



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

July 31, 2024

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

RE: Notice of Exempt Modification for Verizon Wireless: 50002247949
Crown Site ID# 846293
319 Peter Green Road, Tolland, CT
Latitude: 41° 53' 47.81" / Longitude: -72° 23' 27.43"

Dear Ms. Bachman:

Verizon Wireless currently maintains twelve (12) antennas at the 110-foot mount level on the existing 119-foot monopole tower located at 319 Peter Green Road, Tolland, CT. The property is owned by AT&T Mobility and the tower is owned by Crown Castle. Verizon now intends to remove six (6) antennas and replace with nine (9) new antennas, and ancillary antenna equipment at the 110-ft 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:

Install New:

- (6) Commscope NHH-65B-R2B Antennas
- (3) Samsung-MT6413-77A Antennas
- (3) Samsung- RF4461D-13A Radio
- (3) Samsung B2/B66A RRH radio
- (1) Raycap Inc-001 – RVZD-6627-PF-48-OVP BOX
- (2) 6x12 Hybrid Cable
- Support Rail Kit per Mount Modification

Remove:

- (3) Amphenol – JBXA-70063-6CF Antenna
- (3) Antel – BXA-171063-12CF-EDIN Antenna
- (3) Nokia UHBA B13 RRH 4x30 Radio
- (2) Andrew – 1-5/8" Coaxial Cables
- (3) Nokia – B25 RRH 2x60 Radios

Ground:

Install New:

- (1) Raycap Inc-001 – RVZD-6627-PF-48-OVP BOX
- (6) Powershift Modules
- (6) Raycap ABBInc-001 – 109142881 Power Plant

The Foundation for a Wireless World.

CrownCastle.com

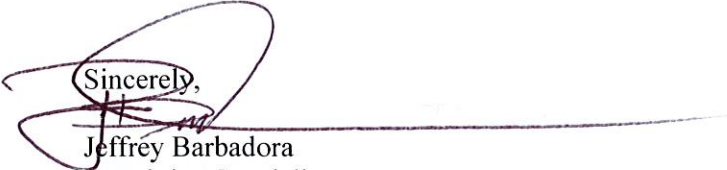
The facility was originally approved by the Connecticut Siting Council, Docket No. 276 on October 26, 2004.

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 Brian Foley, Town Manager, Town of Tolland, David Corcoran, Director of Planning & Zoning, Town of Tolland and AT&T Mobility, Property Owner. Crown Castle is the tower 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, Verizon Wireless 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
Permitting Specialist
1800 W. Park Drive
Westborough, MA 01581
(781) 970-0053
Jeff.Barbadora@crowncastle.com

Attachments

Melanie A. Bachman

Page 3

cc:

Brian Foley, Town Manager
Town of Tolland
21 Tolland Green, 5th Level
Tolland, CT 06084
860-871-3600

David Corcoran, Director of Planning & Zoning
Town of Tolland
21 Tolland Green
Tolland, CT 06084
860-871-3601

AT&T Mobility, Property Owner
754 Peachtree Street
Atlanta, GA 30308
Real Estate Division

Crown Castle, Tower Owner

DOCKET NO. 276 – AT&T Wireless PCS, LLC d/b/a AT&T Wireless application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility at 319 Peter Green Road or 455 Crystal Lake Road, Tolland, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		October 26, 2004

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to AT&T Wireless PCS, LLC d/b/a AT&T Wireless, hereinafter referred to as the Certificate Holder, for a telecommunications facility at Site A, located at 319 Peter Green Road, Tolland, Connecticut. The Council denies certification of Site B, located at 455 Crystal Lake Road, Tolland, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T Wireless and other entities, both public and private, but such tower shall not exceed a height of 120 feet above ground level. The height at the top of the antennas shall not exceed 123 feet above ground level.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Tolland for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:

- a. a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment building, access road, utility line, and landscaping; and
- b. construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case

modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of electromagnetic radio frequency power density is submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any municipal antennas, provided such antennas are compatible with the structural integrity of the tower.
7. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
8. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.
9. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved. Any request for extension of this period shall be filed with the Council not later than sixty days prior to expiration date of this Certificate and shall be served on all parties and intervenors and the Town of Tolland, as listed in the service list. Any proposed modifications to this Decision and Order shall likewise be so served.

Pursuant to General Statutes § 16-50p, the Council hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant and the Journal Inquirer.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

319 PETER GREEN ROAD

Location 319 PETER GREEN ROAD

Mblu 9/ 1/ 16/ 1

Acct# 7099

Owner KRECHKO MARK ETAL

Assessment \$610,200

Appraisal \$871,800

PID 184572

Building Count 2

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2023	\$73,200	\$798,600	\$871,800
Assessment			
Valuation Year	Improvements	Land	Total
2023	\$51,200	\$559,000	\$610,200

Owner of Record

Owner KRECHKO MARK ETAL
Co-Owner ATTN NREA TAX
Address AT&T MOBILITY
754 PEACHTREE STREET
ATLANTA, GA 30308

Sale Price \$0
Certificate
Book & Page 1042/0294
Sale Date 09/26/2006

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
KRECHKO MARK ETAL	\$0		1042/0294	09/26/2006

Building Information

Building 1 : Section 1

Year Built: 2006
Living Area: 240
Replacement Cost: \$29,640
Building Percent Good: 92
Replacement Cost
Less Depreciation: \$27,300

Building Attributes	
Field	Description
Style:	Communications Bld
Model	Ind/Comm
Grade	Average
Stories:	1
Occupancy	1.00
Ext Wall 1	Poly-Steel/Con
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric

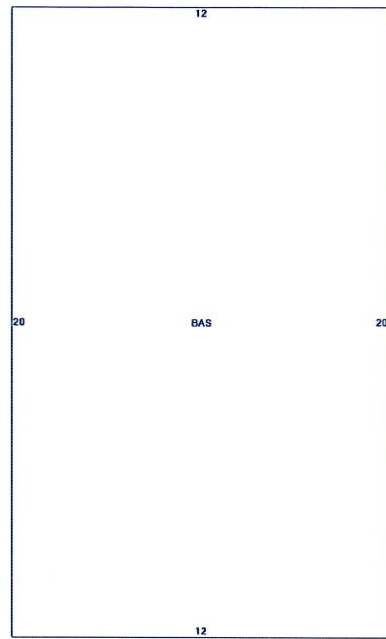
Building Photo



(https://images.vgsi.com/photos/TollandCTPhotos/A0010/IMG_7119_10744)

Heating Type	Hot Air-no Duc
AC Type	Heat Pump
Struct Class	
Bldg Use	Industrial
Total Rooms	1
Total Bedrms	0
Total Baths	0
Solar	
1st Floor Use:	
Heat/AC	Heat/AC Pkg
Frame Type	Masonry
Baths/Plumbing	None
Ceiling/Wall	None
Rooms/Prtns	Light
Wall Height	8.00
% Conn Wall	0.00

Building Layout



(ParcelSketch.ashx?pid=184572&bid=6674)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	Main Floor	240	240
		240	240

Building 2 : Section 1

Year Built: 2008
Living Area: 360
Replacement Cost: \$44,460
Building Percent Good: 92
Replacement Cost Less Depreciation: \$40,900

Building Attributes : Bldg 2 of 2	
Field	Description
Style:	Communications Bld
Model	Ind/Comm
Grade	Average
Stories:	1
Occupancy	1.00
Ext Wall 1	Poly-Steel/Con
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Heat Pump
Struct Class	
Bldg Use	Industrial
Total Rooms	
Total Bedrms	
Total Baths	
Solar	

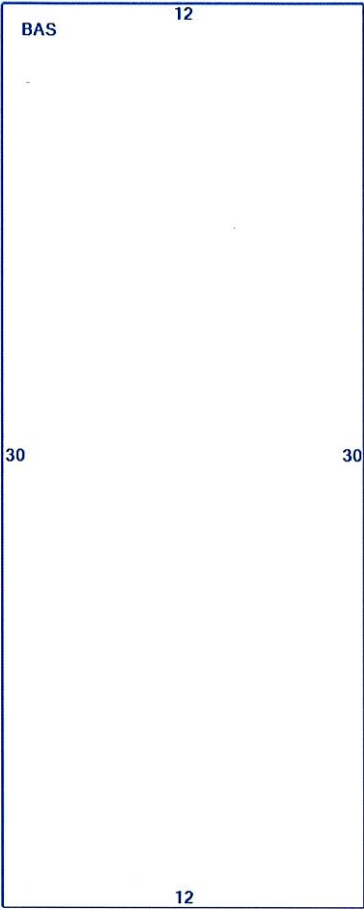
Building Photo



(<https://images.vgsi.com/photos/TollandCTPhotos//default.jpg>)

1st Floor Use:	
Heat/AC	Heat/AC Pkg
Frame Type	Masonry
Baths/Plumbing	None
Ceiling/Wall	None
Rooms/Prtns	Light
Wall Height	8.00
% Corn Wall	

Building Layout



(ParcelSketch.ashx?pid=184572&bid=6831)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	Main Floor	360	360
		360	360

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use		Land Line Valuation	
Use Code	300	Size (Acres)	0.50
Description	Industrial	Frontage	
Zone	RDD	Depth	
Neighborhood	350C	Assessed Value	\$559,000
Alt Land Appr Category	No	Appraised Value	\$798,600

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FN	FENCE	CL8	8' Chain Link	250.00 L.F.	\$5,000	1

Valuation History

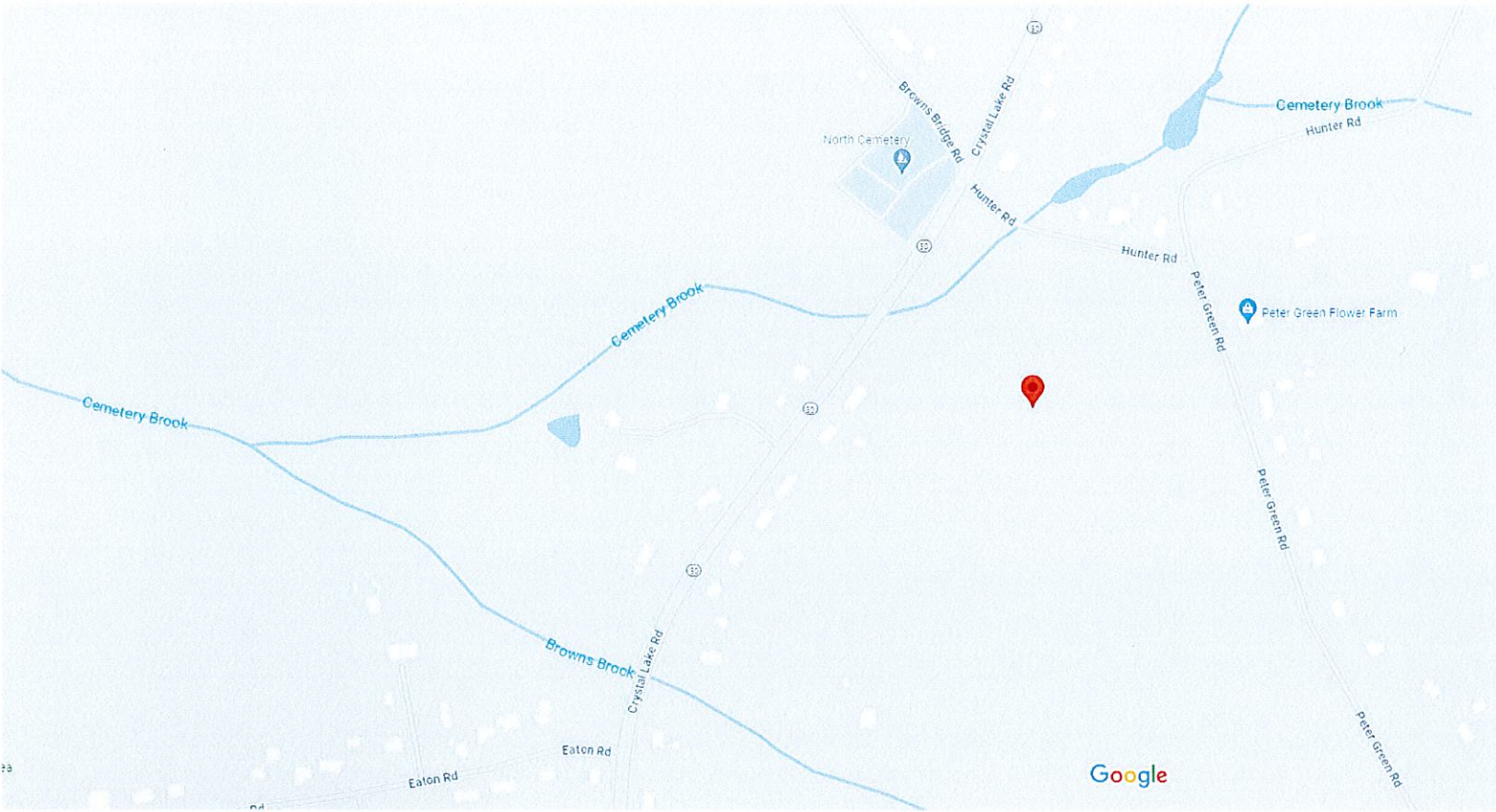
Appraisal			
Valuation Year	Improvements	Land	Total

2023	\$73,200	\$798,600	\$871,800
2022	\$73,200	\$798,600	\$871,800
2021	\$73,200	\$548,600	\$621,800

Assessment			
Valuation Year	Improvements	Land	Total
2023	\$51,200	\$559,000	\$610,200
2022	\$51,200	\$559,000	\$610,200
2021	\$51,200	\$384,000	\$435,200

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319 Peter Green Rd



Map data ©2024 Google



319 Peter Green Rd

-  Directions
-  Save
-  Nearby
-  Send to phone
-  Share

 319 Peter Green Rd, Tolland, CT 06084

 VJW4+JH Tolland, Connecticut

Photos

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Thursday, August 1, 2024 10:18 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 777717393938: Your package has been delivered

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.



Hi. Your package was
delivered Thu, 08/01/2024 at
10:11am.



Delivered to 21 TOLLAND GRN, TOLLAND, CT 06084
Received by L.TEE

[OBTAIN PROOF OF DELIVERY](#)

How was your delivery ?



TRACKING NUMBER	777717393938
FROM	Crown Castle 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Tolland Brian Foley, Town Manager 21 Tolland Green TOLLAND, CT, US, 06084
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Wed 7/31/2024 06:08 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	TOLLAND, CT, US, 06084
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Standard Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Thursday, August 1, 2024 10:18 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 777717439197: Your package has been delivered

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Hi. Your package was
delivered Thu, 08/01/2024 at
10:13am.



Delivered to 21 TOLLAND GRN, TOLLAND, CT 06084
Received by A.AY

[OBTAIN PROOF OF DELIVERY](#)

How was your delivery ?



TRACKING NUMBER	777717439197
FROM	Crown Castle 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Tolland David Corcoran, Dir Planning 21 Tolland Green TOLLAND, CT, US, 06084
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Wed 7/31/2024 06:08 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	TOLLAND, CT, US, 06084
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Standard Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Thursday, August 1, 2024 11:54 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 777717508710: Your package has been delivered

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.



Hi. Your package was
delivered Thu, 08/01/2024 at
10:06am.



Delivered to 754 PEACHTREE ST NE, ATLANTA, GA 30308
Received by T.MOSLEY

[OBTAIN PROOF OF DELIVERY](#)

How was your delivery ?



TRACKING NUMBER	777717508710
FROM	Crown Castle 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	At&T Mobility AT&T Mobility 754 Peachtree Street ATLANTA, GA, US, 30308
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Wed 7/31/2024 06:08 PM
DELIVERED TO	Shipping/Receiving
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	ATLANTA, GA, US, 30308
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Standard Overnight

Date: **May 20, 2024**



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

Subject: **Structural Analysis Report**

Carrier Designation: **Verizon Wireless Co-Locate**
Site Number: 5000247949
Site Name: Ellington South CT

Crown Castle Designation: **BU Number:** 846293
Site Name: Tolland - Peter Green Rd
JDE Job Number: 2116272
Work Order Number: 2302072
Order Number: 671353 Rev. 0

Engineering Firm Designation: **Morrison Hershfield Project Number:** CN9-765R3 / 2400001

Site Data: **319 Peter Green Road, Tolland, Tolland County, CT 06084**
Latitude 41° 53' 47.81", Longitude -72° 23' 37.43"
119 Foot – EEI Monopole Tower

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

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

LC7: Proposed Equipment Configuration

Sufficient Capacity – 45.3%

This analysis utilizes an ultimate 3-second gust wind speed of 118 mph as required by the 2022 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

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



Digitally signed by
G. Lance Cooke
Date: 2024.05.20
20:14:30+05'30'

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1) INTRODUCTION

This tower is a 119 ft Monopole tower designed by Engineered Endeavors, Inc.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	118 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
110.0	110.0	6	antel	LPA-80063/6CF-2 w/ Mount Pipe	10 2	1-5/8 1-1/2
		6	commscope	NHH-65B-R2B w/ Mount Pipe		
		3	samsung telecommunications	MT6413-77A w/ Mount Pipe		
		1	raycap	RVZDC-6627-PF-48		
		3	samsung telecommunications	RF4439D-25A		
		3	samsung telecommunications	RF4461D-13A		
		1	-	3'-0" Mount Pipe [#P2 Sch 40]		
		6	-	7'-2" Mount Pipe [#P2 Sch 40]		
		1	-	Support Rail Kit [#VZWSMART-PLK 1]		
		1	-	Platform Mount [LP 303-1]		

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)
119.0	122.0	1	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe	12 2 1	1-5/8 7/8 1/2
		6	powerwave technologies	7770.00 w/ Mount Pipe		
		2	powerwave technologies	P65-17-XLH-RR w/ Mount Pipe		
		3	ericsson	RRUS-11		
		3	powerwave technologies	LGP13519		
		6	powerwave technologies	LGP21401		
		3	commscope	CBC721A-03		
		1	raycap	DC6-48-60-18-8F		
	119.0	1	-	Platform Mount [LP 712-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
98.0	100.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe	1	1-1/2
		3	fujitsu	TA08025-B605		
		3	fujitsu	TA08025-B604		
		1	raycap	RDIDC-9181-PF-48		
	98.0	1	-	Sabre C10801018-32788		
90.0	90.0	3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	3 1	1-5/8 1/2
		3	commscope	VV-65A-R1_TMO w/ Mount Pipe		
		3	ericsson	AIR 6419 B41_TMO w/ Mount Pipe		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
		1	rfs celwave	SC2-W100BD		
		1	Site Pro 1	12.5' Platform Mount [#RMQP-496-HK]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	6176222	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	4705338	CCISITES
4-TOWER MANUFACTURER DRAWINGS	4705380	CCISITES

3.1) Analysis Method

tnxTower (version 8.2.4.3), 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.

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P _{allow} (K)	% Capacity	Pass / Fail
L1	119 - 95.11	Pole	TP26.2449x18.5x0.1875	1	-7.72	907.73	22.0	Pass
L2	95.11 - 47.1673	Pole	TP41.3419x24.6441x0.25	2	-21.84	1913.69	45.3	Pass
L3	47.1673 - 0	Pole	TP56x39.0125x0.3125	3	-34.73	3392.81	42.8	Pass
							Summary	
						Pole (L2)	45.3	Pass
						Rating =	45.3	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	28.6	Pass
1	Base Plate		27.0	Pass
1	Base Foundation (Structure)	0	34.3	Pass
1	Base Foundation (Soil Interaction)		31.8	Pass

Structure Rating (max from all components) =	45.3%*
---	---------------

Notes:

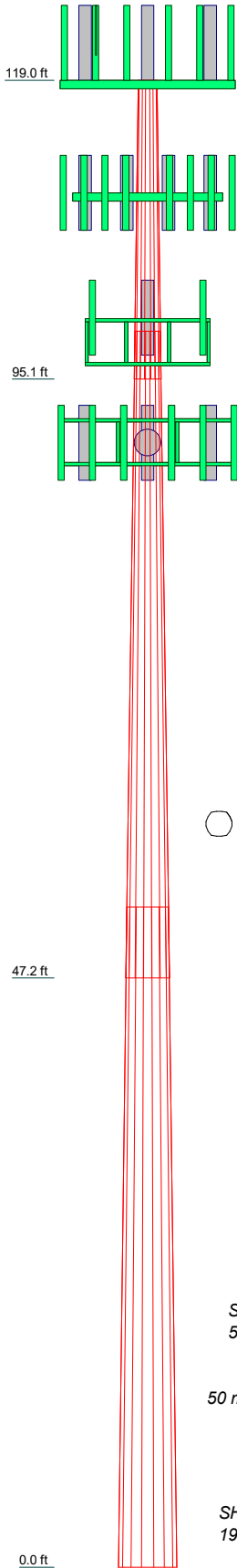
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) *Rating per TIA-222-H, Section 15.5.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

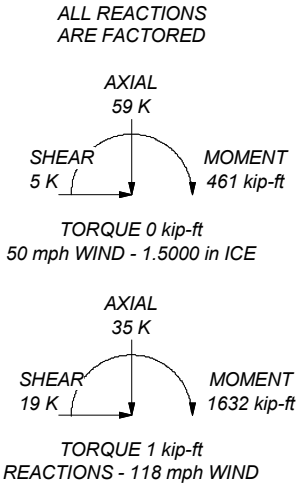
Section	1	2	3	
Length (ft)	23.89	51.72	52.83	
Number of Sides	18	18	18	
Thickness (in)	0.1875	0.2500	0.3125	
Socket Length (ft)	3.78	5.67	39.0125	
Top Dia (in)	18.5000	24.6441	56.0000	
Bot Dia (in)	26.2449	41.3419		
Grade		A572-65		
Weight (K)	1.1	4.6	8.4	14.1



GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 118 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 45.3%





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Stantec
Consulting Engineers

Job: **CN9-765R3 / 2400001**

Project: **846293 / Tolland - Peter Green Rd**

Client: **Crown Castle USA**

Code: **TIA-222-H**

Path:

Drawn by: **JKundrapu**

Date: **05/20/24**

Scale: **NTS**

Dwg No. **E-1**

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

- Tower is located in Tolland County, Connecticut.
- Tower base elevation above sea level: 710.00 ft.
- Basic wind speed of 118 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.5000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	119.00-95.11	23.89	3.78	18	18.5000	26.2449	0.1875	0.7500	A572-65 (65 ksi)
L2	95.11-47.17	51.72	5.67	18	24.6441	41.3419	0.2500	1.0000	A572-65 (65 ksi)
L3	47.17-0.00	52.83		18	39.0125	56.0000	0.3125	1.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	18.7565	10.8982	461.7305	6.5009	9.3980	49.1307	924.0685	5.4501	2.9260	15.605
	26.6208	15.5074	1330.2672	9.2504	13.3324	99.7770	2662.2848	7.7552	4.2891	22.875
L2	26.2252	19.3567	1455.2461	8.6599	12.5192	116.2413	2912.4070	9.6802	3.8974	15.589
	41.9411	32.6064	6955.8955	14.5876	21.0017	331.2065	13920.943	16.3063	6.8362	27.345
L3	41.4163	38.3856	7263.2100	13.7385	19.8184	366.4888	14535.977	19.1964	6.3162	20.212
	56.8157	55.2350	21640.513	19.7691	28.4480	760.7042	43309.501	27.6228	9.3060	29.779
			3				8			

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 Horizontal	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 119.00- 95.11				1	1	1			
L2 95.11- 47.17				1	1	1			
L3 47.17-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter r in	Weight plf

Climbing Pegs	C	No	Surface Ar (CaAa)	119.00 - 12.00	1	1	-0.050 0.050	0.7050		1.80

Feed Line/Linear Appurtenances - Entered As Area

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

LDF4-50A(1/2)	B	No	No	Inside Pole	119.00 - 11.00	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00
LDF5-50A(7/8)	B	No	No	Inside Pole	119.00 - 11.00	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00
LDF7-50A(1-5/8)	B	No	No	Inside Pole	119.00 - 11.00	12	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00

LDF7-50A(1-5/8)	B	No	No	Inside Pole	110.00 - 11.00	10	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00

MLC HYBRID	B	No	No	Inside Pole	110.00 - 11.00	2	No Ice	0.00

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		$C_A A_A$ ft ² /ft	Weight plf
6X12 LI(1-1/2)							1/2" Ice	0.00	1.85
							1" Ice	0.00	1.85
							2" Ice	0.00	1.85

CU12PSM9P6XXX (1-1/2)	C	No	No	Inside Pole	98.00 - 11.00	1	No Ice	0.00	2.35
							1/2" Ice	0.00	2.35
							1" Ice	0.00	2.35
							2" Ice	0.00	2.35

LDF4-50A(1/2)	A	No	No	Inside Pole	90.00 - 11.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15
HB158-21U6S24- xxM_TMO(1-5/8)	A	No	No	Inside Pole	90.00 - 11.00	3	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
							2" Ice	0.00	2.50

Feed Line/Linear Appurtenances Section Areas

Tower Section n	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
L1	119.00-95.11	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.43
		C	0.000	0.000	1.684	0.000	0.05
L2	95.11-47.17	A	0.000	0.000	0.000	0.000	0.33
		B	0.000	0.000	0.000	0.000	1.08
		C	0.000	0.000	3.380	0.000	0.20
L3	47.17-0.00	A	0.000	0.000	0.000	0.000	0.28
		B	0.000	0.000	0.000	0.000	0.82
		C	0.000	0.000	2.479	0.000	0.15

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section n	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	119.00-95.11	A	1.433	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.43
		C		0.000	0.000	8.533	0.000	0.14
L2	95.11-47.17	A	1.374	0.000	0.000	0.000	0.000	0.33
		B		0.000	0.000	0.000	0.000	1.08
		C		0.000	0.000	17.123	0.000	0.38
L3	47.17-0.00	A	1.228	0.000	0.000	0.000	0.000	0.28
		B		0.000	0.000	0.000	0.000	0.82
		C		0.000	0.000	12.146	0.000	0.27

Feed Line Center of Pressure

Section	Elevation ft	CP_x in	CP_z in	CP_x Ice in	CP_z Ice in
L1	119.00-95.11	0.0000	0.5607	0.0000	1.4149
L2	95.11-47.17	0.0000	0.5641	0.0000	1.5164
L3	47.17-0.00	0.0000	0.4079	0.0000	1.1222

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	2	Climbing Pegs	95.11 - 119.00	1.0000	1.0000
L2	2	Climbing Pegs	47.17 - 95.11	1.0000	1.0000
L3	2	Climbing Pegs	12.00 - 47.17	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K

Lightning Rod 5/8" x 8'	C	From Leg	4.00	0.0000	119.00	No Ice	0.50	0.50	0.03
			0.00			1/2"	1.31	1.31	0.04
			4.00			Ice	2.14	2.14	0.05
						1" Ice	3.61	3.61	0.08
						2" Ice			

(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	119.00	No Ice	3.39	2.32	0.06
			0.00			1/2"	3.75	2.66	0.10
			3.00			Ice	4.12	3.02	0.15
						1" Ice	4.89	3.75	0.28
						2" Ice			
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	119.00	No Ice	3.39	2.32	0.06
			0.00			1/2"	3.75	2.66	0.10
			3.00			Ice	4.12	3.02	0.15
						1" Ice	4.89	3.75	0.28
						2" Ice			
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	119.00	No Ice	3.39	2.32	0.06
			0.00			1/2"	3.75	2.66	0.10
			3.00			Ice	4.12	3.02	0.15
						1" Ice	4.89	3.75	0.28
						2" Ice			
P65-17-XLH-RR w/ Mount Pipe	A	From Leg	4.00	0.0000	119.00	No Ice	7.48	5.29	0.09
			0.00			1/2"	8.17	5.96	0.17
			3.00			Ice	8.88	6.64	0.26
						1" Ice	10.33	8.05	0.49
						2" Ice			
P65-17-XLH-RR w/ Mount Pipe	C	From Leg	4.00	0.0000	119.00	No Ice	7.48	5.29	0.09
			0.00			1/2"	8.17	5.96	0.17
			3.00			Ice	8.88	6.64	0.26
						1" Ice	10.33	8.05	0.49
						2" Ice			
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.00	0.0000	119.00	No Ice	4.63	3.27	0.07
			0.00			1/2"	5.06	3.69	0.13
			3.00			Ice	5.51	4.12	0.20
						1" Ice	6.43	5.00	0.38
						2" Ice			
CBC721A-03	A	From Leg	4.00	0.0000	119.00	No Ice	0.28	0.18	0.00
			0.00			1/2"	0.35	0.24	0.01
			3.00			Ice	0.43	0.31	0.01
						1" Ice	0.61	0.47	0.02
						2" Ice			
CBC721A-03	B	From Leg	4.00	0.0000	119.00	No Ice	0.28	0.18	0.00
			0.00			1/2"	0.35	0.24	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
			3.00			Ice 0.43	0.31	0.01
						1" Ice 0.61	0.47	0.02
						2" Ice		
CBC721A-03	C	From Leg	4.00	0.0000	119.00	No Ice 0.28	0.18	0.00
			0.00			1/2" 0.35	0.24	0.01
			3.00			Ice 0.43	0.31	0.01
						1" Ice 0.61	0.47	0.02
						2" Ice		
RRUS-11	A	From Leg	4.00	0.0000	119.00	No Ice 2.78	1.19	0.05
			0.00			1/2" 2.99	1.33	0.07
			3.00			Ice 3.21	1.49	0.09
						1" Ice 3.66	1.83	0.15
						2" Ice		
RRUS-11	B	From Leg	4.00	0.0000	119.00	No Ice 2.78	1.19	0.05
			0.00			1/2" 2.99	1.33	0.07
			3.00			Ice 3.21	1.49	0.09
						1" Ice 3.66	1.83	0.15
						2" Ice		
RRUS-11	C	From Leg	4.00	0.0000	119.00	No Ice 2.78	1.19	0.05
			0.00			1/2" 2.99	1.33	0.07
			3.00			Ice 3.21	1.49	0.09
						1" Ice 3.66	1.83	0.15
						2" Ice		
LGP13519	A	From Leg	4.00	0.0000	119.00	No Ice 0.29	0.18	0.01
			0.00			1/2" 0.36	0.24	0.01
			3.00			Ice 0.44	0.31	0.01
						1" Ice 0.62	0.47	0.02
						2" Ice		
LGP13519	B	From Leg	4.00	0.0000	119.00	No Ice 0.29	0.18	0.01
			0.00			1/2" 0.36	0.24	0.01
			3.00			Ice 0.44	0.31	0.01
						1" Ice 0.62	0.47	0.02
						2" Ice		
LGP13519	C	From Leg	4.00	0.0000	119.00	No Ice 0.29	0.18	0.01
			0.00			1/2" 0.36	0.24	0.01
			3.00			Ice 0.44	0.31	0.01
						1" Ice 0.62	0.47	0.02
						2" Ice		
(2) LGP21401	A	From Leg	4.00	0.0000	119.00	No Ice 1.10	0.21	0.01
			0.00			1/2" 1.24	0.27	0.02
			3.00			Ice 1.38	0.35	0.03
						1" Ice 1.69	0.52	0.05
						2" Ice		
(2) LGP21401	B	From Leg	4.00	0.0000	119.00	No Ice 1.10	0.21	0.01
			0.00			1/2" 1.24	0.27	0.02
			3.00			Ice 1.38	0.35	0.03
						1" Ice 1.69	0.52	0.05
						2" Ice		
(2) LGP21401	C	From Leg	4.00	0.0000	119.00	No Ice 1.10	0.21	0.01
			0.00			1/2" 1.24	0.27	0.02
			3.00			Ice 1.38	0.35	0.03
						1" Ice 1.69	0.52	0.05
						2" Ice		
DC6-48-60-18-8F	B	From Leg	4.00	0.0000	119.00	No Ice 0.92	0.92	0.02
			0.00			1/2" 1.46	1.46	0.04
			3.00			Ice 1.64	1.64	0.06
						1" Ice 2.04	2.04	0.11
						2" Ice		
6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	119.00	No Ice 1.43	1.43	0.02
			0.00			1/2" 1.92	1.92	0.03
			0.00			Ice 2.29	2.29	0.05
						1" Ice 3.06	3.06	0.09
						2" Ice		
6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	119.00	No Ice 1.43	1.43	0.02
			0.00			1/2" 1.92	1.92	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	119.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
Platform Mount [LP 712-1]	C	None		0.0000	119.00	No Ice	24.56	24.56	1.33
						1/2"	27.92	27.92	1.91
						Ice	31.27	31.27	2.55
						1" Ice	37.98	37.98	3.97
						2" Ice			

(2) LPA-80063/6CF-2 w/ Mount Pipe	A	From Leg	4.00	0.0000	110.00	No Ice	7.19	7.30	0.06
			0.00			1/2"	7.77	7.88	0.15
			0.00			Ice	8.36	8.47	0.25
						1" Ice	9.58	9.69	0.48
						2" Ice			
(2) LPA-80063/6CF-2 w/ Mount Pipe	B	From Leg	4.00	0.0000	110.00	No Ice	7.19	7.30	0.06
			0.00			1/2"	7.77	7.88	0.15
			0.00			Ice	8.36	8.47	0.25
						1" Ice	9.58	9.69	0.48
						2" Ice			
(2) LPA-80063/6CF-2 w/ Mount Pipe	C	From Leg	4.00	0.0000	110.00	No Ice	7.19	7.30	0.06
			0.00			1/2"	7.77	7.88	0.15
			0.00			Ice	8.36	8.47	0.25
						1" Ice	9.58	9.69	0.48
						2" Ice			
Platform Mount [LP 303-1]	C	None		0.0000	110.00	No Ice	14.69	14.69	1.25
						1/2"	18.01	18.01	1.57
						Ice	21.34	21.34	1.94
						1" Ice	28.08	28.08	2.85
						2" Ice			

(2) NHH-65B-R2B w/ Mount Pipe	A	From Leg	4.00	0.0000	110.00	No Ice	4.09	3.29	0.07
			0.00			1/2"	4.48	3.67	0.13
			0.00			Ice	4.88	4.06	0.21
						1" Ice	5.70	4.86	0.39
						2" Ice			
(2) NHH-65B-R2B w/ Mount Pipe	B	From Leg	4.00	0.0000	110.00	No Ice	4.09	3.29	0.07
			0.00			1/2"	4.48	3.67	0.13
			0.00			Ice	4.88	4.06	0.21
						1" Ice	5.70	4.86	0.39
						2" Ice			
(2) NHH-65B-R2B w/ Mount Pipe	C	From Leg	4.00	0.0000	110.00	No Ice	4.09	3.29	0.07
			0.00			1/2"	4.48	3.67	0.13
			0.00			Ice	4.88	4.06	0.21
						1" Ice	5.70	4.86	0.39
						2" Ice			
MT6413-77A w/ Mount Pipe	A	From Leg	4.00	0.0000	110.00	No Ice	4.00	2.15	0.07
			0.00			1/2"	4.31	2.55	0.10
			0.00			Ice	4.63	2.97	0.14
						1" Ice	5.31	3.85	0.23
						2" Ice			
MT6413-77A w/ Mount Pipe	B	From Leg	4.00	0.0000	110.00	No Ice	4.00	2.15	0.07
			0.00			1/2"	4.31	2.55	0.10
			0.00			Ice	4.63	2.97	0.14
						1" Ice	5.31	3.85	0.23
						2" Ice			
MT6413-77A w/ Mount Pipe	C	From Leg	4.00	0.0000	110.00	No Ice	4.00	2.15	0.07
			0.00			1/2"	4.31	2.55	0.10
			0.00			Ice	4.63	2.97	0.14
						1" Ice	5.31	3.85	0.23
						2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
RF4439D-25A	A	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.25 1.39 1.54 1.87	0.07 0.09 0.11 0.17
RF4439D-25A	B	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.25 1.39 1.54 1.87	0.07 0.09 0.11 0.17
RF4439D-25A	C	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.25 1.39 1.54 1.87	0.07 0.09 0.11 0.17
RF4461D-13A	A	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.28 1.42 1.57 1.89	0.08 0.10 0.12 0.17
RF4461D-13A	B	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.28 1.42 1.57 1.89	0.08 0.10 0.12 0.17
RF4461D-13A	C	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.28 1.42 1.57 1.89	0.08 0.10 0.12 0.17
RVZDC-6627-PF-48	A	From Leg	2.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.79 4.04 4.30 4.84	2.51 2.73 2.95 3.42	0.03 0.06 0.10 0.18
(2) 7'-2" Mount Pipe [#P2 Sch 40]	A	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.70 2.45 2.92 3.82	1.70 2.45 2.92 3.82	0.03 0.04 0.06 0.11
(2) 7'-2" Mount Pipe [#P2 Sch 40]	B	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.70 2.45 2.92 3.82	1.70 2.45 2.92 3.82	0.03 0.04 0.06 0.11
(2) 7'-2" Mount Pipe [#P2 Sch 40]	C	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.70 2.45 2.92 3.82	1.70 2.45 2.92 3.82	0.03 0.04 0.06 0.11
3'-0" Mount Pipe [#P2 Sch 40]	A	From Leg	2.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.58 0.77 0.97 1.39	0.58 0.77 0.97 1.39	0.01 0.02 0.02 0.05
Support Rail Kit [#VZWSMART-PLK 1]	A	None		0.0000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.56 6.39 8.18 11.66	4.56 6.39 8.18 11.66	0.24 0.31 0.40 0.66

MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	98.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	98.00	2" Ice No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	98.00	2" Ice No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
TA08025-B604	A	From Leg	4.00 0.00 2.00	0.0000	98.00	2" Ice No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	B	From Leg	4.00 0.00 2.00	0.0000	98.00	2" Ice No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	C	From Leg	4.00 0.00 2.00	0.0000	98.00	2" Ice No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B605	A	From Leg	4.00 0.00 2.00	0.0000	98.00	2" Ice No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	B	From Leg	4.00 0.00 2.00	0.0000	98.00	2" Ice No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	C	From Leg	4.00 0.00 2.00	0.0000	98.00	2" Ice No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 2.00	0.0000	98.00	2" Ice No Ice 1/2" Ice 1" Ice	2.01 2.19 2.37 2.76	1.17 1.31 1.46 1.78	0.02 0.04 0.06 0.11
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	98.00	2" Ice No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	98.00	2" Ice No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	98.00	2" Ice No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
Sabre C10801018-32788	C	None		0.0000	98.00	2" Ice No Ice 1/2" Ice 1" Ice	26.80 32.20 37.60 48.40	26.80 32.20 37.60 48.40	1.51 1.81 2.11 2.72

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
						2" Ice			
***** VV-65A-R1_TMO w/ Mount Pipe	A	From Leg	4.00	0.0000	90.00	No Ice	4.46	2.69	0.05
			0.00			1/2"	4.91	3.10	0.10
			0.00			Ice	5.36	3.52	0.15
						1" Ice	6.32	4.41	0.28
VV-65A-R1_TMO w/ Mount Pipe	B	From Leg	4.00	0.0000	90.00	2" Ice			
			0.00			No Ice	4.46	2.69	0.05
			0.00			1/2"	4.91	3.10	0.10
			0.00			Ice	5.36	3.52	0.15
VV-65A-R1_TMO w/ Mount Pipe	C	From Leg	4.00	0.0000	90.00	1" Ice	6.32	4.41	0.28
			0.00			2" Ice			
			0.00			No Ice	4.46	2.69	0.05
			0.00			1/2"	4.91	3.10	0.10
AIR 6419 B41_TMO w/ Mount Pipe	A	From Leg	4.00	0.0000	90.00	Ice	5.36	3.52	0.15
			0.00			1" Ice	6.32	4.41	0.28
			0.00			2" Ice			
						No Ice	6.58	3.50	0.11
AIR 6419 B41_TMO w/ Mount Pipe	B	From Leg	4.00	0.0000	90.00	1/2"	7.06	3.90	0.16
			0.00			Ice	7.57	4.32	0.22
			0.00			1" Ice	8.62	5.20	0.36
						2" Ice			
AIR 6419 B41_TMO w/ Mount Pipe	C	From Leg	4.00	0.0000	90.00	No Ice	6.58	3.50	0.11
			0.00			1/2"	7.06	3.90	0.16
			0.00			Ice	7.57	4.32	0.22
						1" Ice	8.62	5.20	0.36
APXVAALL24_43-U- NA20_TMO w/ Mount Pipe	A	From Leg	4.00	0.0000	90.00	2" Ice			
			0.00			No Ice	14.69	6.87	0.18
			0.00			1/2"	15.46	7.55	0.31
			0.00			Ice	16.23	8.25	0.45
APXVAALL24_43-U- NA20_TMO w/ Mount Pipe	B	From Leg	4.00	0.0000	90.00	1" Ice	17.82	9.67	0.78
			0.00			2" Ice			
			0.00			No Ice	14.69	6.87	0.18
			0.00			1/2"	15.46	7.55	0.31
APXVAALL24_43-U- NA20_TMO w/ Mount Pipe	C	From Leg	4.00	0.0000	90.00	Ice	16.23	8.25	0.45
			0.00			1" Ice	17.82	9.67	0.78
			0.00			2" Ice			
						No Ice	14.69	6.87	0.18
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00	0.0000	90.00	1/2"	2.32	1.85	0.13
			0.00			Ice	2.51	2.02	0.16
			0.00			1" Ice	2.91	2.39	0.22
						2" Ice			
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00	0.0000	90.00	No Ice	2.14	1.69	0.11
			0.00			1/2"	2.32	1.85	0.13
			0.00			Ice	2.51	2.02	0.16
						1" Ice	2.91	2.39	0.22
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00	0.0000	90.00	2" Ice			
			0.00			No Ice	2.14	1.69	0.11
			0.00			1/2"	2.32	1.85	0.13
			0.00			Ice	2.51	2.02	0.16
Radio 4480_TMOV2	A	From Leg	4.00	0.0000	90.00	1" Ice	2.91	2.39	0.22
			0.00			2" Ice			
			0.00			No Ice	2.88	1.40	0.08
			0.00			1/2"	3.09	1.56	0.10
						Ice	3.31	1.73	0.13

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
Radio 4480_TMOV2	B	From Leg	4.00 0.00 0.00	0.0000	90.00	1" Ice	3.78	2.09	0.19
						2" Ice			
						No Ice	2.88	1.40	0.08
						1/2" Ice	3.09	1.56	0.10
						Ice	3.31	1.73	0.13
Radio 4480_TMOV2	C	From Leg	4.00 0.00 0.00	0.0000	90.00	1" Ice	3.78	2.09	0.19
						2" Ice			
						No Ice	2.88	1.40	0.08
						1/2" Ice	3.09	1.56	0.10
						Ice	3.31	1.73	0.13
8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	90.00	1" Ice	3.78	2.09	0.19
						2" Ice			
						No Ice	1.90	1.90	0.03
						1/2" Ice	2.73	2.73	0.04
						Ice	3.40	3.40	0.06
8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	90.00	1" Ice	4.40	4.40	0.12
						2" Ice			
						No Ice	1.90	1.90	0.03
						1/2" Ice	2.73	2.73	0.04
						Ice	3.40	3.40	0.06
8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	90.00	1" Ice	4.40	4.40	0.12
						2" Ice			
						No Ice	1.90	1.90	0.03
						1/2" Ice	2.73	2.73	0.04
						Ice	3.40	3.40	0.06
12.5' Platform Mount [#RMQP-496-HK]	C	None		0.0000	90.00	1" Ice	4.40	4.40	0.12
						2" Ice			
						No Ice	23.14	21.40	1.95
						1/2" Ice	28.17	26.44	2.33
						Ice	33.20	31.48	2.73
						1" Ice	43.26	41.56	3.50
						2" Ice			

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft²	Weight K

SC2-W100BD	A	Paraboloid w/Shroud (HP)	From Leg	4.00	0.0000		90.00	2.20	No Ice	3.80
				0.00					1/2" Ice	4.09
				0.00					1" Ice	4.39
									2" Ice	4.98

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

Comb. No.	Description
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
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	119 - 95.11	Pole	Max Tension	26	0.00	-0.00	-0.00
			Max. Compression	26	-18.72	0.32	0.25
			Max. Mx	20	-7.72	111.80	-0.30
			Max. My	2	-7.72	-0.16	112.45
			Max. Vy	20	-7.42	111.80	-0.30
			Max. Vx	14	7.47	0.46	-112.42
			Max. Torque	7			0.38
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.27	0.32	0.72
			Max. Mx	20	-21.85	723.83	-0.30
L2	95.11 - 47.1673	Pole	Max. My	14	-21.84	1.11	-731.02
			Max. Vy	20	-15.23	723.83	-0.30
			Max. Vx	14	15.39	1.11	-731.02
			Max. Torque	9			0.89
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.28	0.32	0.28
			Max. Mx	20	-34.73	1616.76	-0.43
L3	47.1673 - 0	Pole	Max. Mx	20	-34.73	1616.76	-0.43
			Max. Vy	20	-15.23	723.83	-0.30
			Max. Vx	14	15.39	1.11	-731.02

Section n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	14	-34.73	1.82	-1632.40
			Max. Vy	20	-18.64	1616.76	-0.43
			Max. Vx	14	18.80	1.82	-1632.40
			Max. Torque	9			0.89

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	59.28	-0.00	5.28
	Max. H _x	20	34.74	18.63	0.00
	Max. H _z	2	34.74	-0.01	18.75
	Max. M _x	2	1629.45	-0.01	18.75
	Max. M _z	8	1616.44	-18.63	0.03
	Max. Torsion	9	0.89	-18.63	0.03
	Min. Vert	23	26.05	16.11	9.39
	Min. H _x	8	34.74	-18.63	0.03
	Min. H _z	14	34.74	0.01	-18.78
	Min. M _x	14	-1632.40	0.01	-18.78
	Min. M _z	20	-1616.76	18.63	0.00
	Min. Torsion	21	-0.88	18.63	0.00

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	28.95	0.00	0.00	0.04	0.13	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	34.74	0.01	-18.75	-1629.45	-1.50	-0.24
0.9 Dead+1.0 Wind 0 deg - No Ice	26.05	0.01	-18.75	-1616.90	-1.52	-0.24
1.2 Dead+1.0 Wind 30 deg - No Ice	34.74	9.31	-16.25	-1412.88	-807.98	-0.57
0.9 Dead+1.0 Wind 30 deg - No Ice	26.05	9.31	-16.25	-1401.99	-801.79	-0.57
1.2 Dead+1.0 Wind 60 deg - No Ice	34.74	16.12	-9.41	-818.51	-1399.48	-0.83
0.9 Dead+1.0 Wind 60 deg - No Ice	26.05	16.12	-9.41	-812.20	-1388.73	-0.83
1.2 Dead+1.0 Wind 90 deg - No Ice	34.74	18.63	-0.03	-2.89	-1616.44	-0.89
0.9 Dead+1.0 Wind 90 deg - No Ice	26.05	18.63	-0.03	-2.87	-1604.02	-0.89
1.2 Dead+1.0 Wind 120 deg - No Ice	34.74	16.10	9.42	818.45	-1397.00	-0.51
0.9 Dead+1.0 Wind 120 deg - No Ice	26.05	16.10	9.42	812.13	-1386.28	-0.51
1.2 Dead+1.0 Wind 150 deg - No Ice	34.74	9.29	16.27	1414.26	-805.79	-0.15
0.9 Dead+1.0 Wind 150 deg - No Ice	26.05	9.29	16.27	1403.35	-799.62	-0.15
1.2 Dead+1.0 Wind 180 deg - No Ice	34.74	-0.01	18.78	1632.40	1.82	0.25
0.9 Dead+1.0 Wind 180 deg - No Ice	26.05	-0.01	18.78	1619.81	1.76	0.25
1.2 Dead+1.0 Wind 210 deg - No Ice	34.74	-9.31	16.28	1415.91	808.99	0.58
0.9 Dead+1.0 Wind 210 deg - No Ice	26.05	-9.31	16.28	1404.99	802.71	0.58

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
1.2 Dead+1.0 Wind 240 deg	34.74	-16.11	9.44	821.32	1398.98	0.75
- No Ice						
0.9 Dead+1.0 Wind 240 deg	26.05	-16.11	9.44	814.98	1388.16	0.75
- No Ice						
1.2 Dead+1.0 Wind 270 deg	34.74	-18.63	-0.00	0.43	1616.76	0.88
- No Ice						
0.9 Dead+1.0 Wind 270 deg	26.05	-18.63	-0.00	0.42	1604.26	0.88
- No Ice						
1.2 Dead+1.0 Wind 300 deg	34.74	-16.11	-9.39	-815.64	1398.15	0.58
- No Ice						
0.9 Dead+1.0 Wind 300 deg	26.05	-16.11	-9.39	-809.36	1387.33	0.58
- No Ice						
1.2 Dead+1.0 Wind 330 deg	34.74	-9.28	-16.24	-1411.22	805.44	0.15
- No Ice						
0.9 Dead+1.0 Wind 330 deg	26.05	-9.28	-16.24	-1400.35	799.19	0.15
- No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	59.28	-0.00	-0.00	-0.28	0.32	-0.00
1.2 Dead+1.0 Wind 0	59.28	0.00	-5.28	-461.33	0.04	-0.10
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 30	59.28	2.63	-4.58	-399.93	-228.68	-0.15
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 60	59.28	4.55	-2.65	-231.65	-396.39	-0.18
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 90	59.28	5.25	-0.01	-0.97	-457.90	-0.16
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 120	59.28	4.54	2.65	230.99	-395.89	-0.06
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 150	59.28	2.62	4.58	399.55	-228.29	0.03
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 180	59.28	-0.00	5.29	461.24	0.67	0.10
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 210	59.28	-2.63	4.58	399.86	229.55	0.15
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 240	59.28	-4.55	2.65	231.53	396.92	0.16
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 270	59.28	-5.25	-0.00	-0.34	458.62	0.16
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 300	59.28	-4.55	-2.64	-231.11	396.79	0.07
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330	59.28	-2.62	-4.57	-399.61	228.86	-0.03
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	28.95	0.00	-4.57	-395.03	-0.27	-0.05
Dead+Wind 30 deg - Service	28.95	2.27	-3.96	-342.52	-195.80	-0.13
Dead+Wind 60 deg - Service	28.95	3.93	-2.29	-198.42	-339.20	-0.20
Dead+Wind 90 deg - Service	28.95	4.54	-0.01	-0.67	-391.80	-0.21
Dead+Wind 120 deg - Service	28.95	3.92	2.29	198.45	-338.60	-0.12
Dead+Wind 150 deg - Service	28.95	2.26	3.96	342.91	-195.27	-0.04
Dead+Wind 180 deg - Service	28.95	-0.00	4.57	395.79	0.54	0.05
Dead+Wind 210 deg - Service	28.95	-2.27	3.97	343.31	196.23	0.13
Dead+Wind 240 deg - Service	28.95	-3.93	2.30	199.15	339.27	0.18
Dead+Wind 270 deg - Service	28.95	-4.54	-0.00	0.13	392.07	0.21
Dead+Wind 300 deg - Service	28.95	-3.92	-2.29	-197.72	339.07	0.14
Dead+Wind 330 deg - Service	28.95	-2.26	-3.96	-342.12	195.37	0.04

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	-28.95	0.00	0.00	28.95	0.00	0.000%
2	0.01	-34.74	-18.75	-0.01	34.74	18.75	0.000%
3	0.01	-26.05	-18.75	-0.01	26.05	18.75	0.000%
4	9.31	-34.74	-16.25	-9.31	34.74	16.25	0.000%
5	9.31	-26.05	-16.25	-9.31	26.05	16.25	0.000%
6	16.12	-34.74	-9.41	-16.12	34.74	9.41	0.000%
7	16.12	-26.05	-9.41	-16.12	26.05	9.41	0.000%
8	18.63	-34.74	-0.03	-18.63	34.74	0.03	0.000%
9	18.63	-26.05	-0.03	-18.63	26.05	0.03	0.000%
10	16.10	-34.74	9.42	-16.10	34.74	-9.42	0.000%
11	16.10	-26.05	9.42	-16.10	26.05	-9.42	0.000%
12	9.29	-34.74	16.27	-9.29	34.74	-16.27	0.000%
13	9.29	-26.05	16.27	-9.29	26.05	-16.27	0.000%
14	-0.01	-34.74	18.78	0.01	34.74	-18.78	0.000%
15	-0.01	-26.05	18.78	0.01	26.05	-18.78	0.000%
16	-9.31	-34.74	16.28	9.31	34.74	-16.28	0.000%
17	-9.31	-26.05	16.28	9.31	26.05	-16.28	0.000%
18	-16.11	-34.74	9.44	16.11	34.74	-9.44	0.000%
19	-16.11	-26.05	9.44	16.11	26.05	-9.44	0.000%
20	-18.63	-34.74	-0.00	18.63	34.74	0.00	0.000%
21	-18.63	-26.05	-0.00	18.63	26.05	0.00	0.000%
22	-16.11	-34.74	-9.39	16.11	34.74	9.39	0.000%
23	-16.11	-26.05	-9.39	16.11	26.05	9.39	0.000%
24	-9.28	-34.74	-16.24	9.28	34.74	16.24	0.000%
25	-9.28	-26.05	-16.24	9.28	26.05	16.24	0.000%
26	0.00	-59.28	0.00	0.00	59.28	0.00	0.000%
27	0.00	-59.28	-5.28	-0.00	59.28	5.28	0.000%
28	2.63	-59.28	-4.58	-2.63	59.28	4.58	0.000%
29	4.55	-59.28	-2.65	-4.55	59.28	2.65	0.000%
30	5.25	-59.28	-0.01	-5.25	59.28	0.01	0.000%
31	4.54	-59.28	2.65	-4.54	59.28	-2.65	0.000%
32	2.62	-59.28	4.58	-2.62	59.28	-4.58	0.000%
33	-0.00	-59.28	5.29	0.00	59.28	-5.29	0.000%
34	-2.63	-59.28	4.58	2.63	59.28	-4.58	0.000%
35	-4.55	-59.28	2.65	4.55	59.28	-2.65	0.000%
36	-5.25	-59.28	-0.00	5.25	59.28	0.00	0.000%
37	-4.55	-59.28	-2.64	4.55	59.28	2.64	0.000%
38	-2.62	-59.28	-4.57	2.62	59.28	4.57	0.000%
39	0.00	-28.95	-4.57	-0.00	28.95	4.57	0.000%
40	2.27	-28.95	-3.96	-2.27	28.95	3.96	0.000%
41	3.93	-28.95	-2.29	-3.93	28.95	2.29	0.000%
42	4.54	-28.95	-0.01	-4.54	28.95	0.01	0.000%
43	3.92	-28.95	2.29	-3.92	28.95	-2.29	0.000%
44	2.26	-28.95	3.96	-2.26	28.95	-3.96	0.000%
45	-0.00	-28.95	4.57	0.00	28.95	-4.57	0.000%
46	-2.27	-28.95	3.97	2.27	28.95	-3.97	0.000%
47	-3.93	-28.95	2.30	3.93	28.95	-2.30	0.000%
48	-4.54	-28.95	-0.00	4.54	28.95	0.00	0.000%
49	-3.92	-28.95	-2.29	3.92	28.95	2.29	0.000%
50	-2.26	-28.95	-3.96	2.26	28.95	3.96	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00016100
3	Yes	4	0.00000001	0.00010369
4	Yes	5	0.00000001	0.00014914
5	Yes	5	0.00000001	0.00007212
6	Yes	5	0.00000001	0.00016413
7	Yes	5	0.00000001	0.00007984
8	Yes	4	0.00000001	0.00041708

9	Yes	4	0.00000001	0.00028195
10	Yes	5	0.00000001	0.00014998
11	Yes	5	0.00000001	0.00007262
12	Yes	5	0.00000001	0.00015507
13	Yes	5	0.00000001	0.00007521
14	Yes	4	0.00000001	0.00018388
15	Yes	4	0.00000001	0.00011940
16	Yes	5	0.00000001	0.00016266
17	Yes	5	0.00000001	0.00007898
18	Yes	5	0.00000001	0.00014869
19	Yes	5	0.00000001	0.00007188
20	Yes	4	0.00000001	0.00039318
21	Yes	4	0.00000001	0.00026593
22	Yes	5	0.00000001	0.00015955
23	Yes	5	0.00000001	0.00007752
24	Yes	5	0.00000001	0.00015348
25	Yes	5	0.00000001	0.00007434
26	Yes	4	0.00000001	0.00000493
27	Yes	5	0.00000001	0.00009892
28	Yes	5	0.00000001	0.00011539
29	Yes	5	0.00000001	0.00011619
30	Yes	5	0.00000001	0.00009771
31	Yes	5	0.00000001	0.00011431
32	Yes	5	0.00000001	0.00011448
33	Yes	5	0.00000001	0.00009822
34	Yes	5	0.00000001	0.00011605
35	Yes	5	0.00000001	0.00011481
36	Yes	5	0.00000001	0.00009811
37	Yes	5	0.00000001	0.00011591
38	Yes	5	0.00000001	0.00011621
39	Yes	4	0.00000001	0.00001438
40	Yes	4	0.00000001	0.00005914
41	Yes	4	0.00000001	0.00007701
42	Yes	4	0.00000001	0.00002600
43	Yes	4	0.00000001	0.00005969
44	Yes	4	0.00000001	0.00006531
45	Yes	4	0.00000001	0.00001459
46	Yes	4	0.00000001	0.00007402
47	Yes	4	0.00000001	0.00005909
48	Yes	4	0.00000001	0.00002574
49	Yes	4	0.00000001	0.00007175
50	Yes	4	0.00000001	0.00006326

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	119 - 95.11	9.377	45	0.7296	0.0017
L2	98.8912 - 47.1673	6.427	45	0.6521	0.0013
L3	52.834 - 0	1.678	45	0.3028	0.0003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
119.00	Lightning Rod 5/8" x 8'	45	9.377	0.7296	0.0018	36061
110.00	(2) LPA-80063/6CF-2 w/ Mount Pipe	45	8.025	0.6996	0.0016	20034
98.00	MX08FRO665-21 w/ Mount Pipe	45	6.304	0.6474	0.0013	9072
90.00	SC2-W100BD	45	5.255	0.5984	0.0011	8346

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	119 - 95.11	38.751	14	3.0140	0.0074
L2	98.8912 - 47.1673	26.553	14	2.6955	0.0055
L3	52.834 - 0	6.926	14	1.2508	0.0013

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
119.00	Lightning Rod 5/8" x 8'	14	38.751	3.0140	0.0079	8778
110.00	(2) LPA-80063/6CF-2 w/ Mount Pipe	14	33.158	2.8921	0.0067	4876
98.00	MX08FRO665-21 w/ Mount Pipe	14	26.047	2.6760	0.0054	2207
90.00	SC2-W100BD	14	21.711	2.4733	0.0046	2028

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 $\frac{P_u}{\phi P_n}$
L1	119 - 95.11 (1)	TP26.2449x18.5x0.1875	23.89	0.00	0.0	14.777 9	-7.72	864.51	0.009
L2	95.11 - 47.1673 (2)	TP41.3419x24.6441x0.25	51.72	0.00	0.0	31.154 8	-21.84	1822.56	0.012
L3	47.1673 - 0 (3)	TP56x39.0125x0.3125	52.83	0.00	0.0	55.235 0	-34.73	3231.25	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	119 - 95.11 (1)	TP26.2449x18.5x0.1875	112.58	508.24	0.222	0.00	508.24	0.000
L2	95.11 - 47.1673 (2)	TP41.3419x24.6441x0.25	731.02	1580.62	0.462	0.00	1580.62	0.000
L3	47.1673 - 0 (3)	TP56x39.0125x0.3125	1632.40	3727.85	0.438	0.00	3727.85	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V _u K	φV _n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T _u kip-ft	φT _n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	119 - 95.11 (1)	TP26.2449x18.5x0.1875	7.47	259.35	0.029	0.36	563.99	0.001

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 $\frac{T_u}{\phi T_n}$
L2	95.11 - 47.1673 (2)	TP41.3419x24.6441x0.25	15.39	546.77	0.028	0.25	1880.02	0.000
L3	47.1673 - 0 (3)	TP56x39.0125x0.3125	18.80	969.38	0.019	0.25	4727.48	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	119 - 95.11 (1)	0.009	0.222	0.000	0.029	0.001	0.231	1.050	
L2	95.11 - 47.1673 (2)	0.012	0.462	0.000	0.028	0.000	0.475	1.050	
L3	47.1673 - 0 (3)	0.011	0.438	0.000	0.019	0.000	0.449	1.050	

Section Capacity Table

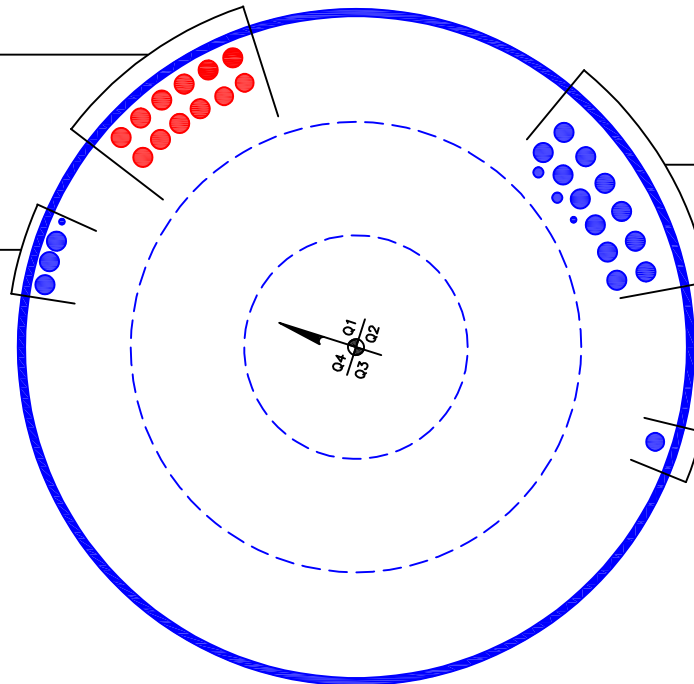
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	119 - 95.11	Pole	TP26.2449x18.5x0.1875	1	-7.72	907.73	22.0	Pass
L2	95.11 - 47.1673	Pole	TP41.3419x24.6441x0.25	2	-21.84	1913.69	45.3	Pass
L3	47.1673 - 0	Pole	TP56x39.0125x0.3125	3	-34.73	3392.81	42.8	Pass
							Summary	
							Pole (L2)	Pass
							RATING = 45.3	Pass

