



4545 East River Road, Suite 320
West Henrietta, NY 14586

March 2, 2020

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

RE: **Notice of Exempt Modification for Verizon**
Crown Site #: 842872
52 New Britain Avenue, Rocky Hill, CT 06067
Latitude: 41° 39' 36.89"/ Longitude: -72° 40' 50.58"

Dear Ms. Bachman:

Verizon currently maintains twelve (12) antennas at the 90-foot level of the existing 182-foot monopole tower at 52 New Britain Avenue in Rocky Hill, CT. The tower is owned by Crown Castle. The property is owned by the Town of Rocky Hill. Verizon now intends to replace six (6) antennas and six remote radio units at the existing 90-foot configuration.

The Town of Rocky Hill approved construction of the tower on November 30th, 1998.

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.S.C.A. § 16-50j-73, a copy of this letter is being sent to the Honorable Lisa Marotta, Mayor, Town of Rocky Hill, as well as Kim Ricci, Town Planner for the Town of Rocky Hill.

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 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).

Sincerely,

A handwritten signature in dark ink, appearing to read 'Richard Zajac', written in a cursive style.

Richard Zajac
Network Real Estate Specialist
4545 East River Road, Suite 320
West Henrietta, NY 14586
585-445-5896
richard.zajac@crowncastle.com

cc: The Honorable Lisa Marotta, Mayor
Town of Rocky Hill
761 Old Main Street
Rocky Hill, CT 06067
860-258-2700

Ms. Kim Ricci, Town Planner
Town of Rocky Hill
761 Old Main Street
Rocky Hill, CT 06067
860-258-2761

ORIGIN ID: ONHA (585) 445-5896
RICHARD ZAJAC
CROWN CASTLE
4545 EAST RIVER ROAD
SUITE 320
WEST HENRIETTA, NY 14568
UNITED STATES US

SHIP DATE: 02MAR20
ACTWG: 1.00 LB
CAD: 104924194/NET4220

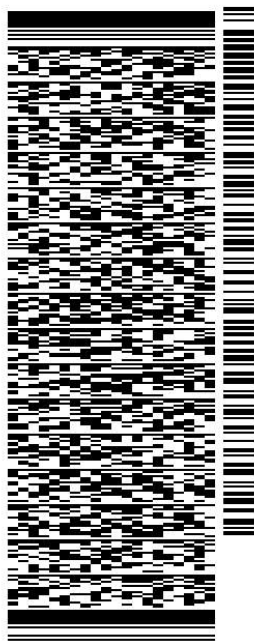
BILL SENDER

TO LISA MAROTTA - MAYOR

TOWN OF ROCKY HILL
761 OLD MAIN STREET

ROCKY HILL CT 06067

(860) 258-2700 REF: 1734.7880
INV/ PO: DEPT:



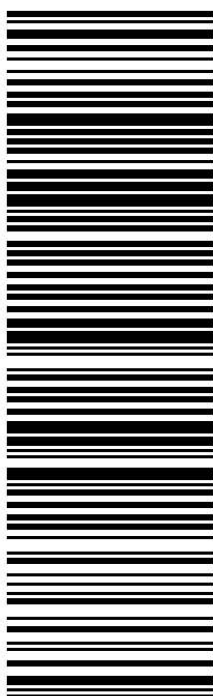
J201020011301ur

56BJ2164E0/FE4A

TRK# 7779 0261 1170 TUE - 03 MAR 3:00P
0201 STANDARD OVERNIGHT

XE BDLA

DSR 06067
CT-US BDL



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1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ORIGIN ID: ONHA (585) 445-5896
RICHARD ZAJAC
CROWN CASTLE
4545 EAST RIVER ROAD
SUITE 320
WEST HENRIETTA, NY 14568
UNITED STATES US

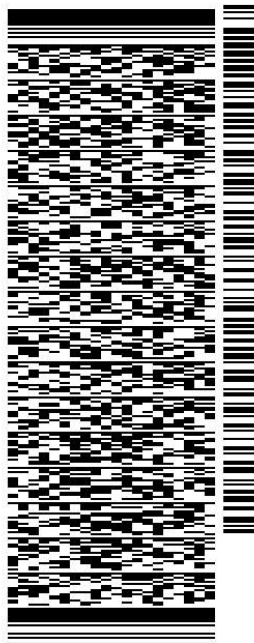
SHIP DATE: 02MAR20
ACTWGT: 1.00 LB
CAD: 104924194/INET4220

BILL SENDER

TO **KIM RICCI - TOWN PLANNER**
TOWN OF ROCKY HILL
761 OLD MAIN STREET

ROCKY HILL CT 06067

(860) 258-2761 REF: 1734 7880
INV/ PO: DEPT:

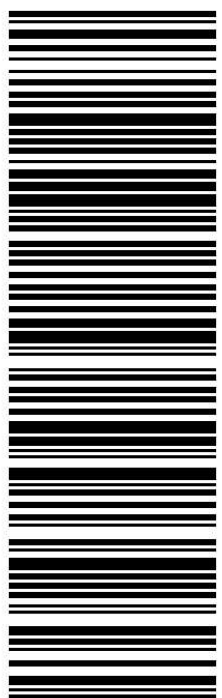


J201020011301ur

56BJ2164E0/FE4A

TRK# **7779 0273 9176** TUE - 03 MAR 3:00P
0201 STANDARD OVERNIGHT

XE BDLA DSR
CT-US **06067**
BDL



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Exhibit A

Original Facility Approval

No 13621

**TOWN OF ROCKY HILL, CONN.
BUILDING PERMIT**

Estimated Cost (structural) \$ 669,707.00

Fee \$ waived

.....November 30.....19 98.

APPLICANTS PERMIT

PERMISSION IS HEREBY GRANTED TO.....Conn Strux, Inc., 860-677-9255.....

to erect a.....addition.....

Location.....R.H. Fire Station #2 N.Britain Ave.....No. of families or units.....

Zoned.....Lot Area.....Frontage.....

Front yard setback.....Right side yard.....Left side yard.....

Rear yard.....Dimensions of building.....No. stories.....

Type of Const OwnerTown of Rocky Hill.....

NOTICE

The recipient of this permit accepts this permit on the condition that he, as owner or as representing the owner, agrees to comply with all Building, Zoning Ordinances of the Town of Rocky Hill and the State Statutes of the State of Connecticut, regarding the use occupancy and type of building to be constructed.

Building Official

License No.

Permission must be obtained from the Office of the Town Engineer before Building Materials can be placed in the highway. Surface and roof water must not be connected with the Storm Sewer.



Town of Rocky Hill

699 OLD MAIN STREET • PO BOX 657 • ROCKY HILL, CT 06067 • FAX (860) 258-7638

August 27, 2001

To: Jennifer Charland

From: J-P. Langlois, Building Official

Re: Communication Tower, 52 New Britain Avenue

Dear Jennifer;

This letter is in reference to a communication tower that was installed under building permit #13621 at 52 New Britain Avenue in Rocky Hill, Connecticut.

A final inspection was performed on January 25, 2001 and was approved.

Should you have any questions, please feel free to contact the Building Department
At (860) 258-2745.

Exhibit B

Property Card

Situs : 52 NEW BRITAIN AVENUE

Map ID: 6855

Class: Fire Vol

Card: 1 of 1

Printed: April 22, 2019

CURRENT OWNER

ROCKY HILL TOWN OF
CO 2 FIREHOUSE
761 OLD MAIN STREET
ROCKY HILL CT 06067-1517

GENERAL INFORMATION

Living Units
Neighborhood S
Alternate Id 007392
Vol / Pg 057/353
District
Zoning C
Class EXEMPT

Property Notes



08-354-001 12/09/2012

Land Information

Type	Size	Influence Factors	Influence %	Value
Primary	AC 0.5700			314,000
Total Acres: .57 Spot: Location:				

Assessment Information

	Assessed	Appraised	Cost	Income	Market
Land	219,800	314,000	314,000	0	0
Building	544,110	777,300	777,300	0	0
Total	763,910	1,091,300	1,091,300	0	0
Manual Override Reason					
Base Date of Value 10/01/2018					
Effective Date of Value 10/01/2018					
Value Flag					
Gross Building:					

Entrance Information

Date	ID	Entry Code	Source
10/04/12	ST	Measured + 1visit	From Conversion

Permit Information

Date Issued	Number	Price	Purpose	% Complete
03/15/18	2018-352	25,000	CM Remove And Replace (3) Antenna:	0
10/31/17	2018-198	20,000	CM Sprint To Add Three (3) Antennas	0
09/10/16	2017-104	20,000	MS At&T To Add Three (3) Antennas	0
10/28/15	2016-135	28,000	EL Retrofit Lights In Fire Station	0
06/18/15	2015-457	44,000	SN Replace Existing Message Boards	0

Sales/Ownership History

Transfer Date	Price	Type	Validity	Deed Reference	Deed Type	Grantee
12/15/57		Vacant - Land Only Sale	No Consideration	057/353	No Consideration	ROCKY HILL TOWN OF

Inspection Witnessed By _____

Situs : 52 NEW BRITAIN AVENUE

Parcel Id: 6855

Class: Fire Vol

Card: 1 of 1

Printed: April 22, 2019

Building Information

Year Built/Eff Year	1958 /
Building #	1
Structure Type	Police/Fire Station
Identical Units	1
Total Units	1
Grade	B
# Covered Parking	
# Uncovered Parking	
DBA	CO 2 FIREHOUSE

Building Other Features

Line Type	+/-	Meas1	Meas2	# Stops	Ident Units	Line Type	+/-	Meas1	Meas2	# Stops	Ident Units
-----------	-----	-------	-------	---------	-------------	-----------	-----	-------	-------	---------	-------------

Interior/Exterior Information

Line	Level	From - To	Int Fin	Area	Perim	Use Type	Wall Height	Ext Walls	Construction	Partitions	Heating	Cooling	Plumbing	Physical	Functional
1	01	01		4,199	260	Municipal	12	Brick & Con	Fire Resistant	Normal	Hot Air	Central	Normal	5	3
2	02	02		3,074	222	Municipal	12	Brick & Con	Fire Resistant	Normal	Hot Air	Central	Normal	5	3

Interior/Exterior Valuation Detail

Line	Area	Use Type	% Good	% Complete	Use Value/RCNLD
1	4,199	Municipal	60		456,520
2	3,074	Municipal	60		299,700

Outbuilding Data

Line	Type	Yr Blt	Meas1	Meas2	Qty	Area	Grade	Phy Fun	Value
1	Asph Pav	1958			1	17,000	C	A	21,040

