - 39.75	Pole	TP41.467x39.9618x0.4688	30	-35.18	3664.25	59.6	Pass	
L31	39.75 - 38.75	Pole	TP41.014x39.9389x0.375	31	-38.07	2971.16	80.5	Pass	
L32	38.75 - 33.75	Pole	TP41.8742x41.014x0.375	32	-39.49	3034.05	82.0	Pass	
L33	33.75 - 28.75	Pole	TP42.7343x41.8742x0.375	33	-40.93	3096.93	83.4	Pass	
L34	28.75 - 27.75	Pole	TP42.9063x42.7343x0.375	34	-41.22	3109.51	83.6	Pass	
L35	27.75 - 27.5	Pole	TP42.9493x42.9063x0.575	35	-41.33	4750.32	52.8	Pass	
L36	27.5 - 22.5	Pole	TP43.8094x42.9493x0.575	36	-43.23	4846.74	53.3	Pass	
L37	22.5 - 17.5	Pole	TP44.6696x43.8094x0.5625	37	-45.16	4837.08	54.9	Pass	
L38	17.5 - 12.5	Pole	TP45.5297x44.6696x0.5625	38	-47.12	4931.40	55.3	Pass	
L39	12.5 - 8.75	Pole	TP46.1748x45.5297x0.5625	39	-48.60	5002.15	55.6	Pass	
L40	8.75 - 8.5	Pole	TP46.2178x46.1748x0.5625	40	-48.71	5006.86	55.6	Pass	
L41	8.5 - 8.25	Pole	TP46.2608x46.2178x0.5625	41	-48.81	5011.58	55.6	Pass	
L42	8.25 - 8	Pole	TP46.3038x46.2608x0.5	42	-48.90	4465.02	62.4	Pass	
L43	8 - 3.25	Pole	TP47.1209x46.3038x0.5	43	-50.64	4544.67	62.7	Pass	
L44	3.25 - 3	Pole	TP47.1639x47.1209x0.4125	44	-50.74	3759.85	79.2	Pass	
L45	3 - 0	Pole	TP47.68x47.1639x0.4125	45	-51.81	3801.36	79.7	Pass	
							Summary		
							Pole (L19)	96.1	Pass
							RATING =	96.1	Pass

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

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Site BU: 876392
Work Order: 1999969

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Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	168	10	0	0	14	14	0.25		A53-B-35
2	158	41.5	3.75	18	22.00	29.139	0.1875	Auto	A607-65
3	120.25	40	4.5	18	28.12	35	0.25	Auto	A607-65
4	84.75	45	5.25	18	33.73	41.467	0.3125	Auto	A607-65
5	45	45	0	18	39.94	47.68	0.375	Auto	A607-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	84.5	91.5	plate	MS-450 (1.25")	3	x						x						x					
2	53.75	69.75	plate	MS-600 (1.25")	3	x						x						x					
3	27.75	53.75	plate	MS-600 (1.25")	3		x						x						x				
4	8.25	27.75	plate	MS-650 (1.25")	1	x																	
5	3.25	27.75	plate	MS-650 (1.25")	2							x						x					
6	0	8.75	plate	TS 1.25x4.00 (MOD)	1		-2																
7	0	3.25	plate	TS 1.25x5.50 (MOD)	2								-2						-2				
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.625	3.188	1.2500	A572-65
2	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.688	1.2500	A572-65
3	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.688	1.2500	A572-65
4	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.250	6.484	1.2500	A572-65
5	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.250	6.484	1.2500	A572-65
6	1.25	3.25	4.0625	2.375	Welded	n/a	Welded	n/a	0.750	4.063	0.0000	A572-65
7	1.25	4.75	5.9375	3.125	Welded	n/a	Welded	n/a	0.750	5.938	0.0000	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
TS 1.25x4.00 (MOD)	Top	-	-	-	-	80	None	-	-	-	-	20	0.375	-
	Bottom	-	-	-	-	80	CJP Groove	6.5	0.625	45	0.625	-	-	-
TS 1.25x5.50 (MOD)	Top	-	-	-	-	80	None	-	-	-	-	24	0.375	-
	Bottom	-	-	-	-	80	CJP Groove	9.5	0.625	45	0.625	-	-	-

TNX Geometry Input

Increment (ft): 5 [Export to TNX](#)

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	168 - 163	5		0	14.000	14.000	0.25	A53-B-35	1.000
2	163 - 158	5	0	0	14.000	14.000	0.25	A53-B-35	1.000
3	158 - 153	5		18	22.000	22.860	0.1875	A607-65	1.000
4	153 - 148	5		18	22.860	23.720	0.1875	A607-65	1.000
5	148 - 143	5		18	23.720	24.580	0.1875	A607-65	1.000
6	143 - 138	5		18	24.580	25.440	0.1875	A607-65	1.000
7	138 - 133	5		18	25.440	26.301	0.1875	A607-65	1.000
8	133 - 128	5		18	26.301	27.161	0.1875	A607-65	1.000
9	128 - 123	5		18	27.161	28.021	0.1875	A607-65	1.000
10	123 - 120.25	6.5	3.75	18	28.021	29.139	0.1875	A607-65	1.000
11	120.25 - 115.25	5		18	28.119	28.979	0.25	A607-65	1.000
12	115.25 - 110.25	5		18	28.979	29.839	0.25	A607-65	1.000
13	110.25 - 105.25	5		18	29.839	30.699	0.25	A607-65	1.000
14	105.25 - 100.25	5		18	30.699	31.559	0.25	A607-65	1.000
15	100.25 - 95.25	5		18	31.559	32.420	0.25	A607-65	1.000
16	95.25 - 91.5	3.75		18	32.420	33.065	0.25	A607-65	1.000
17	91.5 - 91.25	0.25		18	33.065	33.108	0.25	A607-65	1.000
18	91.25 - 86.25	5		18	33.108	33.968	0.25	A607-65	1.000
19	86.25 - 84.75	6	4.5	18	33.968	35.000	0.25	A607-65	1.000
20	84.75 - 79.25	5.5		18	33.726	34.672	0.3125	A607-65	1.000
21	79.25 - 74.25	5		18	34.672	35.532	0.3125	A607-65	1.000
22	74.25 - 69.75	4.5		18	35.532	36.306	0.3125	A607-65	1.000
23	69.75 - 69.5	0.25		18	36.306	36.349	0.4875	A607-65	0.969
24	69.5 - 64.5	5		18	36.349	37.209	0.4875	A607-65	0.961
25	64.5 - 59.5	5		18	37.209	38.070	0.475	A607-65	0.978
26	59.5 - 54.5	5		18	38.070	38.930	0.475	A607-65	0.971
27	54.5 - 53.75	0.75		18	38.930	39.059	0.475	A607-65	0.970
28	53.75 - 53.5	0.25		18	39.059	39.102	0.475	A607-65	0.970
29	53.5 - 48.5	5		18	39.102	39.962	0.475	A607-65	0.963
30	48.5 - 45	8.75	5.25	18	39.962	41.467	0.46875	A607-65	0.971
31	45 - 38.75	6.25		18	39.939	41.014	0.375	A607-65	1.000
32	38.75 - 33.75	5		18	41.014	41.874	0.375	A607-65	1.000
33	33.75 - 28.75	5		18	41.874	42.734	0.375	A607-65	1.000
34	28.75 - 27.75	1		18	42.734	42.906	0.375	A607-65	1.000
35	27.75 - 27.5	0.25		18	42.906	42.949	0.575	A607-65	0.970
36	27.5 - 22.5	5		18	42.949	43.809	0.575	A607-65	0.964
37	22.5 - 17.5	5		18	43.809	44.670	0.5625	A607-65	0.979
38	17.5 - 12.5	5		18	44.670	45.530	0.5625	A607-65	0.973
39	12.5 - 8.75	3.75		18	45.530	46.175	0.5625	A607-65	0.969
40	8.75 - 8.5	0.25		18	46.175	46.218	0.5625	A607-65	0.968
41	8.5 - 8.25	0.25		18	46.218	46.261	0.5625	A607-65	0.968
42	8.25 - 8	0.25		18	46.261	46.304	0.5	A607-65	0.976
43	8 - 3.25	4.75		18	46.304	47.121	0.5	A607-65	0.972
44	3.25 - 3	0.25		18	47.121	47.164	0.4125	A607-65	1.104
45	3 - 0	3		18	47.164	47.680	0.4125	A607-65	1.102

TNX Section Forces

Increment (ft):		TNX Output		
	5	P _u	M _{ux} (kip-ft)	V _u
	Section Height (ft)	(K)		(K)
1	168 - 163	0.44	3.67	0.86
2	163 - 158	0.68	9.22	1.35
3	158 - 153	4.87	34.74	6.56
4	153 - 148	5.21	68.61	7.01
5	148 - 143	8.68	121.93	12.48
6	143 - 138	9.11	185.38	12.93
7	138 - 133	9.57	251.04	13.37
8	133 - 128	12.81	326.16	17.41
9	128 - 123	13.35	414.16	17.83
10	123 - 120.25	13.67	463.43	18.05
11	120.25 - 115.25	17.29	571.09	22.01
12	115.25 - 110.25	18.07	682.07	22.42
13	110.25 - 105.25	18.89	795.15	22.81
14	105.25 - 100.25	19.89	910.86	23.59
15	100.25 - 95.25	20.78	1029.72	23.96
16	95.25 - 91.5	21.46	1120.07	24.24
17	91.5 - 91.25	21.53	1126.13	24.25
18	91.25 - 86.25	22.45	1248.23	24.61
19	86.25 - 84.75	22.73	1285.20	24.72
20	84.75 - 79.25	24.35	1422.54	25.23
21	79.25 - 74.25	25.44	1549.54	25.59
22	74.25 - 69.75	26.48	1665.65	25.98
23	69.75 - 69.5	26.57	1672.14	25.99
24	69.5 - 64.5	28.00	1803.15	26.42
25	64.5 - 59.5	29.47	1936.28	26.84
26	59.5 - 54.5	30.96	2071.46	27.25
27	54.5 - 53.75	31.19	2091.92	27.30
28	53.75 - 53.5	31.27	2098.74	27.32
29	53.5 - 48.5	32.78	2236.33	27.72
30	48.5 - 45	33.85	2333.79	27.98
31	45 - 38.75	36.73	2510.52	28.55
32	38.75 - 33.75	38.14	2653.94	28.83
33	33.75 - 28.75	39.57	2798.71	29.10
34	28.75 - 27.75	39.86	2827.81	29.15
35	27.75 - 27.5	39.97	2835.10	29.14
36	27.5 - 22.5	41.86	2981.68	29.48
37	22.5 - 17.5	43.78	3129.82	29.78
38	17.5 - 12.5	45.72	3279.38	30.05
39	12.5 - 8.75	47.19	3392.43	30.26
40	8.75 - 8.5	47.31	3399.99	30.25
41	8.5 - 8.25	47.40	3407.56	30.26
42	8.25 - 8	47.50	3415.13	30.28
43	8 - 3.25	49.23	3559.52	30.52
44	3.25 - 3	49.33	3567.14	30.51
45	3 - 0	50.39	3658.87	30.64

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
168 - 163	Pole	TP14x14x0.25	Pole	2.9%	Pass
163 - 158	Pole	TP14x14x0.25	Pole	7.3%	Pass
158 - 153	Pole	TP22.86x22x0.1875	Pole	8.2%	Pass
153 - 148	Pole	TP23.72x22.86x0.1875	Pole	14.7%	Pass
148 - 143	Pole	TP24.58x23.72x0.1875	Pole	24.7%	Pass
143 - 138	Pole	TP25.44x24.58x0.1875	Pole	35.0%	Pass
138 - 133	Pole	TP26.301x25.44x0.1875	Pole	44.6%	Pass
133 - 128	Pole	TP27.161x26.301x0.1875	Pole	55.1%	Pass
128 - 123	Pole	TP28.021x27.161x0.1875	Pole	66.3%	Pass
123 - 120.25	Pole	TP29.139x28.021x0.1875	Pole	72.1%	Pass
120.25 - 115.25	Pole	TP28.979x28.119x0.25	Pole	58.8%	Pass
115.25 - 110.25	Pole	TP29.839x28.979x0.25	Pole	66.6%	Pass
110.25 - 105.25	Pole	TP30.699x29.839x0.25	Pole	73.8%	Pass
105.25 - 100.25	Pole	TP31.559x30.699x0.25	Pole	80.6%	Pass
100.25 - 95.25	Pole	TP32.42x31.559x0.25	Pole	87.0%	Pass
95.25 - 91.5	Pole	TP33.065x32.42x0.25	Pole	91.5%	Pass
91.5 - 91.25	Pole	TP33.108x33.065x0.25	Pole	91.8%	Pass
91.25 - 86.25	Pole	TP33.968x33.108x0.25	Pole	97.4%	Pass
86.25 - 84.75	Pole	TP35x33.968x0.25	Pole	99.1%	Pass
84.75 - 79.25	Pole	TP34.672x33.726x0.3125	Pole	80.1%	Pass
79.25 - 74.25	Pole	TP35.532x34.672x0.3125	Pole	83.6%	Pass
74.25 - 69.75	Pole	TP36.306x35.532x0.3125	Pole	86.5%	Pass
69.75 - 69.5	Pole + Reinf.	TP36.349x36.306x0.4875	Reinf. 2 Tension Rupture	85.2%	Pass
69.5 - 64.5	Pole + Reinf.	TP37.209x36.349x0.4875	Reinf. 2 Tension Rupture	88.4%	Pass
64.5 - 59.5	Pole + Reinf.	TP38.07x37.209x0.475	Reinf. 2 Tension Rupture	91.3%	Pass
59.5 - 54.5	Pole + Reinf.	TP38.93x38.07x0.475	Reinf. 2 Tension Rupture	94.1%	Pass
54.5 - 53.75	Pole + Reinf.	TP39.059x38.93x0.475	Reinf. 2 Tension Rupture	94.5%	Pass
53.75 - 53.5	Pole + Reinf.	TP39.102x39.059x0.475	Reinf. 3 Tension Rupture	94.6%	Pass
53.5 - 48.5	Pole + Reinf.	TP39.962x39.102x0.475	Reinf. 3 Tension Rupture	97.2%	Pass
48.5 - 45	Pole + Reinf.	TP41.467x39.962x0.4688	Reinf. 3 Tension Rupture	98.9%	Pass
45 - 38.75	Pole	TP41.014x39.939x0.375	Pole	83.8%	Pass
38.75 - 33.75	Pole	TP41.874x41.014x0.375	Pole	85.5%	Pass
33.75 - 28.75	Pole	TP42.734x41.874x0.375	Pole	87.0%	Pass
28.75 - 27.75	Pole	TP42.906x42.734x0.375	Pole	87.3%	Pass
27.75 - 27.5	Pole + Reinf.	TP42.949x42.906x0.575	Reinf. 5 Tension Rupture	85.9%	Pass
27.5 - 22.5	Pole + Reinf.	TP43.809x42.949x0.575	Reinf. 5 Tension Rupture	87.4%	Pass
22.5 - 17.5	Pole + Reinf.	TP44.67x43.809x0.5625	Reinf. 5 Tension Rupture	88.8%	Pass
17.5 - 12.5	Pole + Reinf.	TP45.53x44.67x0.5625	Reinf. 5 Tension Rupture	90.1%	Pass
12.5 - 8.75	Pole + Reinf.	TP46.175x45.53x0.5625	Reinf. 5 Tension Rupture	91.0%	Pass
8.75 - 8.5	Pole + Reinf.	TP46.218x46.175x0.5625	Reinf. 5 Tension Rupture	91.1%	Pass
8.5 - 8.25	Pole + Reinf.	TP46.261x46.218x0.5625	Reinf. 5 Tension Rupture	91.1%	Pass
8.25 - 8	Pole + Reinf.	TP46.304x46.261x0.5	Reinf. 5 Tension Rupture	92.4%	Pass
8 - 3.25	Pole + Reinf.	TP47.121x46.304x0.5	Reinf. 5 Tension Rupture	93.4%	Pass
3.25 - 3	Pole + Reinf.	TP47.164x47.121x0.4125	Pole	91.9%	Pass
3 - 0	Pole + Reinf.	TP47.68x47.164x0.4125	Pole	92.5%	Pass
				Summary	
			Pole	99.1%	Pass
			Reinforcement	98.9%	Pass
			Overall	99.1%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity*							
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7
168 - 163	255	n/a	255	10.80	n/a	10.80	2.9%							
163 - 158	255	n/a	255	10.80	n/a	10.80	7.3%							
158 - 153	876	n/a	876	13.49	n/a	13.49	8.2%							
153 - 148	980	n/a	980	14.00	n/a	14.00	14.7%							
148 - 143	1091	n/a	1091	14.52	n/a	14.52	24.7%							
143 - 138	1210	n/a	1210	15.03	n/a	15.03	35.0%							
138 - 133	1338	n/a	1338	15.54	n/a	15.54	44.6%							
133 - 128	1475	n/a	1475	16.05	n/a	16.05	55.1%							
128 - 123	1621	n/a	1621	16.56	n/a	16.56	66.3%							
123 - 120.25	1705	n/a	1705	16.85	n/a	16.85	72.1%							
120.25 - 115.25	2376	n/a	2376	22.80	n/a	22.80	58.8%							
115.25 - 110.25	2596	n/a	2596	23.48	n/a	23.48	66.6%							
110.25 - 105.25	2829	n/a	2829	24.16	n/a	24.16	73.8%							
105.25 - 100.25	3076	n/a	3076	24.84	n/a	24.84	80.6%							
100.25 - 95.25	3336	n/a	3336	25.53	n/a	25.53	87.0%							
95.25 - 91.5	3541	n/a	3541	26.04	n/a	26.04	91.5%							
91.5 - 91.25	3555	n/a	3555	26.07	n/a	26.07	91.8%							
91.25 - 86.25	3842	n/a	3842	26.75	n/a	26.75	97.4%							
86.25 - 84.75	3930	n/a	3930	26.96	n/a	26.96	99.1%							
84.75 - 79.25	5081	n/a	5081	34.08	n/a	34.08	80.1%							
79.25 - 74.25	5473	n/a	5473	34.93	n/a	34.93	83.6%							
74.25 - 69.75	5841	n/a	5841	35.70	n/a	35.70	86.5%							
69.75 - 69.5	5862	3166	9029	35.74	18.00	53.74	55.5%		85.2%					
69.5 - 64.5	6292	3313	9605	36.60	18.00	54.60	58.0%		88.4%					
64.5 - 59.5	6743	3462	10205	37.45	18.00	55.45	60.4%		91.3%					
59.5 - 54.5	7214	3615	10829	38.30	18.00	56.30	62.7%		94.1%					
54.5 - 53.75	7287	3638	10925	38.43	18.00	56.43	63.1%		94.5%					
53.75 - 53.5	7311	3646	10957	38.47	18.00	56.47	63.2%			94.6%				
53.5 - 48.5	7808	3803	11611	39.33	18.00	57.33	65.4%			97.2%				
48.5 - 45	8169	3915	12084	39.92	18.00	57.92	66.9%			98.9%				
45 - 38.75	10089	n/a	10089	48.37	n/a	48.37	83.8%							
38.75 - 33.75	10743	n/a	10743	49.39	n/a	49.39	85.5%							
33.75 - 28.75	11425	n/a	11425	50.42	n/a	50.42	87.0%							
28.75 - 27.75	11565	n/a	11565	50.62	n/a	50.62	87.3%							
27.75 - 27.5	11600	5997	17597	50.67	24.38	75.05	56.8%				85.9%	85.9%		
27.5 - 22.5	12318	6231	18548	51.70	24.38	76.07	58.1%				87.4%	87.4%		
22.5 - 17.5	13064	6469	19533	52.72	24.38	77.09	59.5%				88.8%	88.8%		
17.5 - 12.5	13840	6712	20552	53.74	24.38	78.12	60.7%				90.1%	90.1%		
12.5 - 8.75	14441	6897	21339	54.51	24.38	78.89	61.7%				91.0%	91.0%		
8.75 - 8.5	14482	6910	21392	54.56	24.38	78.94	61.7%				91.1%	91.1%		
8.5 - 8.25	14523	6922	21445	54.61	24.38	78.99	61.8%				91.1%	91.1%		
8.25 - 8	14731	4634	19366	54.66	16.25	70.91	74.8%					92.4%		
8 - 3.25	15527	4799	20326	55.64	16.25	71.89	76.0%					93.4%		
3.25 - 3	15703	1503	17206	55.69	11.88	67.56	91.9%							88.4%
3 - 0	16222	1538	17760	56.30	11.88	68.18	92.5%							88.9%

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

Monopole Flange Plate Connection

Elevation = 158 ft.

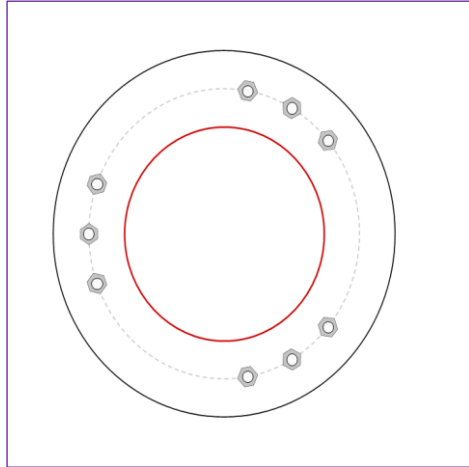


BU #	876392
Site Name	Hartford / Executive G
Order #	575185, Rev. 0
TIA-222 Revision	H

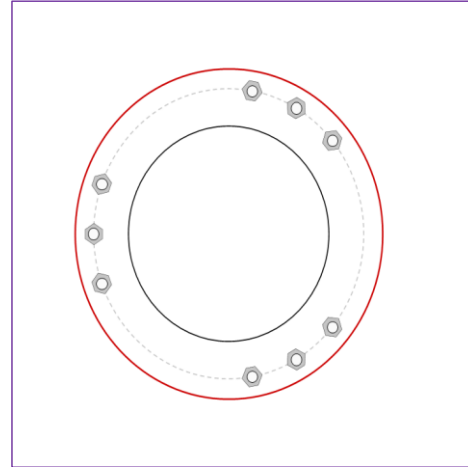
Applied Loads	
Moment (kip-ft)	8.52
Axial Force (kips)	0.70
Shear Force (kips)	1.25

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(9) 3/4" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 19" BC

Top Plate Data

24" OD x 1.25" Plate (A572-65; Fy=65 ksi, Fu=80 ksi)

Top Stiffener Data

N/A

Top Pole Data

14" x 0.25" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Plate Data

14.125" ID x 0.75" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

22" x 0.1875" 18-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	2.31
Allowable (kips)	30.06
Stress Rating:	7.3% Pass

Top Plate Capacity

Max Stress (ksi):	3.02	(Flexural)
Allowable Stress (ksi):	58.50	
Stress Rating:	4.9%	Pass
Tension Side Stress Rating:	4.1%	Pass

Bottom Plate Capacity

Max Stress (ksi):	6.04	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	17.8%	Pass
Tension Side Stress Rating:	N/A	

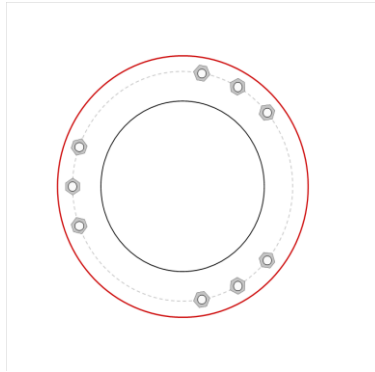
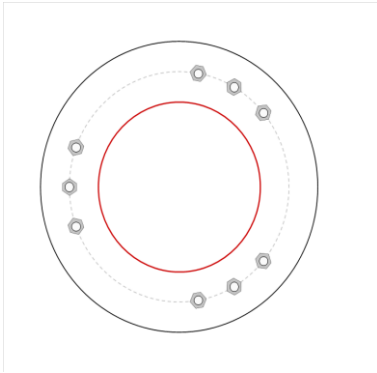
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Elevation (ft) 158 (Flange)

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending
1	Yes	Yes	Yes

Custom Bolt Connection										
Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η :	I_{ax} (in):	Thread Type	Area Override, in ²	Tension Only
1	1	40	0.75	A325	19	0.5	0	N-Included		No
2	1	60	0.75	A325	19	0.5	0	N-Included		No
3	1	80	0.75	A325	19	0.5	0	N-Included		No
4	1	160	0.75	A325	19	0.5	0	N-Included		No
5	1	180	0.75	A325	19	0.5	0	N-Included		No
6	1	200	0.75	A325	19	0.5	0	N-Included		No
7	1	280	0.75	A325	19	0.5	0	N-Included		No
8	1	300	0.75	A325	19	0.5	0 <td>N-Included</td> <td></td> <td>No</td>	N-Included		No
9	1	320	0.75	A325	19	0.5	0	N-Included		No