APPENDIX B
BASE LEVEL DRAWING



(PROPOSED EQUIPMENT CONFIGURATION)
(2) 1-1/2" TO 110 FT LEVEL
(10) 1-5/8" TO 110 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 90 FT LEVEL
(3) 1-5/8" TO 90 FT LEVEL



(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 119 FT LEVEL
(2) 7/8" TO 119 FT LEVEL
(12) 1-5/8" TO 119 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(1) 1-1/2" TO 98 FT LEVEL

APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Base Plate Connection

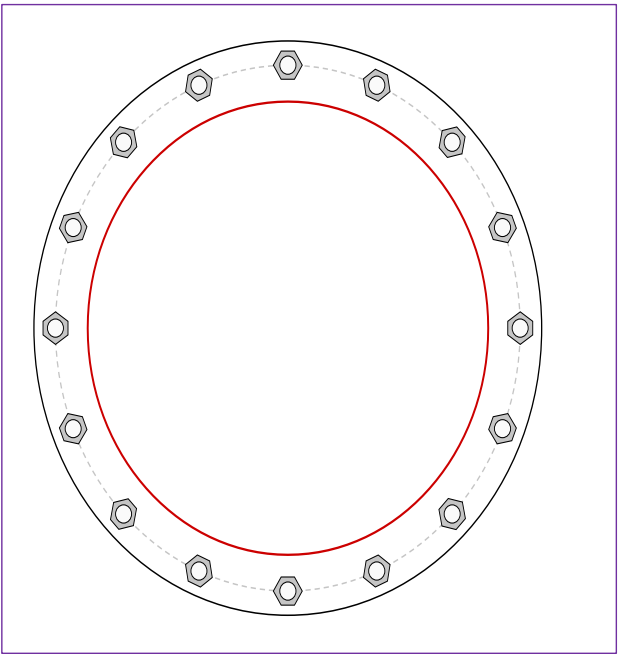


Site Info	
BU #	846293
Site Name	olland - Peter Green R
Order #	671353 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{ar} (in)	0.875

Applied Loads	
Moment (kip-ft)	1632.40
Axial Force (kips)	34.73
Shear Force (kips)	18.80

*TIA-222-H Section 15.5 Applied



Connection Properties		Analysis Results	
Anchor Rod Data		Anchor Rod Summary <i>(units of kips, kip-in)</i>	
(16) 2-1/4" ϕ bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 65" BC		$Pu_t = 73.13$	$\phi Pn_t = 243.75$ Stress Rating
		$Vu = 1.17$	$\phi Vn = 149.1$ 28.6%
		$Mu = n/a$	$\phi Mn = n/a$ Pass
Base Plate Data		Base Plate Summary	
71" OD x 2.25" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)		Max Stress (ksi):	15.31 (Flexural)
Stiffener Data		Allowable Stress (ksi):	54
N/A		Stress Rating:	27.0% Pass
Pole Data			
56" x 0.3125" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)			

Pier and Pad Foundation



BU #: 846293
 Site Name: Tolland - Peter Gre
 App. Number: 671353 Rev. 0

TIA-222 Revision: H
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	34.74	kips
Base Shear, V_u , comp:	18.78	kips
Moment, M_u :	1632.4	ft-kips
Tower Height, H :	119	ft
BP Dist. Above Fdn, bp_{dist} :	3.125	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, d_{pier} :	7	ft
Ext. Above Grade, E :	1	ft
Pier Rebar Size, S_c :	8	
Pier Rebar Quantity, mc :	36	
Pier Tie/Spiral Size, S_t :	4	
Pier Tie/Spiral Quantity, mt :	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Pad Properties		
Depth, D :	5	ft
Pad Width, W_1 :	25	ft
Pad Thickness, T :	3	ft
Pad Rebar Size (Bottom dir. 2), S_{p2} :	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	32	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	4	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	135	pcf
Ultimate Gross Bearing, Q_{ult} :	30.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	35	degrees
SPT Blow Count, N_{blows} :	29	
Base Friction, μ :	0.45	
Neglected Depth, N :	3.30	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	8.5	ft

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	214.06	18.78	8.4%	Pass
Bearing Pressure (ksf)	22.50	1.41	6.0%	Pass
Overturning (kip*ft)	5504.40	1749.97	31.8%	Pass
Pier Flexure (Comp.) (kip*ft)	4694.29	1688.74	34.3%	Pass
Pier Compression (kip)	31187.52	61.20	0.2%	Pass
Pad Flexure (kip*ft)	3498.86	590.52	16.1%	Pass
Pad Shear - 1-way (kips)	896.51	91.35	9.7%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.190	0.018	9.0%	Pass
Flexural 2-way (Comp) (kip*ft)	4443.10	1013.24	21.7%	Pass

*Rating per TIA-222-H Section 15.5

Structural Rating*:	34.3%
Soil Rating*:	31.8%

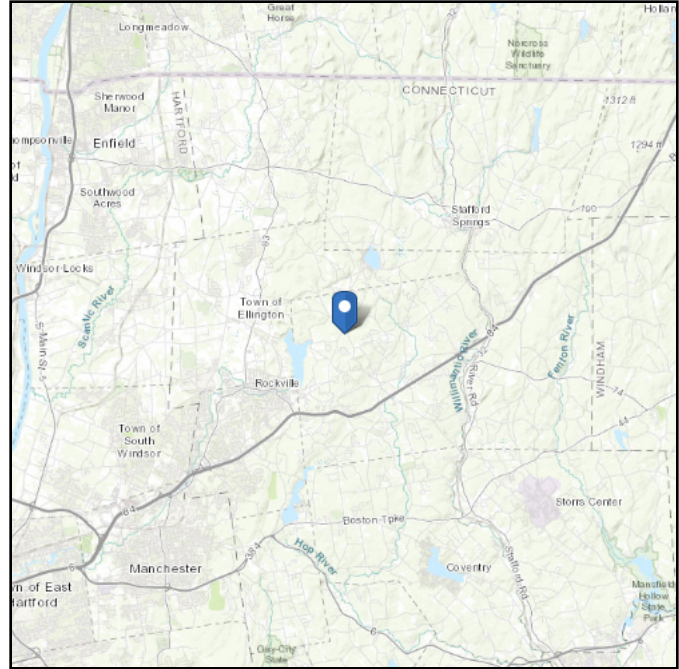
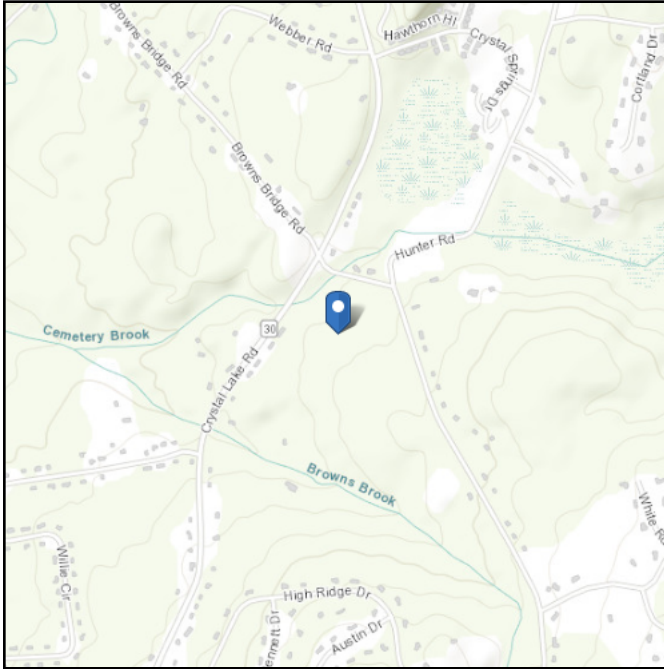
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ASCE Hazards Report

Address:
No Address at This Location

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

Latitude: 41.896614
Longitude: -72.393731
Elevation: 709.5767671257471 ft
(NAVD 88)



Wind

Results:

Wind Speed	118 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	98 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: Fri May 17 2024

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

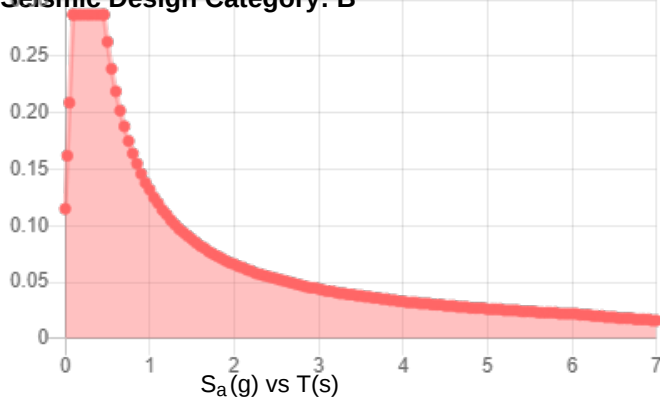
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

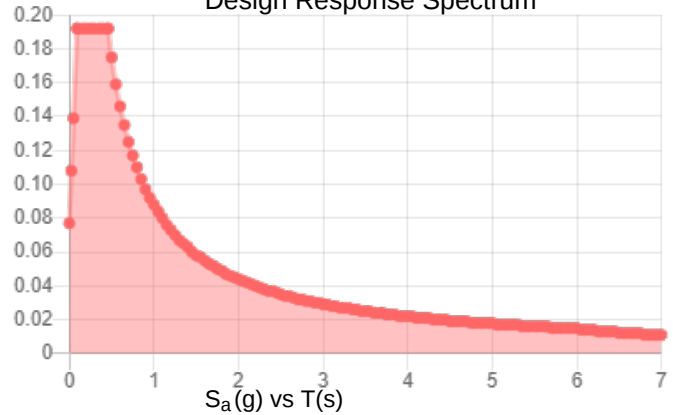
Results:

S_S :	0.18	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.095
F_v :	2.4	PGA _M :	0.153
S_{MS} :	0.287	F_{PGA} :	1.6
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.192	C_v :	0.7

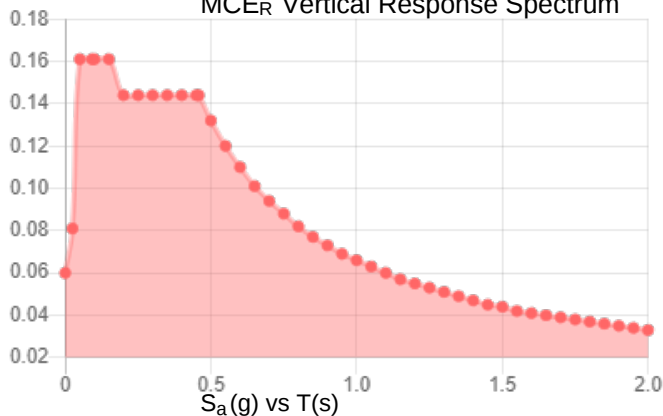
Seismic Design Category: B **MCE_R Response Spectrum**



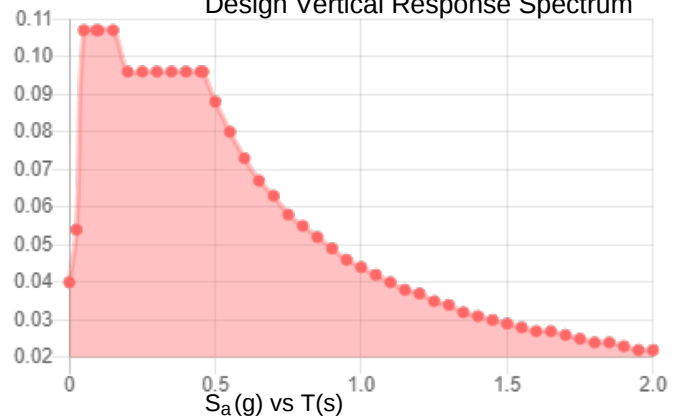
Design Response Spectrum



MCE_R Vertical Response Spectrum



Design Vertical Response Spectrum



Data Accessed: Fri May 17 2024

Date Source:

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

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: Fri May 17 2024

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 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 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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Colliers Engineering & Design, Architecture,
Landscape Architecture, Surveying, CT P.C.
1055 Washington Boulevard
Stamford, CT 06901
203.324.0800
peter.albano@collierseng.com

Post-Modification Antenna Mount Analysis Report and PMI Requirements

Mount Fix

SMART Tool Project #: 10215322
Colliers Engineering & Design Project #: 21777983 (Rev 1)

December 18, 2023

Site Information

Site ID: 5000247949-VZW / ELLINGTON SOUTH CT
Site Name: ELLINGTON SOUTH CT
Carrier Name: Verizon Wireless
Address: 319 Peter Green Road
Tolland, Connecticut 06084
Tolland County
Latitude: 41.896614°
Longitude: -72.393731°

Structure Information

Tower Type: 120-Ft Monopole
Mount Type: 12.50-Ft Platform

FUZE ID # 16273385

Analysis Results

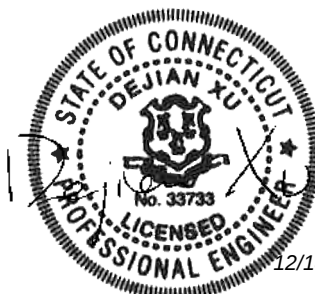
Platform: 68.4% **Pass w/ Modifications***

***Antennas and equipment to be installed in compliance with PMI Requirements of this mount analysis.**

***Contractor PMI Requirements:

Included at the end of this MA report
Available & Submitted via portal at <https://pmi.vzwsmart.com>
For additional questions and support, please reach out to:
pmisupport@colliersengineering.com

Report Prepared By: Gianna Argentina



12/18/2023

Executive Summary:

The objective of this report is to summarize the analysis results of the antenna support mount including the proposed modifications at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards.

This analysis is inclusive of the mount structure only and does not address the structural capacity of the supporting structure. This mounting frame was not analyzed as an anchor attachment point for fall protection. All climbing activities are required to have a fall protection plan completed by a competent person.

Sources of Information:

Document Type	Remarks
Radio Frequency Data Sheet (RFDS)	Verizon RFDS, Site ID: 674890, dated September 20, 2023
Mount Mapping Report	Hudson Design Group, LLC., Site ID: 467657, dated June 9, 2021
Previous Mount Analysis	Colliers Engineering & Design, Project #: 21777983 (Rev 1), dated November 21, 2023
Mount Modification Drawings	Colliers Engineering & Design, Project #: 21777983 (Rev 1), dated December 18, 2023

Analysis Criteria:

Codes and Standards:	ANSI/TIA-222-H 2022 Connecticut State Building Code (CSBC), Effective October 1, 2022
Wind Parameters:	Basic Wind Speed (Ultimate 3-sec. Gust), V_{ULT} : 120 mph Ice Wind Speed (3-sec. Gust): 50 mph Design Ice Thickness: 1.50 in Risk Category: II Exposure Category: B Topographic Category: 1 Topographic Feature Considered: N/A Topographic Method: N/A Ground Elevation Factor, K_e : 0.975
Seismic Parameters:	S_s : 0.182 g S_1 : 0.055 g
Maintenance Parameters:	Wind Speed (3-sec. Gust): 30 mph Maintenance Live Load, L_v : 250 lbs. Maintenance Live Load, L_m : 500 lbs.
Analysis Software:	RISA-3D (V17)

Final Loading Configuration:

The following equipment has been considered for the analysis of the mount:

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
110.00	110.00	6	Commscope	NHH-65B-R2B	Added
		3	Samsung	MT6413-77A	
		1	Raycap	RVZDC-6627-PF-48	
		3	Samsung	RF4439d-25A	
		3	Samsung	RF4461d-13A	
		6	Antel	LPA-80063/6CF	Retained

The recent mount mapping reported existing OVP units. It is acceptable to install up to any three (3) of the OVP model numbers listed below as required at any location other than the mount face without affecting the structural capacity of the mount. If OVP units are installed on the mount face, a mount re-analysis may be required unless replacing an existing OVP.

Model Number	Ports	AKA
DB-B1-6C-12AB-0Z	6	OVP-6
RVZDC-6627-PF-48	12	OVP-12

Standard Conditions:

1. All engineering services are performed on the basis that the information provided to Colliers Engineering & Design and used in this analysis is current and correct. The existing equipment loading has been applied at locations determined from the supplied documentation. Any deviation from the loading locations specified in this report shall be communicated to Colliers Engineering & Design to verify deviation will not adversely impact the analysis.
2. Mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping and reported in the Mount Mapping Report are assumed to be corrected and documented as part of the PMI process and are not considered in the mount analysis.

The mount analysis and the mount mapping are not a condition assessment of the mount. Proper maintenance and condition assessments are still required post analysis.

3. For mount analyses completed from other data sources (including new replacement mounts) and not specifically mapped in accordance with the NSTD-446 Standard, the mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.
4. 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.
5. The mount was checked up to, and including, the bolts that fasten it to the mount collar/attachment and threaded rod connections in collar members if applicable. Local deformation and interaction between the mount collar/attachment and the supporting tower structure are outside the scope of this analysis.

6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Colliers Engineering & Design is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.
7. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:
 - Channel, Solid Round, Angle, Plate ASTM A36 (Gr. 36)
 - HSS (Rectangular) ASTM 500 (Gr. B-46)
 - Pipe ASTM A53 (Gr. B-35)
 - Threaded Rod F1554 (Gr. 36)
 - Bolts ASTM A325
8. Any mount modifications listed under Sources of Information are assumed to have been installed per the design specifications.

Discrepancies between in-field conditions and the assumptions listed above may render this analysis invalid unless explicitly approved by Colliers Engineering & Design.

Analysis Results:

Component	Utilization %	Pass/Fail
Face Horizontal	24.2 %	Pass
Platform Crossmember	22.6 %	Pass
Corner Plate	27.0 %	Pass
Grating Support	18.7 %	Pass
Cross Arm Plate	20.8 %	Pass
MOD NEW PIPE	36.9 %	Pass
Mount Pipe_1	46.7 %	Pass
Standoff Horizontal	44.9 %	Pass
MOD FH	20.8 %	Pass
MOD SR CONNECTORS	32.1 %	Pass
Mount Connection	68.4 %	Pass

Structure Rating – (Controlling Utilization of all Components)	68.4%
---	--------------

Mount Connection Envelope Reactions:

Connection Description	Elev. AGL (Ft)	Node Label	Envelope Wind Reactions				Envelope Wind + Ice Reactions			
			Axial (Lbs)	Lateral (Lbs)	Moment (K-Ft)	Torsion (K-Ft)	Axial (Lbs)	Lateral (Lbs)	Moment (K-Ft)	Torsion (K-Ft)
Sector A Standoff	110	N68	1634	2271	4.390	1.364	3191	798	7.110	0.388
Sector B Standoff	110	N99	1683	2386	4.460	1.413	3398	831	7.241	0.403
Sector C Standoff	110	N100	1633	2269	4.388	1.356	3186	797	7.103	0.386

Notes:

- Axial loads act along the axis of the tower leg
- Lateral reactions act perpendicular to the tower leg
- Moment loads introduce bending moment to the tower leg
- Torsion loads introduce twisting moment to the tower leg
- Batch solutions by individual load cases are included at the end of this document

Mount Steel (EPA)a per ANSI/TIA-222-H Section 2.6.11.2:

Ice Thickness (In)	Mount Pipes Excluded		Mount Pipes Included	
	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)
0	24.6	24.6	40.6	40.6
0.5	32.0	32.0	54.6	54.6
1	38.7	38.7	68.1	68.1

Notes:

- (EPA)a values listed above may be used in the absence of more precise information
- (EPA)a values in the table above include 3 sector(s).
- Ka factors included in (EPA)a calculations

Requirements:

The existing mount will be **SUFFICIENT** for the final loading configuration (attachment 2) **after the modifications detailed in attachment 3 are successfully completed.**

ANSI/ASSP rigging plan review services compliant with the requirements of ANSI/TIA 322 are available for a Construction Class IV site or other, if required. Separate review fees will apply.

Attachments:

1. Contractor Required PMI Report Deliverables
2. Antenna Placement Diagrams
3. Mount Modification Drawings
4. Mount Photos
5. Mount Mapping Report (for reference only)
6. Analysis Calculations

Mount Desktop – Post Modification Inspection (PMI) Report Requirements

Documents & Photos Required from Contractor – Mount Modification

Electronic pdf version of this can be downloaded at <https://pmi.vzwsmart.com>

For additional questions and support, please reach out to pmisupport@colliersengineering.com

MDG #: 5000247949

SMART Project #: 10215322

Fuze Project ID: 16273385

Purpose – to upload the proper documentation to the SMART Tool in order to allow the SMART Tool engineering vendor to complete the required Mount Desktop review of the Post Modification Inspection Report.

- Contractor is responsible for making certain the photos provided as noted below provide confirmation that the modification was completed in accordance with the modification drawings.
- Contractor shall relay any data that can impact the performance of the mount or the mount modification, this includes safety issues.

Base Requirements:

- If installation of the modification will cause damage to the structure, the climbing facility, or safety climb if present or any installed system, SMART Tool vendor to be notified prior to install. Any special photos outside of the standard requirements will be indicated on the drawings.
- Provide “as built drawings” showing contractor’s name, preparer’s signature, and date. Any deviations from the drawings (proposed modification) shall be shown. NOTE: If loading is different than what is conveyed in the post-modification passing mount analysis (MA) contact the SMART Tool vendor immediately.
- Each photo shall be time and date stamped.
- Photos should be high resolution.
- Contractor shall ensure that the safety climb wire rope is not adversely impacted by the install of the modification components. This may involve the install of wire rope guides, or other items to protect the wire rope. If there is conflict, contact the SMART Tool engineer for recommendations.
- The PMI can be accessed at the following portal: <https://pmi.vzwsmart.com>

Photo Requirements:

- *Photos taken at ground level*
 - Photo of Gate Signs showing the tower owner, site name, and number.
 - Overall tower structure after installation of the modifications.
 - Photos of the mount after installation of the modifications; if the mounts are at different rad elevations, pictures must be provided for all elevations that the modifications were installed
- *Photos taken at Mount Elevation*
 - Photos showing the safety climb wire rope above and below the mount prior to modification.
 - Photos showing the climbing facility and safety climb if present.

- Photos showing each individual sector after installation of modifications. Each entire sector must be in one photo to show the interconnection of members.
 - These photos shall also certify that the placement and geometry of the equipment on the mount is as depicted in the antenna placement diagram in this form.
- Photos that show the model number of each antenna and piece of equipment installed per sector.
- Photos of each installed modification per the modification drawings; pictures shall also include connection hardware (U-bolts, bolts, nuts, all-threaded rods, etc.)
- Photos showing the distances (relative distance between collars) of the installed modifications from the appropriate reference locations shown in the modification drawings.
- Photos showing the installed modifications onto the tower (i.e. ring/collar mounts, tie-backs, V-bracing kits, etc.); if the existing mount elevation needs to be changed according to the modification drawings, an elevation measurement shall be provided before the elevation change.

Material Certification:

- Materials utilized must be as per specification on the drawings or the equivalent as validated by the SMART Tool vendor.
 - If the materials are as specified on the drawings
 - The contractor shall provide the packing list, or the materials certifications for the materials utilized to perform the mount modification
 - Commscope, Metrosite, Perfect Vision, Sabre, and Site Pro have all agreed to support Verizon vendors with the necessary material certifications
 - If seeking permission to use an equivalent
 - It is required that the SMART Tool engineering vendor approval of such is included in the contractor submission package. There may be an additional charge for approval if the equivalent submission doesn't meet specifications as prescribed in the drawings.

☐ All hardware has been properly installed, and the existing hardware was inspected.

☐ The material utilized was as specified on the SMART Tool engineering vendor Mount Modification Drawings and included in the material certification folder is a packing list or invoice for these materials.

OR

☐ The material utilized was approved by a SMART Tool engineering vendor as an "equivalent" and this approval is included as part of the contractor submission.

Antenna & Equipment Placement and Geometry Confirmation:

☐ The contractor certifies that the photos support and the equipment on the mount is as depicted on the sketch and table included in this form and with the mount analysis provided.

OR

- ☐ The contractor notes that the equipment on the mount is not in accordance with the sketch and has noted the differences below and provided photo documentation of any alterations.

Comments:

Was the mount modification completed in conjunction with the equipment change / installation?

- ☐ Yes ☐ No

Special Instructions / Validation as required from the MA or Mod Drawings:

Issue:

Install proposed OVP on proposed equipment pipe on standoff between beta and gamma sector.

Response:

Special Instruction Confirmation:

- ☐ The contractor has read and acknowledges the above special instructions.

Comments:

Contractor certifies that the climbing facility / safety climb was not damaged prior to starting work:

- ☐ Yes ☐ No

Contractor certifies no new damage created during the current installation:

- ☐ Yes ☐ No

Contractor to certify the condition of the safety climb and verify no damage when leaving the site:

- ☐ Safety Climb in Good Condition ☐ Safety Climb Damaged

Comments:

--

Certifying Individual:

Company:	
Employee Name:	
Contact Phone:	
Email:	
Date:	

Sector: A

12/6/2023

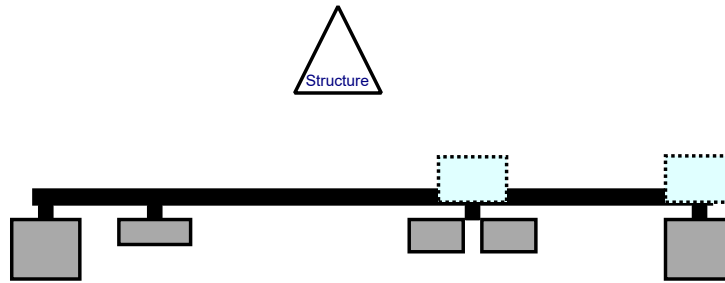
Structure Type: Monopole

10215322

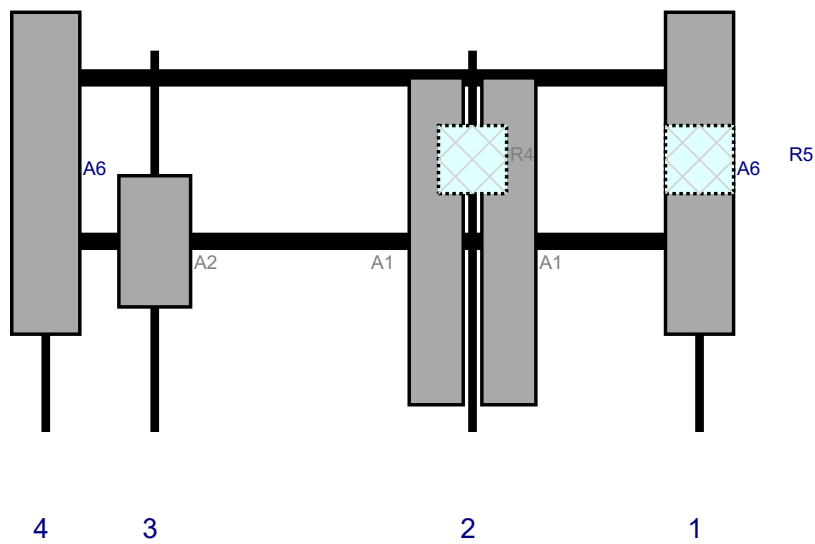
Mount Elev: 110.00

Page: 1

Plan View



Front View - Looking at Structure



Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A6	LPA-80063/6CF	70.9	15	147	1	a	Front	27	0	Retained	06/09/2021
R5	RF4461d-13A	15	15	147	1	a	Behind	24	0	Added	
A1	NHH-65B-R2B	72	11.9	97	2	a	Front	42	8	Added	
A1	NHH-65B-R2B	72	11.9	97	2	b	Front	42	-8	Added	
R4	RF4439d-25A	15	15	97	2	a	Behind	24	0	Added	
A2	MT6413-77A	28.9	15.8	27	3	a	Front	42	0	Added	
A6	LPA-80063/6CF	70.9	15	3	4	a	Front	27	0	Retained	06/09/2021
M89A	RVZDC-6627-PF-48	29.5	16.5		Member					Added	

Sector: B

12/6/2023

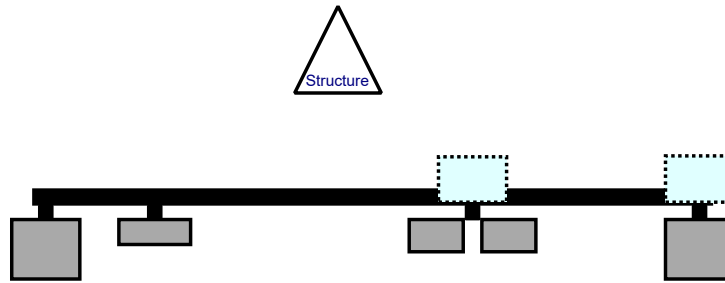
Structure Type: Monopole

10215322

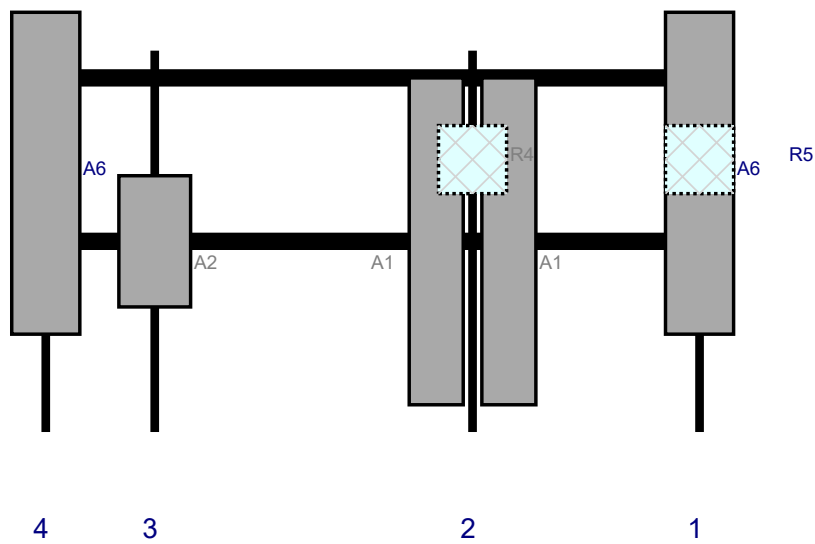
Mount Elev: 110.00

Page: 2

Plan View



Front View - Looking at Structure



Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A6	LPA-80063/6CF	70.9	15	147	1	a	Front	27	0	Retained	06/09/2021
R5	RF4461d-13A	15	15	147	1	a	Behind	24	0	Added	
A1	NHH-65B-R2B	72	11.9	97	2	a	Front	42	8	Added	
A1	NHH-65B-R2B	72	11.9	97	2	b	Front	42	-8	Added	
R4	RF4439d-25A	15	15	97	2	a	Behind	24	0	Added	
A2	MT6413-77A	28.9	15.8	27	3	a	Front	42	0	Added	
A6	LPA-80063/6CF	70.9	15	3	4	a	Front	27	0	Retained	06/09/2021

Sector: C

12/6/2023

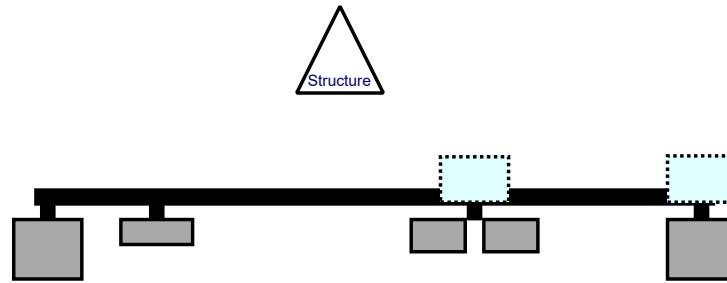
Structure Type: Monopole

10215322

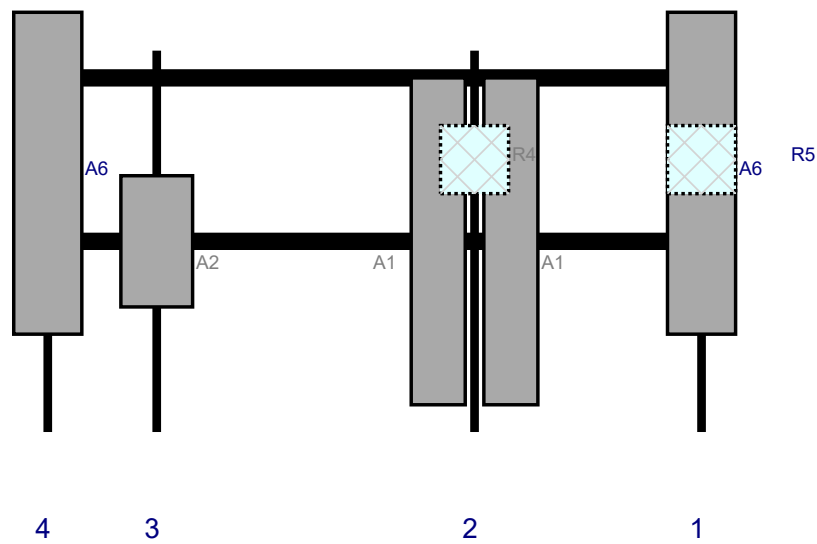
Mount Elev: 110.00

Page: 3

Plan View



Front View - Looking at Structure



Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A6	LPA-80063/6CF	70.9	15	147	1	a	Front	27	0	Retained	06/09/2021
R5	RF4461d-13A	15	15	147	1	a	Behind	24	0	Added	
A1	NHH-65B-R2B	72	11.9	97	2	a	Front	42	8	Added	
A1	NHH-65B-R2B	72	11.9	97	2	b	Front	42	-8	Added	
R4	RF4439d-25A	15	15	97	2	a	Behind	24	0	Added	
A2	MT6413-77A	28.9	15.8	27	3	a	Front	42	0	Added	
A6	LPA-80063/6CF	70.9	15	3	4	a	Front	27	0	Retained	06/09/2021



MOUNT MODIFICATION DRAWINGS

EXISTING 12.50' PLATFORM

TOWER OWNER: CROWN CASTLE
TOWER OWNER SITE NUMBER: 846293

CARRIER SITE NAME: ELLINGTON SOUTH CT
CARRIER SITE NUMBER: 5000247949
FUZE ID: 16273385

319 PETER GREEN ROAD
TOLLAND, CT 06084
TOLLAND COUNTY

LATITUDE: 41.89661400° N
LONGITUDE: 72.39373100° W

DESIGN CRITERIA

WIND LOADS

BASIC WIND SPEED (3 SECOND GUST), $V = 120$ MPH
EXPOSURE CATEGORY B
TOPOGRAPHIC CATEGORY: I
TOPOGRAPHIC CONSIDERED: N/A
TOPOGRAPHIC METHOD: N/A
MEAN BASE ELEVATION (AMSL) = 697.04'

ICE LOADS

ICE WIND SPEED (3 SECOND GUST), $V = 50$ MPH
ICE THICKNESS = 1.50 IN

SEISMIC LOADS

SEISMIC DESIGN CATEGORY B
SHORT TERM MCER GROUND MOTION, $S_s = .182$
LONG TERM MCER GROUND MOTION, $S_1 = .055$

PROJECT INFORMATION	
<u>APPLICANT/LESSEE</u>	
COMPANY:	VERIZON WIRELESS
<u>CLIENT REPRESENTATIVE</u>	
COMPANY:	VERIZON WIRELESS
<u>PROJECT MANAGER</u>	
COMPANY:	COLLIERS ENGINEERING & DESIGN
CONTACT:	PETER ALBANO
PHONE:	856.797.0412
E-MAIL:	PETER.ALBANO@COLLIERSENG.COM

CONTRACTOR PMI REQUIREMENTS	
PMI LOCATION:	HTTPS://PMI.VZWSMART.COM
SMART TOOL PROJECT #:	10215322
VZW MDG #:	5000247949
ANALYSIS DATE:	12/18/2023

PMI REQUIREMENTS EMBEDDED WITHIN MOUNT MODIFICATION REPORT

[illegible]

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WWW.CALL811.COM

SCALE: AS SHOWN		JOB NUMBER: 21777983	
1	12/18/2023	ISSUED FOR CONSTRUCTION	GA DX
0	9/10/2021	ISSUED FOR CONSTRUCTION	MSG DX
REV	DATE	DESCRIPTION	DRAWN BY CHECKED BY

COLLIERS ENGINEERING & DESIGN CT, P.C.
C.T. JPC.0000131

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

SITE NAME:

ELLINGTON SOUTH CT
5000247949

319 PETER GREEN ROAD
TOLLAND, CT 06084
TOLLAND COUNTY



Engineering
& Design

STAMFORD
1055 Washington Boulevard
Stamford, CT 06901
Phone: 203.324.0800
COLLIERS ENGINEERING & DESIGN CT, P.C.
DOING BUSINESS AS MASER CONSULTING

SHEET TITLE :

TITLE SHEET

SHEET NUMBER :

ST-1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

BILL OF MATERIALS						
SECTION 1 - VZWSMART KITS						
QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
1	VZWSMART	VZWSMART-PLK1	SUPPORT RAIL KIT	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1.	504	504
1		VZWSMART-MSK6	BACK TO BACK CROSSOVER PLATE		34	34
6		VZWSMART-MSK2	CROSSOVER PLATE		15	90
SECTION 2 - OTHER REQUIRED PARTS						
QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
6	-	-	84" LONG, PIPE 2 SCH40	GALVANIZED	26	156
1	-	-	36" LONG, PIPE 2 SCH40	GALVANIZED	11	11
SECTION 3 - REQUIRED SAFETY CLIMB PARTS						
QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
TOTAL:						795

NOTES:

1. THE MANUFACTURERS LISTED ARE THE APPROVED VENDORS FOR THE VZW MOUNT KITS. EACH MANUFACTURER WILL BE AWARE OF WHICH KITS HAVE BEEN THROUGH THE VZW APPROVAL PROCESS AND THEY ARE IN TURN APPROVED TO SELL. PLEASE NOTE THAT THE MATERIAL UTILIZED ON THE MOUNT MODIFICATIONS WILL BE REVIEWED AS A PART OF THE DESKTOP PMI COMPLETED BY THE SMART TOOL VENDOR. IT WILL BE REQUIRED THAT THE VZW KITS SPECIFIED ARE UTILIZED IN THE MODIFICATIONS.
2. ALL MATERIALS REQUIRED FOR THE DESIGNED MODIFICATIONS BUT NOT LISTED IN THIS SHEET ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

VZWSMART KITS - APPROVED VENDORS

COMMSCOPE		PERFECTVISION		SITE PRO 1	
CONTACT	SALVADOR ANGUIANO	CONTACT	WIRELESS SALES	CONTACT	PAULA BOSWELL
PHONE	(817) 304-7492	PHONE	(844) 887-6723	PHONE	(972) 236-9843
EMAIL	SALVADOR.ANGUIANO@COMMSCOPE.COM	EMAIL	WWW.PERFECT-VISION.COM	EMAIL	PAULA.BOSWELL@VALMONT.COM
WEBSITE	WWW.COMMSCOPE.COM	WEBSITE	WIRELESSSALES@PERFECT-VISION.COM	WEBSITE	WWW.SITEPRO1.COM
METROSITE FABRICATORS, LLC		SABRE INDUSTRIES, INC.			
CONTACT	KENT RAMEY	CONTACT	ANGIE WELCH		
PHONE	(706) 335-7045 (O), (706) 982-9788 (M)	PHONE	(866) 428-6937		
EMAIL	KENT@METROSITELLC.COM	EMAIL	AKWELCH@SABREINDUSTRIES.COM		
WEBSITE	METROSITEFABRICATORS.COM	WEBSITE	WWW.SABRESITESOLUTIONS.COM		



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JOB NUMBER: 21777983

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SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER:
SBOM-1

GENERAL NOTES

- THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE TELECOMMUNICATIONS INDUSTRY STANDARD TIA-222-H. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE MENTIONED CODES.
- CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO EXISTING STRUCTURES. ANY DAMAGE TO EXISTING STRUCTURES AS A RESULT OF THE CONTRACTOR'S WORK OR FROM DAMAGE DUE TO OTHER CAUSES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE BEGINNING WORK, ORDERING MATERIAL, AND PREPARING OF SHOP DRAWINGS. ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, NOTIFY THE ENGINEER IMMEDIATELY.
- IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
- 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/TIA-322 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-322 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS IN ACCORDANCE WITH APPLICABLE SAFETY CODES.
- WORK SHALL ONLY BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 30-MPH). THE STRUCTURE SHOWN ON THE DRAWINGS IS STRUCTURALLY SOUND ONLY IN THE COMPLETED FORM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING ERECTION. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT, SHORING, BRACING AND ANY OTHER STRUCTURAL SYSTEMS AS REQUIRED TO RESIST ALL FORCES THAT MAY OCCUR DURING HANDLING AND ERECTION UNTIL THE STRUCTURE IS FULLY COMPLETED. TEMPORARY SUPPORTS, BRACING AND OTHER STRUCTURAL SYSTEMS REQUIRED DURING CONSTRUCTION SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER THEIR USE.
- ALL INSTALLATIONS PERFORMED ON THIS STRUCTURE SHALL BE COMPLETED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE STANDARD FOR INSTALLATION, ALTERATION AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, ANSI/TIA-322.
- CONTRACTOR SHALL SECURE SITE BACK TO EXISTING CONDITION UNDER SUPERVISION OF OWNER. ALL FENCE, STONE, GEOFABRIC, GROUNDING, AND SURROUNDING GRADE SHALL BE REPLACED AND REPAIRED AS REQUIRED TO ACHIEVE OWNER APPROVAL. POSITIVE DRAINAGE AWAY FROM TOWER SITE SHALL BE MAINTAINED.
- CONNECTIONS BETWEEN ITEMS SUPPORTED BY THE STRUCTURE AND THE STRUCTURE NOT SPECIFICALLY DETAILED IN THE CONTRACT DOCUMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR. SUCH CONNECTIONS SHALL BE DESIGNED, COORDINATED AND INSPECTED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF THE PROJECT. SUBMIT SIGNED AND SEALED CALCULATIONS DURING SHOP DRAWING REVIEW.
- DO NOT SCALE DRAWINGS.
- DO NOT USE THESE DRAWINGS FOR ANY OTHER SITE.
- ALL MATERIAL UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS. ANY MATERIAL SUBSTITUTIONS, INCLUDING BUT NOT LIMITED TO ALTERED SIZE AND/OR STRENGTHS, MUST BE APPROVED BY THE OWNER AND ENGINEER IN WRITING.
- THE MOUNT UNDER NO CIRCUMSTANCES SHOULD BE USED AS A TIE OFF POINT.

STRUCTURAL STEEL

- DESIGN, DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING PUBLICATIONS EXCEPT AS SPECIFICALLY INDICATED IN THE CONTRACT DOCUMENTS.
 - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION (15TH EDITION)
 - SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS
 - AISC CODE OF STANDARD PRACTICE
- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE SHOWN:

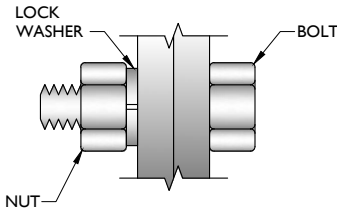
CHANNELS, ANGLES, PLATES, ETC.	ASTM A36 (GR 36)
STEEL PIPE	ASTM A53 (GR 35)
BOLTS	ASTM A325
NUTS	ASTM A563
LOCK WASHERS	LOCKING STRUCTURAL GRADE
- ALL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR VERIFYING THE SUBSTITUTE IS SUITABLE FOR USE AND MEETS ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
- PROVIDE STRUCTURAL STEEL SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
 - SUBMIT SHOP DRAWINGS TO
PETER.ALBANO@COLLIERSENG.COM
 - PROVIDE COLLIERS ENGINEERING & DESIGN PROJECT # AND COLLIERS ENGINEERING & DESIGN PROJECT ENGINEER CONTACT IN THE BODY OF THE EMAIL.
- DRILL NO HOLES IN ANY NEW OR EXISTING STRUCTURAL STEEL MEMBERS OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD.
- GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
- ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. IN ADDITION ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING STEEL. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
- ALL BOLT ASSEMBLIES FOR STRUCTURAL MEMBERS REPRESENTED IN THIS DRAWING REQUIRE LOCKING DEVICES TO BE INSTALLED IN ACCORDANCE WITH TIA-222-H SECTION 4.9.2 REQUIREMENTS.
- WHERE CONNECTIONS ARE NOT FULLY DETAILED ON THESE DRAWINGS, FABRICATOR SHALL DESIGN CONNECTIONS TO RESIST LOADS AND FORCES WHERE SHOWN ON DRAWINGS AND AS OUTLINED IN SPECIFICATIONS.
- FOR MEMBERS BEING REPLACED, PROVIDE NEW BOLTS AND MATCH EXISTING SIZE AND GRADE. MAINTAIN AISC REQUIREMENTS FOR MINIMUM BOLT DISTANCE AND SPACING.
- GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
- ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT IS AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
- GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
- ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
- ALL EXISTING PAINTED/GALVANIZED SURFACES DAMAGED DURING REHAB INCLUDING AREAS UNDER STIFFENER PLATES SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY COLD GALVANIZING (ZINC COTE, OR EOR APPROVED EQUAL), AND REPAINTED TO MATCH THE EXISTING FINISH (IF APPLICABLE).
- ALL HOLES IN STEEL MEMBERS SHALL BE SIZED 1/16" LARGER THAN THE BOLT DIAMETER. STANDARD HOLES SHALL BE USED UNLESS NOTED OTHERWISE.

BOLT SCHEDULE (IN.)

BOLT DIAMETER	STANDARD HOLE	SHORT SLOT	MIN. EDGE DISTANCE	SPACING
1/2	9/16	9/16 x 1 1/16	7/8	1 1/2
5/8	1 1/16	1 1/16 x 7/8	1 1/8	1 7/8
3/4	1 3/16	1 3/16 x 1	1 1/4	2 1/4
7/8	1 5/16	1 5/16 x 1 1/8	1 1/2	2 5/8
1	1 7/16	1 7/16 x 1 5/16	1 3/4	3

WORKABLE GAGES (IN.)

LEG	GAGE
4	2 1/2
3 1/2	2
3	1 3/4
2 1/2	1 3/8
2	1 1/8

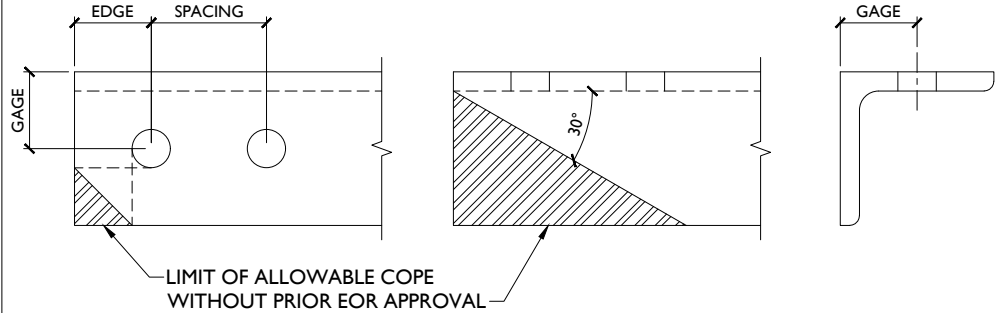


TYP. BOLT ASSEMBLY

NOTES:

- ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
- THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.
- SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWINGS
- MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.

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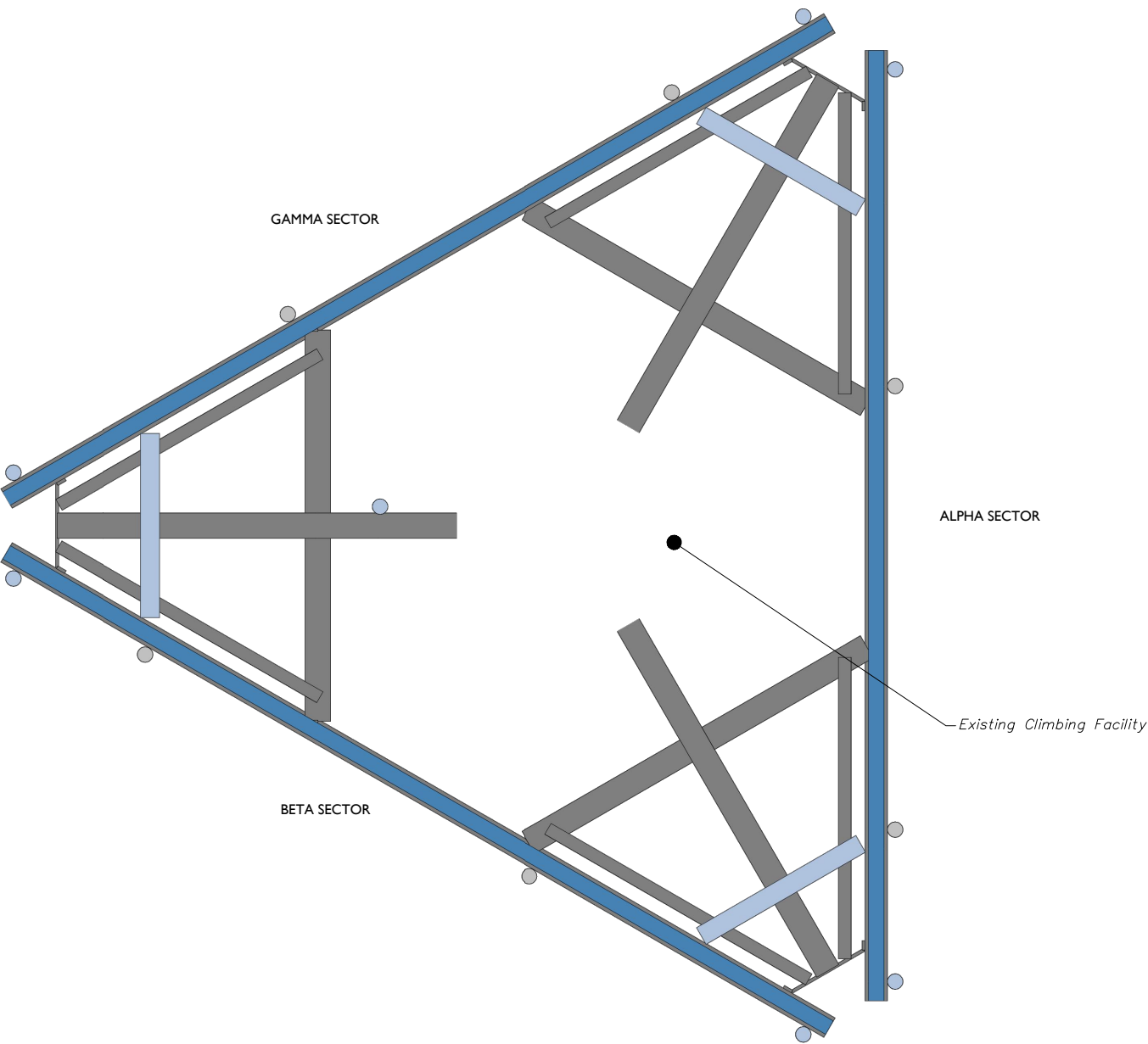
SHEET TITLE:

GENERAL NOTES

SHEET NUMBER:

SGN-I

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



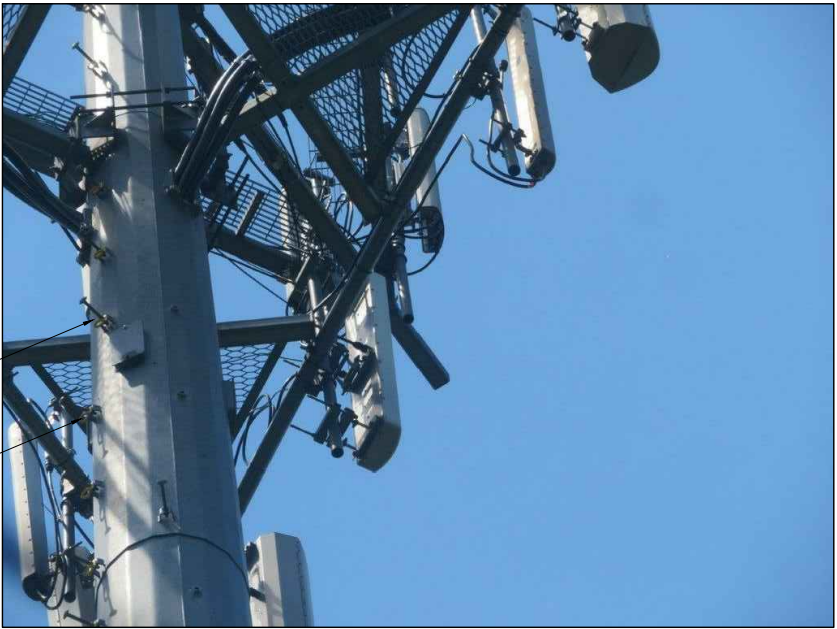
1

CLIMBING FACILITY LOCATION

SCALE : N.T.S.

Existing Climbing Facility

Existing Safety Climb



CLIMBING FACILITY PHOTO

STRUCTURAL NOTES:

- PER THE MOUNT MAPPING COMPLETED BY HUDSON DESIGN GROUP, LLC ON 6/9/2021, THE SAFETY CLIMB AND CLIMBING FACILITIES UP TO THE VERIZON MOUNT ELEVATION (110'-00") ARE IN GOOD CONDITION. COLLIERS ENGINEERING & DESIGN DOES NOT WARRANT THIS INFORMATION.
- INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB, OR ANY SYSTEM INSTALLED ON THE STRUCTURE. TIMELY NOTICE AND DOCUMENTATION SHALL BE PROVIDED BY CONTRACTORS TO THE EOR (OF STRUCTURAL DESIGN) IF AN OBSTRUCTION WAS REQUIRED TO MEET THE RF SYSTEM DESIGN REQUIREMENTS AND PERFORMANCES.



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CLIMBING FACILITY DETAIL

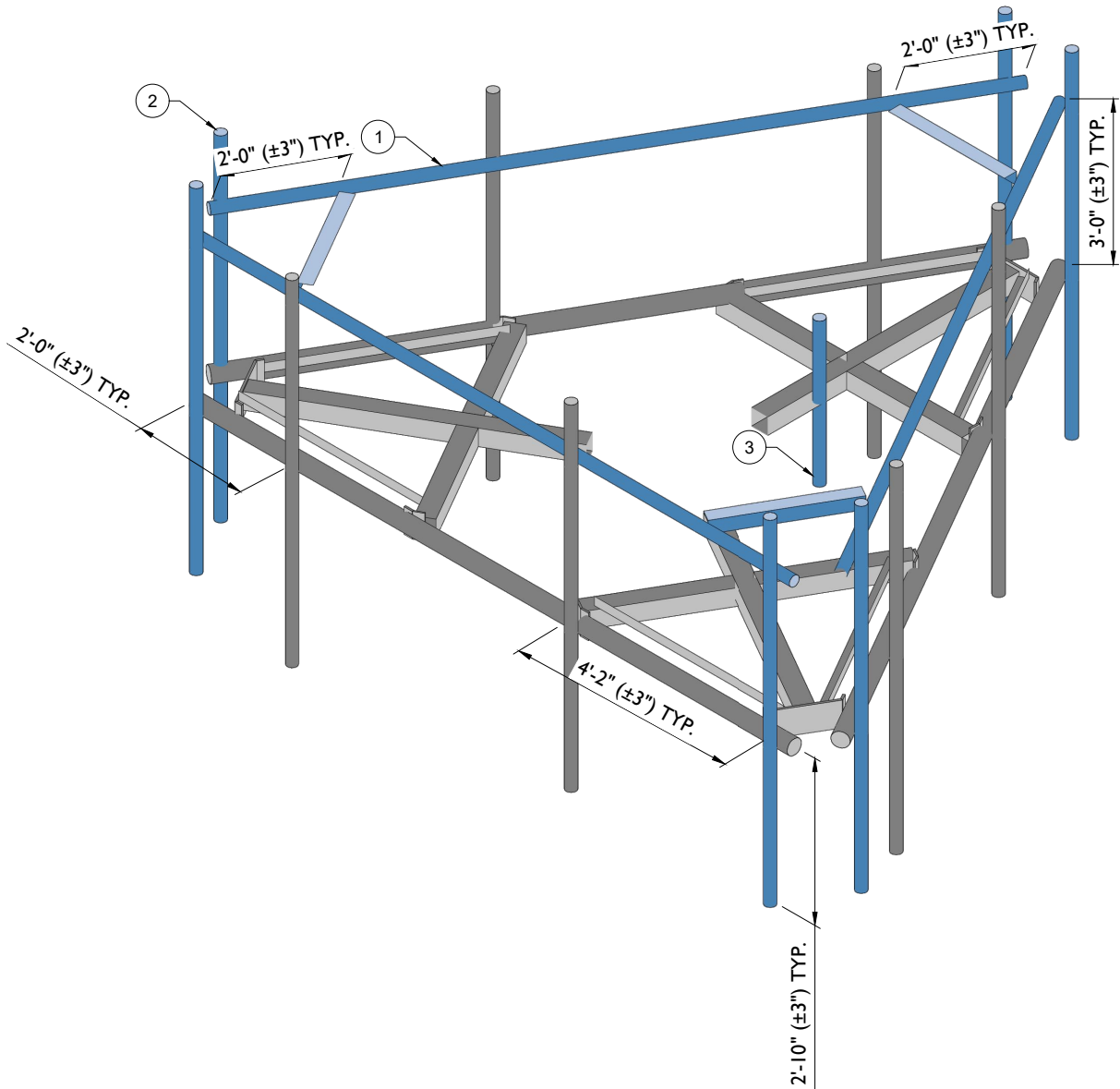
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LEGEND:

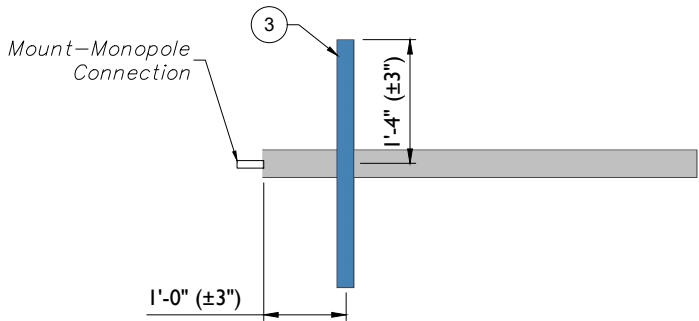


PROPOSED
RELOCATED
EXISTING

MOUNT MODIFICATION SCHEDULE				
NO.	ELEVATION	QUANTITY	DESCRIPTION	NOTES
1	110'-00"	1	PROPOSED SUPPORT RAIL KIT (PART #: VZWSMART-PLK1)	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-I. RADIO AND/OR TME POSITIONS SHALL BE ADJUSTED VERTICALLY AS NEEDED IN ORDER TO ACHIEVE INSTALLATION OF HORIZONTAL AS SHOWN.
2		6	PROPOSED 86" LONG, PIPE 2 SCH40	CONNECT NEW MOUNT PIPE TO EXISTING LOWER HORIZONTAL WITH CROSSOVER PLATES (PART #: VZWSMART-MSK2).
3		1	PROPOSED 36" LONG, PIPE 2 SCH40	CONNECT NEW OVP PIPE TO EXISTING STANDOFF HORIZONTAL WITH BACK TO BACK CROSSOVER PLATE (VZWSMART-MSK6). STANDOFF BETWEEN BETA AND GAMMA SECTOR ONLY.
GENERAL NOTES:				
A. CONTRACTOR SHALL VERIFY THAT NEW & EXISTING STEEL IS FREE OF CORROSION. VISIBLE MINOR CORROSION SHALL BE WIRE BRUSHED CLEAN AND TREATED WITH COLD GALVANIZATION. REPORT ANY SIGNIFICANT CORROSION TO EOR				
B. THREADED ROD FROM PROPOSED KITS SHALL BE TRIMMED TO EXTEND NO MORE THAN 3" BEYOND THE LOCK NUT. TREAT ALL CUT ENDS WITH (2) COATS OF COLD GALVANIZATION (ZINC KOTE, OR EOR APPROVED EQUAL).				
C. MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.				