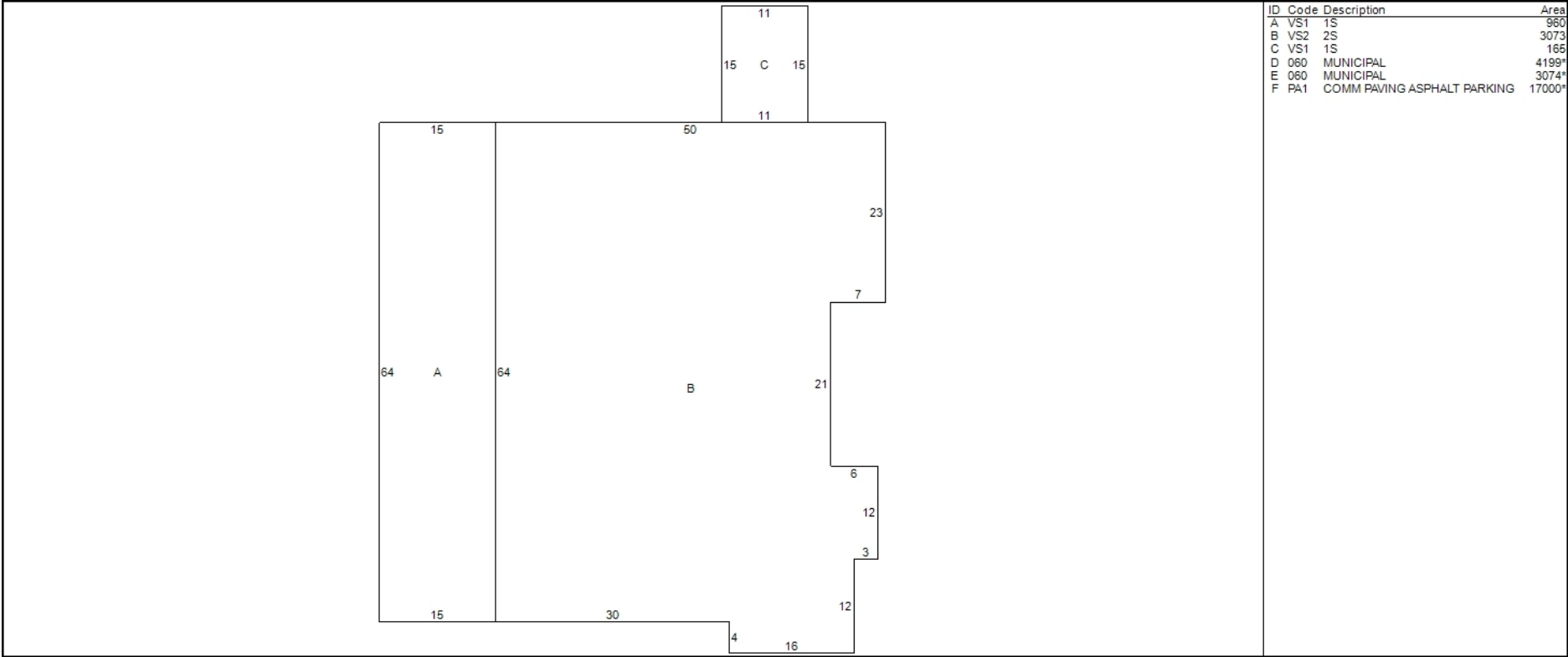
Situs : 52 NEW BRITAIN AVENUE

Parcel Id: 6855

Class: Fire Vol

Card: 1 of 1

Printed: April 22, 2019



Additional Property Photos

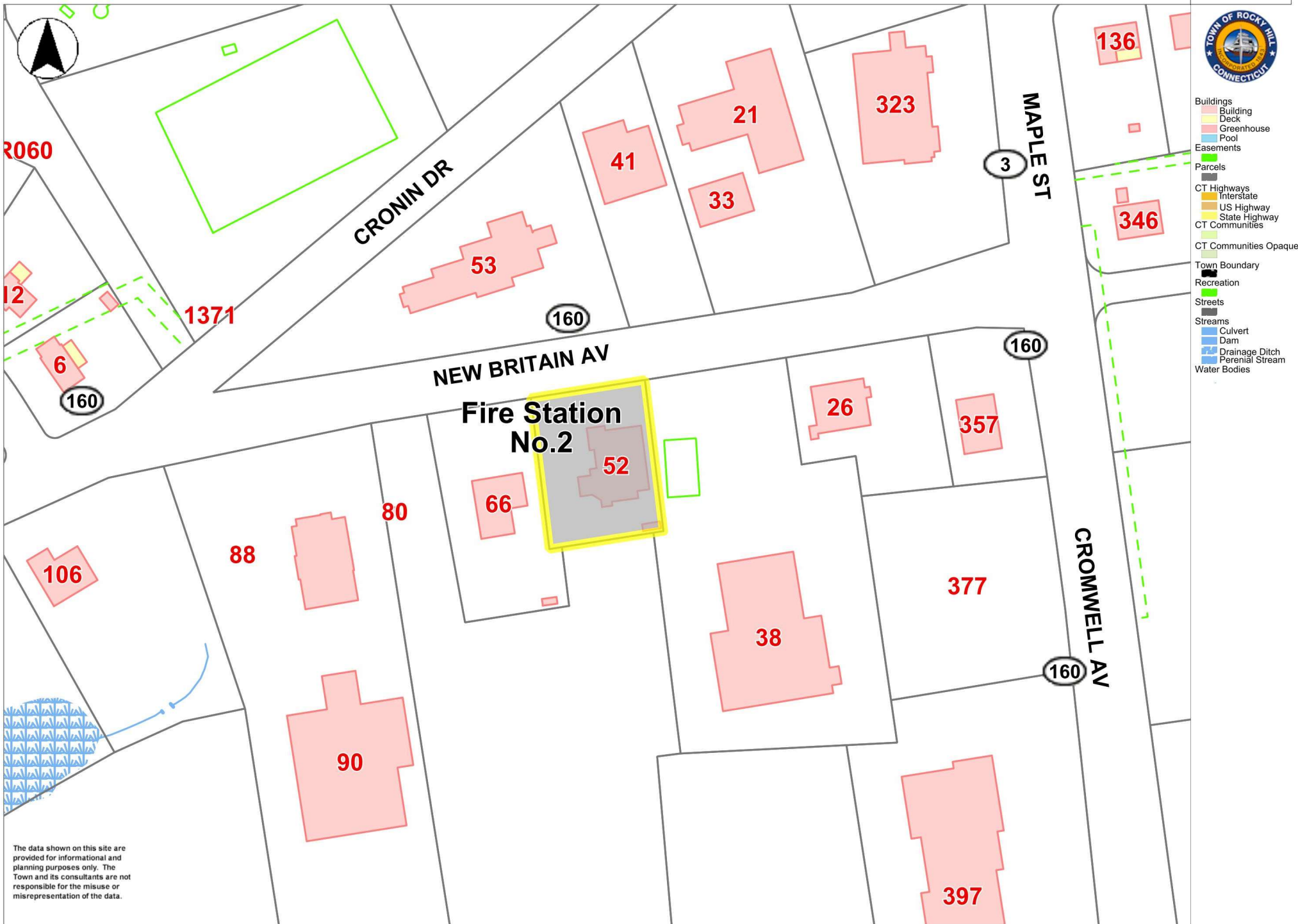


Situs : 52 NEW BRITAIN AVENUE	Parcel Id: 6855	Class: Fire Vol	Card: 1 of 1	Printed: April 22, 2019
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Income Detail (Includes all Buildings on Parcel)																		
Use Mod Grp	Mod Type	Inc Mod	Model Description	Units	Net Area	Income Rate	Econ Adjust	Potential Gross Income	Vac Model	Vac Adj	Additional Income	Effective Gross Income	Expense Model %	Expense Adj %	Expense Adj	Other Expenses	Total Expenses	Net Operating Income
00	S	1	Shell Income Use Group	0	7,273						0							

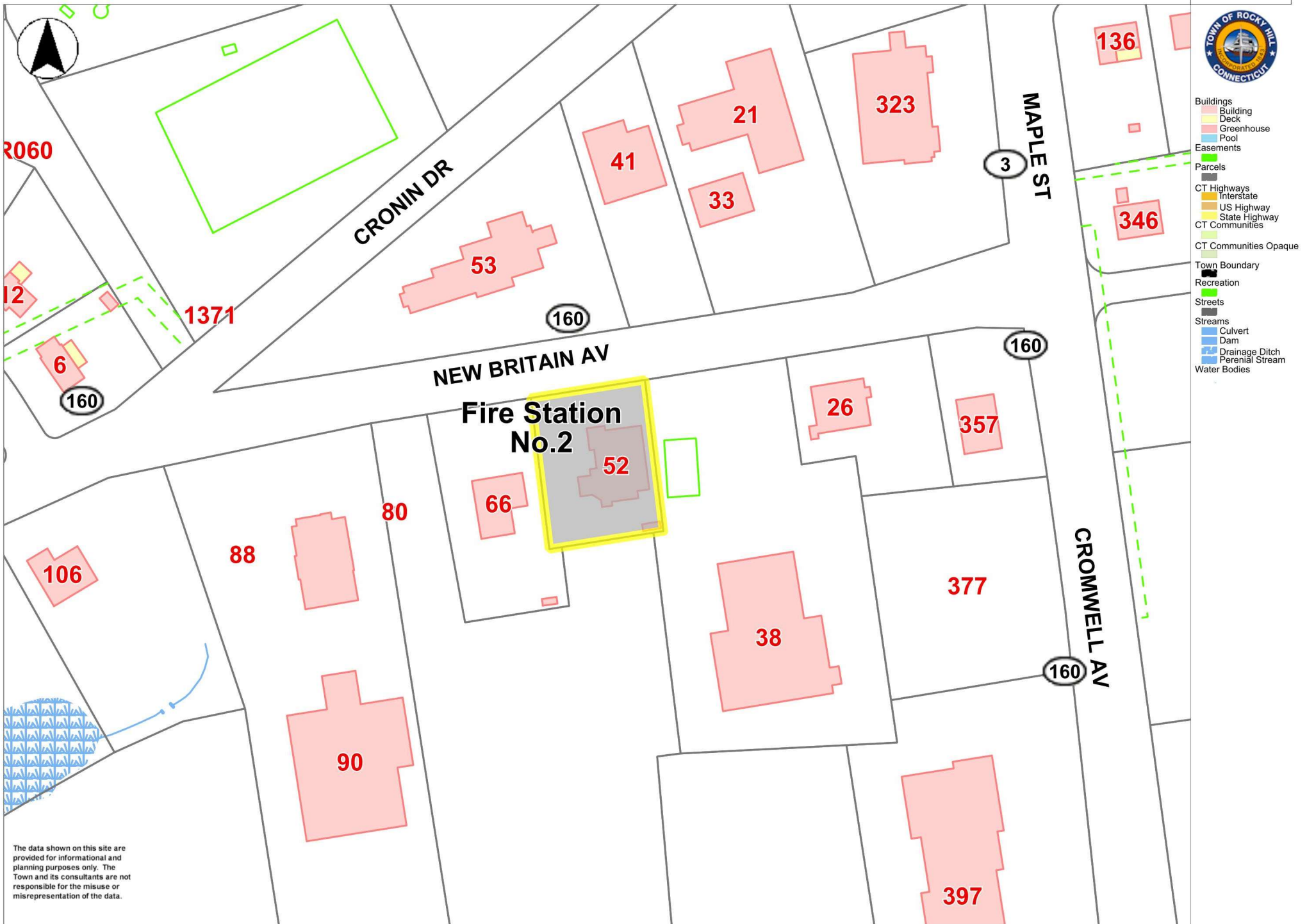
Apartment Detail - Building 1 of 1								Building Cost Detail - Building 1 of 1	
Line	Use Type	Per Bldg	Beds	Baths	Units	Rent	Income		
								Total Gross Building Area	7,273
								Replace, Cost New Less Depr	756,220
								Percent Complete	100
								Number of Identical Units	1
								Economic Condition Factor	
								Final Building Value	756,220
								Value per SF	103.98

Notes - Building 1 of 1								Income Summary (Includes all Building on Parcel)	
								Total Net Income	
								Capitalization Rate	0.090000
								Sub total	
								Residual Land Value	
								Final Income Value	
								Total Gross Rent Area	
								Total Gross Building Area	7,273



The data shown on this site are provided for informational and planning purposes only. The Town and its consultants are not responsible for the misuse or misrepresentation of the data.





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0 200 400 ft

Printed on 02/28/2020 at 11:19 AM

MapsOnline by PeopleGIS

Exhibit C

Construction Drawings



VERIZON SITE NUMBER:

VERIZON SITE NAME:

SITE TYPE:

TOWER HEIGHT:

NG37621

ROCKY HILL 3 CT

MONOPOLE

182'-0"

BUSINESS UNIT #:

SITE ADDRESS:

COUNTY:

JURISDICTION:

842872

52 NEW BRITAIN AVENUE
ROCKY HILL, CT 06067

HARTFORD

TOWN OF ROCKY HILL

VERIZON LTE



VERIZON SITE NUMBER:
NG37621

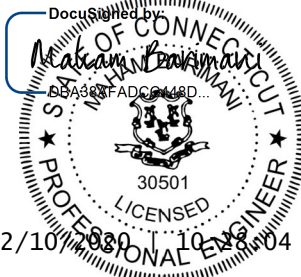
BU #: 842872
ROCKY HILL

52 NEW BRITAIN AVENUE
ROCKY HILL, CT 06067

EXISTING 182'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	01/27/20	CM/EA	CONSTRUCTION	MJ/MB
1	02/07/20	EA	CONSTRUCTION	MB



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:

T-1

REVISION:

1

SITE INFORMATION

CROWN CASTLE USA INC.
SITE NAME:

ROCKY HILL

SITE ADDRESS:

52 NEW BRITAIN AVENUE
ROCKY HILL, CT 06067

COUNTY:

HARTFORD

MAP/PARCEL #:

ROCK-000008-000000-000354

AREA OF CONSTRUCTION:

EXISTING

LATITUDE:

41° 39' 36.89"

LONGITUDE:

-72° 40' 50.58"

LAT/LONG TYPE:

NAD83

GROUND ELEVATION:

198 FT.

CURRENT ZONING:

C - COMMERCIAL

JURISDICTION:

TOWN OF ROCKY HILL

OCCUPANCY CLASSIFICATION:

U

TYPE OF CONSTRUCTION:

IIB

A.D.A. COMPLIANCE:

FACILITY IS UNMANNED AND NOT FOR
HUMAN HABITATION

PROPERTY OWNER:

TOWN OF ROCKY HILL
699 OLD MAN ST
ROCKY HILL, CT 06067

TOWER OWNER:

CCATT LLC
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

CARRIER/APPLICANT:

VERIZON WIRELESS
NETWORK REAL ESTATE
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

ELECTRIC PROVIDER:

NORTHEAST UTILITIES
(800) 286-2000

TELCO PROVIDER:

LIGHTTOWER
(845) 458-7720

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN
C-2	TOWER ELEVATION & ANTENNA PLANS
C-3	EQUIPMENT SCHEDULES
C-4	EQUIPMENT DETAILS
C-5	EQUIPMENT DETAILS
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS
ATTACHED	MOUNT MODIFICATION DESIGN

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11X17. 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.

APPROVALS

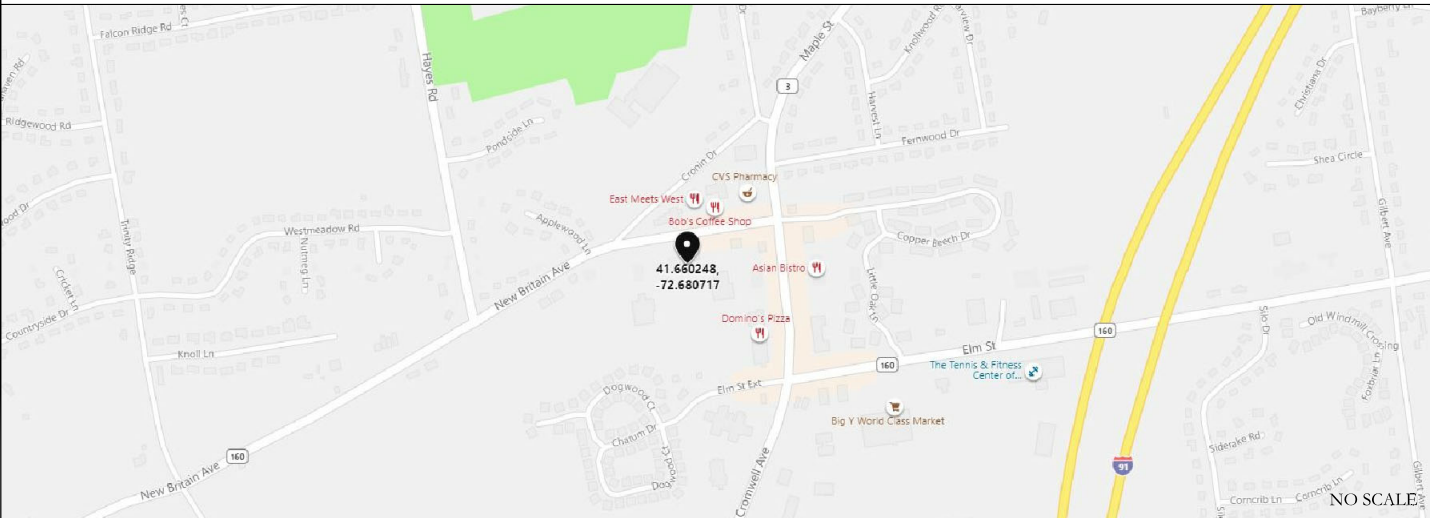
VERIZON SIGNATURE BLOCK

APPROVAL	SIGNATURE	DATE
SITE ACQUISITION	_____	_____
CONSTRUCTION	_____	_____
RADIO	_____	_____
MICROWAVE	_____	_____
TELCO	_____	_____
EQUIPMENT	_____	_____
PROJECT ADMINISTRATOR	_____	_____
WO ADMINISTRATOR	_____	_____

CROWN CASTLE USA INC. SIGNATURE BLOCK

APPROVAL	SIGNATURE	DATE
SITE ACQUISITION	_____	_____
PLANNER	_____	_____
CONSTRUCTION	_____	_____
PROJECT MANAGER	_____	_____
UTILITY MANAGER	_____	_____
LANDLORD	_____	_____

LOCATION MAP



DRIVING DIRECTIONS FROM VERIZON LOCAL OFFICE (20 ALEXANDER DR, WALLINGFORD, CT 06492):
HEAD NORTH ON ALEXANDER DR TOWARD BARNES INDUSTRIAL RD S, TURN RIGHT ONTO BARNES INDUSTRIAL RD S, TURN LEFT ONTO CT-68, TAKE RAMP RIGHT TOWARD MERIDEN, TURN RIGHT ONTO US-5 / N COLONY RD, TAKE RAMP RIGHT FOR CT-15 NORTH TOWARD HARTFORD, AT EXIT 68N-E, TAKE RAMP RIGHT FOR I-91 NORTH TOWARD HARTFORD / MIDDLETOWN, AT EXIT 23, TAKE RAMP RIGHT FOR WEST STREET TOWARD ROCKY HILL, TURN LEFT ONTO WEST ST, TURN RIGHT ONTO CT-3 / CROMWELL AVE, TURN LEFT ONTO CT-160 / NEW BRITAIN AVE, ARRIVE AT CT-160 / NEW BRITAIN AVE ON THE LEFT.