Plot Graphic



Monopole Base Plate Connection

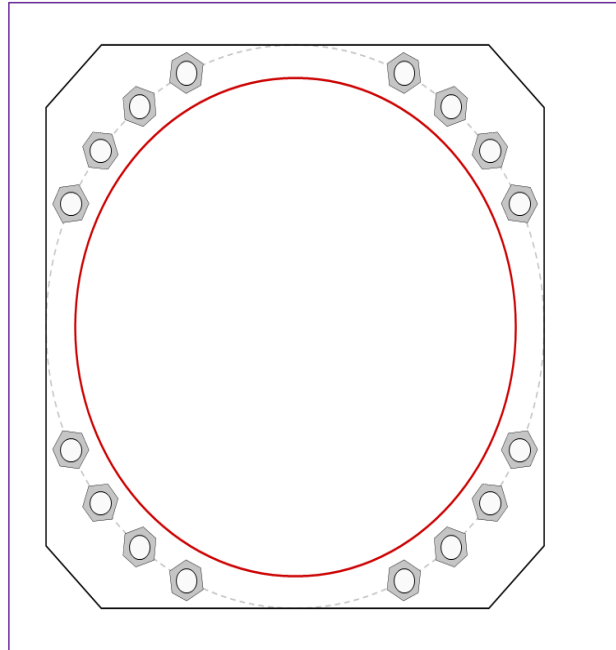


Site Info	
BU #	876392
Site Name	Hartford / Executive C
Order #	575185, Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	Yes
l_{ar} (in)	1.25

Applied Loads	
Moment (kip-ft)	3488.81
Axial Force (kips)	51.81
Shear Force (kips)	28.80

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data
(16) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 54" BC <i>Anchor Spacing: 6 in</i>
Base Plate Data
54" W x 2.5" Plate (A572-55; $F_y=55$ ksi, $F_u=70$ ksi); Clip: 6 in
Stiffener Data
N/A
Pole Data
47.68" x 0.375" 18-sided pole (A607-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary	<i>(units of kips, kip-in)</i>	
$P_{u,t} = 190.45$	$\phi P_{n,t} = 243.75$	Stress Rating
$V_u = 1.8$	$\phi V_n = 149.1$	74.4%
$M_u = n/a$	$\phi M_n = n/a$	Pass
Base Plate Summary		
Max Stress (ksi):	39.99	(Flexural)
Allowable Stress (ksi):	49.5	
Stress Rating:	76.9%	Pass

Pier and Pad Foundation



BU #: 876392
 Site Name: New Hartford / Exe
 App. Number: 575185, Rev. 0

TIA-222 Revision: H
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	51.83	kips
Base Shear, V_{u_comp} :	28.77	kips
Moment, M_u :	3488.81	ft-kips
Tower Height, H :	168	ft
BP Dist. Above Fdn, bp_{dist} :	3.5	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	323.35	28.77	8.5%	Pass
<i>Bearing Pressure (ksf)</i>	12.70	4.07	32.1%	Pass
<i>Overturning (kip*ft)</i>	5577.63	3799.29	68.1%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	5880.22	3704.59	60.0%	Pass
<i>Pier Compression (kip)</i>	23390.64	110.64	0.5%	Pass
<i>Pad Flexure (kip*ft)</i>	3260.26	1748.37	51.1%	Pass
<i>Pad Shear - 1-way (kips)</i>	648.20	326.96	48.0%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.000	0.0%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	4902.10	2222.75	43.2%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$:	7	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, S_c :	11	
Pier Rebar Quantity, mc :	24	
Pier Tie/Spiral Size, St :	5	
Pier Tie/Spiral Quantity, mt :	21	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

*Rating per TIA-222-H Section 15.5

Structural Rating*:	60.0%
Soil Rating*:	68.1%

Pad Properties		
Depth, D :	10	ft
Pad Width, W_1 :	21	ft
Pad Thickness, T :	3	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	24	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	125	pcf
Ultimate Net Bearing, Q_{net} :	16.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	30	degrees
SPT Blow Count, N_{blows} :		
Base Friction, μ :	0.5	
Neglected Depth, N :	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	5	ft

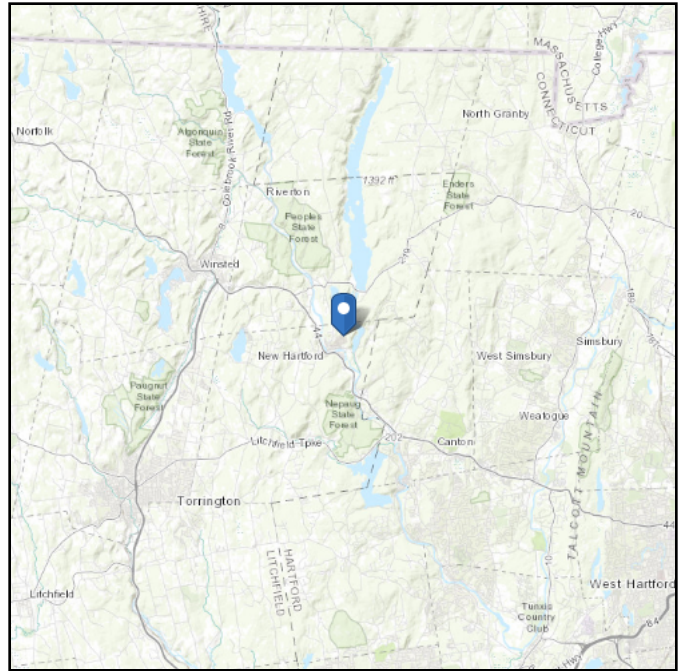
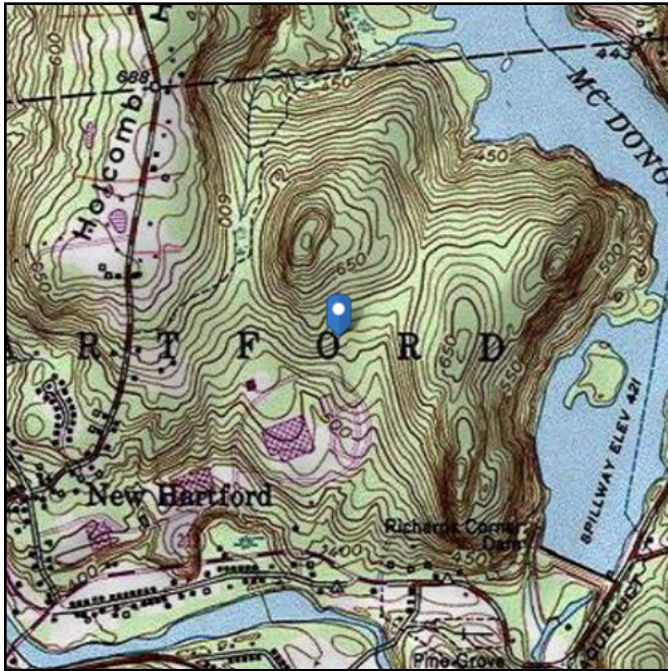
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ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 566.99 ft (NAVD 88)
Latitude: 41.886244
Longitude: -72.966139



Wind

Results:

Wind Speed:	115 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	89 Vmph
100-year MRI	95 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Sep 01 2021

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

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Ice

Results:

Ice Thickness: 1.50 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Wed Sep 01 2021

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

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

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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BU: 876392

Structure: A

Location

	Decimal Degrees	Deg	Min	Sec	
Lat:	41.886244	+	41	53	10.48
Long:	-72.966139	-	72	57	58.10

Code and Site Parameters

Seismic Design Code:	TIA-222-H	
Site Soil:	D (Determined)	Stiff Soil
Risk Category:	II	
<u>USGS Seismic Reference</u>		
S _s :	0.1800	g
S ₁ :	0.0650	g
T _L :	6	s

Seismic Design Category Determination

Importance Factor, I _e :	1
Acceleration-based site coefficient, F _a :	1.6000
Velocity-based site coefficient, F _v :	2.4000
Design spectral response acceleration short period, S _{DS} :	0.1920 g
Design spectral response acceleration 1 s period, S _{D1} :	0.1040 g
Seismic Design Category Based on S _{DS} :	B
Seismic Design Category Based on S _{D1} :	B
Seismic Design Category Based on S ₁ :	N/A
Controlling Seismic Design Category:	B

Date: **July 21, 2021**

Darcy Tarr
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6589

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
Infinigy Engineering, PLLC
1033 Watervliet Shaker Road
Albany, NY 12205
518-690-0790
structural@infinigy.com

Subject: **Mount Analysis Report**

Carrier Designation: **T-Mobile Retain**
Carrier Site Number: CTNH814A
Carrier Site Name: CT33XC588

Crown Castle Designation: **Crown Castle BU Number:** 876392
Crown Castle Site Name: NEW HARTFORD / EXECUTIVE GREET
Crown Castle JDE Job Number: 673847
Crown Castle Order Number: 575185 Rev. 0

Engineering Firm Designation: **Infinigy Engineering, PLLC Report Designation:** 1039-Z0001-B

Site Data: **115 Industrial Park Road, New Hartford, Litchfield County, CT, 06057**
Latitude 41°53'10.48", Longitude -72°57'58.10"

Structure Information: **Tower Height & Type:** **168.0 ft Monopole**
Mount Elevation: **157.0 ft**
Mount Type: **14.0 ft Platform**

Dear Darcy Tarr,

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

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

Platform **Sufficient**
***Sufficient upon completion of the changes listed in the 'Recommendations' section of this report.**

This analysis has been performed in accordance with the 2018 Connecticut State Building Code and Appendix N based upon an ultimate 3-second gust wind speed of 120 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Andrew Gloriani, E.I.T.

Respectfully Submitted by:
Emmanuel Poulin, P.E.
518-690-0790
structural@infinigy.com
CT PE License No. 22947

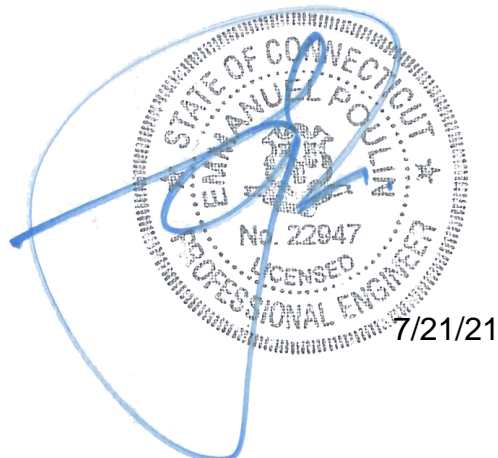


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1) INTRODUCTION

This is an existing 3 sector 14.0 ft Platform, designed by Summit Manufacturing and mapped by Paul J. Ford & Company.

The mount has been modified per reinforcement drawings prepared by Paul J. Ford & Company in May of 2018. Reinforcement consists of installation of a reinforcement kit (Site Pro 1 Part No. PRK-1245L) for all sectors.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC / 2018 Connecticut State Building Code and Appendix N
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	120 mph
Exposure Category:	C
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	2.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.180
Seismic S₁:	0.065
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
157.0	157.0	3	Ericsson	AIR6449 B41_T-MOBILE	14.0 ft Platform
		3	RFS/Celwave	APX16DWV-16DWV-S-E-A20	
		3	RFS/Celwave	APXVAALL24_43-U-NA20_TMO	
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO	
		3	Ericsson	RADIO 4480 B71_TMO	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	T-Mobile Application	575185 Rev. 0	CCI Sites
Loading Document	T-Mobile	RFDS Version: 1	TSA
Mount Mapping Documents	Paul J. Ford & Company	9400072	CCI Sites
Mount Modification Report	Paul J. Ford & Company	7562749	CCI Sites

3.1) Analysis Method

RISA-3D (Version 19.0.3), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

Infinigy Mount Analysis Tool V2.1.6, a tool internally developed by Infinigy, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B "Software Input Calculations".

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

3.2) Assumptions

- 1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
- 2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
- 3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
- 4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
- 5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
- 6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

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

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2,3	Mount Pipe(s)	MP10	157.0	53.6	Pass
	Horizontal(s)	MH1		67.7	Pass
	Standoff(s)	MS2		36.9	Pass
	Handrail(s)	MR2		26.6	Pass
	Kicker(s)	MK1		28.0	Pass
	Mount Connection(s)	-		24.7	Pass

Structure Rating (max from all components) =	67.7%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) See additional documentation in "Appendix D - Additional Calculations" for detailed mount connection calculations.
- 3) All sectors are typical

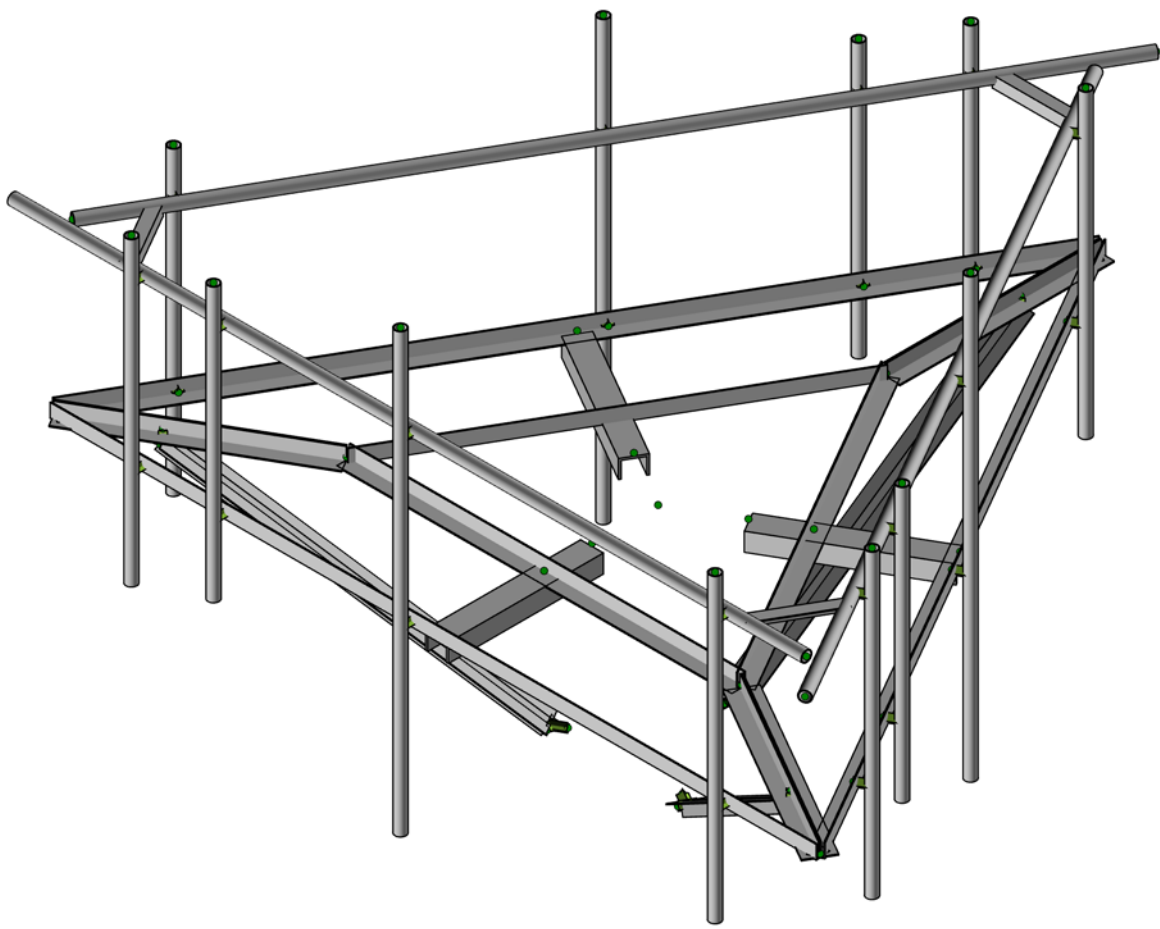
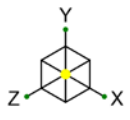
4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modifications listed below must be completed.

1. Installation of Site Pro 1 HRK14 handrail kit.
2. Installation of (1) 8' long pipe 2.0 STD per sector for proposed antennas.

No structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A
WIRE FRAME AND RENDERED MODELS



Infinigy Engineering, PLLC

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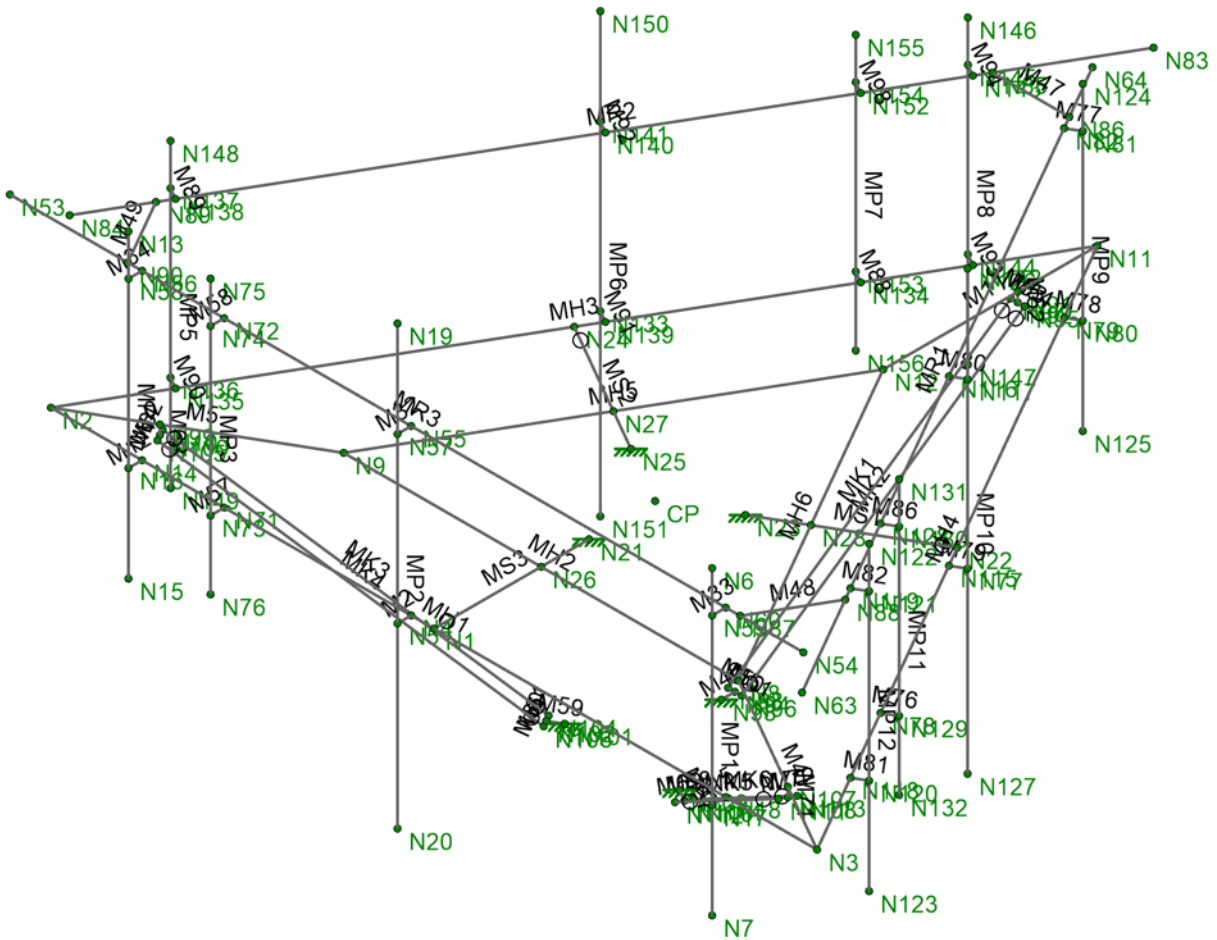
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Wireframe

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APPENDIX B
SOFTWARE INPUT CALCULATIONS

Program Inputs

PROJECT INFORMATION		
Client:	Crown Castle	
Carrier:	T-Mobile	
Engineer:	Andrew Gloriani	

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	566.99	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	157.00	ft
Tower Height AGL:	168.00	ft

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft
Crest Height:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.980	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_r):	1.000	

CODE STANDARDS		
Building Code:	2015 IBC	
TIA Standard:	TIA-222-H	
ASCE Standard:	ASCE 7-10	

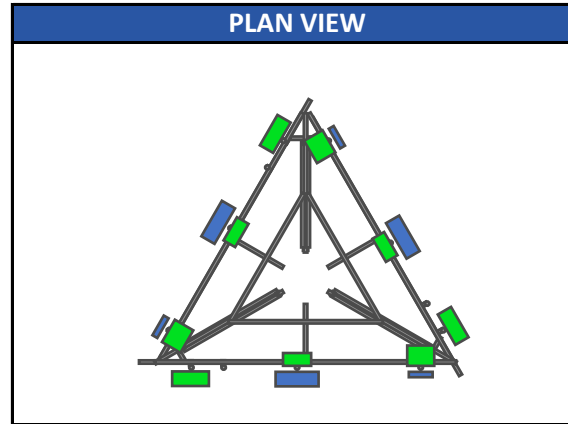
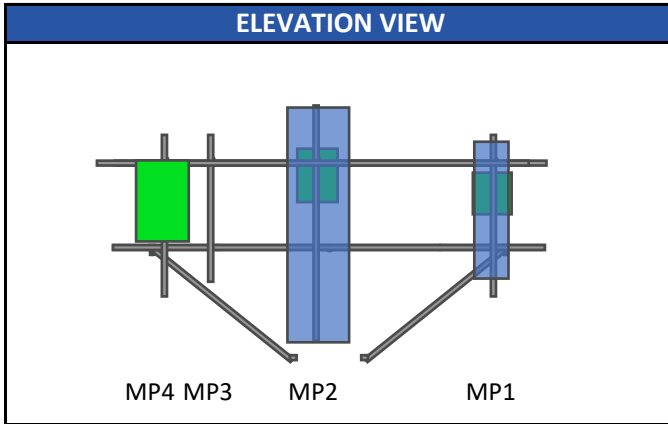
WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	120	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	2.0	in
Flat Pressure:	95.496	psf
Round Pressure:	57.298	psf
Ice Wind Pressure:	9.948	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.180	g
1-Second Accel. (S_1):	0.065	g
Short-Period Design (S_{DS}):	0.192	
1-Second Design (S_{D1}):	0.104	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	



Infinigy Load Calculator V2.1.6

Program Inputs



Infinigy Load Calculator V2.1.6

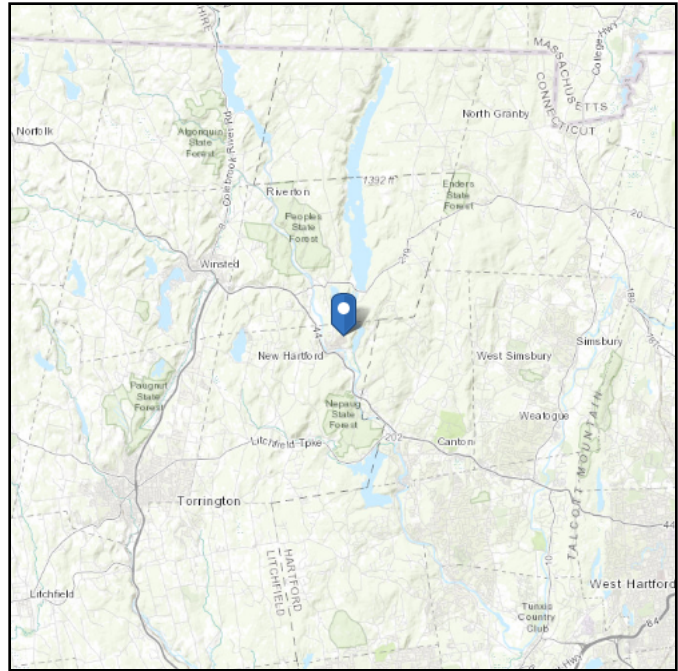
APPURTENANCE INFORMATION												
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft ²)	EPA_T (ft ²)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)	
ERICSSON AIR6449 B41_T-MOBILE	157.0	3	0.90	47.75	5.27	2.03	226.47	87.24	114.63	33.01	MP4	
RFS/CELWAVE APX16DWV-16DWV-S-E-A20	157.0	3	0.90	47.75	6.26	1.50	269.01	64.46	41.00	11.81	MP1	
RFS/CELWAVE APXVAALL24_43-U-NA20_TMO	157.0	3	0.90	47.75	14.67	5.32	630.42	228.62	149.90	43.17	MP2	
ERICSSON RADIO 4460 B2/B25 B66_TMO	157.0	3	0.90	47.75	2.14	1.69	91.93	72.45	109.00	31.39	MP1	
ERICSSON RADIO 4480 B71_TMO	157.0	3	0.90	47.75	2.85	1.38	122.57	59.43	92.60	26.67	MP2	

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 566.99 ft (NAVD 88)
Latitude: 41.886244
Longitude: -72.966139



Wind

Results:

Wind Speed:
10-year MRI
25-year MRI
50-year MRI
100-year MRI

120 Vmph per Litchfield County Requirements

76 Vmph
85 Vmph
90 Vmph
97 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

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).