1 PROPOSED ISOMETRIC VIEW
SCALE : N.T.S.



2 PROPOSED SIDE ELEVATION VIEW (BETA/GAMMA STANDOFF)
SCALE : N.T.S.



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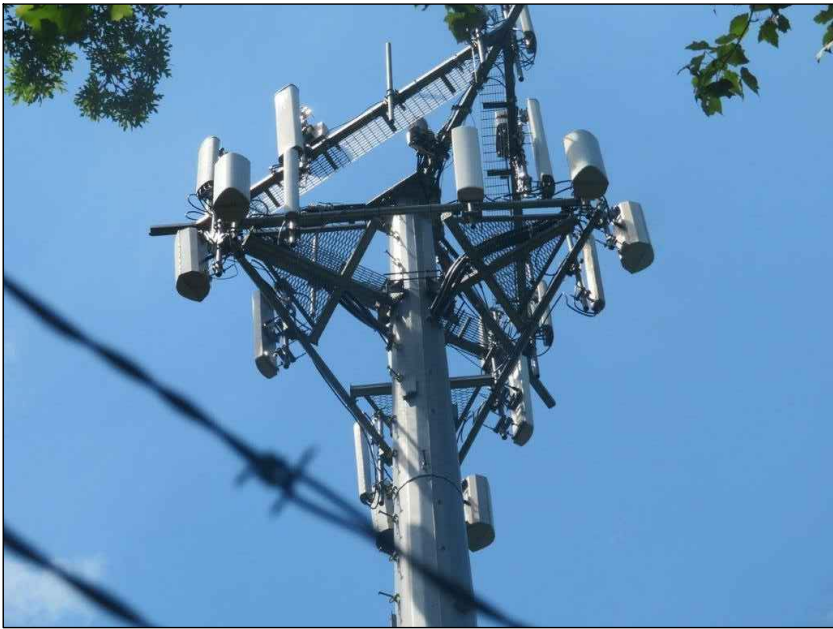
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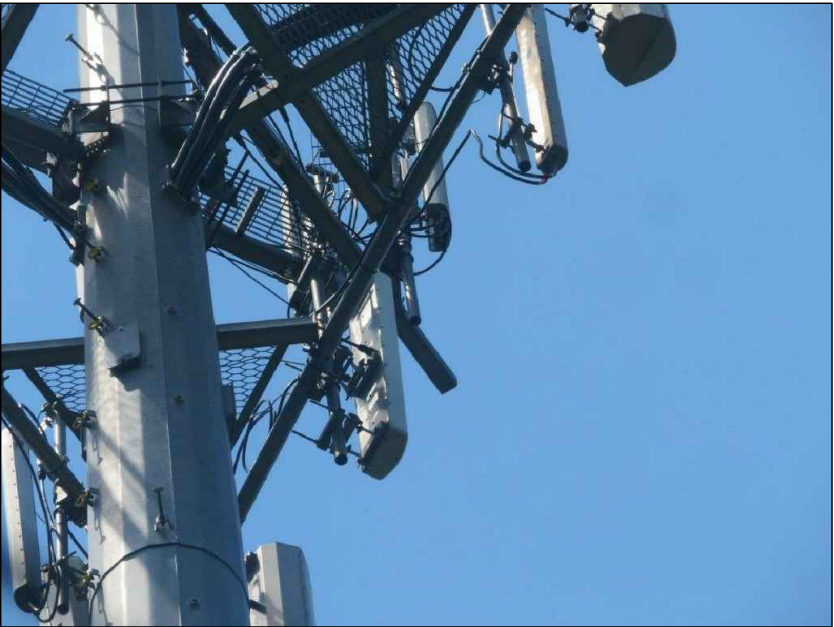
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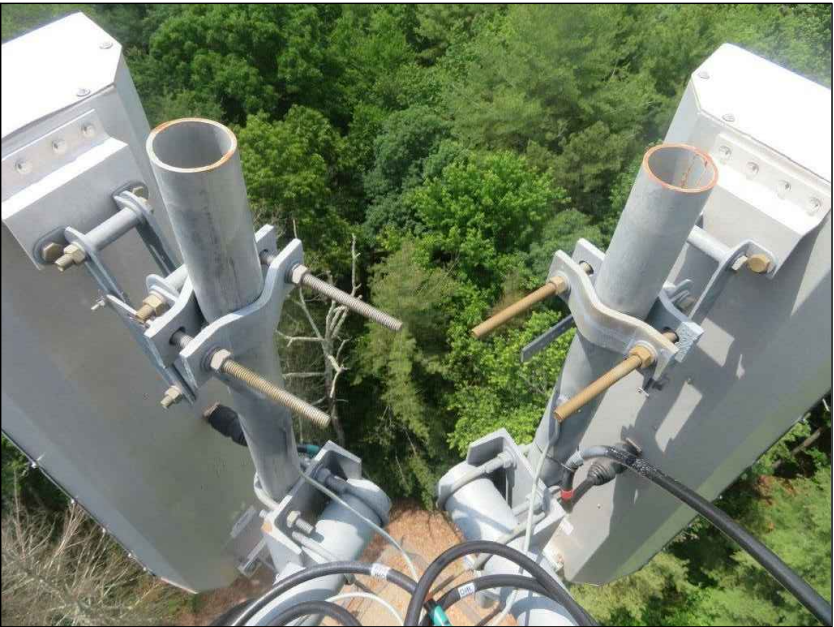
MOUNT PHOTO 1



MOUNT PHOTO 2



MOUNT PHOTO 3



MOUNT PHOTO 4



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MOUNT PHOTOS

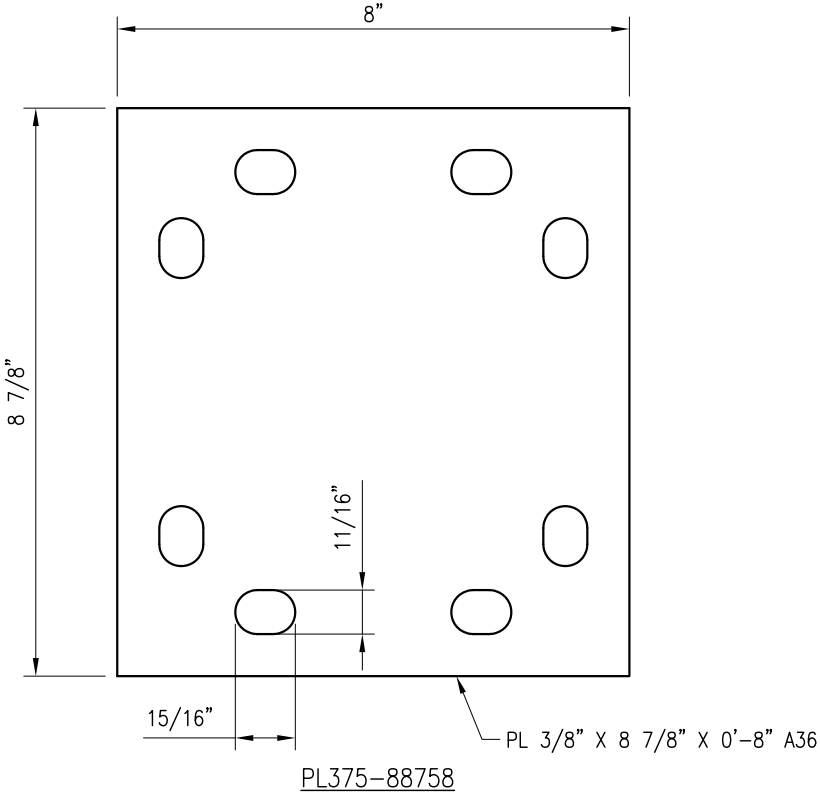
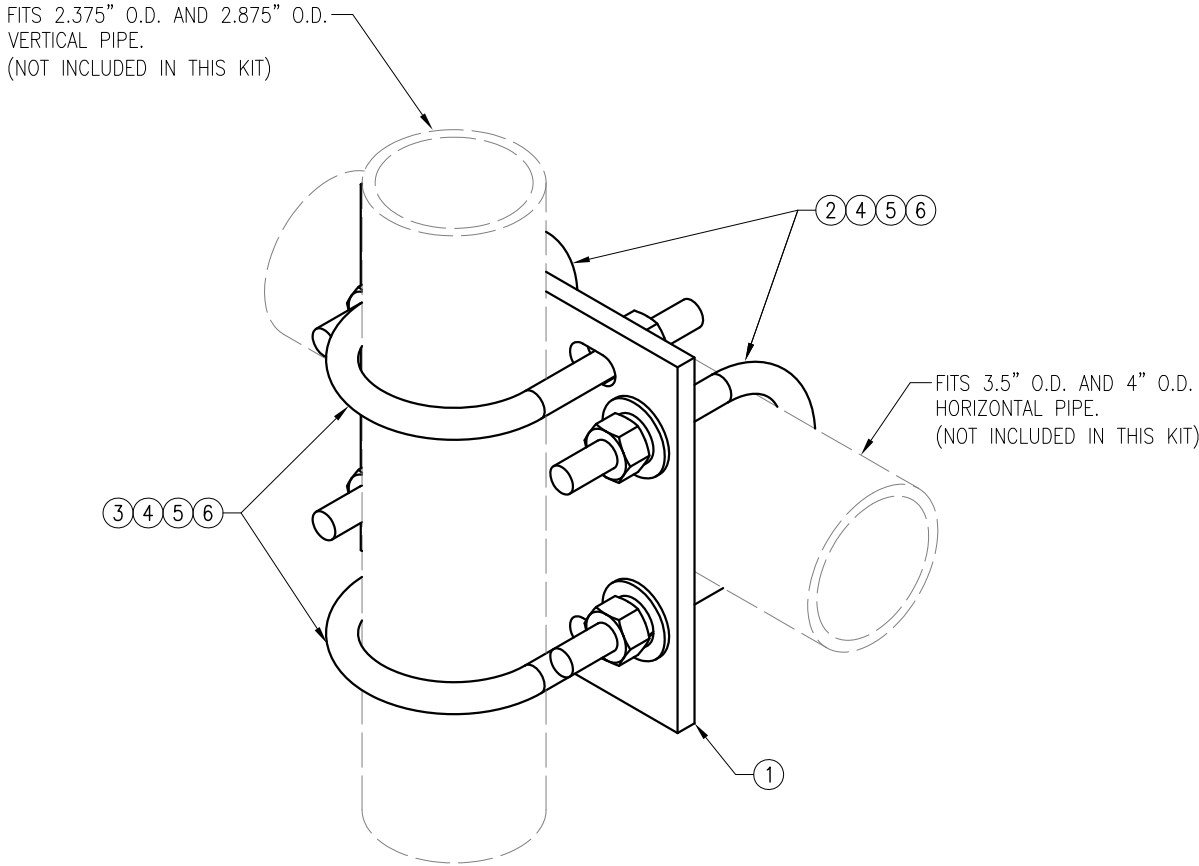
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REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	H.R	05/08/20
SHEET TITLE:			
VZWSMART-MSK2 CROSSOVER PLATE			
SHEET NUMBER:		REV #:	
VZWSMART-MSK2		0	



NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.

VZWSMART-MSK2 (CROSSOVER PLATE)					
ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	1	PL375-88758	PL 3/8" X 8 3/4" X 0'-8" A36	MSK2-F1	8
2	2	MS02-625-4125-600	RU-BOLT 5/8" X 4 1/8" I.W. X 6" I.L. A36 (OR EQUIV.)	RBC-1	3
3	2	MS02-625-300-500	RU-BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	RBC-1	3
4	8	FW-625	5/8" HDG USS FLAT WASHER	---	1
5	8	LW-625	5/8" HDG LOCK WASHER	---	0
6	8	NUT-625	5/8" HDG HEX NUT	---	1
GALVANIZED WT					15



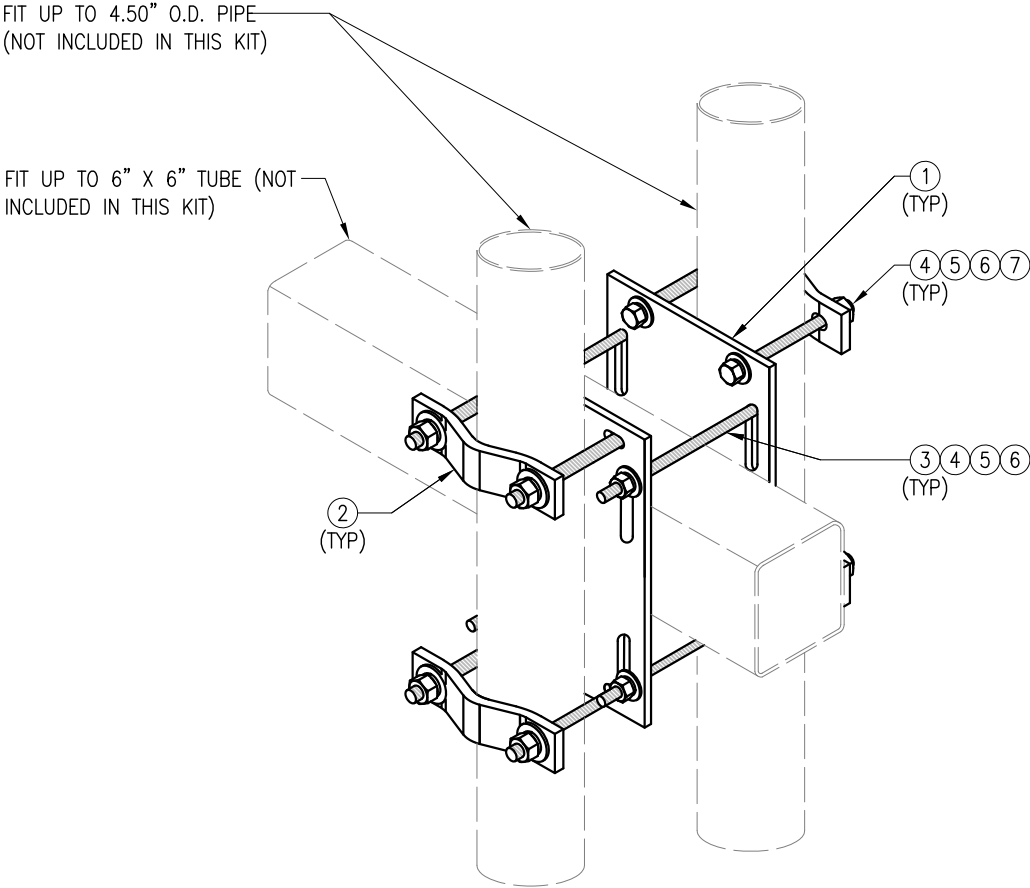
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DRAWN BY: SK CHECKED BY: BT/KW

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	SK	05/08/20

SHEET TITLE:
VZWSMART-MSK6
BACK TO BACK
CROSSOVER

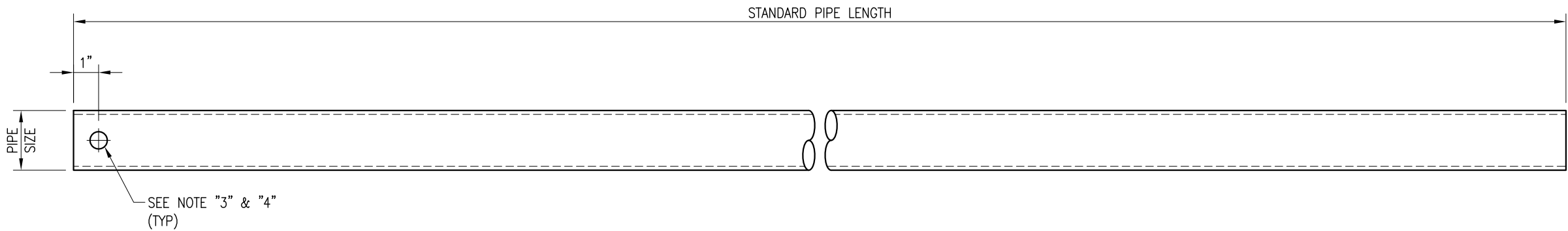
SHEET NUMBER: VZWSMART-MSK6	REV #: 0
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ISOMETRIC VIEW
BACK TO BACK CROSSOVER

VZWSMART-MSK6 (VZWSMART-MSK6 - BACK TO BACK CROSSOVER)					
ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	2	PL375-8512	PL 3/8" X 8 1/2" X 1'-0" A36	MSK6-F2	20.7
2	4	VCP	PL 1/2" X 2" X 8 5/8" A36 BENT PLATE	MSK6-F1	9.6
3	4	---	THREADED ROD 5/8" DIA. X 10" F1554-36 HDG	---	---
4	16	NUT-625	5/8" HDG HEX NUT	---	2
5	16	FW-625	5/8" HDG USS FLAT WASHER	---	1
6	16	LW-625	5/8" HDG LOCK WASHER	---	0
7	8	---	BOLT 5/8" X 6" SAE GRADE 5 ALL THREAD	---	1
GALVANIZED WT					34

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.



VZWSMART Standard Pipe		
VZWSMART Number	Size	Length
P40-238X048	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	48"
P40-238X072	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	72"
P40-238X096	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	96"
P40-238X120	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	120"
P40-238X126	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	126"
P40-238X150	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	150"
P40-238X174	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	174"
P40-278X048	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	48"
P40-278X072	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	72"
P40-278X096	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	96"
P40-278X120	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	120"
P40-278X126	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	126"
P40-278X150	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	150"
P40-278X174	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	174"
P40-312X048	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	48"
P40-312X072	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	72"
P40-312X126	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	126"
P40-312X150	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	150"
P40-312X174	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	174"

NOTE:
APPROVED SMART KIT VENDORS ARE ALLOWED TO SUBSTITUTE AT THEIR DISCRETION
PIPES LISTED ON THIS PAGE FOR CUSTOM LENGTH COMPONENTS OF MATCHING SIZE.
SUBSTITUTIONS SHALL MEET THE ORIGINAL STRUCTURAL INTENT.

- NOTES:
1. ALL PIPE GRADE A53-B OR BETTER.
 2. HOT-DIPPED GALVANIZED PER ASTM A123.
 3. ALL HOLES ARE 11/16" DIA. U.N.O
 4. HOLES MAY OR MAY NOT BE PRESENT, DEPEND UPON MANUFACTURE DISCRETION.
 5. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA OR ZINC COTE PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

VzW
SMART Tool[©]
Vendor



FOR REFERENCE
ONLY

DRAWN BY: BT CHECKED BY: HMA/KW

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	BT	08/04/21

SHEET TITLE:

VZWSMART
STANDARD PIPE

SHEET NUMBER: REV #:

VZWSMART-PIPE

0

FOR REFERENCE
ONLY

DRAWN BY: H.R. CHECKED BY: HMA

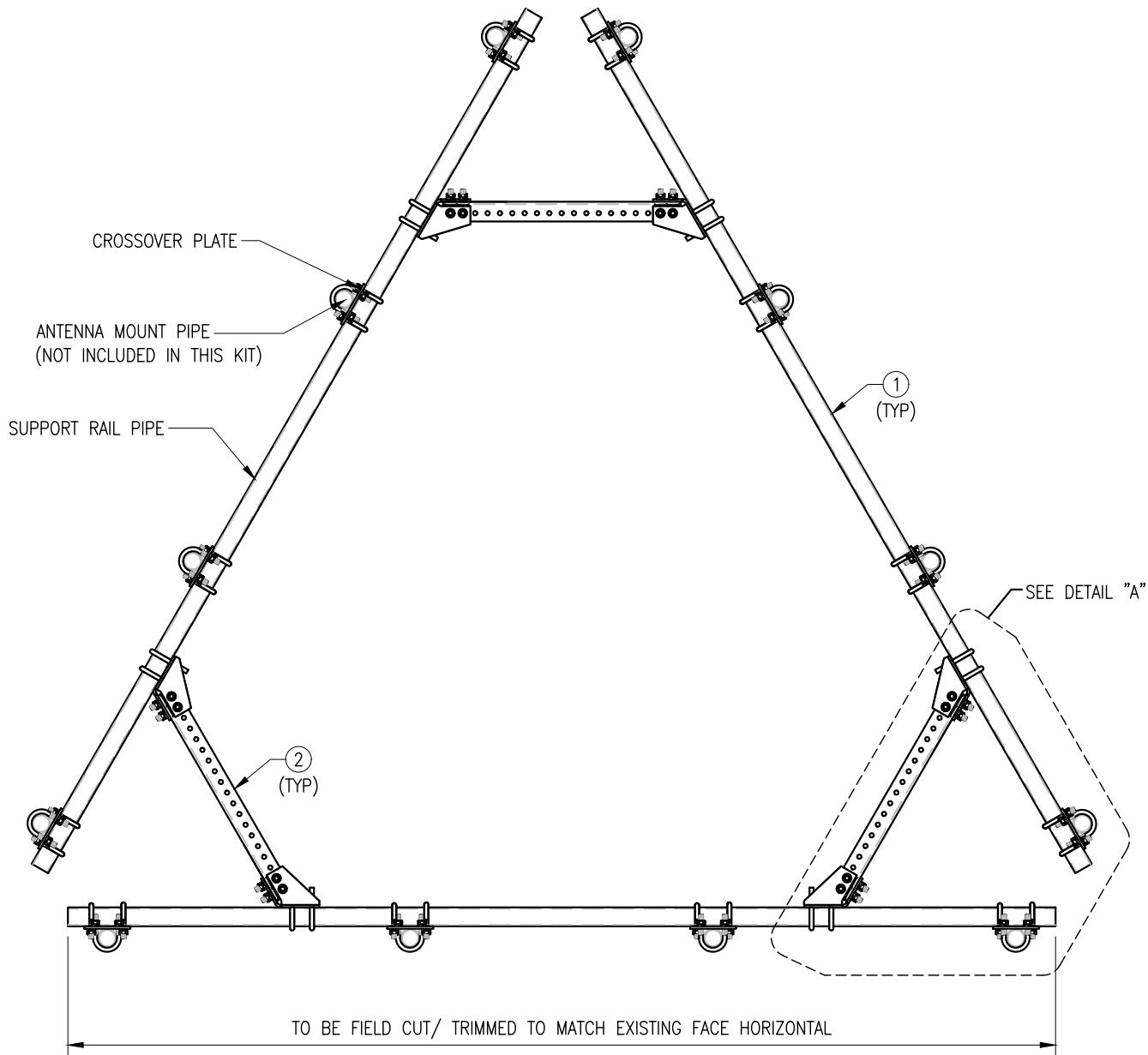
REV.	DESCRIPTION	BY	DATE
△	FIRST ISSUE	H.R.	05/08/20
△			
△			
△			

SHEET TITLE:

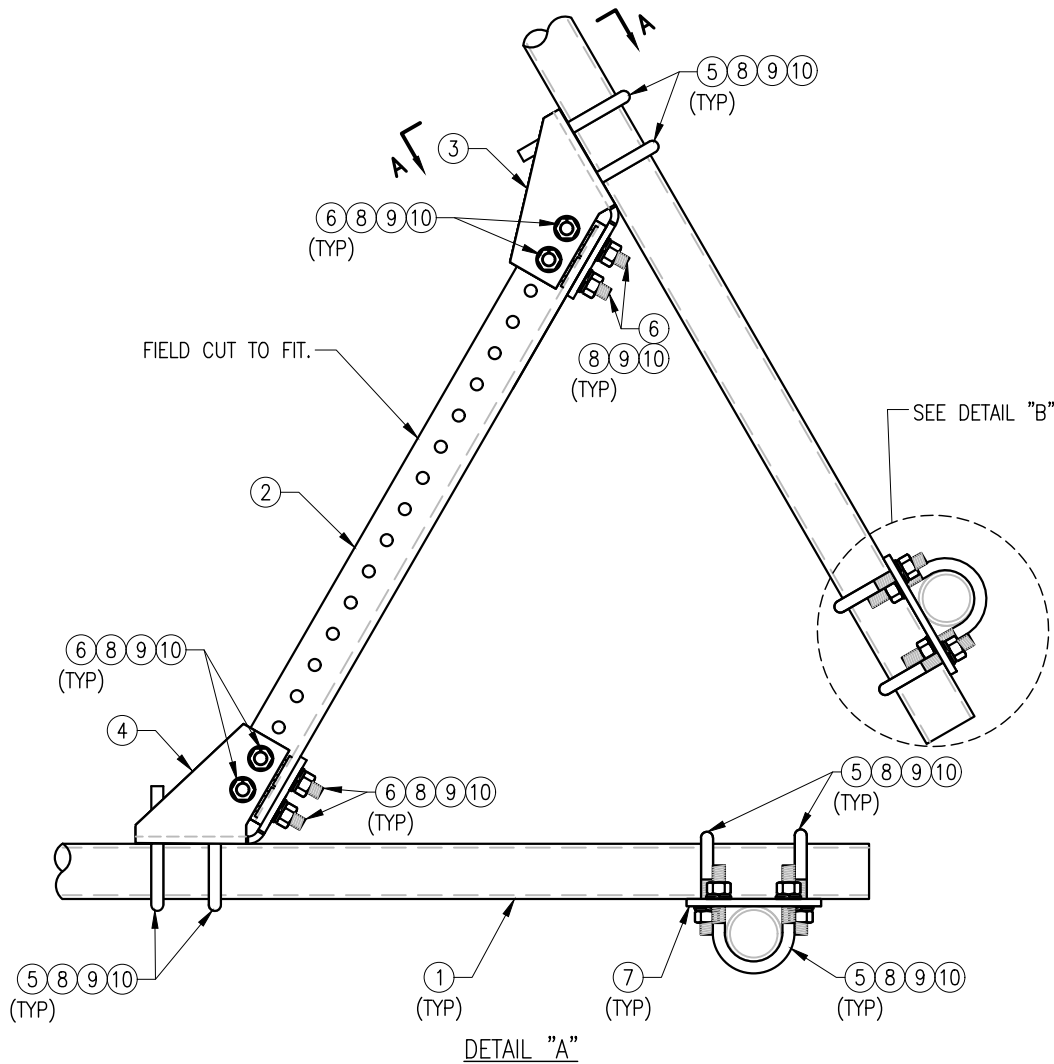
VZWSMART-PLK1
SUPPORT RAIL KIT

SHEET NUMBER: REV #:

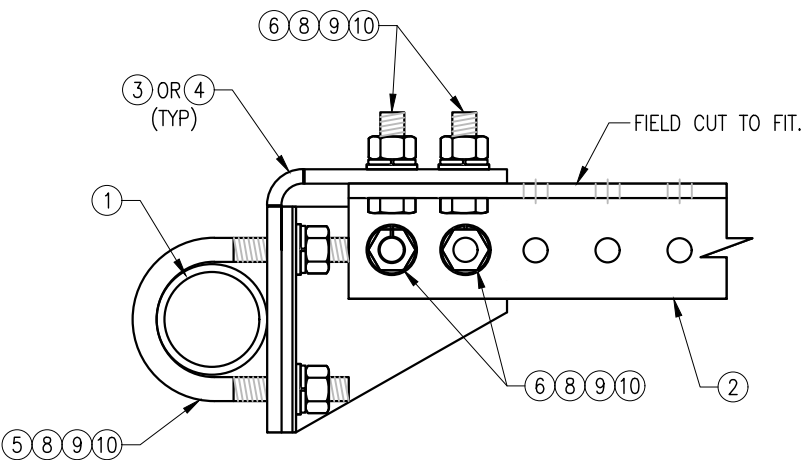
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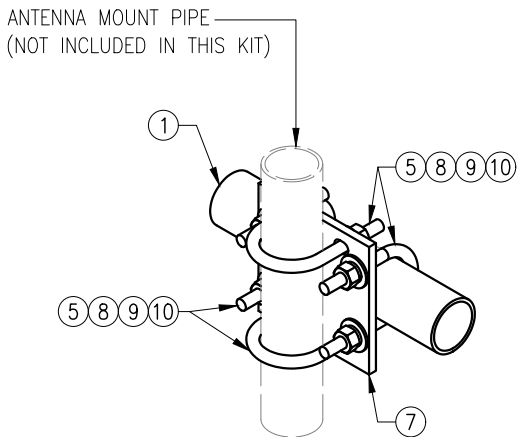
PLAN VIEW



DETAIL "A"



SECTION "A-A"



DETAIL "B"

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.

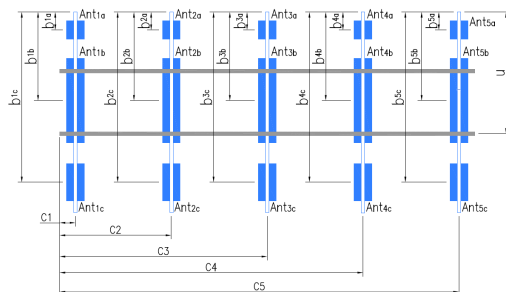
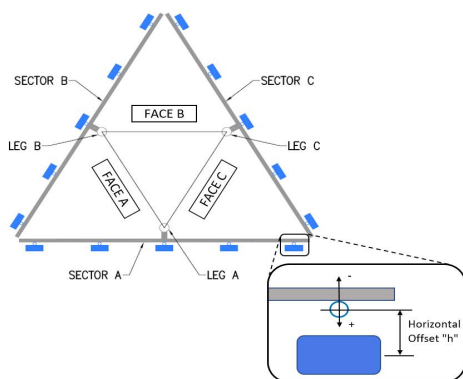
VZW SMART-PLK1 (SUPPORT RAIL KIT)					
ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	3	PST2875-12.5	2.5" PST (2.875" O.D. X 0.203" THK.) X 12'-6" A53 GR-B	PLK1-F1	292
2	3	L33375-3	L 3" X 3" X 3/8" X 3'-0" A36	PLK1-F1	66
3	3	CBP-L	CORNER BENT PLATE BRACKET	PLK1-F2	28
4	3	CBP-R	CORNER BENT PLATE BRACKET	PLK1-F2	28
5	60	MS02-625-300-500	RU-BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	RBC-1	82
6	24	---	BOLT 5/8" X 2" A325	---	9
7	12	PL375-857	PL 3/8" X 8 1/2" X 7'-0" A36	PLK1-F3	77
8	144	FW-625	5/8" HDG USS FLAT WASHER	---	12
9	144	LW-625	5/8" HDG LOCK WASHER	---	3
10	144	NUT-625	5/8" HDG HEX NUT	---	17
GALVANIZED WT					504



FCC

Tower Owner:	Crown	Mapping Date:	6/9/2021
Site Name:	ELLINGTON SOUTH CT	Tower Type:	Monopole
Site Number or ID:	467657	Tower Height (Ft.):	120
Mapping Contractor:	HUDSON DESIGN GROUP, LLC.	Mount Elevation (Ft.):	110

Please insert the sketches of the antenna mount from the "Sketches" tab with dimensions and members here.



Antenna Layout (Looking Out From Tower)

Mount Pipe Configuration and Geometries [Unit = Inches]								
Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "u"	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "u"	Horizontal Offset "C1, C2, C3, etc."	
A1	2" STD. PIPE X 53" LONG	26.00	3.00	C1	2" STD. PIPE X 53" LONG	26.00	3.00	
A2	2" STD. PIPE X 84" LONG	50.00	53.00	C2	2" STD. PIPE X 84" LONG	50.00	53.00	
A3	2" STD. PIPE X 84" LONG	42.00	123.00	C3	2" STD. PIPE X 84" LONG	42.00	123.00	
A4	2" STD. PIPE X 53" LONG	26.00	147.00	C4	2" STD. PIPE X 53" LONG	26.00	147.00	
A5				C5				
A6				C6				
B1	2" STD. PIPE X 53" LONG	26.00	3.00	D1				
B2	2" STD. PIPE X 84" LONG	50.00	53.00	D2				
B3	2" STD. PIPE X 84" LONG	42.00	123.00	D3				
B4	2" STD. PIPE X 53" LONG	26.00	147.00	D4				
B5				D5				
B6				D6				
Distance between bottom rail and mount CL elevation (dim d). Unit is inches. See 'Mount Elev Ref' tab for details. :								
Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.) :							4.83	
Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.) :								
Please enter additional information or comments below.								
Tower Face Width at Mount Elev. (ft.):		Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.):					21.5	
For T-Arms/Platforms on monopoles, report the weld size from the main standoff to the plate bolting into the collar mount.								0.375

[illegible]

Observed Safety and Structural Issues During the Mount Mapping		
Issue #	Description of Issue	Photo #
1		
2		
3		
4		
5		
6		
7		
8		

Observed Obstructions to Tower Lighting System			
If the tower lighting system is being obstructed by the carrier's equipment (for example: a light nested by the antennas), please provide photos and fill in the information below.			Photo #
Description of Obstruction:			
Type of Light:	Photo #	Additional Comments:	
Lighting Technology:	Photo #		
Elevation (AGL) at base of light (Ft.):	Photo #		
Is a service loop available?	Photo #		
Is beacon installed on an extension?	Photo #		

Mapping Notes
1. Please report any visible structural or safety issues observed on the antenna mounts (Damaged members, loose connections, tilting mounts, safety climb issues, etc.) 2. If the thickness of the existing pipes or tubing can't be obtained from a general tool (such as Caliper), please use an ultrasonic measurement tool (thickness gauge) to measure the thickness. 3. Please create all required detail sketches of the mounts and insert them into the "Sketches" tab. 4. Please measure and enter the bolt sizes and types under the Members Box in the spreadsheet of the mount type. 5. Take and label the photos of the tower, mounts, connections, antennas and all measurements. Minimum 50 photos are required. 6. Please measure and report the size and length of all existing antenna mounting pipes. 7. Please measure and report the antenna information for all sectors. 8. Don't delete or rearrange any sheet or contents of any sheet from this mapping form.

Standard Conditions
1. Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping are to be reported in this mapping. However, this mount mapping is not a condition assessment of the mount.



Antenna Mount Mapping Form (PATENT PENDING)

FCC #

Tower Owner:	Crown	Mapping Date:	6/9/2021
Site Name:	ELLINGTON SOUTH CT	Tower Type:	Monopole
Site Number or ID:	467657	Tower Height (Ft.):	120
Mapping Contractor:	HUDSON DESIGN GROUP, LLC.	Mount Elevation (Ft.):	110

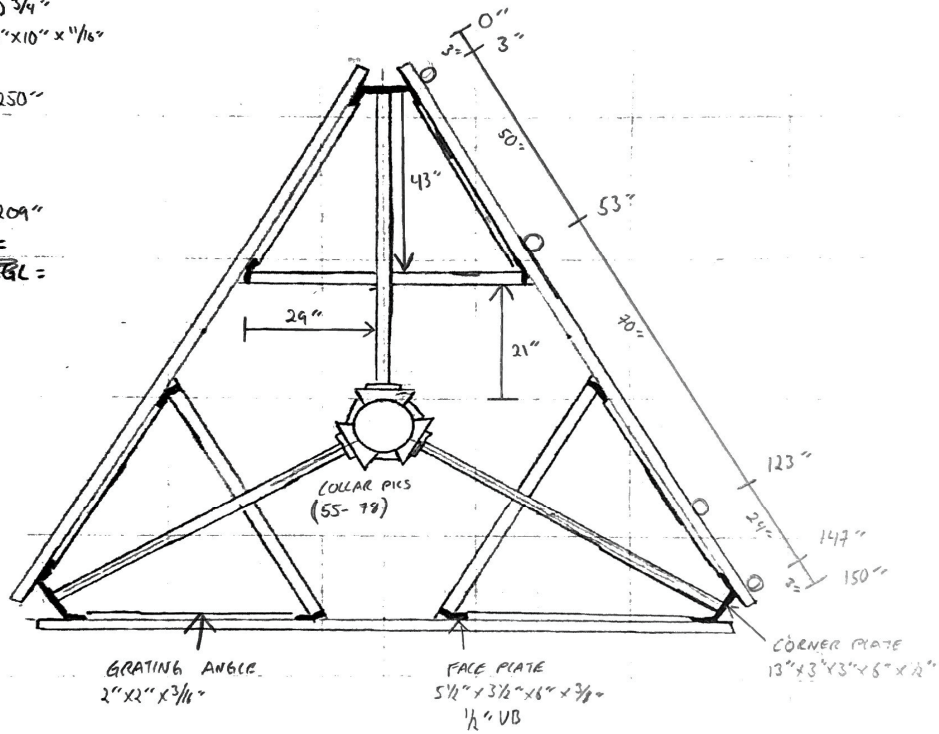
This antenna mapping form is the property of TES and under **PATENT PENDING**. The formation contained herein is considered confidential in nature and is to be used only for the specific customer it was intended for. Reproduction, transmission, publication, modification or disclosure by any method is prohibited except by express written permission of TES. All means and methods are the responsibility of the contractor and the work shall be compliant with ANSI/ASSE A 10.48, OSHA, FCC, FAA and other safety requirements that may apply. TES is not warranting the usability of the safety climb as it must be assessed prior to each use in compliance with OSHA requirements.

Please Insert Sketches of the Antenna Mount

ELLINGTON SOUTH CT

TOT = 120'
 MOUNT CL = 110' AGL
 TOWER D = CIRC: 67 1/2"
 ↳ WALL = .219"
 COLLAR = 10" x 1 3/32"
 - T ROD = (2) 3/4"
 - PLATE = 10" x 10" x 1/16"
 HSS = 4" x 4"
 ↳ WALL = .250"
 T-F = 38"
 T-A = 68"
 FACE PIPE =
 ↳ WALL = .209"
 ANT MOUNTS =
 TOP OF MAST AGL =

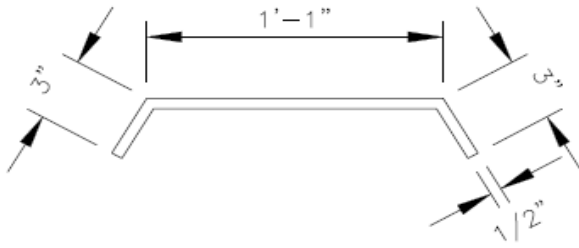
CROSS PLATES
 6" x 2 1/2" x 8" x 3/8"
 1/2" UB



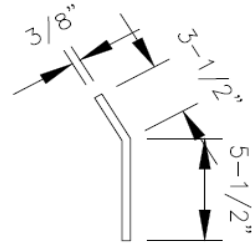
GRATING ANGLE
 2" x 2" x 3/16"

FACE PLATE
 5 1/2" x 3 1/2" x 8" x 3/8"
 1/2" UB

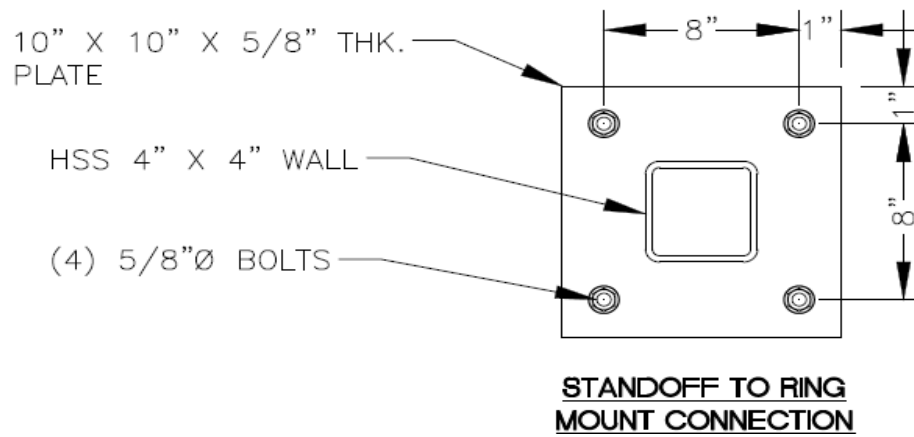
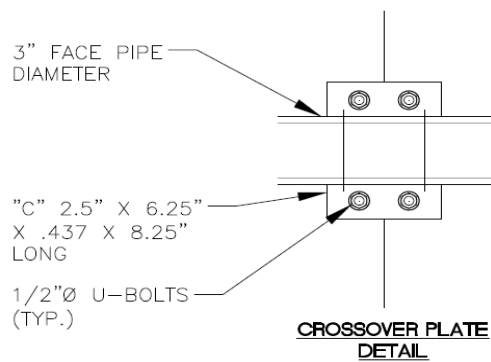
CORNER PLATE
 13" x 3" x 3" x 8" x 1/2"

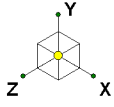


DETAIL J
APEX "A" PLATE DETAIL



DETAIL K
"B" PLATE DETAIL





Envelope Only Solution

Colliers Engineering & Des...

DAB

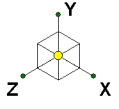
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5000247949-VZW_MT_LO_H

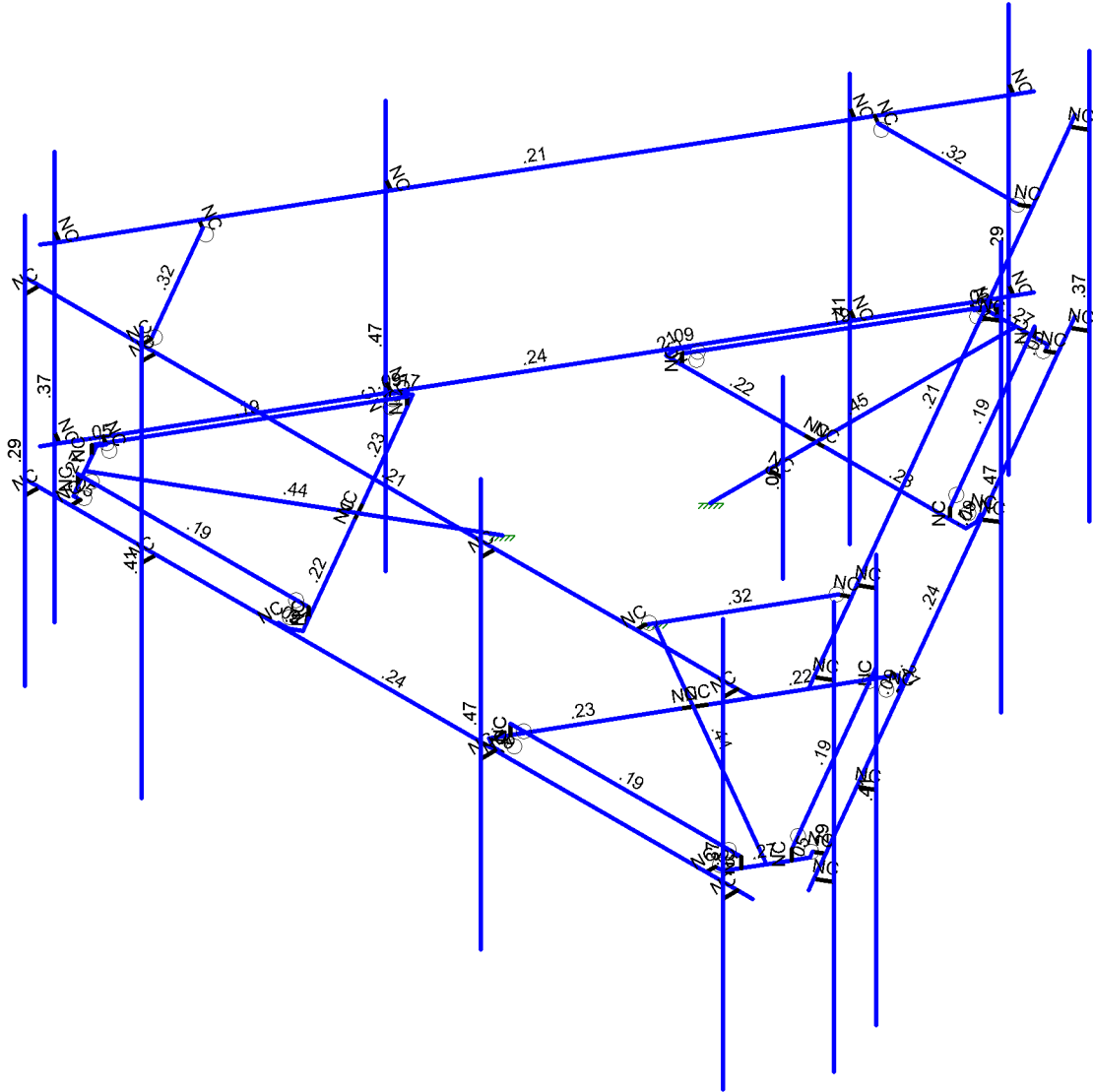
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Dec 6, 2023 at 2:28 PM

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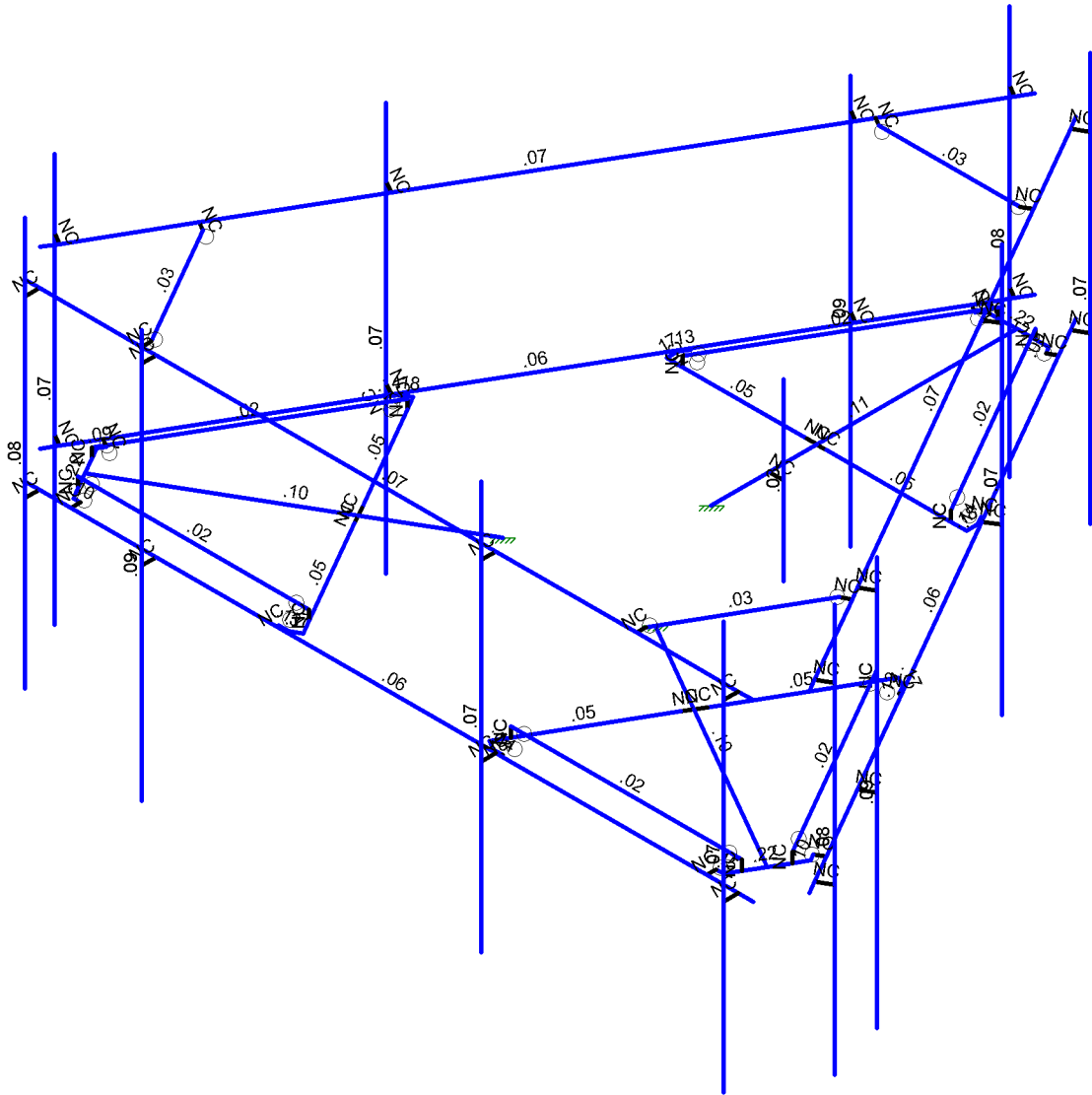
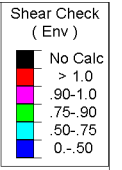
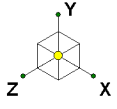


Code Check (Env)	
No Calc	> 1.0
	.90-1.0
	.75-.90
	.50-.75
	0-.50



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Colliers Engineering & Des...	5000247949-VZW_MT_LO_H	SK - 2
DAB		Dec 6, 2023 at 2:28 PM
Project No. 10214353		5000247949-VZW_MT_LO_H.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Colliers Engineering & Des...

DAB

Project No. 10214353

5000247949-VZW_MT_LO_H

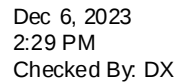
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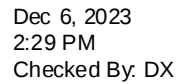
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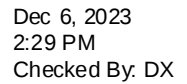
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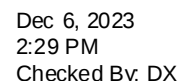
Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Antenna D	None					111		
2	Antenna Di	None					111		
3	Antenna Wo (0 Deg)	None					111		
4	Antenna Wo (30 Deg)	None					111		
5	Antenna Wo (60 Deg)	None					111		
6	Antenna Wo (90 Deg)	None					111		
7	Antenna Wo (120 Deg)	None					111		
8	Antenna Wo (150 Deg)	None					111		
9	Antenna Wo (180 Deg)	None					111		
10	Antenna Wo (210 Deg)	None					111		
11	Antenna Wo (240 Deg)	None					111		
12	Antenna Wo (270 Deg)	None					111		
13	Antenna Wo (300 Deg)	None					111		
14	Antenna Wo (330 Deg)	None					111		
15	Antenna Wi (0 Deg)	None					111		
16	Antenna Wi (30 Deg)	None					111		
17	Antenna Wi (60 Deg)	None					111		
18	Antenna Wi (90 Deg)	None					111		
19	Antenna Wi (120 Deg)	None					111		
20	Antenna Wi (150 Deg)	None					111		
21	Antenna Wi (180 Deg)	None					111		
22	Antenna Wi (210 Deg)	None					111		
23	Antenna Wi (240 Deg)	None					111		
24	Antenna Wi (270 Deg)	None					111		
25	Antenna Wi (300 Deg)	None					111		
26	Antenna Wi (330 Deg)	None					111		
27	Antenna Wm (0 Deg)	None					111		
28	Antenna Wm (30 Deg)	None					111		
29	Antenna Wm (60 Deg)	None					111		
30	Antenna Wm (90 Deg)	None					111		
31	Antenna Wm (120 De..	None					111		
32	Antenna Wm (150 De..	None					111		
33	Antenna Wm (180 De..	None					111		
34	Antenna Wm (210 De..	None					111		
35	Antenna Wm (240 De..	None					111		
36	Antenna Wm (270 De..	None					111		
37	Antenna Wm (300 De..	None					111		
38	Antenna Wm (330 De..	None					111		
39	Structure D	None		-1				3	
40	Structure Di	None					58	3	
41	Structure Wo (0 Deg)	None					116		
42	Structure Wo (30 Deg)	None					116		
43	Structure Wo (60 Deg)	None					116		
44	Structure Wo (90 Deg)	None					116		
45	Structure Wo (120 D..	None					116		
46	Structure Wo (150 D..	None					116		
47	Structure Wo (180 D..	None					116		
48	Structure Wo (210 D..	None					116		

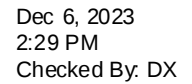
Page 5



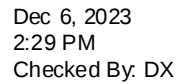
Page 7



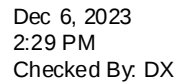
	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M20	N4	N3			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
2	M41A	N14	N16			Platform Cross...	Beam	SquareTube	A500 Gr.B...	Typical
3	M42_1	N15	N5			Platform Cross...	Beam	SquareTube	A500 Gr.B...	Typical
4	M43A_1	N18	N17			Corner Plate	Beam	RECT	A36 Gr.36	Typical
5	M44_1	N7	N9			RIGID	None	None	RIGID	Typical
6	M45_1	N6	N8			RIGID	None	None	RIGID	Typical
7	M46A	N10	N6			Grating Support	Beam	Single Angle	A36 Gr.36	Typical
8	M47	N7	N11			Grating Support	Beam	Single Angle	A36 Gr.36	Typical
9	M48	N11	N13			RIGID	None	None	RIGID	Typical
10	M49	N10	N12			RIGID	None	None	RIGID	Typical
11	M50_1	N15	N1			RIGID	None	None	RIGID	Typical
12	M51_1	N1	N16			RIGID	None	None	RIGID	Typical
13	M64	N5	N19			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
14	M65	N19	N21			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
15	M68	N21	N22			RIGID	None	None	RIGID	Typical
16	M71	N18	N23			Corner Plate	Beam	RECT	A36 Gr.36	Typical
17	M72	N23	N24			RIGID	None	None	RIGID	Typical
18	M86	N14	N20			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
19	M87	N20	N25			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
20	M89	N25	N26			RIGID	None	None	RIGID	Typical
21	M90	N17	N27			Corner Plate	Beam	RECT	A36 Gr.36	Typical
22	M93	N27	N28			RIGID	None	None	RIGID	Typical
23	M51A	N40	N42			Platform Cross...	Beam	SquareTube	A500 Gr.B...	Typical
24	M52	N41	N31			Platform Cross...	Beam	SquareTube	A500 Gr.B...	Typical
25	M53A	N44	N43			Corner Plate	Beam	RECT	A36 Gr.36	Typical
26	M54	N33	N35			RIGID	None	None	RIGID	Typical
27	M55	N32	N34			RIGID	None	None	RIGID	Typical
28	M56	N36	N32			Grating Support	Beam	Single Angle	A36 Gr.36	Typical
29	M57	N33	N37			Grating Support	Beam	Single Angle	A36 Gr.36	Typical
30	M58	N37	N39			RIGID	None	None	RIGID	Typical
31	M59	N36	N38			RIGID	None	None	RIGID	Typical
32	M60	N41	N29			RIGID	None	None	RIGID	Typical
33	M61	N29	N42			RIGID	None	None	RIGID	Typical
34	M62	N31	N45			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
35	M63	N45	N47			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
36	M64A	N47	N48			RIGID	None	None	RIGID	Typical
37	M65A	N44	N49			Corner Plate	Beam	RECT	A36 Gr.36	Typical
38	M66	N49	N50			RIGID	None	None	RIGID	Typical
39	M67	N40	N46			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
40	M68A	N46	N51			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
41	M69	N51	N52			RIGID	None	None	RIGID	Typical
42	M70	N43	N53			Corner Plate	Beam	RECT	A36 Gr.36	Typical
43	M71A	N53	N54			RIGID	None	None	RIGID	Typical
44	M77A	N55	N58			RIGID	None	None	RIGID	Typical
45	M78A	N56	N59			RIGID	None	None	RIGID	Typical
46	M80A	N57	N60			RIGID	None	None	RIGID	Typical
47	MP4A	N63	N66			MOD NEW Pl...	Column	Pipe	A53 Gr.B	Typical
48	MP3A	N62	N65			Mount Pipe_1	Column	Pipe	A53 Gr.B	Typical
49	MP1A	N61	N64			MOD NEW Pl...	Column	Pipe	A53 Gr.B	Typical
50	M109A	N68	N30			Standoff Horiz...	Beam	SquareTube	A500 Gr.B...	Typical
51	M53	N70	N69			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical



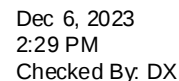
	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
52	M54A	N72	N71			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
53	M55A	N84	N86			Platform Cross...	Beam	SquareTube	A500 Gr.B...	Typical
54	M56A	N85	N75			Platform Cross...	Beam	SquareTube	A500 Gr.B...	Typical
55	M57A	N88	N87			Corner Plate	Beam	RECT	A36 Gr.36	Typical
56	M58A	N77	N79			RIGID	None	None	RIGID	Typical
57	M59A	N76	N78			RIGID	None	None	RIGID	Typical
58	M60A	N80	N76			Grating Support	Beam	Single Angle	A36 Gr.36	Typical
59	M61A	N77	N81			Grating Support	Beam	Single Angle	A36 Gr.36	Typical
60	M62A	N81	N83			RIGID	None	None	RIGID	Typical
61	M63A	N80	N82			RIGID	None	None	RIGID	Typical
62	M64B	N85	N73			RIGID	None	None	RIGID	Typical
63	M65B	N73	N86			RIGID	None	None	RIGID	Typical
64	M66A	N75	N89			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
65	M67A	N89	N91			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
66	M68B	N91	N92			RIGID	None	None	RIGID	Typical
67	M69A	N88	N93			Corner Plate	Beam	RECT	A36 Gr.36	Typical
68	M70A	N93	N94			RIGID	None	None	RIGID	Typical
69	M71B	N84	N90			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
70	M72A	N90	N95			Cross Arm Plate	Column	RECT	A36 Gr.36	Typical
71	M73	N95	N96			RIGID	None	None	RIGID	Typical
72	M74	N87	N97			Corner Plate	Beam	RECT	A36 Gr.36	Typical
73	M75	N97	N98			RIGID	None	None	RIGID	Typical
74	M76	N99	N74			Standoff Horiz...	Beam	SquareTube	A500 Gr.B...	Typical
75	M77	N100	N2			Standoff Horiz...	Beam	SquareTube	A500 Gr.B...	Typical
76	M89A	N127	N128			Mount Pipe_1	Column	Pipe	A53 Gr.B	Typical
77	M90B	N125	N129			RIGID	None	None	RIGID	Typical
78	M90A	N134	N135			RIGID	None	None	RIGID	Typical
79	MP2A	N136	N137			Mount Pipe_1	Column	Pipe	A53 Gr.B	Typical
80	M80	N114	N117			RIGID	None	None	RIGID	Typical
81	M81	N115	N118			RIGID	None	None	RIGID	Typical
82	M82	N116	N119			RIGID	None	None	RIGID	Typical
83	MP4C	N122	N125A			MOD NEW PI...	Column	Pipe	A53 Gr.B	Typical
84	MP3C	N121	N124			Mount Pipe_1	Column	Pipe	A53 Gr.B	Typical
85	MP1C	N120	N123			MOD NEW PI...	Column	Pipe	A53 Gr.B	Typical
86	MP2C	N129A	N130A			Mount Pipe_1	Column	Pipe	A53 Gr.B	Typical
87	M87A	N131A	N134A			RIGID	None	None	RIGID	Typical
88	M88	N132A	N135A			RIGID	None	None	RIGID	Typical
89	M89B	N133A	N136A			RIGID	None	None	RIGID	Typical
90	MP4B	N139	N142			MOD NEW PI...	Column	Pipe	A53 Gr.B	Typical
91	MP3B	N138	N141			Mount Pipe_1	Column	Pipe	A53 Gr.B	Typical
92	MP1B	N137A	N140			MOD NEW PI...	Column	Pipe	A53 Gr.B	Typical
93	MP2B	N146	N147			Mount Pipe_1	Column	Pipe	A53 Gr.B	Typical
94	M94	N147A	N146A			MOD FH	Column	Pipe	A53 Gr.B	Typical
95	M95	N148	N151			RIGID	None	None	RIGID	Typical
96	M96	N149	N152			RIGID	None	None	RIGID	Typical
97	M97	N150	N153			RIGID	None	None	RIGID	Typical
98	M98	N154	N155			RIGID	None	None	RIGID	Typical
99	M99	N157	N159			RIGID	None	None	RIGID	Typical
100	M100	N156	N158			RIGID	None	None	RIGID	Typical
101	M101	N162	N161			MOD FH	Column	Pipe	A53 Gr.B	Typical
102	M102	N164	N166			RIGID	None	None	RIGID	Typical
103	M103	N163	N165			RIGID	None	None	RIGID	Typical



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	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic ...
32	M60						Yes	** NA **			None
33	M61						Yes	** NA **			None
34	M62						Yes	** NA **			None
35	M63						Yes	** NA **			None
36	M64A		BenPIN				Yes	** NA **			None
37	M65A						Yes				None
38	M66		BenPIN				Yes	** NA **			None
39	M67						Yes	** NA **			None
40	M68A						Yes	** NA **			None
41	M69		BenPIN				Yes	** NA **			None
42	M70						Yes				None
43	M71A		BenPIN				Yes	** NA **			None
44	M77A						Yes	** NA **			None
45	M78A						Yes	** NA **			None
46	M80A						Yes	** NA **			None
47	MP4A						Yes	** NA **			None
48	MP3A						Yes	** NA **			None
49	MP1A						Yes	** NA **			None
50	M109A						Yes	Default			None
51	M53						Yes				None
52	M54A						Yes				None
53	M55A						Yes				None
54	M56A						Yes				None
55	M57A						Yes				None
56	M58A						Yes	** NA **			None
57	M59A						Yes	** NA **			None
58	M60A	OOOOOX	OOOOOX				Yes				None
59	M61A	OOOOOX	OOOOOX				Yes				None
60	M62A						Yes	** NA **			None
61	M63A						Yes	** NA **			None
62	M64B						Yes	** NA **			None
63	M65B						Yes	** NA **			None
64	M66A						Yes	** NA **			None
65	M67A						Yes	** NA **			None
66	M68B		BenPIN				Yes	** NA **			None
67	M69A						Yes				None
68	M70A		BenPIN				Yes	** NA **			None
69	M71B						Yes	** NA **			None
70	M72A						Yes	** NA **			None
71	M73		BenPIN				Yes	** NA **			None
72	M74						Yes				None
73	M75		BenPIN				Yes	** NA **			None
74	M76						Yes	Default			None
75	M77						Yes	Default			None
76	M89A						Yes	** NA **			None
77	M90B						Yes	** NA **			None
78	M90A						Yes	** NA **			None
79	MP2A						Yes	** NA **			None
80	M80						Yes	** NA **			None
81	M81						Yes	** NA **			None
82	M82						Yes	** NA **			None
83	MP4C						Yes	** NA **			None



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Member Point Loads (BLC 1 : Antenna D) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
12	MP2B	Mz	-.017	6.5
13	MP2C	Y	-21.85	.5
14	MP2C	My	.018	.5
15	MP2C	Mz	.002	.5
16	MP2C	Y	-21.85	6.5
17	MP2C	My	.018	6.5
18	MP2C	Mz	.002	6.5
19	MP2A	Y	-21.85	.5
20	MP2A	My	-.011	.5
21	MP2A	Mz	-.015	.5
22	MP2A	Y	-21.85	6.5
23	MP2A	My	-.011	6.5
24	MP2A	Mz	-.015	6.5
25	MP2B	Y	-21.85	.5
26	MP2B	My	.018	.5
27	MP2B	Mz	-.002	.5
28	MP2B	Y	-21.85	6.5
29	MP2B	My	.018	6.5
30	MP2B	Mz	-.002	6.5
31	MP2C	Y	-21.85	.5
32	MP2C	My	-.007	.5
33	MP2C	Mz	.017	.5
34	MP2C	Y	-21.85	6.5
35	MP2C	My	-.007	6.5
36	MP2C	Mz	.017	6.5
37	MP3A	Y	-28.65	2.75
38	MP3A	My	-.014	2.75
39	MP3A	Mz	0	2.75
40	MP3A	Y	-28.65	4.25
41	MP3A	My	-.014	4.25
42	MP3A	Mz	0	4.25
43	MP3B	Y	-28.65	2.75
44	MP3B	My	.007	2.75
45	MP3B	Mz	-.012	2.75
46	MP3B	Y	-28.65	4.25
47	MP3B	My	.007	4.25
48	MP3B	Mz	-.012	4.25
49	MP3C	Y	-28.65	2.75
50	MP3C	My	.007	2.75
51	MP3C	Mz	.012	2.75
52	MP3C	Y	-28.65	4.25
53	MP3C	My	.007	4.25
54	MP3C	Mz	.012	4.25
55	M89A	Y	-32	1
56	M89A	My	-.016	1
57	M89A	Mz	0	1
58	MP2A	Y	-74.7	2
59	MP2A	My	.037	2
60	MP2A	Mz	0	2
61	MP2B	Y	-74.7	2
62	MP2B	My	-.019	2
63	MP2B	Mz	.032	2