APPLICABLE CODES/REFERENCE DOCUMENTS

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

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

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS: BLACK & VEATCH CORP.
DATED: JANUARY 14, 2020
MOUNT MODIFICATION REPORT: PAUL J FORD AND COMPANY
DATED: JANUARY 9, 2020
RFDS REVISION: -
DATED: 10/28/19
ORDER ID: 507430
REVISION: 0



CALL CONNECTICUT ONE CALL
(800) 922-4455 CBYD.COM
CALL 2 WORKING DAYS
BEFORE YOU DIG!



PROJECT DESCRIPTION

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

TOWER SCOPE OF WORK:

- REMOVE (6) ANTENNAS
- REMOVE (6) RRHs
- INSTALL (6) ANTENNAS
- INSTALL (6) RRHs
- INSTALL (3) SIDE-BY-SIDE ANTENNA MOUNTS
- INSTALL MOUNT MODIFICATIONS PER MOUNT MODIFICATION DESIGN BY PAUL J FORD AND COMPANY DATED JANUARY 9, 2020

GROUND SCOPE OF WORK:

- NONE

INSTALLER NOTE:

NO PROPOSED LOADING TO BE ADDED
UNTIL MOUNT MODIFICATIONS ARE
INSTALLED PER MOUNT MODIFICATION
DESIGN BY PAUL J FORD AND COMPANY
DATED JANUARY 9, 2020.

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

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT: THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE, ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR 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 LANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED-STO-0253, 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-STO-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE" AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft. of MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (I.E., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/O COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER: VERIZON
TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90° AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
#4 BARS AND SMALLER 40 ksi
#5 BARS AND LARGER 60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 BARS AND LARGER 2"
#5 BARS AND SMALLER 1-1/2"
CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
SLAB AND WALLS 3/4"
BEAMS AND COLUMNS 1-1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- 4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- 4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL 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 THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEC AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET NEW FITTINGS AND ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEC AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (I.E. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 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.

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
DC VOLTAGE	GROUND	GREEN
	POS (+)	RED**
	NEG (-)	BLACK**

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

ABBREVIATIONS:

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

APWA UNIFORM COLOR CODE:

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



VERIZON SITE NUMBER:
NG37621

BU #: **842872**
ROCKY HILL

52 NEW BRITAIN AVENUE
ROCKY HILL, CT 06067

EXISTING 182'-0" MONOPOLE

ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	01/27/20	CM/EA	CONSTRUCTION	MJ/MB
1	02/07/20	EA	CONSTRUCTION	MB

DocuSigned by
Makam Benimam
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It is a violation of law for any person, unless they are acting under the direction of a licensed professional engineer, to alter this document.

SHEET NUMBER:
T-2

REVISION:
1





20 ALEXANDER DRIVE
WALLINGFORD, CT 06492



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

VERIZON SITE NUMBER:
NG37621

BU #: **842872**
ROCKY HILL

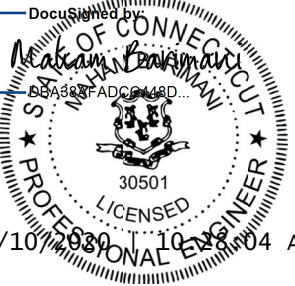
52 NEW BRITAIN AVENUE
ROCKY HILL, CT 06067

EXISTING 182'-0" MONOPOLE

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DocuSigned by

MAKAM BARKMAN
BASED IN AD COMPLIANCE...



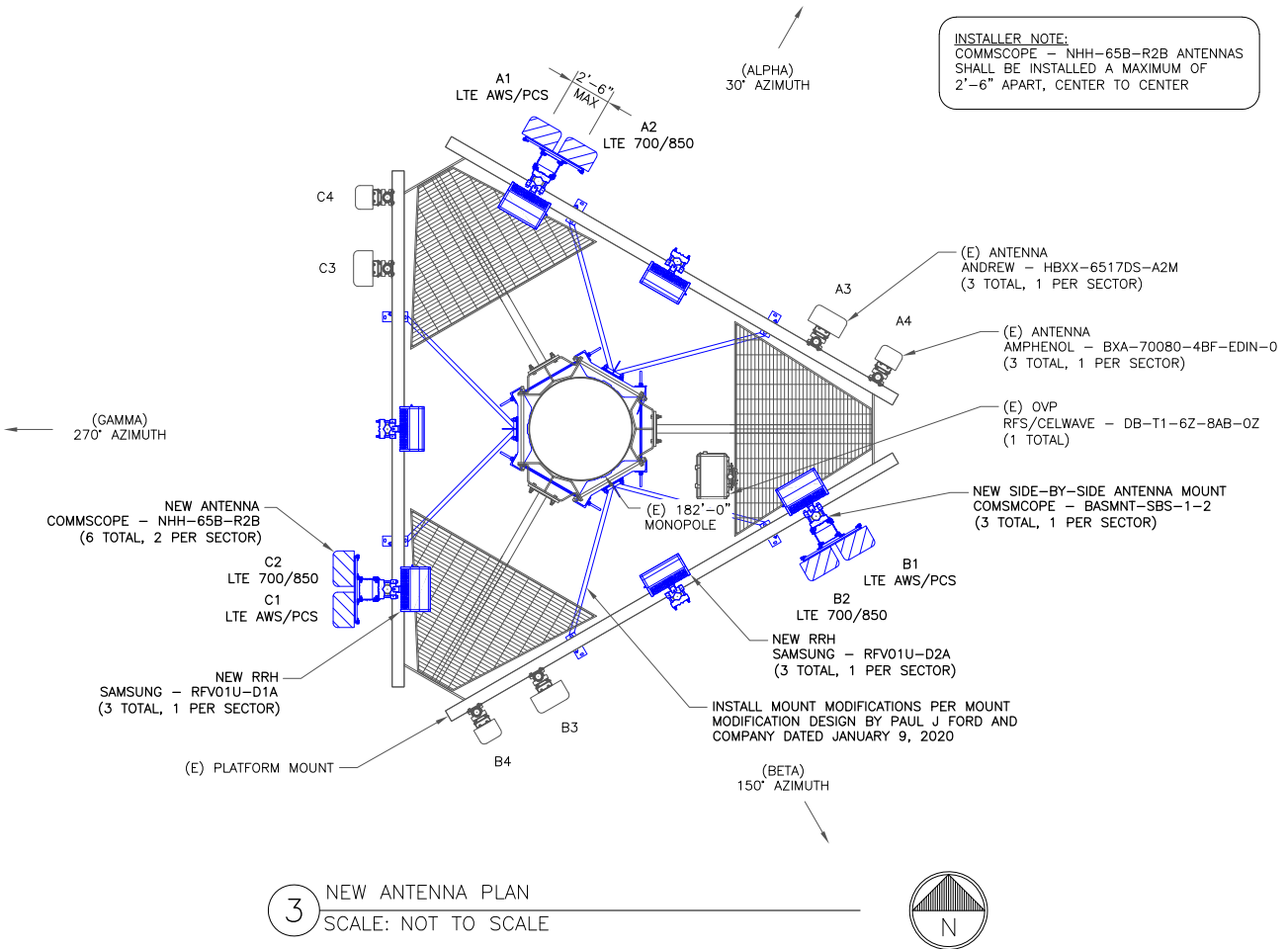
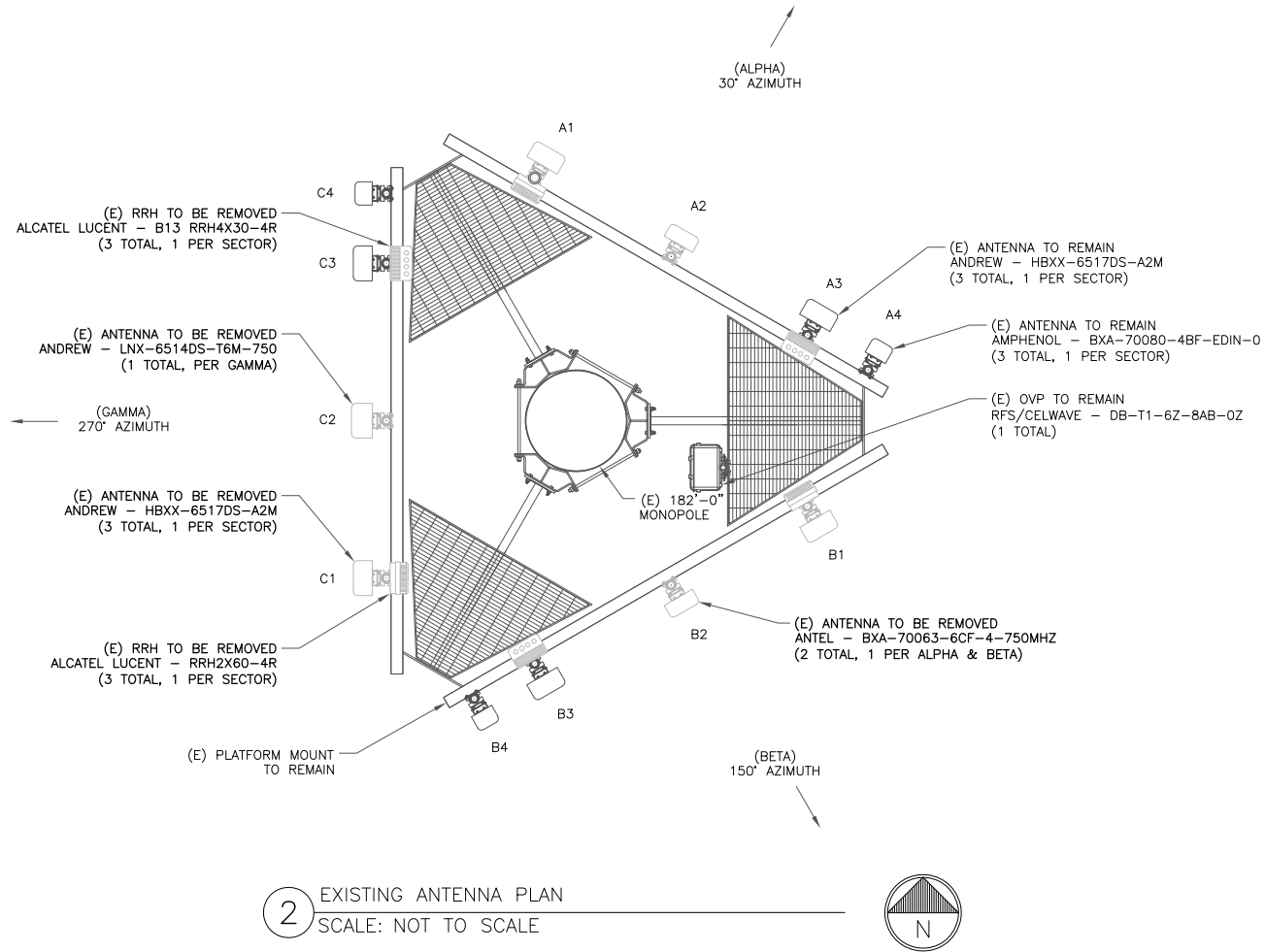
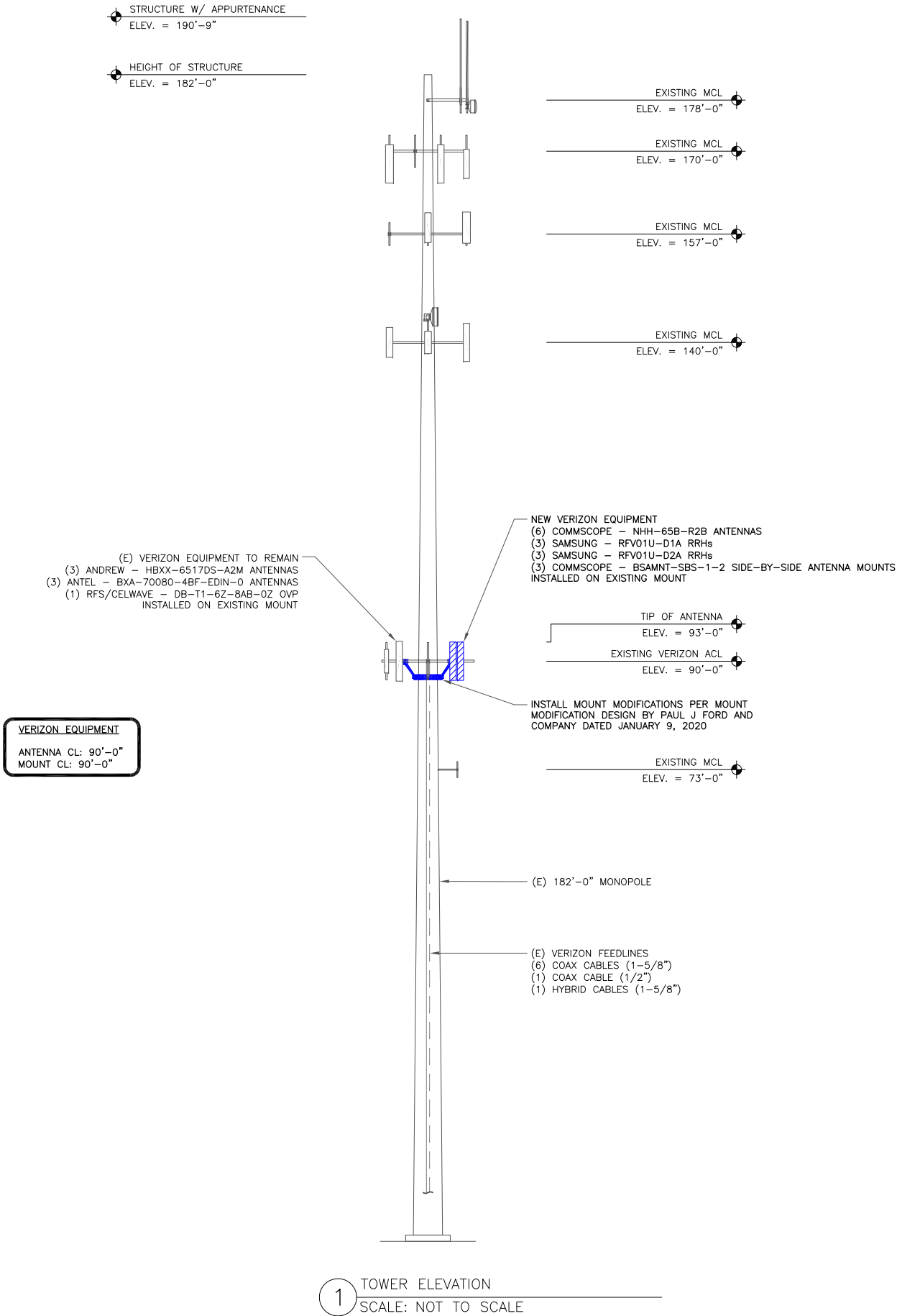
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REVISION:
1



verizon

20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

**CROWN
CASTLE**

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

VERIZON SITE NUMBER:
NG37621

BU #: **842872**
ROCKY HILL

52 NEW BRITAIN AVENUE
ROCKY HILL, CT 06067

EXISTING 182'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	01/27/20	CM/EA	CONSTRUCTION	MJ/MB
1	02/07/20	EA	CONSTRUCTION	MB