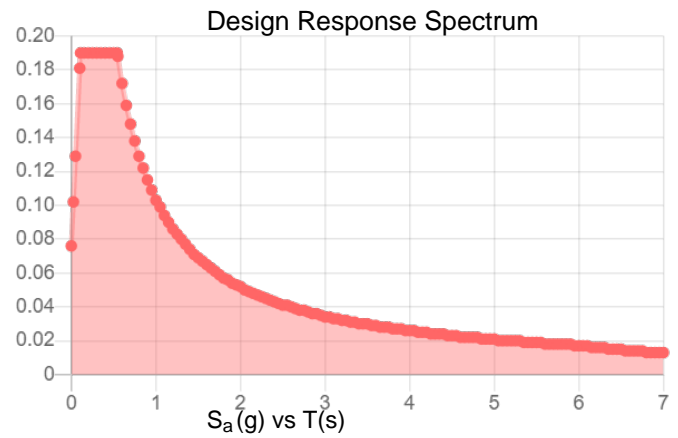
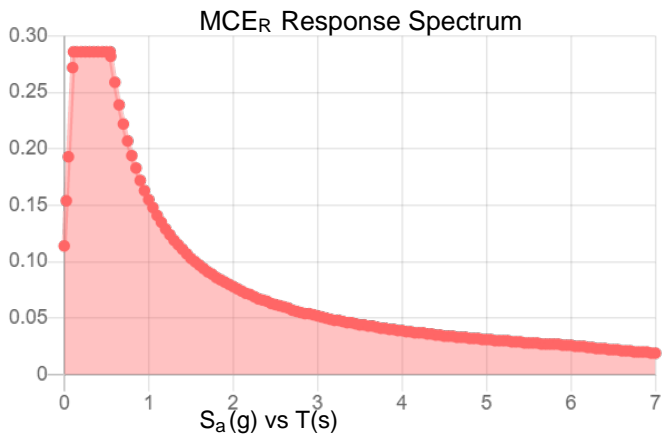
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.178	S_{DS} :	0.19
S_1 :	0.065	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.089
S_{MS} :	0.286	PGA _M :	0.142
S_{M1} :	0.155	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Fri Jul 16 2021

Date Source:

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

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Fri Jul 16 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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APPENDIX C
SOFTWARE ANALYSIS OUTPUT

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	MH1	N2	N3	270	Horizontals	Beam	Single Angle	A36 Gr.36	Typical
2	M2	N4	N5		RIGID	None	None	RIGID	Typical
3	MP1	N6	N7		Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
4	M4	N8	N3	180	Corner Horizontals	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
5	M5	N9	N2	180	Corner Horizontals	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
6	MH2	N8	N9	270	Horizontals	Beam	Single Angle	A36 Gr.36	Typical
7	MH4	N3	N11	270	Horizontals	Beam	Single Angle	A36 Gr.36	Typical
8	MH3	N11	N2	270	Horizontals	Beam	Single Angle	A36 Gr.36	Typical
9	MH5	N9	N12	270	Horizontals	Beam	Single Angle	A36 Gr.36	Typical
10	MH6	N12	N8	270	Horizontals	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N12	N11	180	Corner Horizontals	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
12	M12	N14	N16		RIGID	None	None	RIGID	Typical
13	MP4	N13	N15		Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
14	MS3	N21	N1	90	Standoff 1	Beam	Channel	A36 Gr.36	Typical
15	M15	N18	N17		RIGID	None	None	RIGID	Typical
16	MP2	N19	N20		Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
17	MS1	N23	N22	90	Standoff 1	Beam	Channel	A36 Gr.36	Typical
18	MS2	N25	N24	90	Standoff 1	Beam	Channel	A36 Gr.36	Typical
19	MR3	N53	N54	270	Handrail	Beam	Pipe	A53 Gr.B	Typical
20	M32	N55	N57		RIGID	None	None	RIGID	Typical
21	M33	N60	N59		RIGID	None	None	RIGID	Typical
22	M34	N56	N58		RIGID	None	None	RIGID	Typical
23	MR1	N63	N64	270	Handrail	Beam	Pipe	A53 Gr.B	Typical
24	MR2	N83	N84	270	Handrail	Beam	Pipe	A53 Gr.B	Typical
25	M47	N86	N85	90	Handrail Angle	Beam	Single Angle	A36 Gr.36	Typical
26	M48	N87	N88	90	Handrail Angle	Beam	Single Angle	A36 Gr.36	Typical
27	M49	N89	N90	90	Handrail Angle	Beam	Single Angle	A36 Gr.36	Typical
28	M46	N93	N94		RIGID	None	None	RIGID	Typical
29	M50	N94	N98		RIGID	None	None	RIGID	Typical
30	M51	N96	N94		RIGID	None	None	RIGID	Typical
31	M52	N91	N92		RIGID	None	None	RIGID	Typical
32	M53	N92	N97		RIGID	None	None	RIGID	Typical
33	M54	N95	N92		RIGID	None	None	RIGID	Typical
34	MK2	N95	N96	180	Angle Kickers	VBrace	Single Angle	A36 Gr.36	Typical
35	MK1	N97	N98	90	Angle Kickers	VBrace	Single Angle	A36 Gr.36	Typical
36	M59	N101	N102		RIGID	None	None	RIGID	Typical
37	M60	N102	N106		RIGID	None	None	RIGID	Typical
38	M61	N104	N102		RIGID	None	None	RIGID	Typical
39	M67	N109	N110		RIGID	None	None	RIGID	Typical
40	M68	N110	N114		RIGID	None	None	RIGID	Typical
41	M69	N112	N110		RIGID	None	None	RIGID	Typical
42	M62	N103	N100		RIGID	None	None	RIGID	Typical
43	M63	N99	N100		RIGID	None	None	RIGID	Typical
44	M64	N100	N105		RIGID	None	None	RIGID	Typical
45	MK3	N103	N104	180	Angle Kickers	VBrace	Single Angle	A36 Gr.36	Typical
46	MK4	N105	N106	90	Angle Kickers	VBrace	Single Angle	A36 Gr.36	Typical
47	M70	N111	N108		RIGID	None	None	RIGID	Typical
48	M71	N107	N108		RIGID	None	None	RIGID	Typical
49	M72	N108	N113		RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
50	MK5	N111	N112	180	Angle Kickers	VBrace	Single Angle	A36 Gr.36	Typical
51	MK6	N113	N114	90	Angle Kickers	VBrace	Single Angle	A36 Gr.36	Typical
52	M57	N71	N73		RIGID	None	None	RIGID	Typical
53	M58	N72	N74		RIGID	None	None	RIGID	Typical
54	MP3	N75	N76		Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
55	M76	N78	N129		RIGID	None	None	RIGID	Typical
56	M77	N82	N81		RIGID	None	None	RIGID	Typical
57	M78	N79	N80		RIGID	None	None	RIGID	Typical
58	M79	N115	N77		RIGID	None	None	RIGID	Typical
59	M80	N116	N117		RIGID	None	None	RIGID	Typical
60	M81	N118	N120		RIGID	None	None	RIGID	Typical
61	M82	N119	N121		RIGID	None	None	RIGID	Typical
62	MP12	N122	N123		Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
63	MP9	N124	N125		Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
64	MP10	N126	N127		Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
65	M86	N128	N130		RIGID	None	None	RIGID	Typical
66	MP11	N131	N132		Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
67	M88	N134	N153		RIGID	None	None	RIGID	Typical
68	M89	N138	N137		RIGID	None	None	RIGID	Typical
69	M90	N135	N136		RIGID	None	None	RIGID	Typical
70	M91	N139	N133		RIGID	None	None	RIGID	Typical
71	M92	N140	N141		RIGID	None	None	RIGID	Typical
72	M93	N142	N144		RIGID	None	None	RIGID	Typical
73	M94	N143	N145		RIGID	None	None	RIGID	Typical
74	MP8	N146	N147		Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
75	MP5	N148	N149		Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
76	MP6	N150	N151		Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
77	M98	N152	N154		RIGID	None	None	RIGID	Typical
78	MP7	N155	N156		Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical

Material Take-Off

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General Members				
2	RIGID		42	105	0
3	Total General		42	105	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	C4x5x4x0.4375	3	102	153.593
7	A36 Gr.36	L2.5x2.5x3	9	503.3	128.581
8	A36 Gr.36	L3X3X4	6	763.8	311.877
9	A36 Gr.36	LL3x3x4x0	3	141	115.15
10	A53 Gr.B	PIPE_2.0	15	1386	400.882
11	Total HR Steel		36	2896	1110.083

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed Area	(Member)
1	Self Weight	DL			-1		30		3
2	Wind Load AZI 0	WLZ					60		
3	Wind Load AZI 30	None					60		
4	Wind Load AZI 60	None					60		
5	Wind Load AZI 90	WLX					60		
6	Wind Load AZI 120	None					60		
7	Wind Load AZI 150	None					60		
8	Wind Load AZI 180	None					60		
9	Wind Load AZI 210	None					60		
10	Wind Load AZI 240	None					60		
11	Wind Load AZI 270	None					60		
12	Wind Load AZI 300	None					60		
13	Wind Load AZI 330	None					60		
14	Distr. Wind Load Z	WLZ						78	
15	Distr. Wind Load X	WLX						78	
16	Ice Weight	OL1					30	78	3
17	Ice Wind Load AZI 0	OL2					60		
18	Ice Wind Load AZI 30	None					60		
19	Ice Wind Load AZI 60	None					60		
20	Ice Wind Load AZI 90	OL3					60		
21	Ice Wind Load AZI 120	None					60		
22	Ice Wind Load AZI 150	None					60		
23	Ice Wind Load AZI 180	None					60		
24	Ice Wind Load AZI 210	None					60		
25	Ice Wind Load AZI 240	None					60		
26	Ice Wind Load AZI 270	None					60		
27	Ice Wind Load AZI 300	None					60		
28	Ice Wind Load AZI 330	None					60		
29	Distr. Ice Wind Load Z	OL2						78	
30	Distr. Ice Wind Load X	OL3						78	
31	Seismic Load Z	ELZ			-0.285		30		
32	Seismic Load X	ELX	-0.285				30		
33	Service Live Loads	LL				1			
34	Maintenance Load 1	LL				1			
35	Maintenance Load 2	LL				1			
36	Maintenance Load 3	LL				1			
37	Maintenance Load 4	LL				1			
38	Maintenance Load 5	LL				1			
39	Maintenance Load 6	LL				1			
40	Maintenance Load 7	LL				1			
41	Maintenance Load 8	LL				1			
42	Maintenance Load 9	LL				1			
43	Maintenance Load 10	LL				1			
44	Maintenance Load 11	LL				1			
45	Maintenance Load 12	LL				1			
46	BLC 1 Transient Area Loads	None						30	
47	BLC 16 Transient Area Loads	None						30	



Load Combinations

	Description	Solve	P-Delta	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor
1	1.4DL	Yes	Y	1	1.4								
2	1.2DL + 1WL AZI 0	Yes	Y	1	1.2	2	1	14	1	15			
3	1.2DL + 1WL AZI 30	Yes	Y	1	1.2	3	1	14	0.866	15	0.5		
4	1.2DL + 1WL AZI 60	Yes	Y	1	1.2	4	1	14	0.5	15	0.866		
5	1.2DL + 1WL AZI 90	Yes	Y	1	1.2	5	1	14		15	1		
6	1.2DL + 1WL AZI 120	Yes	Y	1	1.2	6	1	14	-0.5	15	0.866		
7	1.2DL + 1WL AZI 150	Yes	Y	1	1.2	7	1	14	-0.866	15	0.5		
8	1.2DL + 1WL AZI 180	Yes	Y	1	1.2	8	1	14	-1	15			
9	1.2DL + 1WL AZI 210	Yes	Y	1	1.2	9	1	14	-0.866	15	-0.5		
10	1.2DL + 1WL AZI 240	Yes	Y	1	1.2	10	1	14	-0.5	15	-0.866		
11	1.2DL + 1WL AZI 270	Yes	Y	1	1.2	11	1	14		15	-1		
12	1.2DL + 1WL AZI 300	Yes	Y	1	1.2	12	1	14	0.5	15	-0.866		
13	1.2DL + 1WL AZI 330	Yes	Y	1	1.2	13	1	14	0.866	15	-0.5		
14	0.9DL + 1WL AZI 0	Yes	Y	1	0.9	2	1	14	1	15			
15	0.9DL + 1WL AZI 30	Yes	Y	1	0.9	3	1	14	0.866	15	0.5		
16	0.9DL + 1WL AZI 60	Yes	Y	1	0.9	4	1	14	0.5	15	0.866		
17	0.9DL + 1WL AZI 90	Yes	Y	1	0.9	5	1	14		15	1		
18	0.9DL + 1WL AZI 120	Yes	Y	1	0.9	6	1	14	-0.5	15	0.866		
19	0.9DL + 1WL AZI 150	Yes	Y	1	0.9	7	1	14	-0.866	15	0.5		
20	0.9DL + 1WL AZI 180	Yes	Y	1	0.9	8	1	14	-1	15			
21	0.9DL + 1WL AZI 210	Yes	Y	1	0.9	9	1	14	-0.866	15	-0.5		
22	0.9DL + 1WL AZI 240	Yes	Y	1	0.9	10	1	14	-0.5	15	-0.866		
23	0.9DL + 1WL AZI 270	Yes	Y	1	0.9	11	1	14		15	-1		
24	0.9DL + 1WL AZI 300	Yes	Y	1	0.9	12	1	14	0.5	15	-0.866		
25	0.9DL + 1WL AZI 330	Yes	Y	1	0.9	13	1	14	0.866	15	-0.5		
26	1.2D + 1.0Di	Yes	Y	1	1.2	16	1						
27	1.2D + 1.0Di +1.0Wi AZI 0	Yes	Y	1	1.2	16	1	17	1	29	1	30	
28	1.2D + 1.0Di +1.0Wi AZI 30	Yes	Y	1	1.2	16	1	18	1	29	0.866	30	0.5
29	1.2D + 1.0Di +1.0Wi AZI 60	Yes	Y	1	1.2	16	1	19	1	29	0.5	30	0.866
30	1.2D + 1.0Di +1.0Wi AZI 90	Yes	Y	1	1.2	16	1	20	1	29		30	1
31	1.2D + 1.0Di +1.0Wi AZI 120	Yes	Y	1	1.2	16	1	21	1	29	-0.5	30	0.866
32	1.2D + 1.0Di +1.0Wi AZI 150	Yes	Y	1	1.2	16	1	22	1	29	-0.866	30	0.5
33	1.2D + 1.0Di +1.0Wi AZI 180	Yes	Y	1	1.2	16	1	23	1	29	-1	30	
34	1.2D + 1.0Di +1.0Wi AZI 210	Yes	Y	1	1.2	16	1	24	1	29	-0.866	30	-0.5
35	1.2D + 1.0Di +1.0Wi AZI 240	Yes	Y	1	1.2	16	1	25	1	29	-0.5	30	-0.866
36	1.2D + 1.0Di +1.0Wi AZI 270	Yes	Y	1	1.2	16	1	26	1	29		30	-1
37	1.2D + 1.0Di +1.0Wi AZI 300	Yes	Y	1	1.2	16	1	27	1	29	0.5	30	-0.866
38	1.2D + 1.0Di +1.0Wi AZI 330	Yes	Y	1	1.2	16	1	28	1	29	0.866	30	-0.5
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	1.238	31	1	32					
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	1.238	31	0.866	32	0.5				
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	1.238	31	0.5	32	0.866				
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	1.238	31		32	1				
43	(1.2 + 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	1.238	31	-0.5	32	0.866				
44	(1.2 + 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	1.238	31	-0.866	32	0.5				
45	(1.2 + 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	1.238	31	-1	32					
46	(1.2 + 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	1.238	31	-0.866	32	-0.5				
47	(1.2 + 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	1.238	31	-0.5	32	-0.866				
48	(1.2 + 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	1.238	31		32	-1				
49	(1.2 + 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	1.238	31	0.5	32	-0.866				

Load Combinations (Continued)

	Description	Solve	P-Delta	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor
50	(1.2 + 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	1.238	31	0.866	32	-0.5					
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	0.862	31	1	32						
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	0.862	31	0.866	32	0.5					
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	0.862	31	0.5	32	0.866					
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	0.862	31		32	1					
55	(0.9 - 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	0.862	31	-0.5	32	0.866					
56	(0.9 - 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	0.862	31	-0.866	32	0.5					
57	(0.9 - 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	0.862	31	-1	32						
58	(0.9 - 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	0.862	31	-0.866	32	-0.5					
59	(0.9 - 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	0.862	31	-0.5	32	-0.866					
60	(0.9 - 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	0.862	31		32	-1					
61	(0.9 - 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	0.862	31	0.5	32	-0.866					
62	(0.9 - 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	0.862	31	0.866	32	-0.5					
63	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 0	Yes	Y	1	1	2	0.25	14	0.25	15		33	1.5	
64	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 30	Yes	Y	1	1	3	0.25	14	0.217	15	0.125	33	1.5	
65	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 60	Yes	Y	1	1	4	0.25	14	0.125	15	0.217	33	1.5	
66	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 90	Yes	Y	1	1	5	0.25	14		15	0.25	33	1.5	
67	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 120	Yes	Y	1	1	6	0.25	14	-0.125	15	0.217	33	1.5	
68	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 150	Yes	Y	1	1	7	0.25	14	-0.217	15	0.125	33	1.5	
69	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 180	Yes	Y	1	1	8	0.25	14	-0.25	15		33	1.5	
70	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 210	Yes	Y	1	1	9	0.25	14	-0.217	15	-0.125	33	1.5	
71	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 240	Yes	Y	1	1	10	0.25	14	-0.125	15	-0.217	33	1.5	
72	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 270	Yes	Y	1	1	11	0.25	14		15	-0.25	33	1.5	
73	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 300	Yes	Y	1	1	12	0.25	14	0.125	15	-0.217	33	1.5	
74	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 330	Yes	Y	1	1	13	0.25	14	0.217	15	-0.125	33	1.5	
75	1.2DL + 1.5LL	Yes	Y	1	1.2	33	1.5							
76	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	34	1.5	2	0.063	14	0.063	15		
77	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	34	1.5	3	0.063	14	0.054	15	0.031	
78	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	34	1.5	4	0.063	14	0.031	15	0.054	
79	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	34	1.5	5	0.063	14		15	0.063	
80	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	34	1.5	6	0.063	14	-0.031	15	0.054	
81	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	34	1.5	7	0.063	14	-0.054	15	0.031	
82	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	34	1.5	8	0.063	14	-0.063	15		
83	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	34	1.5	9	0.063	14	-0.054	15	-0.031	
84	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	34	1.5	10	0.063	14	-0.031	15	-0.054	
85	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	34	1.5	11	0.063	14		15	-0.063	
86	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	34	1.5	12	0.063	14	0.031	15	-0.054	
87	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	34	1.5	13	0.063	14	0.054	15	-0.031	
88	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	35	1.5	2	0.063	14	0.063	15		
89	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	35	1.5	3	0.063	14	0.054	15	0.031	
90	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	35	1.5	4	0.063	14	0.031	15	0.054	
91	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	35	1.5	5	0.063	14		15	0.063	
92	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	35	1.5	6	0.063	14	-0.031	15	0.054	
93	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	35	1.5	7	0.063	14	-0.054	15	0.031	
94	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	35	1.5	8	0.063	14	-0.063	15		
95	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	35	1.5	9	0.063	14	-0.054	15	-0.031	
96	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	35	1.5	10	0.063	14	-0.031	15	-0.054	
97	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	35	1.5	11	0.063	14		15	-0.063	
98	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	35	1.5	12	0.063	14	0.031	15	-0.054	



Load Combinations (Continued)

	Description	Solve	P-Delta	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor
99	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	35	1.5	13	0.063	14	0.054	15	-0.031
100	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	36	1.5	2	0.063	14	0.063	15	
101	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	36	1.5	3	0.063	14	0.054	15	0.031
102	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	36	1.5	4	0.063	14	0.031	15	0.054
103	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	36	1.5	5	0.063	14		15	0.063
104	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	36	1.5	6	0.063	14	-0.031	15	0.054
105	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	36	1.5	7	0.063	14	-0.054	15	0.031
106	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	36	1.5	8	0.063	14	-0.063	15	
107	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	36	1.5	9	0.063	14	-0.054	15	-0.031
108	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	36	1.5	10	0.063	14	-0.031	15	-0.054
109	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	36	1.5	11	0.063	14		15	-0.063
110	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	36	1.5	12	0.063	14	0.031	15	-0.054
111	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	36	1.5	13	0.063	14	0.054	15	-0.031
112	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	37	1.5	2	0.063	14	0.063	15	
113	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	37	1.5	3	0.063	14	0.054	15	0.031
114	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	37	1.5	4	0.063	14	0.031	15	0.054
115	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	37	1.5	5	0.063	14		15	0.063
116	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	37	1.5	6	0.063	14	-0.031	15	0.054
117	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	37	1.5	7	0.063	14	-0.054	15	0.031
118	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	37	1.5	8	0.063	14	-0.063	15	
119	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	37	1.5	9	0.063	14	-0.054	15	-0.031
120	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	37	1.5	10	0.063	14	-0.031	15	-0.054
121	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	37	1.5	11	0.063	14		15	-0.063
122	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	37	1.5	12	0.063	14	0.031	15	-0.054
123	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	37	1.5	13	0.063	14	0.054	15	-0.031
124	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	38	1.5	2	0.063	14	0.063	15	
125	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	38	1.5	3	0.063	14	0.054	15	0.031
126	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	38	1.5	4	0.063	14	0.031	15	0.054
127	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	38	1.5	5	0.063	14		15	0.063
128	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	38	1.5	6	0.063	14	-0.031	15	0.054
129	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	38	1.5	7	0.063	14	-0.054	15	0.031
130	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	38	1.5	8	0.063	14	-0.063	15	
131	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	38	1.5	9	0.063	14	-0.054	15	-0.031
132	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	38	1.5	10	0.063	14	-0.031	15	-0.054
133	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	38	1.5	11	0.063	14		15	-0.063
134	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	38	1.5	12	0.063	14	0.031	15	-0.054
135	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	38	1.5	13	0.063	14	0.054	15	-0.031
136	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	39	1.5	2	0.063	14	0.063	15	
137	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	39	1.5	3	0.063	14	0.054	15	0.031
138	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	39	1.5	4	0.063	14	0.031	15	0.054
139	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	39	1.5	5	0.063	14		15	0.063
140	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	39	1.5	6	0.063	14	-0.031	15	0.054
141	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	39	1.5	7	0.063	14	-0.054	15	0.031
142	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	39	1.5	8	0.063	14	-0.063	15	
143	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	39	1.5	9	0.063	14	-0.054	15	-0.031
144	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	39	1.5	10	0.063	14	-0.031	15	-0.054
145	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	39	1.5	11	0.063	14		15	-0.063
146	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	39	1.5	12	0.063	14	0.031	15	-0.054
147	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	39	1.5	13	0.063	14	0.054	15	-0.031



Load Combinations (Continued)

	Description	Solve	P-Delta	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor
148	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	40	1.5	2	0.063	14	0.063	15	
149	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	40	1.5	3	0.063	14	0.054	15	0.031
150	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	40	1.5	4	0.063	14	0.031	15	0.054
151	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	40	1.5	5	0.063	14		15	0.063
152	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	40	1.5	6	0.063	14	-0.031	15	0.054
153	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	40	1.5	7	0.063	14	-0.054	15	0.031
154	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	40	1.5	8	0.063	14	-0.063	15	
155	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	40	1.5	9	0.063	14	-0.054	15	-0.031
156	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	40	1.5	10	0.063	14	-0.031	15	-0.054
157	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	40	1.5	11	0.063	14		15	-0.063
158	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	40	1.5	12	0.063	14	0.031	15	-0.054
159	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	40	1.5	13	0.063	14	0.054	15	-0.031
160	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	41	1.5	2	0.063	14	0.063	15	
161	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	41	1.5	3	0.063	14	0.054	15	0.031
162	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	41	1.5	4	0.063	14	0.031	15	0.054
163	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	41	1.5	5	0.063	14		15	0.063
164	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	41	1.5	6	0.063	14	-0.031	15	0.054
165	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	41	1.5	7	0.063	14	-0.054	15	0.031
166	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	41	1.5	8	0.063	14	-0.063	15	
167	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	41	1.5	9	0.063	14	-0.054	15	-0.031
168	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	41	1.5	10	0.063	14	-0.031	15	-0.054
169	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	41	1.5	11	0.063	14		15	-0.063
170	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	41	1.5	12	0.063	14	0.031	15	-0.054
171	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	41	1.5	13	0.063	14	0.054	15	-0.031
172	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	42	1.5	2	0.063	14	0.063	15	
173	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	42	1.5	3	0.063	14	0.054	15	0.031
174	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	42	1.5	4	0.063	14	0.031	15	0.054
175	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	42	1.5	5	0.063	14		15	0.063
176	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	42	1.5	6	0.063	14	-0.031	15	0.054
177	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	42	1.5	7	0.063	14	-0.054	15	0.031
178	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	42	1.5	8	0.063	14	-0.063	15	
179	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	42	1.5	9	0.063	14	-0.054	15	-0.031
180	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	42	1.5	10	0.063	14	-0.031	15	-0.054
181	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	42	1.5	11	0.063	14		15	-0.063
182	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	42	1.5	12	0.063	14	0.031	15	-0.054
183	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	42	1.5	13	0.063	14	0.054	15	-0.031
184	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	43	1.5	2	0.063	14	0.063	15	
185	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	43	1.5	3	0.063	14	0.054	15	0.031
186	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	43	1.5	4	0.063	14	0.031	15	0.054
187	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	43	1.5	5	0.063	14		15	0.063
188	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	43	1.5	6	0.063	14	-0.031	15	0.054
189	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	43	1.5	7	0.063	14	-0.054	15	0.031
190	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	43	1.5	8	0.063	14	-0.063	15	
191	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	43	1.5	9	0.063	14	-0.054	15	-0.031
192	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	43	1.5	10	0.063	14	-0.031	15	-0.054
193	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	43	1.5	11	0.063	14		15	-0.063
194	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	43	1.5	12	0.063	14	0.031	15	-0.054
195	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	43	1.5	13	0.063	14	0.054	15	-0.031
196	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	44	1.5	2	0.063	14	0.063	15	