Member Point Loads (BLC 1 : Antenna D) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
64	MP2C	Y	-74.7	2
65	MP2C	My	-.019	2
66	MP2C	Mz	-.032	2
67	MP1A	Y	-79.1	2
68	MP1A	My	.04	2
69	MP1A	Mz	0	2
70	MP1B	Y	-79.1	2
71	MP1B	My	-.02	2
72	MP1B	Mz	.034	2
73	MP1C	Y	-79.1	2
74	MP1C	My	-.02	2
75	MP1C	Mz	-.034	2
76	MP1A	Y	-13.5	1.25
77	MP1A	My	-.007	1.25
78	MP1A	Mz	0	1.25
79	MP1A	Y	-13.5	3.25
80	MP1A	My	-.007	3.25
81	MP1A	Mz	0	3.25
82	MP1B	Y	-13.5	1.25
83	MP1B	My	.003	1.25
84	MP1B	Mz	-.006	1.25
85	MP1B	Y	-13.5	3.25
86	MP1B	My	.003	3.25
87	MP1B	Mz	-.006	3.25
88	MP1C	Y	-13.5	1.25
89	MP1C	My	.003	1.25
90	MP1C	Mz	.006	1.25
91	MP1C	Y	-13.5	3.25
92	MP1C	My	.003	3.25
93	MP1C	Mz	.006	3.25
94	MP4A	Y	-13.5	1.25
95	MP4A	My	-.007	1.25
96	MP4A	Mz	0	1.25
97	MP4A	Y	-13.5	3.25
98	MP4A	My	-.007	3.25
99	MP4A	Mz	0	3.25
100	MP4B	Y	-13.5	1.25
101	MP4B	My	.003	1.25
102	MP4B	Mz	-.006	1.25
103	MP4B	Y	-13.5	3.25
104	MP4B	My	.003	3.25
105	MP4B	Mz	-.006	3.25
106	MP4C	Y	-13.5	1.25
107	MP4C	My	.003	1.25
108	MP4C	Mz	.006	1.25
109	MP4C	Y	-13.5	3.25
110	MP4C	My	.003	3.25
111	MP4C	Mz	.006	3.25

Member Point Loads (BLC 2 : Antenna Di)

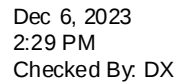
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
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Member Point Loads (BLC 2 : Antenna Di) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
105	MP4B	Mz	-.058	3.25
106	MP4C	Y	-134.768	1.25
107	MP4C	My	.034	1.25
108	MP4C	Mz	.058	1.25
109	MP4C	Y	-134.768	3.25
110	MP4C	My	.034	3.25
111	MP4C	Mz	.058	3.25

Member Point Loads (BLC 3 : Antenna Wo (0 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	0	.5
2	MP2A	Z	-84.735	.5
3	MP2A	Mx	-.056	.5
4	MP2A	X	0	6.5
5	MP2A	Z	-84.735	6.5
6	MP2A	Mx	-.056	6.5
7	MP2B	X	0	.5
8	MP2B	Z	-48.454	.5
9	MP2B	Mx	.037	.5
10	MP2B	X	0	6.5
11	MP2B	Z	-48.454	6.5
12	MP2B	Mx	.037	6.5
13	MP2C	X	0	.5
14	MP2C	Z	-48.454	.5
15	MP2C	Mx	-.005	.5
16	MP2C	X	0	6.5
17	MP2C	Z	-48.454	6.5
18	MP2C	Mx	-.005	6.5
19	MP2A	X	0	.5
20	MP2A	Z	-84.735	.5
21	MP2A	Mx	.056	.5
22	MP2A	X	0	6.5
23	MP2A	Z	-84.735	6.5
24	MP2A	Mx	.056	6.5
25	MP2B	X	0	.5
26	MP2B	Z	-48.454	.5
27	MP2B	Mx	.005	.5
28	MP2B	X	0	6.5
29	MP2B	Z	-48.454	6.5
30	MP2B	Mx	.005	6.5
31	MP2C	X	0	.5
32	MP2C	Z	-48.454	.5
33	MP2C	Mx	-.037	.5
34	MP2C	X	0	6.5
35	MP2C	Z	-48.454	6.5
36	MP2C	Mx	-.037	6.5
37	MP3A	X	0	2.75
38	MP3A	Z	-59.143	2.75
39	MP3A	Mx	0	2.75
40	MP3A	X	0	4.25
41	MP3A	Z	-59.143	4.25



	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft, %]
31	MP2C	X	36.321	.5
32	MP2C	Z	-62.909	.5
33	MP2C	Mx	-.06	.5
34	MP2C	X	36.321	6.5
35	MP2C	Z	-62.909	6.5
36	MP2C	Mx	-.06	6.5
37	MP3A	X	25.026	2.75
38	MP3A	Z	-43.346	2.75
39	MP3A	Mx	-.013	2.75
40	MP3A	X	25.026	4.25
41	MP3A	Z	-43.346	4.25
42	MP3A	Mx	-.013	4.25
43	MP3B	X	11.389	2.75
44	MP3B	Z	-19.727	2.75
45	MP3B	Mx	.011	2.75
46	MP3B	X	11.389	4.25
47	MP3B	Z	-19.727	4.25
48	MP3B	Mx	.011	4.25
49	MP3C	X	25.026	2.75
50	MP3C	Z	-43.346	2.75
51	MP3C	Mx	-.013	2.75
52	MP3C	X	25.026	4.25
53	MP3C	Z	-43.346	4.25
54	MP3C	Mx	-.013	4.25
55	M89A	X	46.503	1
56	M89A	Z	-80.546	1
57	M89A	Mx	-.023	1
58	MP2A	X	22.198	2
59	MP2A	Z	-38.448	2
60	MP2A	Mx	.011	2
61	MP2B	X	16.229	2
62	MP2B	Z	-28.11	2
63	MP2B	Mx	-.016	2
64	MP2C	X	22.198	2
65	MP2C	Z	-38.448	2
66	MP2C	Mx	.011	2
67	MP1A	X	26.86	2
68	MP1A	Z	-46.523	2
69	MP1A	Mx	.013	2
70	MP1B	X	19.896	2
71	MP1B	Z	-34.462	2
72	MP1B	Mx	-.02	2
73	MP1C	X	26.86	2
74	MP1C	Z	-46.523	2
75	MP1C	Mx	.013	2
76	MP1A	X	72.904	1.25
77	MP1A	Z	-126.274	1.25
78	MP1A	Mx	-.036	1.25
79	MP1A	X	72.904	3.25
80	MP1A	Z	-126.274	3.25
81	MP1A	Mx	-.036	3.25
82	MP1B	X	66.905	1.25

Member Point Loads (BLC 4 : Antenna Wo (30 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
83	MP1B	Z	-115.882	1.25
84	MP1B	Mx	.067	1.25
85	MP1B	X	66.905	3.25
86	MP1B	Z	-115.882	3.25
87	MP1B	Mx	.067	3.25
88	MP1C	X	72.904	1.25
89	MP1C	Z	-126.274	1.25
90	MP1C	Mx	-.036	1.25
91	MP1C	X	72.904	3.25
92	MP1C	Z	-126.274	3.25
93	MP1C	Mx	-.036	3.25
94	MP4A	X	72.904	1.25
95	MP4A	Z	-126.274	1.25
96	MP4A	Mx	-.036	1.25
97	MP4A	X	72.904	3.25
98	MP4A	Z	-126.274	3.25
99	MP4A	Mx	-.036	3.25
100	MP4B	X	66.905	1.25
101	MP4B	Z	-115.882	1.25
102	MP4B	Mx	.067	1.25
103	MP4B	X	66.905	3.25
104	MP4B	Z	-115.882	3.25
105	MP4B	Mx	.067	3.25
106	MP4C	X	72.904	1.25
107	MP4C	Z	-126.274	1.25
108	MP4C	Mx	-.036	1.25
109	MP4C	X	72.904	3.25
110	MP4C	Z	-126.274	3.25
111	MP4C	Mx	-.036	3.25

Member Point Loads (BLC 5 : Antenna Wo (60 Deg))

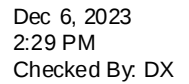
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	41.962	.5
2	MP2A	Z	-24.227	.5
3	MP2A	Mx	-.037	.5
4	MP2A	X	41.962	6.5
5	MP2A	Z	-24.227	6.5
6	MP2A	Mx	-.037	6.5
7	MP2B	X	41.962	.5
8	MP2B	Z	-24.227	.5
9	MP2B	Mx	.005	.5
10	MP2B	X	41.962	6.5
11	MP2B	Z	-24.227	6.5
12	MP2B	Mx	.005	6.5
13	MP2C	X	73.383	.5
14	MP2C	Z	-42.368	.5
15	MP2C	Mx	.056	.5
16	MP2C	X	73.383	6.5
17	MP2C	Z	-42.368	6.5
18	MP2C	Mx	.056	6.5
19	MP2A	X	41.962	.5

Member Point Loads (BLC 5 : Antenna Wo (60 Deg)) (Continued)

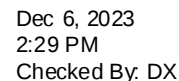
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
72	MP1B	Mx	-.019	2
73	MP1C	X	50.544	2
74	MP1C	Z	-29.181	2
75	MP1C	Mx	0	2
76	MP1A	X	119.346	1.25
77	MP1A	Z	-68.905	1.25
78	MP1A	Mx	-.06	1.25
79	MP1A	X	119.346	3.25
80	MP1A	Z	-68.905	3.25
81	MP1A	Mx	-.06	3.25
82	MP1B	X	119.346	1.25
83	MP1B	Z	-68.905	1.25
84	MP1B	Mx	.06	1.25
85	MP1B	X	119.346	3.25
86	MP1B	Z	-68.905	3.25
87	MP1B	Mx	.06	3.25
88	MP1C	X	129.738	1.25
89	MP1C	Z	-74.904	1.25
90	MP1C	Mx	0	1.25
91	MP1C	X	129.738	3.25
92	MP1C	Z	-74.904	3.25
93	MP1C	Mx	0	3.25
94	MP4A	X	119.346	1.25
95	MP4A	Z	-68.905	1.25
96	MP4A	Mx	-.06	1.25
97	MP4A	X	119.346	3.25
98	MP4A	Z	-68.905	3.25
99	MP4A	Mx	-.06	3.25
100	MP4B	X	119.346	1.25
101	MP4B	Z	-68.905	1.25
102	MP4B	Mx	.06	1.25
103	MP4B	X	119.346	3.25
104	MP4B	Z	-68.905	3.25
105	MP4B	Mx	.06	3.25
106	MP4C	X	129.738	1.25
107	MP4C	Z	-74.904	1.25
108	MP4C	Mx	0	1.25
109	MP4C	X	129.738	3.25
110	MP4C	Z	-74.904	3.25
111	MP4C	Mx	0	3.25

Member Point Loads (BLC 6 : Antenna Wo (90 Deg))

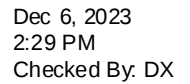
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	36.36	.5
2	MP2A	Z	0	.5
3	MP2A	Mx	-.018	.5
4	MP2A	X	36.36	6.5
5	MP2A	Z	0	6.5
6	MP2A	Mx	-.018	6.5
7	MP2B	X	72.642	.5
8	MP2B	Z	0	.5



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	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft, %]
1	MP2A	X	41.962	.5
2	MP2A	Z	24.227	.5
3	MP2A	Mx	-.005	.5
4	MP2A	X	41.962	6.5
5	MP2A	Z	24.227	6.5
6	MP2A	Mx	-.005	6.5
7	MP2B	X	73.383	.5
8	MP2B	Z	42.368	.5
9	MP2B	Mx	-.056	.5
10	MP2B	X	73.383	6.5
11	MP2B	Z	42.368	6.5
12	MP2B	Mx	-.056	6.5
13	MP2C	X	41.962	.5
14	MP2C	Z	24.227	.5
15	MP2C	Mx	.037	.5
16	MP2C	X	41.962	6.5
17	MP2C	Z	24.227	6.5
18	MP2C	Mx	.037	6.5
19	MP2A	X	41.962	.5
20	MP2A	Z	24.227	.5
21	MP2A	Mx	-.037	.5
22	MP2A	X	41.962	6.5
23	MP2A	Z	24.227	6.5
24	MP2A	Mx	-.037	6.5
25	MP2B	X	73.383	.5
26	MP2B	Z	42.368	.5
27	MP2B	Mx	.056	.5
28	MP2B	X	73.383	6.5
29	MP2B	Z	42.368	6.5
30	MP2B	Mx	.056	6.5
31	MP2C	X	41.962	.5
32	MP2C	Z	24.227	.5
33	MP2C	Mx	.005	.5
34	MP2C	X	41.962	6.5
35	MP2C	Z	24.227	6.5
36	MP2C	Mx	.005	6.5
37	MP3A	X	27.6	2.75
38	MP3A	Z	15.935	2.75
39	MP3A	Mx	-.014	2.75
40	MP3A	X	27.6	4.25
41	MP3A	Z	15.935	4.25
42	MP3A	Mx	-.014	4.25
43	MP3B	X	51.219	2.75
44	MP3B	Z	29.572	2.75
45	MP3B	Mx	0	2.75
46	MP3B	X	51.219	4.25
47	MP3B	Z	29.572	4.25
48	MP3B	Mx	0	4.25
49	MP3C	X	27.6	2.75
50	MP3C	Z	15.935	2.75
51	MP3C	Mx	.014	2.75
52	MP3C	X	27.6	4.25

Member Point Loads (BLC 7 : Antenna Wo (120 Deg)) (Continued)

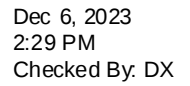
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
53	MP3C	Z	15.935	4.25
54	MP3C	Mx	.014	4.25
55	M89A	X	70.275	1
56	M89A	Z	40.573	1
57	M89A	Mx	-.035	1
58	MP2A	X	31.556	2
59	MP2A	Z	18.219	2
60	MP2A	Mx	.016	2
61	MP2B	X	41.895	2
62	MP2B	Z	24.188	2
63	MP2B	Mx	0	2
64	MP2C	X	31.556	2
65	MP2C	Z	18.219	2
66	MP2C	Mx	-.016	2
67	MP1A	X	38.482	2
68	MP1A	Z	22.218	2
69	MP1A	Mx	.019	2
70	MP1B	X	50.544	2
71	MP1B	Z	29.181	2
72	MP1B	Mx	0	2
73	MP1C	X	38.482	2
74	MP1C	Z	22.218	2
75	MP1C	Mx	-.019	2
76	MP1A	X	119.346	1.25
77	MP1A	Z	68.905	1.25
78	MP1A	Mx	-.06	1.25
79	MP1A	X	119.346	3.25
80	MP1A	Z	68.905	3.25
81	MP1A	Mx	-.06	3.25
82	MP1B	X	129.738	1.25
83	MP1B	Z	74.904	1.25
84	MP1B	Mx	0	1.25
85	MP1B	X	129.738	3.25
86	MP1B	Z	74.904	3.25
87	MP1B	Mx	0	3.25
88	MP1C	X	119.346	1.25
89	MP1C	Z	68.905	1.25
90	MP1C	Mx	.06	1.25
91	MP1C	X	119.346	3.25
92	MP1C	Z	68.905	3.25
93	MP1C	Mx	.06	3.25
94	MP4A	X	119.346	1.25
95	MP4A	Z	68.905	1.25
96	MP4A	Mx	-.06	1.25
97	MP4A	X	119.346	3.25
98	MP4A	Z	68.905	3.25
99	MP4A	Mx	-.06	3.25
100	MP4B	X	129.738	1.25
101	MP4B	Z	74.904	1.25
102	MP4B	Mx	0	1.25
103	MP4B	X	129.738	3.25
104	MP4B	Z	74.904	3.25

Member Point Loads (BLC 7 : Antenna Wo (120 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
105	MP4B	Mx	0	3.25
106	MP4C	X	119.346	1.25
107	MP4C	Z	68.905	1.25
108	MP4C	Mx	.06	1.25
109	MP4C	X	119.346	3.25
110	MP4C	Z	68.905	3.25
111	MP4C	Mx	.06	3.25

Member Point Loads (BLC 8 : Antenna Wo (150 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	36.321	.5
2	MP2A	Z	62.909	.5
3	MP2A	Mx	.024	.5
4	MP2A	X	36.321	6.5
5	MP2A	Z	62.909	6.5
6	MP2A	Mx	.024	6.5
7	MP2B	X	36.321	.5
8	MP2B	Z	62.909	.5
9	MP2B	Mx	-.06	.5
10	MP2B	X	36.321	6.5
11	MP2B	Z	62.909	6.5
12	MP2B	Mx	-.06	6.5
13	MP2C	X	18.18	.5
14	MP2C	Z	31.488	.5
15	MP2C	Mx	.018	.5
16	MP2C	X	18.18	6.5
17	MP2C	Z	31.488	6.5
18	MP2C	Mx	.018	6.5
19	MP2A	X	36.321	.5
20	MP2A	Z	62.909	.5
21	MP2A	Mx	-.06	.5
22	MP2A	X	36.321	6.5
23	MP2A	Z	62.909	6.5
24	MP2A	Mx	-.06	6.5
25	MP2B	X	36.321	.5
26	MP2B	Z	62.909	.5
27	MP2B	Mx	.024	.5
28	MP2B	X	36.321	6.5
29	MP2B	Z	62.909	6.5
30	MP2B	Mx	.024	6.5
31	MP2C	X	18.18	.5
32	MP2C	Z	31.488	.5
33	MP2C	Mx	.018	.5
34	MP2C	X	18.18	6.5
35	MP2C	Z	31.488	6.5
36	MP2C	Mx	.018	6.5
37	MP3A	X	25.026	2.75
38	MP3A	Z	43.346	2.75
39	MP3A	Mx	-.013	2.75
40	MP3A	X	25.026	4.25
41	MP3A	Z	43.346	4.25



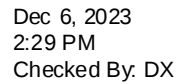
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft, %]
42	MP3A	Mx	-.013	4.25
43	MP3B	X	25.026	2.75
44	MP3B	Z	43.346	2.75
45	MP3B	Mx	-.013	2.75
46	MP3B	X	25.026	4.25
47	MP3B	Z	43.346	4.25
48	MP3B	Mx	-.013	4.25
49	MP3C	X	11.389	2.75
50	MP3C	Z	19.727	2.75
51	MP3C	Mx	.011	2.75
52	MP3C	X	11.389	4.25
53	MP3C	Z	19.727	4.25
54	MP3C	Mx	.011	4.25
55	M89A	X	46.503	1
56	M89A	Z	80.546	1
57	M89A	Mx	-.023	1
58	MP2A	X	22.198	2
59	MP2A	Z	38.448	2
60	MP2A	Mx	.011	2
61	MP2B	X	22.198	2
62	MP2B	Z	38.448	2
63	MP2B	Mx	.011	2
64	MP2C	X	16.229	2
65	MP2C	Z	28.11	2
66	MP2C	Mx	-.016	2
67	MP1A	X	26.86	2
68	MP1A	Z	46.523	2
69	MP1A	Mx	.013	2
70	MP1B	X	26.86	2
71	MP1B	Z	46.523	2
72	MP1B	Mx	.013	2
73	MP1C	X	19.896	2
74	MP1C	Z	34.462	2
75	MP1C	Mx	-.02	2
76	MP1A	X	72.904	1.25
77	MP1A	Z	126.274	1.25
78	MP1A	Mx	-.036	1.25
79	MP1A	X	72.904	3.25
80	MP1A	Z	126.274	3.25
81	MP1A	Mx	-.036	3.25
82	MP1B	X	72.904	1.25
83	MP1B	Z	126.274	1.25
84	MP1B	Mx	-.036	1.25
85	MP1B	X	72.904	3.25
86	MP1B	Z	126.274	3.25
87	MP1B	Mx	-.036	3.25
88	MP1C	X	66.905	1.25
89	MP1C	Z	115.882	1.25
90	MP1C	Mx	.067	1.25
91	MP1C	X	66.905	3.25
92	MP1C	Z	115.882	3.25
93	MP1C	Mx	.067	3.25

Member Point Loads (BLC 8 : Antenna Wo (150 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
94	MP4A	X	72.904	1.25
95	MP4A	Z	126.274	1.25
96	MP4A	Mx	-.036	1.25
97	MP4A	X	72.904	3.25
98	MP4A	Z	126.274	3.25
99	MP4A	Mx	-.036	3.25
100	MP4B	X	72.904	1.25
101	MP4B	Z	126.274	1.25
102	MP4B	Mx	-.036	1.25
103	MP4B	X	72.904	3.25
104	MP4B	Z	126.274	3.25
105	MP4B	Mx	-.036	3.25
106	MP4C	X	66.905	1.25
107	MP4C	Z	115.882	1.25
108	MP4C	Mx	.067	1.25
109	MP4C	X	66.905	3.25
110	MP4C	Z	115.882	3.25
111	MP4C	Mx	.067	3.25

Member Point Loads (BLC 9 : Antenna Wo (180 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	0	.5
2	MP2A	Z	84.735	.5
3	MP2A	Mx	.056	.5
4	MP2A	X	0	6.5
5	MP2A	Z	84.735	6.5
6	MP2A	Mx	.056	6.5
7	MP2B	X	0	.5
8	MP2B	Z	48.454	.5
9	MP2B	Mx	-.037	.5
10	MP2B	X	0	6.5
11	MP2B	Z	48.454	6.5
12	MP2B	Mx	-.037	6.5
13	MP2C	X	0	.5
14	MP2C	Z	48.454	.5
15	MP2C	Mx	.005	.5
16	MP2C	X	0	6.5
17	MP2C	Z	48.454	6.5
18	MP2C	Mx	.005	6.5
19	MP2A	X	0	.5
20	MP2A	Z	84.735	.5
21	MP2A	Mx	-.056	.5
22	MP2A	X	0	6.5
23	MP2A	Z	84.735	6.5
24	MP2A	Mx	-.056	6.5
25	MP2B	X	0	.5
26	MP2B	Z	48.454	.5
27	MP2B	Mx	-.005	.5
28	MP2B	X	0	6.5
29	MP2B	Z	48.454	6.5
30	MP2B	Mx	-.005	6.5



	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft, %]
31	MP2C	X	0	.5
32	MP2C	Z	48.454	.5
33	MP2C	Mx	.037	.5
34	MP2C	X	0	6.5
35	MP2C	Z	48.454	6.5
36	MP2C	Mx	.037	6.5
37	MP3A	X	0	2.75
38	MP3A	Z	59.143	2.75
39	MP3A	Mx	0	2.75
40	MP3A	X	0	4.25
41	MP3A	Z	59.143	4.25
42	MP3A	Mx	0	4.25
43	MP3B	X	0	2.75
44	MP3B	Z	31.87	2.75
45	MP3B	Mx	-.014	2.75
46	MP3B	X	0	4.25
47	MP3B	Z	31.87	4.25
48	MP3B	Mx	-.014	4.25
49	MP3C	X	0	2.75
50	MP3C	Z	31.87	2.75
51	MP3C	Mx	.014	2.75
52	MP3C	X	0	4.25
53	MP3C	Z	31.87	4.25
54	MP3C	Mx	.014	4.25
55	M89A	X	0	1
56	M89A	Z	98.936	1
57	M89A	Mx	0	1
58	MP2A	X	0	2
59	MP2A	Z	48.376	2
60	MP2A	Mx	0	2
61	MP2B	X	0	2
62	MP2B	Z	36.438	2
63	MP2B	Mx	.016	2
64	MP2C	X	0	2
65	MP2C	Z	36.438	2
66	MP2C	Mx	-.016	2
67	MP1A	X	0	2
68	MP1A	Z	58.363	2
69	MP1A	Mx	0	2
70	MP1B	X	0	2
71	MP1B	Z	44.435	2
72	MP1B	Mx	.019	2
73	MP1C	X	0	2
74	MP1C	Z	44.435	2
75	MP1C	Mx	-.019	2
76	MP1A	X	0	1.25
77	MP1A	Z	149.808	1.25
78	MP1A	Mx	0	1.25
79	MP1A	X	0	3.25
80	MP1A	Z	149.808	3.25
81	MP1A	Mx	0	3.25
82	MP1B	X	0	1.25

Member Point Loads (BLC 9 : Antenna Wo (180 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
83	MP1B	Z	137.809	1.25
84	MP1B	Mx	-.06	1.25
85	MP1B	X	0	3.25
86	MP1B	Z	137.809	3.25
87	MP1B	Mx	-.06	3.25
88	MP1C	X	0	1.25
89	MP1C	Z	137.809	1.25
90	MP1C	Mx	.06	1.25
91	MP1C	X	0	3.25
92	MP1C	Z	137.809	3.25
93	MP1C	Mx	.06	3.25
94	MP4A	X	0	1.25
95	MP4A	Z	149.808	1.25
96	MP4A	Mx	0	1.25
97	MP4A	X	0	3.25
98	MP4A	Z	149.808	3.25
99	MP4A	Mx	0	3.25
100	MP4B	X	0	1.25
101	MP4B	Z	137.809	1.25
102	MP4B	Mx	-.06	1.25
103	MP4B	X	0	3.25
104	MP4B	Z	137.809	3.25
105	MP4B	Mx	-.06	3.25
106	MP4C	X	0	1.25
107	MP4C	Z	137.809	1.25
108	MP4C	Mx	.06	1.25
109	MP4C	X	0	3.25
110	MP4C	Z	137.809	3.25
111	MP4C	Mx	.06	3.25

Member Point Loads (BLC 10 : Antenna Wo (210 Deg))

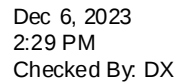
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	-36.321	.5
2	MP2A	Z	62.909	.5
3	MP2A	Mx	.06	.5
4	MP2A	X	-36.321	6.5
5	MP2A	Z	62.909	6.5
6	MP2A	Mx	.06	6.5
7	MP2B	X	-18.18	.5
8	MP2B	Z	31.488	.5
9	MP2B	Mx	-.018	.5
10	MP2B	X	-18.18	6.5
11	MP2B	Z	31.488	6.5
12	MP2B	Mx	-.018	6.5
13	MP2C	X	-36.321	.5
14	MP2C	Z	62.909	.5
15	MP2C	Mx	-.024	.5
16	MP2C	X	-36.321	6.5
17	MP2C	Z	62.909	6.5
18	MP2C	Mx	-.024	6.5
19	MP2A	X	-36.321	.5

Member Point Loads (BLC 10 : Antenna Wo (210 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
72	MP1B	Mx	.02	2
73	MP1C	X	-26.86	2
74	MP1C	Z	46.523	2
75	MP1C	Mx	-.013	2
76	MP1A	X	-72.904	1.25
77	MP1A	Z	126.274	1.25
78	MP1A	Mx	.036	1.25
79	MP1A	X	-72.904	3.25
80	MP1A	Z	126.274	3.25
81	MP1A	Mx	.036	3.25
82	MP1B	X	-66.905	1.25
83	MP1B	Z	115.882	1.25
84	MP1B	Mx	-.067	1.25
85	MP1B	X	-66.905	3.25
86	MP1B	Z	115.882	3.25
87	MP1B	Mx	-.067	3.25
88	MP1C	X	-72.904	1.25
89	MP1C	Z	126.274	1.25
90	MP1C	Mx	.036	1.25
91	MP1C	X	-72.904	3.25
92	MP1C	Z	126.274	3.25
93	MP1C	Mx	.036	3.25
94	MP4A	X	-72.904	1.25
95	MP4A	Z	126.274	1.25
96	MP4A	Mx	.036	1.25
97	MP4A	X	-72.904	3.25
98	MP4A	Z	126.274	3.25
99	MP4A	Mx	.036	3.25
100	MP4B	X	-66.905	1.25
101	MP4B	Z	115.882	1.25
102	MP4B	Mx	-.067	1.25
103	MP4B	X	-66.905	3.25
104	MP4B	Z	115.882	3.25
105	MP4B	Mx	-.067	3.25
106	MP4C	X	-72.904	1.25
107	MP4C	Z	126.274	1.25
108	MP4C	Mx	.036	1.25
109	MP4C	X	-72.904	3.25
110	MP4C	Z	126.274	3.25
111	MP4C	Mx	.036	3.25

Member Point Loads (BLC 11 : Antenna Wo (240 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	-41.962	.5
2	MP2A	Z	24.227	.5
3	MP2A	Mx	.037	.5
4	MP2A	X	-41.962	6.5
5	MP2A	Z	24.227	6.5
6	MP2A	Mx	.037	6.5
7	MP2B	X	-41.962	.5
8	MP2B	Z	24.227	.5



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Member Point Loads (BLC 12 : Antenna Wo (270 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
105	MP4B	Mx	-.036	3.25
106	MP4C	X	-145.809	1.25
107	MP4C	Z	0	1.25
108	MP4C	Mx	-.036	1.25
109	MP4C	X	-145.809	3.25
110	MP4C	Z	0	3.25
111	MP4C	Mx	-.036	3.25

Member Point Loads (BLC 13 : Antenna Wo (300 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	-41.962	.5
2	MP2A	Z	-24.227	.5
3	MP2A	Mx	.005	.5
4	MP2A	X	-41.962	6.5
5	MP2A	Z	-24.227	6.5
6	MP2A	Mx	.005	6.5
7	MP2B	X	-73.383	.5
8	MP2B	Z	-42.368	.5
9	MP2B	Mx	.056	.5
10	MP2B	X	-73.383	6.5
11	MP2B	Z	-42.368	6.5
12	MP2B	Mx	.056	6.5
13	MP2C	X	-41.962	.5
14	MP2C	Z	-24.227	.5
15	MP2C	Mx	-.037	.5
16	MP2C	X	-41.962	6.5
17	MP2C	Z	-24.227	6.5
18	MP2C	Mx	-.037	6.5
19	MP2A	X	-41.962	.5
20	MP2A	Z	-24.227	.5
21	MP2A	Mx	.037	.5
22	MP2A	X	-41.962	6.5
23	MP2A	Z	-24.227	6.5
24	MP2A	Mx	.037	6.5
25	MP2B	X	-73.383	.5
26	MP2B	Z	-42.368	.5
27	MP2B	Mx	-.056	.5
28	MP2B	X	-73.383	6.5
29	MP2B	Z	-42.368	6.5
30	MP2B	Mx	-.056	6.5
31	MP2C	X	-41.962	.5
32	MP2C	Z	-24.227	.5
33	MP2C	Mx	-.005	.5
34	MP2C	X	-41.962	6.5
35	MP2C	Z	-24.227	6.5
36	MP2C	Mx	-.005	6.5
37	MP3A	X	-27.6	2.75
38	MP3A	Z	-15.935	2.75
39	MP3A	Mx	.014	2.75
40	MP3A	X	-27.6	4.25
41	MP3A	Z	-15.935	4.25

Member Point Loads (BLC 13 : Antenna Wo (300 Deg)) (Continued)

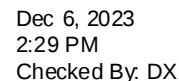
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
42	MP3A	Mx	.014	4.25
43	MP3B	X	-51.219	2.75
44	MP3B	Z	-29.572	2.75
45	MP3B	Mx	0	2.75
46	MP3B	X	-51.219	4.25
47	MP3B	Z	-29.572	4.25
48	MP3B	Mx	0	4.25
49	MP3C	X	-27.6	2.75
50	MP3C	Z	-15.935	2.75
51	MP3C	Mx	-.014	2.75
52	MP3C	X	-27.6	4.25
53	MP3C	Z	-15.935	4.25
54	MP3C	Mx	-.014	4.25
55	M89A	X	-70.275	1
56	M89A	Z	-40.573	1
57	M89A	Mx	.035	1
58	MP2A	X	-31.556	2
59	MP2A	Z	-18.219	2
60	MP2A	Mx	-.016	2
61	MP2B	X	-41.895	2
62	MP2B	Z	-24.188	2
63	MP2B	Mx	0	2
64	MP2C	X	-31.556	2
65	MP2C	Z	-18.219	2
66	MP2C	Mx	.016	2
67	MP1A	X	-38.482	2
68	MP1A	Z	-22.218	2
69	MP1A	Mx	-.019	2
70	MP1B	X	-50.544	2
71	MP1B	Z	-29.181	2
72	MP1B	Mx	0	2
73	MP1C	X	-38.482	2
74	MP1C	Z	-22.218	2
75	MP1C	Mx	.019	2
76	MP1A	X	-119.346	1.25
77	MP1A	Z	-68.905	1.25
78	MP1A	Mx	.06	1.25
79	MP1A	X	-119.346	3.25
80	MP1A	Z	-68.905	3.25
81	MP1A	Mx	.06	3.25
82	MP1B	X	-129.738	1.25
83	MP1B	Z	-74.904	1.25
84	MP1B	Mx	0	1.25
85	MP1B	X	-129.738	3.25
86	MP1B	Z	-74.904	3.25
87	MP1B	Mx	0	3.25
88	MP1C	X	-119.346	1.25
89	MP1C	Z	-68.905	1.25
90	MP1C	Mx	-.06	1.25
91	MP1C	X	-119.346	3.25
92	MP1C	Z	-68.905	3.25
93	MP1C	Mx	-.06	3.25

Member Point Loads (BLC 13 : Antenna Wo (300 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
94	MP4A	X	-119.346	1.25
95	MP4A	Z	-68.905	1.25
96	MP4A	Mx	.06	1.25
97	MP4A	X	-119.346	3.25
98	MP4A	Z	-68.905	3.25
99	MP4A	Mx	.06	3.25
100	MP4B	X	-129.738	1.25
101	MP4B	Z	-74.904	1.25
102	MP4B	Mx	0	1.25
103	MP4B	X	-129.738	3.25
104	MP4B	Z	-74.904	3.25
105	MP4B	Mx	0	3.25
106	MP4C	X	-119.346	1.25
107	MP4C	Z	-68.905	1.25
108	MP4C	Mx	-.06	1.25
109	MP4C	X	-119.346	3.25
110	MP4C	Z	-68.905	3.25
111	MP4C	Mx	-.06	3.25

Member Point Loads (BLC 14 : Antenna Wo (330 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	-36.321	.5
2	MP2A	Z	-62.909	.5
3	MP2A	Mx	-.024	.5
4	MP2A	X	-36.321	6.5
5	MP2A	Z	-62.909	6.5
6	MP2A	Mx	-.024	6.5
7	MP2B	X	-36.321	.5
8	MP2B	Z	-62.909	.5
9	MP2B	Mx	.06	.5
10	MP2B	X	-36.321	6.5
11	MP2B	Z	-62.909	6.5
12	MP2B	Mx	.06	6.5
13	MP2C	X	-18.18	.5
14	MP2C	Z	-31.488	.5
15	MP2C	Mx	-.018	.5
16	MP2C	X	-18.18	6.5
17	MP2C	Z	-31.488	6.5
18	MP2C	Mx	-.018	6.5
19	MP2A	X	-36.321	.5
20	MP2A	Z	-62.909	.5
21	MP2A	Mx	.06	.5
22	MP2A	X	-36.321	6.5
23	MP2A	Z	-62.909	6.5
24	MP2A	Mx	.06	6.5
25	MP2B	X	-36.321	.5
26	MP2B	Z	-62.909	.5
27	MP2B	Mx	-.024	.5
28	MP2B	X	-36.321	6.5
29	MP2B	Z	-62.909	6.5
30	MP2B	Mx	-.024	6.5



Member Point Loads (BLC 15 : Antenna Wi (0 Deg)) (Continued)

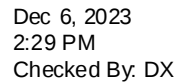
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
72	MP1B	Mx	-.004	2
73	MP1C	X	0	2
74	MP1C	Z	-10.376	2
75	MP1C	Mx	.004	2
76	MP1A	X	0	1.25
77	MP1A	Z	-29.554	1.25
78	MP1A	Mx	0	1.25
79	MP1A	X	0	3.25
80	MP1A	Z	-29.554	3.25
81	MP1A	Mx	0	3.25
82	MP1B	X	0	1.25
83	MP1B	Z	-27.391	1.25
84	MP1B	Mx	.012	1.25
85	MP1B	X	0	3.25
86	MP1B	Z	-27.391	3.25
87	MP1B	Mx	.012	3.25
88	MP1C	X	0	1.25
89	MP1C	Z	-27.391	1.25
90	MP1C	Mx	-.012	1.25
91	MP1C	X	0	3.25
92	MP1C	Z	-27.391	3.25
93	MP1C	Mx	-.012	3.25
94	MP4A	X	0	1.25
95	MP4A	Z	-29.554	1.25
96	MP4A	Mx	0	1.25
97	MP4A	X	0	3.25
98	MP4A	Z	-29.554	3.25
99	MP4A	Mx	0	3.25
100	MP4B	X	0	1.25
101	MP4B	Z	-27.391	1.25
102	MP4B	Mx	.012	1.25
103	MP4B	X	0	3.25
104	MP4B	Z	-27.391	3.25
105	MP4B	Mx	.012	3.25
106	MP4C	X	0	1.25
107	MP4C	Z	-27.391	1.25
108	MP4C	Mx	-.012	1.25
109	MP4C	X	0	3.25
110	MP4C	Z	-27.391	3.25
111	MP4C	Mx	-.012	3.25

Member Point Loads (BLC 16 : Antenna Wi (30 Deg))

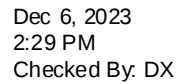
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	11.697	.5
2	MP2A	Z	-20.26	.5
3	MP2A	Mx	-.019	.5
4	MP2A	X	11.697	6.5
5	MP2A	Z	-20.26	6.5
6	MP2A	Mx	-.019	6.5
7	MP2B	X	8.875	.5
8	MP2B	Z	-15.371	.5

Member Point Loads (BLC 16 : Antenna Wi (30 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
9	MP2B	Mx	.009	.5
10	MP2B	X	8.875	6.5
11	MP2B	Z	-15.371	6.5
12	MP2B	Mx	.009	6.5
13	MP2C	X	11.697	.5
14	MP2C	Z	-20.26	.5
15	MP2C	Mx	.008	.5
16	MP2C	X	11.697	6.5
17	MP2C	Z	-20.26	6.5
18	MP2C	Mx	.008	6.5
19	MP2A	X	11.697	.5
20	MP2A	Z	-20.26	.5
21	MP2A	Mx	.008	.5
22	MP2A	X	11.697	6.5
23	MP2A	Z	-20.26	6.5
24	MP2A	Mx	.008	6.5
25	MP2B	X	8.875	.5
26	MP2B	Z	-15.371	.5
27	MP2B	Mx	.009	.5
28	MP2B	X	8.875	6.5
29	MP2B	Z	-15.371	6.5
30	MP2B	Mx	.009	6.5
31	MP2C	X	11.697	.5
32	MP2C	Z	-20.26	.5
33	MP2C	Mx	-.019	.5
34	MP2C	X	11.697	6.5
35	MP2C	Z	-20.26	6.5
36	MP2C	Mx	-.019	6.5
37	MP3A	X	5.355	2.75
38	MP3A	Z	-9.275	2.75
39	MP3A	Mx	-.003	2.75
40	MP3A	X	5.355	4.25
41	MP3A	Z	-9.275	4.25
42	MP3A	Mx	-.003	4.25
43	MP3B	X	2.742	2.75
44	MP3B	Z	-4.749	2.75
45	MP3B	Mx	.003	2.75
46	MP3B	X	2.742	4.25
47	MP3B	Z	-4.749	4.25
48	MP3B	Mx	.003	4.25
49	MP3C	X	5.355	2.75
50	MP3C	Z	-9.275	2.75
51	MP3C	Mx	-.003	2.75
52	MP3C	X	5.355	4.25
53	MP3C	Z	-9.275	4.25
54	MP3C	Mx	-.003	4.25
55	M89A	X	12.497	1
56	M89A	Z	-21.646	1
57	M89A	Mx	-.006	1
58	MP2A	X	6.088	2
59	MP2A	Z	-10.546	2
60	MP2A	Mx	.003	2



	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft, %]
61	MP2B	X	4.651	2
62	MP2B	Z	-8.056	2
63	MP2B	Mx	-.005	2
64	MP2C	X	6.088	2
65	MP2C	Z	-10.546	2
66	MP2C	Mx	.003	2
67	MP1A	X	6.108	2
68	MP1A	Z	-10.579	2
69	MP1A	Mx	.003	2
70	MP1B	X	4.728	2
71	MP1B	Z	-8.189	2
72	MP1B	Mx	-.005	2
73	MP1C	X	6.108	2
74	MP1C	Z	-10.579	2
75	MP1C	Mx	.003	2
76	MP1A	X	14.416	1.25
77	MP1A	Z	-24.97	1.25
78	MP1A	Mx	-.007	1.25
79	MP1A	X	14.416	3.25
80	MP1A	Z	-24.97	3.25
81	MP1A	Mx	-.007	3.25
82	MP1B	X	13.335	1.25
83	MP1B	Z	-23.097	1.25
84	MP1B	Mx	.013	1.25
85	MP1B	X	13.335	3.25
86	MP1B	Z	-23.097	3.25
87	MP1B	Mx	.013	3.25
88	MP1C	X	14.416	1.25
89	MP1C	Z	-24.97	1.25
90	MP1C	Mx	-.007	1.25
91	MP1C	X	14.416	3.25
92	MP1C	Z	-24.97	3.25
93	MP1C	Mx	-.007	3.25
94	MP4A	X	14.416	1.25
95	MP4A	Z	-24.97	1.25
96	MP4A	Mx	-.007	1.25
97	MP4A	X	14.416	3.25
98	MP4A	Z	-24.97	3.25
99	MP4A	Mx	-.007	3.25
100	MP4B	X	13.335	1.25
101	MP4B	Z	-23.097	1.25
102	MP4B	Mx	.013	1.25
103	MP4B	X	13.335	3.25
104	MP4B	Z	-23.097	3.25
105	MP4B	Mx	.013	3.25
106	MP4C	X	14.416	1.25
107	MP4C	Z	-24.97	1.25
108	MP4C	Mx	-.007	1.25
109	MP4C	X	14.416	3.25
110	MP4C	Z	-24.97	3.25
111	MP4C	Mx	-.007	3.25



	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	17.001	.5
2	MP2A	Z	-9.815	.5
3	MP2A	Mx	-.015	.5
4	MP2A	X	17.001	6.5
5	MP2A	Z	-9.815	6.5
6	MP2A	Mx	-.015	6.5
7	MP2B	X	17.001	.5
8	MP2B	Z	-9.815	.5
9	MP2B	Mx	.002	.5
10	MP2B	X	17.001	6.5
11	MP2B	Z	-9.815	6.5
12	MP2B	Mx	.002	6.5
13	MP2C	X	21.89	.5
14	MP2C	Z	-12.638	.5
15	MP2C	Mx	.017	.5
16	MP2C	X	21.89	6.5
17	MP2C	Z	-12.638	6.5
18	MP2C	Mx	.017	6.5
19	MP2A	X	17.001	.5
20	MP2A	Z	-9.815	.5
21	MP2A	Mx	-.002	.5
22	MP2A	X	17.001	6.5
23	MP2A	Z	-9.815	6.5
24	MP2A	Mx	-.002	6.5
25	MP2B	X	17.001	.5
26	MP2B	Z	-9.815	.5
27	MP2B	Mx	.015	.5
28	MP2B	X	17.001	6.5
29	MP2B	Z	-9.815	6.5
30	MP2B	Mx	.015	6.5
31	MP2C	X	21.89	.5
32	MP2C	Z	-12.638	.5
33	MP2C	Mx	-.017	.5
34	MP2C	X	21.89	6.5
35	MP2C	Z	-12.638	6.5
36	MP2C	Mx	-.017	6.5
37	MP3A	X	6.258	2.75
38	MP3A	Z	-3.613	2.75
39	MP3A	Mx	-.003	2.75
40	MP3A	X	6.258	4.25
41	MP3A	Z	-3.613	4.25
42	MP3A	Mx	-.003	4.25
43	MP3B	X	6.258	2.75
44	MP3B	Z	-3.613	2.75
45	MP3B	Mx	.003	2.75
46	MP3B	X	6.258	4.25
47	MP3B	Z	-3.613	4.25
48	MP3B	Mx	.003	4.25
49	MP3C	X	10.784	2.75
50	MP3C	Z	-6.226	2.75
51	MP3C	Mx	0	2.75
52	MP3C	X	10.784	4.25

Member Point Loads (BLC 17 : Antenna Wi (60 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
105	MP4B	Mx	.012	3.25
106	MP4C	X	25.594	1.25
107	MP4C	Z	-14.777	1.25
108	MP4C	Mx	0	1.25
109	MP4C	X	25.594	3.25
110	MP4C	Z	-14.777	3.25
111	MP4C	Mx	0	3.25

Member Point Loads (BLC 18 : Antenna Wi (90 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	17.749	.5
2	MP2A	Z	0	.5
3	MP2A	Mx	-.009	.5
4	MP2A	X	17.749	6.5
5	MP2A	Z	0	6.5
6	MP2A	Mx	-.009	6.5
7	MP2B	X	23.395	.5
8	MP2B	Z	0	.5
9	MP2B	Mx	-.008	.5
10	MP2B	X	23.395	6.5
11	MP2B	Z	0	6.5
12	MP2B	Mx	-.008	6.5
13	MP2C	X	23.395	.5
14	MP2C	Z	0	.5
15	MP2C	Mx	.019	.5
16	MP2C	X	23.395	6.5
17	MP2C	Z	0	6.5
18	MP2C	Mx	.019	6.5
19	MP2A	X	17.749	.5
20	MP2A	Z	0	.5
21	MP2A	Mx	-.009	.5
22	MP2A	X	17.749	6.5
23	MP2A	Z	0	6.5
24	MP2A	Mx	-.009	6.5
25	MP2B	X	23.395	.5
26	MP2B	Z	0	.5
27	MP2B	Mx	.019	.5
28	MP2B	X	23.395	6.5
29	MP2B	Z	0	6.5
30	MP2B	Mx	.019	6.5
31	MP2C	X	23.395	.5
32	MP2C	Z	0	.5
33	MP2C	Mx	-.008	.5
34	MP2C	X	23.395	6.5
35	MP2C	Z	0	6.5
36	MP2C	Mx	-.008	6.5
37	MP3A	X	5.484	2.75
38	MP3A	Z	0	2.75
39	MP3A	Mx	-.003	2.75
40	MP3A	X	5.484	4.25
41	MP3A	Z	0	4.25

Member Point Loads (BLC 18 : Antenna Wi (90 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
42	MP3A	Mx	-.003	4.25
43	MP3B	X	10.71	2.75
44	MP3B	Z	0	2.75
45	MP3B	Mx	.003	2.75
46	MP3B	X	10.71	4.25
47	MP3B	Z	0	4.25
48	MP3B	Mx	.003	4.25
49	MP3C	X	10.71	2.75
50	MP3C	Z	0	2.75
51	MP3C	Mx	.003	2.75
52	MP3C	X	10.71	4.25
53	MP3C	Z	0	4.25
54	MP3C	Mx	.003	4.25
55	M89A	X	20.837	1
56	M89A	Z	0	1
57	M89A	Mx	-.01	1
58	MP2A	X	9.303	2
59	MP2A	Z	0	2
60	MP2A	Mx	.005	2
61	MP2B	X	12.177	2
62	MP2B	Z	0	2
63	MP2B	Mx	-.003	2
64	MP2C	X	12.177	2
65	MP2C	Z	0	2
66	MP2C	Mx	-.003	2
67	MP1A	X	9.456	2
68	MP1A	Z	0	2
69	MP1A	Mx	.005	2
70	MP1B	X	12.215	2
71	MP1B	Z	0	2
72	MP1B	Mx	-.003	2
73	MP1C	X	12.215	2
74	MP1C	Z	0	2
75	MP1C	Mx	-.003	2
76	MP1A	X	26.67	1.25
77	MP1A	Z	0	1.25
78	MP1A	Mx	-.013	1.25
79	MP1A	X	26.67	3.25
80	MP1A	Z	0	3.25
81	MP1A	Mx	-.013	3.25
82	MP1B	X	28.833	1.25
83	MP1B	Z	0	1.25
84	MP1B	Mx	.007	1.25
85	MP1B	X	28.833	3.25
86	MP1B	Z	0	3.25
87	MP1B	Mx	.007	3.25
88	MP1C	X	28.833	1.25
89	MP1C	Z	0	1.25
90	MP1C	Mx	.007	1.25
91	MP1C	X	28.833	3.25
92	MP1C	Z	0	3.25
93	MP1C	Mx	.007	3.25

Member Point Loads (BLC 18 : Antenna Wi (90 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
94	MP4A	X	26.67	1.25
95	MP4A	Z	0	1.25
96	MP4A	Mx	-.013	1.25
97	MP4A	X	26.67	3.25
98	MP4A	Z	0	3.25
99	MP4A	Mx	-.013	3.25
100	MP4B	X	28.833	1.25
101	MP4B	Z	0	1.25
102	MP4B	Mx	.007	1.25
103	MP4B	X	28.833	3.25
104	MP4B	Z	0	3.25
105	MP4B	Mx	.007	3.25
106	MP4C	X	28.833	1.25
107	MP4C	Z	0	1.25
108	MP4C	Mx	.007	1.25
109	MP4C	X	28.833	3.25
110	MP4C	Z	0	3.25
111	MP4C	Mx	.007	3.25

Member Point Loads (BLC 19 : Antenna Wi (120 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	17.001	.5
2	MP2A	Z	9.815	.5
3	MP2A	Mx	-.002	.5
4	MP2A	X	17.001	6.5
5	MP2A	Z	9.815	6.5
6	MP2A	Mx	-.002	6.5
7	MP2B	X	21.89	.5
8	MP2B	Z	12.638	.5
9	MP2B	Mx	-.017	.5
10	MP2B	X	21.89	6.5
11	MP2B	Z	12.638	6.5
12	MP2B	Mx	-.017	6.5
13	MP2C	X	17.001	.5
14	MP2C	Z	9.815	.5
15	MP2C	Mx	.015	.5
16	MP2C	X	17.001	6.5
17	MP2C	Z	9.815	6.5
18	MP2C	Mx	.015	6.5
19	MP2A	X	17.001	.5
20	MP2A	Z	9.815	.5
21	MP2A	Mx	-.015	.5
22	MP2A	X	17.001	6.5
23	MP2A	Z	9.815	6.5
24	MP2A	Mx	-.015	6.5
25	MP2B	X	21.89	.5
26	MP2B	Z	12.638	.5
27	MP2B	Mx	.017	.5
28	MP2B	X	21.89	6.5
29	MP2B	Z	12.638	6.5
30	MP2B	Mx	.017	6.5

Member Point Loads (BLC 19 : Antenna Wi (120 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
83	MP1B	Z	14.777	1.25
84	MP1B	Mx	0	1.25
85	MP1B	X	25.594	3.25
86	MP1B	Z	14.777	3.25
87	MP1B	Mx	0	3.25
88	MP1C	X	23.721	1.25
89	MP1C	Z	13.695	1.25
90	MP1C	Mx	.012	1.25
91	MP1C	X	23.721	3.25
92	MP1C	Z	13.695	3.25
93	MP1C	Mx	.012	3.25
94	MP4A	X	23.721	1.25
95	MP4A	Z	13.695	1.25
96	MP4A	Mx	-.012	1.25
97	MP4A	X	23.721	3.25
98	MP4A	Z	13.695	3.25
99	MP4A	Mx	-.012	3.25
100	MP4B	X	25.594	1.25
101	MP4B	Z	14.777	1.25
102	MP4B	Mx	0	1.25
103	MP4B	X	25.594	3.25
104	MP4B	Z	14.777	3.25
105	MP4B	Mx	0	3.25
106	MP4C	X	23.721	1.25
107	MP4C	Z	13.695	1.25
108	MP4C	Mx	.012	1.25
109	MP4C	X	23.721	3.25
110	MP4C	Z	13.695	3.25
111	MP4C	Mx	.012	3.25

Member Point Loads (BLC 20 : Antenna Wi (150 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	11.697	.5
2	MP2A	Z	20.26	.5
3	MP2A	Mx	.008	.5
4	MP2A	X	11.697	6.5
5	MP2A	Z	20.26	6.5
6	MP2A	Mx	.008	6.5
7	MP2B	X	11.697	.5
8	MP2B	Z	20.26	.5
9	MP2B	Mx	-.019	.5
10	MP2B	X	11.697	6.5
11	MP2B	Z	20.26	6.5
12	MP2B	Mx	-.019	6.5
13	MP2C	X	8.875	.5
14	MP2C	Z	15.371	.5
15	MP2C	Mx	.009	.5
16	MP2C	X	8.875	6.5
17	MP2C	Z	15.371	6.5
18	MP2C	Mx	.009	6.5
19	MP2A	X	11.697	.5

Member Point Loads (BLC 20 : Antenna Wi (150 Deg)) (Continued)

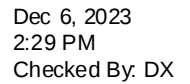
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
72	MP1B	Mx	.003	2
73	MP1C	X	4.728	2
74	MP1C	Z	8.189	2
75	MP1C	Mx	-.005	2
76	MP1A	X	14.416	1.25
77	MP1A	Z	24.97	1.25
78	MP1A	Mx	-.007	1.25
79	MP1A	X	14.416	3.25
80	MP1A	Z	24.97	3.25
81	MP1A	Mx	-.007	3.25
82	MP1B	X	14.416	1.25
83	MP1B	Z	24.97	1.25
84	MP1B	Mx	-.007	1.25
85	MP1B	X	14.416	3.25
86	MP1B	Z	24.97	3.25
87	MP1B	Mx	-.007	3.25
88	MP1C	X	13.335	1.25
89	MP1C	Z	23.097	1.25
90	MP1C	Mx	.013	1.25
91	MP1C	X	13.335	3.25
92	MP1C	Z	23.097	3.25
93	MP1C	Mx	.013	3.25
94	MP4A	X	14.416	1.25
95	MP4A	Z	24.97	1.25
96	MP4A	Mx	-.007	1.25
97	MP4A	X	14.416	3.25
98	MP4A	Z	24.97	3.25
99	MP4A	Mx	-.007	3.25
100	MP4B	X	14.416	1.25
101	MP4B	Z	24.97	1.25
102	MP4B	Mx	-.007	1.25
103	MP4B	X	14.416	3.25
104	MP4B	Z	24.97	3.25
105	MP4B	Mx	-.007	3.25
106	MP4C	X	13.335	1.25
107	MP4C	Z	23.097	1.25
108	MP4C	Mx	.013	1.25
109	MP4C	X	13.335	3.25
110	MP4C	Z	23.097	3.25
111	MP4C	Mx	.013	3.25

Member Point Loads (BLC 21 : Antenna Wi (180 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	0	.5
2	MP2A	Z	25.276	.5
3	MP2A	Mx	.017	.5
4	MP2A	X	0	6.5
5	MP2A	Z	25.276	6.5
6	MP2A	Mx	.017	6.5
7	MP2B	X	0	.5
8	MP2B	Z	19.631	.5

Member Point Loads (BLC 21 : Antenna Wi (180 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
61	MP2B	X	0	2
62	MP2B	Z	10.261	2
63	MP2B	Mx	.004	2
64	MP2C	X	0	2
65	MP2C	Z	10.261	2
66	MP2C	Mx	-.004	2
67	MP1A	X	0	2
68	MP1A	Z	13.135	2
69	MP1A	Mx	0	2
70	MP1B	X	0	2
71	MP1B	Z	10.376	2
72	MP1B	Mx	.004	2
73	MP1C	X	0	2
74	MP1C	Z	10.376	2
75	MP1C	Mx	-.004	2
76	MP1A	X	0	1.25
77	MP1A	Z	29.554	1.25
78	MP1A	Mx	0	1.25
79	MP1A	X	0	3.25
80	MP1A	Z	29.554	3.25
81	MP1A	Mx	0	3.25
82	MP1B	X	0	1.25
83	MP1B	Z	27.391	1.25
84	MP1B	Mx	-.012	1.25
85	MP1B	X	0	3.25
86	MP1B	Z	27.391	3.25
87	MP1B	Mx	-.012	3.25
88	MP1C	X	0	1.25
89	MP1C	Z	27.391	1.25
90	MP1C	Mx	.012	1.25
91	MP1C	X	0	3.25
92	MP1C	Z	27.391	3.25
93	MP1C	Mx	.012	3.25
94	MP4A	X	0	1.25
95	MP4A	Z	29.554	1.25
96	MP4A	Mx	0	1.25
97	MP4A	X	0	3.25
98	MP4A	Z	29.554	3.25
99	MP4A	Mx	0	3.25
100	MP4B	X	0	1.25
101	MP4B	Z	27.391	1.25
102	MP4B	Mx	-.012	1.25
103	MP4B	X	0	3.25
104	MP4B	Z	27.391	3.25
105	MP4B	Mx	-.012	3.25
106	MP4C	X	0	1.25
107	MP4C	Z	27.391	1.25
108	MP4C	Mx	.012	1.25
109	MP4C	X	0	3.25
110	MP4C	Z	27.391	3.25
111	MP4C	Mx	.012	3.25



	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	-11.697	.5
2	MP2A	Z	20.26	.5
3	MP2A	Mx	.019	.5
4	MP2A	X	-11.697	6.5
5	MP2A	Z	20.26	6.5
6	MP2A	Mx	.019	6.5
7	MP2B	X	-8.875	.5
8	MP2B	Z	15.371	.5
9	MP2B	Mx	-.009	.5
10	MP2B	X	-8.875	6.5
11	MP2B	Z	15.371	6.5
12	MP2B	Mx	-.009	6.5
13	MP2C	X	-11.697	.5
14	MP2C	Z	20.26	.5
15	MP2C	Mx	-.008	.5
16	MP2C	X	-11.697	6.5
17	MP2C	Z	20.26	6.5
18	MP2C	Mx	-.008	6.5
19	MP2A	X	-11.697	.5
20	MP2A	Z	20.26	.5
21	MP2A	Mx	-.008	.5
22	MP2A	X	-11.697	6.5
23	MP2A	Z	20.26	6.5
24	MP2A	Mx	-.008	6.5
25	MP2B	X	-8.875	.5
26	MP2B	Z	15.371	.5
27	MP2B	Mx	-.009	.5
28	MP2B	X	-8.875	6.5
29	MP2B	Z	15.371	6.5
30	MP2B	Mx	-.009	6.5
31	MP2C	X	-11.697	.5
32	MP2C	Z	20.26	.5
33	MP2C	Mx	.019	.5
34	MP2C	X	-11.697	6.5
35	MP2C	Z	20.26	6.5
36	MP2C	Mx	.019	6.5
37	MP3A	X	-5.355	2.75
38	MP3A	Z	9.275	2.75
39	MP3A	Mx	.003	2.75
40	MP3A	X	-5.355	4.25
41	MP3A	Z	9.275	4.25
42	MP3A	Mx	.003	4.25
43	MP3B	X	-2.742	2.75
44	MP3B	Z	4.749	2.75
45	MP3B	Mx	-.003	2.75
46	MP3B	X	-2.742	4.25
47	MP3B	Z	4.749	4.25
48	MP3B	Mx	-.003	4.25
49	MP3C	X	-5.355	2.75
50	MP3C	Z	9.275	2.75
51	MP3C	Mx	.003	2.75
52	MP3C	X	-5.355	4.25

Member Point Loads (BLC 22 : Antenna Wi (210 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
105	MP4B	Mx	-.013	3.25
106	MP4C	X	-14.416	1.25
107	MP4C	Z	24.97	1.25
108	MP4C	Mx	.007	1.25
109	MP4C	X	-14.416	3.25
110	MP4C	Z	24.97	3.25
111	MP4C	Mx	.007	3.25

Member Point Loads (BLC 23 : Antenna Wi (240 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	-17.001	.5
2	MP2A	Z	9.815	.5
3	MP2A	Mx	.015	.5
4	MP2A	X	-17.001	6.5
5	MP2A	Z	9.815	6.5
6	MP2A	Mx	.015	6.5
7	MP2B	X	-17.001	.5
8	MP2B	Z	9.815	.5
9	MP2B	Mx	-.002	.5
10	MP2B	X	-17.001	6.5
11	MP2B	Z	9.815	6.5
12	MP2B	Mx	-.002	6.5
13	MP2C	X	-21.89	.5
14	MP2C	Z	12.638	.5
15	MP2C	Mx	-.017	.5
16	MP2C	X	-21.89	6.5
17	MP2C	Z	12.638	6.5
18	MP2C	Mx	-.017	6.5
19	MP2A	X	-17.001	.5
20	MP2A	Z	9.815	.5
21	MP2A	Mx	.002	.5
22	MP2A	X	-17.001	6.5
23	MP2A	Z	9.815	6.5
24	MP2A	Mx	.002	6.5
25	MP2B	X	-17.001	.5
26	MP2B	Z	9.815	.5
27	MP2B	Mx	-.015	.5
28	MP2B	X	-17.001	6.5
29	MP2B	Z	9.815	6.5
30	MP2B	Mx	-.015	6.5
31	MP2C	X	-21.89	.5
32	MP2C	Z	12.638	.5
33	MP2C	Mx	.017	.5
34	MP2C	X	-21.89	6.5
35	MP2C	Z	12.638	6.5
36	MP2C	Mx	.017	6.5
37	MP3A	X	-6.258	2.75
38	MP3A	Z	3.613	2.75
39	MP3A	Mx	.003	2.75
40	MP3A	X	-6.258	4.25
41	MP3A	Z	3.613	4.25

Member Point Loads (BLC 23 : Antenna Wi (240 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
94	MP4A	X	-23.721	1.25
95	MP4A	Z	13.695	1.25
96	MP4A	Mx	.012	1.25
97	MP4A	X	-23.721	3.25
98	MP4A	Z	13.695	3.25
99	MP4A	Mx	.012	3.25
100	MP4B	X	-23.721	1.25
101	MP4B	Z	13.695	1.25
102	MP4B	Mx	-.012	1.25
103	MP4B	X	-23.721	3.25
104	MP4B	Z	13.695	3.25
105	MP4B	Mx	-.012	3.25
106	MP4C	X	-25.594	1.25
107	MP4C	Z	14.777	1.25
108	MP4C	Mx	0	1.25
109	MP4C	X	-25.594	3.25
110	MP4C	Z	14.777	3.25
111	MP4C	Mx	0	3.25