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Mark J. Ford
30501
2/10/2020 10:04 AM EST
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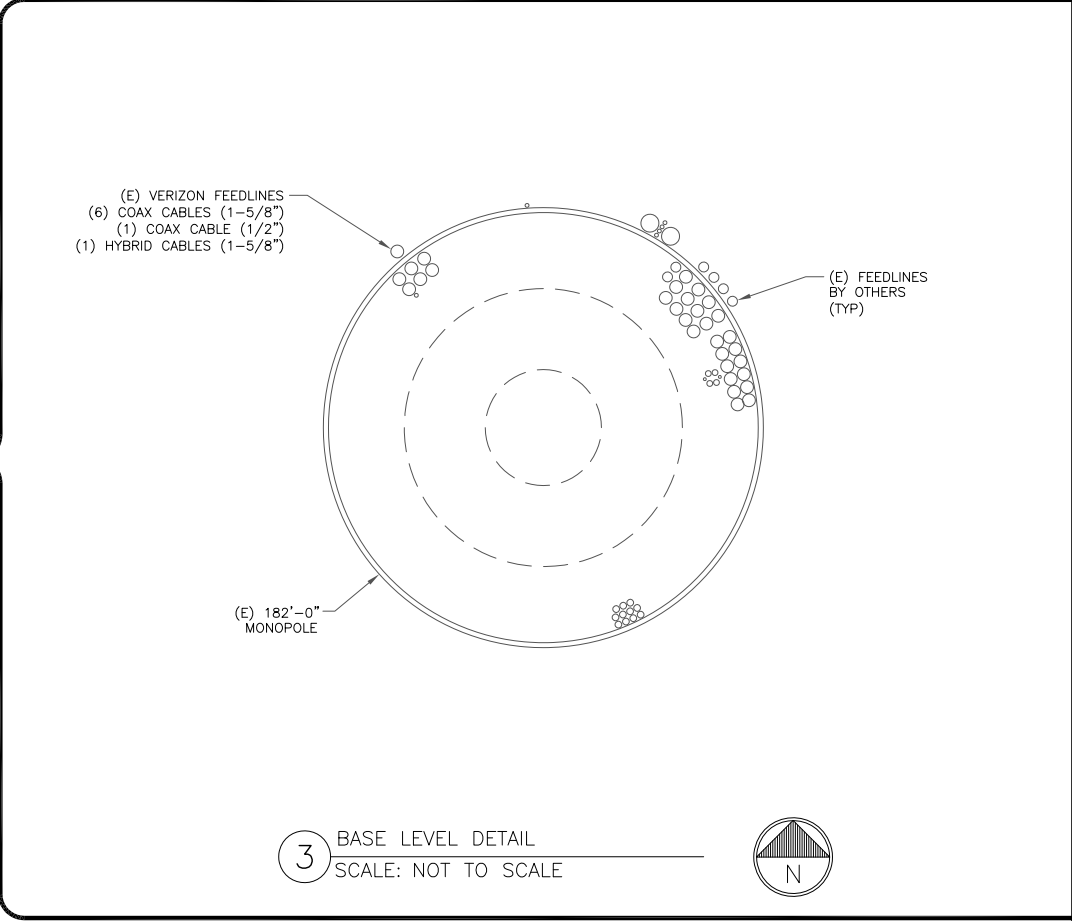
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ANTENNA/RRH SCHEDULE									
SECTOR	STATUS	ANTENNA MANUFACTURER	ANTENNA MODEL	ANTENNA CENTERLINE	AZIMUTH	MECHANICAL DOWNTILTS	ELECTRICAL DOWNTILTS	TOWER EQUIPMENT MANUFACTURER	TOWER EQUIPMENT QTY/MODEL
A1	REMOVE	ANDREW	HBXX-6517DS-A2M	90'-0"	30°	-	-	ALCATEL LUCENT	(1) RRH2X60-4R
A2	REMOVE	ANTEL	BXA-70063-6CF-4-750MHZ	90'-0"	30°	-	-	-	-
A3	EXISTING	ANDREW	HBXX-6517DS-A2M	90'-0"	30°	-	-	ALCATEL LUCENT	(1) B13 RRH4X30-4R
A4	EXISTING	AMPHENOL	BXA-70080-4BF-EDIN-0	90'-0"	30°	-	-	-	-
B1	REMOVE	ANDREW	HBXX-6517DS-A2M	90'-0"	150°	-	-	ALCATEL LUCENT	(1) RRH2X60-4R
B2	REMOVE	ANTEL	BXA-70063-6CF-4-750MHZ	90'-0"	150°	-	-	-	-
B3	EXISTING	ANDREW	HBXX-6517DS-A2M	90'-0"	150°	-	-	ALCATEL LUCENT	(1) B13 RRH4X30-4R
B4	EXISTING	AMPHENOL	BXA-70080-4BF-EDIN-0	90'-0"	150°	-	-	-	-
C1	REMOVE	ANDREW	HBXX-6517DS-A2M	90'-0"	270°	-	-	ALCATEL LUCENT	(1) RRH2X60-4R
C2	REMOVE	ANTEL	LNx-6514DS-T6M-750	90'-0"	270°	-	-	-	-
C3	EXISTING	ANDREW	HBXX-6517DS-A2M	90'-0"	270°	-	-	ALCATEL LUCENT	(1) B13 RRH4X30-4R
C4	EXISTING	AMPHENOL	BXA-70080-4BF-EDIN-0	90'-0"	270°	-	-	-	-

CABLE SCHEDULE				
STATUS	CABLE TYPE	SIZE	LENGTH	QTY
EXISTING	COAX	1-5/8"	140'-0"±	6
EXISTING	COAX	1/2"	140'-0"±	1
EXISTING	HYBRID	1-5/8"	140'-0"±	1
TOTAL CABLE QTY:				8

ANTENNA/RRH SCHEDULE									
SECTOR	STATUS	ANTENNA MANUFACTURER	ANTENNA MODEL	ANTENNA CENTERLINE	AZIMUTH	MECHANICAL DOWNTILTS	ELECTRICAL DOWNTILTS	TOWER EQUIPMENT MANUFACTURER	TOWER EQUIPMENT QTY/MODEL
A1	NEW	COMMSCOPE	NHH-65B-R2B	90'-0"	30°	0'	2'/2'	SAMSUNG	(1) RFV01U-D1A
A2	NEW	COMMSCOPE	NHH-65B-R2B	90'-0"	30°	0'	4'/4'	SAMSUNG	(1) RFV01U-D2A
A3	EXISTING	ANDREW	HBXX-6517DS-A2M	90'-0"	30°	-	-	-	-
A4	EXISTING	AMPHENOL	BXA-70080-4BF-EDIN-0	90'-0"	30°	8'	0'	-	-
B1	NEW	COMMSCOPE	NHH-65B-R2B	90'-0"	150°	0'	4'/4'	SAMSUNG	(1) RFV01U-D1A
B2	NEW	COMMSCOPE	NHH-65B-R2B	90'-0"	150°	0'	9'/9'	SAMSUNG	(1) RFV01U-D2A
B3	EXISTING	ANDREW	HBXX-6517DS-A2M	90'-0"	150°	-	-	-	-
B4	EXISTING	AMPHENOL	BXA-70080-4BF-EDIN-0	90'-0"	150°	10'	0'	-	-
C1	NEW	COMMSCOPE	NHH-65B-R2B	90'-0"	270°	0'	2'/2'	SAMSUNG	(1) RFV01U-D1A
C2	NEW	COMMSCOPE	NHH-65B-R2B	90'-0"	270°	0'	4'/4'	SAMSUNG	(1) RFV01U-D2A
C3	EXISTING	ANDREW	HBXX-6517DS-A2M	90'-0"	270°	-	-	-	-
C4	EXISTING	AMPHENOL	BXA-70080-4BF-EDIN-0	90'-0"	270°	10'	0'	-	-

CABLE SCHEDULE				
STATUS	CABLE TYPE	SIZE	LENGTH	QTY
EXISTING	COAX	1-5/8"	140'-0"±	6
EXISTING	COAX	1/2"	140'-0"±	1
EXISTING	HYBRID	1-5/8"	140'-0"±	1
TOTAL CABLE QTY:				8



verizon[✓]
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492



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

VERIZON SITE NUMBER:
NG37621

BU #: **842872**
ROCKY HILL

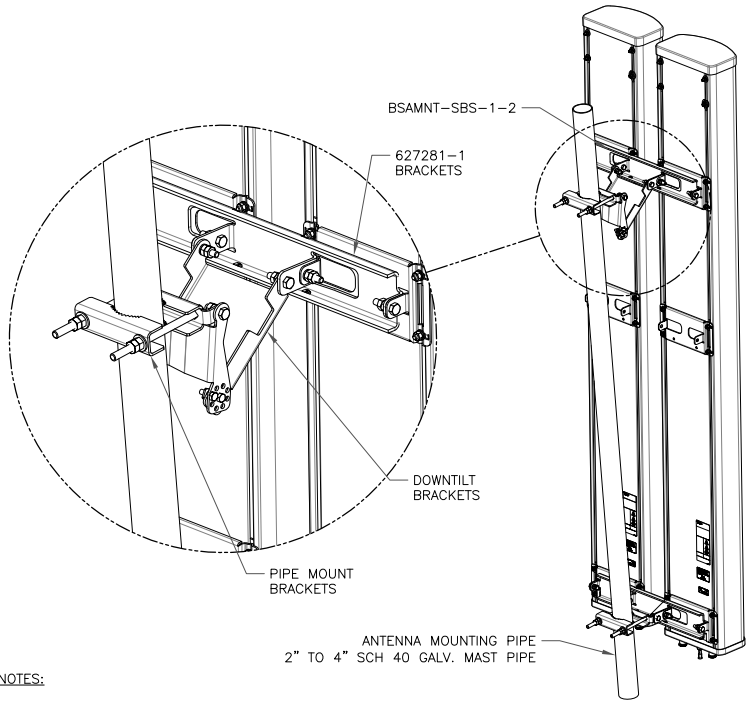
52 NEW BRITAIN AVENUE
ROCKY HILL, CT 06067

EXISTING 182'-0" MONOPOLE

ISSUED FOR:				
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0	01/27/20	CM/EA	CONSTRUCTION	MJ/MB
1	02/07/20	EA	CONSTRUCTION	MB

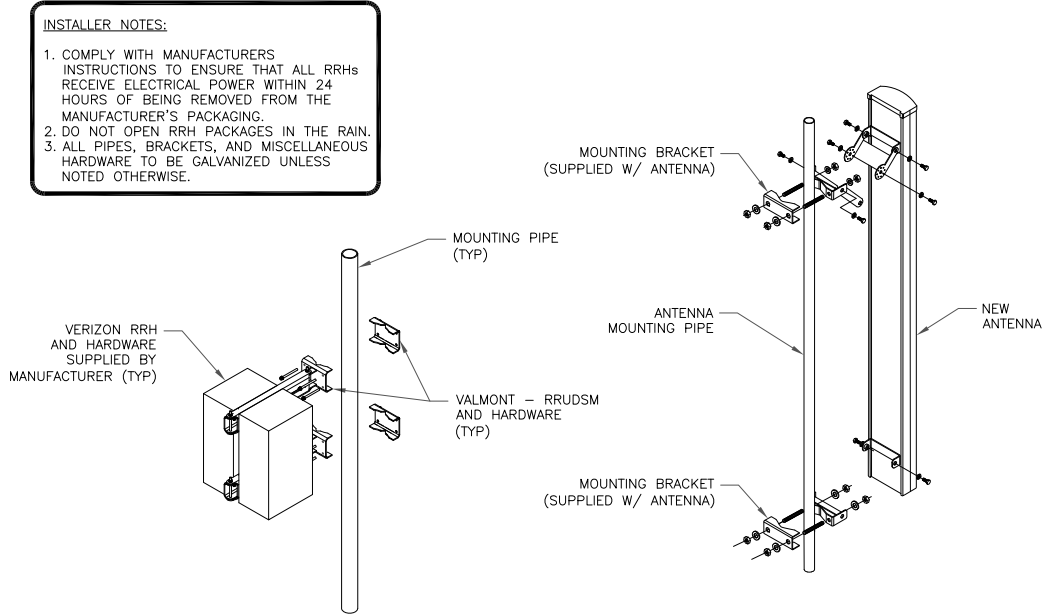
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Nathan Bowman
30501
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STATE OF CONNECTICUT
PROFESSIONAL ENGINEER
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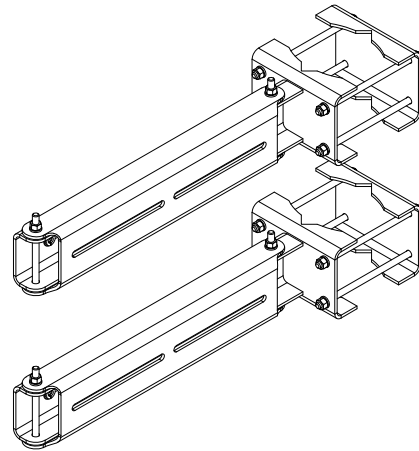


- NOTES:
- BSAMNT-SBS-1-2 KIT CONTAINS (2) 627281 MOUNTING BRACKETS.
 - TORQUE THE M10 BOLT ASSEMBLY TO 37 N.m. PER MANUFACTURE'S RECOMMENDATIONS.