Load Combinations (Continued)

Description		Solve	P-Delta	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor	BLCFactor
197	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	44	1.5	3	0.063	14	0.054	15	0.031	
198	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	44	1.5	4	0.063	14	0.031	15	0.054	
199	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	44	1.5	5	0.063	14		15	0.063	
200	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	44	1.5	6	0.063	14	-0.031	15	0.054	
201	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	44	1.5	7	0.063	14	-0.054	15	0.031	
202	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	44	1.5	8	0.063	14	-0.063	15		
203	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	44	1.5	9	0.063	14	-0.054	15	-0.031	
204	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	44	1.5	10	0.063	14	-0.031	15	-0.054	
205	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	44	1.5	11	0.063	14		15	-0.063	
206	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	44	1.5	12	0.063	14	0.031	15	-0.054	
207	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	44	1.5	13	0.063	14	0.054	15	-0.031	
208	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	45	1.5	2	0.063	14	0.063	15		
209	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	45	1.5	3	0.063	14	0.054	15	0.031	
210	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	45	1.5	4	0.063	14	0.031	15	0.054	
211	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	45	1.5	5	0.063	14		15	0.063	
212	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	45	1.5	6	0.063	14	-0.031	15	0.054	
213	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	45	1.5	7	0.063	14	-0.054	15	0.031	
214	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	45	1.5	8	0.063	14	-0.063	15		
215	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	45	1.5	9	0.063	14	-0.054	15	-0.031	
216	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	45	1.5	10	0.063	14	-0.031	15	-0.054	
217	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	45	1.5	11	0.063	14		15	-0.063	
218	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	45	1.5	12	0.063	14	0.031	15	-0.054	

Envelope Node Reactions

Node Label	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC		
1	N21	max	2363.61	4	1887.586	35	1181.848	2	-438.403	16	1992.162	4	249.807	4
2		min	-2358.526	10	196.316	16	-1146.825	20	-4780.277	35	-1991.08	10	-249.821	10
3	N23	max	1716.424	4	1896.024	28	2474.666	14	2341.312	37	2580.438	10	4201.965	28
4		min	-1686.935	22	182.116	20	-2498.087	8	382.047	17	-2580.396	4	205.799	20
5	N25	max	1749.425	17	1894.373	31	2404.819	25	2471.484	32	2769.909	12	-498.474	24
6		min	-1783.168	11	184.078	24	-2419.988	7	-55.275	24	-2769.098	6	-4116.677	31
7	N101	max	43.386	24	2193.808	31	1532.76	31	3.666	24	17.032	15	2.909	24
8		min	-2654.866	31	-17.408	24	-25.043	24	-275.287	31	-17.299	9	-474.12	31
9	N93	max	5.468	54	2201.571	27	70.618	20	550.184	27	19.167	23	13.201	23
10		min	-5.457	60	-31.647	20	-3076.776	27	-7.912	20	-19.464	5	-13.418	5
11	N109	max	2664.598	35	2201.681	35	1538.619	35	4.502	15	16.857	19	476.897	35
12		min	-62.531	16	-32.746	16	-36.097	16	-275.021	34	-17.145	13	-7.065	16
13	Totals:	max	4757.491	17	11731.218	36	4937.458	2						
14		min	-4757.494	11	2362.414	54	-4937.456	8						

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

Member	Shape	Code Check	Loc[in]	LC	Shear	Check	Loc[in]	DirL	Cphi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	MH1	L3X3X4	0.677	168	34	0.104	84	z	3515778.129	46656	1688.138	2160.605	1	H2-1
2	MH4	L3X3X4	0.677	168	38	0.105	84	z	2715778.129	46656	1688.138	2160.605	1	H2-1
3	MH3	L3X3X4	0.674	0	38	0.106	84	z	3115778.129	46656	1688.138	2160.605	1	H2-1
4	MP10	PIPE 2.0	0.536	57	6	0.097	21	12	14916.096	32130	1871.625	1871.625	1.823	H1-1b
5	MP2	PIPE 2.0	0.535	57	2	0.097	21	8	14916.096	32130	1871.625	1871.625	2.129	H1-1b



Company : Infinigy Engineering, PLLC
 Designer : AG
 Job Number : 1039-Z0001-B
 Model Name : 876392

7/16/2021
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 Checked By : _____

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

Member	Shape	Code	Check	Loc[in]	LC	Shear	Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
6	MP6	PIPE 2.0	0.535	57	10	0.094	21	4			14916.096	32130	1871.625	1871.625	1.833	H1-1b
7	M49	L2.5x2.5x3	0.388	0	8	0.086	16.856	y	3		27191.718	29192.4	872.574	1971.83	1.5	H2-1
8	M11	LL3x3x4x0	0.384	47	37	0.067	29.865	y	29		76373.943	93312	6480	4360.702	2.151	H1-1b
9	M4	LL3x3x4x0	0.383	47	33	0.066	29.865	y	37		76373.943	93312	6480	4360.702	2.138	H1-1b
10	M5	LL3x3x4x0	0.381	47	28	0.067	29.865	y	33		76373.943	93312	6480	4360.702	2.075	H1-1b
11	M48	L2.5x2.5x3	0.38	0	12	0.086	16.856	y	7		27191.718	29192.4	872.574	1971.83	1.5	H2-1
12	M47	L2.5x2.5x3	0.37	0	4	0.085	16.856	y	11		27191.718	29192.4	872.574	1971.83	1.5	H2-1
13	MS2	C4x5x4x0.4375	0.369	0	31	0.091	10.271	y	13		154033.99	172054.109	14060.936	26608.316	3	H1-1b
14	MS1	C4x5x4x0.4375	0.368	0	28	0.091	10.271	y	9		154033.99	172054.109	14060.936	26608.316	3	H1-1b
15	MS3	C4x5x4x0.4375	0.359	0	35	0.077	10.271	y	5		154033.99	172054.109	14060.936	26608.316	3	H1-1b
16	MK1	L2.5x2.5x3	0.28	38.511	27	0.003	75.45	z	36		8306.98	29192.4	872.574	1507.336	1.136	H2-1
17	MK6	L2.5x2.5x3	0.28	38.511	35	0.003	75.45	z	36		8306.98	29192.4	872.574	1507.336	1.136	H2-1
18	MK4	L2.5x2.5x3	0.279	38.511	31	0.003	75.45	z	36		8306.98	29192.4	872.574	1507.336	1.136	H2-1
19	MK2	L2.5x2.5x3	0.279	38.511	38	0.003	75.45	y	36		8306.98	29192.4	872.574	1507.336	1.136	H2-1
20	MK5	L2.5x2.5x3	0.279	38.511	34	0.003	75.45	y	36		8306.98	29192.4	872.574	1507.336	1.136	H2-1
21	MK3	L2.5x2.5x3	0.278	38.511	30	0.003	75.45	y	36		8306.98	29192.4	872.574	1507.336	1.136	H2-1
22	MR2	PIPE 2.0	0.266	87	5	0.219	29	4			17855.085	32130	1871.625	1871.625	1	H1-1b
23	MR3	PIPE 2.0	0.264	87	9	0.223	29	8			17855.085	32130	1871.625	1871.625	1	H1-1b
24	MR1	PIPE 2.0	0.26	87	13	0.219	29	12			17855.085	32130	1871.625	1871.625	1	H1-1b
25	MP5	PIPE 2.0	0.26	44.688	31	0.14	44.688	10			22356.067	32130	1871.625	1871.625	2.273	H1-1b
26	MP9	PIPE 2.0	0.256	44.688	27	0.138	44.688	5			22356.067	32130	1871.625	1871.625	2.449	H1-1b
27	MP12	PIPE 2.0	0.254	44.688	35	0.152	9.625	12			22356.067	32130	1871.625	1871.625	2.436	H1-1b
28	MP1	PIPE 2.0	0.253	44.688	35	0.139	44.688	13			22356.067	32130	1871.625	1871.625	2.417	H1-1b
29	MP8	PIPE 2.0	0.252	44.688	27	0.149	9.625	4			22356.067	32130	1871.625	1871.625	2.457	H1-1b
30	MP4	PIPE 2.0	0.247	44.688	31	0.151	9.625	8			22356.067	32130	1871.625	1871.625	2.391	H1-1b
31	MP11	PIPE 2.0	0.233	45	9	0.143	45	11			23808.54	32130	1871.625	1871.625	1.572	H1-1b
32	MP7	PIPE 2.0	0.232	45	13	0.137	45	3			23808.54	32130	1871.625	1871.625	1.648	H1-1b
33	MP3	PIPE 2.0	0.216	45	5	0.141	45	7			23808.54	32130	1871.625	1871.625	1.544	H1-1b
34	MH6	L3X3X4	0.184	43.297	16	0.015	43.297	Z	28		14847.125	46656	1688.138	3193.443	1.386	H2-1
35	MH5	L3X3X4	0.176	43.297	20	0.015	43.297	Z	38		14847.125	46656	1688.138	3201.846	1.401	H2-1
36	MH2	L3X3X4	0.169	43.297	16	0.015	43.297	Z	30		14847.125	46656	1688.138	3174.732	1.355	H2-1

APPENDIX D
ADDITIONAL CALCUATIONS

Bolt Calculation Tool, V1.4

PROJECT DATA	
Site Name:	NEW HARTFORD / EXECUTIVE GREEN
Site Number:	876392
Job Code:	1039-Z0001-B
Connection Description:	Standoff to Tower

APPLIED LOADS		
Bolt Tension:	13483.64	lbs
Bolt Shear:	1797.10	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	1	in
Bolt Grade:	A325	-
# of Bolts:	2	-
Threads Excluded?	No	-

BOLT CHECK		
Tensile Strength	54516.96	
Shear Strength	35342.92	
Tensile Usage	24.7%	
Shear Usage	5.1%	
Interaction Check	0.06	≤1.05
Result	Pass	



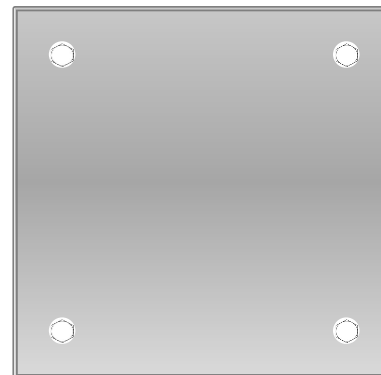
Bolt Calculation Tool, V1.4

PROJECT DATA	
Site Name:	NEW HARTFORD / EXECUTIVE GREEN
Site Number:	876392
Job Code:	1039-Z0001-B
Connection Description:	Kicker to Collar

APPLIED LOADS		
Bolt Tension:	0.00	lbs
Bolt Shear:	550.92	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.625	in
Bolt Grade:	A325	-
# of Bolts:	4	-
Threads Excluded?	No	-

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Tensile Usage	0.0%	
Shear Usage	4.0%	
Interaction Check	0.00	≤1.05
Result	Pass	



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

T-Mobile Existing Facility

Site ID: CTNH814A

876392

115 Industrial Park Road
New Hartford, Connecticut 06057

September 29, 2021

EBI Project Number: 6221005722

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	17.61%

September 29, 2021

T-Mobile

Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CTNH814A - 876392

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **115 Industrial Park Road in New Hartford, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 115 Industrial Park Road in New Hartford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

- 6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 7) 1 LTE Traffic channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.
- 8) 1 LTE Broadcast channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.
- 9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 11) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 12) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 13) The antennas used in this modeling are the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and

associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 14) The antenna mounting height centerline of the proposed antennas is 157 feet above ground level (AGL).
- 15) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 16) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd
Height (AGL):	157 feet	Height (AGL):	157 feet	Height (AGL):	157 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts
ERP (W):	14,005.63	ERP (W):	14,005.63	ERP (W):	14,005.63
Antenna A1 MPE %:	2.21%	Antenna B1 MPE %:	2.21%	Antenna C1 MPE %:	2.21%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	157 feet	Height (AGL):	157 feet	Height (AGL):	157 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts
ERP (W):	4,151.83	ERP (W):	4,151.83	ERP (W):	4,151.83
Antenna A2 MPE %:	1.56%	Antenna B2 MPE %:	1.56%	Antenna C2 MPE %:	1.56%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	157 feet	Height (AGL):	157 feet	Height (AGL):	157 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A3 MPE %:	5.73%	Antenna B3 MPE %:	5.73%	Antenna C3 MPE %:	5.73%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	9.50%
T-Mobile (Existing)	1.56%
Metro PCS	0.61%
Verizon	1.65%
AT&T	4.29%
Site Total MPE % :	17.61%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	9.50%
T-Mobile Sector B Total:	9.50%
T-Mobile Sector C Total:	9.50%
Site Total MPE % :	17.61%

T-Mobile Maximum MPE Power Values (Sector A)							
T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 1900 MHz GSM	4	1167.14	157.0	7.36	1900 MHz GSM	1000	0.74%
T-Mobile 1900 MHz LTE	2	2334.27	157.0	7.36	1900 MHz LTE	1000	0.74%
T-Mobile 2100 MHz LTE	2	2334.27	157.0	7.36	2100 MHz LTE	1000	0.74%
T-Mobile 600 MHz LTE	2	591.73	157.0	1.87	600 MHz LTE	400	0.47%
T-Mobile 600 MHz NR	1	1577.94	157.0	2.49	600 MHz NR	400	0.62%
T-Mobile 700 MHz LTE	2	695.22	157.0	2.19	700 MHz LTE	467	0.47%
T-Mobile 2500 MHz LTE IC & 2C Traffic	1	11044.63	157.0	17.41	2500 MHz LTE IC & 2C Traffic	1000	1.74%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	1074.06	157.0	1.69	2500 MHz LTE IC & 2C Broadcast	1000	0.17%
T-Mobile 2500 MHz NR Traffic	1	22089.26	157.0	34.83	2500 MHz NR Traffic	1000	3.48%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	157.0	3.39	2500 MHz NR Broadcast	1000	0.34%
						Total:	9.50%

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

Summary

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

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	9.50%
Sector B:	9.50%
Sector C:	9.50%
T-Mobile Maximum MPE % (Sector A):	9.50%
Site Total:	17.61%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **17.61%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

T-Mobile

T-MOBILE SITE NUMBER: CTNH814A

T-MOBILE SITE NAME: CTNH814A

SITE TYPE: MONOPOLE

TOWER HEIGHT: 168'-0"

BUSINESS UNIT #: 876392

**SITE ADDRESS: 115 INDUSTRIAL PARK RD
NEW HARTFORD, CT 06057**

COUNTY: LITCHFIELD

JURISDICTION: CONNECTICUT SITING COUNCIL

T-MOBILE SPRINT RETAIN SITE CONFIGURATION: 67E5A998E 6160

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002



3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065



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

**T-MOBILE SITE NUMBER:
CTNH814A**

**BU #: 876392
NEW HARTFORD /
EXECUTIVE GREET**

115 INDUSTRIAL PARK RD
NEW HARTFORD, CT 06057

EXISTING
168'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/10/21	AP/AY	CONSTRUCTION	JHW
1	9/22/21	JHW	CONSTRUCTION	JHW

SITE INFORMATION

CROWN CASTLE USA INC. NEW HARTFORD / EXECUTIVE GREET
SITE NAME:
SITE ADDRESS: 115 INDUSTRIAL PARK RD
NEW HARTFORD, CT 06057
COUNTY: LITCHFIELD
MAP/PARCEL #: 038-134-15C
AREA OF CONSTRUCTION: EXISTING
LATITUDE: 41.886244°
LONGITUDE: -72.966139°
LAT/LONG TYPE: NAD83
GROUND ELEVATION: 567'-0"
CURRENT ZONING: IP - INDUSTRIAL PARK
JURISDICTION: CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION: U
TYPE OF CONSTRUCTION: IIB
A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR
HUMAN HABITATION
PROPERTY OWNER: FRAMINGHAM COMMONS LLC
4017 WASHINGTON ROAD
MCMURRAY, PA 15317
TOWER OWNER: CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317
CARRIER/APPLICANT: T-MOBILE
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002
ELECTRIC PROVIDER: NORTHEAST UTILITIES
TELCO PROVIDER: NOT PROVIDED

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION

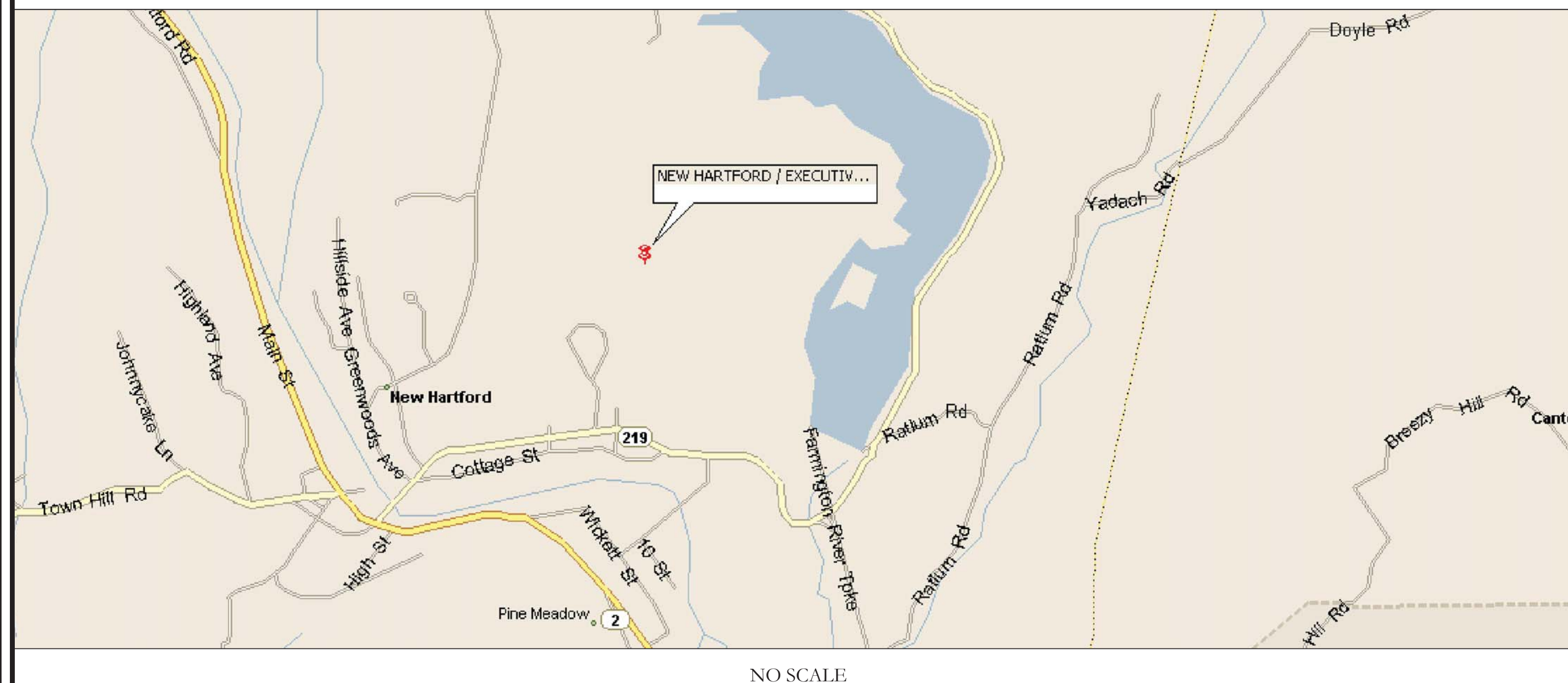
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

- TOWER SCOPE OF WORK:**
- REMOVE (6) ANTENNAS
 - REMOVE (6) RADIOS
 - REMOVE (9) SWITCHES
 - REMOVE (3) HYBRID CABLES (1-1/4")
 - REMOVE (1) HYBRID CABLE (5/8")
 - INSTALL (9) ANTENNAS
 - INSTALL (6) RADIOS
 - INSTALL (3) HYBRID CABLES (6X24)
 - INSTALL (1) SITE PRO1 - HRK14 HANDRAIL KIT & (3) MOUNT PIPES PER MOUNT ANALYSIS BY INFNIGY ENGINEERING, PLLC, DATED JULY 21, 2021

- GROUND SCOPE OF WORK:**
- INSTALL (1) 6160 SSC
 - INSTALL (1) B160 BATTERY CABINET
 - INSTALL (1) RBS 6601 INSIDE 6160 SSC
 - INSTALL (1) DUG20 IN 6160 SSC
 - INSTALL (3) BB6648 IN 6160 SSC
 - INSTALL (1) CSR IXRE V2 TRANSPORT SYSTEM

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

LOCATION MAP



NO SCALE

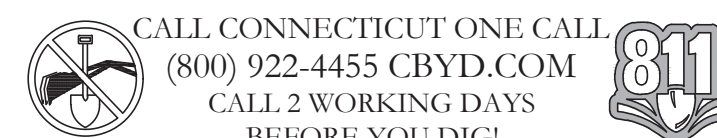
APPLICABLE CODES/REFERENCE DOCUMENTS

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	2015 IBC W/AMENDMENTS
MECHANICAL	2015 IMC W/AMENDMENTS
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	CROWN CASTLE
DATED:	9/01/21
MOUNT ANALYSIS:	INFNIGY ENGINEERING, PLLC
DATED:	7/21/21
RFDS REVISION:	1
DATED:	6/21/21
ORDER ID:	575185
REVISION:	0



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APPROVALS

APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.	_____	_____
LAND USE PLANNER	_____	_____
T-MOBILE	_____	_____
OPERATIONS	_____	_____
RF	_____	_____
NETWORK	_____	_____
BACKHAUL	_____	_____
CONSTRUCTION MANAGER	_____	_____

THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.

PROJECT TEAM

A&E FIRM: B+T GROUP
1717 S. BOULDER AVE.
TULSA, OK 74119
MARVIN PHILLIPS
marvin.phillips@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS: 3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065
TRICIA PELON - PROJECT MANAGER
TRICIA.PELON@CROWNCastle.COM



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

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

SHEET NUMBER: T-1 **REVISION: 1**

T-1 1

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

- 1. NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" - CROWN CASTLE USA INC. 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.
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.
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.
5. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED-STD-10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," 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 CROWN CASTLE USA INC. 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 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 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 CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., 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 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.

GREENFIELD 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 ANTI-OXIDANT 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).

GENERAL NOTES:

- 1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY: CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION CARRIER: T-MOBILE TOWER OWNER: TOWER CASTLE USA INC.
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 CROWN CASTLE.
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 CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS 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 CROWN CASTLE USA INC. 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.
13. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

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. ALL THE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
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/IEEC 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/IEEC AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOULD 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 LOCKOUT 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 3R (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 CROWN CASTLE USA INC. 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 "T-MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

Table with columns: SYSTEM, CONDUCTOR, COLOR. Rows include 120/240V, 10; 120/208V, 30; 277/480V, 30; DC VOLTAGE.

APWA UNIFORM COLOR CODE:

- WHITE PROPOSED EXCAVATION
PINK TEMPORARY SURVEY MARKINGS
RED ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE POTABLE WATER
PURPLE RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN SEWERS AND DRAIN LINES

* SEE NEC 210.5(C)(1) AND (2) ** POLARITY MARKED AT TERMINATION

ABBREVIATIONS:

- ANT ANTENNA
(E) EXISTING
FIF FACILITY INTERFACE FRAME
GEN GENERATOR
GPS GLOBAL POSITIONING SYSTEM
GSM GLOBAL SYSTEM FOR MOBILE
LTE LONG TERM EVOLUTION
MGB MASTER GROUND BAR
MW MICROWAVE
(N) NEW
NEC NATIONAL ELECTRIC CODE
(P) PROPOSED
PP POWER PLANT
QTY QUANTITY
RECT RECTIFIER
RBS RADIO BASE STATION
RET REMOTE ELECTRIC TILT
RFDS RADIO FREQUENCY DATA SHEET
RRH REMOTE RADIO HEAD
RRU REMOTE RADIO UNIT
SIAD SMART INTEGRATED DEVICE
TMA TOWER MOUNTED AMPLIFIER
TYP TYPICAL
UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P. WORK POINT

T-Mobile logo and address: 35 GRIFFIN ROAD, BLOOMFIELD, CT 06002

CROWN CASTLE logo and address: 3 CORPORATE PARK DRIVE, SUITE 101, CLIFTON PARK, NY 12065

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

T-MOBILE SITE NUMBER: CTNH814A
BU #: 876392
NEW HARTFORD / EXECUTIVE GREET
115 INDUSTRIAL PARK RD, NEW HARTFORD, CT 06057
EXISTING 168'-0" MONOPOLE

Table with columns: REV, DATE, DRWN, DESCRIPTION, DES./QA. Rows for REV 0 and 1.