Member Point Loads (BLC 24 : Antenna Wi (270 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	-17.749	.5
2	MP2A	Z	0	.5
3	MP2A	Mx	.009	.5
4	MP2A	X	-17.749	6.5
5	MP2A	Z	0	6.5
6	MP2A	Mx	.009	6.5
7	MP2B	X	-23.395	.5
8	MP2B	Z	0	.5
9	MP2B	Mx	.008	.5
10	MP2B	X	-23.395	6.5
11	MP2B	Z	0	6.5
12	MP2B	Mx	.008	6.5
13	MP2C	X	-23.395	.5
14	MP2C	Z	0	.5
15	MP2C	Mx	-.019	.5
16	MP2C	X	-23.395	6.5
17	MP2C	Z	0	6.5
18	MP2C	Mx	-.019	6.5
19	MP2A	X	-17.749	.5
20	MP2A	Z	0	.5
21	MP2A	Mx	.009	.5
22	MP2A	X	-17.749	6.5
23	MP2A	Z	0	6.5
24	MP2A	Mx	.009	6.5
25	MP2B	X	-23.395	.5
26	MP2B	Z	0	.5
27	MP2B	Mx	-.019	.5
28	MP2B	X	-23.395	6.5
29	MP2B	Z	0	6.5
30	MP2B	Mx	-.019	6.5

Member Point Loads (BLC 24 : Antenna Wi (270 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
83	MP1B	Z	0	1.25
84	MP1B	Mx	-.007	1.25
85	MP1B	X	-28.833	3.25
86	MP1B	Z	0	3.25
87	MP1B	Mx	-.007	3.25
88	MP1C	X	-28.833	1.25
89	MP1C	Z	0	1.25
90	MP1C	Mx	-.007	1.25
91	MP1C	X	-28.833	3.25
92	MP1C	Z	0	3.25
93	MP1C	Mx	-.007	3.25
94	MP4A	X	-26.67	1.25
95	MP4A	Z	0	1.25
96	MP4A	Mx	.013	1.25
97	MP4A	X	-26.67	3.25
98	MP4A	Z	0	3.25
99	MP4A	Mx	.013	3.25
100	MP4B	X	-28.833	1.25
101	MP4B	Z	0	1.25
102	MP4B	Mx	-.007	1.25
103	MP4B	X	-28.833	3.25
104	MP4B	Z	0	3.25
105	MP4B	Mx	-.007	3.25
106	MP4C	X	-28.833	1.25
107	MP4C	Z	0	1.25
108	MP4C	Mx	-.007	1.25
109	MP4C	X	-28.833	3.25
110	MP4C	Z	0	3.25
111	MP4C	Mx	-.007	3.25

Member Point Loads (BLC 25 : Antenna Wi (300 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	-17.001	.5
2	MP2A	Z	-9.815	.5
3	MP2A	Mx	.002	.5
4	MP2A	X	-17.001	6.5
5	MP2A	Z	-9.815	6.5
6	MP2A	Mx	.002	6.5
7	MP2B	X	-21.89	.5
8	MP2B	Z	-12.638	.5
9	MP2B	Mx	.017	.5
10	MP2B	X	-21.89	6.5
11	MP2B	Z	-12.638	6.5
12	MP2B	Mx	.017	6.5
13	MP2C	X	-17.001	.5
14	MP2C	Z	-9.815	.5
15	MP2C	Mx	-.015	.5
16	MP2C	X	-17.001	6.5
17	MP2C	Z	-9.815	6.5
18	MP2C	Mx	-.015	6.5
19	MP2A	X	-17.001	.5

Member Point Loads (BLC 25 : Antenna Wi (300 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
72	MP1B	Mx	0	2
73	MP1C	X	-8.986	2
74	MP1C	Z	-5.188	2
75	MP1C	Mx	.004	2
76	MP1A	X	-23.721	1.25
77	MP1A	Z	-13.695	1.25
78	MP1A	Mx	.012	1.25
79	MP1A	X	-23.721	3.25
80	MP1A	Z	-13.695	3.25
81	MP1A	Mx	.012	3.25
82	MP1B	X	-25.594	1.25
83	MP1B	Z	-14.777	1.25
84	MP1B	Mx	0	1.25
85	MP1B	X	-25.594	3.25
86	MP1B	Z	-14.777	3.25
87	MP1B	Mx	0	3.25
88	MP1C	X	-23.721	1.25
89	MP1C	Z	-13.695	1.25
90	MP1C	Mx	-.012	1.25
91	MP1C	X	-23.721	3.25
92	MP1C	Z	-13.695	3.25
93	MP1C	Mx	-.012	3.25
94	MP4A	X	-23.721	1.25
95	MP4A	Z	-13.695	1.25
96	MP4A	Mx	.012	1.25
97	MP4A	X	-23.721	3.25
98	MP4A	Z	-13.695	3.25
99	MP4A	Mx	.012	3.25
100	MP4B	X	-25.594	1.25
101	MP4B	Z	-14.777	1.25
102	MP4B	Mx	0	1.25
103	MP4B	X	-25.594	3.25
104	MP4B	Z	-14.777	3.25
105	MP4B	Mx	0	3.25
106	MP4C	X	-23.721	1.25
107	MP4C	Z	-13.695	1.25
108	MP4C	Mx	-.012	1.25
109	MP4C	X	-23.721	3.25
110	MP4C	Z	-13.695	3.25
111	MP4C	Mx	-.012	3.25

Member Point Loads (BLC 26 : Antenna Wi (330 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	-11.697	.5
2	MP2A	Z	-20.26	.5
3	MP2A	Mx	-.008	.5
4	MP2A	X	-11.697	6.5
5	MP2A	Z	-20.26	6.5
6	MP2A	Mx	-.008	6.5
7	MP2B	X	-11.697	.5
8	MP2B	Z	-20.26	.5

Member Point Loads (BLC 26 : Antenna Wi (330 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
9	MP2B	Mx	.019	.5
10	MP2B	X	-11.697	6.5
11	MP2B	Z	-20.26	6.5
12	MP2B	Mx	.019	6.5
13	MP2C	X	-8.875	.5
14	MP2C	Z	-15.371	.5
15	MP2C	Mx	-.009	.5
16	MP2C	X	-8.875	6.5
17	MP2C	Z	-15.371	6.5
18	MP2C	Mx	-.009	6.5
19	MP2A	X	-11.697	.5
20	MP2A	Z	-20.26	.5
21	MP2A	Mx	.019	.5
22	MP2A	X	-11.697	6.5
23	MP2A	Z	-20.26	6.5
24	MP2A	Mx	.019	6.5
25	MP2B	X	-11.697	.5
26	MP2B	Z	-20.26	.5
27	MP2B	Mx	-.008	.5
28	MP2B	X	-11.697	6.5
29	MP2B	Z	-20.26	6.5
30	MP2B	Mx	-.008	6.5
31	MP2C	X	-8.875	.5
32	MP2C	Z	-15.371	.5
33	MP2C	Mx	-.009	.5
34	MP2C	X	-8.875	6.5
35	MP2C	Z	-15.371	6.5
36	MP2C	Mx	-.009	6.5
37	MP3A	X	-5.355	2.75
38	MP3A	Z	-9.275	2.75
39	MP3A	Mx	.003	2.75
40	MP3A	X	-5.355	4.25
41	MP3A	Z	-9.275	4.25
42	MP3A	Mx	.003	4.25
43	MP3B	X	-5.355	2.75
44	MP3B	Z	-9.275	2.75
45	MP3B	Mx	.003	2.75
46	MP3B	X	-5.355	4.25
47	MP3B	Z	-9.275	4.25
48	MP3B	Mx	.003	4.25
49	MP3C	X	-2.742	2.75
50	MP3C	Z	-4.749	2.75
51	MP3C	Mx	-.003	2.75
52	MP3C	X	-2.742	4.25
53	MP3C	Z	-4.749	4.25
54	MP3C	Mx	-.003	4.25
55	M89A	X	-12.497	1
56	M89A	Z	-21.646	1
57	M89A	Mx	.006	1
58	MP2A	X	-6.088	2
59	MP2A	Z	-10.546	2
60	MP2A	Mx	-.003	2

Member Point Loads (BLC 26 : Antenna Wi (330 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
61	MP2B	X	-6.088	2
62	MP2B	Z	-10.546	2
63	MP2B	Mx	-.003	2
64	MP2C	X	-4.651	2
65	MP2C	Z	-8.056	2
66	MP2C	Mx	.005	2
67	MP1A	X	-6.108	2
68	MP1A	Z	-10.579	2
69	MP1A	Mx	-.003	2
70	MP1B	X	-6.108	2
71	MP1B	Z	-10.579	2
72	MP1B	Mx	-.003	2
73	MP1C	X	-4.728	2
74	MP1C	Z	-8.189	2
75	MP1C	Mx	.005	2
76	MP1A	X	-14.416	1.25
77	MP1A	Z	-24.97	1.25
78	MP1A	Mx	.007	1.25
79	MP1A	X	-14.416	3.25
80	MP1A	Z	-24.97	3.25
81	MP1A	Mx	.007	3.25
82	MP1B	X	-14.416	1.25
83	MP1B	Z	-24.97	1.25
84	MP1B	Mx	.007	1.25
85	MP1B	X	-14.416	3.25
86	MP1B	Z	-24.97	3.25
87	MP1B	Mx	.007	3.25
88	MP1C	X	-13.335	1.25
89	MP1C	Z	-23.097	1.25
90	MP1C	Mx	-.013	1.25
91	MP1C	X	-13.335	3.25
92	MP1C	Z	-23.097	3.25
93	MP1C	Mx	-.013	3.25
94	MP4A	X	-14.416	1.25
95	MP4A	Z	-24.97	1.25
96	MP4A	Mx	.007	1.25
97	MP4A	X	-14.416	3.25
98	MP4A	Z	-24.97	3.25
99	MP4A	Mx	.007	3.25
100	MP4B	X	-14.416	1.25
101	MP4B	Z	-24.97	1.25
102	MP4B	Mx	.007	1.25
103	MP4B	X	-14.416	3.25
104	MP4B	Z	-24.97	3.25
105	MP4B	Mx	.007	3.25
106	MP4C	X	-13.335	1.25
107	MP4C	Z	-23.097	1.25
108	MP4C	Mx	-.013	1.25
109	MP4C	X	-13.335	3.25
110	MP4C	Z	-23.097	3.25
111	MP4C	Mx	-.013	3.25

Member Point Loads (BLC 27 : Antenna Wm (0 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
105	MP4B	Mx	.004	3.25
106	MP4C	X	0	1.25
107	MP4C	Z	-8.613	1.25
108	MP4C	Mx	-.004	1.25
109	MP4C	X	0	3.25
110	MP4C	Z	-8.613	3.25
111	MP4C	Mx	-.004	3.25

Member Point Loads (BLC 28 : Antenna Wm (30 Deg))

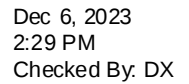
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	2.27	.5
2	MP2A	Z	-3.932	.5
3	MP2A	Mx	-.004	.5
4	MP2A	X	2.27	6.5
5	MP2A	Z	-3.932	6.5
6	MP2A	Mx	-.004	6.5
7	MP2B	X	1.136	.5
8	MP2B	Z	-1.968	.5
9	MP2B	Mx	.001	.5
10	MP2B	X	1.136	6.5
11	MP2B	Z	-1.968	6.5
12	MP2B	Mx	.001	6.5
13	MP2C	X	2.27	.5
14	MP2C	Z	-3.932	.5
15	MP2C	Mx	.001	.5
16	MP2C	X	2.27	6.5
17	MP2C	Z	-3.932	6.5
18	MP2C	Mx	.001	6.5
19	MP2A	X	2.27	.5
20	MP2A	Z	-3.932	.5
21	MP2A	Mx	.001	.5
22	MP2A	X	2.27	6.5
23	MP2A	Z	-3.932	6.5
24	MP2A	Mx	.001	6.5
25	MP2B	X	1.136	.5
26	MP2B	Z	-1.968	.5
27	MP2B	Mx	.001	.5
28	MP2B	X	1.136	6.5
29	MP2B	Z	-1.968	6.5
30	MP2B	Mx	.001	6.5
31	MP2C	X	2.27	.5
32	MP2C	Z	-3.932	.5
33	MP2C	Mx	-.004	.5
34	MP2C	X	2.27	6.5
35	MP2C	Z	-3.932	6.5
36	MP2C	Mx	-.004	6.5
37	MP3A	X	1.564	2.75
38	MP3A	Z	-2.709	2.75
39	MP3A	Mx	-.000782	2.75
40	MP3A	X	1.564	4.25
41	MP3A	Z	-2.709	4.25

Member Point Loads (BLC 28 : Antenna Wm (30 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
94	MP4A	X	4.557	1.25
95	MP4A	Z	-7.892	1.25
96	MP4A	Mx	-.002	1.25
97	MP4A	X	4.557	3.25
98	MP4A	Z	-7.892	3.25
99	MP4A	Mx	-.002	3.25
100	MP4B	X	4.182	1.25
101	MP4B	Z	-7.243	1.25
102	MP4B	Mx	.004	1.25
103	MP4B	X	4.182	3.25
104	MP4B	Z	-7.243	3.25
105	MP4B	Mx	.004	3.25
106	MP4C	X	4.557	1.25
107	MP4C	Z	-7.892	1.25
108	MP4C	Mx	-.002	1.25
109	MP4C	X	4.557	3.25
110	MP4C	Z	-7.892	3.25
111	MP4C	Mx	-.002	3.25

Member Point Loads (BLC 29 : Antenna Wm (60 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	2.623	.5
2	MP2A	Z	-1.514	.5
3	MP2A	Mx	-.002	.5
4	MP2A	X	2.623	6.5
5	MP2A	Z	-1.514	6.5
6	MP2A	Mx	-.002	6.5
7	MP2B	X	2.623	.5
8	MP2B	Z	-1.514	.5
9	MP2B	Mx	.000302	.5
10	MP2B	X	2.623	6.5
11	MP2B	Z	-1.514	6.5
12	MP2B	Mx	.000302	6.5
13	MP2C	X	4.586	.5
14	MP2C	Z	-2.648	.5
15	MP2C	Mx	.004	.5
16	MP2C	X	4.586	6.5
17	MP2C	Z	-2.648	6.5
18	MP2C	Mx	.004	6.5
19	MP2A	X	2.623	.5
20	MP2A	Z	-1.514	.5
21	MP2A	Mx	-.000302	.5
22	MP2A	X	2.623	6.5
23	MP2A	Z	-1.514	6.5
24	MP2A	Mx	-.000302	6.5
25	MP2B	X	2.623	.5
26	MP2B	Z	-1.514	.5
27	MP2B	Mx	.002	.5
28	MP2B	X	2.623	6.5
29	MP2B	Z	-1.514	6.5
30	MP2B	Mx	.002	6.5



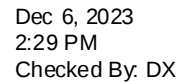
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Member Point Loads (BLC 30 : Antenna Wm (90 Deg)) (Continued)

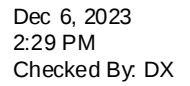
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
72	MP1B	Mx	-.00084	2
73	MP1C	X	3.358	2
74	MP1C	Z	0	2
75	MP1C	Mx	-.00084	2
76	MP1A	X	8.363	1.25
77	MP1A	Z	0	1.25
78	MP1A	Mx	-.004	1.25
79	MP1A	X	8.363	3.25
80	MP1A	Z	0	3.25
81	MP1A	Mx	-.004	3.25
82	MP1B	X	9.113	1.25
83	MP1B	Z	0	1.25
84	MP1B	Mx	.002	1.25
85	MP1B	X	9.113	3.25
86	MP1B	Z	0	3.25
87	MP1B	Mx	.002	3.25
88	MP1C	X	9.113	1.25
89	MP1C	Z	0	1.25
90	MP1C	Mx	.002	1.25
91	MP1C	X	9.113	3.25
92	MP1C	Z	0	3.25
93	MP1C	Mx	.002	3.25
94	MP4A	X	8.363	1.25
95	MP4A	Z	0	1.25
96	MP4A	Mx	-.004	1.25
97	MP4A	X	8.363	3.25
98	MP4A	Z	0	3.25
99	MP4A	Mx	-.004	3.25
100	MP4B	X	9.113	1.25
101	MP4B	Z	0	1.25
102	MP4B	Mx	.002	1.25
103	MP4B	X	9.113	3.25
104	MP4B	Z	0	3.25
105	MP4B	Mx	.002	3.25
106	MP4C	X	9.113	1.25
107	MP4C	Z	0	1.25
108	MP4C	Mx	.002	1.25
109	MP4C	X	9.113	3.25
110	MP4C	Z	0	3.25
111	MP4C	Mx	.002	3.25

Member Point Loads (BLC 31 : Antenna Wm (120 Deg))

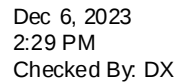
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	2.623	.5
2	MP2A	Z	1.514	.5
3	MP2A	Mx	-.000302	.5
4	MP2A	X	2.623	6.5
5	MP2A	Z	1.514	6.5
6	MP2A	Mx	-.000302	6.5
7	MP2B	X	4.586	.5
8	MP2B	Z	2.648	.5



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	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft, %]
1	MP2A	X	2.27	.5
2	MP2A	Z	3.932	.5
3	MP2A	Mx	.001	.5
4	MP2A	X	2.27	6.5
5	MP2A	Z	3.932	6.5
6	MP2A	Mx	.001	6.5
7	MP2B	X	2.27	.5
8	MP2B	Z	3.932	.5
9	MP2B	Mx	-.004	.5
10	MP2B	X	2.27	6.5
11	MP2B	Z	3.932	6.5
12	MP2B	Mx	-.004	6.5
13	MP2C	X	1.136	.5
14	MP2C	Z	1.968	.5
15	MP2C	Mx	.001	.5
16	MP2C	X	1.136	6.5
17	MP2C	Z	1.968	6.5
18	MP2C	Mx	.001	6.5
19	MP2A	X	2.27	.5
20	MP2A	Z	3.932	.5
21	MP2A	Mx	-.004	.5
22	MP2A	X	2.27	6.5
23	MP2A	Z	3.932	6.5
24	MP2A	Mx	-.004	6.5
25	MP2B	X	2.27	.5
26	MP2B	Z	3.932	.5
27	MP2B	Mx	.001	.5
28	MP2B	X	2.27	6.5
29	MP2B	Z	3.932	6.5
30	MP2B	Mx	.001	6.5
31	MP2C	X	1.136	.5
32	MP2C	Z	1.968	.5
33	MP2C	Mx	.001	.5
34	MP2C	X	1.136	6.5
35	MP2C	Z	1.968	6.5
36	MP2C	Mx	.001	6.5
37	MP3A	X	1.564	2.75
38	MP3A	Z	2.709	2.75
39	MP3A	Mx	-.000782	2.75
40	MP3A	X	1.564	4.25
41	MP3A	Z	2.709	4.25
42	MP3A	Mx	-.000782	4.25
43	MP3B	X	1.564	2.75
44	MP3B	Z	2.709	2.75
45	MP3B	Mx	-.000782	2.75
46	MP3B	X	1.564	4.25
47	MP3B	Z	2.709	4.25
48	MP3B	Mx	-.000782	4.25
49	MP3C	X	.712	2.75
50	MP3C	Z	1.233	2.75
51	MP3C	Mx	.000712	2.75
52	MP3C	X	.712	4.25



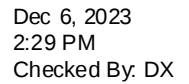
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft, %]
53	MP3C	Z	1.233	4.25
54	MP3C	Mx	.000712	4.25
55	M89A	X	2.906	1
56	M89A	Z	5.034	1
57	M89A	Mx	-.001	1
58	MP2A	X	1.387	2
59	MP2A	Z	2.403	2
60	MP2A	Mx	.000693	2
61	MP2B	X	1.387	2
62	MP2B	Z	2.403	2
63	MP2B	Mx	.000694	2
64	MP2C	X	1.014	2
65	MP2C	Z	1.757	2
66	MP2C	Mx	-.001	2
67	MP1A	X	1.679	2
68	MP1A	Z	2.908	2
69	MP1A	Mx	.00084	2
70	MP1B	X	1.679	2
71	MP1B	Z	2.908	2
72	MP1B	Mx	.000839	2
73	MP1C	X	1.244	2
74	MP1C	Z	2.154	2
75	MP1C	Mx	-.001	2
76	MP1A	X	4.557	1.25
77	MP1A	Z	7.892	1.25
78	MP1A	Mx	-.002	1.25
79	MP1A	X	4.557	3.25
80	MP1A	Z	7.892	3.25
81	MP1A	Mx	-.002	3.25
82	MP1B	X	4.557	1.25
83	MP1B	Z	7.892	1.25
84	MP1B	Mx	-.002	1.25
85	MP1B	X	4.557	3.25
86	MP1B	Z	7.892	3.25
87	MP1B	Mx	-.002	3.25
88	MP1C	X	4.182	1.25
89	MP1C	Z	7.243	1.25
90	MP1C	Mx	.004	1.25
91	MP1C	X	4.182	3.25
92	MP1C	Z	7.243	3.25
93	MP1C	Mx	.004	3.25
94	MP4A	X	4.557	1.25
95	MP4A	Z	7.892	1.25
96	MP4A	Mx	-.002	1.25
97	MP4A	X	4.557	3.25
98	MP4A	Z	7.892	3.25
99	MP4A	Mx	-.002	3.25
100	MP4B	X	4.557	1.25
101	MP4B	Z	7.892	1.25
102	MP4B	Mx	-.002	1.25
103	MP4B	X	4.557	3.25
104	MP4B	Z	7.892	3.25

Member Point Loads (BLC 32 : Antenna Wm (150 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
105	MP4B	Mx	-.002	3.25
106	MP4C	X	4.182	1.25
107	MP4C	Z	7.243	1.25
108	MP4C	Mx	.004	1.25
109	MP4C	X	4.182	3.25
110	MP4C	Z	7.243	3.25
111	MP4C	Mx	.004	3.25

Member Point Loads (BLC 33 : Antenna Wm (180 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	0	.5
2	MP2A	Z	5.296	.5
3	MP2A	Mx	.004	.5
4	MP2A	X	0	6.5
5	MP2A	Z	5.296	6.5
6	MP2A	Mx	.004	6.5
7	MP2B	X	0	.5
8	MP2B	Z	3.028	.5
9	MP2B	Mx	-.002	.5
10	MP2B	X	0	6.5
11	MP2B	Z	3.028	6.5
12	MP2B	Mx	-.002	6.5
13	MP2C	X	0	.5
14	MP2C	Z	3.028	.5
15	MP2C	Mx	.000302	.5
16	MP2C	X	0	6.5
17	MP2C	Z	3.028	6.5
18	MP2C	Mx	.000302	6.5
19	MP2A	X	0	.5
20	MP2A	Z	5.296	.5
21	MP2A	Mx	-.004	.5
22	MP2A	X	0	6.5
23	MP2A	Z	5.296	6.5
24	MP2A	Mx	-.004	6.5
25	MP2B	X	0	.5
26	MP2B	Z	3.028	.5
27	MP2B	Mx	-.000302	.5
28	MP2B	X	0	6.5
29	MP2B	Z	3.028	6.5
30	MP2B	Mx	-.000302	6.5
31	MP2C	X	0	.5
32	MP2C	Z	3.028	.5
33	MP2C	Mx	.002	.5
34	MP2C	X	0	6.5
35	MP2C	Z	3.028	6.5
36	MP2C	Mx	.002	6.5
37	MP3A	X	0	2.75
38	MP3A	Z	3.696	2.75
39	MP3A	Mx	0	2.75
40	MP3A	X	0	4.25
41	MP3A	Z	3.696	4.25



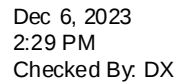
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft, %]
42	MP3A	Mx	0	4.25
43	MP3B	X	0	2.75
44	MP3B	Z	1.992	2.75
45	MP3B	Mx	-.000863	2.75
46	MP3B	X	0	4.25
47	MP3B	Z	1.992	4.25
48	MP3B	Mx	-.000863	4.25
49	MP3C	X	0	2.75
50	MP3C	Z	1.992	2.75
51	MP3C	Mx	.000863	2.75
52	MP3C	X	0	4.25
53	MP3C	Z	1.992	4.25
54	MP3C	Mx	.000863	4.25
55	M89A	X	0	1
56	M89A	Z	6.184	1
57	M89A	Mx	0	1
58	MP2A	X	0	2
59	MP2A	Z	3.023	2
60	MP2A	Mx	0	2
61	MP2B	X	0	2
62	MP2B	Z	2.277	2
63	MP2B	Mx	.000986	2
64	MP2C	X	0	2
65	MP2C	Z	2.277	2
66	MP2C	Mx	-.000986	2
67	MP1A	X	0	2
68	MP1A	Z	3.648	2
69	MP1A	Mx	0	2
70	MP1B	X	0	2
71	MP1B	Z	2.777	2
72	MP1B	Mx	.001	2
73	MP1C	X	0	2
74	MP1C	Z	2.777	2
75	MP1C	Mx	-.001	2
76	MP1A	X	0	1.25
77	MP1A	Z	9.363	1.25
78	MP1A	Mx	0	1.25
79	MP1A	X	0	3.25
80	MP1A	Z	9.363	3.25
81	MP1A	Mx	0	3.25
82	MP1B	X	0	1.25
83	MP1B	Z	8.613	1.25
84	MP1B	Mx	-.004	1.25
85	MP1B	X	0	3.25
86	MP1B	Z	8.613	3.25
87	MP1B	Mx	-.004	3.25
88	MP1C	X	0	1.25
89	MP1C	Z	8.613	1.25
90	MP1C	Mx	.004	1.25
91	MP1C	X	0	3.25
92	MP1C	Z	8.613	3.25
93	MP1C	Mx	.004	3.25

Member Point Loads (BLC 33 : Antenna Wm (180 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
94	MP4A	X	0	1.25
95	MP4A	Z	9.363	1.25
96	MP4A	Mx	0	1.25
97	MP4A	X	0	3.25
98	MP4A	Z	9.363	3.25
99	MP4A	Mx	0	3.25
100	MP4B	X	0	1.25
101	MP4B	Z	8.613	1.25
102	MP4B	Mx	-.004	1.25
103	MP4B	X	0	3.25
104	MP4B	Z	8.613	3.25
105	MP4B	Mx	-.004	3.25
106	MP4C	X	0	1.25
107	MP4C	Z	8.613	1.25
108	MP4C	Mx	.004	1.25
109	MP4C	X	0	3.25
110	MP4C	Z	8.613	3.25
111	MP4C	Mx	.004	3.25

Member Point Loads (BLC 34 : Antenna Wm (210 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	-2.27	.5
2	MP2A	Z	3.932	.5
3	MP2A	Mx	.004	.5
4	MP2A	X	-2.27	6.5
5	MP2A	Z	3.932	6.5
6	MP2A	Mx	.004	6.5
7	MP2B	X	-1.136	.5
8	MP2B	Z	1.968	.5
9	MP2B	Mx	-.001	.5
10	MP2B	X	-1.136	6.5
11	MP2B	Z	1.968	6.5
12	MP2B	Mx	-.001	6.5
13	MP2C	X	-2.27	.5
14	MP2C	Z	3.932	.5
15	MP2C	Mx	-.001	.5
16	MP2C	X	-2.27	6.5
17	MP2C	Z	3.932	6.5
18	MP2C	Mx	-.001	6.5
19	MP2A	X	-2.27	.5
20	MP2A	Z	3.932	.5
21	MP2A	Mx	-.001	.5
22	MP2A	X	-2.27	6.5
23	MP2A	Z	3.932	6.5
24	MP2A	Mx	-.001	6.5
25	MP2B	X	-1.136	.5
26	MP2B	Z	1.968	.5
27	MP2B	Mx	-.001	.5
28	MP2B	X	-1.136	6.5
29	MP2B	Z	1.968	6.5
30	MP2B	Mx	-.001	6.5



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Member Point Loads (BLC 34 : Antenna Wm (210 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
83	MP1B	Z	7.243	1.25
84	MP1B	Mx	-.004	1.25
85	MP1B	X	-4.182	3.25
86	MP1B	Z	7.243	3.25
87	MP1B	Mx	-.004	3.25
88	MP1C	X	-4.557	1.25
89	MP1C	Z	7.892	1.25
90	MP1C	Mx	.002	1.25
91	MP1C	X	-4.557	3.25
92	MP1C	Z	7.892	3.25
93	MP1C	Mx	.002	3.25
94	MP4A	X	-4.557	1.25
95	MP4A	Z	7.892	1.25
96	MP4A	Mx	.002	1.25
97	MP4A	X	-4.557	3.25
98	MP4A	Z	7.892	3.25
99	MP4A	Mx	.002	3.25
100	MP4B	X	-4.182	1.25
101	MP4B	Z	7.243	1.25
102	MP4B	Mx	-.004	1.25
103	MP4B	X	-4.182	3.25
104	MP4B	Z	7.243	3.25
105	MP4B	Mx	-.004	3.25
106	MP4C	X	-4.557	1.25
107	MP4C	Z	7.892	1.25
108	MP4C	Mx	.002	1.25
109	MP4C	X	-4.557	3.25
110	MP4C	Z	7.892	3.25
111	MP4C	Mx	.002	3.25

Member Point Loads (BLC 35 : Antenna Wm (240 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	-2.623	.5
2	MP2A	Z	1.514	.5
3	MP2A	Mx	.002	.5
4	MP2A	X	-2.623	6.5
5	MP2A	Z	1.514	6.5
6	MP2A	Mx	.002	6.5
7	MP2B	X	-2.623	.5
8	MP2B	Z	1.514	.5
9	MP2B	Mx	-.000302	.5
10	MP2B	X	-2.623	6.5
11	MP2B	Z	1.514	6.5
12	MP2B	Mx	-.000302	6.5
13	MP2C	X	-4.586	.5
14	MP2C	Z	2.648	.5
15	MP2C	Mx	-.004	.5
16	MP2C	X	-4.586	6.5
17	MP2C	Z	2.648	6.5
18	MP2C	Mx	-.004	6.5
19	MP2A	X	-2.623	.5

Member Point Loads (BLC 35 : Antenna Wm (240 Deg)) (Continued)

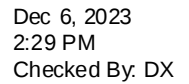
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
72	MP1B	Mx	.001	2
73	MP1C	X	-3.159	2
74	MP1C	Z	1.824	2
75	MP1C	Mx	0	2
76	MP1A	X	-7.459	1.25
77	MP1A	Z	4.307	1.25
78	MP1A	Mx	.004	1.25
79	MP1A	X	-7.459	3.25
80	MP1A	Z	4.307	3.25
81	MP1A	Mx	.004	3.25
82	MP1B	X	-7.459	1.25
83	MP1B	Z	4.307	1.25
84	MP1B	Mx	-.004	1.25
85	MP1B	X	-7.459	3.25
86	MP1B	Z	4.307	3.25
87	MP1B	Mx	-.004	3.25
88	MP1C	X	-8.109	1.25
89	MP1C	Z	4.682	1.25
90	MP1C	Mx	0	1.25
91	MP1C	X	-8.109	3.25
92	MP1C	Z	4.682	3.25
93	MP1C	Mx	0	3.25
94	MP4A	X	-7.459	1.25
95	MP4A	Z	4.307	1.25
96	MP4A	Mx	.004	1.25
97	MP4A	X	-7.459	3.25
98	MP4A	Z	4.307	3.25
99	MP4A	Mx	.004	3.25
100	MP4B	X	-7.459	1.25
101	MP4B	Z	4.307	1.25
102	MP4B	Mx	-.004	1.25
103	MP4B	X	-7.459	3.25
104	MP4B	Z	4.307	3.25
105	MP4B	Mx	-.004	3.25
106	MP4C	X	-8.109	1.25
107	MP4C	Z	4.682	1.25
108	MP4C	Mx	0	1.25
109	MP4C	X	-8.109	3.25
110	MP4C	Z	4.682	3.25
111	MP4C	Mx	0	3.25

Member Point Loads (BLC 36 : Antenna Wm (270 Deg))

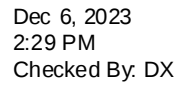
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	-2.272	.5
2	MP2A	Z	0	.5
3	MP2A	Mx	.001	.5
4	MP2A	X	-2.272	6.5
5	MP2A	Z	0	6.5
6	MP2A	Mx	.001	6.5
7	MP2B	X	-4.54	.5
8	MP2B	Z	0	.5

Member Point Loads (BLC 36 : Antenna Wm (270 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
61	MP2B	X	-2.775	2
62	MP2B	Z	0	2
63	MP2B	Mx	.000694	2
64	MP2C	X	-2.775	2
65	MP2C	Z	0	2
66	MP2C	Mx	.000694	2
67	MP1A	X	-2.487	2
68	MP1A	Z	0	2
69	MP1A	Mx	-.001	2
70	MP1B	X	-3.358	2
71	MP1B	Z	0	2
72	MP1B	Mx	.00084	2
73	MP1C	X	-3.358	2
74	MP1C	Z	0	2
75	MP1C	Mx	.00084	2
76	MP1A	X	-8.363	1.25
77	MP1A	Z	0	1.25
78	MP1A	Mx	.004	1.25
79	MP1A	X	-8.363	3.25
80	MP1A	Z	0	3.25
81	MP1A	Mx	.004	3.25
82	MP1B	X	-9.113	1.25
83	MP1B	Z	0	1.25
84	MP1B	Mx	-.002	1.25
85	MP1B	X	-9.113	3.25
86	MP1B	Z	0	3.25
87	MP1B	Mx	-.002	3.25
88	MP1C	X	-9.113	1.25
89	MP1C	Z	0	1.25
90	MP1C	Mx	-.002	1.25
91	MP1C	X	-9.113	3.25
92	MP1C	Z	0	3.25
93	MP1C	Mx	-.002	3.25
94	MP4A	X	-8.363	1.25
95	MP4A	Z	0	1.25
96	MP4A	Mx	.004	1.25
97	MP4A	X	-8.363	3.25
98	MP4A	Z	0	3.25
99	MP4A	Mx	.004	3.25
100	MP4B	X	-9.113	1.25
101	MP4B	Z	0	1.25
102	MP4B	Mx	-.002	1.25
103	MP4B	X	-9.113	3.25
104	MP4B	Z	0	3.25
105	MP4B	Mx	-.002	3.25
106	MP4C	X	-9.113	1.25
107	MP4C	Z	0	1.25
108	MP4C	Mx	-.002	1.25
109	MP4C	X	-9.113	3.25
110	MP4C	Z	0	3.25
111	MP4C	Mx	-.002	3.25



	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft, %]
1	MP2A	X	-2.623	.5
2	MP2A	Z	-1.514	.5
3	MP2A	Mx	.000302	.5
4	MP2A	X	-2.623	6.5
5	MP2A	Z	-1.514	6.5
6	MP2A	Mx	.000302	6.5
7	MP2B	X	-4.586	.5
8	MP2B	Z	-2.648	.5
9	MP2B	Mx	.004	.5
10	MP2B	X	-4.586	6.5
11	MP2B	Z	-2.648	6.5
12	MP2B	Mx	.004	6.5
13	MP2C	X	-2.623	.5
14	MP2C	Z	-1.514	.5
15	MP2C	Mx	-.002	.5
16	MP2C	X	-2.623	6.5
17	MP2C	Z	-1.514	6.5
18	MP2C	Mx	-.002	6.5
19	MP2A	X	-2.623	.5
20	MP2A	Z	-1.514	.5
21	MP2A	Mx	.002	.5
22	MP2A	X	-2.623	6.5
23	MP2A	Z	-1.514	6.5
24	MP2A	Mx	.002	6.5
25	MP2B	X	-4.586	.5
26	MP2B	Z	-2.648	.5
27	MP2B	Mx	-.004	.5
28	MP2B	X	-4.586	6.5
29	MP2B	Z	-2.648	6.5
30	MP2B	Mx	-.004	6.5
31	MP2C	X	-2.623	.5
32	MP2C	Z	-1.514	.5
33	MP2C	Mx	-.000302	.5
34	MP2C	X	-2.623	6.5
35	MP2C	Z	-1.514	6.5
36	MP2C	Mx	-.000302	6.5
37	MP3A	X	-1.725	2.75
38	MP3A	Z	-.996	2.75
39	MP3A	Mx	.000863	2.75
40	MP3A	X	-1.725	4.25
41	MP3A	Z	-.996	4.25
42	MP3A	Mx	.000863	4.25
43	MP3B	X	-3.201	2.75
44	MP3B	Z	-1.848	2.75
45	MP3B	Mx	0	2.75
46	MP3B	X	-3.201	4.25
47	MP3B	Z	-1.848	4.25
48	MP3B	Mx	0	4.25
49	MP3C	X	-1.725	2.75
50	MP3C	Z	-.996	2.75
51	MP3C	Mx	-.000863	2.75
52	MP3C	X	-1.725	4.25



	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft, %]
53	MP3C	Z	-.996	4.25
54	MP3C	Mx	-.000863	4.25
55	M89A	X	-4.392	1
56	M89A	Z	-2.536	1
57	M89A	Mx	.002	1
58	MP2A	X	-1.972	2
59	MP2A	Z	-1.139	2
60	MP2A	Mx	-.000986	2
61	MP2B	X	-2.618	2
62	MP2B	Z	-1.512	2
63	MP2B	Mx	0	2
64	MP2C	X	-1.972	2
65	MP2C	Z	-1.139	2
66	MP2C	Mx	.000986	2
67	MP1A	X	-2.405	2
68	MP1A	Z	-1.389	2
69	MP1A	Mx	-.001	2
70	MP1B	X	-3.159	2
71	MP1B	Z	-1.824	2
72	MP1B	Mx	0	2
73	MP1C	X	-2.405	2
74	MP1C	Z	-1.389	2
75	MP1C	Mx	.001	2
76	MP1A	X	-7.459	1.25
77	MP1A	Z	-4.307	1.25
78	MP1A	Mx	.004	1.25
79	MP1A	X	-7.459	3.25
80	MP1A	Z	-4.307	3.25
81	MP1A	Mx	.004	3.25
82	MP1B	X	-8.109	1.25
83	MP1B	Z	-4.682	1.25
84	MP1B	Mx	0	1.25
85	MP1B	X	-8.109	3.25
86	MP1B	Z	-4.682	3.25
87	MP1B	Mx	0	3.25
88	MP1C	X	-7.459	1.25
89	MP1C	Z	-4.307	1.25
90	MP1C	Mx	-.004	1.25
91	MP1C	X	-7.459	3.25
92	MP1C	Z	-4.307	3.25
93	MP1C	Mx	-.004	3.25
94	MP4A	X	-7.459	1.25
95	MP4A	Z	-4.307	1.25
96	MP4A	Mx	.004	1.25
97	MP4A	X	-7.459	3.25
98	MP4A	Z	-4.307	3.25
99	MP4A	Mx	.004	3.25
100	MP4B	X	-8.109	1.25
101	MP4B	Z	-4.682	1.25
102	MP4B	Mx	0	1.25
103	MP4B	X	-8.109	3.25
104	MP4B	Z	-4.682	3.25

Member Point Loads (BLC 37 : Antenna Wm (300 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
105	MP4B	Mx	0	3.25
106	MP4C	X	-7.459	1.25
107	MP4C	Z	-4.307	1.25
108	MP4C	Mx	-.004	1.25
109	MP4C	X	-7.459	3.25
110	MP4C	Z	-4.307	3.25
111	MP4C	Mx	-.004	3.25

Member Point Loads (BLC 38 : Antenna Wm (330 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	-2.27	.5
2	MP2A	Z	-3.932	.5
3	MP2A	Mx	-.001	.5
4	MP2A	X	-2.27	6.5
5	MP2A	Z	-3.932	6.5
6	MP2A	Mx	-.001	6.5
7	MP2B	X	-2.27	.5
8	MP2B	Z	-3.932	.5
9	MP2B	Mx	.004	.5
10	MP2B	X	-2.27	6.5
11	MP2B	Z	-3.932	6.5
12	MP2B	Mx	.004	6.5
13	MP2C	X	-1.136	.5
14	MP2C	Z	-1.968	.5
15	MP2C	Mx	-.001	.5
16	MP2C	X	-1.136	6.5
17	MP2C	Z	-1.968	6.5
18	MP2C	Mx	-.001	6.5
19	MP2A	X	-2.27	.5
20	MP2A	Z	-3.932	.5
21	MP2A	Mx	.004	.5
22	MP2A	X	-2.27	6.5
23	MP2A	Z	-3.932	6.5
24	MP2A	Mx	.004	6.5
25	MP2B	X	-2.27	.5
26	MP2B	Z	-3.932	.5
27	MP2B	Mx	-.001	.5
28	MP2B	X	-2.27	6.5
29	MP2B	Z	-3.932	6.5
30	MP2B	Mx	-.001	6.5
31	MP2C	X	-1.136	.5
32	MP2C	Z	-1.968	.5
33	MP2C	Mx	-.001	.5
34	MP2C	X	-1.136	6.5
35	MP2C	Z	-1.968	6.5
36	MP2C	Mx	-.001	6.5
37	MP3A	X	-1.564	2.75
38	MP3A	Z	-2.709	2.75
39	MP3A	Mx	.000782	2.75
40	MP3A	X	-1.564	4.25
41	MP3A	Z	-2.709	4.25

Member Point Loads (BLC 38 : Antenna Wm (330 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
42	MP3A	Mx	.000782	4.25
43	MP3B	X	-1.564	2.75
44	MP3B	Z	-2.709	2.75
45	MP3B	Mx	.000782	2.75
46	MP3B	X	-1.564	4.25
47	MP3B	Z	-2.709	4.25
48	MP3B	Mx	.000782	4.25
49	MP3C	X	-.712	2.75
50	MP3C	Z	-1.233	2.75
51	MP3C	Mx	-.000712	2.75
52	MP3C	X	-.712	4.25
53	MP3C	Z	-1.233	4.25
54	MP3C	Mx	-.000712	4.25
55	M89A	X	-2.906	1
56	M89A	Z	-5.034	1
57	M89A	Mx	.001	1
58	MP2A	X	-1.387	2
59	MP2A	Z	-2.403	2
60	MP2A	Mx	-.000693	2
61	MP2B	X	-1.387	2
62	MP2B	Z	-2.403	2
63	MP2B	Mx	-.000694	2
64	MP2C	X	-1.014	2
65	MP2C	Z	-1.757	2
66	MP2C	Mx	.001	2
67	MP1A	X	-1.679	2
68	MP1A	Z	-2.908	2
69	MP1A	Mx	-.00084	2
70	MP1B	X	-1.679	2
71	MP1B	Z	-2.908	2
72	MP1B	Mx	-.000839	2
73	MP1C	X	-1.244	2
74	MP1C	Z	-2.154	2
75	MP1C	Mx	.001	2
76	MP1A	X	-4.557	1.25
77	MP1A	Z	-7.892	1.25
78	MP1A	Mx	.002	1.25
79	MP1A	X	-4.557	3.25
80	MP1A	Z	-7.892	3.25
81	MP1A	Mx	.002	3.25
82	MP1B	X	-4.557	1.25
83	MP1B	Z	-7.892	1.25
84	MP1B	Mx	.002	1.25
85	MP1B	X	-4.557	3.25
86	MP1B	Z	-7.892	3.25
87	MP1B	Mx	.002	3.25
88	MP1C	X	-4.182	1.25
89	MP1C	Z	-7.243	1.25
90	MP1C	Mx	-.004	1.25
91	MP1C	X	-4.182	3.25
92	MP1C	Z	-7.243	3.25
93	MP1C	Mx	-.004	3.25

Member Point Loads (BLC 38 : Antenna Wm (330 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
94	MP4A	X	-4.557	1.25
95	MP4A	Z	-7.892	1.25
96	MP4A	Mx	.002	1.25
97	MP4A	X	-4.557	3.25
98	MP4A	Z	-7.892	3.25
99	MP4A	Mx	.002	3.25
100	MP4B	X	-4.557	1.25
101	MP4B	Z	-7.892	1.25
102	MP4B	Mx	.002	1.25
103	MP4B	X	-4.557	3.25
104	MP4B	Z	-7.892	3.25
105	MP4B	Mx	.002	3.25
106	MP4C	X	-4.182	1.25
107	MP4C	Z	-7.243	1.25
108	MP4C	Mx	-.004	1.25
109	MP4C	X	-4.182	3.25
110	MP4C	Z	-7.243	3.25
111	MP4C	Mx	-.004	3.25

Member Point Loads (BLC 77 : Lm1)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M20	Y	-500	%35

Member Point Loads (BLC 78 : Lm2)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M20	Y	-500	%2

Member Point Loads (BLC 79 : Lv1)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M20	Y	-250	%50

Member Point Loads (BLC 80 : Lv2)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M20	Y	-250	0

Member Point Loads (BLC 81 : Antenna Ev)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	Y	-.848	.5
2	MP2A	My	-.000424	.5
3	MP2A	Mz	.000566	.5
4	MP2A	Y	-.848	6.5
5	MP2A	My	-.000424	6.5
6	MP2A	Mz	.000566	6.5
7	MP2B	Y	-.848	.5
8	MP2B	My	-.000278	.5
9	MP2B	Mz	-.00065	.5
10	MP2B	Y	-.848	6.5
11	MP2B	My	-.000278	6.5
12	MP2B	Mz	-.00065	6.5

Member Point Loads (BLC 81 : Antenna Ev) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
13	MP2C	Y	-.848	.5
14	MP2C	My	.000702	.5
15	MP2C	Mz	8.5e-5	.5
16	MP2C	Y	-.848	6.5
17	MP2C	My	.000702	6.5
18	MP2C	Mz	8.5e-5	6.5
19	MP2A	Y	-.848	.5
20	MP2A	My	-.000424	.5
21	MP2A	Mz	-.000566	.5
22	MP2A	Y	-.848	6.5
23	MP2A	My	-.000424	6.5
24	MP2A	Mz	-.000566	6.5
25	MP2B	Y	-.848	.5
26	MP2B	My	.000702	.5
27	MP2B	Mz	-8.5e-5	.5
28	MP2B	Y	-.848	6.5
29	MP2B	My	.000702	6.5
30	MP2B	Mz	-8.5e-5	6.5
31	MP2C	Y	-.848	.5
32	MP2C	My	-.000278	.5
33	MP2C	Mz	.00065	.5
34	MP2C	Y	-.848	6.5
35	MP2C	My	-.000278	6.5
36	MP2C	Mz	.00065	6.5
37	MP3A	Y	-1.112	2.75
38	MP3A	My	-.000556	2.75
39	MP3A	Mz	0	2.75
40	MP3A	Y	-1.112	4.25
41	MP3A	My	-.000556	4.25
42	MP3A	Mz	0	4.25
43	MP3B	Y	-1.112	2.75
44	MP3B	My	.000278	2.75
45	MP3B	Mz	-.000482	2.75
46	MP3B	Y	-1.112	4.25
47	MP3B	My	.000278	4.25
48	MP3B	Mz	-.000482	4.25
49	MP3C	Y	-1.112	2.75
50	MP3C	My	.000278	2.75
51	MP3C	Mz	.000482	2.75
52	MP3C	Y	-1.112	4.25
53	MP3C	My	.000278	4.25
54	MP3C	Mz	.000482	4.25
55	M89A	Y	-1.242	1
56	M89A	My	-.000621	1
57	M89A	Mz	0	1
58	MP2A	Y	-2.9	2
59	MP2A	My	.001	2
60	MP2A	Mz	0	2
61	MP2B	Y	-2.9	2
62	MP2B	My	-.000725	2
63	MP2B	Mz	.001	2
64	MP2C	Y	-2.9	2

Member Point Loads (BLC 81 : Antenna Ev) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
65	MP2C	My	-.000725	2
66	MP2C	Mz	-.001	2
67	MP1A	Y	-3.071	2
68	MP1A	My	.002	2
69	MP1A	Mz	0	2
70	MP1B	Y	-3.071	2
71	MP1B	My	-.000768	2
72	MP1B	Mz	.001	2
73	MP1C	Y	-3.071	2
74	MP1C	My	-.000768	2
75	MP1C	Mz	-.001	2
76	MP1A	Y	-.524	1.25
77	MP1A	My	-.000262	1.25
78	MP1A	Mz	0	1.25
79	MP1A	Y	-.524	3.25
80	MP1A	My	-.000262	3.25
81	MP1A	Mz	0	3.25
82	MP1B	Y	-.524	1.25
83	MP1B	My	.000131	1.25
84	MP1B	Mz	-.000227	1.25
85	MP1B	Y	-.524	3.25
86	MP1B	My	.000131	3.25
87	MP1B	Mz	-.000227	3.25
88	MP1C	Y	-.524	1.25
89	MP1C	My	.000131	1.25
90	MP1C	Mz	.000227	1.25
91	MP1C	Y	-.524	3.25
92	MP1C	My	.000131	3.25
93	MP1C	Mz	.000227	3.25
94	MP4A	Y	-.524	1.25
95	MP4A	My	-.000262	1.25
96	MP4A	Mz	0	1.25
97	MP4A	Y	-.524	3.25
98	MP4A	My	-.000262	3.25
99	MP4A	Mz	0	3.25
100	MP4B	Y	-.524	1.25
101	MP4B	My	.000131	1.25
102	MP4B	Mz	-.000227	1.25
103	MP4B	Y	-.524	3.25
104	MP4B	My	.000131	3.25
105	MP4B	Mz	-.000227	3.25
106	MP4C	Y	-.524	1.25
107	MP4C	My	.000131	1.25
108	MP4C	Mz	.000227	1.25
109	MP4C	Y	-.524	3.25
110	MP4C	My	.000131	3.25
111	MP4C	Mz	.000227	3.25

Member Point Loads (BLC 82 : Antenna Eh (0 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	Z	-2.121	.5

Member Point Loads (BLC 82 : Antenna Eh (0 Deg)) (Continued)

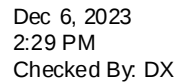
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
54	MP1A	Mx	0	3.25
55	MP1B	Z	-1.31	1.25
56	MP1B	Mx	.000567	1.25
57	MP1B	Z	-1.31	3.25
58	MP1B	Mx	.000567	3.25
59	MP1C	Z	-1.31	1.25
60	MP1C	Mx	-.000567	1.25
61	MP1C	Z	-1.31	3.25
62	MP1C	Mx	-.000567	3.25
63	MP4A	Z	-1.31	1.25
64	MP4A	Mx	0	1.25
65	MP4A	Z	-1.31	3.25
66	MP4A	Mx	0	3.25
67	MP4B	Z	-1.31	1.25
68	MP4B	Mx	.000567	1.25
69	MP4B	Z	-1.31	3.25
70	MP4B	Mx	.000567	3.25
71	MP4C	Z	-1.31	1.25
72	MP4C	Mx	-.000567	1.25
73	MP4C	Z	-1.31	3.25
74	MP4C	Mx	-.000567	3.25

Member Point Loads (BLC 83 : Antenna Eh (90 Deg))

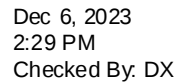
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP2A	X	2.121	.5
2	MP2A	Mx	-.001	.5
3	MP2A	X	2.121	6.5
4	MP2A	Mx	-.001	6.5
5	MP2B	X	2.121	.5
6	MP2B	Mx	-.000694	.5
7	MP2B	X	2.121	6.5
8	MP2B	Mx	-.000694	6.5
9	MP2C	X	2.121	.5
10	MP2C	Mx	.002	.5
11	MP2C	X	2.121	6.5
12	MP2C	Mx	.002	6.5
13	MP2A	X	2.121	.5
14	MP2A	Mx	-.001	.5
15	MP2A	X	2.121	6.5
16	MP2A	Mx	-.001	6.5
17	MP2B	X	2.121	.5
18	MP2B	Mx	.002	.5
19	MP2B	X	2.121	6.5
20	MP2B	Mx	.002	6.5
21	MP2C	X	2.121	.5
22	MP2C	Mx	-.000694	.5
23	MP2C	X	2.121	6.5
24	MP2C	Mx	-.000694	6.5
25	MP3A	X	2.781	2.75
26	MP3A	Mx	-.001	2.75
27	MP3A	X	2.781	4.25

Member Point Loads (BLC 83 : Antenna Eh (90 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
28	MP3A	Mx	-.001	4.25
29	MP3B	X	2.781	2.75
30	MP3B	Mx	.000695	2.75
31	MP3B	X	2.781	4.25
32	MP3B	Mx	.000695	4.25
33	MP3C	X	2.781	2.75
34	MP3C	Mx	.000695	2.75
35	MP3C	X	2.781	4.25
36	MP3C	Mx	.000695	4.25
37	M89A	X	3.106	1
38	M89A	Mx	-.002	1
39	MP2A	X	7.251	2
40	MP2A	Mx	.004	2
41	MP2B	X	7.251	2
42	MP2B	Mx	-.002	2
43	MP2C	X	7.251	2
44	MP2C	Mx	-.002	2
45	MP1A	X	7.678	2
46	MP1A	Mx	.004	2
47	MP1B	X	7.678	2
48	MP1B	Mx	-.002	2
49	MP1C	X	7.678	2
50	MP1C	Mx	-.002	2
51	MP1A	X	1.31	1.25
52	MP1A	Mx	-.000655	1.25
53	MP1A	X	1.31	3.25
54	MP1A	Mx	-.000655	3.25
55	MP1B	X	1.31	1.25
56	MP1B	Mx	.000328	1.25
57	MP1B	X	1.31	3.25
58	MP1B	Mx	.000328	3.25
59	MP1C	X	1.31	1.25
60	MP1C	Mx	.000328	1.25
61	MP1C	X	1.31	3.25
62	MP1C	Mx	.000328	3.25
63	MP4A	X	1.31	1.25
64	MP4A	Mx	-.000655	1.25
65	MP4A	X	1.31	3.25
66	MP4A	Mx	-.000655	3.25
67	MP4B	X	1.31	1.25
68	MP4B	Mx	.000328	1.25
69	MP4B	X	1.31	3.25
70	MP4B	Mx	.000328	3.25
71	MP4C	X	1.31	1.25
72	MP4C	Mx	.000328	1.25
73	MP4C	X	1.31	3.25
74	MP4C	Mx	.000328	3.25



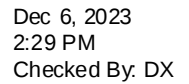
	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
6	2	N68	-303.92	997.808	691.519	-.849	-1.364	1.856
7	2	N99	-232.737	1594.342	2060.488	4.146	.01	.227
8	2	N100	-1676.815	437.818	1081.743	.111	-.063	-.134
9	2	Totals:	-2213.472	3029.968	3833.75			
10	2	COG (ft):	X: .004	Y: .952	Z: -.042			
11	3	N68	-1203.025	1316.828	-155.413	-1.48	-.732	2.841
12	3	N99	-643.087	1358.236	1249.525	3.299	.84	.324
13	3	N100	-1977.344	354.879	1113.457	.166	-.014	.205
14	3	Totals:	-3823.456	3029.943	2207.57			
15	3	COG (ft):	X: .004	Y: .952	Z: -.042			
16	4	N68	-1706.851	1549.937	-886.627	-2.006	.05	3.541
17	4	N99	-853.193	1038.431	13.675	2.14	1.398	.353
18	4	N100	-1848.917	441.569	873.071	-.088	-.008	-.004
19	4	Totals:	-4408.96	3029.937	.12			
20	4	COG (ft):	X: .004	Y: .952	Z: -.042			
21	5	N68	-1885.42	1633.946	-1129.713	-2.269	.004	3.758
22	5	N99	-563.476	720.753	-1239.863	.952	.772	.3
23	5	N100	-1374.483	675.251	162.188	-.584	-.813	-.682
24	5	Totals:	-3823.378	3029.95	-2207.388			
25	5	COG (ft):	X: .004	Y: .952	Z: -.042			
26	6	N68	-1613.606	1545.217	-1137.382	-2.217	0	3.436
27	6	N99	-153.407	490.269	-2089.931	.062	-.016	.187
28	6	N100	-446.319	994.495	-606.363	-1.181	-1.356	-1.663
29	6	Totals:	-2213.332	3029.98	-3833.676			
30	6	COG (ft):	X: .004	Y: .952	Z: -.042			
31	7	N68	-761.066	1308.087	-1084.844	-1.88	.806	2.672
32	7	N99	25.502	407.758	-2386.01	-.267	.002	.051
33	7	N100	735.646	1314.174	-961.873	-1.719	-.727	-2.702
34	7	Totals:	.082	3030.019	-4432.727			
35	7	COG (ft):	X: .004	Y: .952	Z: -.042			
36	8	N68	368.346	987.236	-666.987	-1.332	1.35	1.667
37	8	N99	225.01	494.498	-2133.085	.047	-.027	-.08
38	8	N100	1620.115	1548.322	-1033.68	-2.061	.05	-3.508
39	8	Totals:	2213.471	3030.057	-3833.752			
40	8	COG (ft):	X: .004	Y: .952	Z: -.042			
41	9	N68	1270.416	669.081	180.303	-.701	.719	.678
42	9	N99	633.583	728.052	-1319.703	.899	-.856	-.178
43	9	N100	1919.456	1632.949	-1068.172	-2.117	0	-3.844
44	9	Totals:	3823.455	3030.081	-2207.571			
45	9	COG (ft):	X: .004	Y: .952	Z: -.042			
46	10	N68	1776.816	438.606	911.698	-.172	-.063	-.026
47	10	N99	842.233	1046.705	-81.716	2.062	-1.413	-.206
48	10	N100	1789.91	1544.777	-830.104	-1.865	-.008	-3.637
49	10	Totals:	4408.959	3030.088	-.122			
50	10	COG (ft):	X: .004	Y: .952	Z: -.042			
51	11	N68	1953.625	356.293	1157.19	.093	-.018	-.245
52	11	N99	551.317	1365.262	1169.083	3.246	-.786	-.151
53	11	N100	1318.436	1308.519	-118.887	-1.371	.797	-2.963
54	11	Totals:	3823.377	3030.075	2207.386			
55	11	COG (ft):	X: .004	Y: .952	Z: -.042			
56	12	N68	1680.351	443.564	1166.984	.04	-.016	.08
57	12	N99	140.135	1598.376	2016.806	4.131	.004	-.038



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Joint Reactions (Continued)

	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
110	22	COG (ft):	X: .006	Y: 1.021	Z: -.057			
111	23	N68	686.583	2870.243	405.983	-3.128	-.022	5.054
112	23	N99	165.516	3318.647	150.345	6.93	-.242	.174
113	23	N100	234.092	3104.823	70.761	-3.188	.22	-6.031
114	23	Totals:	1086.191	9293.714	627.089			
115	23	COG (ft):	X: .006	Y: 1.021	Z: -.057			
116	24	N68	605.817	2892.359	418.962	-3.139	-.037	5.134
117	24	N99	43.675	3376.893	389.262	7.153	-.026	.204
118	24	N100	-21.006	3024.454	280.372	-3.04	.362	-5.784
119	24	Totals:	628.486	9293.706	1088.596			
120	24	COG (ft):	X: .006	Y: 1.021	Z: -.057			
121	25	N68	81.076	1672.994	79.031	-2.3	-.059	2.606
122	25	N99	-7.543	904.86	116.315	1.874	-.008	.046
123	25	N100	-73.534	1202.149	81.696	-1.341	.035	-1.849
124	25	Totals:	-.002	3780.003	277.042			
125	25	COG (ft):	X: .375	Y: .763	Z: .763			
126	26	N68	10.452	1693.009	52.838	-2.335	-.093	2.669
127	26	N99	-19.927	899.391	100.515	1.854	-.006	.054
128	26	N100	-128.866	1187.602	86.259	-1.319	-.013	-1.799
129	26	Totals:	-138.342	3780.001	239.612			
130	26	COG (ft):	X: .375	Y: .763	Z: .763			
131	27	N68	-45.829	1712.931	-.106	-2.374	-.053	2.731
132	27	N99	-45.518	884.72	49.763	1.801	.045	.06
133	27	N100	-147.616	1182.349	88.321	-1.316	-.01	-1.778
134	27	Totals:	-238.962	3779.999	137.979			
135	27	COG (ft):	X: .375	Y: .763	Z: .763			
136	28	N68	-77.402	1727.442	-45.818	-2.407	-.005	2.775
137	28	N99	-58.605	864.771	-27.538	1.729	.08	.062
138	28	N100	-139.548	1187.787	73.364	-1.332	-.01	-1.791
139	28	Totals:	-275.554	3779.999	.008			
140	28	COG (ft):	X: .375	Y: .763	Z: .763			
141	29	N68	-88.522	1732.653	-61.089	-2.423	-.007	2.788
142	29	N99	-40.46	844.897	-105.799	1.655	.041	.059
143	29	N100	-109.975	1202.449	28.921	-1.363	-.06	-1.833
144	29	Totals:	-238.957	3780	-137.967			
145	29	COG (ft):	X: .375	Y: .763	Z: .763			
146	30	N68	-71.497	1727.152	-61.637	-2.42	-.008	2.768
147	30	N99	-14.797	830.434	-158.851	1.599	-.008	.052
148	30	N100	-52.039	1222.415	-19.118	-1.4	-.094	-1.894
149	30	Totals:	-138.333	3780.002	-239.606			
150	30	COG (ft):	X: .375	Y: .763	Z: .763			
151	31	N68	-18.177	1712.406	-58.274	-2.399	.043	2.72
152	31	N99	-3.706	825.245	-177.358	1.579	-.007	.043
153	31	N100	21.891	1242.353	-41.408	-1.433	-.055	-1.959
154	31	Totals:	.009	3780.004	-277.04			
155	31	COG (ft):	X: .375	Y: .763	Z: .763			
156	32	N68	52.443	1692.387	-32.09	-2.365	.077	2.657
157	32	N99	8.688	830.709	-161.558	1.598	-.009	.035
158	32	N100	77.218	1256.911	-45.963	-1.455	-.006	-2.01
159	32	Totals:	138.349	3780.007	-239.611			
160	32	COG (ft):	X: .375	Y: .763	Z: .763			
161	33	N68	108.736	1672.469	20.855	-2.325	.037	2.596