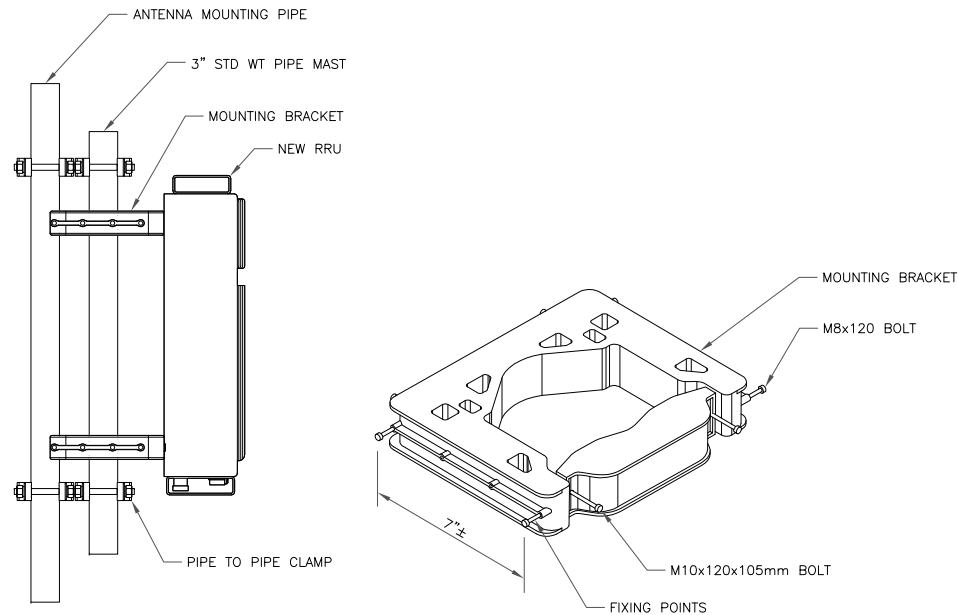
1 COMMScope - BSAMNT-SBS-1-2
SCALE: NOT TO SCALE



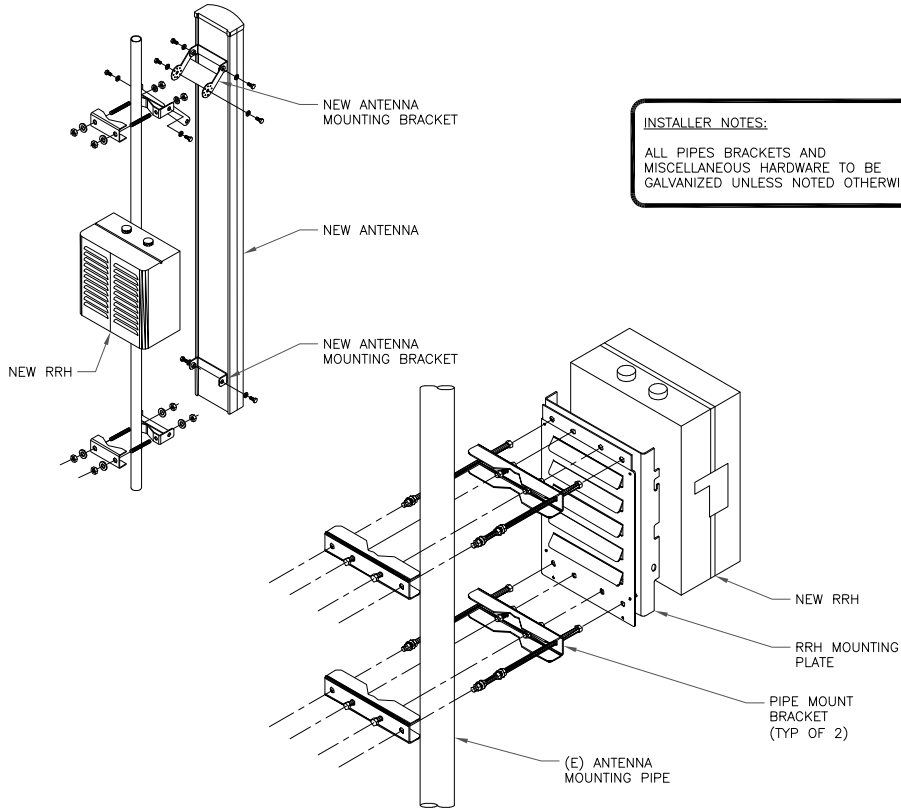
2 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE



3 VALMONT - RRUDSM
SCALE: NOT TO SCALE



4 NOKIA - FPKA BRACKET MOUNTING DETAIL
SCALE: NOT TO SCALE



5 ANTENNA & RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

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20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

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

VERIZON SITE NUMBER:
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52 NEW BRITAIN AVENUE
ROCKY HILL, CT 06067
EXISTING 182'-0" MONOPOLE

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DocuSigned by
Makam Barkman
30501
2/10/2020 10:04 AM EST
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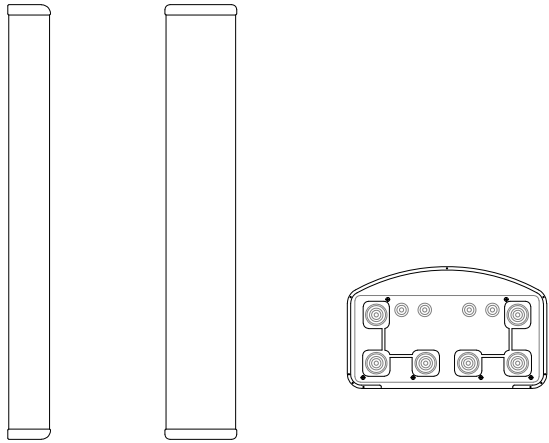
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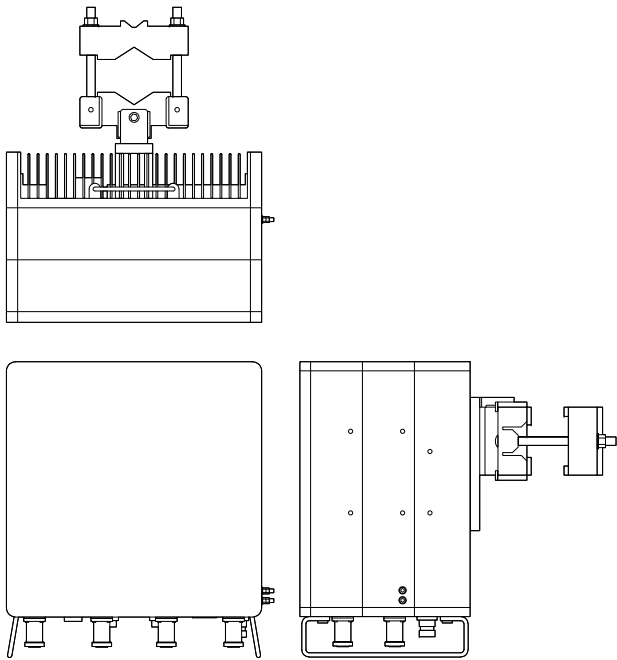
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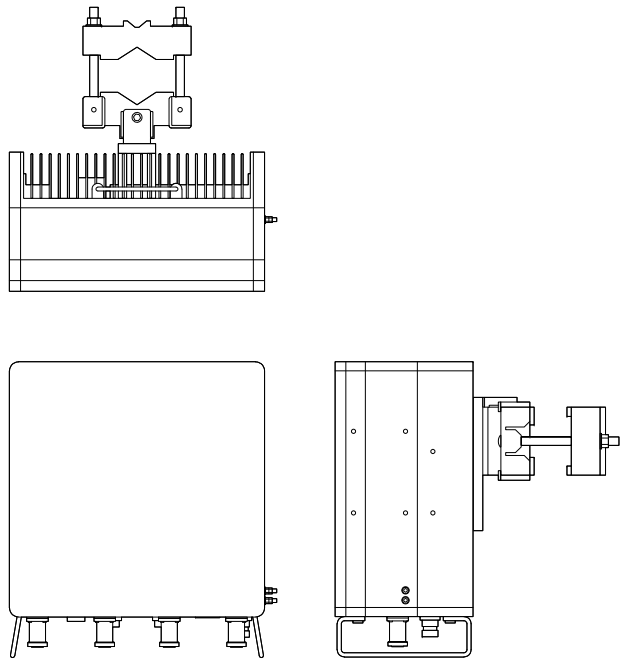
COMMSCOPE – NHH–65B–R2B
WEIGHT (WITHOUT MOUNTING HARDWARE): 43.7 LBS
SIZE (HxWxD): 72.0x11.9x7.1 IN.
MOUTING KIT: BSAMNT–3 (2.375" O.D. TO 4.5" O.D.
MOUNTING PIPE)

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



SAMSUNG – RFV01U–D1A
WEIGHT: 84.4 LBS.
SIZE (HxWxD): 15.0x15.0x10.0 IN.

2 SAMSUNG – RFV01U–D1A
SCALE: NOT TO SCALE



SAMSUNG – RFV01U–D2A
WEIGHT: 70.3 LBS.
SIZE (HxWxD): 15.0x15.0x8.1 IN.

3 SAMSUNG – RFV01U–D2A
SCALE: NOT TO SCALE



VERIZON SITE NUMBER:
NG37621

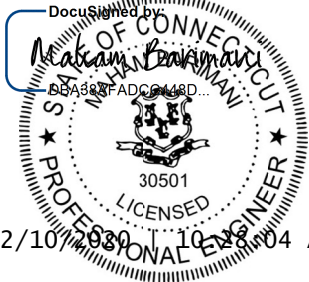
BU #: **842872**
ROCKY HILL

52 NEW BRITAIN AVENUE
ROCKY HILL, CT 06067

EXISTING 182'-0" MONOPOLE

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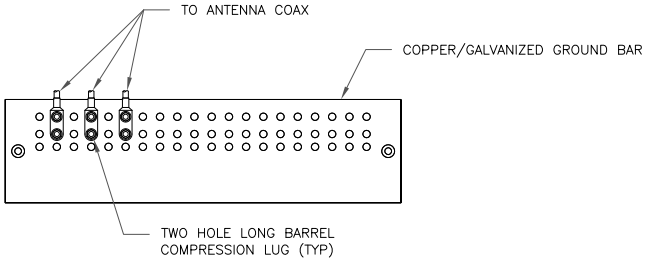
REVISION:

1

4 NOT USED
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

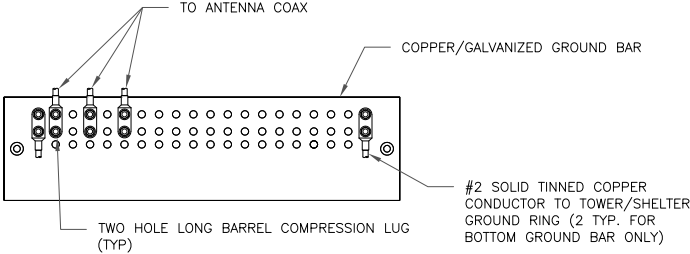
6 NOT USED
SCALE: NOT TO SCALE



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.

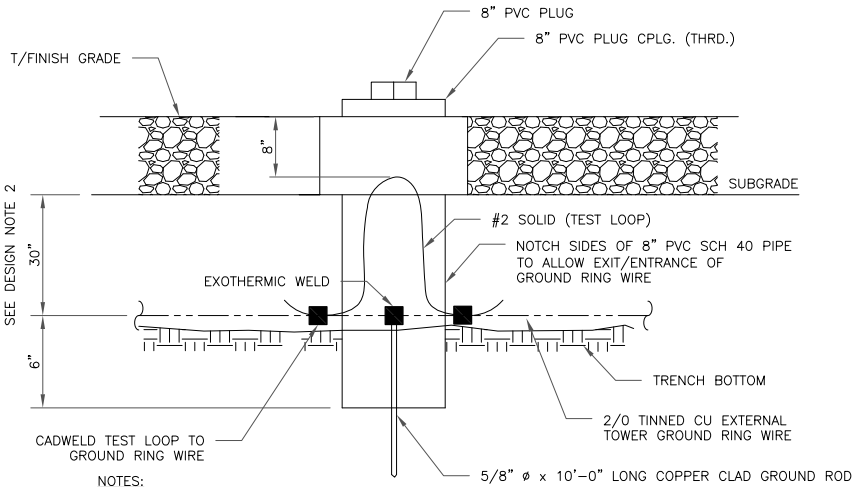
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



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.

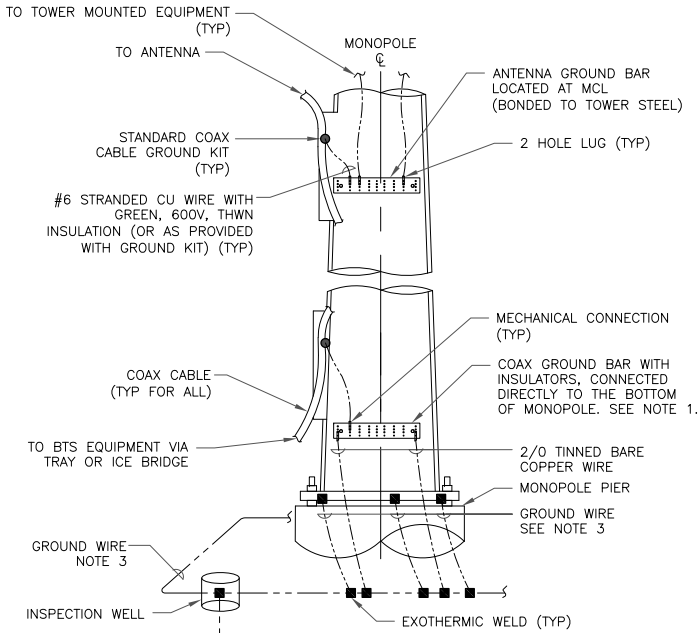
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

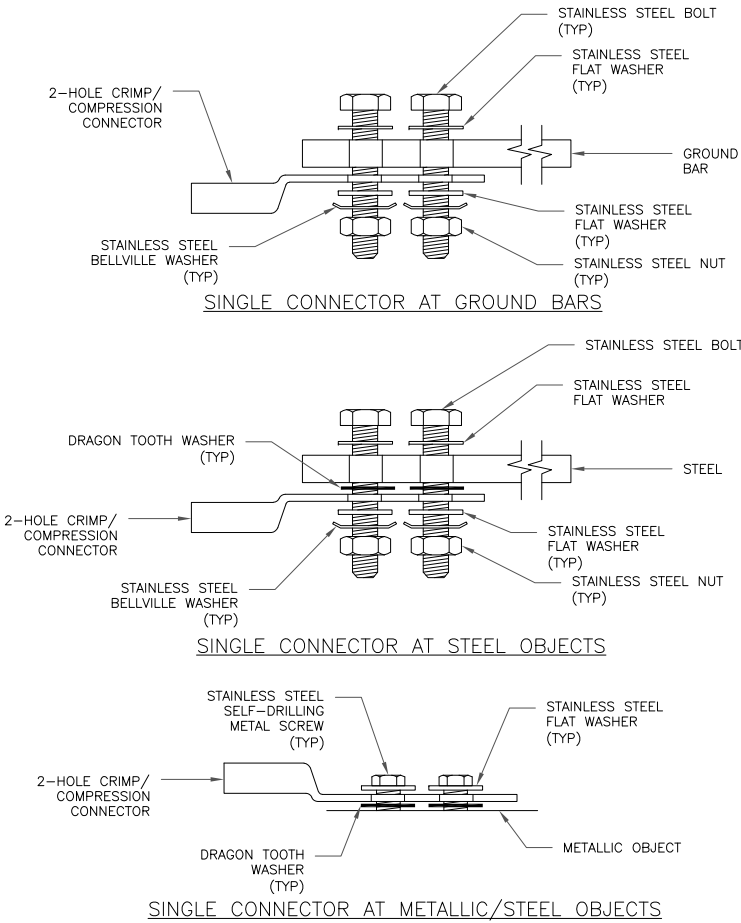
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



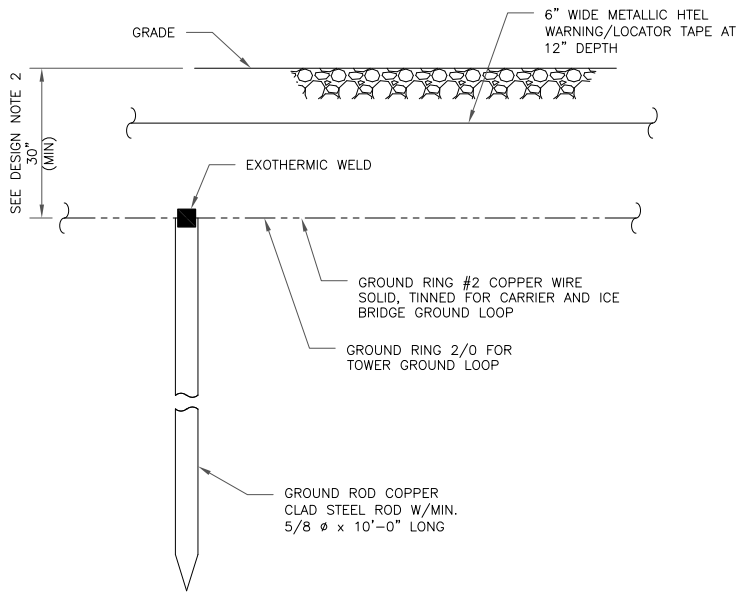
NOTES:

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

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE



VERIZON SITE NUMBER:
NG37621

BU #: **842872**
ROCKY HILL

52 NEW BRITAIN AVENUE
ROCKY HILL, CT 06067

EXISTING 182'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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1	02/07/20	EA	CONSTRUCTION	MB

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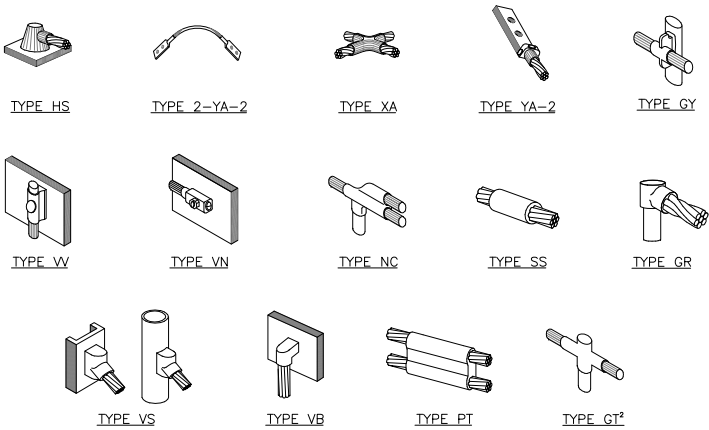
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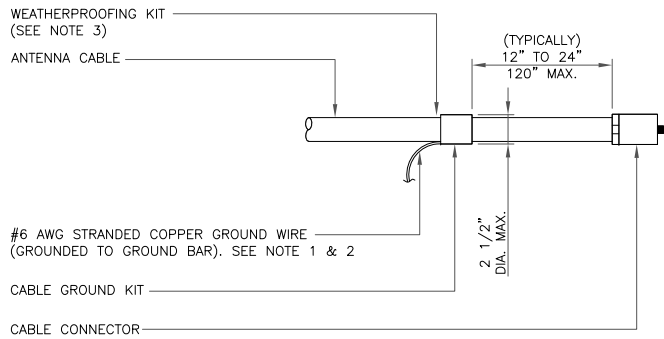
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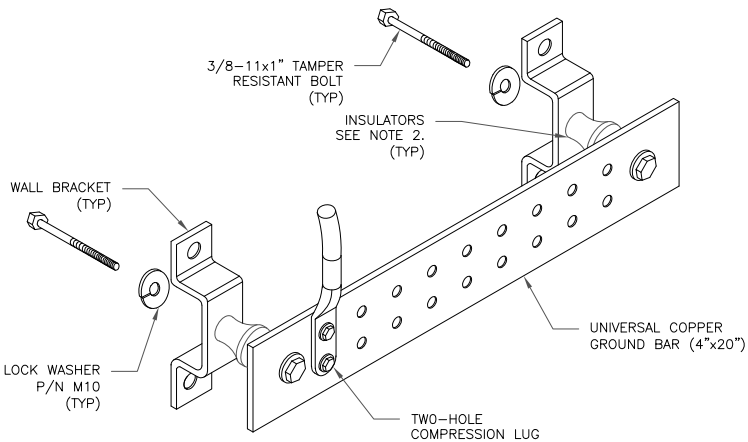
- NOTE:
1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
 2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE



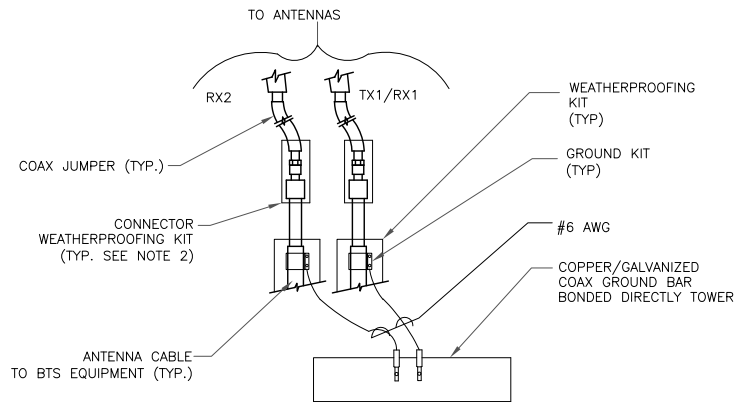
- NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
 3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



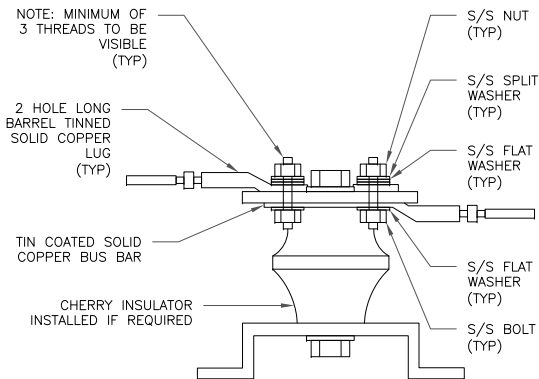
- NOTES:
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY GAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
 2. OMIT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

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



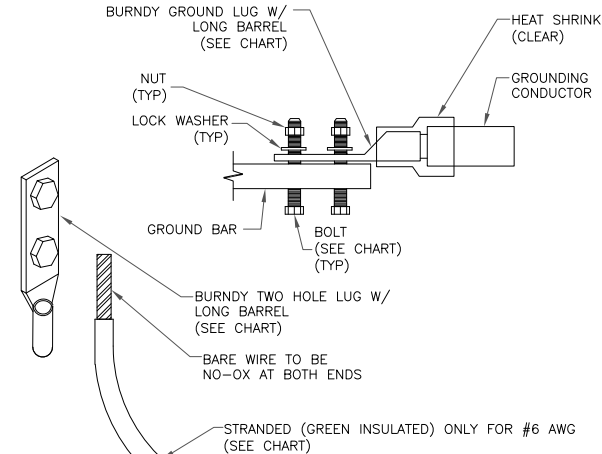
- NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
 2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



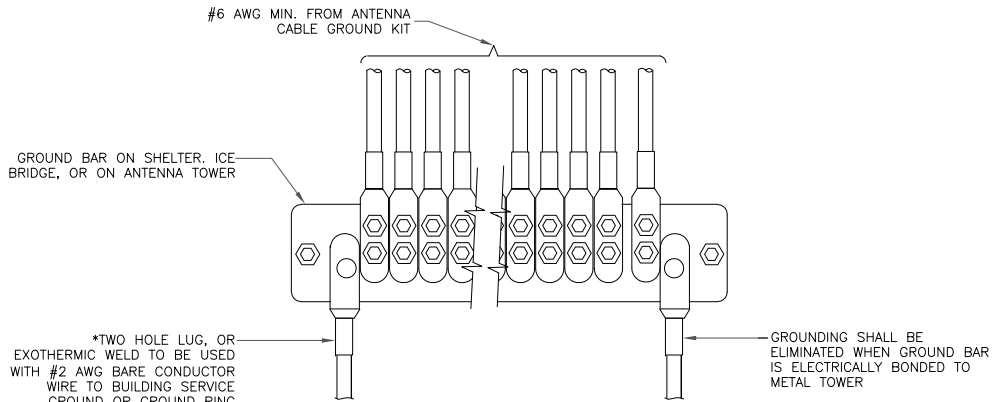
7 LUG DETAIL
SCALE: NOT TO SCALE

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

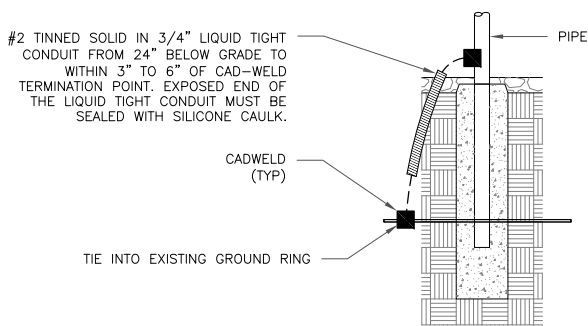


- NOTES:
1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

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20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
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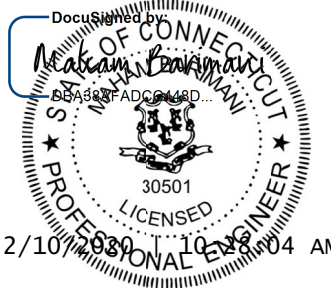
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G-2

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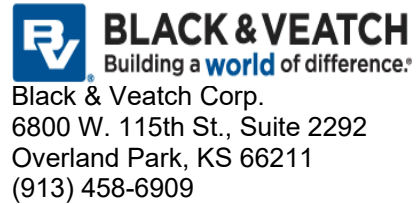
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Exhibit D

Structural Analysis Report

Date: **January 14, 2020**

Cheryl Schultz
Crown Castle
6325 Ardrey Kell Rd Suite 600
Charlotte, NC 28277



Subject: **Structural Analysis Report**

Carrier Designation: **Verizon Wireless Co-Locate**
Carrier Site Number: NG37621
Carrier Site Name: ROCKY HILL 3 CT

Crown Castle Designation: **Crown Castle BU Number:** 842872
Crown Castle Site Name: ROCKY HILL
Crown Castle JDE Job Number: 593541
Crown Castle Work Order Number: 1815525
Crown Castle Order Number: 507430 Rev. 0

Engineering Firm Designation: **Black & Veatch Corp. Project Number:** 400087

Site Data: **52 New Britain Avenue, Rocky Hill, Hartford County, CT**
Latitude 41° 39' 36.89", Longitude -72° 40' 50.58"
181.833 Foot - Monopole Tower

Dear Cheryl Schultz,

Black & Veatch Corp. 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 - 93.6%

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

Structural analysis prepared by: Shreya Naphade

Respectfully submitted by:

Joshua J Riley, P.E.

Professional Engineer

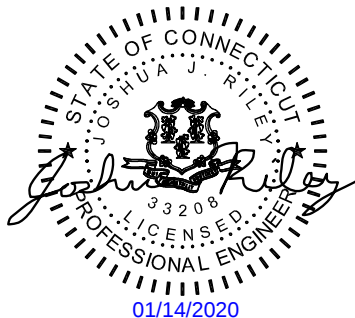


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1) INTRODUCTION

This tower is a 181.833 ft Monopole tower designed by Engineered Endeavors, Inc. in August of 1999. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

The tower has been modified multiple times in the past to accommodate additional loading.

The tower has been modified per reinforcement drawings prepared by B+T Group, in June of 2012. Reinforcement consists of addition of stiffener plates on base plate. Refer to legacy modification inspection report by GPD Engineering and Architecture Professional Corporation, in December of 2015. This modification has been considered ineffective in this analysis.

The tower was later reinforced per modification drawings prepared by B+T Group, in May of 2013. Reinforcement consists of addition of reinforcement plates at elevation 47' - 87' and additional rebars to foundation. Refer to modification inspection report by B+T Group, in February of 2014. This modification has been considered effective in this analysis.

The tower was later reinforced per modification drawings prepared by B+T Group, in October of 2016. Reinforcement consists of repairing existing shaft to base plate weld, removed existing welds and install new weld to existing base plate stiffeners. Refer to modification inspection report by Tower Engineering Professionals, in January of 2017. This modification has been considered effective in this analysis.

2) ANALYSIS CRITERIA

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

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
90.0	90.0	1	rfs celwave	DB-T1-6Z-8AB-0Z	7 1	1 5/8 1/2
		3	site pro 1	PRK-SFS-L Handrail Reinforcement Kit		
		3	andrew	HBXX-6517DS-A2M w/ Mount Pipe		
		3	antel	BXA-70080-4BF-EDIN-0 w/ Mount Pipe		
		1	cci tower mounts (v2.1)	Platform Mount [LP 1201-1_HR-1]		
		6	commscope	NHH-65B-R2B w/ Mount Pipe		
		1	gps	GPS_A		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		

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)
178.0	191.0	1	austin antenna company	APC-1362	12	7/8
		1	austin antenna company	APC-2163		
		1	austin antenna company	APC-301		
		1	austin antenna company	APC-4065		
	190.0	2	dbspectra	DS4C06F36D-D		
	178.0	1	cci tower mounts (v2.1)	Side Arm Mount [SO 702-3]		
		2	radiowaves	HPD2-4.7		
	175.0	1	telewave	ANT450D6-9		
170.0	170.0	1	cci tower mounts (v2.1)	Platform Mount [LP 601-1]	2 4 12 1	3/8 3/4 1 5/8 2 1/2 conduit
	168.0	6	powerwave technologies	LGP21401		
		3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe		
		4	cci antennas	TPX-070821		
		3	ericsson	RRUS 11		
		3	ericsson	RRUS 32		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B66		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		3	quintel technology	QS66512-2 w/ Mount Pipe		
		1	raycap	DC6-48-60-18-8C		
		1	raycap	DC6-48-60-18-8F		
157.0	158.0	3	rfs celwave	ATMAA1412D-1A20	12 2	1 5/8 1 1/4
		3	ericsson	RRUS 11 B12		
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe		
		3	ericsson	Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe		
	157.0	1	cci tower mounts (v2.1)	Platform Mount [LP 305-1]		
140.0	144.0	2	andrew	VHLP2.5-10W	4 4 2	1 1/4 1/2 2 1/4
		2	dragonwave	Horizon Compact		
	140.0	1	cci tower mounts (v2.1)	Platform Mount [12' LP 1201-1]		
		3	alcatel lucent	1900MHz RRH (65MHz)		
		3	alcatel lucent	800 EXTERNAL NOTCH FILTER		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	alcatel lucent	800MHZ RRH		
		3	alcatel lucent	TD-RRH8x20-25		
		3	kathrein	840 10054 w/ Mount Pipe		
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
		3	samsung telecommunications	URAS-FLEXIBLE		
73.0	75.0	1	gps	GPS_A	1	1/2
	73.0	1	cci tower mounts (v2.1)	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Tower Engineering Professionals	4713251	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Tower Engineering Professionals (Mapped)	4713252	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors, Inc.	4844402	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Group	4740398	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Group	4904956	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Group	6525881	CCISITES
4-POST-MODIFICATION INSPECTION	B+T Group	4904967	CCISITES
4-POST-MODIFICATION INSPECTION	GPD Engineering and Architecture Professional Corporation	6040534	CCISITES
4-POST-MODIFICATION INSPECTION	Tower Engineering Professionals	6647989	CCISITES
4-MOUNT ANALYSIS REPORTS	Paul J Ford and Company	8874912	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