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Professional Engineer seal for B&T ENGINEERING, INC. No. 25924, expires 2/10/22.
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SHEET NUMBER: T-2 REVISION: 1

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**T-MOBILE SITE NUMBER:
 CTNH814A**


**BU #: 876392
 NEW HARTFORD /
 EXECUTIVE GREET**

115 INDUSTRIAL PARK RD
 NEW HARTFORD, CT 06057

EXISTING
 168'-0" MONOPOLE

ISSUED FOR:

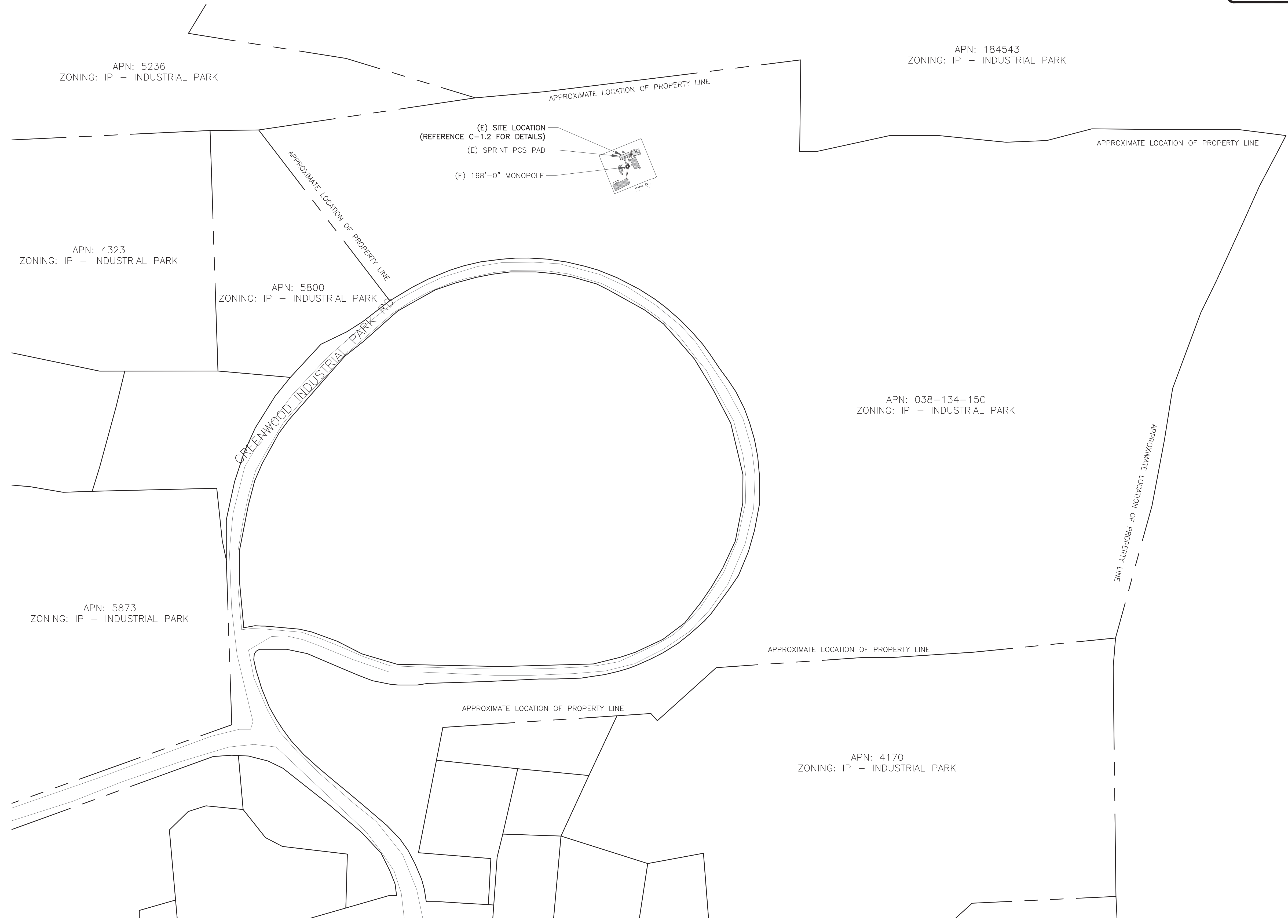
REV	DATE	DRWN	DESCRIPTION	DES./QA
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1	9/22/21	JHW	CONSTRUCTION	JHW



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SHEET NUMBER: C-1.1 **REVISION: 1**



1 OVERALL SITE PLAN

SCALE: 1" = 100'-0" (FULL SIZE)
 1" = 200'-0" (11x17)



147879.002.01_NEW_HARTFORD_EXECUTIVE_GREET.dwg - Sheet-C-1.1 - User: jackie.weeter - Sep 22, 2021 - 7:36am

NOTES:
 THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

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T-MOBILE SITE NUMBER:
CTNH814A


BU #: 876392
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EXISTING
 168'-0" MONOPOLE

ISSUED FOR:

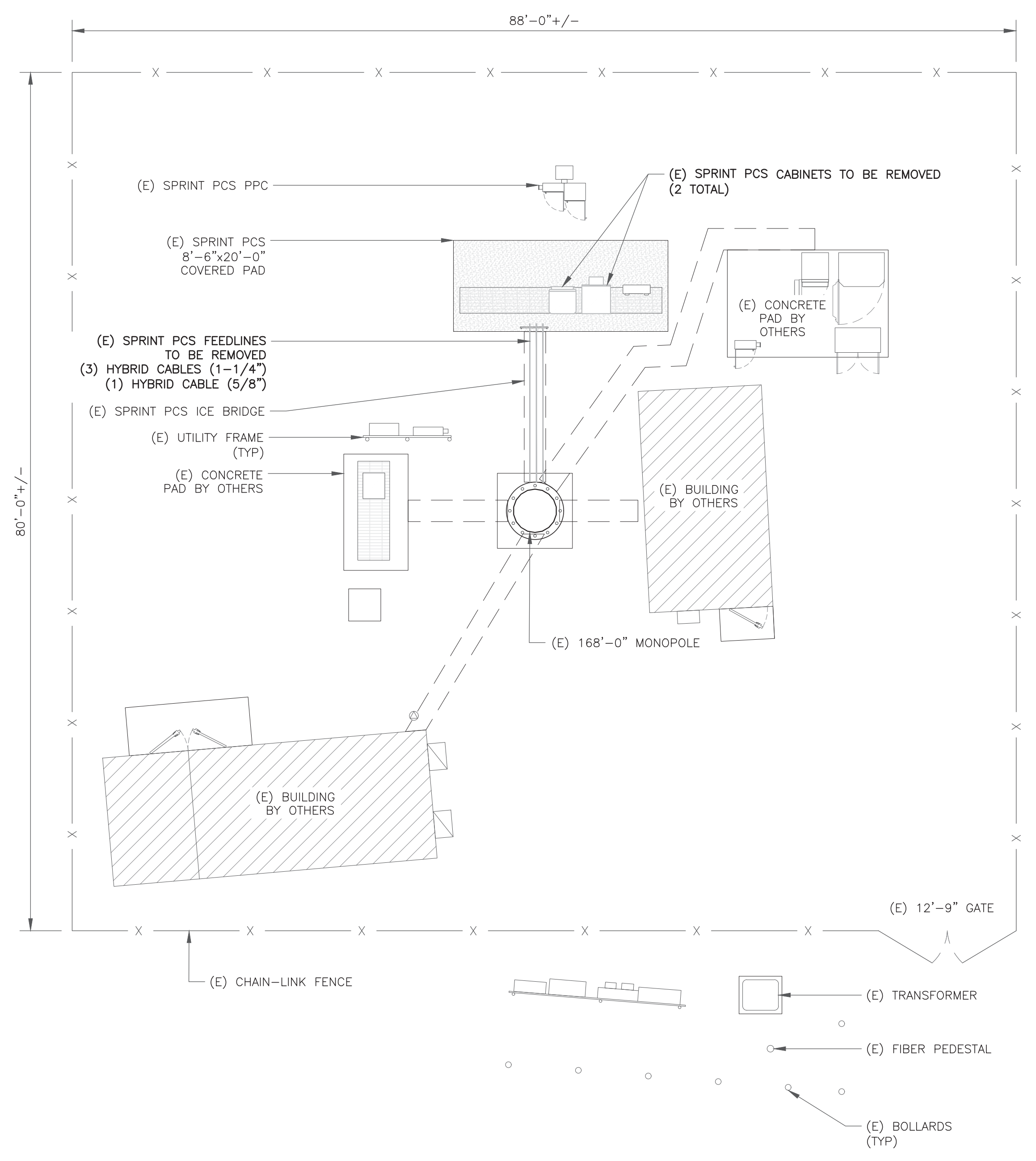
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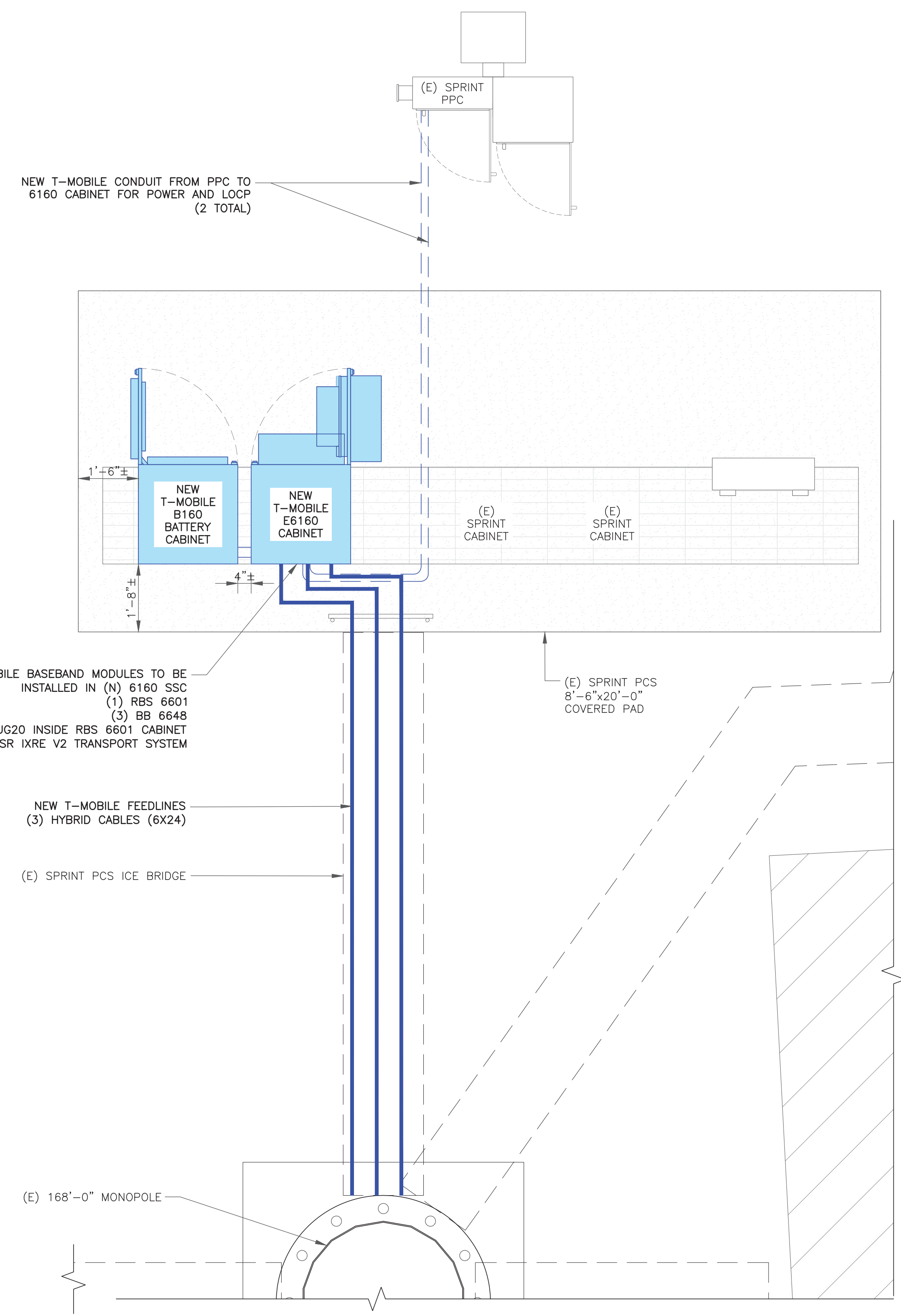
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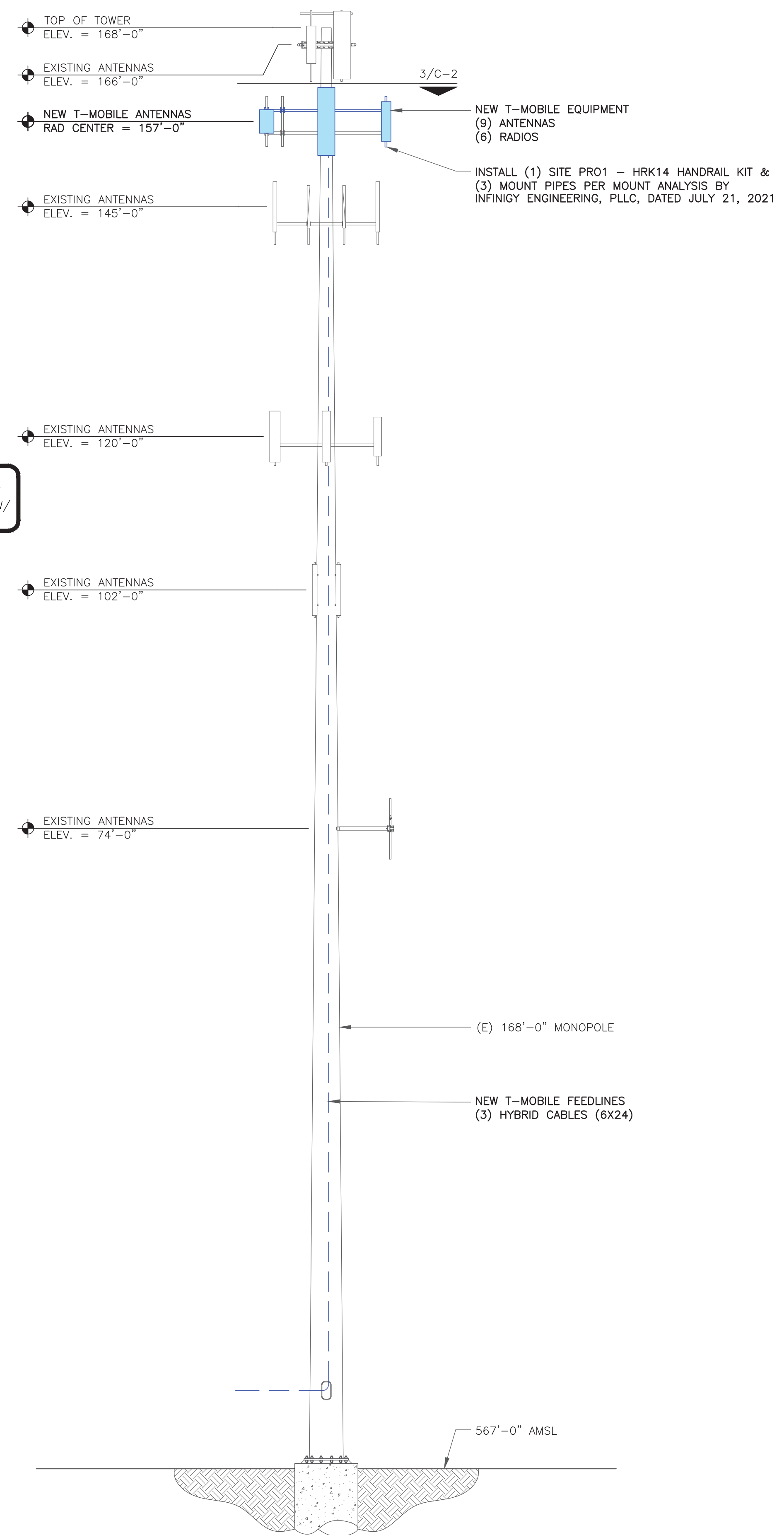


1 SITE PLAN
 SCALE: 1/8"=1'-0" (FULL SIZE)
 1/16"=1'-0" (11x17)



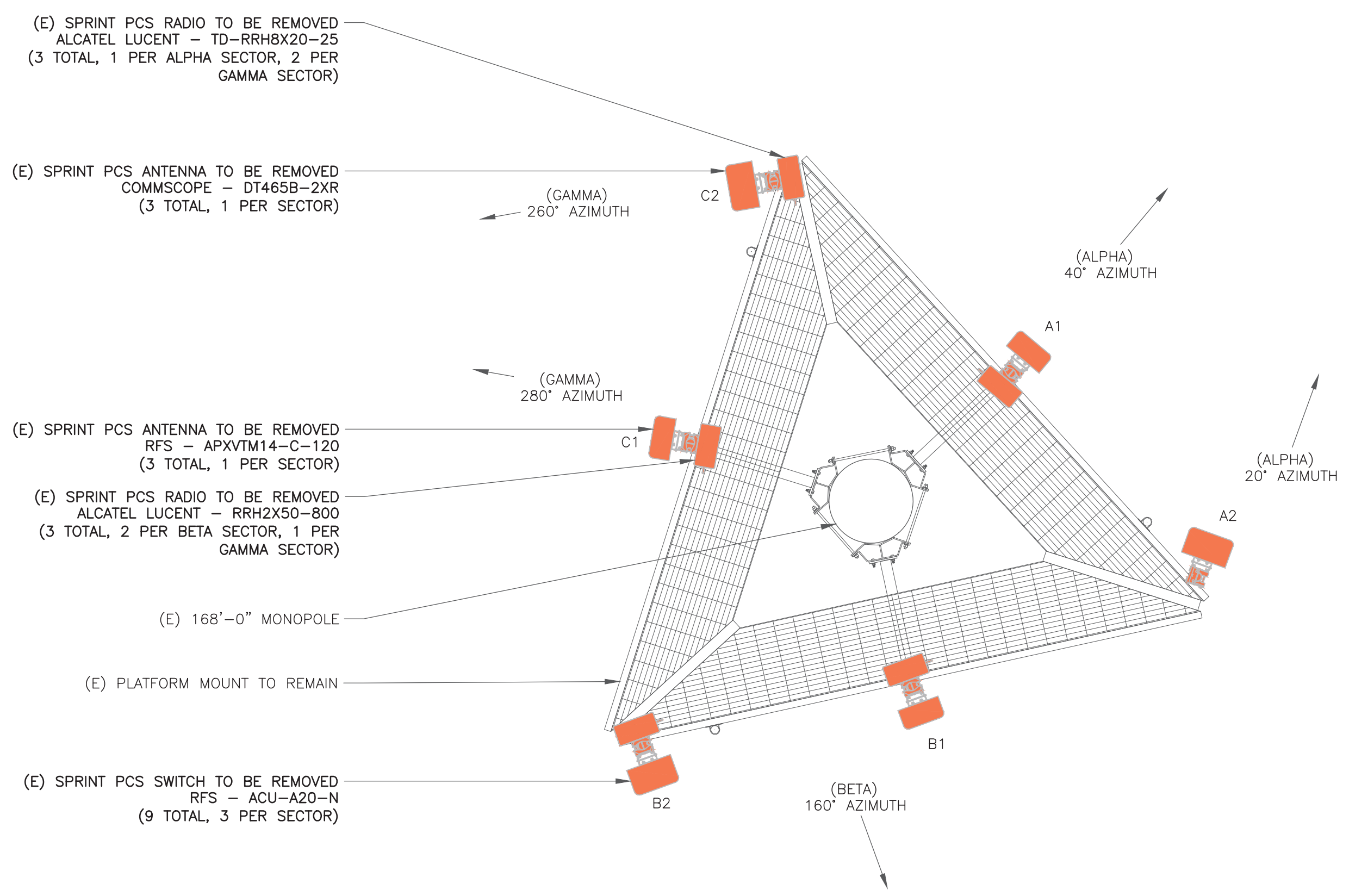
2 ENLARGED SITE PLAN
 SCALE: 1/2"=1'-0" (FULL SIZE)
 1/4"=1'-0" (11x17)

147879.002.01_NEW_HARTFORD_EXECUTIVE_GREET.dwg - Sheet-C-1.2 - User: jackie.weeter - Sep 22, 2021 - 7:36am

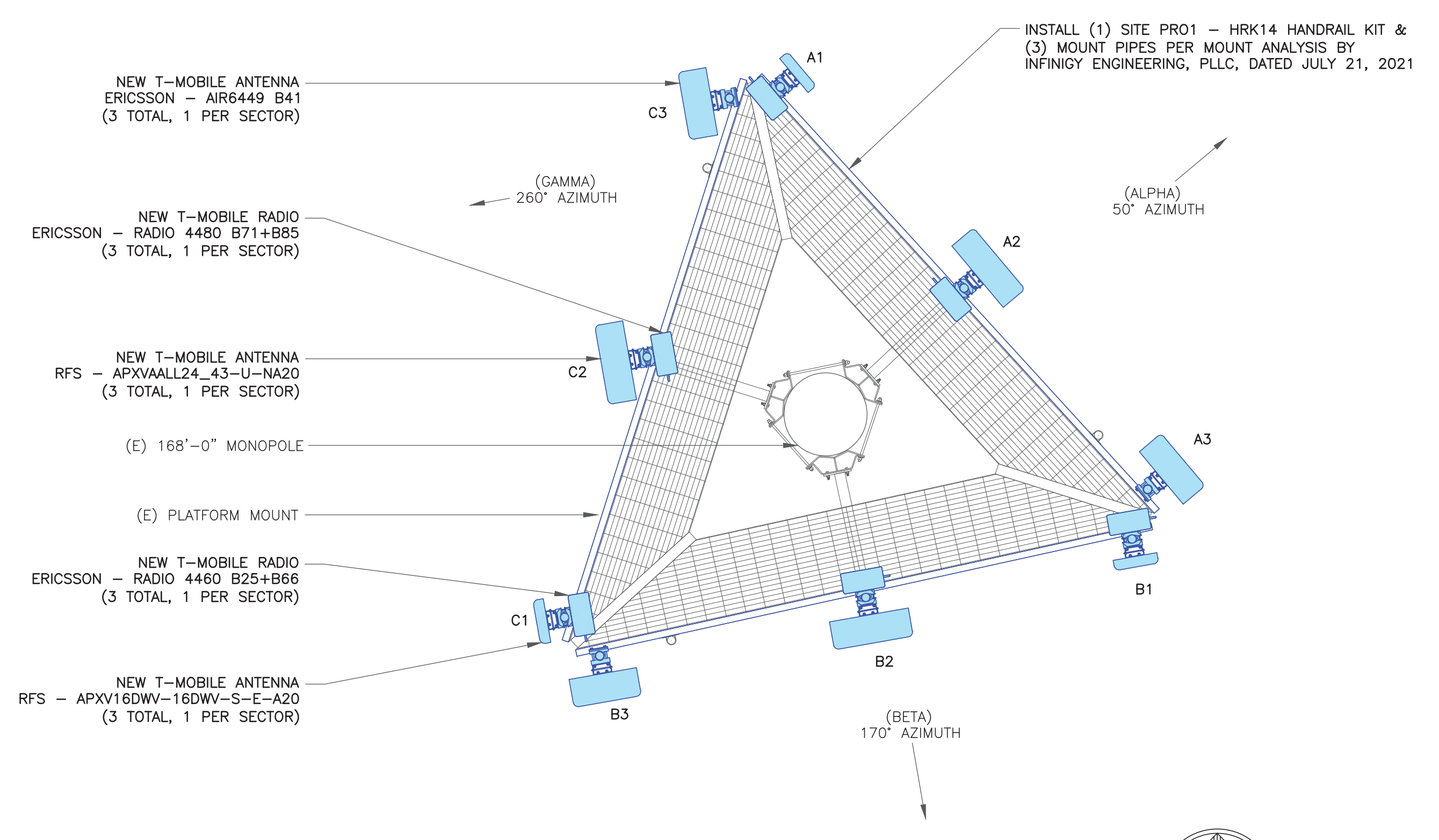


1 FINAL ELEVATION
SCALE: NOT TO SCALE

T-MOBILE EQUIPMENT
 ANTENNA CL: 157'-0"
 MOUNT CL: 157'-0"
 ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB



2 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

T-Mobile
 35 GRIFFIN ROAD
 BLOOMFIELD, CT 06002

CROWN CASTLE
 3 CORPORATE PARK DRIVE, SUITE 101
 CLIFTON PARK, NY 12065

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

T-MOBILE SITE NUMBER:
CTNH814A
 BU #: 876392
NEW HARTFORD / EXECUTIVE GREET
 115 INDUSTRIAL PARK RD
 NEW HARTFORD, CT 06057
 EXISTING
 168'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/10/21	AP/AY	CONSTRUCTION	JHW
1	9/22/21	JHW	CONSTRUCTION	JHW

Professional Engineer Seal: B&T ENGINEERING, INC. No. 23924, Expires 2/10/22

B&T ENGINEERING, INC.
 PEC.0001564
 Expires 2/10/22
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SHEET NUMBER: **C-2** REVISION: **1**

147879.002.01_NEW_HARTFORD_EXECUTIVE_GREET.dwg - Sheet-C-2 - User: jockie.weeter - Sep 22, 2021 - 7:36am