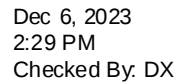
	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
162	33	N99	34.271	845.37	-110.796	1.651	-.061	.029
163	33	N100	95.963	1262.17	-48.037	-1.459	-.009	-2.031
164	33	Totals:	238.97	3780.008	-137.978			
165	33	COG (ft):	X: .375	Y: .763	Z: .763			
166	34	N68	140.318	1657.968	66.568	-2.292	-.012	2.552
167	34	N99	47.353	865.314	-33.487	1.724	-.095	.027
168	34	N100	87.89	1256.726	-33.088	-1.443	-.01	-2.018
169	34	Totals:	275.561	3780.009	-.007			
170	34	COG (ft):	X: .375	Y: .763	Z: .763			
171	35	N68	151.432	1652.763	81.848	-2.276	-.009	2.538
172	35	N99	29.204	885.191	44.764	1.798	-.056	.031
173	35	N100	58.329	1242.054	11.356	-1.412	.041	-1.976
174	35	Totals:	238.965	3780.008	137.968			
175	35	COG (ft):	X: .375	Y: .763	Z: .763			
176	36	N68	134.4	1658.258	82.405	-2.279	-.008	2.559
177	36	N99	3.536	899.664	97.807	1.854	-.007	.038
178	36	N100	.404	1222.083	59.396	-1.375	.075	-1.914
179	36	Totals:	138.34	3780.006	239.608			
180	36	COG (ft):	X: .375	Y: .763	Z: .763			
181	37	N68	116.938	1953.865	101.125	-2.748	-.06	4.186
182	37	N99	-13.485	937.246	84.383	1.75	.014	.182
183	37	N100	-103.449	888.861	91.549	-.844	.017	-1.244
184	37	Totals:	.005	3779.972	277.058			
185	37	COG (ft):	X: 1.194	Y: .763	Z: .763			
186	38	N68	46.33	1973.883	74.936	-2.782	-.094	4.249
187	38	N99	-25.871	931.759	68.569	1.73	.016	.191
188	38	N100	-158.795	874.328	96.124	-.822	-.031	-1.194
189	38	Totals:	-138.336	3779.97	239.628			
190	38	COG (ft):	X: 1.194	Y: .763	Z: .763			
191	39	N68	-9.942	1993.809	22.017	-2.822	-.054	4.31
192	39	N99	-51.463	917.086	17.788	1.677	.068	.197
193	39	N100	-177.552	869.074	98.19	-.819	-.028	-1.173
194	39	Totals:	-238.956	3779.968	137.995			
195	39	COG (ft):	X: 1.194	Y: .763	Z: .763			
196	40	N68	-41.508	2008.33	-23.665	-2.854	-.006	4.354
197	40	N99	-64.554	897.15	-59.546	1.604	.102	.198
198	40	N100	-169.485	874.488	83.235	-.835	-.028	-1.186
199	40	Totals:	-275.548	3779.968	.024			
200	40	COG (ft):	X: 1.194	Y: .763	Z: .763			
201	41	N68	-52.624	2013.55	-38.912	-2.871	-.008	4.367
202	41	N99	-46.418	877.3	-137.835	1.53	.063	.195
203	41	N100	-139.909	889.119	38.796	-.865	-.078	-1.228
204	41	Totals:	-238.951	3779.969	-137.951			
205	41	COG (ft):	X: 1.194	Y: .763	Z: .763			
206	42	N68	-35.603	2008.045	-39.441	-2.868	-.009	4.347
207	42	N99	-20.763	862.866	-190.904	1.475	.014	.188
208	42	N100	-81.961	909.06	-9.246	-.903	-.112	-1.289
209	42	Totals:	-138.327	3779.971	-239.59			
210	42	COG (ft):	X: 1.194	Y: .763	Z: .763			

Joint Reactions (Continued)

	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
214	43	Totals:	.015	3779.973	-277.024			
215	43	COG (ft):	X: 1.194	Y: .763	Z: .763			
216	44	N68	88.304	1973.266	-9.883	-2.812	.076	4.237
217	44	N99	2.723	863.187	-193.597	1.474	.013	.172
218	44	N100	47.328	943.522	-36.115	-.958	-.024	-1.405
219	44	Totals:	138.355	3779.975	-239.595			
220	44	COG (ft):	X: 1.194	Y: .763	Z: .763			
221	45	N68	144.588	1953.344	43.037	-2.773	.036	4.175
222	45	N99	28.309	877.851	-142.807	1.527	-.038	.165
223	45	N100	66.079	948.783	-38.193	-.961	-.027	-1.426
224	45	Totals:	238.976	3779.977	-137.962			
225	45	COG (ft):	X: 1.194	Y: .763	Z: .763			
226	46	N68	176.165	1938.833	88.72	-2.74	-.013	4.132
227	46	N99	41.394	897.782	-65.464	1.6	-.073	.164
228	46	N100	58.009	943.363	-23.246	-.946	-.028	-1.413
229	46	Totals:	275.568	3779.977	.009			
230	46	COG (ft):	X: 1.194	Y: .763	Z: .763			
231	47	N68	187.274	1933.62	103.976	-2.724	-.01	4.118
232	47	N99	23.254	917.635	12.814	1.674	-.034	.167
233	47	N100	28.444	928.722	21.194	-.915	.023	-1.371
234	47	Totals:	238.971	3779.977	137.984			
235	47	COG (ft):	X: 1.194	Y: .763	Z: .763			
236	48	N68	170.246	1939.12	104.513	-2.727	-.01	4.138
237	48	N99	-2.406	932.079	65.873	1.729	.015	.174
238	48	N100	-29.494	908.776	69.237	-.877	.057	-1.31
239	48	Totals:	138.347	3779.975	239.624			
240	48	COG (ft):	X: 1.194	Y: .763	Z: .763			
241	49	N68	36.893	1228.539	14.355	-1.509	-.007	1.963
242	49	N99	-5.529	951.298	-37.164	1.923	-.008	.073
243	49	N100	-31.363	1225.18	22.807	-1.397	-.009	-2.029
244	49	Totals:	.001	3405.017	-.002			
245	49	COG (ft):	X: .004	Y: .847	Z: .405			
246	50	N68	53.911	1491.847	25.02	-1.956	-.008	3.046
247	50	N99	-8.672	971.16	-52.32	1.849	.005	.132
248	50	N100	-45.235	941.985	27.309	-.921	-.019	-1.539
249	50	Totals:	.005	3404.992	.009			
250	50	COG (ft):	X: .692	Y: .847	Z: .405			
251	51	N68	40.371	1159.357	16.392	-1.274	-.009	2.057
252	51	N99	-5.993	1217.733	-43.155	2.453	-.009	.086
253	51	N100	-34.379	1157.924	26.762	-1.142	-.009	-2.13
254	51	Totals:	0	3535.015	-.001			
255	51	COG (ft):	X: .004	Y: .952	Z: -.042			
256	52	N68	72.499	1012.123	75.634	-1.092	-.053	1.78
257	52	N99	-7.024	1105.448	87.723	2.274	-.007	.077
258	52	N100	-65.479	1010.482	81.743	-.978	.035	-1.846
259	52	Totals:	-.004	3128.053	245.099			
260	52	COG (ft):	X: .004	Y: .952	Z: -.042			
261	53	N68	17.756	1026.134	49.04	-1.117	-.059	1.824
262	53	N99	-28.255	1101.605	71.694	2.261	.019	.083
263	53	N100	-112.054	1000.313	91.524	-.963	.016	-1.811
264	53	Totals:	-122.553	3128.051	212.258			
265	53	COG (ft):	X: .004	Y: .952	Z: -.042			

Joint Reactions (Continued)

	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
266	54	N68	-32.168	1040.08	13.198	-1.144	-.051	1.867
267	54	N99	-43.335	1091.314	26.229	2.223	.038	.087
268	54	N100	-136.754	996.656	83.126	-.961	-.009	-1.796
269	54	Totals:	-212.258	3128.05	122.553			
270	54	COG (ft):	X: .004	Y: .952	Z: -.042			
271	55	N68	-63.907	1050.226	-22.295	-1.167	-.032	1.898
272	55	N99	-48.226	1077.334	-36.5	2.172	.045	.088
273	55	N100	-132.966	1000.491	58.799	-.972	-.034	-1.805
274	55	Totals:	-245.099	3128.05	.004			
275	55	COG (ft):	X: .004	Y: .952	Z: -.042			
276	56	N68	-68.947	1053.848	-47.925	-1.179	-.006	1.908
277	56	N99	-41.612	1063.411	-99.682	2.12	.038	.086
278	56	N100	-101.695	1010.791	25.06	-.993	-.052	-1.835
279	56	Totals:	-212.254	3128.051	-122.547			
280	56	COG (ft):	X: .004	Y: .952	Z: -.042			
281	57	N68	-45.945	1049.978	-56.827	-1.177	.019	1.894
282	57	N99	-25.269	1053.277	-146.383	2.082	.018	.081
283	57	N100	-51.332	1024.796	-9.046	-1.019	-.058	-1.878
284	57	Totals:	-122.547	3128.052	-212.256			
285	57	COG (ft):	X: .004	Y: .952	Z: -.042			
286	58	N68	-1.06	1039.652	-46.617	-1.161	.037	1.86
287	58	N99	-3.574	1049.644	-164.097	2.068	-.009	.075
288	58	N100	4.636	1038.757	-34.387	-1.043	-.051	-1.924
289	58	Totals:	.003	3128.054	-245.101			
290	58	COG (ft):	X: .004	Y: .952	Z: -.042			
291	59	N68	53.684	1025.638	-20.027	-1.137	.043	1.816
292	59	N99	17.66	1053.486	-148.066	2.081	-.035	.069
293	59	N100	51.208	1048.931	-44.168	-1.058	-.032	-1.959
294	59	Totals:	122.552	3128.055	-212.26			
295	59	COG (ft):	X: .004	Y: .952	Z: -.042			
296	60	N68	103.611	1011.694	15.814	-1.11	.035	1.773
297	60	N99	32.739	1063.772	-102.598	2.118	-.054	.066
298	60	N100	75.907	1052.59	-35.772	-1.061	-.007	-1.974
299	60	Totals:	212.257	3128.056	-122.555			
300	60	COG (ft):	X: .004	Y: .952	Z: -.042			
301	61	N68	135.352	1001.553	51.31	-1.087	.016	1.742
302	61	N99	37.627	1077.75	-39.868	2.169	-.061	.065
303	61	N100	72.119	1048.754	-11.447	-1.05	.018	-1.965
304	61	Totals:	245.098	3128.057	-.006			
305	61	COG (ft):	X: .004	Y: .952	Z: -.042			
306	62	N68	140.391	997.933	76.942	-1.075	-.009	1.732
307	62	N99	31.011	1091.674	23.312	2.221	-.053	.067
308	62	N100	40.851	1038.449	22.291	-1.028	.036	-1.935
309	62	Totals:	212.253	3128.056	122.545			
310	62	COG (ft):	X: .004	Y: .952	Z: -.042			
311	63	N68	117.386	1001.802	85.845	-1.077	-.035	1.746
312	63	N99	14.669	1101.812	70.009	2.259	-.034	.071
313	63	N100	-9.509	1024.441	56.399	-1.002	.043	-1.891
314	63	Totals:	122.545	3128.055	212.253			
315	63	COG (ft):	X: .004	Y: .952	Z: -.042			
316	64	N68	61.59	699.394	71.235	-.749	-.05	1.225
317	64	N99	-5.408	776.939	99.34	1.612	-.005	.054



	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
318	64	N100	-56.187	698.135	74.525	-.67	.038	-1.272
319	64	Totals:	-.004	2174.468	245.1			
320	64	COG (ft):	X: .004	Y: .952	Z: -.042			
321	65	N68	6.858	713.395	44.647	-.773	-.056	1.269
322	65	N99	-26.649	773.097	83.317	1.599	.022	.06
323	65	N100	-102.761	687.974	84.294	-.655	.019	-1.237
324	65	Totals:	-122.553	2174.467	212.259			
325	65	COG (ft):	X: .004	Y: .952	Z: -.042			
326	66	N68	-43.055	727.33	8.805	-.801	-.049	1.313
327	66	N99	-41.735	762.813	37.862	1.562	.041	.064
328	66	N100	-127.468	684.322	75.886	-.653	-.007	-1.222
329	66	Totals:	-212.258	2174.465	122.554			
330	66	COG (ft):	X: .004	Y: .952	Z: -.042			
331	67	N68	-74.783	737.468	-26.694	-.823	-.03	1.343
332	67	N99	-46.626	748.843	-24.855	1.51	.047	.065
333	67	N100	-123.69	688.155	51.553	-.664	-.032	-1.23
334	67	Totals:	-245.099	2174.465	.004			
335	67	COG (ft):	X: .004	Y: .952	Z: -.042			
336	68	N68	-79.817	741.087	-52.335	-.835	-.004	1.353
337	68	N99	-40.006	734.931	-88.026	1.459	.04	.063
338	68	N100	-92.431	698.448	17.814	-.685	-.05	-1.26
339	68	Totals:	-212.254	2174.466	-122.547			
340	68	COG (ft):	X: .004	Y: .952	Z: -.042			
341	69	N68	-56.815	737.218	-61.248	-.833	.021	1.339
342	69	N99	-23.652	724.805	-134.721	1.42	.02	.058
343	69	N100	-42.079	712.443	-16.286	-.711	-.056	-1.304
344	69	Totals:	-122.547	2174.467	-212.255			
345	69	COG (ft):	X: .004	Y: .952	Z: -.042			
346	70	N68	-11.936	726.899	-51.049	-.818	.039	1.305
347	70	N99	-1.945	721.176	-152.436	1.406	-.006	.052
348	70	N100	13.884	726.394	-41.616	-.735	-.049	-1.349
349	70	Totals:	.003	2174.469	-245.101			
350	70	COG (ft):	X: .004	Y: .952	Z: -.042			
351	71	N68	42.797	712.895	-24.465	-.793	.045	1.261
352	71	N99	19.299	725.016	-136.411	1.419	-.033	.046
353	71	N100	60.456	736.559	-51.385	-.75	-.03	-1.384
354	71	Totals:	122.552	2174.47	-212.26			
355	71	COG (ft):	X: .004	Y: .952	Z: -.042			
356	72	N68	92.712	698.961	11.377	-.766	.038	1.218
357	72	N99	34.384	735.296	-90.953	1.456	-.052	.042
358	72	N100	85.16	740.215	-42.979	-.753	-.004	-1.399
359	72	Totals:	212.257	2174.472	-122.555			
360	72	COG (ft):	X: .004	Y: .952	Z: -.042			
361	73	N68	124.443	688.828	46.878	-.744	.019	1.187
362	73	N99	39.272	749.263	-28.235	1.508	-.058	.041
363	73	N100	81.383	736.38	-18.648	-.742	.021	-1.39
364	73	Totals:	245.098	2174.472	-.006			
365	73	COG (ft):	X: .004	Y: .952	Z: -.042			
366	74	N68	129.476	685.212	72.521	-.732	-.007	1.177
367	74	N99	32.65	763.177	34.934	1.559	-.051	.043
368	74	N100	50.127	726.082	15.09	-.72	.039	-1.36
369	74	Totals:	212.253	2174.471	122.545			

Joint Reactions (Continued)

	LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
370	74	COG (ft):	X: .004	Y: .952	Z: -.042			
371	75	N68	106.472	689.079	81.436	-.734	-.032	1.191
372	75	N99	16.297	773.307	81.626	1.598	-.031	.048
373	75	N100	-.223	712.084	49.192	-.694	.045	-1.317
374	75	Totals:	122.546	2174.47	212.254			
375	75	COG (ft):	X: .004	Y: .952	Z: -.042			

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

	Member	Shape	Code Check	Loc[ft]	LC Shear ...	Loc[ft]	Dir	LC phi*Pnc ...	phi*Pnt [...]	phi*Mn y...	phi*Mn z...	Cb	Eqn	
1	M20	PIPE 3.0	.241	8.073	20	.062	8.203	20	28250.5...	65205	5.749	5.749	2...H1-1b	
2	M41A	HSS4X4X4	.226	2.406	22	.053	2.406	y	20	136177....	139518	16.181	16.181	1...H1-1b
3	M42 1	HSS4X4X4	.219	0	20	.052	0	y	17	136177....	139518	16.181	16.181	1...H1-1b
4	M43A 1	PL1/2x6	.270	.547	2	.218	0	y	7	62895.0...	97200	1.012	12.15	1...H1-1b
5	M46A	L2x2x3	.187	3.965	10	.016	3.965	y	24	10640.6...	23392.8	.558	1.093	1...H2-1
6	M47	L2x2x3	.186	0	8	.018	0	y	18	10634.8...	23392.8	.558	1.092	1...H2-1
7	M64	PL3/8x6	.208	0	8	.171	0	y	24	71260.7...	72900	.57	9.113	1...H1-1b
8	M65	PL3/8x6	.087	.167	8	.133	0	y	19	71601.7...	72900	.57	9.113	1...H1-1b
9	M71	PL1/2x6	.049	.125	6	.100	.125	y	5	96648.9...	97200	1.012	12.15	1...H1-1b
10	M86	PL3/8x6	.172	0	9	.184	0	y	14	71260.7...	72900	.57	9.113	1...H1-1b
11	M87	PL3/8x6	.087	.167	4	.136	0	y	22	71601.7...	72900	.57	9.113	1...H1-1b
12	M90	PL1/2x6	.047	.125	6	.087	0	y	7	96648.9...	97200	1.012	12.15	1...H1-1b
13	M51A	HSS4X4X4	.226	2.406	18	.053	2.406	y	16	136177....	139518	16.181	16.181	1...H1-1b
14	M52	HSS4X4X4	.219	0	16	.052	0	y	13	136177....	139518	16.181	16.181	1...H1-1b
15	M53A	PL1/2x6	.270	.547	10	.218	0	y	3	62895.0...	97200	1.012	12.15	1...H1-1b
16	M56	L2x2x3	.187	3.965	6	.016	3.965	y	20	10640.6...	23392.8	.558	1.093	1...H2-1
17	M57	L2x2x3	.187	0	4	.018	0	y	14	10634.8...	23392.8	.558	1.092	1...H2-1
18	M62	PL3/8x6	.208	0	4	.172	0	y	20	71260.7...	72900	.57	9.113	1...H1-1b
19	M63	PL3/8x6	.087	.167	4	.134	0	y	15	71601.7...	72900	.57	9.113	1...H1-1b
20	M65A	PL1/2x6	.049	.125	2	.101	.125	y	1	96648.9...	97200	1.012	12.15	1...H1-1b
21	M67	PL3/8x6	.172	0	5	.184	0	y	22	71260.7...	72900	.57	9.113	1...H1-1b
22	M68A	PL3/8x6	.087	.167	12	.136	0	y	18	71601.7...	72900	.57	9.113	1...H1-1b
23	M70	PL1/2x6	.047	.125	2	.149	0	y	39	96648.9...	97200	1.012	12.15	1...H1-1b
24	MP4A	PIPE 2.0	.288	4.156	17	.083	1.167		5	17855.0...	32130	1.872	1.872	1...H1-1b
25	MP3A	PIPE 2.0	.413	3.5	17	.086	2.698		6	17855.0...	32130	1.872	1.872	1...H1-1b
26	MP1A	PIPE 2.0	.368	4.156	21	.074	1.167		9	17855.0...	32130	1.872	1.872	1...H1-1b
27	M109A	HSS4X4X4	.441	0	17	.100	0	y	19	124317....	139518	16.181	16.181	2...H1-1b
28	M53	PIPE 3.0	.242	8.073	16	.062	8.203		16	28250.5...	65205	5.749	5.749	2...H1-1b
29	M54A	PIPE 3.0	.242	8.073	13	.062	8.203		24	28250.5...	65205	5.749	5.749	2...H1-1b
30	M55A	HSS4X4X4	.225	2.406	14	.053	2.406	y	24	136177....	139518	16.181	16.181	1...H1-1b
31	M56A	HSS4X4X4	.219	0	24	.052	0	y	21	136177....	139518	16.181	16.181	1...H1-1b
32	M57A	PL1/2x6	.270	.547	6	.217	0	y	11	62895.0...	97200	1.012	12.15	1...H1-1b
33	M60A	L2x2x3	.187	3.965	2	.016	3.965	y	16	10640.6...	23392.8	.558	1.093	1...H2-1
34	M61A	L2x2x3	.187	0	12	.018	0	y	22	10634.8...	23392.8	.558	1.092	1...H2-1
35	M66A	PL3/8x6	.208	0	12	.173	0	y	15	71260.7...	72900	.57	9.113	1...H1-1b
36	M67A	PL3/8x6	.087	.167	12	.134	0	y	23	71601.7...	72900	.57	9.113	1...H1-1b
37	M69A	PL1/2x6	.049	.125	10	.100	.125	y	9	96648.9...	97200	1.012	12.15	1...H1-1b
38	M71B	PL3/8x6	.172	0	1	.182	0	y	18	71260.7...	72900	.57	9.113	1...H1-1b
39	M72A	PL3/8x6	.087	.167	8	.135	0	y	14	71601.7...	72900	.57	9.113	1...H1-1b
40	M74	PL1/2x6	.047	.125	10	.086	0	y	11	96648.9...	97200	1.012	12.15	1...H1-1b
41	M76	HSS4X4X4	.449	0	13	.108	0	y	15	124317....	139518	16.181	16.181	2...H1-1b

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc ...	phi*Pnt [...]	phi*Mn y...	phi*Mn z...	Cb	Eqn
42	M77	HSS4X4X4	.441	0	21	.100	0	y	23	124317...	139518	16.181	16.181	2...	H1-1b
43	M89A	PIPE 2.0	.058	1.5	19	.031	1.5		4	28843.4...	32130	1.872	1.872	1...	H1-1b
44	MP2A	PIPE 2.0	.467	4.156	10	.075	1.167		9	17855.0...	32130	1.872	1.872	1...	H1-1b
45	MP4C	PIPE 2.0	.288	4.156	13	.084	1.167		1	17855.0...	32130	1.872	1.872	2...	H1-1b
46	MP3C	PIPE 2.0	.413	3.5	13	.086	2.698		2	17855.0...	32130	1.872	1.872	1...	H1-1b
47	MP1C	PIPE 2.0	.368	4.156	17	.074	1.167		5	17855.0...	32130	1.872	1.872	2...	H1-1b
48	MP2C	PIPE 2.0	.466	4.156	6	.075	1.167		5	17855.0...	32130	1.872	1.872	1...	H1-1b
49	MP4B	PIPE 2.0	.288	4.156	21	.083	1.167		9	17855.0...	32130	1.872	1.872	2...	H1-1b
50	MP3B	PIPE 2.0	.413	3.5	21	.086	2.698		10	17855.0...	32130	1.872	1.872	1...	H1-1b
51	MP1B	PIPE 2.0	.369	4.156	13	.074	1.167		1	17855.0...	32130	1.872	1.872	1...	H1-1b
52	MP2B	PIPE 2.0	.467	4.156	2	.075	1.167		1	17855.0...	32130	1.872	1.872	1...	H1-1b
53	M94	PIPE 2.5	.208	4.297	21	.069	10.286		14	14558.81	50715	3.596	3.596	2...	H1-1b
54	M101	PIPE 2.5	.207	4.297	17	.069	10.286		22	14558.81	50715	3.596	3.596	2...	H1-1b
55	M104	PIPE 2.5	.208	4.297	13	.069	10.286		18	14558.81	50715	3.596	3.596	2...	H1-1b
56	M107	L3X3X4	.321	2.421	6	.035	0	y	6	40975.1...	46656	1.688	3.756	2...	H2-1
57	M108	L3X3X4	.321	2.421	2	.035	0	y	2	40975.1...	46656	1.688	3.756	2...	H2-1
58	M109	L3X3X4	.321	2.421	10	.035	.025	y	10	40975.1...	46656	1.688	3.756	2...	H2-1

I. Mount-to-Tower Connection Check

Custom Orientation Required

No

Tower Connection Bolt Checks

Yes

Bolt Orientation

Parallel

Bolt Quantity per Reaction:

4

d_x (in) (Delta X of typ. bolt config. sketch) :

8

d_y (in) (Delta Y of typ. bolt config. sketch) :

8

Bolt Type:

A325N

Bolt Diameter (in):

0.625

Required Tensile Strength / bolt (kips):

5.6

Required Shear Strength / bolt (kips):

0.9

Tensile Capacity / bolt (kips):

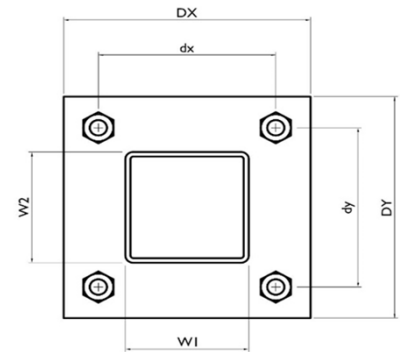
20.7

Shear Capacity / bolt (kips):

12.4

Bolt Overall Utilization:

26.8%



Tower Connection Baseplate Checks

Yes

Connecting Standoff Member Shape:

Rect Tube

Weld Stiffener Configuration:

No Stiffeners

Plate Width, D_x (in):

10

Plate Height, D_y (in):

10

W_1 (in):

4

W_2 (in):

4

Member Thickness (in):

0.25

Stiffener location a_1 (in):

Stiffener location b_1 (in):

Stiffener location a_2 (in):

Stiffener location b_2 (in):

F_y (ksi, plate):

36

Plate Thickness (in):

0.625

Length of Yield Line, L_y (in):

7.85

Bolt Eccentricity, e (in):

3.06

M_u (kip-in):

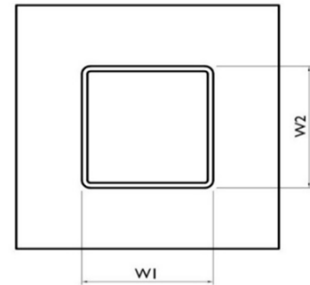
17.00

$\Phi * M_n$ (kip-in):

24.84

Plate Bending Utilization:

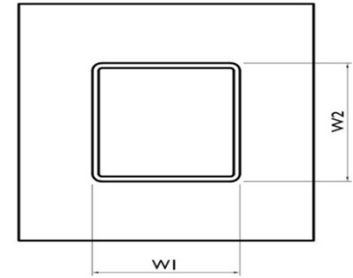
68.4%



Tower Connection Weld Checks

Weld Shape:
Weld Stiffener Configuration:
Weld Size (1/16 in):
W1 (in):
W2 (in):
Weld Total Length (in):
 Z_x (in³/in):
 Z_y (in³/in):
 J_p (in⁴/in):
 c_x (in):
 c_y (in):
Required combined strength (kip/in):
Weld Capacity (kip/in):
Weld Utilization:

Yes
Rectangle
None
6
4
4
16.00
21.33
21.33
85.33
2.25
2.25
2.75
8.35
33.0%





FOX HILL TELECOM

Radio Frequency Emissions Analysis Report

Prepared for:



Crown Site ID: 846293_Tolland - Peter Green Rd

Verizon Wireless Site Name: Ellington South CT

Verizon Wireless FUZE ID: 16273385

Site Address:

319 Peter Green Road

Tolland, CT 06084

July 30, 2024

Fox Hill Telecom Project Number: 240194

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	24.22 %



July 30, 2024

Crown Castle
1800 W. Park Drive
Westborough, MA 01581

Emissions Analysis for:

Crown Castle Site: 846293 – Tolland - Peter Green Rd

Verizon Wireless Site: Ellington South CT

Fox Hill Telecom, Inc (“Fox Hill”) was directed to analyze the proposed upgrades for Verizon Wireless to the Crown Castle facility located at **319 Peter Green Road, Tolland, CT**, for the purpose of determining whether the emissions from the Proposed Verizon Wireless Antenna Installation, in addition to all existing radio systems 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.



General population 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 700 MHz band & the 850 MHz cellular band are approximately $497 \mu\text{W}/\text{cm}^2$ and $586 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 3700 MHz (C band) 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 the percentage of MPE rather than power density.

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

Additional details can be found in FCC OET 65.



CALCULATIONS

Calculations were performed for the proposed upgrades to the Crown Castle facility for Verizon Wireless located at **319 Peter Green Road, Tolland, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 for far field modeling calculations.

In OET-65, plane wave power densities in the far field of an antenna are calculated by considering antenna gain and reflective waves that would contribute to exposure.

Since the radiation pattern of an antenna has developed in the **far field** region the power gain in specific directions needs to be considered in exposure predictions to yield an Effective Radiated Power (ERP) in each specific direction from the antenna. Also, since the vertical radiation pattern of the antenna is considered, the exposure calculations would most likely be reduced significantly at ground level, resulting in a more realistic estimate of the actual exposure levels. To determine a worst-case scenario at each point along the calculation radials, each point was calculated using the antenna gain value at each angle of incident and compared against the result using an isotropic radiator at the antenna height with the greater of the two used to yield the more pessimistic far field value for each point along the calculation radial.

Additionally, to model a truly "worst case" prediction of exposure levels at or near a surface, such as at ground-level or on a rooftop, reflection off the surface of antenna radiation power can be assumed, resulting in a potential 1.6 times increase in power density in calculating far field power density values.

With these factors considered, the worst case **far field prediction model** utilized in this analysis is determined by the following equation:

Equation 9 per FCC OET65 for Far Field Modeling

$$S = \frac{33.4 \text{ ERP}}{R^2}$$

S = Power Density (in $\mu\text{w}/\text{cm}^2$)

ERP = Effective Radiated Power from antenna (watts)

R = Distance from the antenna (meters)

Predicted far field power density values for all carriers identified in this report were calculated 6 feet above the ground level and are displayed as a percentage of the applicable FCC standards. All emissions values for other carriers were calculated using the same Far Field model outlined above, using industry standard radio configurations and frequency band selection based upon available licenses in this geographic area for emissions contribution estimates.



For each Verizon Wireless sector, the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE	700 MHz	4	40
LTE / 5G	850 MHz	4	40
LTE	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	4	40
5G	3700 MHz (C Band)	2	160

Table 1: Channel Data Table



The following **Verizon Wireless** antennas listed in *Table 2 – Antenna Data* were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 3700 MHz (C Band) frequency bands. This is based on feedback from Verizon Wireless regarding anticipated antenna selection. Maximum gain values for all antennas are listed in *Table 3 – Verizon Wireless Inventory and Power Data* below.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Commscope NHH-65B-R2B	110
A	2	Commscope NHH-65B-R2B	110
A	3	Samsung MT6413-77A	110
A	4	Antel LPA-80063/6CF	110
A	4	Antel LPA-80063/6CF	110
B	1	Commscope NHH-65B-R2B	110
B	2	Commscope NHH-65B-R2B	110
B	3	Samsung MT6413-77A	110
B	4	Antel LPA-80063/6CF	110
B	4	Antel LPA-80063/6CF	110
C	1	Commscope NHH-65B-R2B	110
C	2	Commscope NHH-65B-R2B	110
C	3	Samsung MT6413-77A	110
C	4	Antel LPA-80063/6CF	110
C	4	Antel LPA-80063/6CF	110

Table 2: Antenna Data

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



RESULTS

Per the calculations completed for the proposed Verizon Wireless configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Commscope NHH-65B-R2B	700 MHz / 850	12.75 / 12.85	8	320	6,097.88	2.08
Antenna A2	Commscope NHH-65B-R2B	1900 MHz (PCS) / 2100 MHz (AWS)	15.75 / 16.25	8	320	12,760.54	1.06
Antenna A3	Samsung MT6413-77A	3700 MHz (C Band)	23.15	2	320	66,092.16	4.49
Antenna A4	Antel LPA-80063/6CF (Dormant)	NA	NA	0	0	0.00	0.00
Antenna A5	Antel LPA-80063/6CF (Dormant)	NA	NA	0	0	0.00	0.00
Sector A Composite MPE%							7.63
Antenna B1	Commscope NHH-65B-R2B	700 MHz / 850	12.75 / 12.85	8	320	6,097.88	2.08
Antenna B2	Commscope NHH-65B-R2B	1900 MHz (PCS) / 2100 MHz (AWS)	15.75 / 16.25	8	320	12,760.54	1.06
Antenna B3	Samsung MT6413-77A	3700 MHz (C Band)	23.15	2	320	66,092.16	4.49
Antenna B4	Antel LPA-80063/6CF (Dormant)	NA	NA	0	0	0.00	0.00
Antenna B5	Antel LPA-80063/6CF (Dormant)	NA	NA	0	0	0.00	0.00
Sector B Composite MPE%							7.63
Antenna C1	Commscope NHH-65B-R2B	700 MHz / 850	12.75 / 12.85	8	320	6,097.88	2.08
Antenna C2	Commscope NHH-65B-R2B	1900 MHz (PCS) / 2100 MHz (AWS)	15.75 / 16.25	8	320	12,760.54	1.06
Antenna C3	Samsung MT6413-77A	3700 MHz (C Band)	23.15	2	320	66,092.16	4.49
Antenna C4	Antel LPA-80063/6CF (Dormant)	NA	NA	0	0	0.00	0.00
Antenna C5	Antel LPA-80063/6CF (Dormant)	NA	NA	0	0	0.00	0.00
Sector C Composite MPE%							7.63

Table 3: Verizon Wireless Inventory and Power Data table



Table 4: All Carrier MPE Contributions shows all additional identified carriers on site and their emissions contribution estimates, along with the newly calculated maximum Verizon Wireless far field emissions contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas the highest recorded sector value be used for composite site emissions values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three Verizon Wireless sectors have the same configuration yielding the same results for all three sectors. *Table 5* below shows a summary for each Verizon Wireless Sector as well as the composite estimated emissions value for the site.

Site Composite MPE%	
Carrier	MPE%
Verizon Wireless – Max Per Sector Value	7.63 %
AT&T	6.34 %
Dish Wireless	3.84 %
T-Mobile	6.41 %
Site Total MPE %:	24.22 %

Table 4: All Carrier MPE Contributions

Verizon Wireless Sector A Total:	7.63 %
Verizon Wireless Sector B Total:	7.63 %
Verizon Wireless Sector C Total:	7.63 %
Site Total:	24.22 %

Table 5: Site MPE Summary



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Table 6 below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated Verizon sector(s). For this site, all three Verizon Wireless sectors have the same configuration yielding the same results for all three sectors.

Verizon Wireless _ Frequency Band / Technology Max Power Values (Per Sector)	# 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
Verizon Wireless 700 MHz LTE	4	753.46	110	5.67	700 MHz	497	1.14%
Verizon Wireless 850 MHz LTE / 5G	4	771.01	110	5.51	850 MHz	586	0.94%
Verizon Wireless 1900 MHz (PCS) LTE	4	1,503.35	110	5.30	1900 MHz (PCS)	1000	0.53%
Verizon Wireless 2100 MHz (AWS) LTE	4	1,686.79	110	5.30	2100 MHz (AWS)	1000	0.53%
Verizon Wireless 3700 MHz (C Band) 5G	2	33,046.08	110	44.90	3700 MHz (C Band)	1000	4.49%
						Total:	7.63 %

Table 6: Verizon Wireless Maximum Sector MPE Power Values



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 Verizon Wireless facility as well as the site composite emissions estimates value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

Verizon Wireless Sector	Power Density Value (%)
Sector A:	7.63 %
Sector B:	7.63 %
Sector C:	7.63 %
Verizon Wireless Maximum Total (per sector):	7.63 %
Site Total:	24.22 %
Site Compliance Status:	COMPLIANT

The estimated composite emissions value for this site, assuming all carriers present, is **24.22 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon the far field calculations performed for all carriers identified in this report.

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 estimated values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Worcester, MA 01609
(978)660-3998



VERIZON SITE NUMBER: 5000247949
VERIZON SITE NAME: ELLINGTON SOUTH CT
VERIZON PROJECT: 16273385
SITE TYPE: MONOPOLE
TOWER HEIGHT: 119'-0"

BUSINESS UNIT #: 846293
SITE ADDRESS: 319 PETER GREEN ROAD
TOLLAND, CT 06084
COUNTY: TOLLAND
JURISDICTION: TOLLAND LEPC



VERIZON SITE NUMBER:
5000247949

BU #: 846293

CROWN CASTLE SITE NAME
TOLLAND - PETER
GREEN RD

319 PETER GREEN ROAD
TOLLAND, CT 06084

EXISTING 119'-0"
MONOPOLE

SITE INFORMATION

CROWN CASTLE USA INC.
SITE NAME:
BU NUMBER:

TOLLAND - PETER GREEN RD
846293

TOWER OWNER:

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

CARRIER/APPLICANT:

VERIZON WIRELESS
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

SITE ADDRESS:

319 PETER GREEN ROAD
TOLLAND, CT 06084
TOLLAND

COUNTY:

LATITUDE:
LONGITUDE:
LAT/LONG TYPE:
GROUND ELEVATION:

41° 53' 47.81" / 41.8966°
-72° 23' 37.43" / -72.3937°
NAD83
770'+/- AMSL

AREA OF CONSTRUCTION:
CURRENT ZONING:
MAP/PARCEL #:

EXISTING
UNKNOWN
TOLL-000009I-000000-001600-001880

OCCUPANCY CLASSIFICATION:
TYPE OF CONSTRUCTION:
A.D.A. COMPLIANCE:

U
IIB
FACILITY IS UNMANNED AND
NOT FOR HUMAN HABITATION

PROPERTY OWNER:

GEORGE KRECHKO
52 BASS DRIVE
ENFIELD, CT 06082

JURISDICTION:

TOLLAND LEPC
TEN FRANKLIN SQUARE
NEW BRITAIN, CT 06051

ELECTRIC PROVIDER:

NORTHEAST UTILITIES
800-286-2000

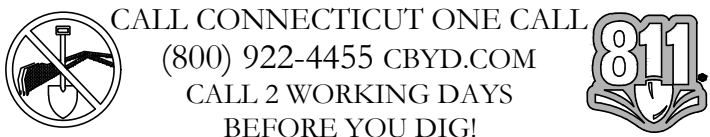
TELCO PROVIDER:

AT&T
866-620-6900

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN
C-2	TOWER ELEVATIONS
C-3	ANTENNA PLANS
C-4	FINAL EQUIPMENT SCHEDULE
C-5	EQUIPMENT DETAILS & SPECIFICATIONS
C-5.1	EQUIPMENT DETAILS & SPECIFICATIONS
C-6	COLOR CODE MATRIX
G-1	GROUNDING DETAILS
ATTACHED	MOUNT MODIFICATION (BY OTHERS)
ATTACHED	RFDS (BY OTHERS)

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 22X34. 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.



CONTRACTOR PMI REQUIREMENTS

PMI ACCESSED AT	https://pmi.vzwsmart.com
SMART TOOL VENDOR	
PROJECT NUMBER	10215322
VzW LOCATION CODE (PSLC)	467657
*** PMI AND REQUIREMENTS ALSO EMBEDDED IN MOUNT ANALYSIS REPORT	

MOUNT MODIFICATION REQUIRED

Y

VzW APPROVED SMART KIT VENDORS

REFER TO MOUNT MODIFICATION DRAWINGS
PAGE FOR VzW SMART KIT APPROVED VENDORS

APPROVALS

VERIZON SIGNATURE BLOCK

APPROVAL

SIGNATURE

DATE

SITE ACQUISITION

CONSTRUCTION

RADIO

MICROWAVE

TELCO

EQUIPMENT

PROJECT ADMINISTRATOR

WO ADMINISTRATOR

CROWN CASTLE USA INC. SINGNATURE BLOCK

APPROVAL

SITE ACQUISITION

PLANNER

CONSTRUCTION

PROJECT MANAGER

UTILITY MANAGER

LANDLORD

PROJECT DESCRIPTION

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

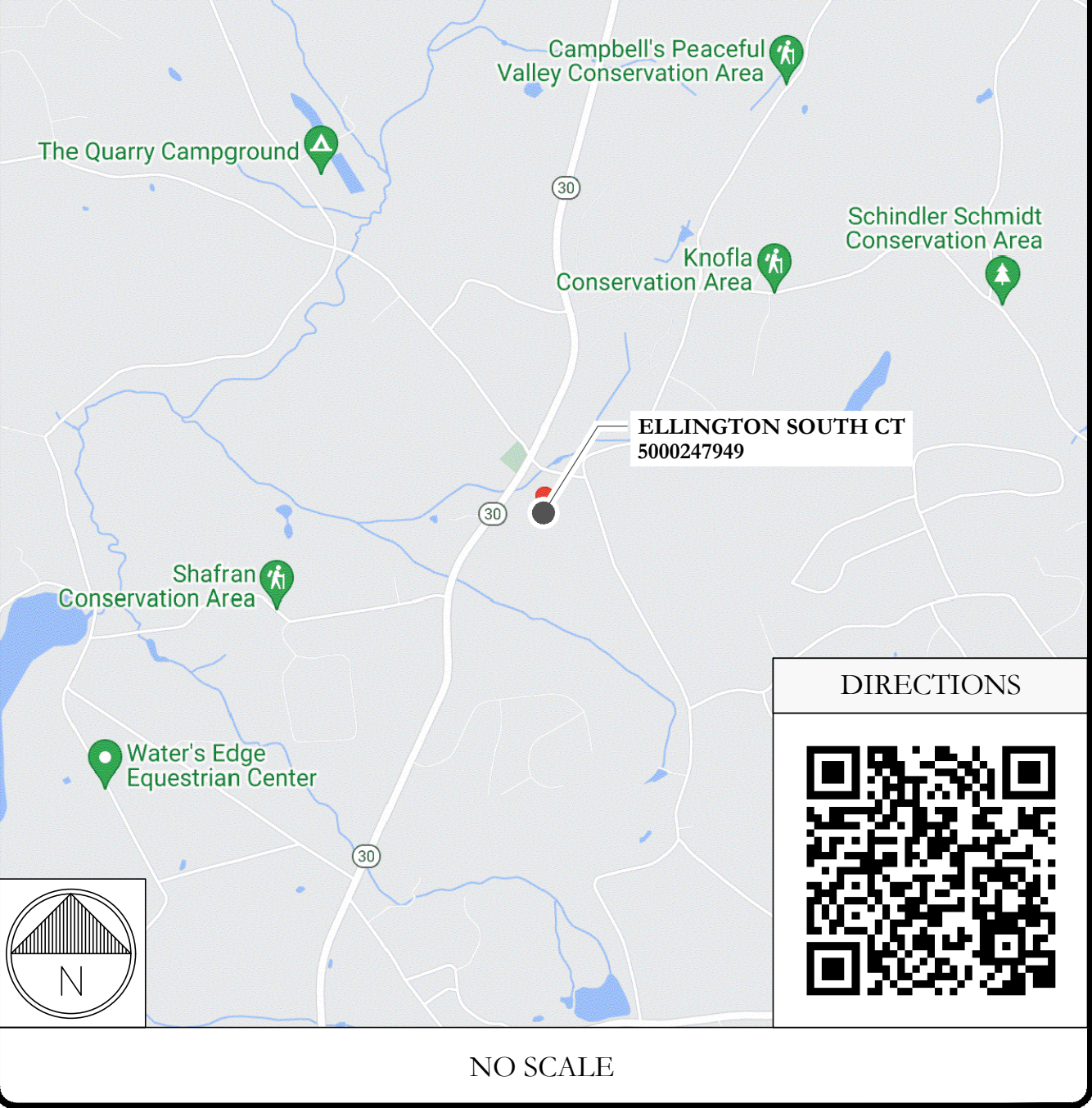
TOWER SCOPE OF WORK:

- REMOVE (3) ANTEL - BXA-171063-12CF-EDIN ANTENNA
- REMOVE (3) AMPHENOL - BXA-70063-6CF ANTENNA
- REMOVE (3) NOKIA - UHBA B13 RRH 4X30 RADIO
- REMOVE (2) ANDREW - 1-5/8" COAX COAXIAL CABLE
- INSTALL (6) COMMSCOPE - NHH-65B-R2B ANTENNA
- INSTALL (3) SAMSUNG - MT6413-77A ANTENNA
- INSTALL (3) SAMSUNG - RF4461D-43A RADIO
- INSTALL (3) SAMSUNG - B2/B66A RRH ORAN (RF4439D-25A) RADIO
- INSTALL (1) RAYCAP INC-001 - RVZDC-6627-PF-48 OVP BOX
- INSTALL (2) 6X12 HYBRID CABLE
- INSTALL (1) SUPPORT RAIL KIT PER MOUNT MOD/DATE

GROUND SCOPE OF WORK:

- INSTALL (1) RAYCAP - RVZDC-4520-PF-48 OVP BOX
- INSTALL (6) ABBING-001 - 109142881 POWER PLANT

LOCATION MAP



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
BUILDING
MECHANICAL
ELECTRICAL

CODE

2022 CONNECTICUT SBC/2021 IBC
2022 CONNECTICUT SBC/2021 IMC
2022 CONNECTICUT SBC/2020 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:

MORRISON HERSHFELD
DATED: 5/20/24

MOUNT ANALYSIS:

COLLIERS ENGINEERING & DESIGN, CT P.C.
DATED: 12/18/23

RFDS REVISION:

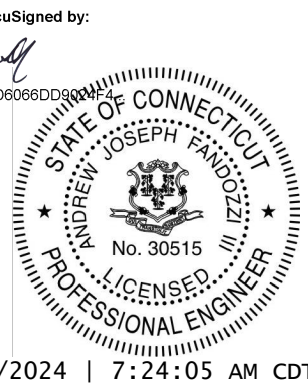
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DATED: 5/7/24

ORDER ID:

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INSTALLER NOTE:

NO PROPOSED LOADING TO BE ADDED UNTIL MOUNT MODIFICATIONS ARE INSTALLED PER MOUNT MODIFICATION DESIGN BY COLLIERS ENGINEERING & DESIGN, CT P.C. DATED 12/18/23.



CROWN CASTLE USA INC.
CERTIFICATE OF REGISTRATION #PEC.0001101
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:

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- 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. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE, AND/OR EQUIPMENT SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT, TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED-STD-10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH 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, ALPERUTENANCES, 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 PROVIDE 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.

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-OFF-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 GROUNDING AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CRIMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH 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).

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER: VERIZON
TOWER OWNER: CROWN CASTLE USA INC.
- 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 ASSURED THAT THE WORK CIRCUMSTANCES 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.
- 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, SHORING, SHIELDING, 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.
- NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPE 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.
- 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 SHALL BE NOTICED AS SOON AS POSSIBLE.
- 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.
- 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.
- UNLESS NOTED OTHERWISE, ALL WORK SHALL INCLUDE AS FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- 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.
- 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.
- 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.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

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° 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 (F_y) 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"

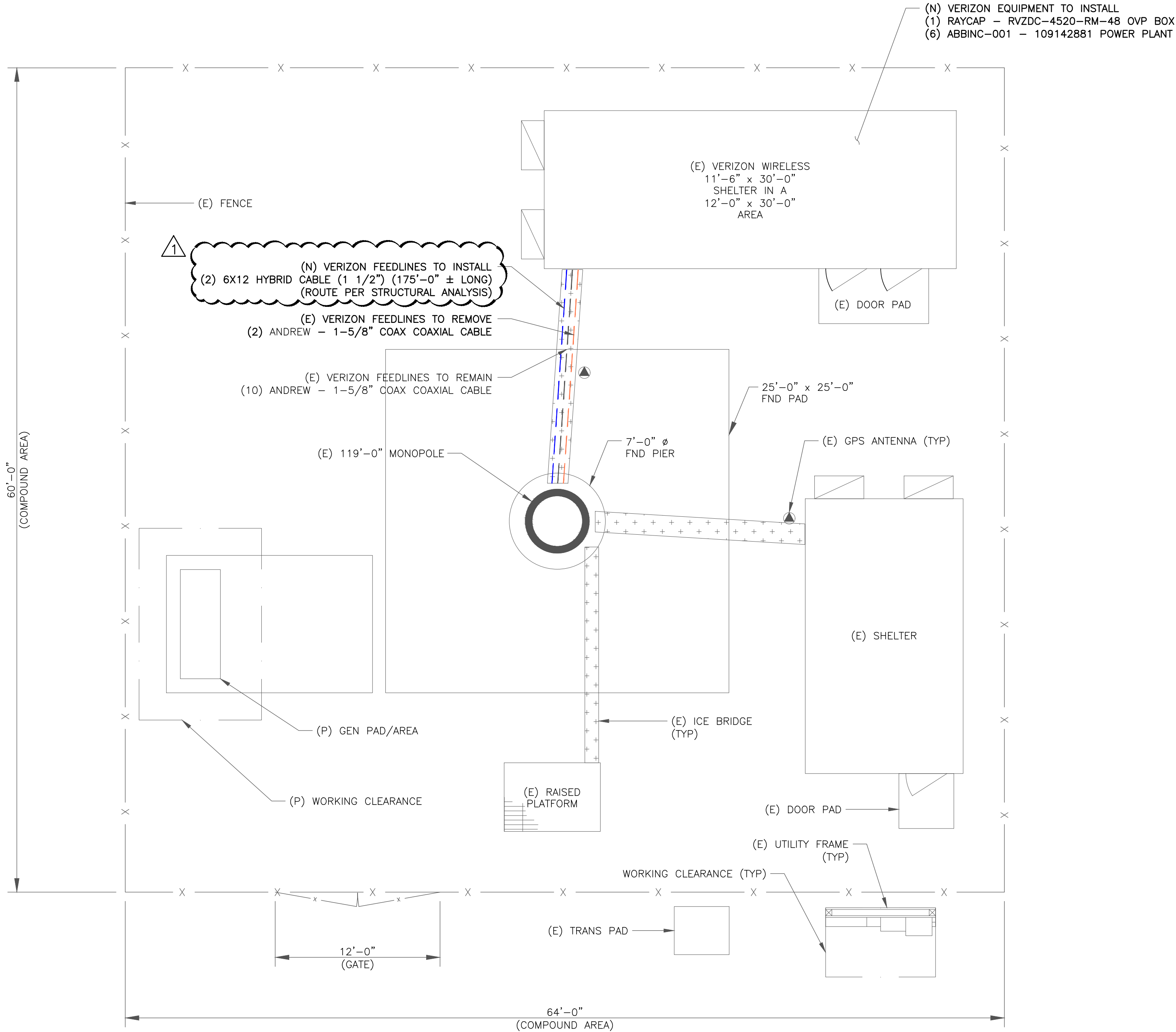
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

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 REQUIREMENTS 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 TIE 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 THW, 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 THW, 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 THW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MCC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC ON STRAIGHTS AND SCHEDULE 80 PVC UNDER ALL TRAFFIC CASEMENTS AND ALL ELBOWS/90s. ABOVE GRADE CONDUIT TO BE SCH 80 PVC OR IMC/RMC CONDUIT. EMT IS ALLOWED AT STUB UP LOCATIONS AND INDOORS ONLY.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (I.E. POWER CAPACITORS) ATTACHING TO 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 ENVELOPE. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 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 "VERIZON".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

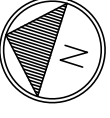
WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER,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

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





1 SITE PLAN
SCALE: 1/4"=1'-0" (FULL SIZE)
1/8"=1'-0" (11x17)



VERIZON SITE NUMBER:
5000247949

BU #: **846293**

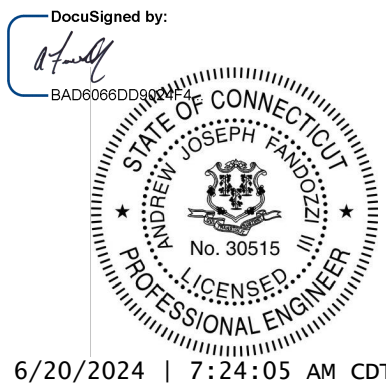
CROWN CASTLE SITE NAME
**TOLLAND - PETER
GREEN RD**

319 PETER GREEN ROAD
TOLLAND, CT 06084

EXISTING 119'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	4/4/24	NQM	CONSTRUCTION	EVI
1	6/5/24	NQM	CONSTRUCTION	EVI
2	6/20/24	NQM	CONSTRUCTION	EVI



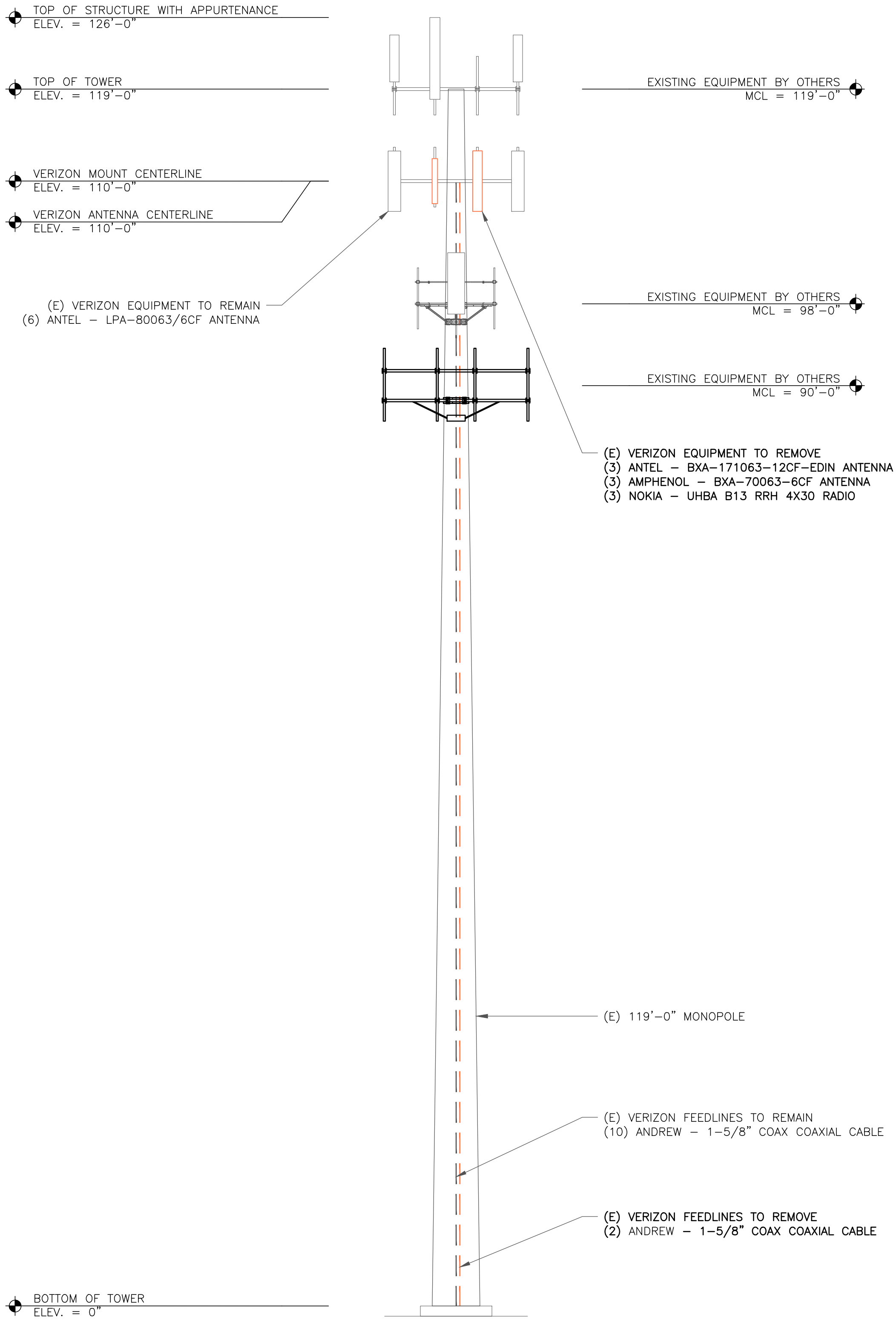
CROWN CASTLE USA INC.
CERTIFICATE OF REGISTRATION #PEC.0001101
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OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

SHEET NUMBER:

C-1

REVISION:

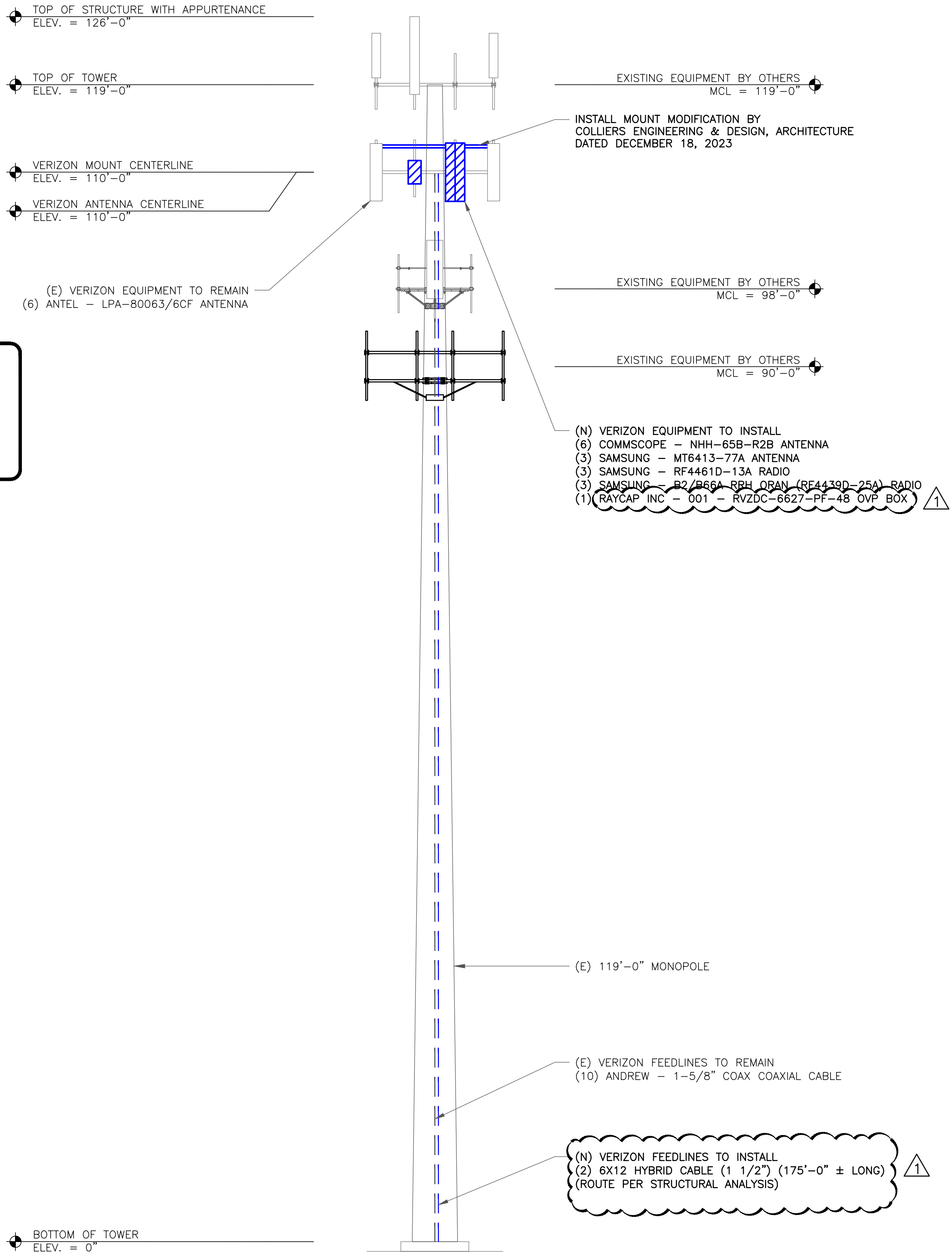
2



1 EXISTING TOWER ELEVATION
SCALE: 1/8"=1'-0" (FULL SIZE)
1/16"=1'-0" (11x17)

VERIZON EQUIPMENT
ANTENNA CL: 110'-0"
MOUNT CL: 110'-0"

INSTALLER NOTE:
NO PROPOSED LOADING TO BE ADDED
UNTIL MOUNT MODIFICATIONS ARE
INSTALLED PER MOUNT MODIFICATION
DESIGN BY COLLIER ENGINEERING &
DESIGN. CT P.C. DATED 12/18/23.