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

3.2) Assumptions

- 1) Tower and structures were built and maintained in accordance with the manufacturer's specifications.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 3) The wind loading EPA of the panel antennas has been analyzed and determined by the tower owner. Verification of its accuracy is outside the scope of this structural analysis/design. Black & Veatch does not assume any responsibility for its accuracy.
- 4) This analysis was performed under the assumption that all information provided to Black & Veatch is current and correct. This is to include site data, appurtenance loading, tower/foundation details, and geotechnical data. The loading on the structure is based on CAD level drawings and carrier orders provided by the owner. If any of this information is not current and correct, this report should be considered obsolete and further analysis will be required.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary) (Monopole Tower)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
181.83 - 176.83	Pole	TP15.678x14.5x0.25	Pole	7.2%	Pass
176.83 - 171.83	Pole	TP16.856x15.678x0.25	Pole	10.2%	Pass
171.83 - 166.83	Pole	TP18.033x16.856x0.25	Pole	16.1%	Pass
166.83 - 161.83	Pole	TP19.211x18.033x0.25	Pole	25.0%	Pass
161.83 - 156.83	Pole	TP20.389x19.211x0.25	Pole	32.9%	Pass
156.83 - 151.83	Pole	TP21.567x20.389x0.25	Pole	41.8%	Pass
151.83 - 146.83	Pole	TP22.745x21.567x0.25	Pole	49.0%	Pass
146.83 - 141.83	Pole	TP23.922x22.745x0.25	Pole	55.1%	Pass
141.83 - 136.83	Pole	TP25.1x23.922x0.25	Pole	62.9%	Pass
136.83 - 136.67	Pole	TP26.023x25.1x0.25	Pole	63.1%	Pass
136.67 - 131.67	Pole	TP25.806x24.639x0.375	Pole	48.4%	Pass
131.67 - 126.67	Pole	TP26.973x25.806x0.375	Pole	52.2%	Pass
126.67 - 121.67	Pole	TP28.14x26.973x0.375	Pole	55.3%	Pass
121.67 - 116.67	Pole	TP29.307x28.14x0.375	Pole	58.0%	Pass
116.67 - 111.67	Pole	TP30.474x29.307x0.375	Pole	60.2%	Pass
111.67 - 106.67	Pole	TP31.641x30.474x0.375	Pole	62.0%	Pass
106.67 - 101.67	Pole	TP32.808x31.641x0.375	Pole	63.6%	Pass
101.67 - 96.67	Pole	TP33.975x32.808x0.375	Pole	64.9%	Pass
96.67 - 92.32	Pole	TP36.161x33.975x0.375	Pole	65.9%	Pass
92.32 - 86.3	Pole	TP35.642x34.239x0.375	Pole	70.8%	Pass
86.3 - 85	Pole	TP35.945x35.642x0.375	Pole	71.3%	Pass
85 - 84.75	Pole	TP36.004x35.945x0.375	Pole	71.4%	Pass
84.75 - 79.75	Pole	TP37.169x36.004x0.375	Pole	73.6%	Pass

79.75 - 75	Pole	TP38.276x37.169x0.375	Pole	75.5%	Pass
75 - 74.75	Pole + Reinf.	TP38.334x38.276x0.6625	Reinf. 1 Tension Rupture	70.2%	Pass
74.75 - 74	Pole + Reinf.	TP38.509x38.334x0.6625	Reinf. 1 Tension Rupture	70.5%	Pass
74 - 73.75	Pole	TP38.567x38.509x0.375	Pole	76.0%	Pass
73.75 - 68.75	Pole	TP39.733x38.567x0.375	Pole	77.9%	Pass
68.75 - 63.75	Pole	TP40.898x39.733x0.375	Pole	79.8%	Pass
63.75 - 58.75	Pole	TP42.064x40.898x0.375	Pole	81.5%	Pass
58.75 - 53.75	Pole	TP43.229x42.064x0.375	Pole	83.2%	Pass
53.75 - 49	Pole	TP44.336x43.229x0.375	Pole	84.7%	Pass
49 - 48.93	Pole	TP45.805x44.336x0.375	Pole	84.7%	Pass
48.93 - 41.7	Pole	TP45.287x43.603x0.4375	Pole	73.5%	Pass
41.7 - 36.7	Pole	TP46.452x45.287x0.4375	Pole	74.4%	Pass
36.7 - 31.7	Pole	TP47.616x46.452x0.4375	Pole	75.3%	Pass
31.7 - 26.7	Pole	TP48.781x47.616x0.4375	Pole	76.2%	Pass
26.7 - 21.7	Pole	TP49.946x48.781x0.4375	Pole	76.9%	Pass
21.7 - 16.7	Pole	TP51.11x49.946x0.4375	Pole	77.6%	Pass
16.7 - 11.7	Pole	TP52.275x51.11x0.4375	Pole	78.3%	Pass
11.7 - 6.7	Pole	TP53.44x52.275x0.4375	Pole	78.9%	Pass
6.7 - 1.7	Pole	TP54.604x53.44x0.4375	Pole	79.4%	Pass
1.7 - 0	Pole	TP55x54.604x0.4375	Pole	79.6%	Pass
				Summary	
			Pole	84.7%	Pass
			Reinforcement	70.5%	Pass
			Overall	84.7%	Pass

Table 6 - Tower Component Stresses vs. Capacity (Monopole Tower) – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	85.2	Pass
	Base Plate		67.2	Pass
	Plate Stiffeners		93.6	Pass
	Pole Punching Shear		3.6	Pass
1	Base Foundation	0	82.2	Pass
	Base Foundation Soil Interaction		73.8	Pass

Structure Rating (max from all components) =	93.6%
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Note:

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

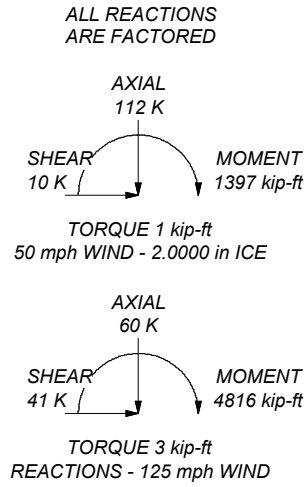
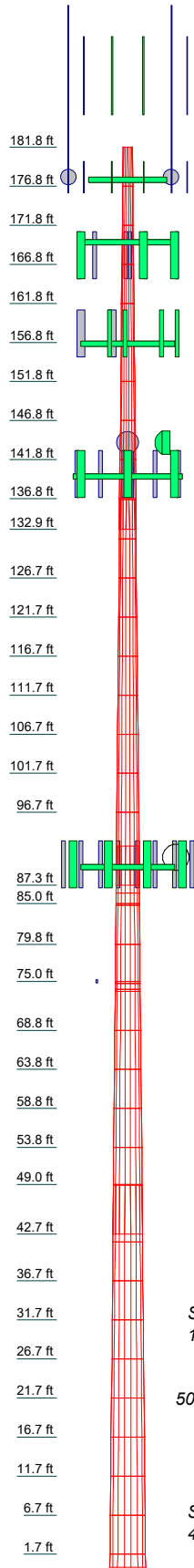
4.1) Recommendations

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	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
Length (ft)	1.705	0.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	4.75	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	
Number of Sides	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Thickness (in)	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	
Socket Length (ft)	6.23										5.02										3.75																									
Top Dia (in)	54.6843	3.982	27.531	11.049	9.4748	7.8147	6.1636	4.5145	2.8633	1.6443	3.3594	3.22842	0.6340	8.9930	7.3238	5.6612	4.9639	4.0354	3.03	2.33	9.749	32.807	71.641	90.47	49.30	78.140	6.97	325.804	25.00	9.22	7.44	5.68	3.89	2.11	78.03	346.855	6.67	784.500								
Bot Dia (in)	55.00	0.604	5.349	8.275	11.049	9.4598	7.8147	6.1636	4.5145	2.8633	1.6443	3.3594	3.22842	0.6340	8.9930	7.3238	5.6612	4.9639	4.0354	3.03	2.33	9.749	32.807	71.641	90.47	49.30	78.140	6.97	325.804	25.00	9.22	7.44	5.68	3.89	2.11	78.03	346.855	6.67	784.500							
Grade	A572-65																																													
Weight (K)	28.0	0.4	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.5	1.1	0.8	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2				



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

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

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Job: **ROCKY HILL (BU# 842872)**

Project: **400087 (842872.1815525)**

Client: Crown Castle	Drawn by: Shreya Naphade	App'd:
Code: TIA-222-H	Date: 01/14/20	Scale: NTS
Path:		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:

1. Tower is located in Hartford County, Connecticut.
2. Tower base elevation above sea level: 199.00 ft.
3. Basic wind speed of 125 mph.
4. Risk Category II.
5. Exposure Category C.
6. Simplified Topographic Factor Procedure for wind speed-up calculations is used.
7. Topographic Category: 1.
8. Crest Height: 0.00 ft.
9. Nominal ice thickness of 2.0000 in.
10. Ice thickness is considered to increase with height.
11. Ice density of 56.00 pcf.
12. A wind speed of 50 mph is used in combination with ice.
13. Temperature drop of 50 °F.
14. Deflections calculated using a wind speed of 60 mph.
15. A non-linear (P-delta) analysis was used.
16. Pressures are calculated at each section.
17. Stress ratio used in pole design is 1.05.
18. Tower analysis based on target reliabilities in accordance with Annex S.
19. Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
20. Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	
L1	181.83-176.83	5.00	0.00	18	14.5000	15.6778	0.2500	1.0000	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L2	176.83-171.83	5.00	0.00	18	15.6778	16.8556	0.2500	1.0000	A572-65 (65 ksi)
L3	171.83-166.83	5.00	0.00	18	16.8556	18.0334	0.2500	1.0000	A572-65 (65 ksi)
L4	166.83-161.83	5.00	0.00	18	18.0334	19.2112	0.2500	1.0000	A572-65 (65 ksi)
L5	161.83-156.83	5.00	0.00	18	19.2112	20.3890	0.2500	1.0000	A572-65 (65 ksi)
L6	156.83-151.83	5.00	0.00	18	20.3890	21.5668	0.2500	1.0000	A572-65 (65 ksi)
L7	151.83-146.83	5.00	0.00	18	21.5668	22.7446	0.2500	1.0000	A572-65 (65 ksi)
L8	146.83-141.83	5.00	0.00	18	22.7446	23.9224	0.2500	1.0000	A572-65 (65 ksi)
L9	141.83-136.83	5.00	0.00	18	23.9224	25.1001	0.2500	1.0000	A572-65 (65 ksi)
L10	136.83-132.91	3.92	3.75	18	25.1001	26.0233	0.2500	1.0000	A572-65 (65 ksi)
L11	132.91-131.67	5.00	0.00	18	24.6392	25.8062	0.3750	1.5000	A572-65 (65 ksi)
L12	131.67-126.67	5.00	0.00	18	25.8062	26.9732	0.3750	1.5000	A572-65 (65 ksi)
L13	126.67-121.67	5.00	0.00	18	26.9732	28.1401	0.3750	1.5000	A572-65 (65 ksi)
L14	121.67-116.67	5.00	0.00	18	28.1401	29.3071	0.3750	1.5000	A572-65 (65 ksi)
L15	116.67-111.67	5.00	0.00	18	29.3071	30.4740	0.3750	1.5000	A572-65 (65 ksi)
L16	111.67-106.67	5.00	0.00	18	30.4740	31.6410	0.3750	1.5000	A572-65 (65 ksi)
L17	106.67-101.67	5.00	0.00	18	31.6410	32.8079	0.3750	1.5000	A572-65 (65 ksi)
L18	101.67-96.67	5.00	0.00	18	32.8079	33.9749	0.3750	1.5000	A572-65 (65 ksi)
L19	96.67-87.30	9.37	5.02	18	33.9749	36.1606	0.3750	1.5000	A572-65 (65 ksi)
L20	87.30-86.30	6.02	0.00	18	34.2387	35.6420	0.3750	1.5000	A572-65 (65 ksi)
L21	86.30-85.00	1.30	0.00	18	35.6420	35.9455	0.3750	1.5000	A572-65 (65 ksi)
L22	85.00-84.75	0.25	0.00	18	35.9455	36.0038	0.3750	1.5000	A572-65 (65 ksi)
L23	84.75-79.75	5.00	0.00	18	36.0038	37.1691	0.3750	1.5000	A572-65 (65 ksi)
L24	79.75-75.00	4.75	0.00	18	37.1691	38.2762	0.3750	1.5000	A572-65 (65 ksi)
L25	75.00-74.75	0.25	0.00	18	38.2762	38.3344	0.6625	2.6500	A572-65 (65 ksi)
L26	74.75-74.00	0.75	0.00	18	38.3344	38.5092	0.6625	2.6500	A572-65 (65 ksi)
L27	74.00-73.75	0.25	0.00	18	38.5092	38.5675	0.3750	1.5000	A572-65 (65 ksi)
L28	73.75-68.75	5.00	0.00	18	38.5675	39.7328	0.3750	1.5000	A572-65 (65 ksi)
L29	68.75-63.75	5.00	0.00	18	39.7328	40.8982	0.3750	1.5000	A572-65 (65 ksi)
L30	63.75-58.75	5.00	0.00	18	40.8982	42.0635	0.3750	1.5000	A572-65 (65 ksi)
L31	58.75-53.75	5.00	0.00	18	42.0635	43.2288	0.3750	1.5000	A572-65 (65 ksi)
L32	53.75-49.00	4.75	0.00	18	43.2288	44.3359	0.3750	1.5000	A572-65 (65 ksi)
L33	49.00-42.70	6.30	6.23	18	44.3359	45.8047	0.3750	1.5000	A572-65 (65 ksi)
L34	42.70-41.70	7.23	0.00	18	43.6034	45.2869	0.4375	1.7500	A572-65 (65 ksi)
L35	41.70-36.70	5.00	0.00	18	45.2869	46.4516	0.4375	1.7500	A572-65 (65 ksi)
L36	36.70-31.70	5.00	0.00	18	46.4516	47.6163	0.4375	1.7500	A572-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L37	31.70-26.70	5.00	0.00	18	47.6163	48.7810	0.4375	1.7500	(65 ksi) A572-65
L38	26.70-21.70	5.00	0.00	18	48.7810	49.9457	0.4375	1.7500	(65 ksi) A572-65
L39	21.70-16.70	5.00	0.00	18	49.9457	51.1104	0.4375	1.7500	(65 ksi) A572-65
L40	16.70-11.70	5.00	0.00	18	51.1104	52.2751	0.4375	1.7500	(65 ksi) A572-65
L41	11.70-6.70	5.00	0.00	18	52.2751	53.4398	0.4375	1.7500	(65 ksi) A572-65
L42	6.70-1.70	5.00	0.00	18	53.4398	54.6045	0.4375	1.7500	(65 ksi) A572-65
L43	1.70-0.00	1.70		18	54.6045	55.0000	0.4375	1.7500	(65 ksi) A572-65