T-MOBILE SITE NUMBER:
CTNH814A

BU #: **876392**
NEW HARTFORD /
EXECUTIVE GREET

115 INDUSTRIAL PARK RD
NEW HARTFORD, CT 06057

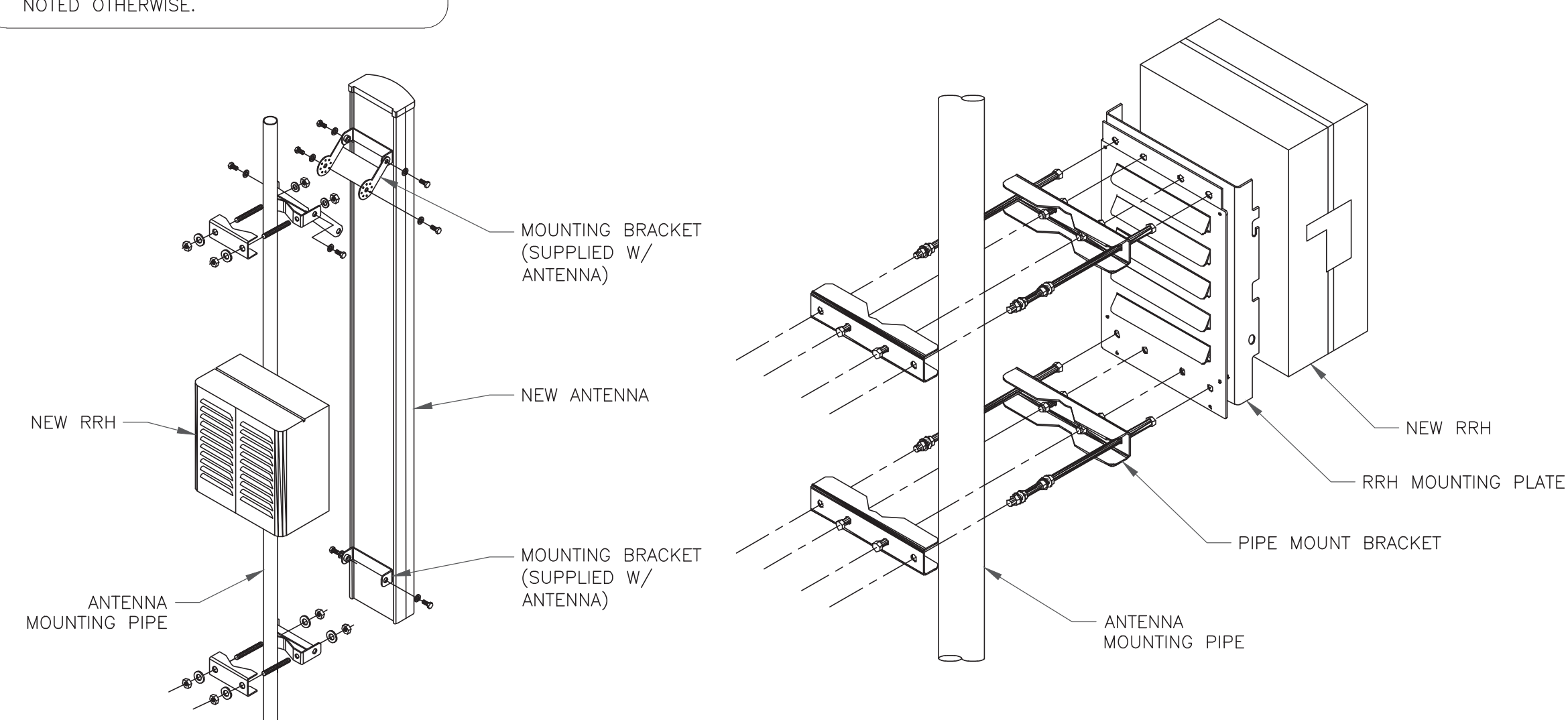
EXISTING
168'-0" MONOPOLE

RF SYSTEM SCHEDULE										
SECTOR	ANTENN A	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	FEEDLINE TYPE
ALPHA	A1	L1900/G1900/L2100	RFS	APXV16DWV-16DWV-S-E-A20	50°	-	-	157'-0"	(1) 4460 B25+B66	(1) HYBRID CABLE (6X24)
	A2	L700/L600/N600	RFS	APXVAALL24_43-U-NA20	50°	-	-	157'-0"	(1) 4480 B71+B85	-
	A3	-	-	-	-	-	-	-	-	-
	A4	L2500/N2500	ERICSSON	AIR6449 B41	50°	-	-	157'-0"	-	-
BETA	B1	L1900/G1900/L2100	RFS	APXV16DWV-16DWV-S-E-A20	170°	-	-	157'-0"	(1) 4460 B25+B66	(1) HYBRID CABLE (6X24)
	B2	L700/L600/N600	RFS	APXVAALL24_43-U-NA20	170°	-	-	157'-0"	(1) 4480 B71+B85	-
	B3	-	-	-	-	-	-	-	-	-
	B4	L2500/N2500	ERICSSON	AIR6449 B41	170°	-	-	157'-0"	-	-
GAMMA	C1	L1900/G1900/L2100	RFS	APXV16DWV-16DWV-S-E-A20	260°	-	-	157'-0"	(1) 4460 B25+B66	(1) HYBRID CABLE (6X24)
	C2	L700/L600/N600	RFS	APXVAALL24_43-U-NA20	260°	-	-	157'-0"	(1) 4480 B71+B85	-
	C3	-	-	-	-	-	-	-	-	-
	C4	L2500/N2500	ERICSSON	AIR6449 B41	260°	-	-	157'-0"	-	-

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



2 ANTENNA WITH RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

ISSUED FOR:

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0	8/10/21	AP/AY	CONSTRUCTION	JHW
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SHEET NUMBER:

C-3

REVISION:

1

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE

3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP

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

T-MOBILE SITE NUMBER:
CTNH814A

BU #: 876392
NEW HARTFORD /
EXECUTIVE GREET

115 INDUSTRIAL PARK RD
NEW HARTFORD, CT 06057

EXISTING
168'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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1	9/22/21	JHW	CONSTRUCTION	JHW



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SHEET NUMBER:

C-4

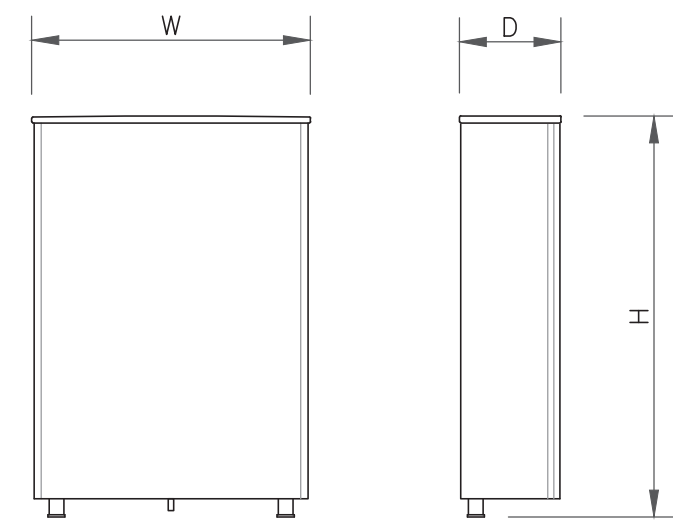
REVISION:

1



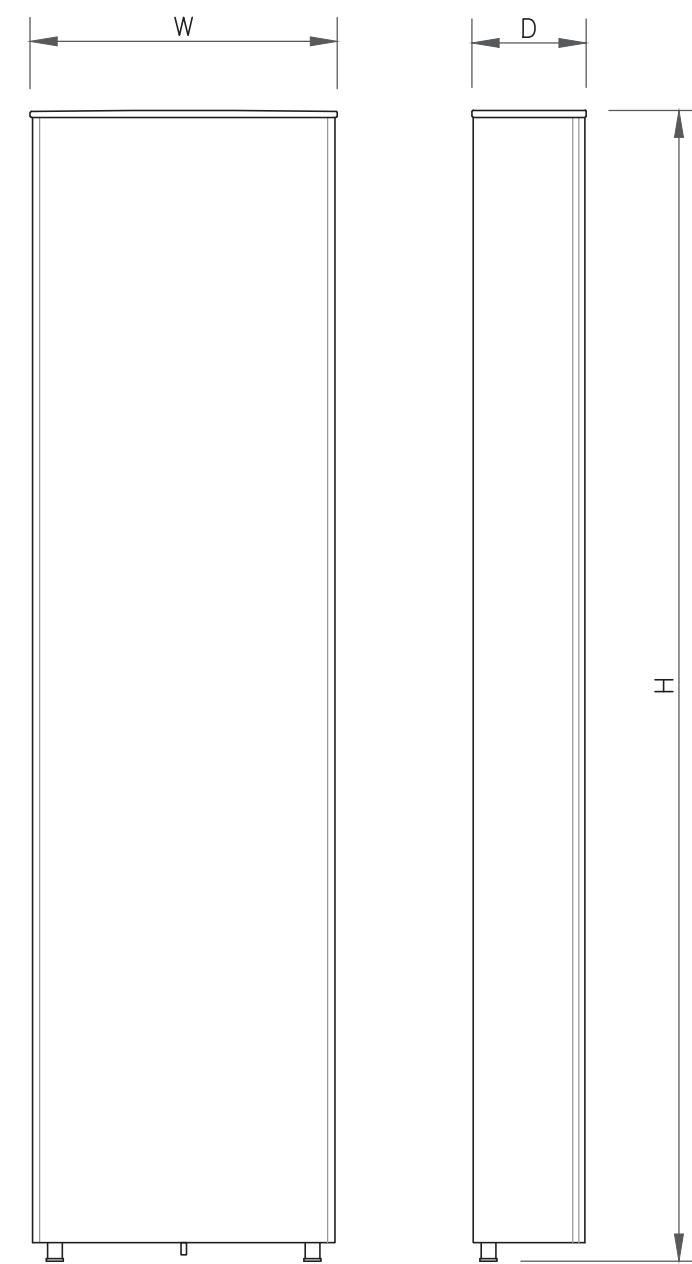
1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

147879.002.01_NEW_HARTFORD_EXECUTIVE_GREET.dwg - User: jockie.weeter - Sep 22, 2021 - 7:36am



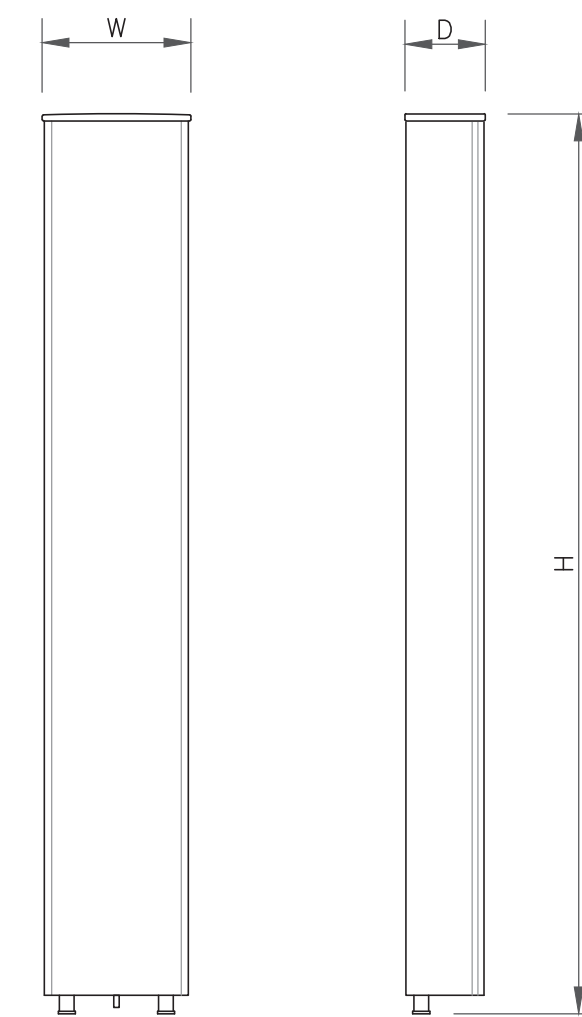
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6449 B41
WIDTH	20.51"
DEPTH	8.54"
HEIGHT	33.11"
WEIGHT	114.63 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



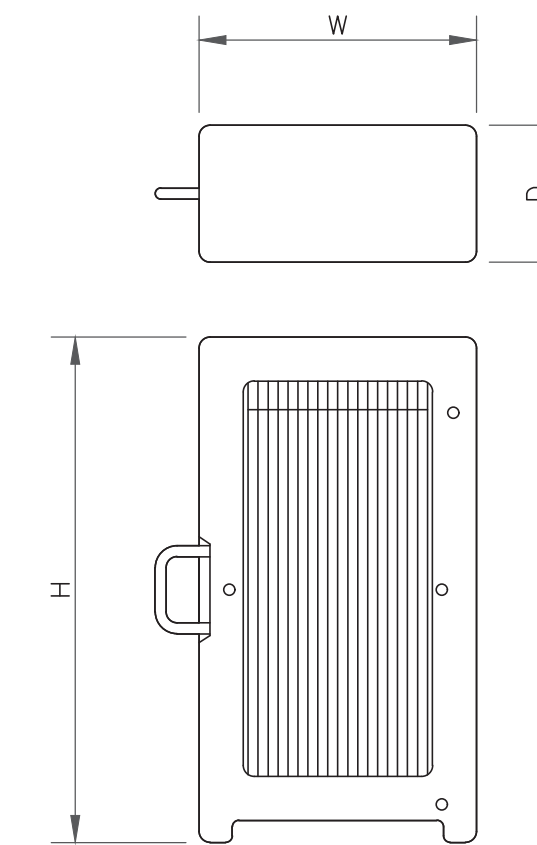
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVAALL24_43-U-NA20
WIDTH	24"
DEPTH	8.5"
HEIGHT	95.90"
WEIGHT	149.9 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXV16DWV-16DWV-S-E-A20
WIDTH	13.30"
DEPTH	3.15"
HEIGHT	55.90"
WEIGHT	41 LBS

3 ANTENNA SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4480 B71+B85
WIDTH	15.7"
DEPTH	7.5"
HEIGHT	21.8"
WEIGHT	92.6 LBS

4 RRU SPECS
SCALE: NOT TO SCALE

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SUITE 300
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T-MOBILE SITE NUMBER:
CTNH814A

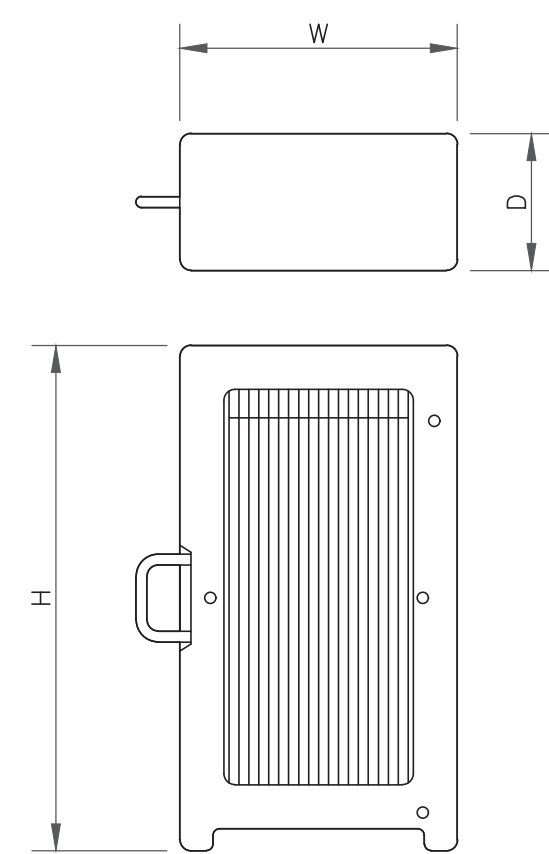
BU #: **876392**
NEW HARTFORD /
EXECUTIVE GREET

115 INDUSTRIAL PARK RD
NEW HARTFORD, CT 06057

EXISTING
168'-0" MONOPOLE

ISSUED FOR:

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RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4460 B25+B66
WIDTH	15.1"
DEPTH	11.9"
HEIGHT	17"
WEIGHT	109 LBS

5 RRU SPECS
SCALE: NOT TO SCALE



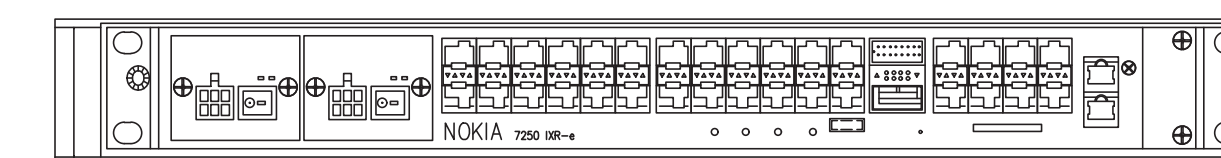
ERICSSON 6160 SSC
WEIGHT: 60.0 LBS
SIZE (HxWxD): 63"x25.6"x33.5" IN.

6 ERICSSON 6160 SSC
SCALE: NOT TO SCALE



BATTERY CABINET SPECIFICATIONS	
MODEL #	B160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	26"
DEPTH	26"
WEIGHT	

7 ERICSSON B160 BATTERY CABINET
SCALE: NOT TO SCALE



NOKIA CSR IXRE V2 TRANSPORT SYSTEM
WEIGHT: 11.2 LBS.
SIZE (HxWxD): 1.75x17.25x10.0 IN.

8 NOKIA CSR IXRE V2 TRANSPORT SYSTEM
SCALE: NOT TO SCALE



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SHEET NUMBER:

C-5

REVISION:

1

T-Mobile

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SUITE 300
TULSA, OK 74119
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T-MOBILE SITE NUMBER:
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BU #: **876392**
NEW HARTFORD /
EXECUTIVE GREET

115 INDUSTRIAL PARK RD
NEW HARTFORD, CT 06057

EXISTING
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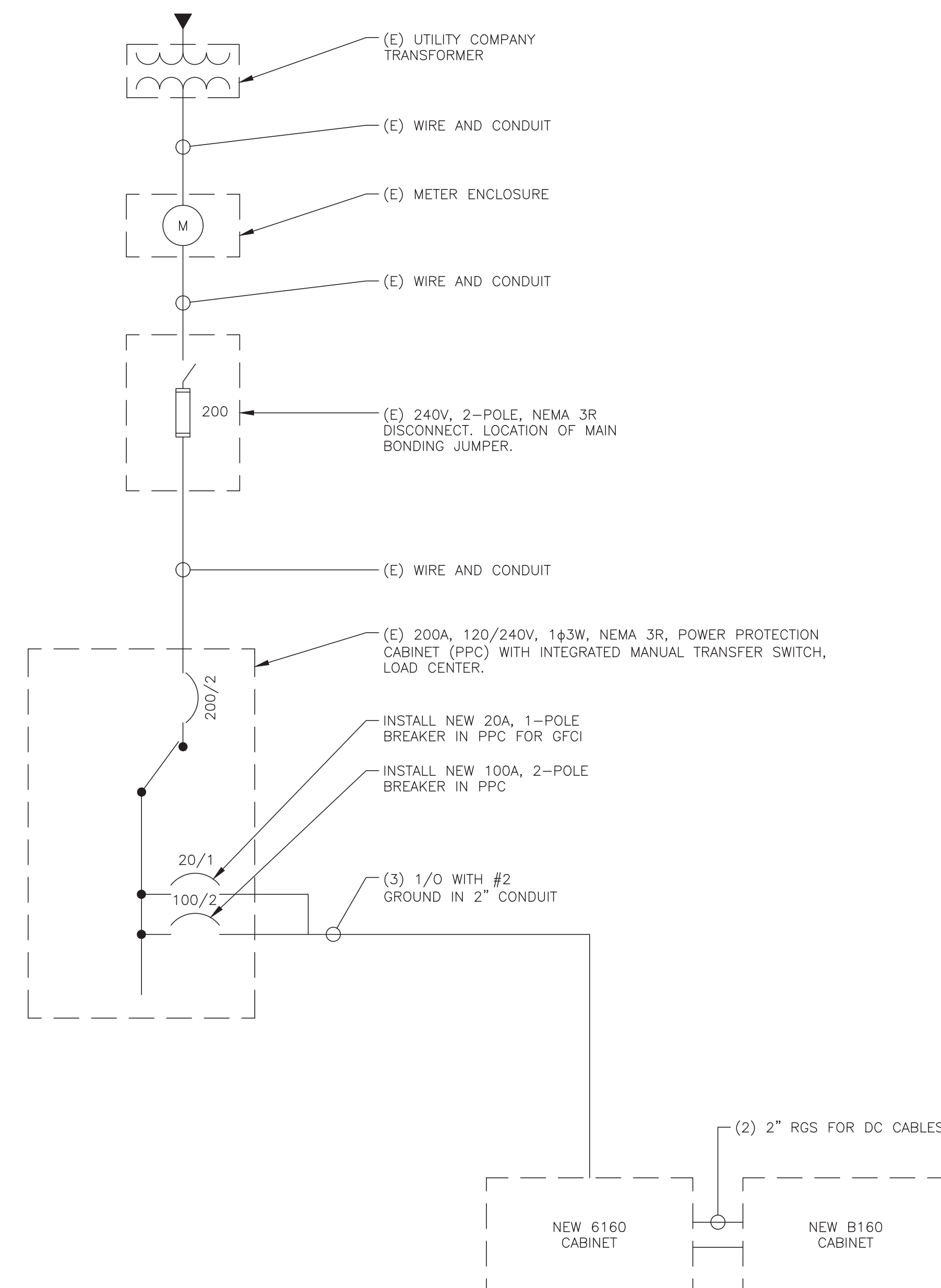
SHEET NUMBER:

E-1

REVISION:

1

PANEL INFORMATION
UNAVAILABLE AT TIME OF
ISSUE



NOTES:

- ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 UNLESS NOTED OTHERWISE.
- CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- ALL GROUNDING AND BONDING PER THE NEC.

1 FINAL T-MOBILE PANEL DETAIL
SCALE: NOT TO SCALE

2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

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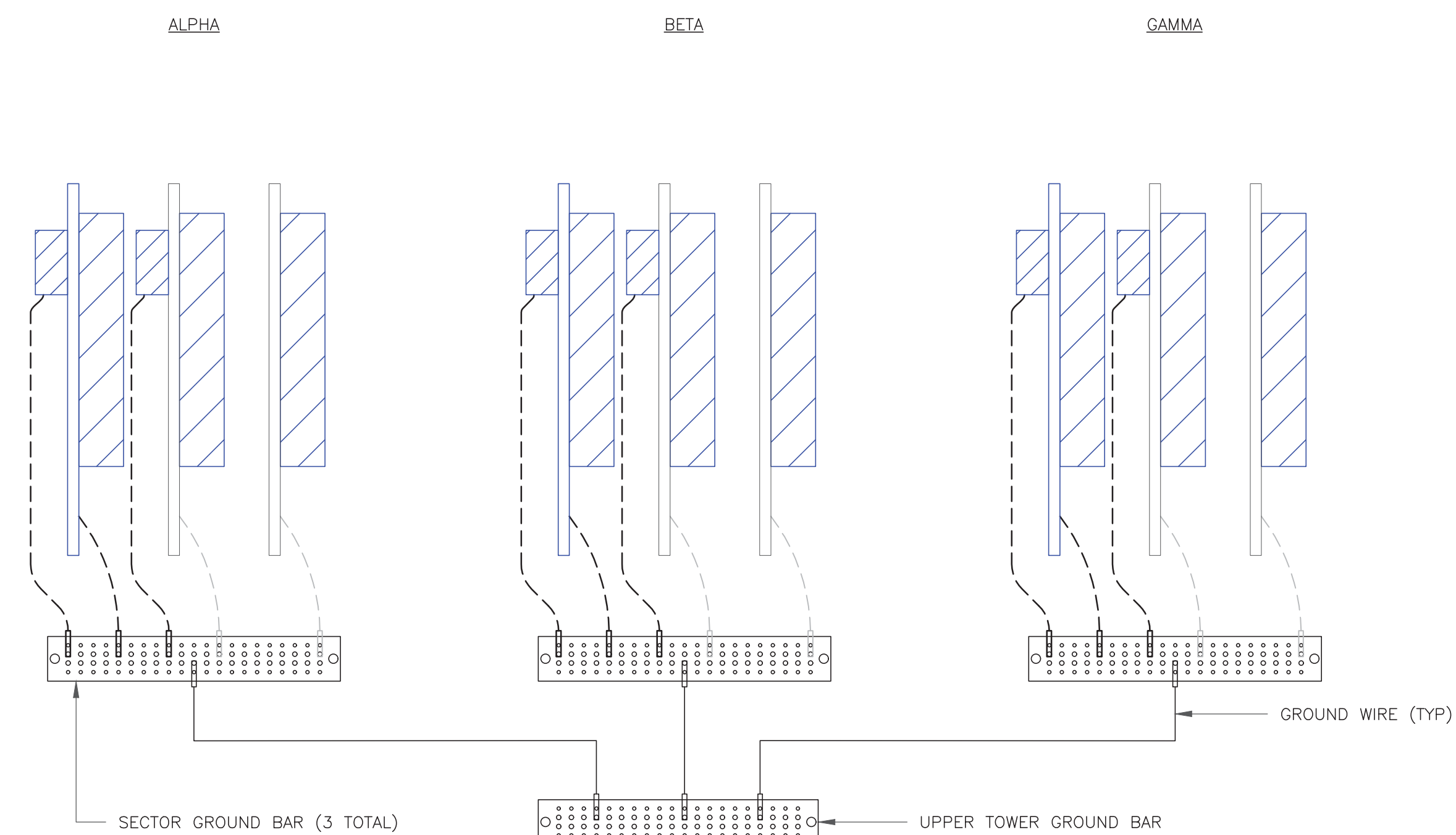
BU #: **876392**
NEW HARTFORD /
EXECUTIVE GREET

115 INDUSTRIAL PARK RD
NEW HARTFORD, CT 06057

EXISTING
168'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/10/21	AP/AY	CONSTRUCTION	JHW
1	9/22/21	JHW	CONSTRUCTION	JHW



NOTE:
ALL NEW GROUNDS TO BE #6 STRANDED
COPPER WITH GREEN INSULATION UNLESS
NOTED OTHERWISE.