2 FINAL TOWER ELEVATION
SCALE: 1/8"=1'-0" (FULL SIZE)
1/16"=1'-0" (11x17)

verizon

CROWN CASTLE

VERIZON SITE NUMBER:
5000247949

BU #: 846293

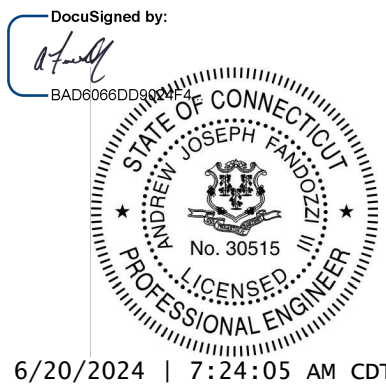
CROWN CASTLE SITE NAME
TOLLAND - PETER
GREEN RD

319 PETER GREEN ROAD
TOLLAND, CT 06084

EXISTING 119'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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1	6/5/24	NQM	CONSTRUCTION	EVI
2	6/20/24	NQM	CONSTRUCTION	EVI



6/20/2024 | 7:24:05 AM CDT

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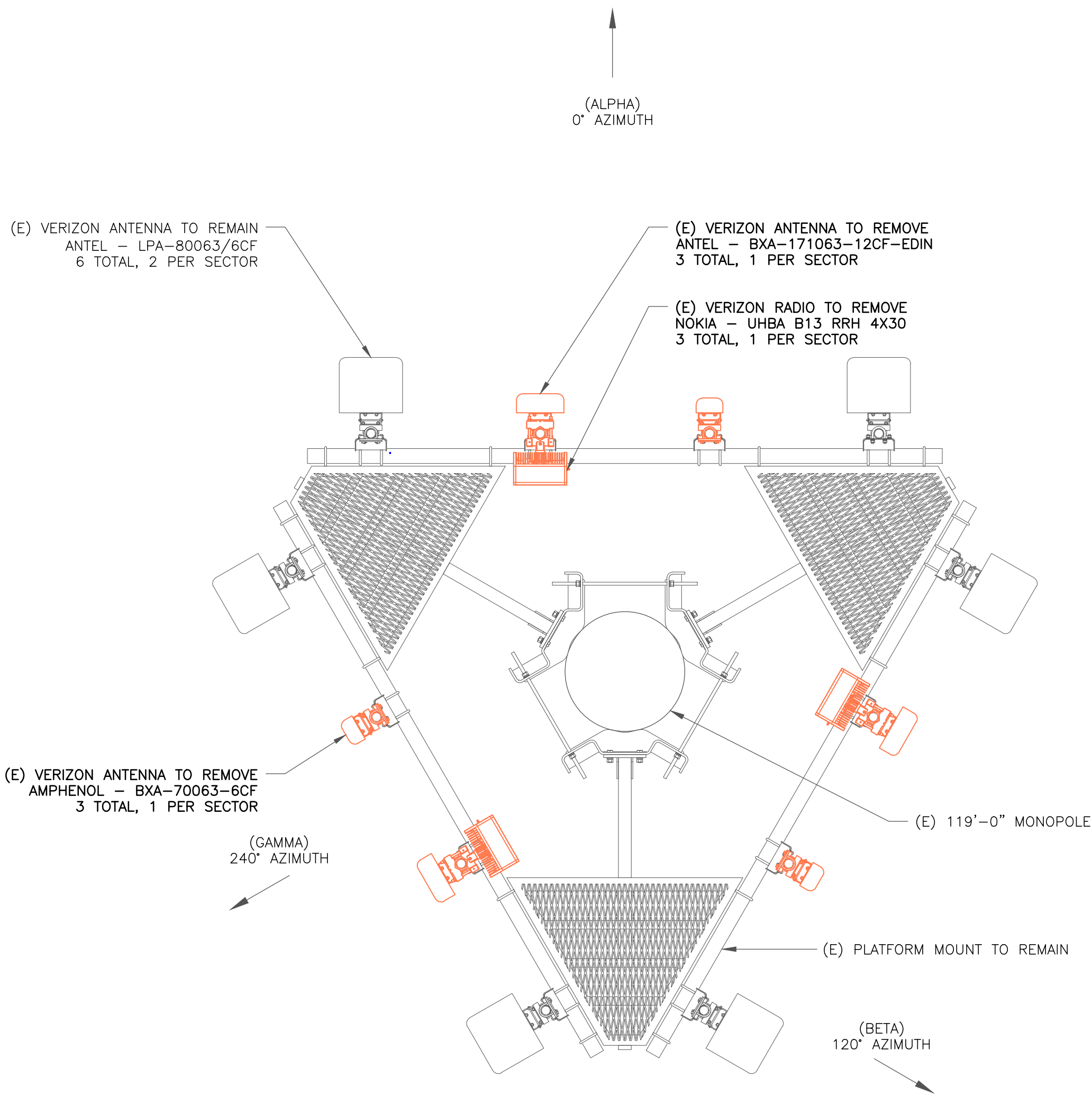
SHEET NUMBER:

C-2

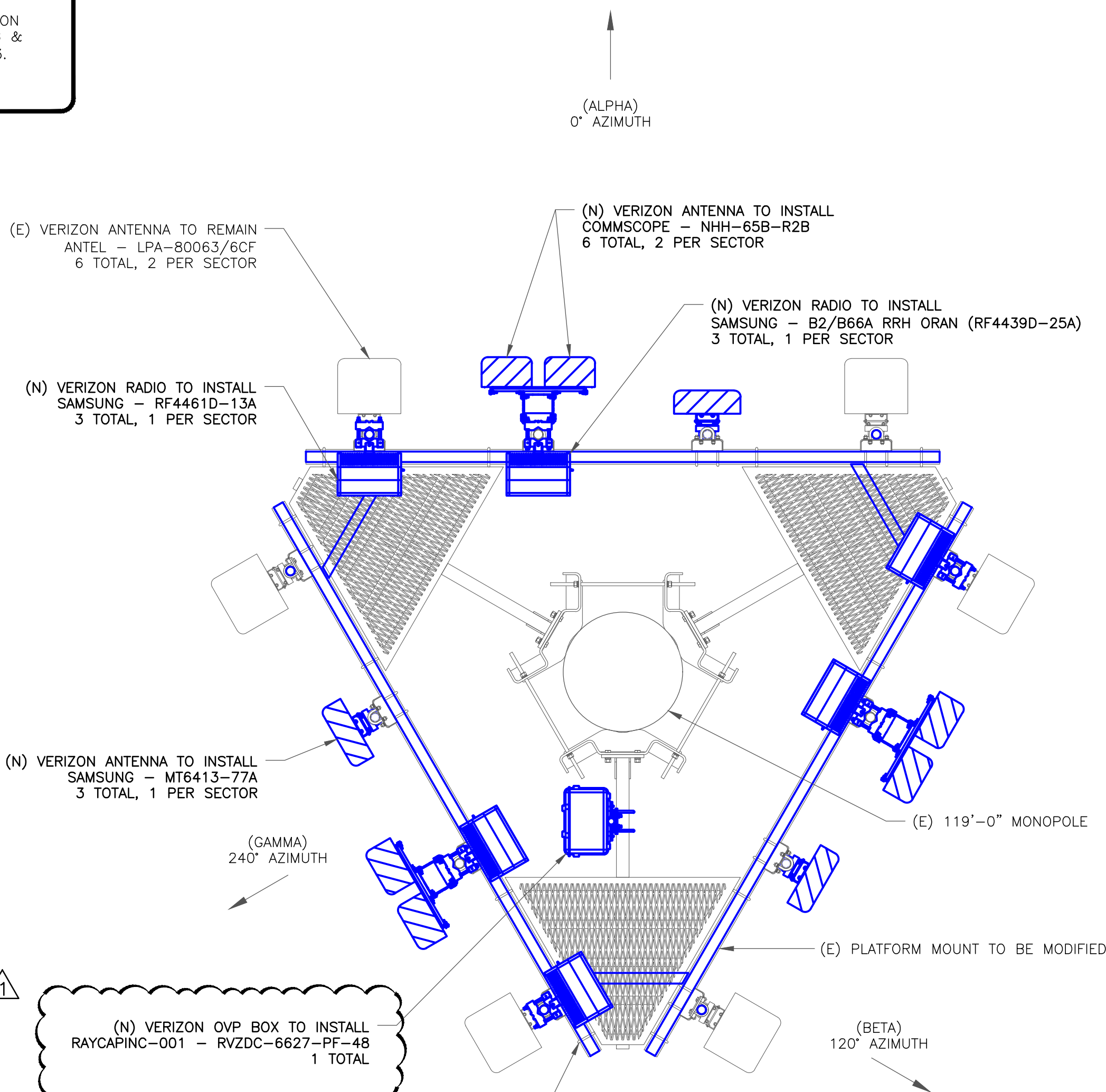
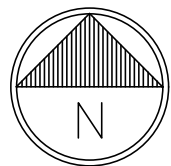
REVISION:

2

INSTALLER NOTE:
NO PROPOSED LOADING TO BE ADDED
UNTIL MOUNT MODIFICATIONS ARE
INSTALLED PER MOUNT MODIFICATION
DESIGN BY COLLIERS ENGINEERING &
DESIGN. CT P.C. DATED 12/18/23.

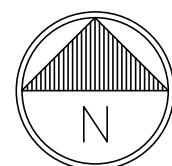


1 EXISTING ANTENNA PLAN
SCALE: 1/2"=1'-0" (FULL SIZE)
1/4"=1'-0" (11x17)



INSTALL MOUNT MODIFICATION BY
COLLIERS ENGINEERING & DESIGN, ARCHITECTURE,
DATED DECEMBER 18, 2023

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



verizon

CROWN
CASTLE

VERIZON SITE NUMBER:
5000247949

BU #: 846293

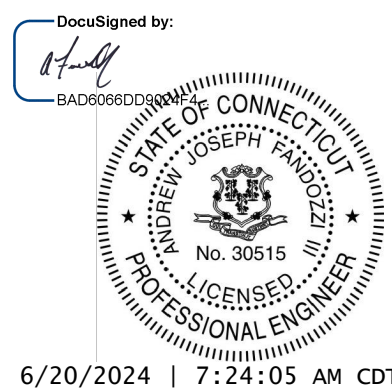
CROWN CASTLE SITE NAME
TOLLAND - PETER
GREEN RD

319 PETER GREEN ROAD
TOLLAND, CT 06084

EXISTING 119'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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1	6/5/24	NQM	CONSTRUCTION	EVI
2	6/20/24	NQM	CONSTRUCTION	EVI



6/20/2024 | 7:24:05 AM CDT

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SHEET NUMBER:

C-3

REVISION:

2

FINAL EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)

POSITION	ANTENNA				RADIO			DIPLEXER			TMA		SURGE PROTECTION		CABLES			
	TECH	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS	QTY.	STATUS/MODEL	QTY.	STATUS/TYPE	SIZE	LENGTH
A1	700 850	(E) ANTEL — LPA-80063/6CF	0°	110'-0"	1	(N) SAMSUNG — RF4461D-13A	TOWER	-	-	-	-	-	-	-	-	-	-	-
A2	1900 AWS	(N) COMMSCOPE — NHH-65B-R2B	0°	110'-0"	1	(N) SAMSUNG — B2/B66A RRH-ORAN (RF4439D-25A)	TOWER	-	-	-	-	-	-	-	-	-	-	-
		(N) COMMSCOPE — NHH-65B-R2B	0°	110'-0"														
A3	L-SUB6	(N) SAMSUNG — MT6413-77A	0°	110'-0"	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A4	-	(E) ANTEL — LPA-80063/6CF	0°	110'-0"	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1	700 850	(E) ANTEL — LPA-80063/6CF	120°	110'-0"	1	(N) SAMSUNG — RF4461D-13A	TOWER	-	-	-	-	-	-	-	-	-	-	-
B2	1900 AWS	(N) COMMSCOPE — NHH-65B-R2B	120°	110'-0"	1	(N) SAMSUNG — B2/B66A RRH-ORAN (RF4439D-25A)	TOWER	-	-	-	-	-	-	-	-	-	-	-
		(N) COMMSCOPE — NHH-65B-R2B	120°	110'-0"														
B3	L-SUB6	(N) SAMSUNG — MT6413-77A	120°	110'-0"	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B4	-	(E) ANTEL — LPA-80063/6CF	120°	110'-0"	-	-	-	-	-	-	-	-	-	-	-	-	-	-
G1	700 850	(E) ANTEL — LPA-80063/6CF	240°	110'-0"	1	(N) SAMSUNG — RF4461D-13A	TOWER	-	-	-	-	-	-	-	-	-	-	-
G2	1900 AWS	(N) COMMSCOPE — NHH-65B-R2B	240°	110'-0"	1	(N) SAMSUNG — B2/B66A RRH-ORAN (RF4439D-25A)	TOWER	-	-	-	-	-	1	(N) RAYCAPINC-001 — RVZDC-6627-PF-48	1	(N) HYBRID CABLE	1-1/2"	175' +/-
		(N) COMMSCOPE — NHH-65B-R2B	240°	110'-0"														
G3	L-SUB6	(N) SAMSUNG — MT6413-77A	240°	110'-0"	-	-	-	-	-	-	-	-	-	-	-	-	-	-
G4	-	(E) ANTEL — LPA-80063/6CF	240°	110'-0"	-	-	-	-	-	-	-	-	-	-	-	-	-	-

UNUSED FEEDLINES

10	(E) COAXIAL CABLE	1-5/8"	-
-	-	-	-

1 FINAL EQUIPMENT SCHEDULE
SCALE: NOT TO SCALE



VERIZON SITE NUMBER:
5000247949

BU #: 846293

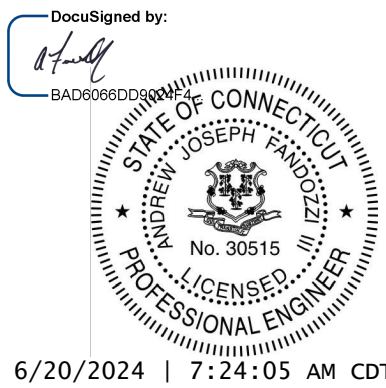
CROWN CASTLE SITE NAME
TOLLAND - PETER
GREEN RD

319 PETER GREEN ROAD
TOLLAND, CT 06084

EXISTING 119'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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1	6/5/24	NQM	CONSTRUCTION	EVI
2	6/20/24	NQM	CONSTRUCTION	EVI



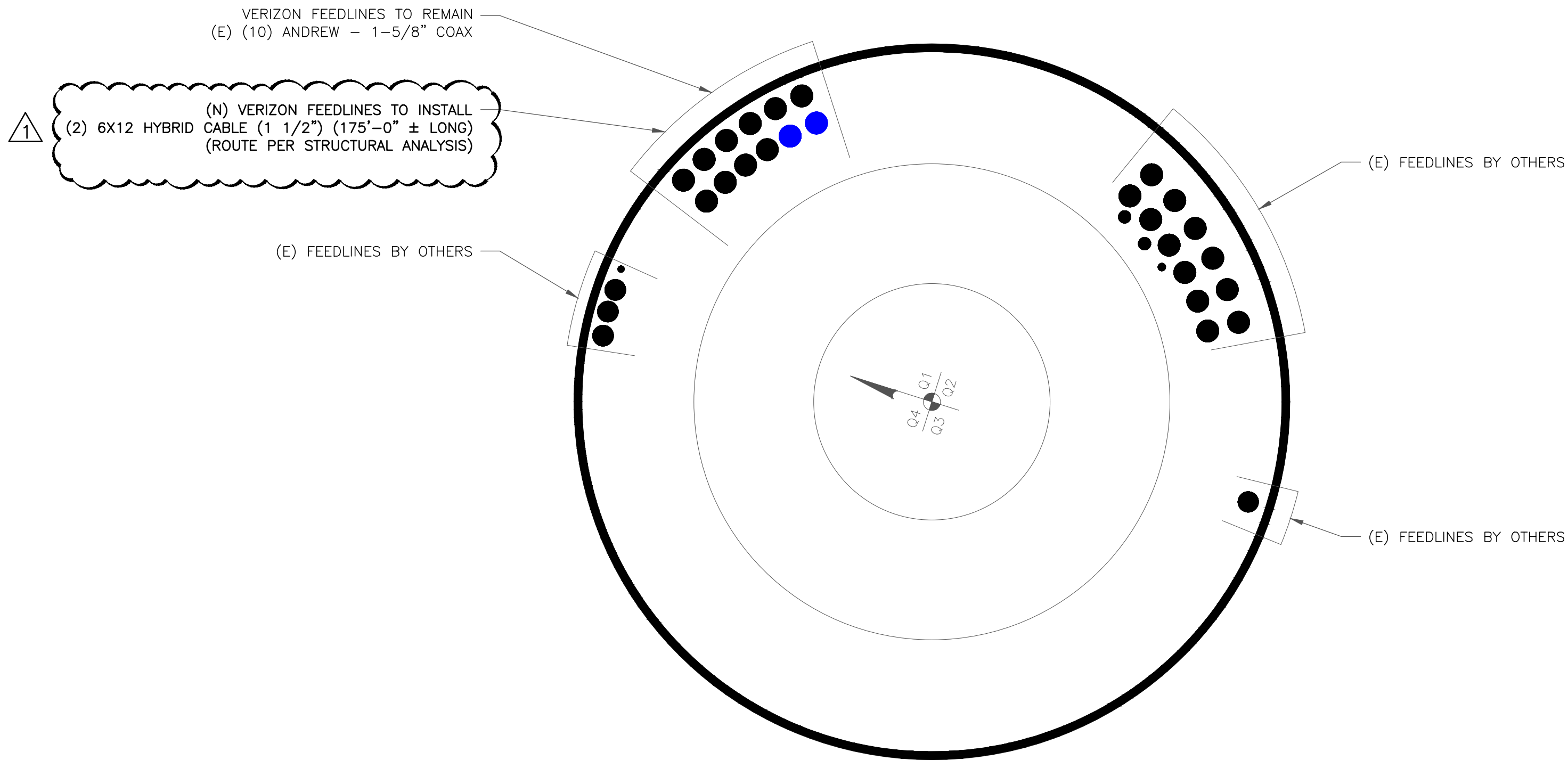
CROWN CASTLE USA INC.
CERTIFICATE OF REGISTRATION #PEC.0001101
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SHEET NUMBER:

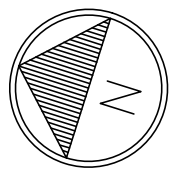
C-4

REVISION:

2

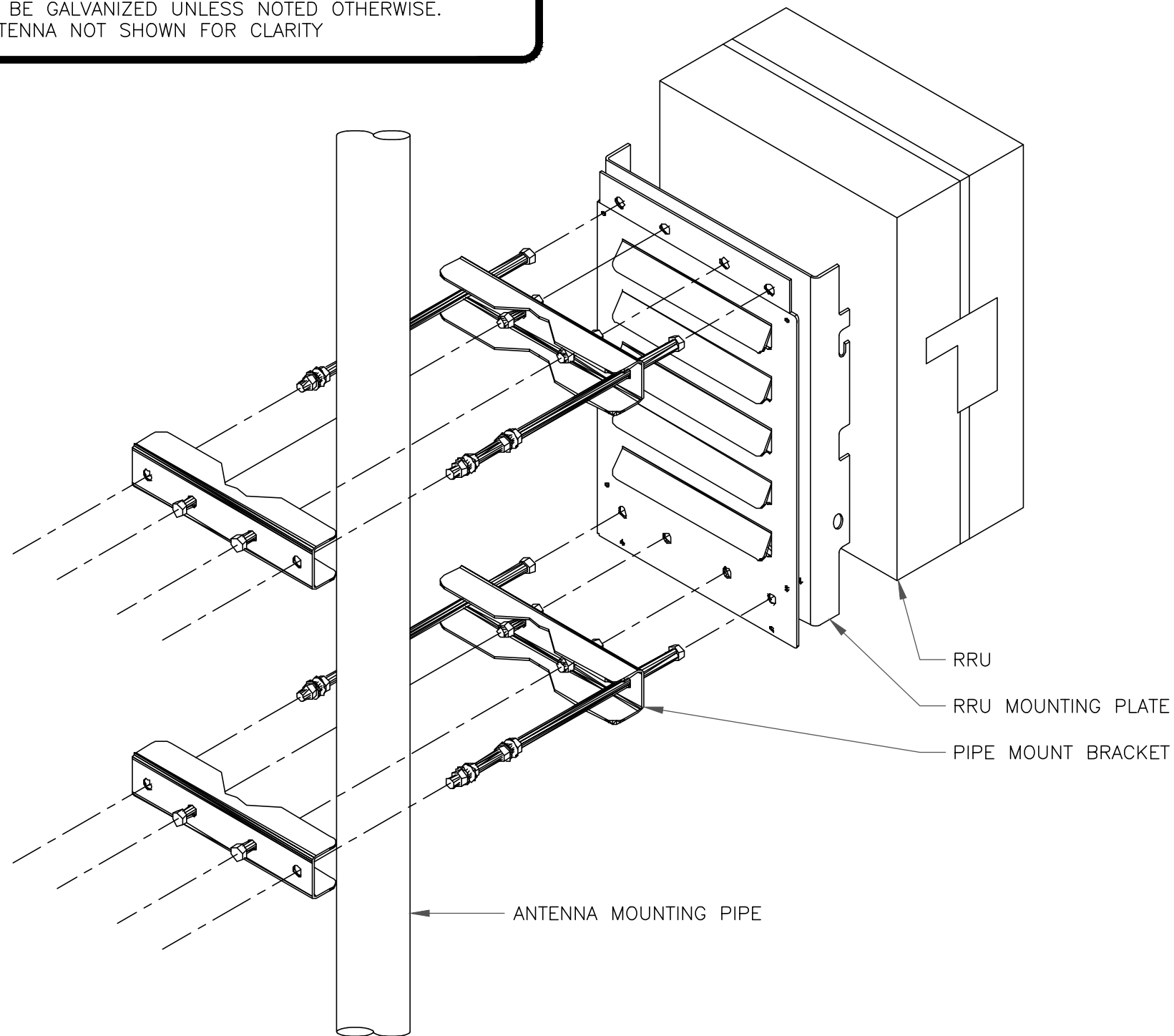


1 BASE LEVEL DETAIL
SCALE: NOT TO SCALE

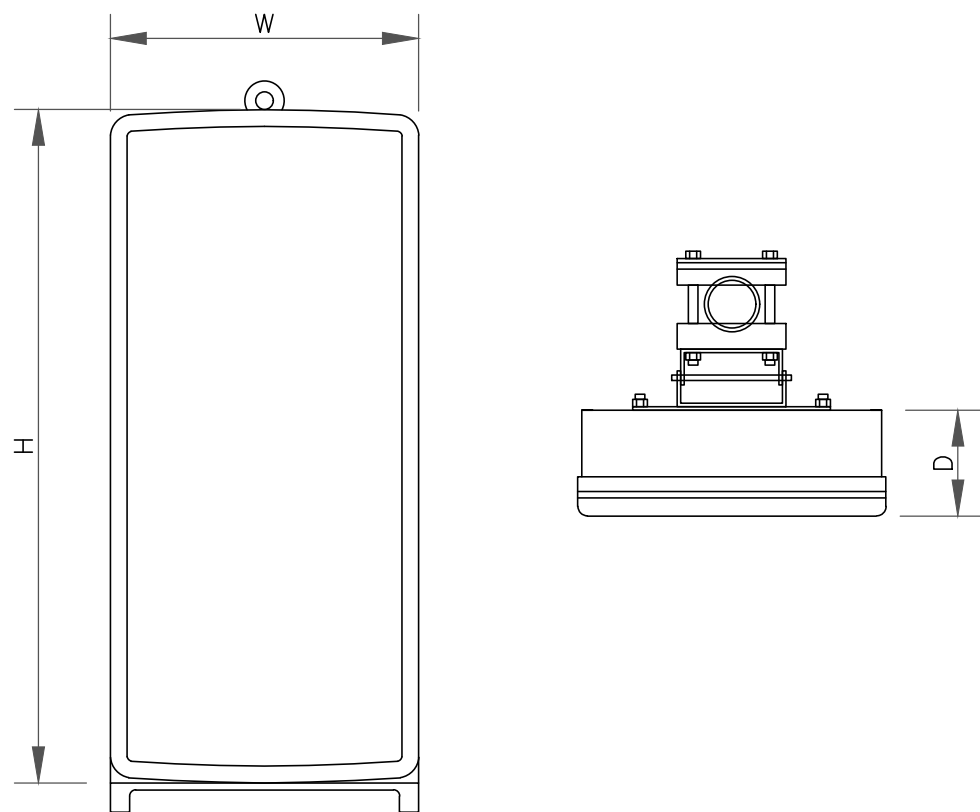


INSTALLER NOTES:

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



3 RRU MOUNTING DETAIL
SCALE: NOT TO SCALE



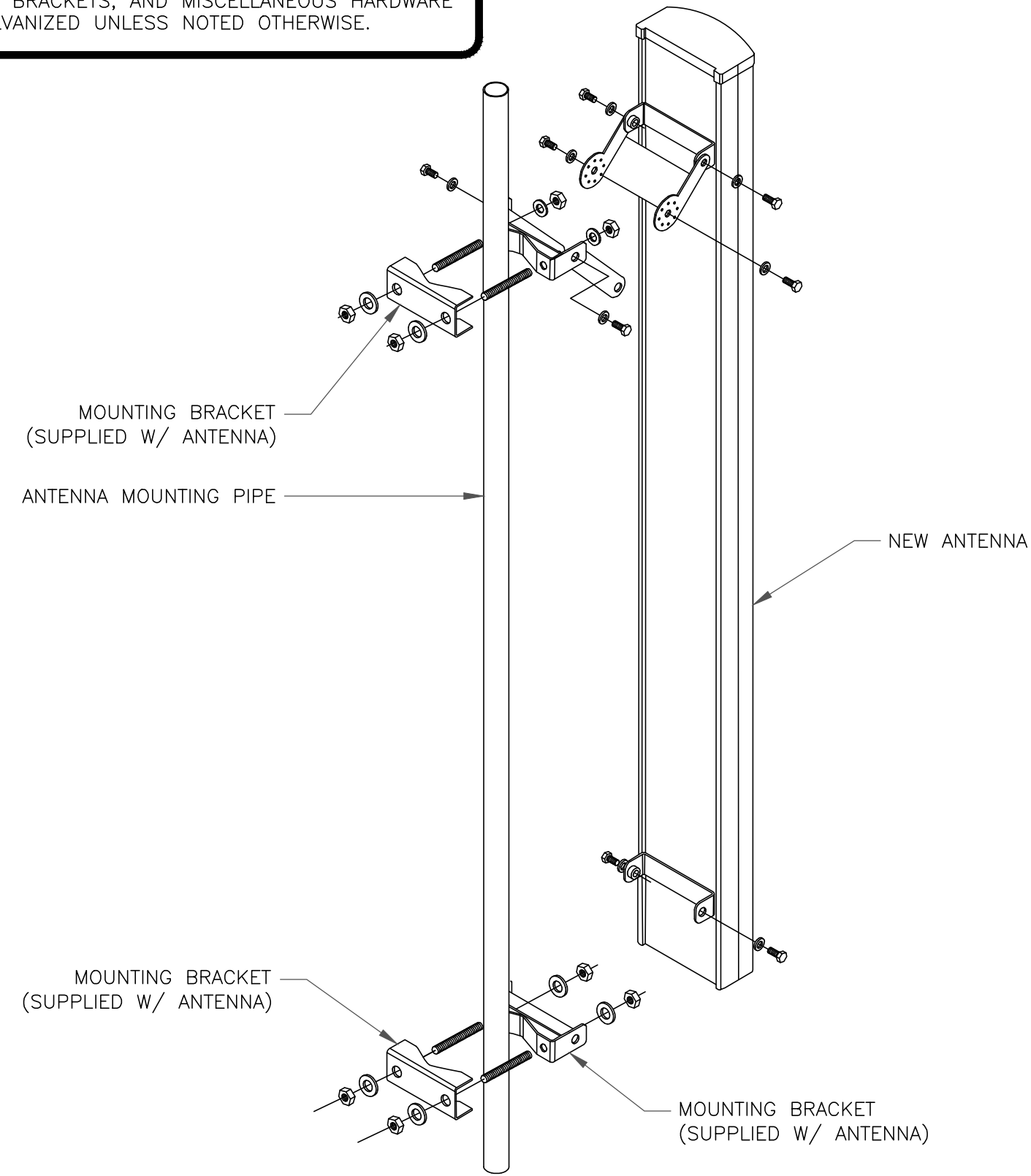
ANTENNA SPECS

MANUFACTURER	SAMSUNG
MODEL #	MT6413–77A
HxWxD	28.9" x 15.75" x 5.51"
WEIGHT	57.3 LBS

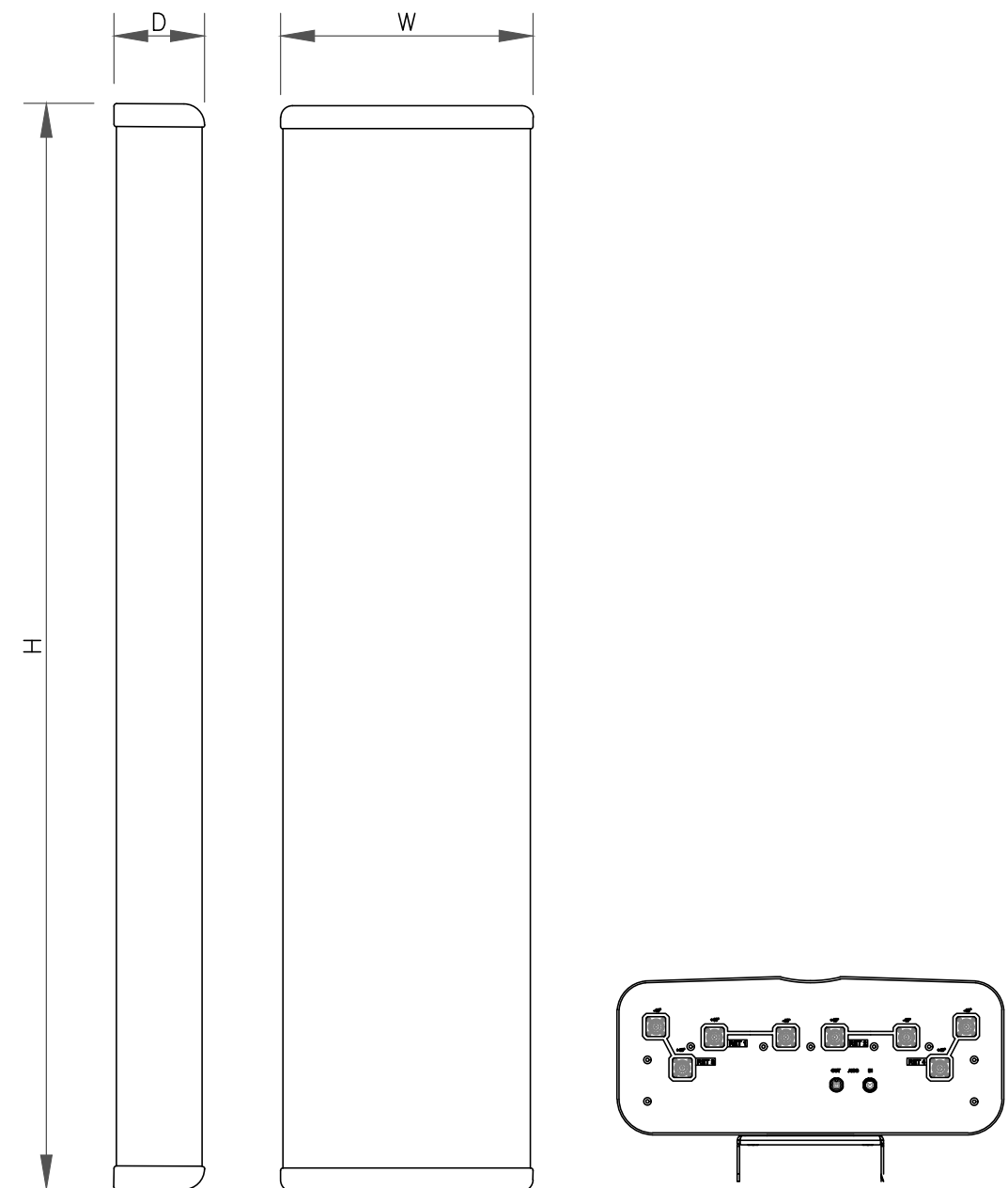
4 SAMSUNG – MT6413–77A
SCALE: NOT TO SCALE

INSTALLER NOTE:

1. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



2 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE



ANTENNA SPECS

MANUFACTURER	COMMSCOPE
MODEL #	NHH–65B–R2B
HxWxD	72.0" x 11.90" x 7.10"
WEIGHT	43.70 LBS

5 COMMSCOPE – NHH–65B–R2B
SCALE: NOT TO SCALE

verizon

CROWN
CASTLE

VERIZON SITE NUMBER:
5000247949

BU #: 846293

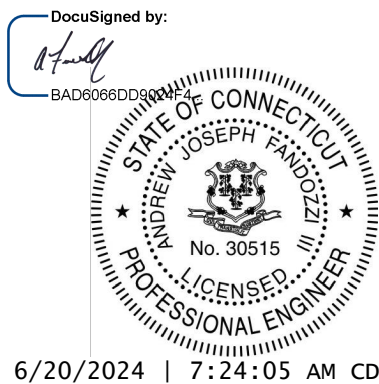
CROWN CASTLE SITE NAME
TOLLAND - PETER
GREEN RD

319 PETER GREEN ROAD
TOLLAND, CT 06084

EXISTING 119'-0"
MONOPOLE

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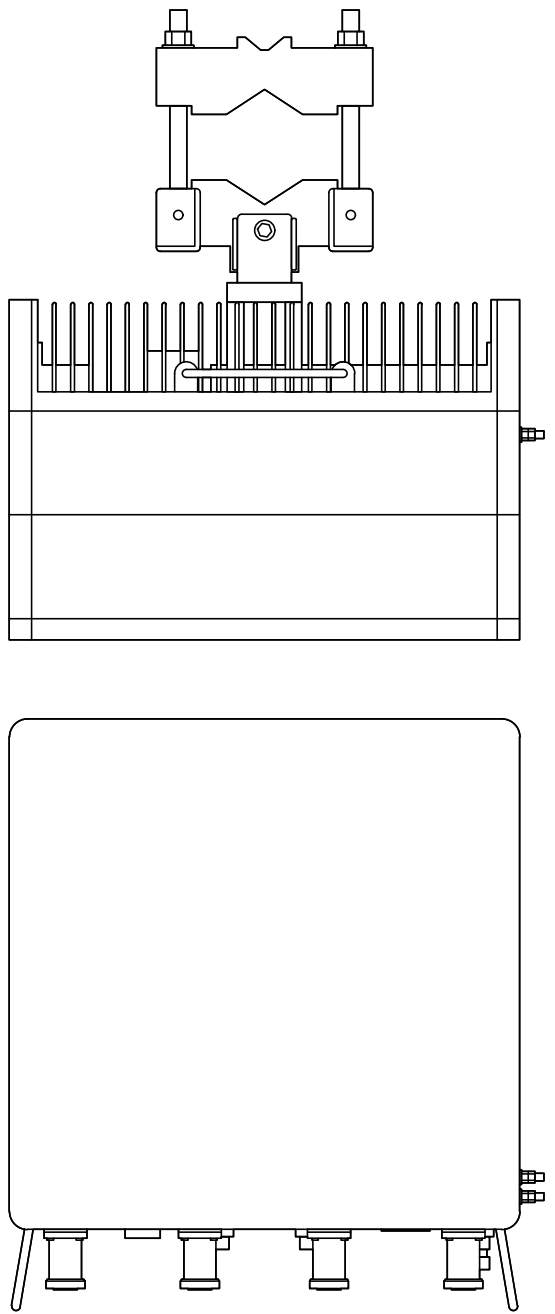
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SHEET NUMBER:

C-5

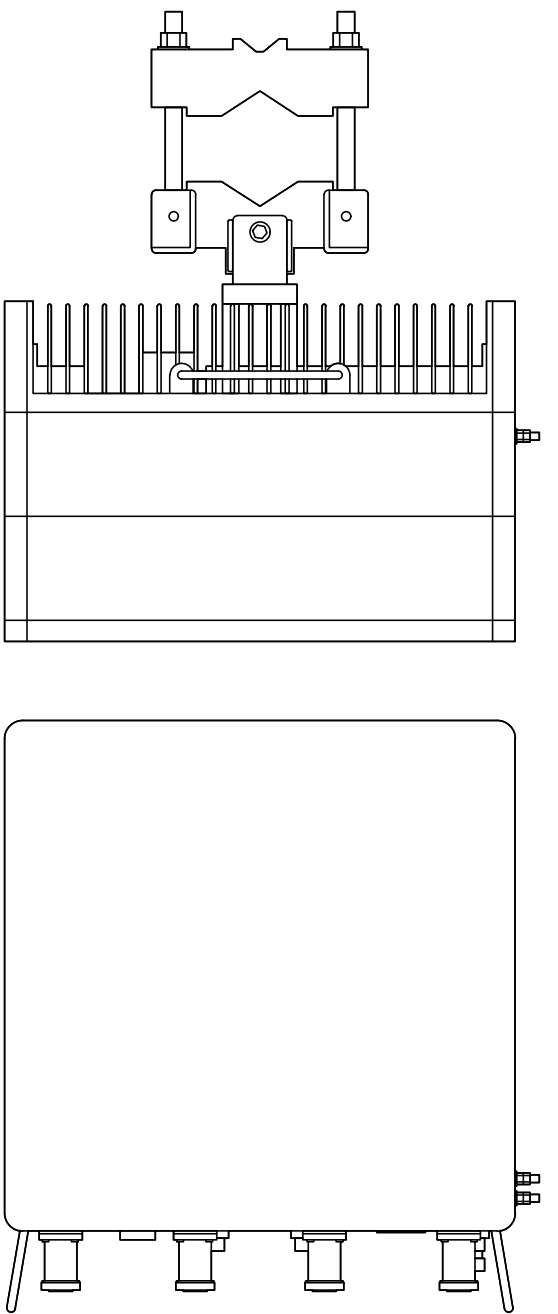
REVISION:

2



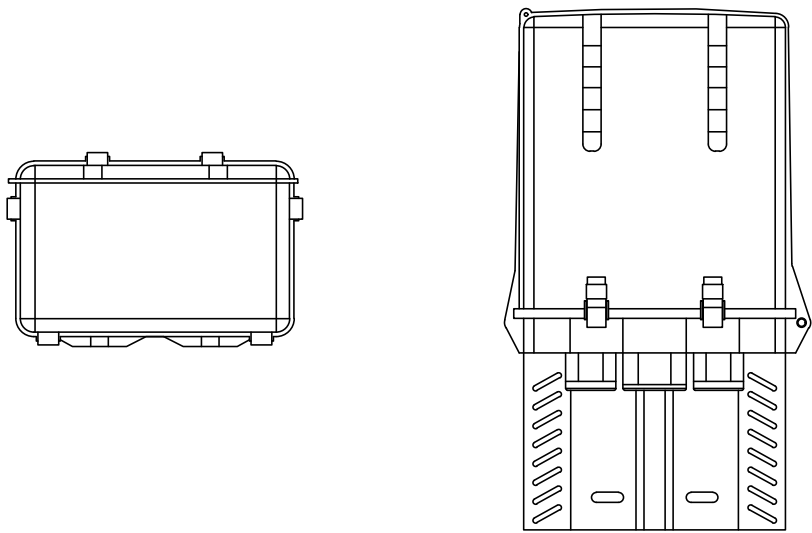
RADIO SPECS	
MANUFACTURER	SAMSUNG
MODEL #	RF4439D-25A
HxWxD	14.96" x 14.96" x 10.04"
WEIGHT	74.7 LBS

X SAMSUNG - RF4439D-25A
SCALE: NOT TO SCALE



RADIO SPECS	
MANUFACTURER	SAMSUNG
MODEL #	RF4461D-13A
HxWxD	14.96" x 14.96" x 10.23"
WEIGHT	79.1 LBS

2 SAMSUNG - RF4461D-13A
SCALE: NOT TO SCALE



OVP SPECS	
MANUFACTURER	RAYCAP
MODEL #	RVZDC-6627-PF-48
HxWxD	28.93" x 15.73" x 10.31"
WEIGHT	32.0 LBS

3 RAYCAP - RVZDC-6627-PF-48
SCALE: NOT TO SCALE



VERIZON SITE NUMBER:
5000247949

BU #: 846293

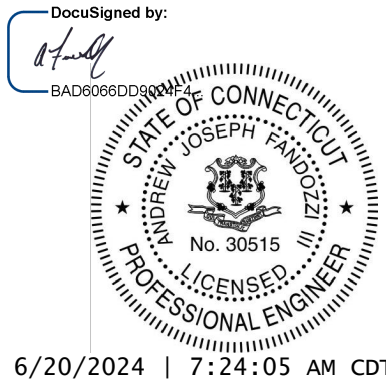
CROWN CASTLE SITE NAME
TOLLAND - PETER
GREEN RD

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TOLLAND, CT 06084

EXISTING 119'-0"
MONOPOLE

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SHEET NUMBER:

C-5.1

REVISION:

2

4 NOT USED
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

Azimuth (1) Alpha					
Cell (850 CDMA)	Red				
PCS2 (1900 LTE)	Pink	Red	Pink		
700 LTE	Lt. Green	Red	Lt. Green		
850 LTE	Purple	Red	Purple		
2100 LTE	Orange	Red	Orange		
High Band Dual Band (Shared Lines)	Orange	Pink	Red	Pink	Orange
Low Band Dual Band (Shared Lines)	Purple	Lt. Green	Red	Lt. Green	Purple
5G 28GHz	Brown	Red	Brown		
5G 39GHz	Blue	Red	Blue		
LAA	Gray	Red	Gray		
CBRS	White	Red	White		
L-Sub6 (C-Band)	Red	Red	Red		

Azimuth (2) Beta					
Cell (850 CDMA)	Blue				
PCS2 (1900 LTE)	Pink	Blue	Pink		
700 LTE	Lt. Green	Blue	Lt. Green		
850 LTE	Purple	Blue	Purple		
2100 LTE	Orange	Blue	Orange		
High Band Dual Band (Shared Lines)	Orange	Pink	Blue	Pink	Orange
Low Band Dual Band (Shared Lines)	Purple	Lt. Green	Blue	Lt. Green	Purple
5G 28GHz	Brown	Blue	Brown		
5G 39GHz	Blue	Blue	Blue		
LAA	Gray	Blue	Gray		
CBRS	White	Blue	White		
L-Sub6 (C-Band)	Red	Blue	Red		

Azimuth (3) Gamma					
Cell (850 CDMA)	Yellow				
PCS2 (1900 LTE)	Pink	Yellow	Pink		
700 LTE	Lt. Green	Yellow	Lt. Green		
850 LTE	Purple	Yellow	Purple		
2100 LTE	Orange	Yellow	Orange		
High Band Dual Band (Shared Lines)	Orange	Pink	Yellow	Pink	Orange
Low Band Dual Band (Shared Lines)	Purple	Lt. Green	Yellow	Lt. Green	Purple
5G 28GHz	Brown	Yellow	Brown		
5G 39GHz	Blue	Yellow	Blue		
LAA	Gray	Yellow	Gray		
CBRS	White	Yellow	White		
L-Sub6 (C-Band)	Red	Yellow	Red		

Azimuth (4) Delta					
Cell (850 CDMA)	Orange				
PCS2 (1900 LTE)	Pink	Orange	Pink		
700 LTE	Lt. Green	Orange	Lt. Green		
850 LTE	Purple	Orange	Purple		
2100 LTE	Orange	Orange	Orange		
High Band Dual Band (Shared Lines)	Orange	Pink	Orange	Pink	Orange
Low Band Dual Band (Shared Lines)	Purple	Lt. Green	Orange	Lt. Green	Purple
5G 28GHz	Brown	Orange	Brown		
5G 39GHz	Blue	Orange	Blue		
LAA	Gray	Orange	Gray		
CBRS	White	Orange	White		
L-Sub6 (C-Band)	Red	Orange	Red		

Azimuth (5) Epsilon					
Cell (850 CDMA)	White				
PCS2 (1900 LTE)	Pink	White	Pink		
700 LTE	Lt. Green	White	Lt. Green		
850 LTE	Purple	White	Purple		
2100 LTE	Orange	White	Orange		
High Band Dual Band (Shared Lines)	Orange	Pink	White	Pink	Orange
Low Band Dual Band (Shared Lines)	Purple	Lt. Green	White	Lt. Green	Purple
5G 28GHz	Brown	White	Brown		
5G 39GHz	Blue	White	Blue		
LAA	Gray	White	Gray		
CBRS	White	White	White		
L-Sub6 (C-Band)	Red	White	Red		

Azimuth (6) Zeta					
Cell (850 CDMA)	Gray				
PCS2 (1900 LTE)	Pink	Gray	Pink		
700 LTE	Lt. Green	Gray	Lt. Green		
850 LTE	Purple	Gray	Purple		
2100 LTE	Orange	Gray	Orange		
High Band Dual Band (Shared Lines)	Orange	Pink	Gray	Pink	Orange
Low Band Dual Band (Shared Lines)	Purple	Lt. Green	Gray	Lt. Green	Purple
5G 28GHz	Brown	Gray	Brown		
5G 39GHz	Blue	Gray	Blue		
LAA	Gray	Gray	Gray		
CBRS	White	Gray	White		
L-Sub6 (C-Band)	Red	Gray	Red		



VERIZON SITE NUMBER:
5000247949

BU #: 846293

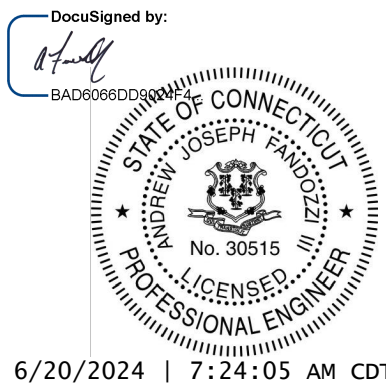
CROWN CASTLE SITE NAME
TOLLAND - PETER
GREEN RD

319 PETER GREEN ROAD
TOLLAND, CT 06084

EXISTING 119'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	4/4/24	NQM	CONSTRUCTION	EVI
1	6/5/24	NQM	CONSTRUCTION	EVI
2	6/20/24	NQM	CONSTRUCTION	EVI



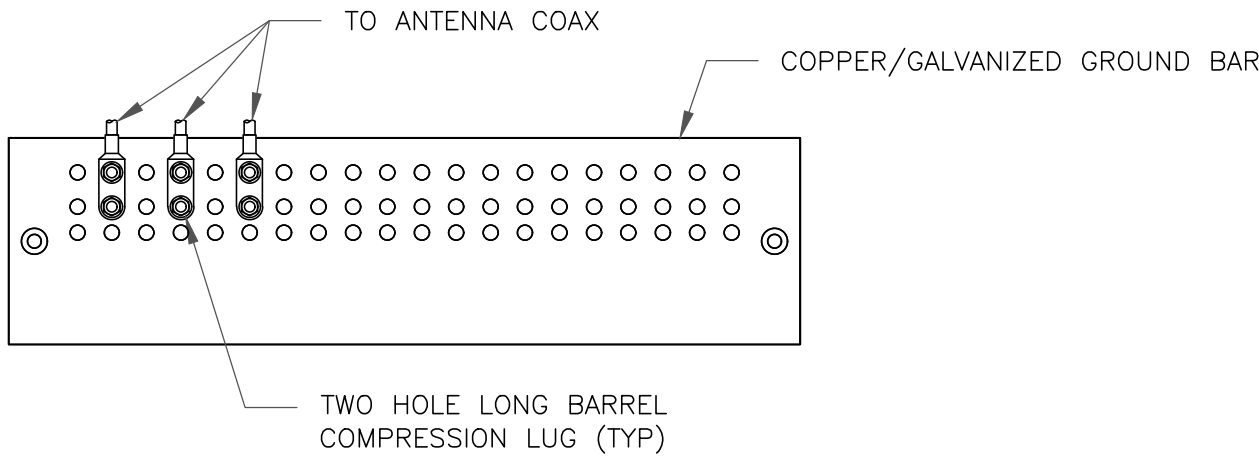
CROWN CASTLE USA INC.
CERTIFICATE OF REGISTRATION #PEEC.0001101
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OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

SHEET NUMBER:

C-6

REVISION:

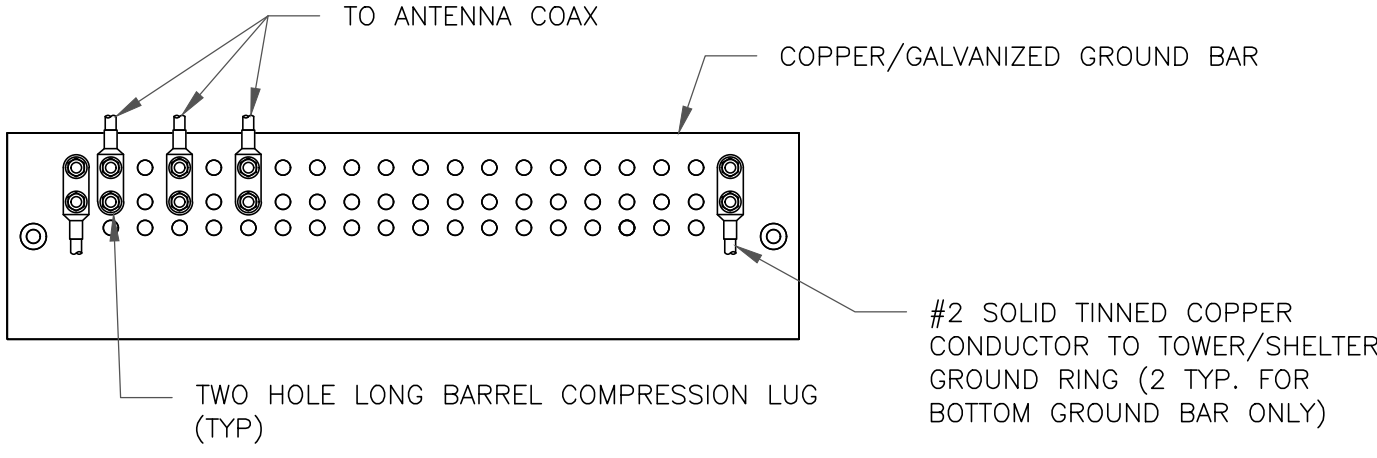
2



NOTES:

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

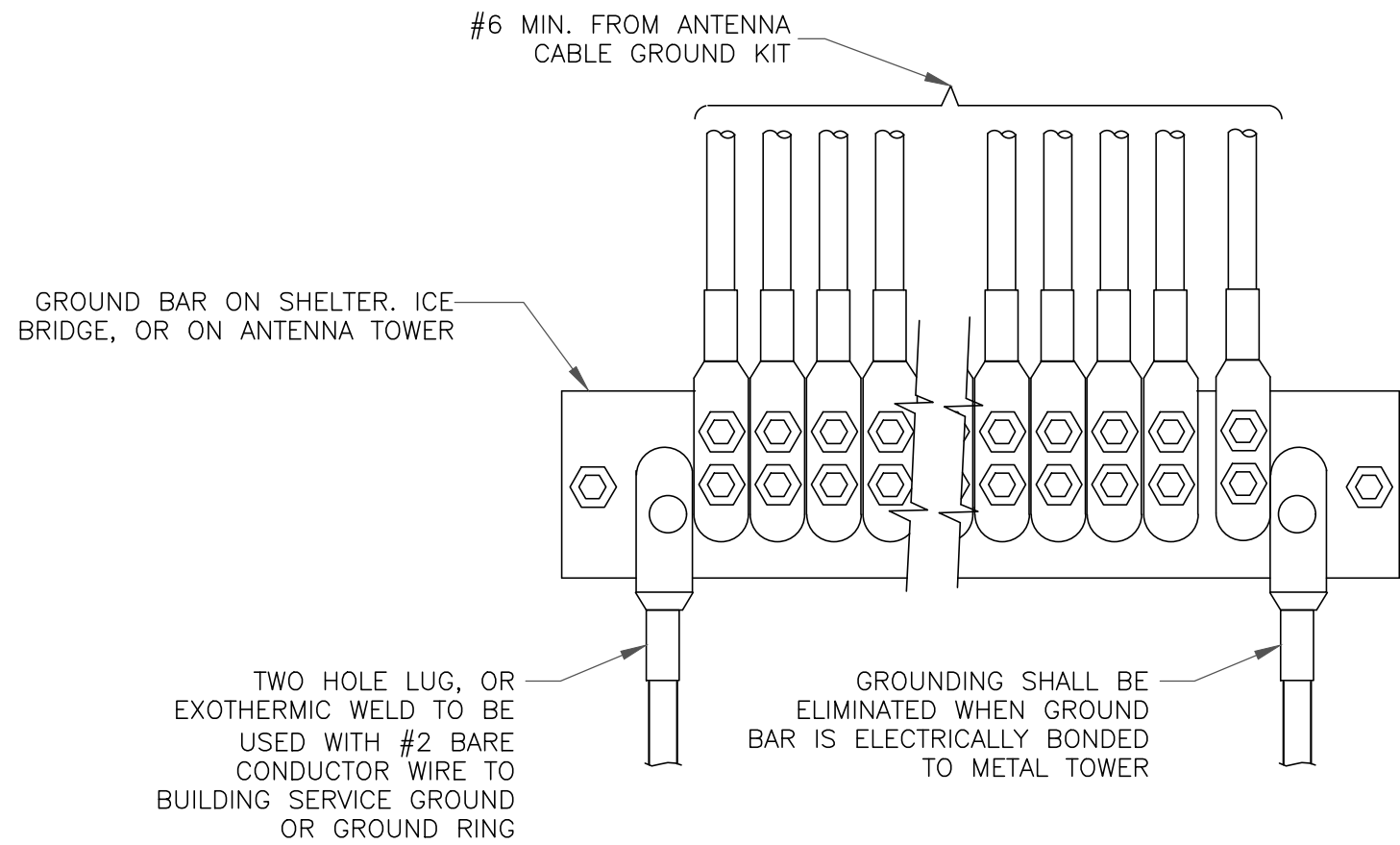
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



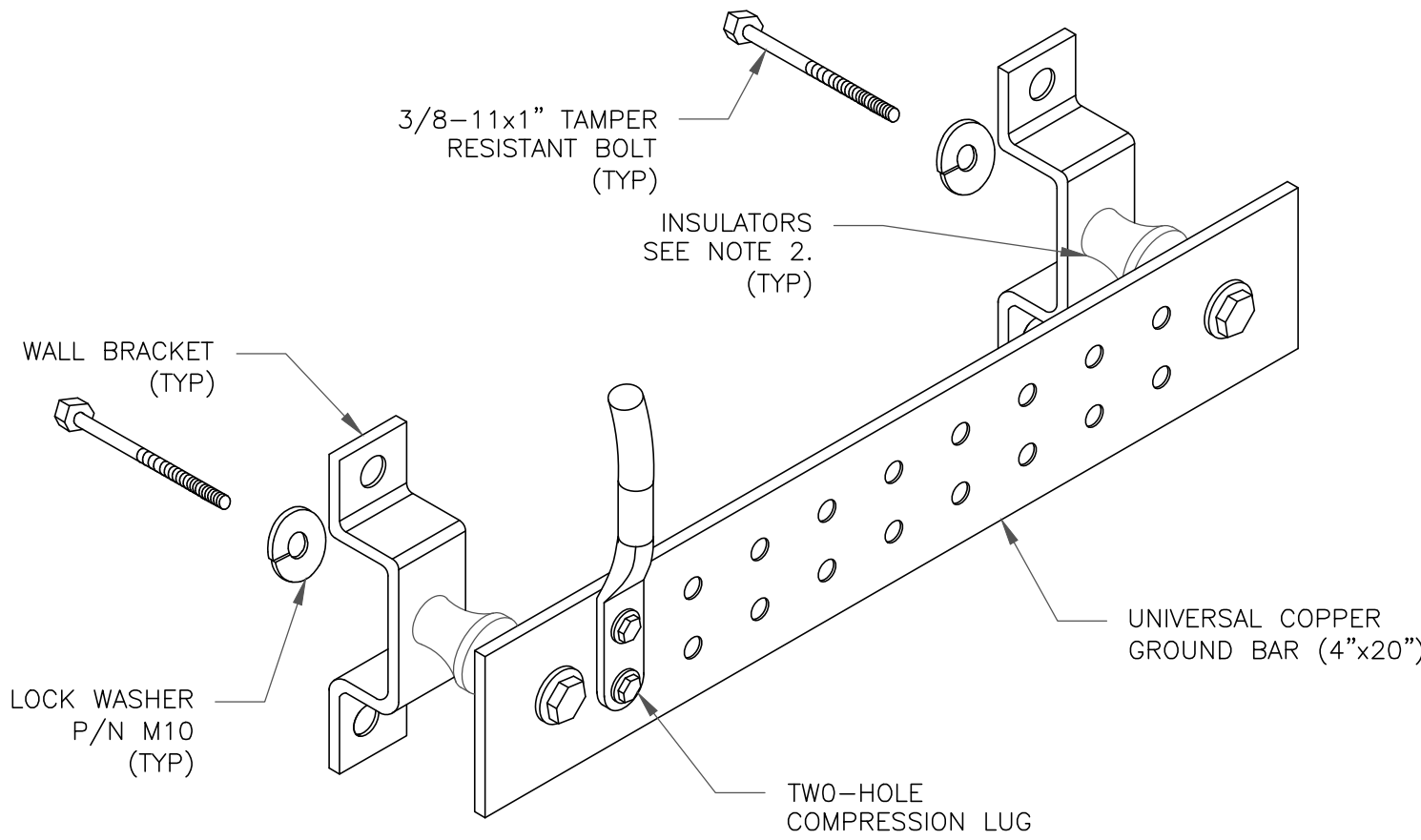
NOTES:

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

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



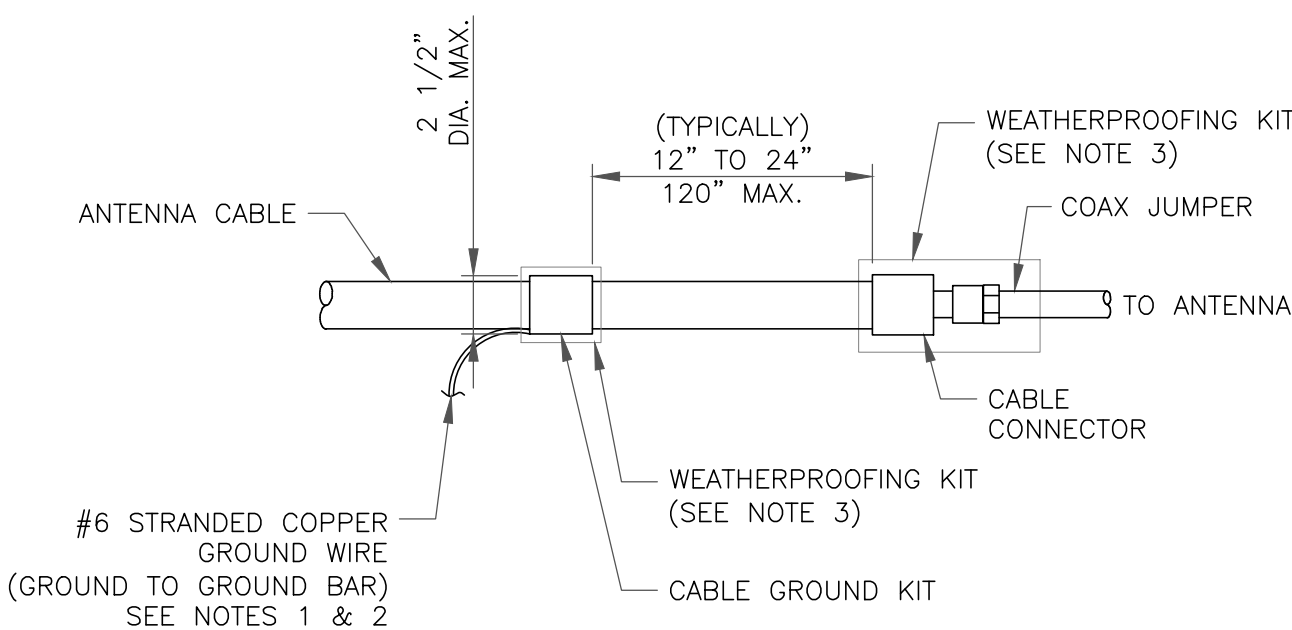
4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



NOTES:

- 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.
- OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL. USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

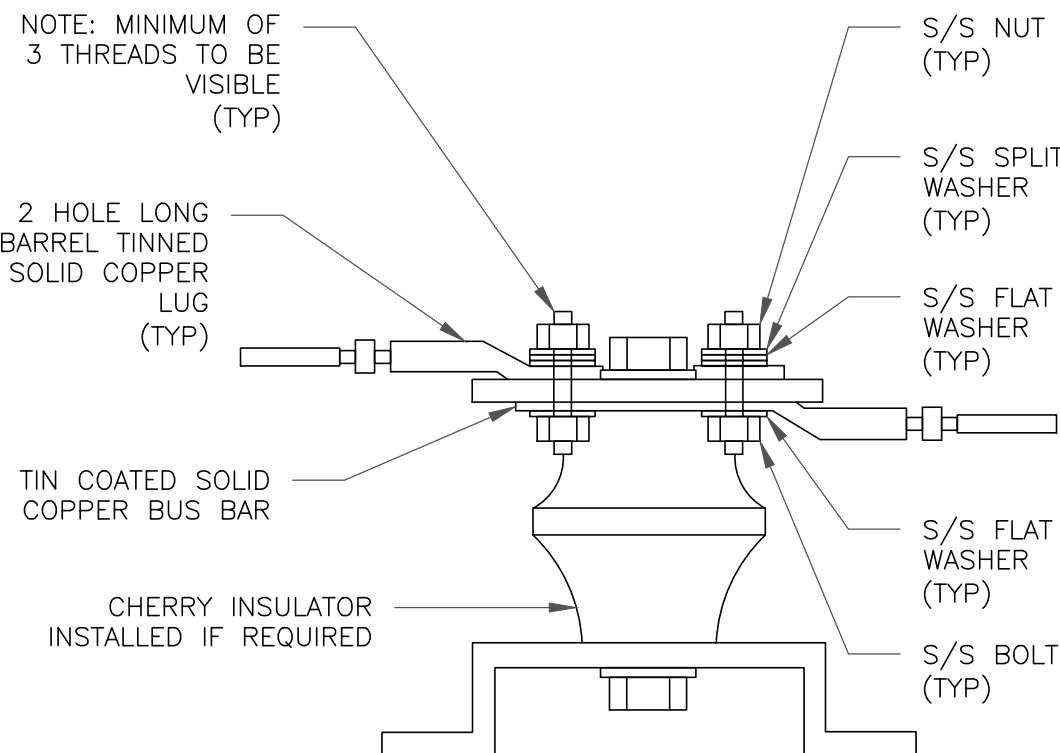
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

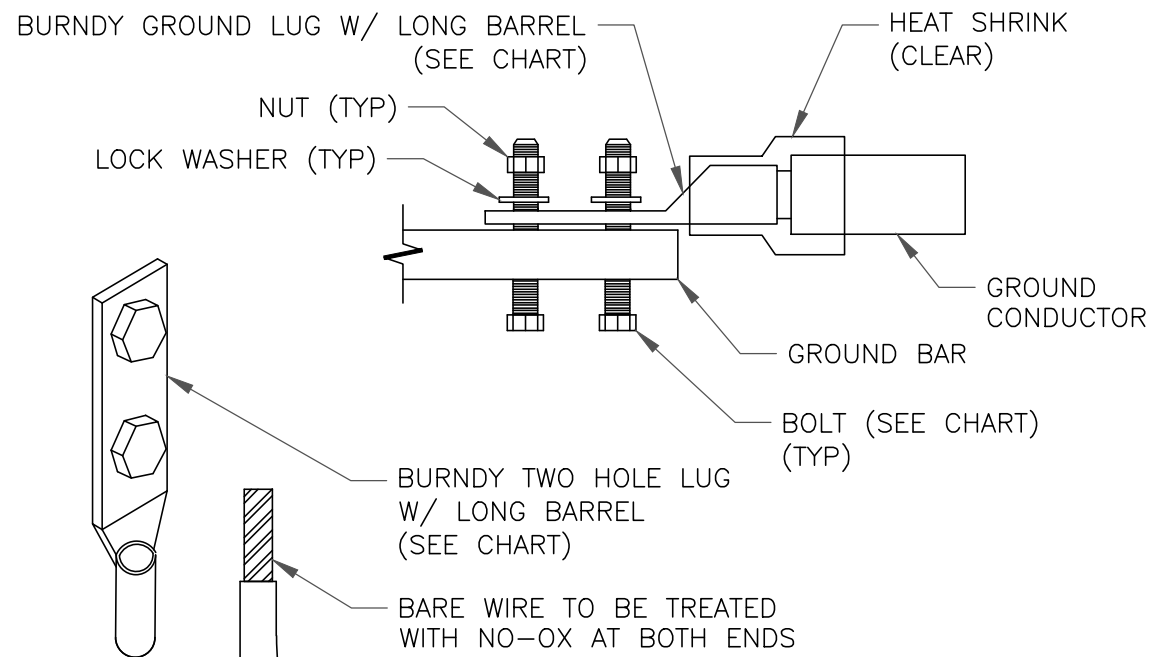
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
- GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
- WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

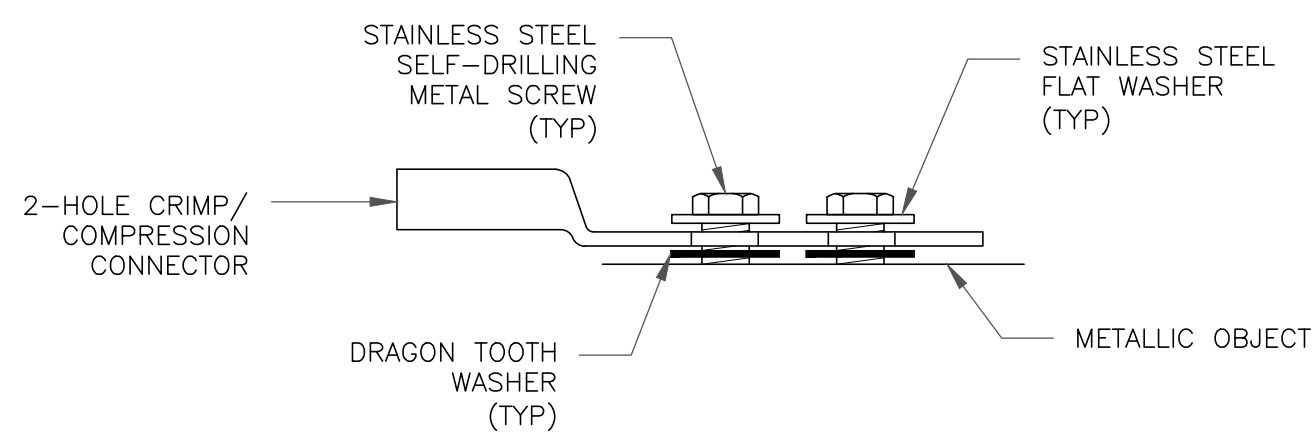
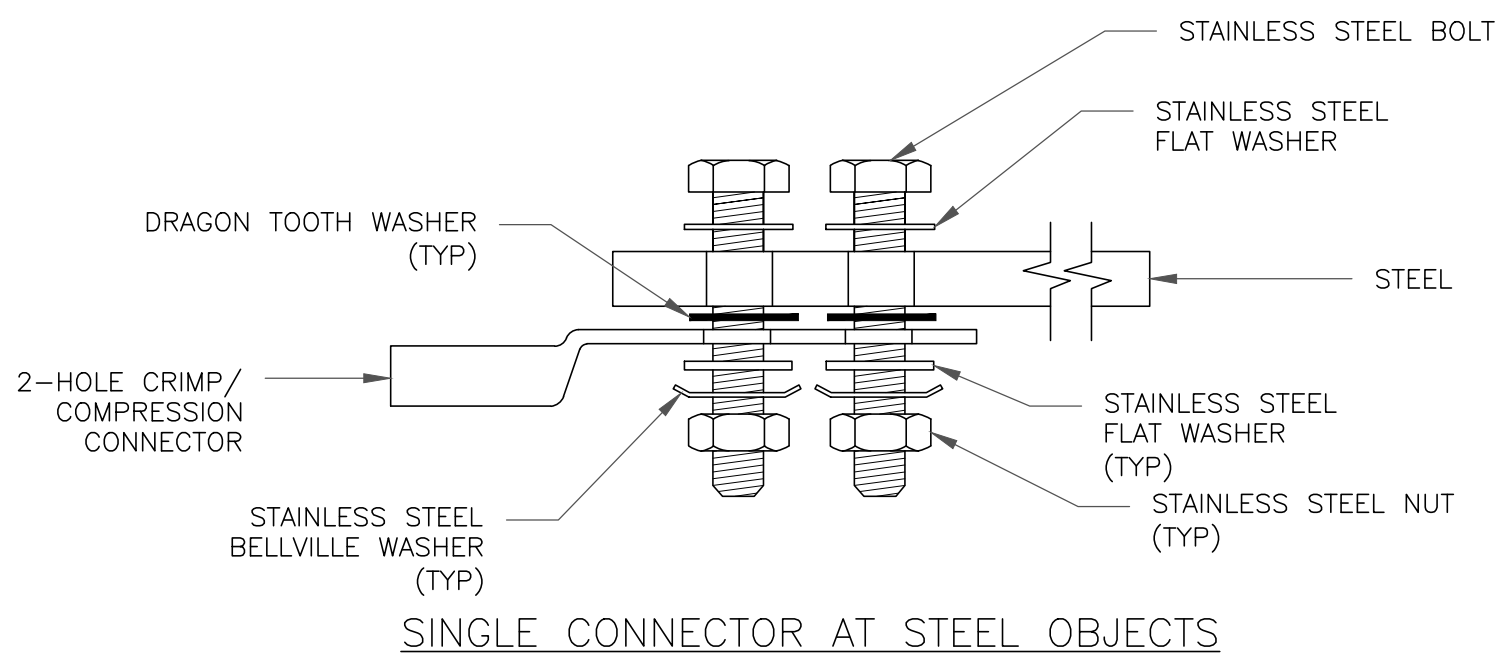
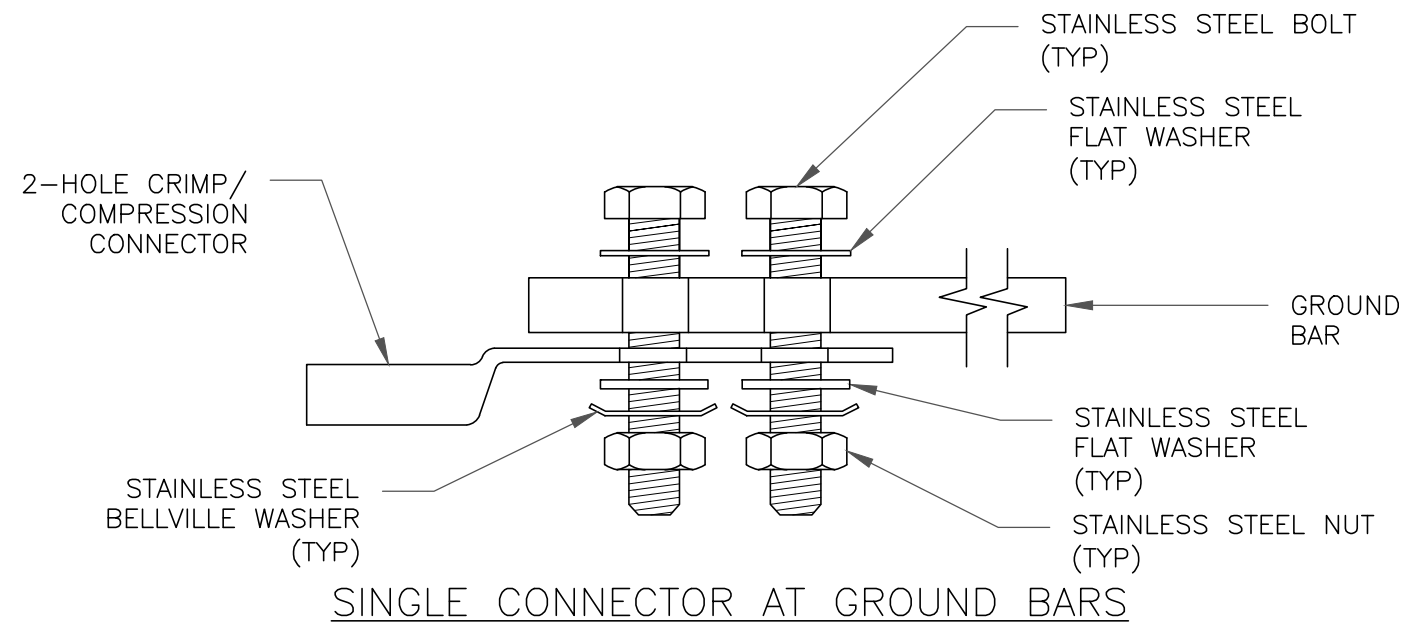
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



NOTE:

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.