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



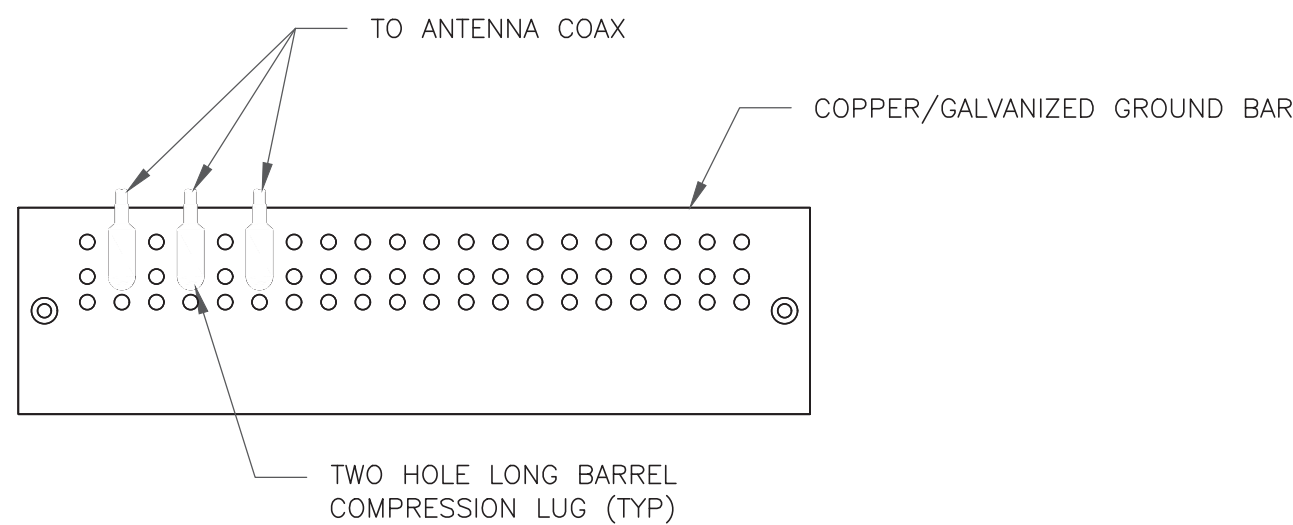
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SHEET NUMBER:
G-1

REVISION:
1

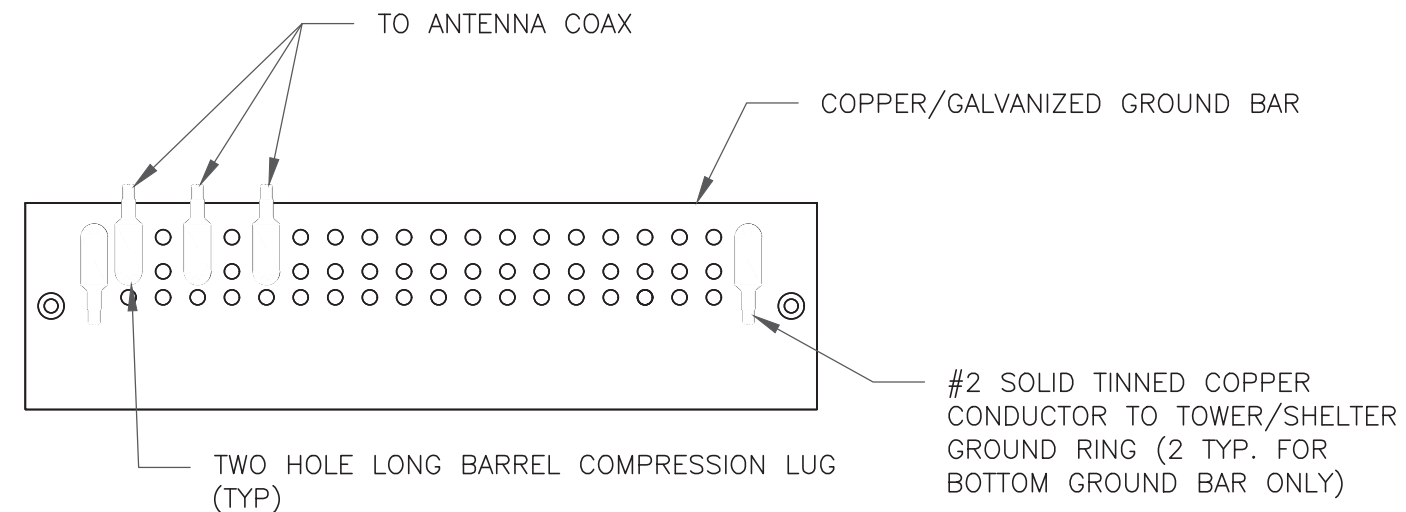
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NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

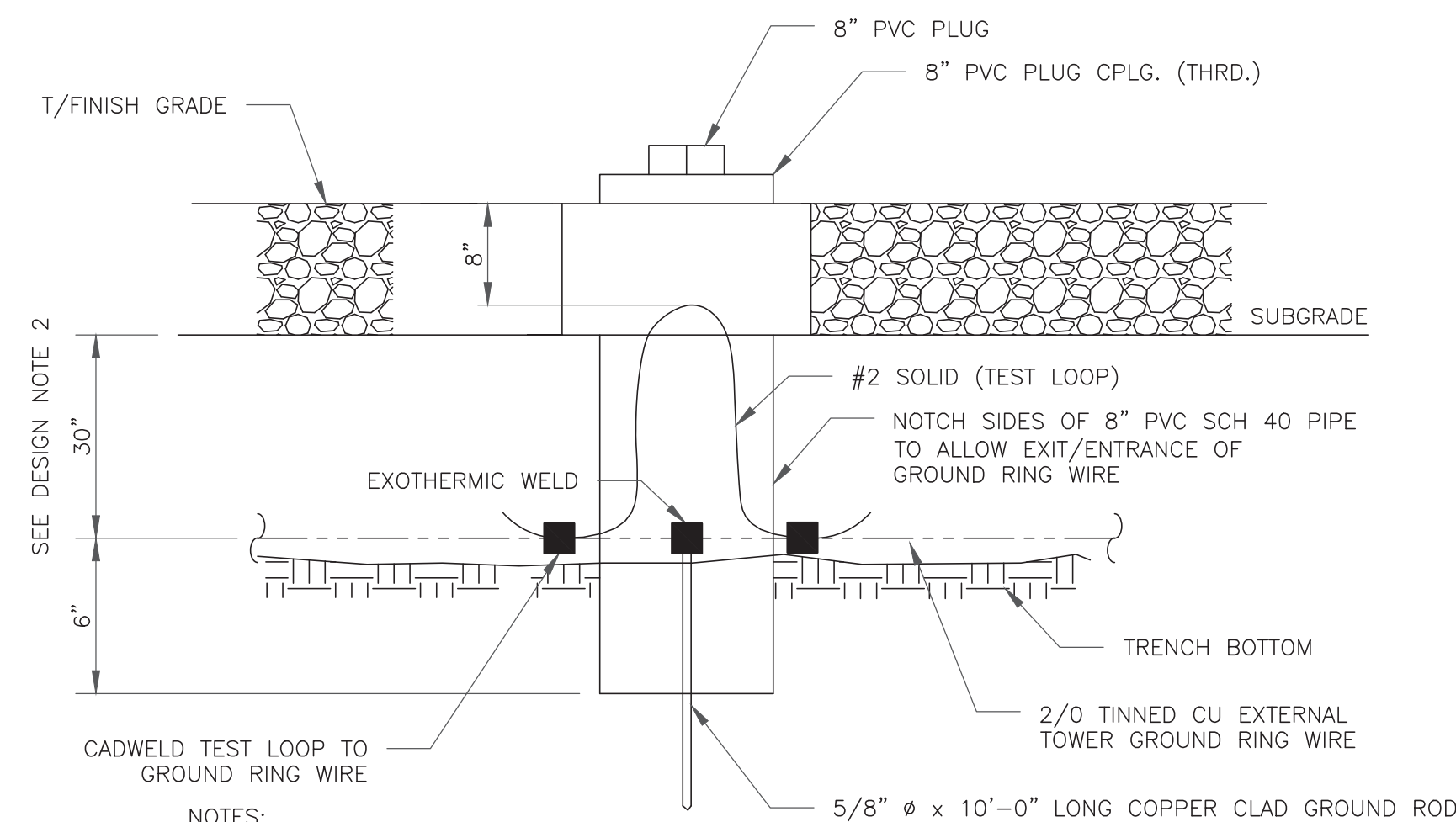
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

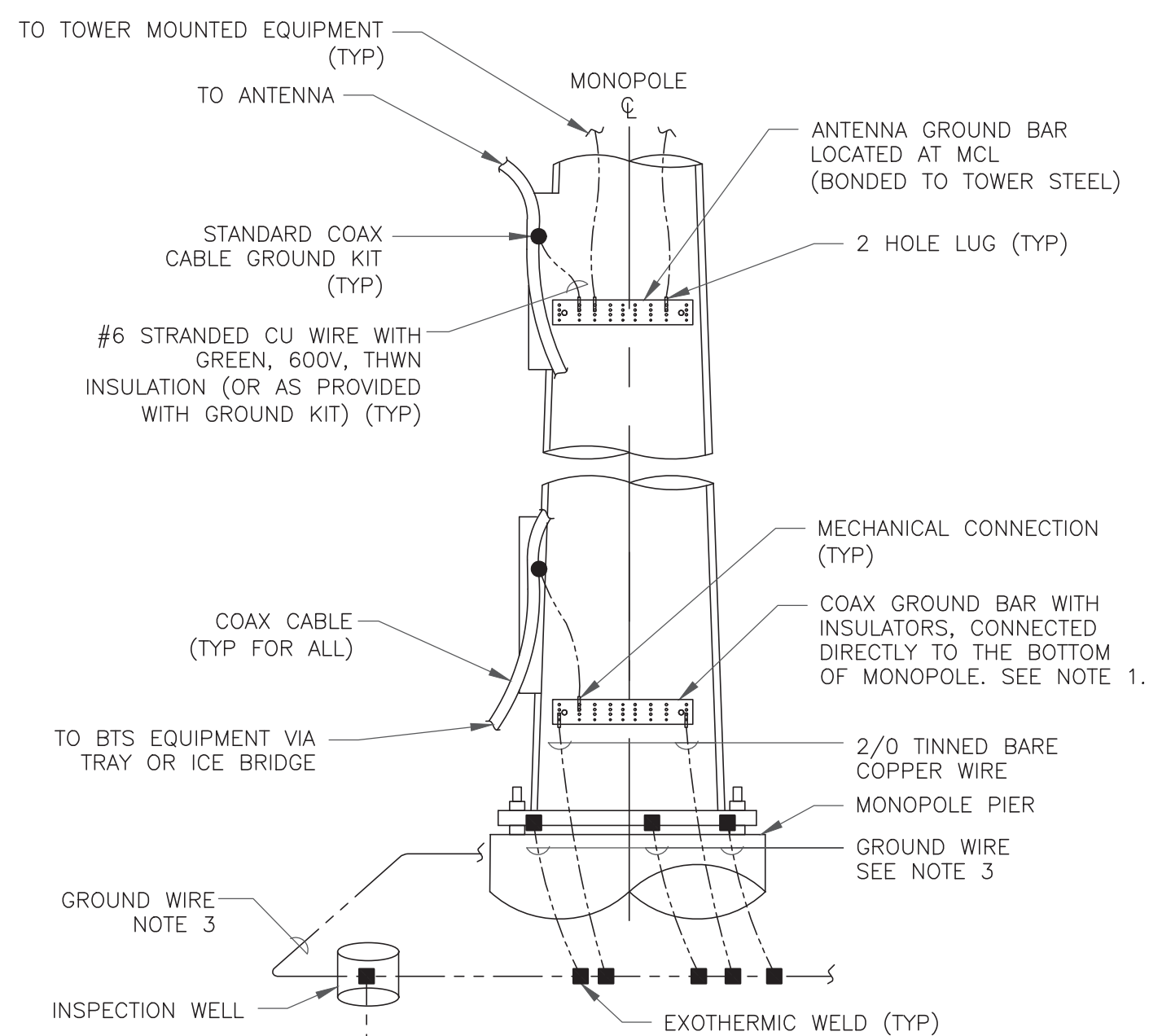
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D).

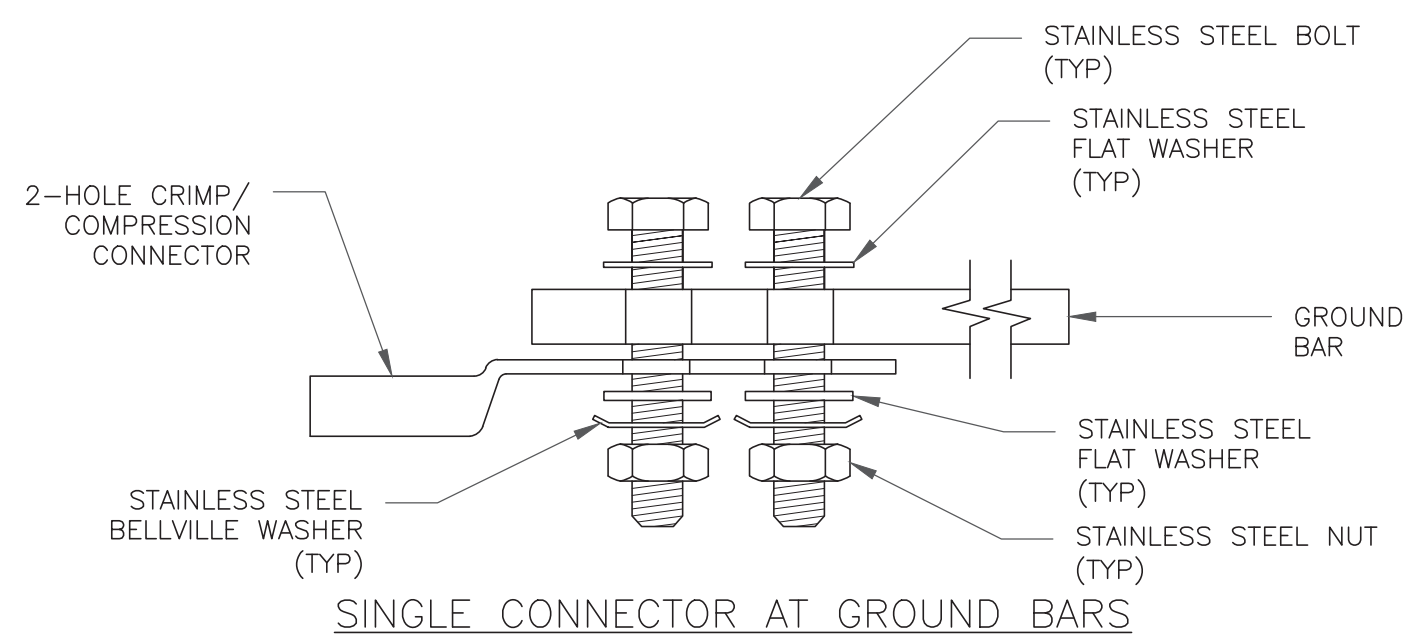
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



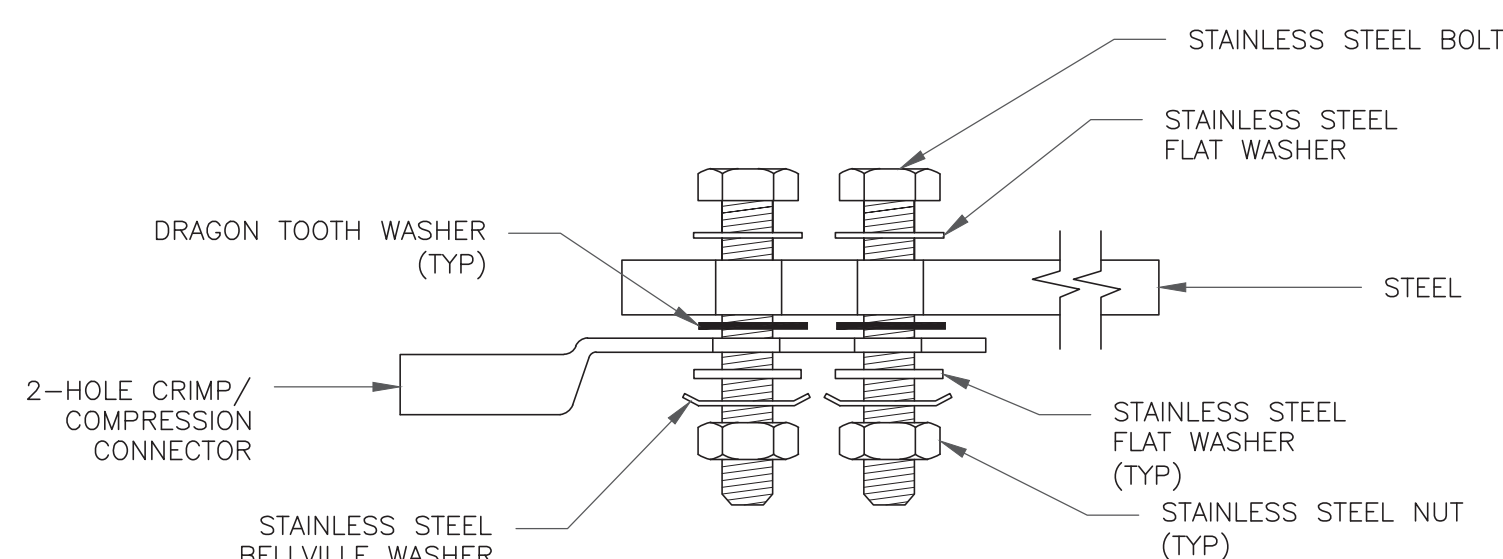
NOTES:

1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

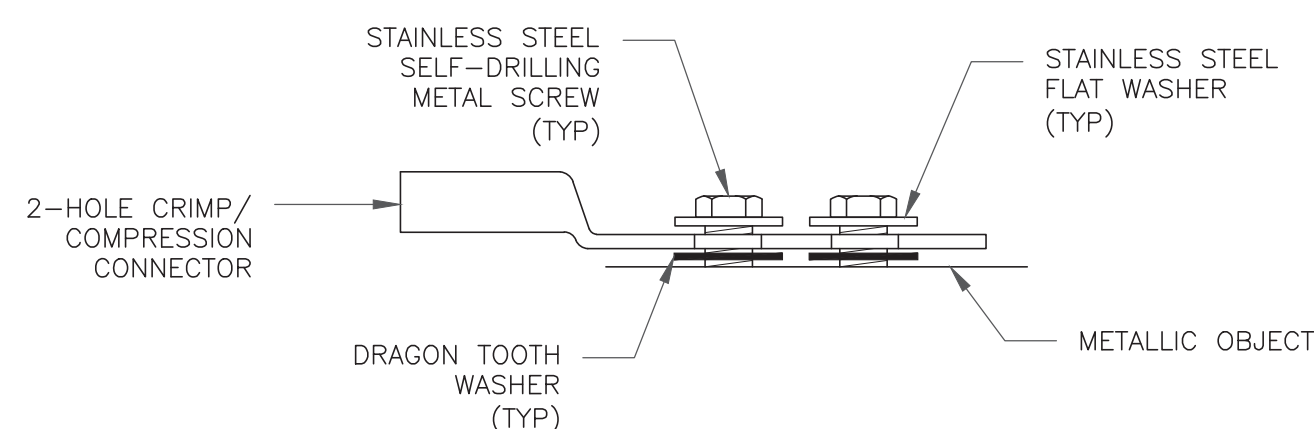
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

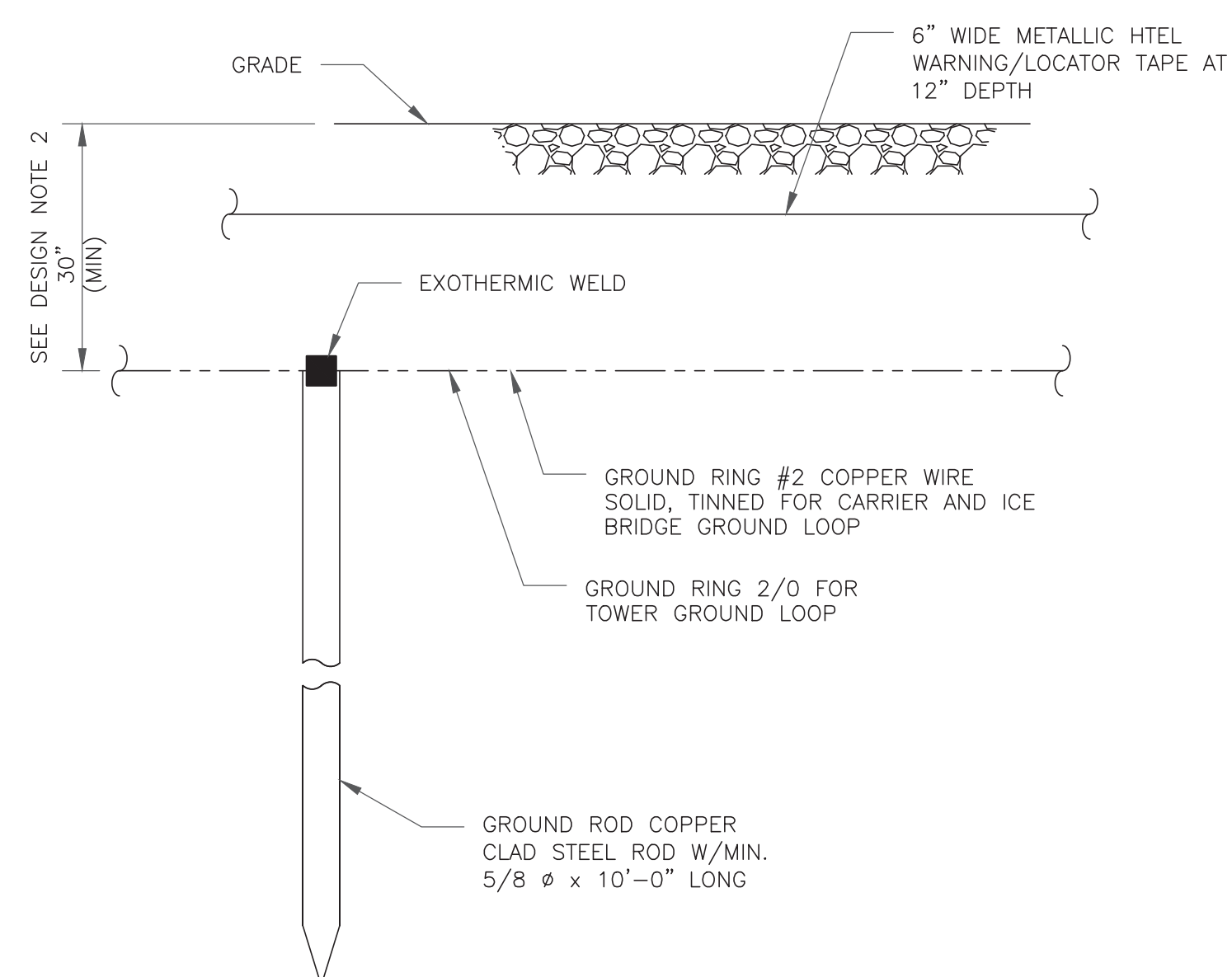


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D).