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



VERIZON SITE NUMBER:
5000247949

BU #: 846293

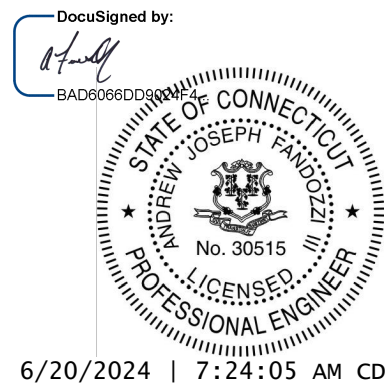
CROWN CASTLE SITE NAME
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SHEET NUMBER:

G-1

REVISION:

2

LATITUDE: 41.89661400° N
LONGITUDE: 72.39373100° W

DESIGN CRITERIA

WIND LOADS

BASIC WIND SPEED (3 SECOND GUST), $V = 120$ MPH
EXPOSURE CATEGORY B
TOPOGRAPHIC CATEGORY: I
TOPOGRAPHIC CONSIDERED: N/A
TOPOGRAPHIC METHOD: N/A
MEAN BASE ELEVATION (AMSL) = 697.04'

ICE LOADS

ICE WIND SPEED (3 SECOND GUST), $V = 50$ MPH
ICE THICKNESS = 1.50 IN

SEISMIC LOADS

SEISMIC DESIGN CATEGORY B
SHORT TERM MCER GROUND MOTION, $S_s = .182$
LONG TERM MCER GROUND MOTION, $S_1 = .055$

PROJECT INFORMATION	
<u>APPLICANT/LESSEE</u>	
COMPANY:	VERIZON WIRELESS
<u>CLIENT REPRESENTATIVE</u>	
COMPANY:	VERIZON WIRELESS
<u>PROJECT MANAGER</u>	
COMPANY:	COLLIERS ENGINEERING & DESIGN
CONTACT:	PETER ALBANO
PHONE:	856.797.0412
E-MAIL:	PETER.ALBANO@COLLIERSENG.COM
CONTRACTOR PMI REQUIREMENTS	
PMI LOCATION:	HTTPS://PMI.VZWSMART.COM
SMART TOOL PROJECT #:	10215322
VZW MDG #:	5000247949
ANALYSIS DATE:	12/18/2023
PMI REQUIREMENTS EMBEDDED WITHIN MOUNT MODIFICATION REPORT	

[illegible]

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SITE NAME: ELLINGTON SOUTH CT 5000247949 319 PETER GREEN ROAD TOLLAND, CT 06084 TOLLAND COUNTY																																	
 Colliers Engineering & Design	STAMFORD 1055 Washington Boulevard Stamford, CT 06901 Phone: 203.324.0800 COLLIERS ENGINEERING & DESIGN CT, P.C. DOING BUSINESS AS MASER CONSULTING																																
SHEET TITLE: TITLE SHEET																																	
SHEET NUMBER: ST-I																																	

BILL OF MATERIALS						
SECTION 1 - VZWSMART KITS						
QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
1	VZWSMART	VZWSMART-PLK1	SUPPORT RAIL KIT	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1.	504	504
1		VZWSMART-MSK6	BACK TO BACK CROSSOVER PLATE		34	34
6		VZWSMART-MSK2	CROSSOVER PLATE		15	90
SECTION 2 - OTHER REQUIRED PARTS						
QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
6	-	-	84" LONG, PIPE 2 SCH40	GALVANIZED	26	156
1	-	-	36" LONG, PIPE 2 SCH40	GALVANIZED	11	11
SECTION 3 - REQUIRED SAFETY CLIMB PARTS						
QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
TOTAL:						795

NOTES:

1. THE MANUFACTURERS LISTED ARE THE APPROVED VENDORS FOR THE VZW MOUNT KITS. EACH MANUFACTURER WILL BE AWARE OF WHICH KITS HAVE BEEN THROUGH THE VZW APPROVAL PROCESS AND THEY ARE IN TURN APPROVED TO SELL. PLEASE NOTE THAT THE MATERIAL UTILIZED ON THE MOUNT MODIFICATIONS WILL BE REVIEWED AS A PART OF THE DESKTOP PMI COMPLETED BY THE SMART TOOL VENDOR. IT WILL BE REQUIRED THAT THE VZW KITS SPECIFIED ARE UTILIZED IN THE MODIFICATIONS.
2. ALL MATERIALS REQUIRED FOR THE DESIGNED MODIFICATIONS BUT NOT LISTED IN THIS SHEET ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

VZWSMART KITS - APPROVED VENDORS

COMMSCOPE	
CONTACT	SALVADOR ANGUIANO
PHONE	(817) 304-7492
EMAIL	SALVADOR.ANGUIANO@COMMSCOPE.COM
WEBSITE	WWW.COMMSCOPE.COM
METROSITE FABRICATORS, LLC	
CONTACT	KENT RAMEY
PHONE	(706) 335-7045 (O), (706) 982-9788 (M)
EMAIL	KENT@METROSITELLC.COM
WEBSITE	METROSITEFABRICATORS.COM

PERFECTVISION	
CONTACT	WIRELESS SALES
PHONE	(844) 887-6723
EMAIL	WWW.PERFECT-VISION.COM
WEBSITE	WIRELESSSALES@PERFECT-VISION.COM
SABRE INDUSTRIES, INC.	
CONTACT	ANGIE WELCH
PHONE	(866) 428-6937
EMAIL	AKWELCH@SABREINDUSTRIES.COM
WEBSITE	WWW.SABRESITESOLUTIONS.COM

SITE PRO 1	
CONTACT	PAULA BOSWELL
PHONE	(972) 236-9843
EMAIL	PAULA.BOSWELL@VALMONT.COM
WEBSITE	WWW.SITEPRO1.COM



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5000247949
319 PETER GREEN ROAD
TOLLAND, CT 06084
TOLLAND COUNTY



Engineering & Design

STAMFORD

1055 Washington Boulevard
Stamford, CT 06901
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COLLIERS ENGINEERING & DESIGN CT, P.C.
DOING BUSINESS AS MASER CONSULTING

SHEET TITLE:

BILL OF MATERIALS

SHEET NUMBER:

SBOM-1

GENERAL NOTES

- THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE TELECOMMUNICATIONS INDUSTRY STANDARD TIA-222-H. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE MENTIONED CODES.
- CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO EXISTING STRUCTURES. ANY DAMAGE TO EXISTING STRUCTURES AS A RESULT OF THE CONTRACTOR'S WORK OR FROM DAMAGE DUE TO OTHER CAUSES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE BEGINNING WORK, ORDERING MATERIAL, AND PREPARING OF SHOP DRAWINGS. ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, NOTIFY THE ENGINEER IMMEDIATELY.
- IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
- 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/TIA-322 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-322 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS IN ACCORDANCE WITH APPLICABLE SAFETY CODES.
- WORK SHALL ONLY BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 30-MPH). THE STRUCTURE SHOWN ON THE DRAWINGS IS STRUCTURALLY SOUND ONLY IN THE COMPLETED FORM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING ERECTION. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT, SHORING, BRACING AND ANY OTHER STRUCTURAL SYSTEMS AS REQUIRED TO RESIST ALL FORCES THAT MAY OCCUR DURING HANDLING AND ERECTION UNTIL THE STRUCTURE IS FULLY COMPLETED. TEMPORARY SUPPORTS, BRACING AND OTHER STRUCTURAL SYSTEMS REQUIRED DURING CONSTRUCTION SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER THEIR USE.
- ALL INSTALLATIONS PERFORMED ON THIS STRUCTURE SHALL BE COMPLETED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE STANDARD FOR INSTALLATION, ALTERATION AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, ANSI/TIA-322.
- CONTRACTOR SHALL SECURE SITE BACK TO EXISTING CONDITION UNDER SUPERVISION OF OWNER. ALL FENCE, STONE, GEOFABRIC, GROUNDING, AND SURROUNDING GRADE SHALL BE REPLACED AND REPAIRED AS REQUIRED TO ACHIEVE OWNER APPROVAL. POSITIVE DRAINAGE AWAY FROM TOWER SITE SHALL BE MAINTAINED.
- CONNECTIONS BETWEEN ITEMS SUPPORTED BY THE STRUCTURE AND THE STRUCTURE NOT SPECIFICALLY DETAILED IN THE CONTRACT DOCUMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR. SUCH CONNECTIONS SHALL BE DESIGNED, COORDINATED AND INSPECTED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF THE PROJECT. SUBMIT SIGNED AND SEALED CALCULATIONS DURING SHOP DRAWING REVIEW.
- DO NOT SCALE DRAWINGS.
- DO NOT USE THESE DRAWINGS FOR ANY OTHER SITE.
- ALL MATERIAL UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS. ANY MATERIAL SUBSTITUTIONS, INCLUDING BUT NOT LIMITED TO ALTERED SIZE AND/OR STRENGTHS, MUST BE APPROVED BY THE OWNER AND ENGINEER IN WRITING.
- THE MOUNT UNDER NO CIRCUMSTANCES SHOULD BE USED AS A TIE OFF POINT.

STRUCTURAL STEEL

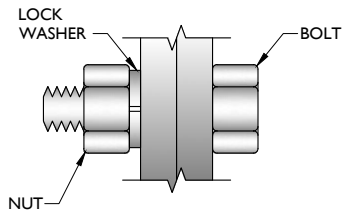
- DESIGN, DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING PUBLICATIONS EXCEPT AS SPECIFICALLY INDICATED IN THE CONTRACT DOCUMENTS.
 - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION (15TH EDITION)
 - SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS
 - AISC CODE OF STANDARD PRACTICE
- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE SHOWN:

CHANNELS, ANGLES, PLATES, ETC.	ASTM A36 (GR 36)
STEEL PIPE	ASTM A53 (GR 35)
BOLTS	ASTM A325
NUTS	ASTM A563
LOCK WASHERS	LOCKING STRUCTURAL GRADE
- ALL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR VERIFYING THE SUBSTITUTE IS SUITABLE FOR USE AND MEETS ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
- PROVIDE STRUCTURAL STEEL SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
 - SUBMIT SHOP DRAWINGS TO
PETER.ALBANO@COLLIERSENG.COM
 - PROVIDE COLLIERS ENGINEERING & DESIGN PROJECT # AND COLLIERS ENGINEERING & DESIGN PROJECT ENGINEER CONTACT IN THE BODY OF THE EMAIL.
- DRILL NO HOLES IN ANY NEW OR EXISTING STRUCTURAL STEEL MEMBERS OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD.
- GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
- ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. IN ADDITION ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING STEEL. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
- ALL BOLT ASSEMBLIES FOR STRUCTURAL MEMBERS REPRESENTED IN THIS DRAWING REQUIRE LOCKING DEVICES TO BE INSTALLED IN ACCORDANCE WITH TIA-222-H SECTION 4.9.2 REQUIREMENTS.
- WHERE CONNECTIONS ARE NOT FULLY DETAILED ON THESE DRAWINGS, FABRICATOR SHALL DESIGN CONNECTIONS TO RESIST LOADS AND FORCES WHERE SHOWN ON DRAWINGS AND AS OUTLINED IN SPECIFICATIONS.
- FOR MEMBERS BEING REPLACED, PROVIDE NEW BOLTS AND MATCH EXISTING SIZE AND GRADE. MAINTAIN AISC REQUIREMENTS FOR MINIMUM BOLT DISTANCE AND SPACING.
- GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
- ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
- ALL EXISTING PAINTED/GALVANIZED SURFACES DAMAGED DURING REHAB INCLUDING AREAS UNDER STIFFENER PLATES SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY COLD GALVANIZING (ZINC COTE, OR EOR APPROVED EQUAL), AND REPAINTED TO MATCH THE EXISTING FINISH (IF APPLICABLE).
- ALL HOLES IN STEEL MEMBERS SHALL BE SIZED 1/16" LARGER THAN THE BOLT DIAMETER. STANDARD HOLES SHALL BE USED UNLESS NOTED OTHERWISE.

BOLT SCHEDULE (IN.)				
BOLT DIAMETER	STANDARD HOLE	SHORT SLOT	MIN. EDGE DISTANCE	SPACING
1/2	9/16	9/16 x 1 1/16	7/8	1 1/2
5/8	1 1/16	1 1/16 x 7/8	1 1/8	1 7/8
3/4	1 3/16	1 3/16 x 1	1 1/4	2 1/4
7/8	1 5/16	1 5/16 x 1 1/8	1 1/2	2 5/8
1	1 7/16	1 7/16 x 1 5/16	1 3/4	3

WORKABLE GAGES (IN.)

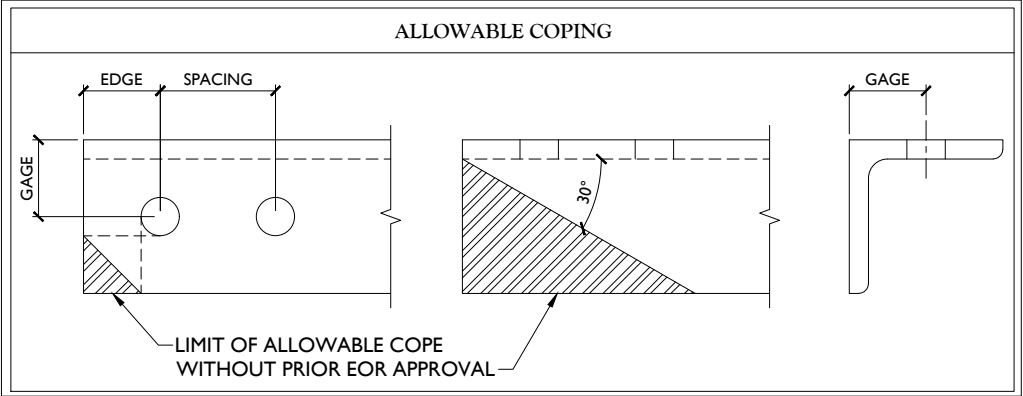
LEG	GAGE
4	2 1/2
3 1/2	2
3	1 3/4
2 1/2	1 3/8
2	1 1/8



TYP. BOLT ASSEMBLY

NOTES:

- ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
- THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.
- SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWINGS
- MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.



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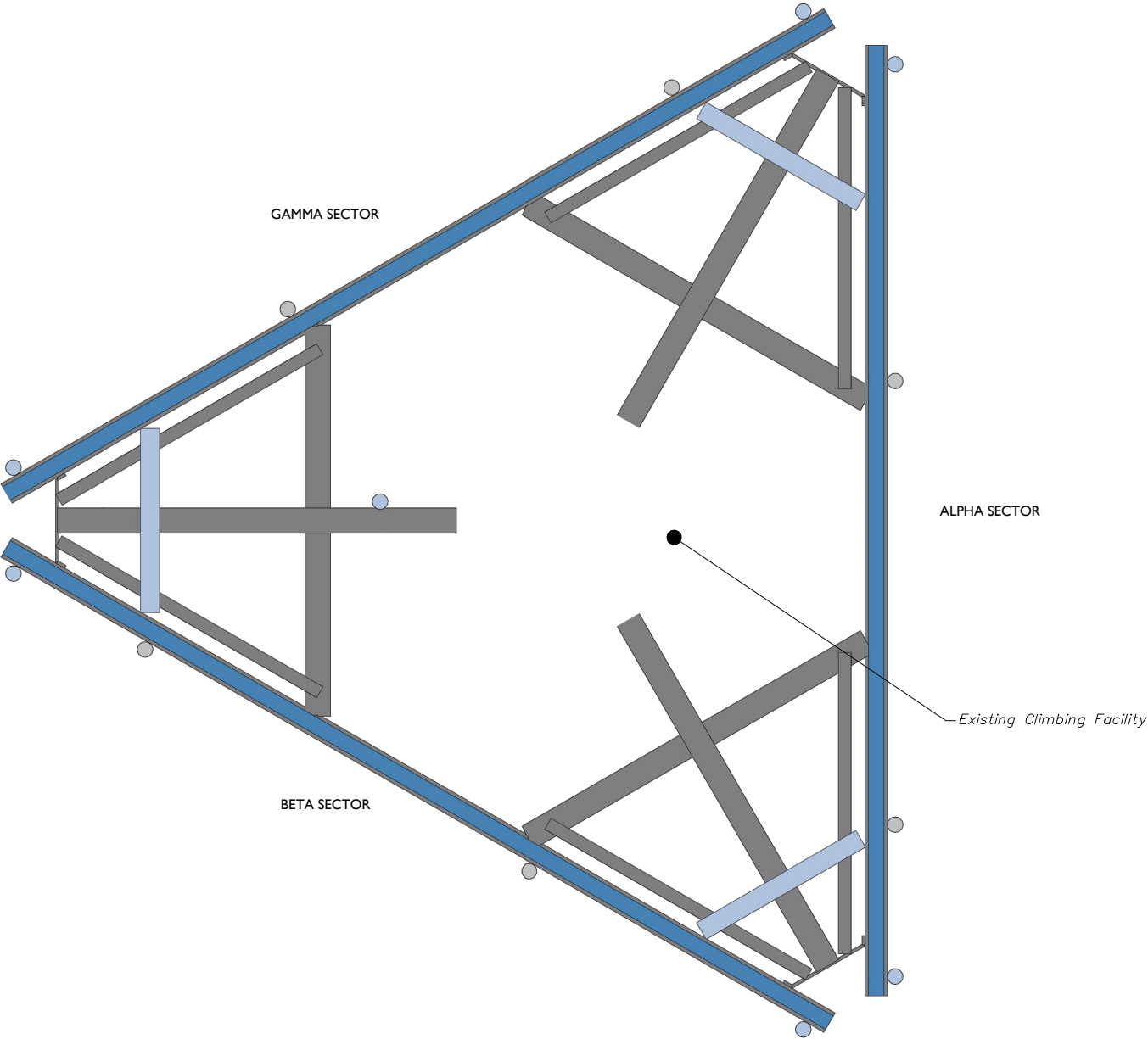
SHEET TITLE:

GENERAL NOTES

SHEET NUMBER:

SGN-I

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



1

CLIMBING FACILITY LOCATION

SCALE : N.T.S.

STRUCTURAL NOTES:

- PER THE MOUNT MAPPING COMPLETED BY HUDSON DESIGN GROUP, LLC ON 6/9/2021, THE SAFETY CLIMB AND CLIMBING FACILITIES UP TO THE VERIZON MOUNT ELEVATION (110'-00") ARE IN GOOD CONDITION. COLLIERS ENGINEERING & DESIGN DOES NOT WARRANT THIS INFORMATION.
- INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB, OR ANY SYSTEM INSTALLED ON THE STRUCTURE. TIMELY NOTICE AND DOCUMENTATION SHALL BE PROVIDED BY CONTRACTORS TO THE EOR (OF STRUCTURAL DESIGN) IF AN OBSTRUCTION WAS REQUIRED TO MEET THE RF SYSTEM DESIGN REQUIREMENTS AND PERFORMANCES.

Existing Climbing Facility

Existing Safety Climb



CLIMBING FACILITY PHOTO



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SHEET TITLE:

CLIMBING FACILITY DETAIL

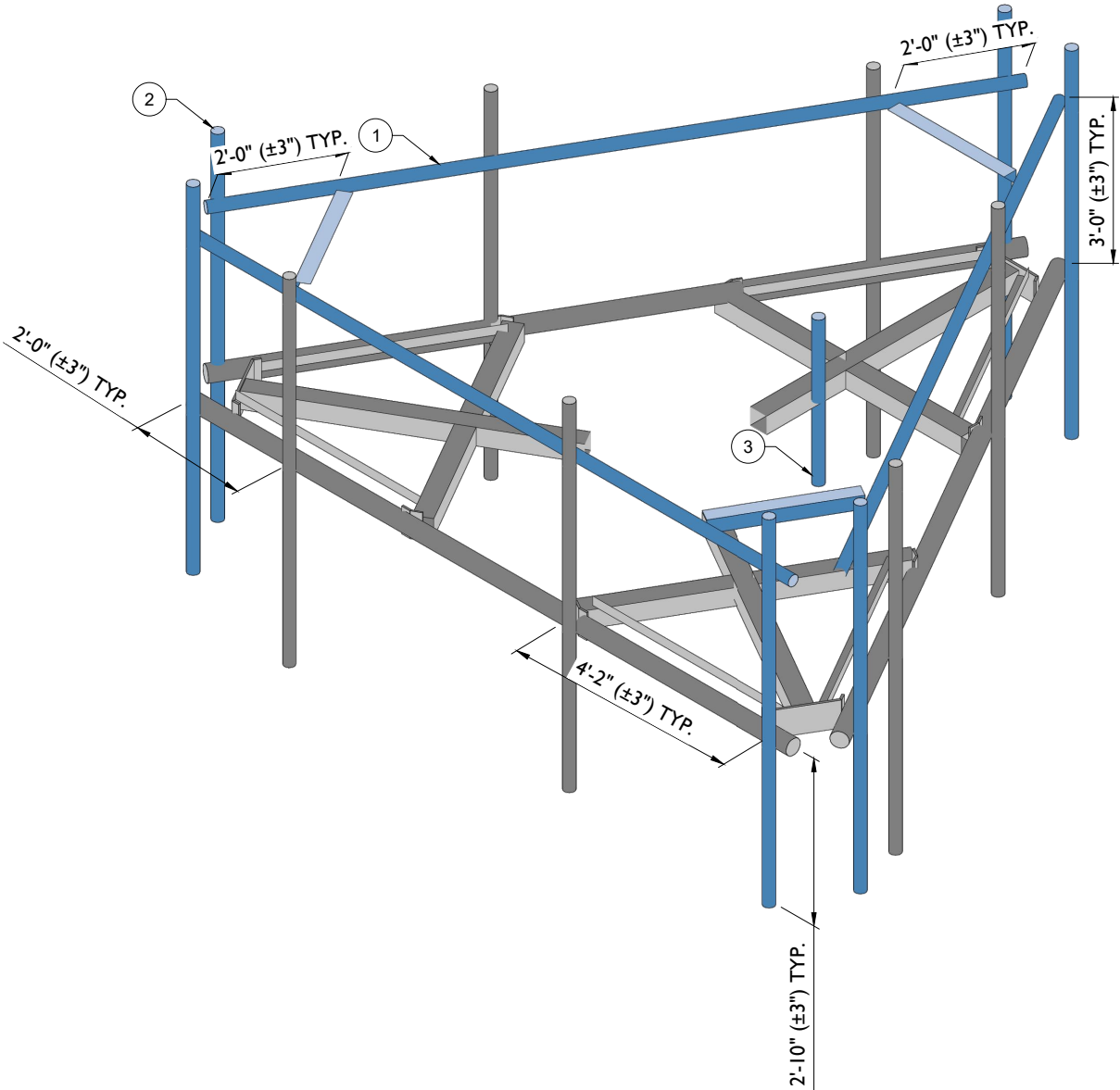
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SCF-I

LEGEND:

- PROPOSED
- RELOCATED
- EXISTING

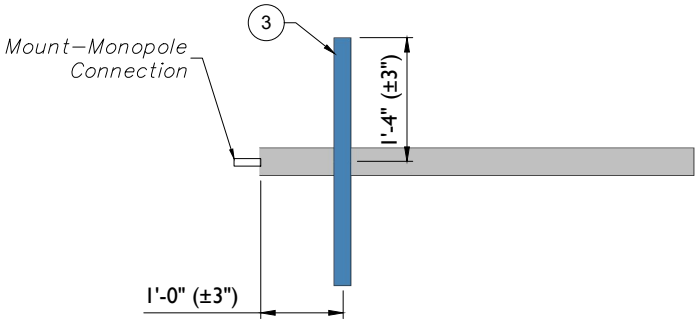
MOUNT MODIFICATION SCHEDULE				
NO.	ELEVATION	QUANTITY	DESCRIPTION	NOTES
1	110'-00"	1	PROPOSED SUPPORT RAIL KIT (PART #: VZWSMART-PLK1)	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1. RADIO AND/OR TME POSITIONS SHALL BE ADJUSTED VERTICALLY AS NEEDED IN ORDER TO ACHIEVE INSTALLATION OF HORIZONTAL AS SHOWN.
2		6	PROPOSED 86" LONG, PIPE 2 SCH40	CONNECT NEW MOUNT PIPE TO EXISTING LOWER HORIZONTAL WITH CROSSOVER PLATES (PART #: VZWSMART-MSK2).
3		1	PROPOSED 36" LONG, PIPE 2 SCH40	CONNECT NEW OVP PIPE TO EXISTING STANDOFF HORIZONTAL WITH BACK TO BACK CROSSOVER PLATE (VZWSMART-MSK6). STANDOFF BETWEEN BETA AND GAMMA SECTOR ONLY.
GENERAL NOTES:				
A. CONTRACTOR SHALL VERIFY THAT NEW & EXISTING STEEL IS FREE OF CORROSION. VISIBLE MINOR CORROSION SHALL BE WIRE BRUSHED CLEAN AND TREATED WITH COLD GALVANIZATION. REPORT ANY SIGNIFICANT CORROSION TO EOR				
B. THREADED ROD FROM PROPOSED KITS SHALL BE TRIMMED TO EXTEND NO MORE THAN 3" BEYOND THE LOCK NUT. TREAT ALL CUT ENDS WITH (2) COATS OF COLD GALVANIZATION (ZINC KOTE, OR EOR APPROVED EQUAL).				
C. MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.				



1

PROPOSED ISOMETRIC VIEW

SCALE : N.T.S.



2

PROPOSED SIDE ELEVATION VIEW (BETA/GAMMA STANDOFF)

SCALE : N.T.S.



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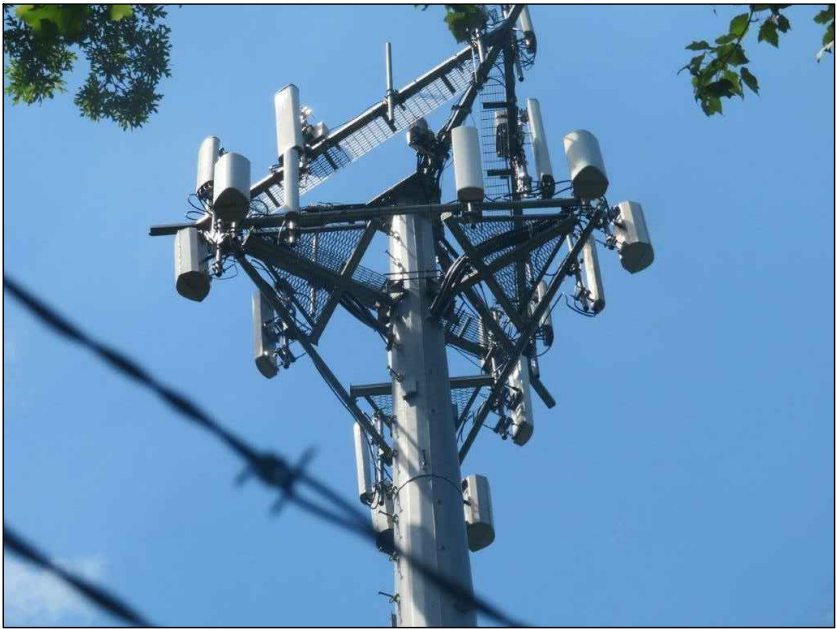
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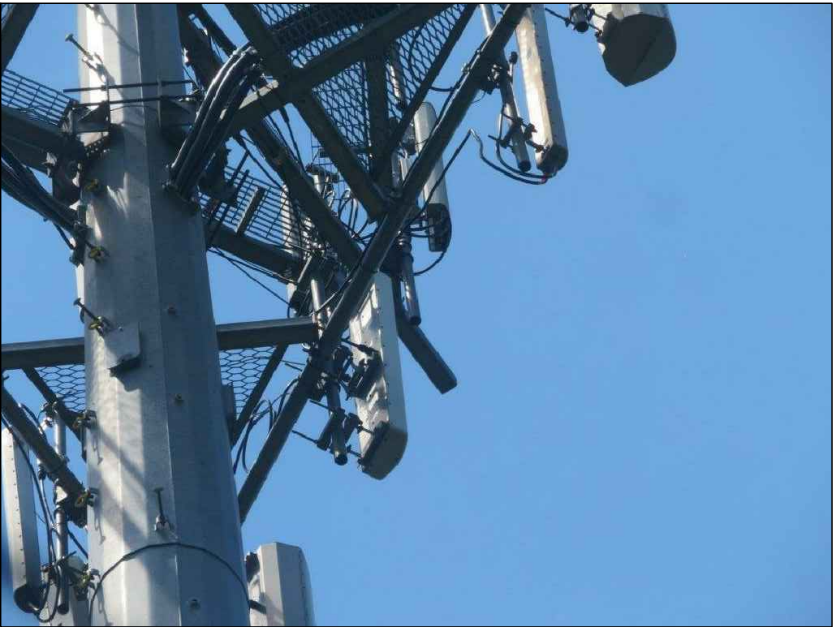
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SS-1



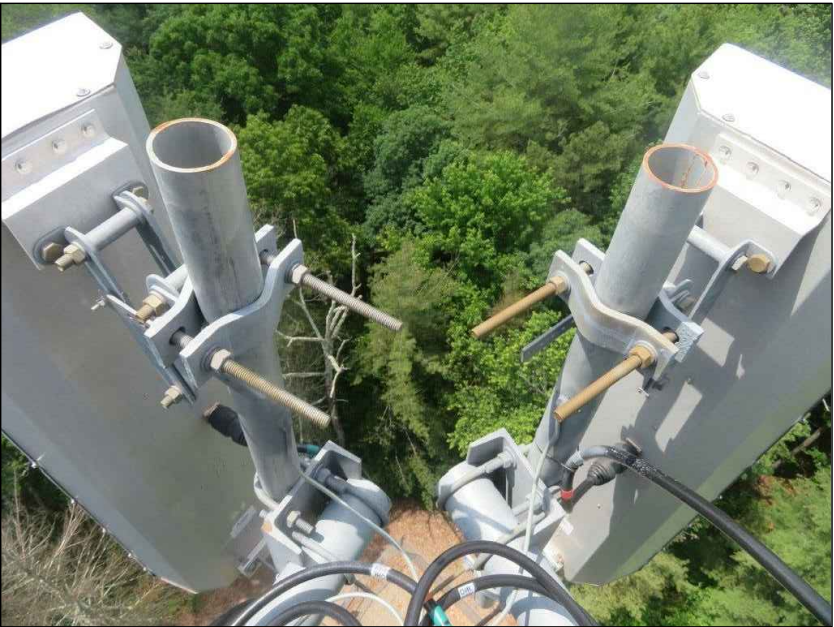
MOUNT PHOTO 1



MOUNT PHOTO 2



MOUNT PHOTO 3



MOUNT PHOTO 4



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SHEET TITLE:

MOUNT PHOTOS

SHEET NUMBER:

SS-2

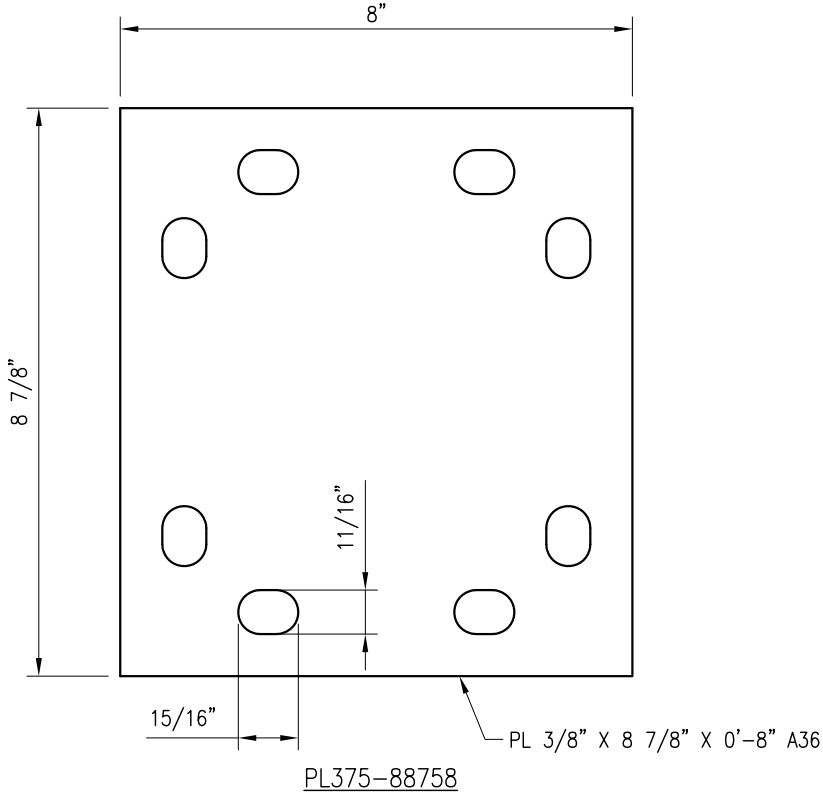
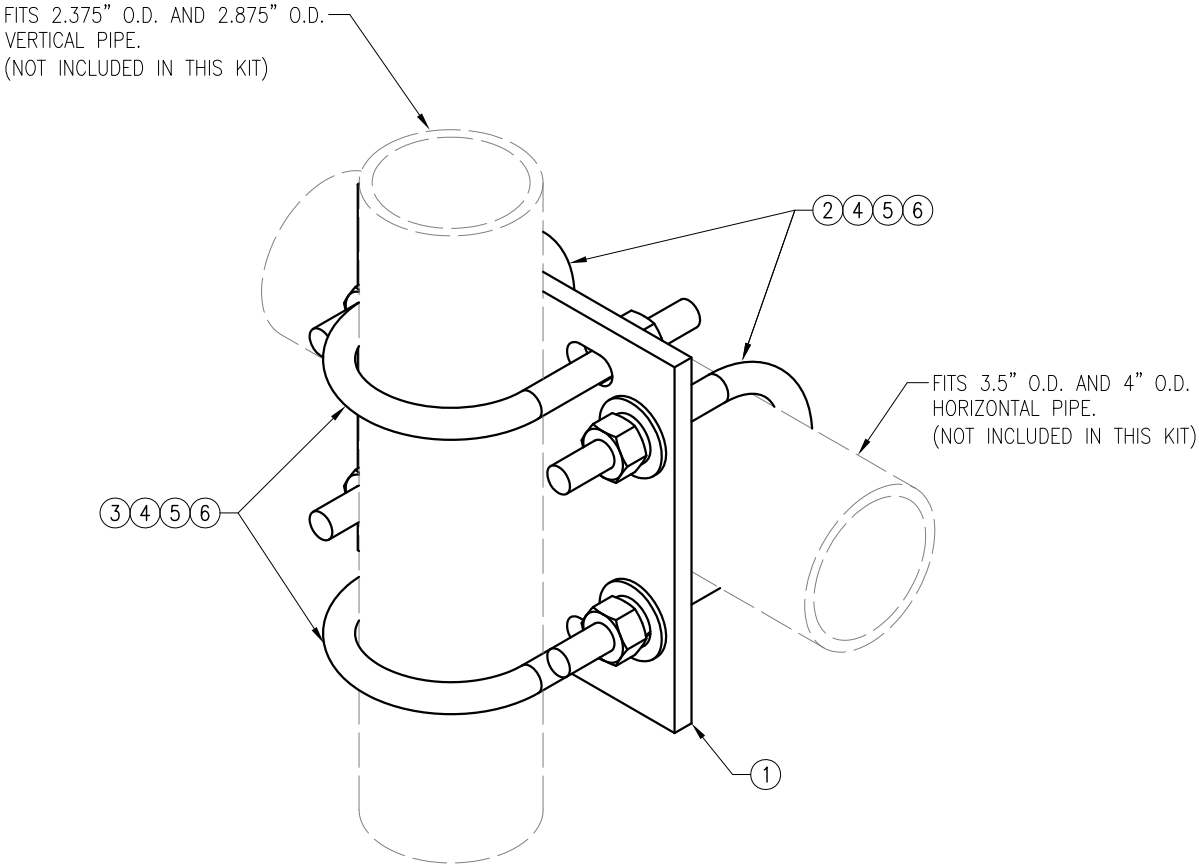
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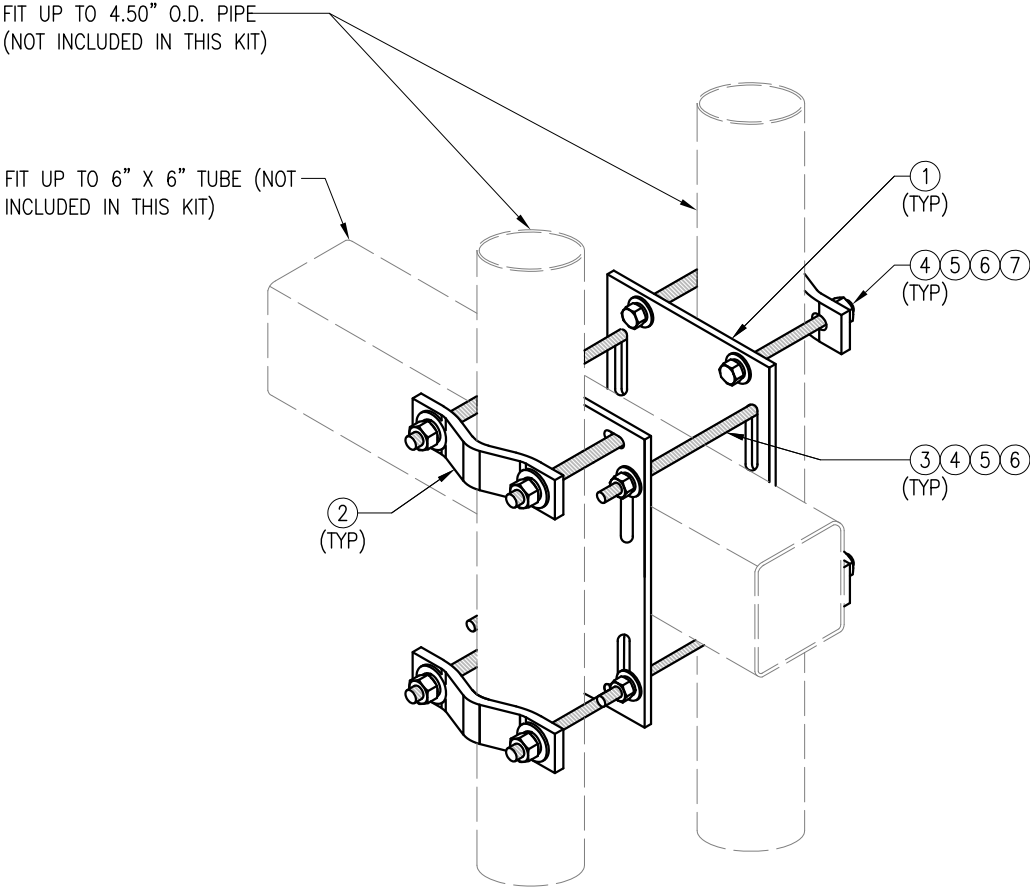
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VZWSMART-MSK2 CROSSOVER PLATE	
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VZWSMART-MSK2	0



NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.

VZWSMART-MSK2 (CROSSOVER PLATE)					
ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	1	PL375-88758	PL 3/8" X 8 3/4" X 0'-8" A36	MSK2-F1	8
2	2	MS02-625-4125-600	RU-BOLT 5/8" X 4 1/8" I.W. X 6" I.L. A36 (OR EQUIV.)	RBC-1	3
3	2	MS02-625-300-500	RU-BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	RBC-1	3
4	8	FW-625	5/8" HDG USS FLAT WASHER	---	1
5	8	LW-625	5/8" HDG LOCK WASHER	---	0
6	8	NUT-625	5/8" HDG HEX NUT	---	1
GALVANIZED WT					15

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ISOMETRIC VIEW
BACK TO BACK CROSSOVER

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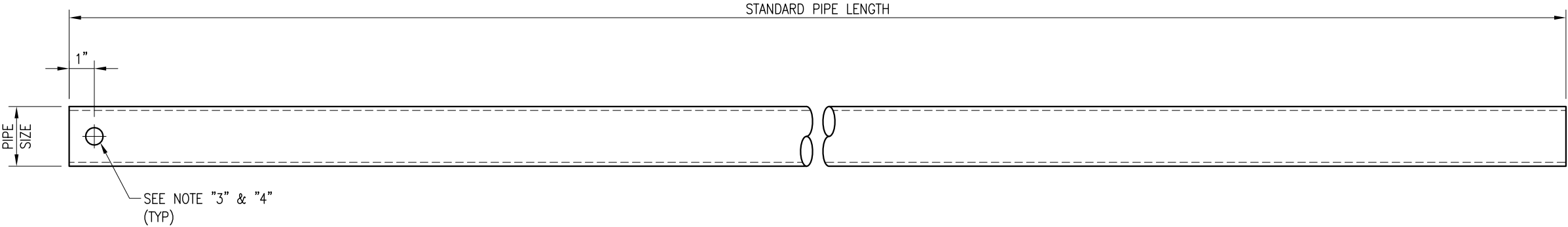
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SHEET TITLE:
VZWSMART-MSK6
BACK TO BACK
CROSSOVER

SHEET NUMBER: VZWSMART-MSK6	REV #: 0
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NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.

VZWSMART-MSK6 (VZWSMART-MSK6 - BACK TO BACK CROSSOVER)					
ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	2	PL375-8512	PL 3/8" X 8 1/2" X 1'-0" A36	MSK6-F2	20.7
2	4	VCP	PL 1/2" X 2" X 8 5/8" A36 BENT PLATE	MSK6-F1	9.6
3	4	---	THREADED ROD 5/8" DIA. X 10" F1554-36 HDG	---	---
4	16	NUT-625	5/8" HDG HEX NUT	---	2
5	16	FW-625	5/8" HDG USS FLAT WASHER	---	1
6	16	LW-625	5/8" HDG LOCK WASHER	---	0
7	8	---	BOLT 5/8" X 6" SAE GRADE 5 ALL THREAD	---	1
GALVANIZED WT					34



VZWSMART Standard Pipe		
VZWSMART Number	Size	Length
P40-238X048	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	48"
P40-238X072	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	72"
P40-238X096	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	96"
P40-238X120	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	120"
P40-238X126	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	126"
P40-238X150	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	150"
P40-238X174	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	174"
P40-278X048	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	48"
P40-278X072	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	72"
P40-278X096	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	96"
P40-278X120	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	120"
P40-278X126	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	126"
P40-278X150	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	150"
P40-278X174	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	174"
P40-312X048	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	48"
P40-312X072	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	72"
P40-312X126	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	126"
P40-312X150	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	150"
P40-312X174	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	174"

NOTE:
APPROVED SMART KIT VENDORS ARE ALLOWED TO SUBSTITUTE AT THEIR DISCRETION
PIPES LISTED ON THIS PAGE FOR CUSTOM LENGTH COMPONENTS OF MATCHING SIZE.
SUBSTITUTIONS SHALL MEET THE ORIGINAL STRUCTURAL INTENT.

- NOTES:
- ALL PIPE GRADE A53-B OR BETTER.
 - HOT-DIPPED GALVANIZED PER ASTM A123.
 - ALL HOLES ARE 11/16" DIA. U.N.O
 - HOLES MAY OR MAY NOT BE PRESENT, DEPEND UPON MANUFACTURE DISCRETION.
 - ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA OR ZINC COTE PER ASTM A780 AND MANUFACTURER’S RECOMMENDATIONS.

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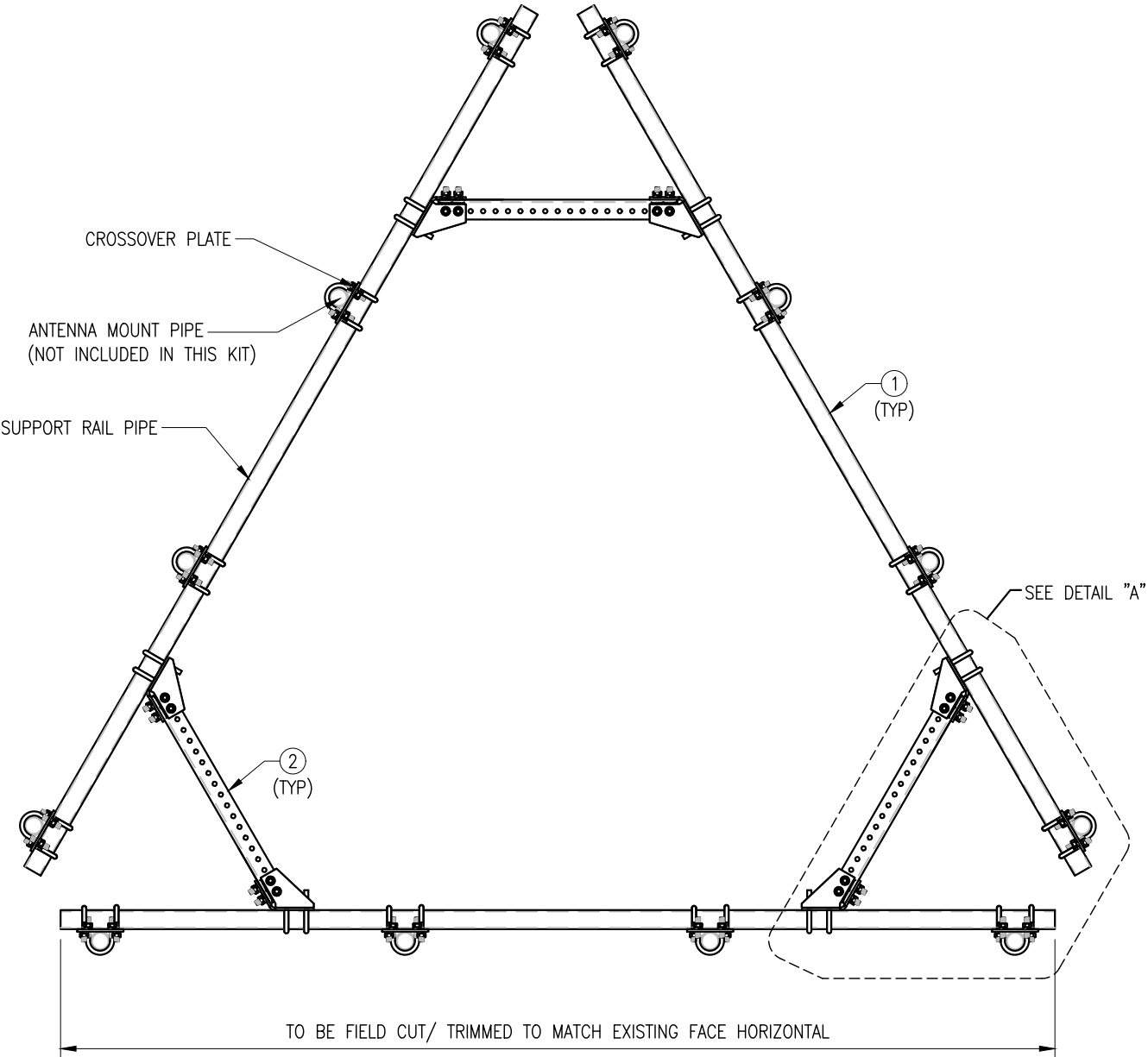
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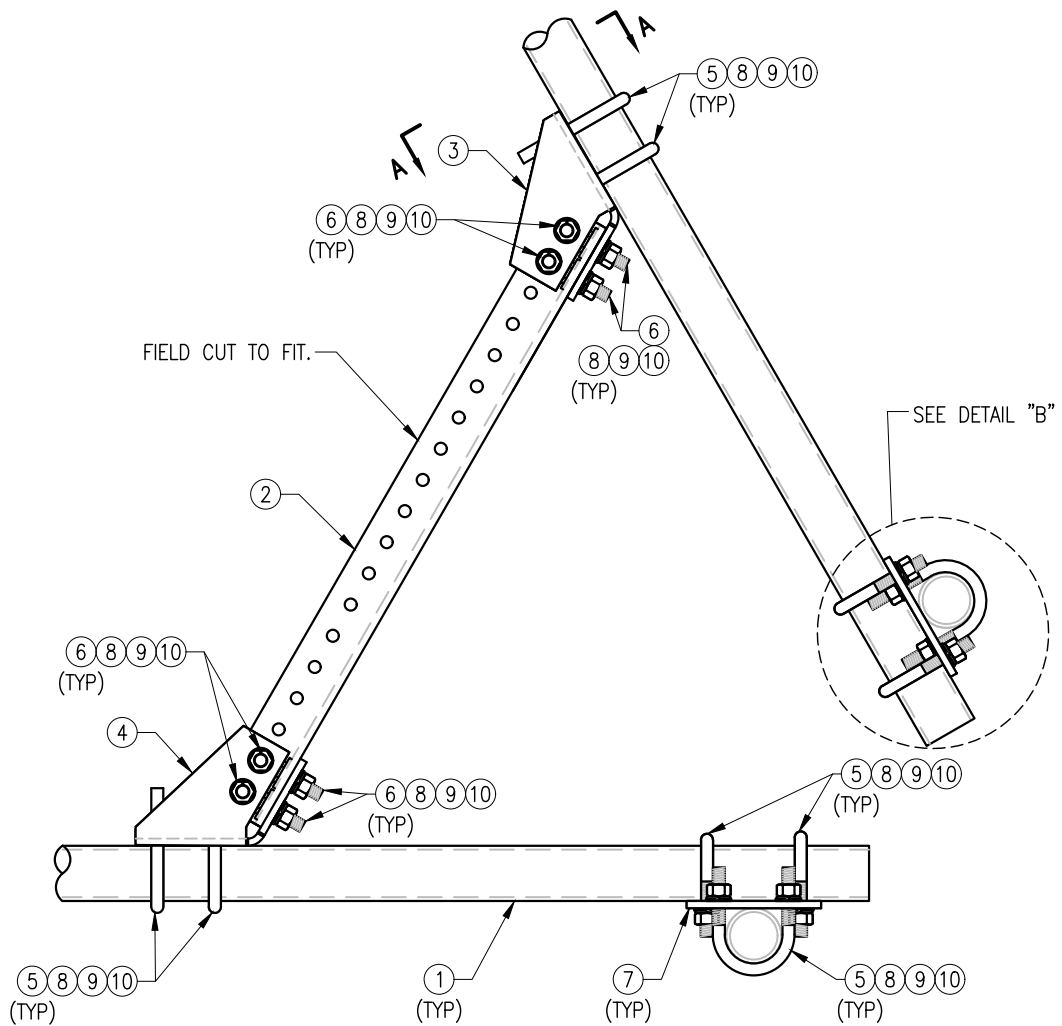
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STANDARD PIPE

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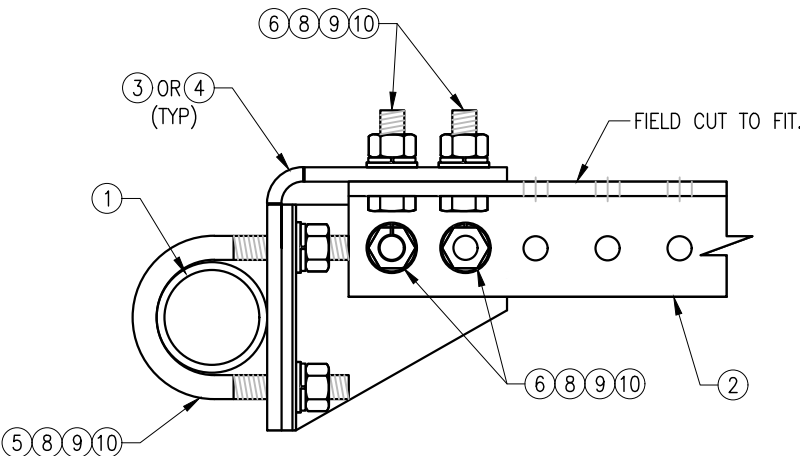
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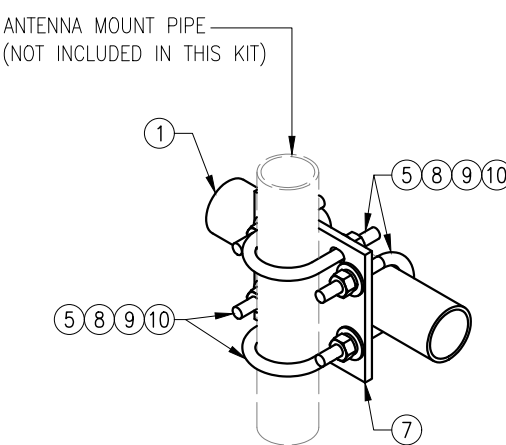
PLAN VIEW



DETAIL "A"



SECTION "A-A"



DETAIL "B"

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.

VZW SMART-PLK1 (SUPPORT RAIL KIT)					
ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	3	PST2875-12.5	2.5" PST (2.875" O.D. X 0.203" THK.) X 12'-6" A53 GR-B	PLK1-F1	292
2	3	L33375-3	L 3" X 3" X 3/8" X 3'-0" A36	PLK1-F1	66
3	3	CBP-L	CORNER BENT PLATE BRACKET	PLK1-F2	28
4	3	CBP-R	CORNER BENT PLATE BRACKET	PLK1-F2	28
5	60	MS02-625-300-500	RU-BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	RBC-1	82
6	24	---	BOLT 5/8" X 2" A325	---	9
7	12	PL375-857	PL 3/8" X 8 1/2" X 7'-0" A36	PLK1-F3	77
8	144	FW-625	5/8" HDG USS FLAT WASHER	---	12
9	144	LW-625	5/8" HDG LOCK WASHER	---	3
10	144	NUT-625	5/8" HDG HEX NUT	---	17
GALVANIZED WT					504

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SHEET TITLE:

VZWSMART-PLK1
SUPPORT RAIL KIT

SHEET NUMBER: REV #:
VZWSMART-PLK1 0