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

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BLOOMFIELD, CT 06002

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NEW HARTFORD / EXECUTIVE GREET

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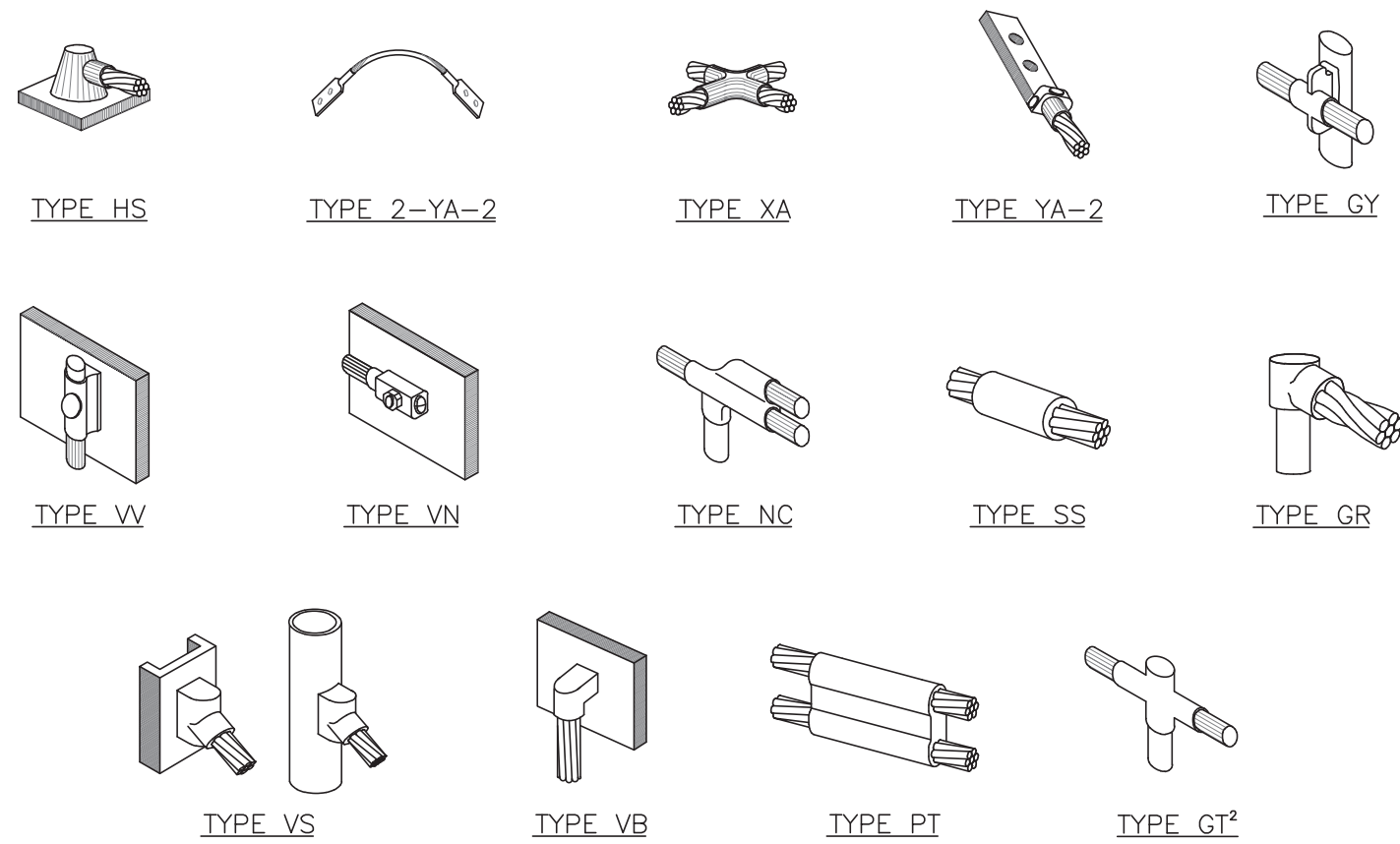
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SHEET NUMBER:

G-2

REVISION:

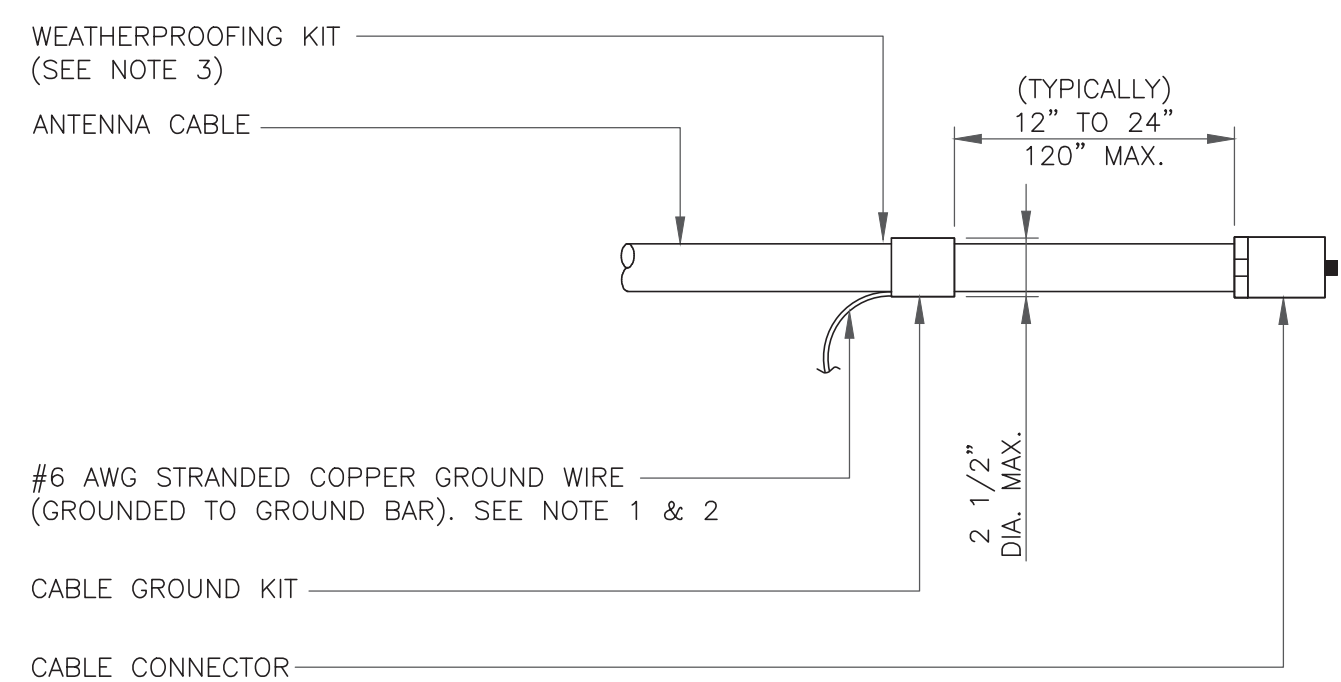
1



NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

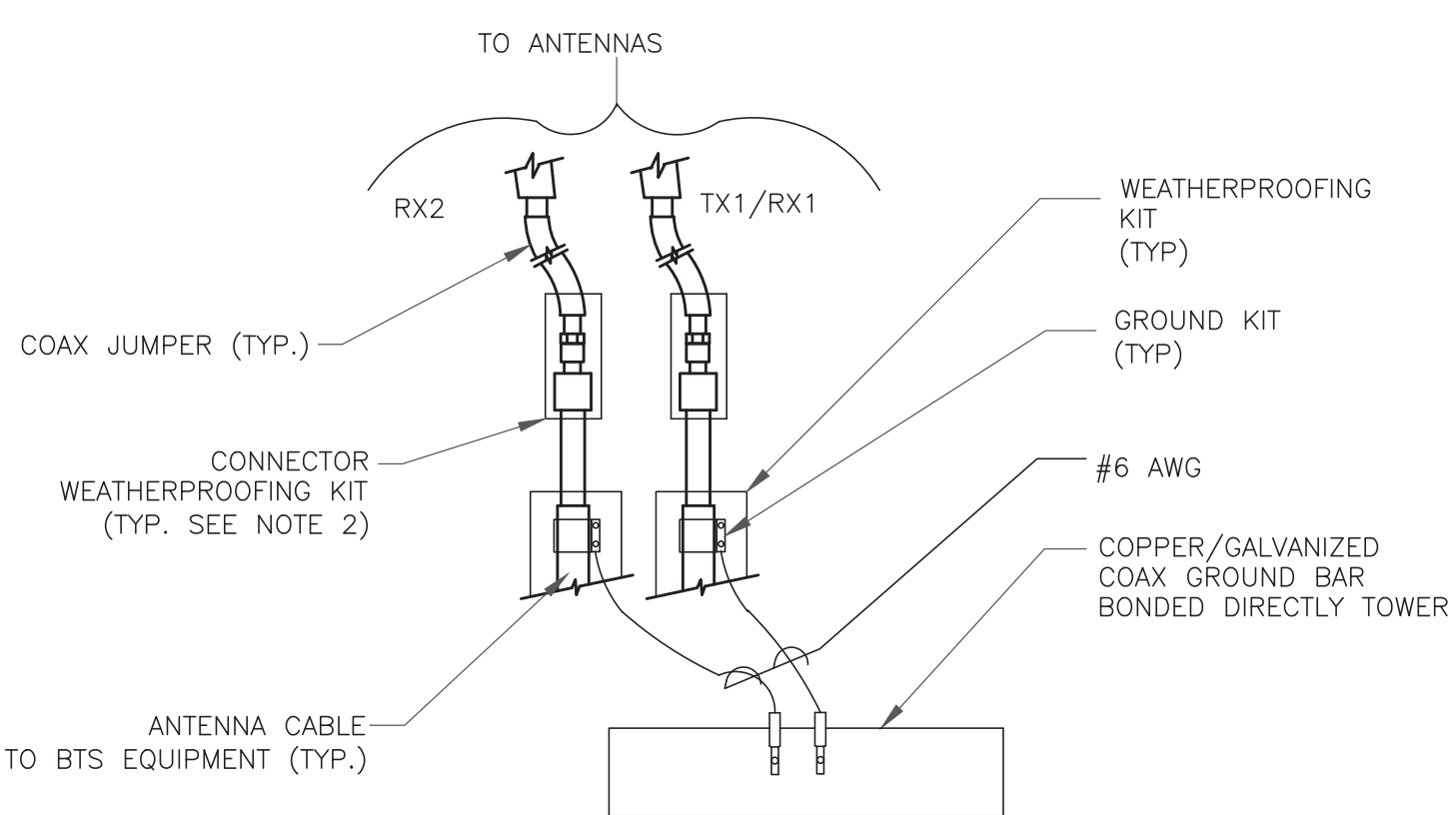
1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

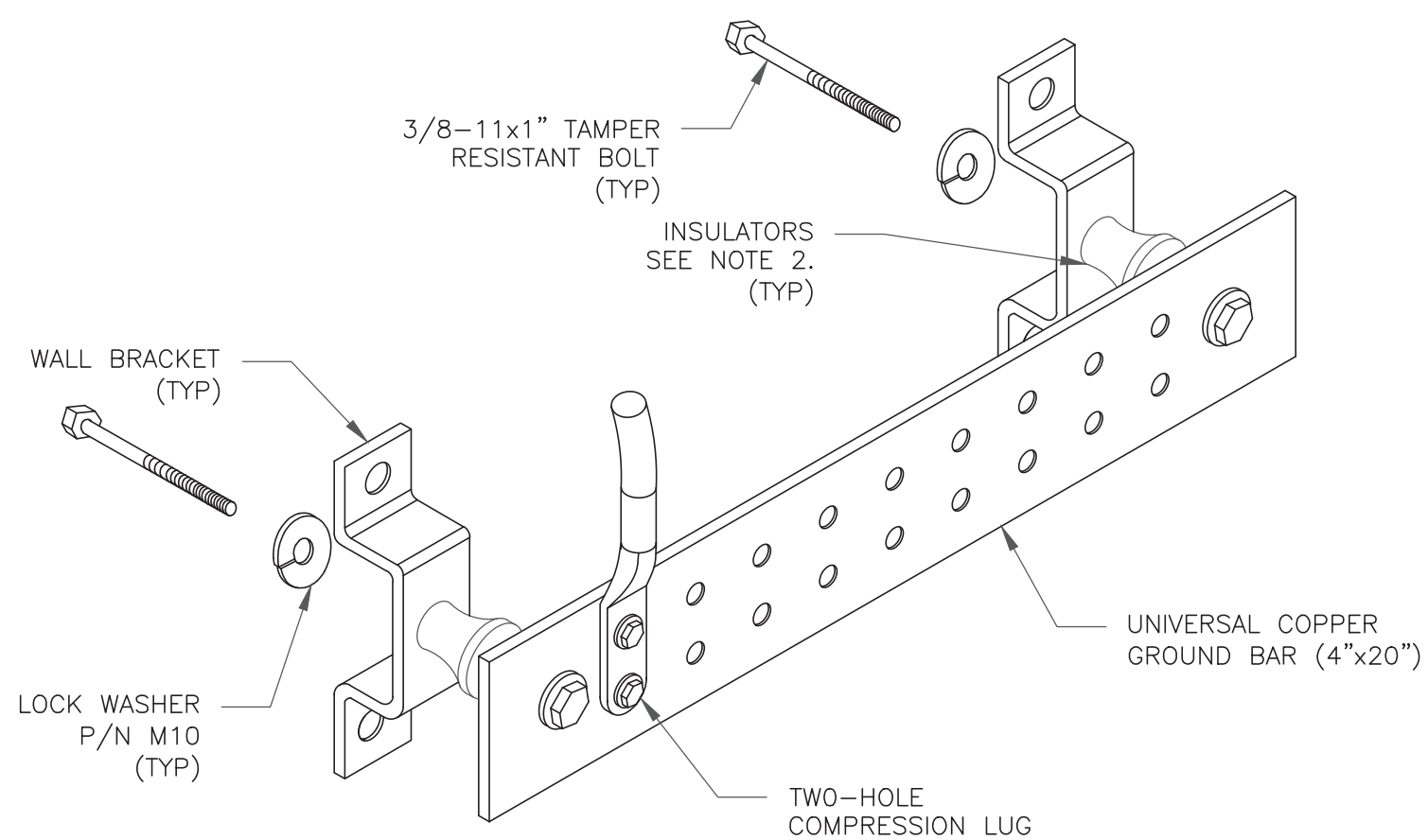
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

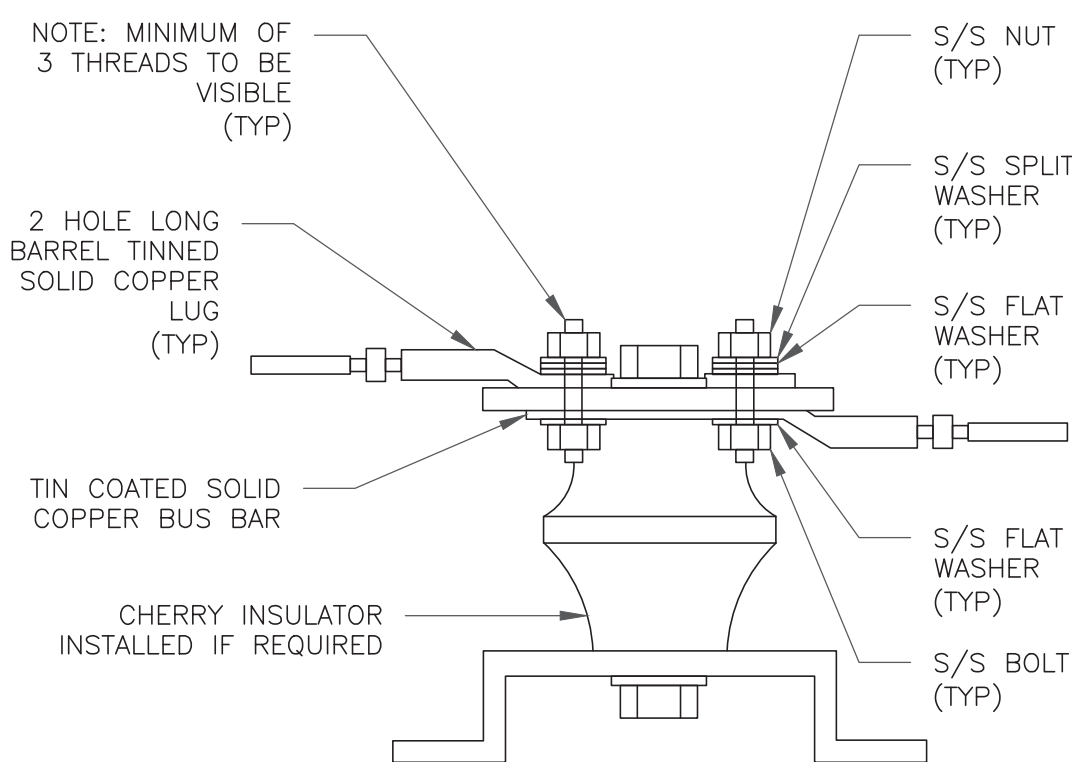
4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



NOTES:

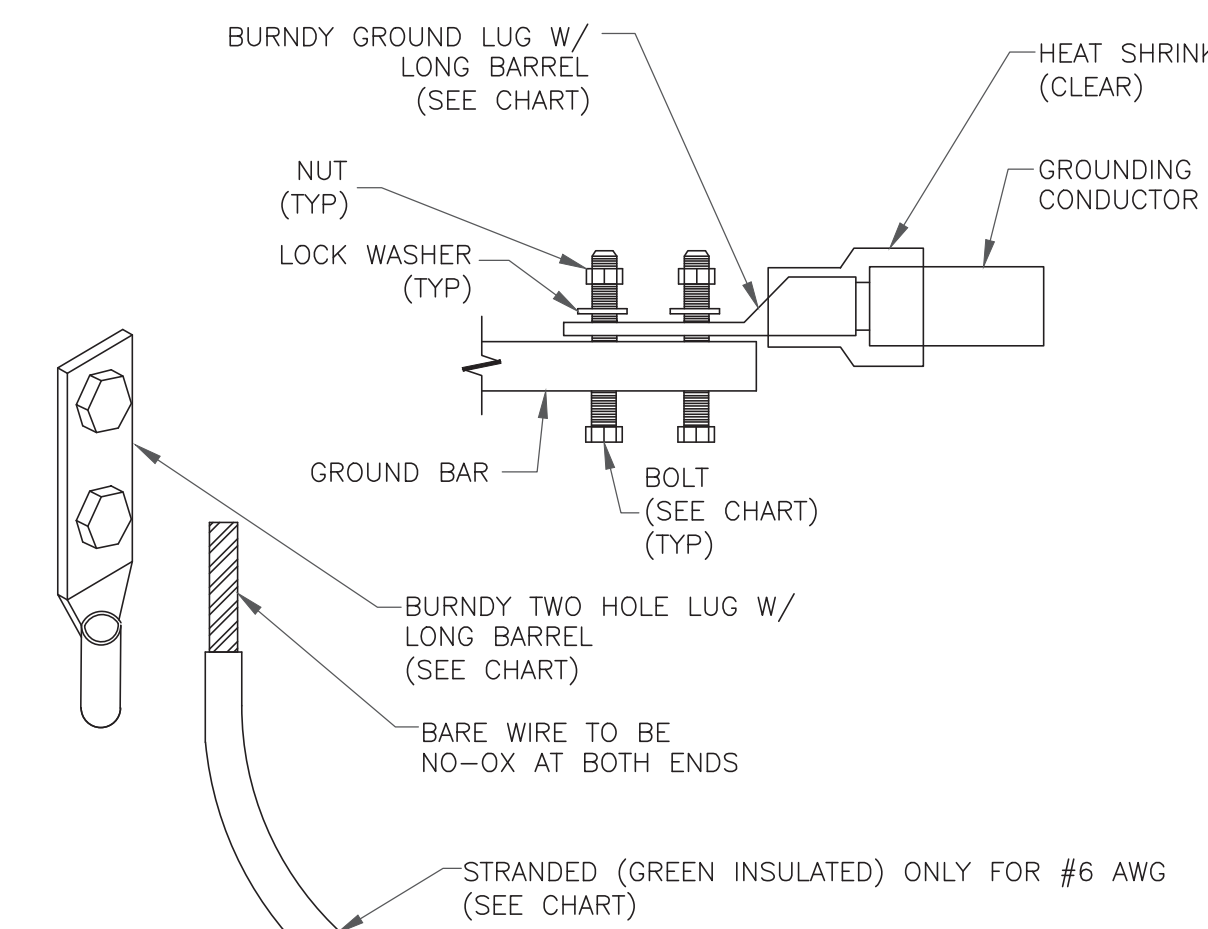
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL. USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

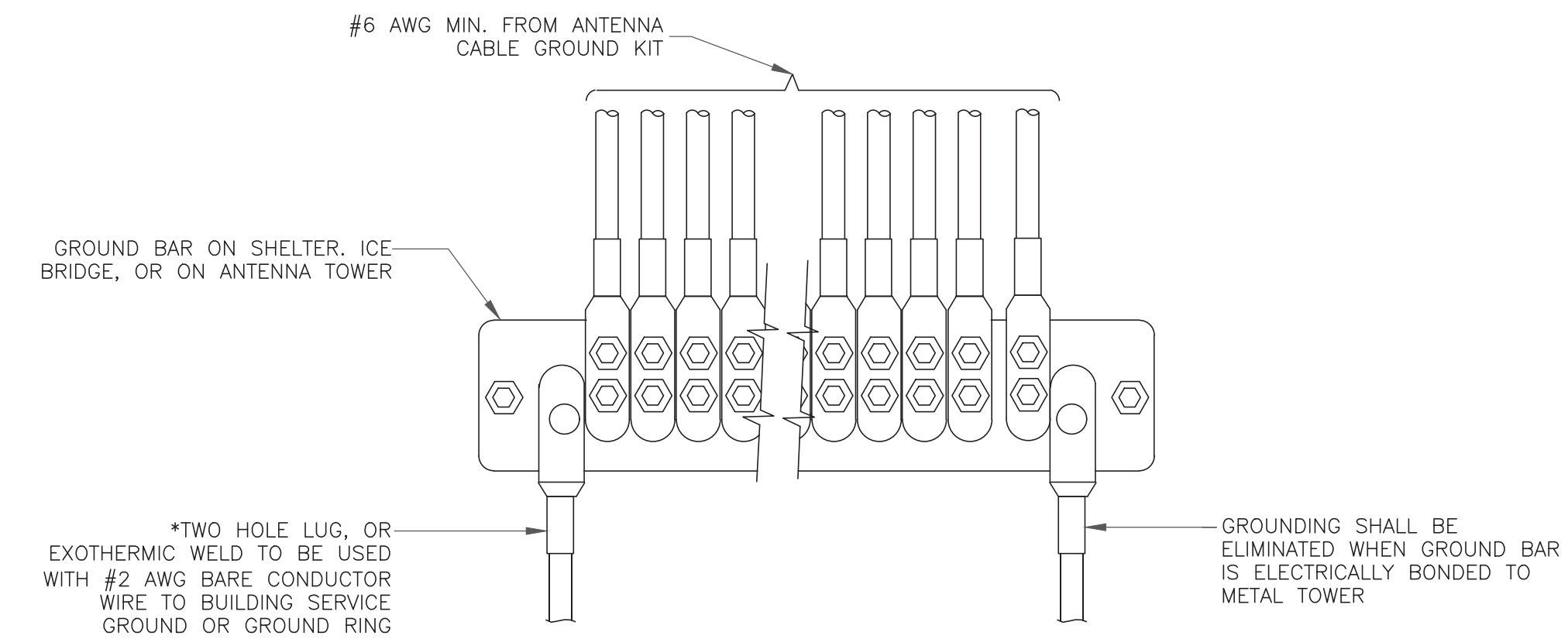
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



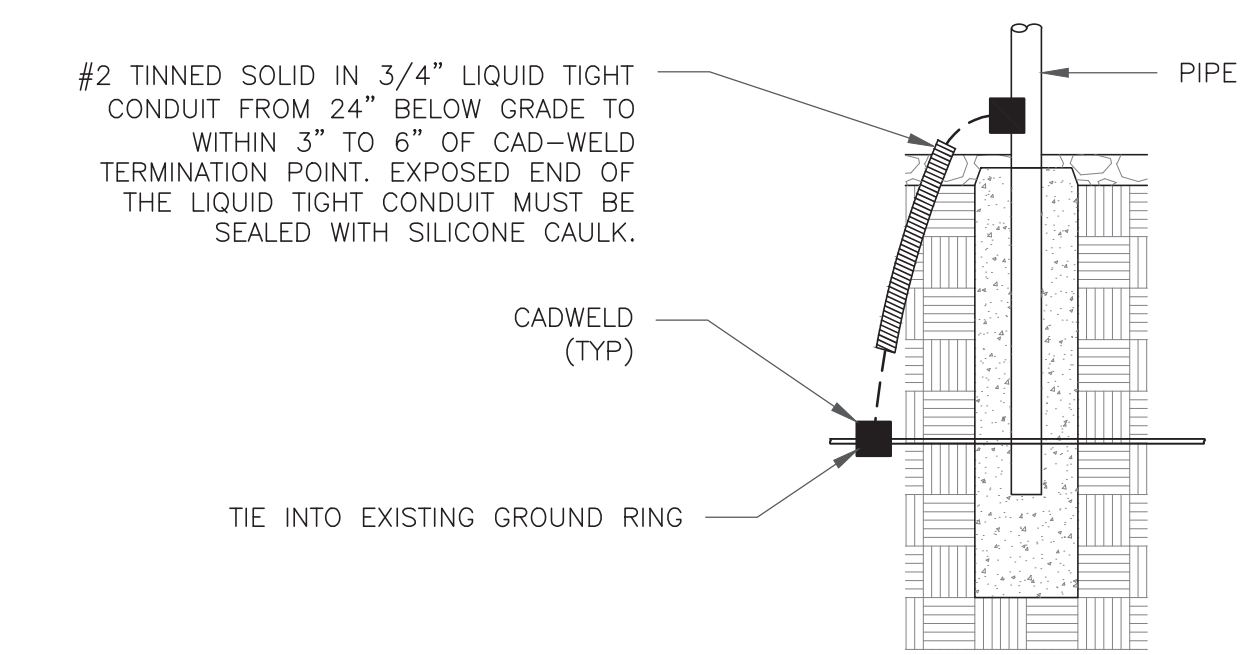
NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

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

T-MOBILE SITE NUMBER:
CTNH814A

BU #: **876392**
NEW HARTFORD / EXECUTIVE GREET

115 INDUSTRIAL PARK RD
NEW HARTFORD, CT 06057

EXISTING
168'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/10/21	AP/AY	CONSTRUCTION	JHW
1	9/22/21	JHW	CONSTRUCTION	JHW

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

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

SHEET NUMBER: **G-3** REVISION: **1**

147879.002.01_NEW HARTFORD_EXECUTIVE GREET.dwg - Sheet:G-3 - User: jockie.weeter - Sep 22, 2021 - 7:36am