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	14.6851	11.3074	290.0875	5.0587	7.3660	39.3820	580.5566	5.6548	2.1120	8.448
	15.8811	12.2420	368.1255	5.4769	7.9643	46.2218	736.7353	6.1221	2.3193	9.277
L2	15.8811	12.2420	368.1255	5.4769	7.9643	46.2218	736.7353	6.1221	2.3193	9.277
	17.0770	13.1765	459.0364	5.8950	8.5626	53.6092	918.6768	6.5895	2.5266	10.106
L3	17.0770	13.1765	459.0364	5.8950	8.5626	53.6092	918.6768	6.5895	2.5266	10.106
	18.2730	14.1111	563.8031	6.3131	9.1610	61.5441	1128.3480	7.0569	2.7339	10.936
L4	18.2730	14.1111	563.8031	6.3131	9.1610	61.5441	1128.3480	7.0569	2.7339	10.936
	19.4690	15.0457	683.4082	6.7312	9.7593	70.0265	1367.7156	7.5243	2.9412	11.765
L5	19.4690	15.0457	683.4082	6.7312	9.7593	70.0265	1367.7156	7.5243	2.9412	11.765
	20.6649	15.9803	818.8345	7.1493	10.3576	79.0564	1638.7464	7.9917	3.1485	12.594
L6	20.6649	15.9803	818.8345	7.1493	10.3576	79.0564	1638.7464	7.9917	3.1485	12.594
	21.8609	16.9149	971.0647	7.5675	10.9559	88.6338	1943.4072	8.4590	3.3558	13.423
L7	21.8609	16.9149	971.0647	7.5675	10.9559	88.6338	1943.4072	8.4590	3.3558	13.423
	23.0569	17.8494	1141.0817	7.9856	11.5542	98.7587	2283.6648	8.9264	3.5630	14.252
L8	23.0569	17.8494	1141.0817	7.9856	11.5542	98.7587	2283.6648	8.9264	3.5630	14.252
	24.2528	18.7840	1329.8681	8.4037	12.1526	109.4312	2661.4861	9.3938	3.7703	15.081
L9	24.2528	18.7840	1329.8681	8.4037	12.1526	109.4312	2661.4861	9.3938	3.7703	15.081
	25.4488	19.7186	1538.4067	8.8218	12.7509	120.6511	3078.8377	9.8612	3.9776	15.911
L10	25.4488	19.7186	1538.4067	8.8218	12.7509	120.6511	3078.8377	9.8612	3.9776	15.911
	26.3862	20.4511	1716.3050	9.1495	13.2198	129.8280	3434.8684	10.2275	4.1401	16.56
L11	25.8509	28.8805	2148.2071	8.6138	12.5167	171.6268	4299.2408	14.4430	3.6765	9.804
	26.1465	30.2695	2473.2976	9.0281	13.1096	188.6638	4949.8496	15.1376	3.8819	10.352
L12	26.1465	30.2695	2473.2976	9.0281	13.1096	188.6638	4949.8496	15.1376	3.8819	10.352
	27.3314	31.6585	2829.6347	9.4423	13.7024	206.5070	5662.9927	15.8322	4.0873	10.899
L13	27.3314	31.6585	2829.6347	9.4423	13.7024	206.5070	5662.9927	15.8322	4.0873	10.899
	28.5164	33.0474	3218.6522	9.8566	14.2952	225.1565	6441.5396	16.5269	4.2927	11.447
L14	28.5164	33.0474	3218.6522	9.8566	14.2952	225.1565	6441.5396	16.5269	4.2927	11.447
	29.7013	34.4364	3641.7838	10.2709	14.8880	244.6122	7288.3597	17.2215	4.4980	11.995
L15	29.7013	34.4364	3641.7838	10.2709	14.8880	244.6122	7288.3597	17.2215	4.4980	11.995
	30.8863	35.8254	4100.4635	10.6852	15.4808	264.8740	8206.3225	17.9161	4.7034	12.542
L16	30.8863	35.8254	4100.4635	10.6852	15.4808	264.8740	8206.3225	17.9161	4.7034	12.542
	32.0712	37.2143	4596.1249	11.0994	16.0736	285.9421	9198.2976	18.6107	4.9088	13.09
L17	32.0712	37.2143	4596.1249	11.0994	16.0736	285.9421	9198.2976	18.6107	4.9088	13.09
	33.2562	38.6033	5130.2020	11.5137	16.6664	307.8165	10267.154	19.3053	5.1142	13.638
L18	33.2562	38.6033	5130.2020	11.5137	16.6664	307.8165	10267.154	19.3053	5.1142	13.638
	34.4412	39.9923	5704.1284	11.9280	17.2592	330.4970	11415.762	19.9999	5.3196	14.186
L19	34.4412	39.9923	5704.1284	11.9280	17.2592	330.4970	11415.762	19.9999	5.3196	14.186
	36.6606	42.5938	6891.2904	12.7039	18.3696	375.1468	13791.648	21.3010	5.7043	15.211
L20	35.8974	40.3063	5839.5654	12.0216	17.3933	335.7368	11686.814	20.1570	5.3660	14.309

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
	36.1340	41.9766	6596.0310	12.5198	18.1062	364.2977	13200.741 3	20.9923	5.6130	14.968
L21	36.1340	41.9766	6596.0310	12.5198	18.1062	364.2977	13200.741 3	20.9923	5.6130	14.968
	36.4422	42.3378	6767.7659	12.6275	18.2603	370.6271	13544.437 0	21.1729	5.6664	15.11
L22	36.4422	42.3378	6767.7659	12.6275	18.2603	370.6271	13544.437 0	21.1729	5.6664	15.11
	36.5013	42.4071	6801.0785	12.6482	18.2899	371.8487	13611.106 1	21.2076	5.6767	15.138
L23	36.5013	42.4071	6801.0785	12.6482	18.2899	371.8487	13611.106 1	21.2076	5.6767	15.138
	37.6846	43.7942	7490.4872	13.0619	18.8819	396.7020	14990.830 5	21.9012	5.8818	15.685
L24	37.6846	43.7942	7490.4872	13.0619	18.8819	396.7020	14990.830 5	21.9012	5.8818	15.685
	38.8088	45.1119	8187.1610	13.4549	19.4443	421.0573	16385.094 8	22.5602	6.0766	16.204
L25	38.7644	79.0931	14137.324 3	13.3529	19.4443	727.0681	28293.250 9	39.5541	5.5706	8.408
	38.8236	79.2156	14203.125 9	13.3735	19.4739	729.3419	28424.940 7	39.6153	5.5809	8.424
L26	38.8236	79.2156	14203.125 9	13.3735	19.4739	729.3419	28424.940 7	39.6153	5.5809	8.424
	39.0011	79.5832	14401.755 2	13.4356	19.5627	736.1848	28822.460 6	39.7991	5.6116	8.47
L27	39.0454	45.3893	8339.1285	13.5377	19.5627	426.2772	16689.229 9	22.6989	6.1176	16.314
	39.1046	45.4586	8377.4120	13.5583	19.5923	427.5872	16765.847 2	22.7336	6.1279	16.341
L28	39.1046	45.4586	8377.4120	13.5583	19.5923	427.5872	16765.847 2	22.7336	6.1279	16.341
	40.2879	46.8457	9167.8867	13.9720	20.1843	454.2092	18347.836 8	23.4273	6.3330	16.888
L29	40.2879	46.8457	9167.8867	13.9720	20.1843	454.2092	18347.836 8	23.4273	6.3330	16.888
	41.4712	48.2327	10006.585 1	14.3857	20.7763	481.6353	20026.337 2	24.1209	6.5381	17.435
L30	41.4712	48.2327	10006.585 1	14.3857	20.7763	481.6353	20026.337 2	24.1209	6.5381	17.435
	42.6546	49.6197	10894.935 0	14.7994	21.3683	509.8653	21804.205 9	24.8146	6.7432	17.982
L31	42.6546	49.6197	10894.935 0	14.7994	21.3683	509.8653	21804.205 9	24.8146	6.7432	17.982
	43.8379	51.0068	11834.364 2	15.2131	21.9603	538.8993	23684.300 4	25.5082	6.9483	18.529
L32	43.8379	51.0068	11834.364 2	15.2131	21.9603	538.8993	23684.300 4	25.5082	6.9483	18.529
	44.9620	52.3245	12775.434 8	15.6061	22.5226	567.2263	25567.679 8	26.1672	7.1431	19.048
L33	44.9620	52.3245	12775.434 8	15.6061	22.5226	567.2263	25567.679 8	26.1672	7.1431	19.048
	46.4535	54.0727	14099.225 2	16.1275	23.2688	605.9287	28217.002 5	27.0415	7.4016	19.738
L34	45.6814	59.9412	14110.570 0	15.3239	22.1505	637.0310	28239.707 0	29.9763	6.9042	15.781
	45.9180	62.2789	15826.720 2	15.9215	23.0057	687.9472	31674.265 6	31.1454	7.2005	16.458
L35	45.9180	62.2789	15826.720 2	15.9215	23.0057	687.9472	31674.265 6	31.1454	7.2005	16.458
	47.1007	63.8963	17092.040 0	16.3350	23.5974	724.3191	34206.570 2	31.9542	7.4055	16.927
L36	47.1007	63.8963	17092.040 0	16.3350	23.5974	724.3191	34206.570 2	31.9542	7.4055	16.927
	48.2833	65.5136	18423.064 1	16.7485	24.1891	761.6280	36870.369 8	32.7630	7.6105	17.395
L37	48.2833	65.5136	18423.064 1	16.7485	24.1891	761.6280	36870.369 8	32.7630	7.6105	17.395
	49.4660	67.1309	19821.455 6	17.1619	24.7807	799.8739	39668.992 9	33.5718	7.8154	17.864

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L38	49.4660	67.1309	19821.455 6	17.1619	24.7807	799.8739	39668.992 9	33.5718	7.8154	17.864
	50.6487	68.7483	21288.877 7	17.5754	25.3724	839.0567	42605.767 8	34.3807	8.0204	18.332
L39	50.6487	68.7483	21288.877 7	17.5754	25.3724	839.0567	42605.767 8	34.3807	8.0204	18.332
	51.8313	70.3656	22826.993 3	17.9889	25.9641	879.1765	45684.022 9	35.1895	8.2254	18.801
L40	51.8313	70.3656	22826.993 3	17.9889	25.9641	879.1765	45684.022 9	35.1895	8.2254	18.801
	53.0140	71.9829	24437.465 6	18.4023	26.5557	920.2332	48907.086 7	35.9983	8.4304	19.27
L41	53.0140	71.9829	24437.465 6	18.4023	26.5557	920.2332	48907.086 7	35.9983	8.4304	19.27
	54.1967	73.6003	26121.957 7	18.8158	27.1474	962.2268	52278.287 4	36.8071	8.6354	19.738
L42	54.1967	73.6003	26121.957 7	18.8158	27.1474	962.2268	52278.287 4	36.8071	8.6354	19.738
	55.3793	75.2176	27882.132 7	19.2293	27.7391	1005.1575	55800.953 5	37.6159	8.8404	20.207
L43	55.3793	75.2176	27882.132 7	19.2293	27.7391	1005.1575	55800.953 5	37.6159	8.8404	20.207
	55.7810	75.7669	28497.398 3	19.3697	27.9400	1019.9498	57032.294 3	37.8906	8.9100	20.366

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
L1 181.83- 176.83				1	1	1			
L2 176.83- 171.83				1	1	1			
L3 171.83- 166.83				1	1	1			
L4 166.83- 161.83				1	1	1			
L5 161.83- 156.83				1	1	1			
L6 156.83- 151.83				1	1	1			
L7 151.83- 146.83				1	1	1			
L8 146.83- 141.83				1	1	1			
L9 141.83- 136.83				1	1	1			
L10 136.83- 132.91				1	1	1			
L11 132.91- 131.67				1	1	1			
L12 131.67- 126.67				1	1	1			
L13 126.67- 121.67				1	1	1			
L14 121.67- 116.67				1	1	1			
L15 116.67- 111.67				1	1	1			
L16 111.67- 106.67				1	1	1			
L17 106.67- 101.67				1	1	1			
L18 101.67- 96.67				1	1	1			
L19 96.67- 87.30				1	1	1			
L20 87.30-				1	1	1			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
86.30									
L21 86.30-85.00				1	1	1			
L22 85.00-84.75				1	1	1			
L23 84.75-79.75				1	1	1			
L24 79.75-75.00				1	1	1			
L25 75.00-74.75				1	1	1.00589			
L26 74.75-74.00				1	1	1.00386			
L27 74.00-73.75				1	1	1			
L28 73.75-68.75				1	1	1			
L29 68.75-63.75				1	1	1			
L30 63.75-58.75				1	1	1			
L31 58.75-53.75				1	1	1			
L32 53.75-49.00				1	1	1			
L33 49.00-42.70				1	1	1			
L34 42.70-41.70				1	1	1			
L35 41.70-36.70				1	1	1			
L36 36.70-31.70				1	1	1			
L37 31.70-26.70				1	1	1			
L38 26.70-21.70				1	1	1			
L39 21.70-16.70				1	1	1			
L40 16.70-11.70				1	1	1			
L41 11.70-6.70				1	1	1			
L42 6.70-1.70				1	1	1			
L43 1.70-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8	B	No	Surface Ar (CaAa)	181.83 - 10.00	1	1	0.350 0.370	0.3750		0.22

LDF4-50A(1/2)	A	No	Surface Ar (CaAa)	140.00 - 12.00	4	1	-0.316 -0.300	0.6250		0.15
LDF12-50A(2-1/4)	A	No	Surface Ar (CaAa)	140.00 - 12.00	2	2	-0.300 -0.182	0.0000		1.22
(1) HB114-21U3M12- XXXXF(1-1/4) + (3) HB114-1-0813U4- M5F(1-1/4)	A	No	Surface Ar (CaAa)	140.00 - 12.00	4	4	-0.150 0.005	1.5400		1.22

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
HB158-1-08U8-S8J18(1-5/8) ***	A	No	Surface Ar (CaAa)	90.00 - 12.00	1	1	0.160 0.203	1.9800		1.30
LDF4-50A(1/2) ***	A	No	Surface Ar (CaAa)	73.00 - 0.00	1	1	0.467 0.480	0.6250		0.15
PL1x5.75 Reinforcement - Wind Area	A	No	Surface Af (CaAa)	87.00 - 72.00	1	1	0.000 0.000	5.7500	13.5000	19.57
PL1x5.75 Reinforcement - Wind Area	B	No	Surface Af (CaAa)	87.00 - 72.00	1	1	0.000 0.000	5.7500	13.5000	19.57
PL1x5.75 Reinforcement - Wind Area	C	No	Surface Af (CaAa)	87.00 - 72.00	1	1	0.000 0.000	5.7500	13.5000	19.57
PL1x5.75 Reinforcement - Wind Area	A	No	Surface Af (CaAa)	77.00 - 47.00	1	1	0.000 0.000	5.7500	13.5000	19.57
PL1x5.75 Reinforcement - Wind Area	B	No	Surface Af (CaAa)	77.00 - 47.00	1	1	0.000 0.000	5.7500	13.5000	19.57
PL1x5.75 Reinforcement - Wind Area *** *****	C	No	Surface Af (CaAa)	77.00 - 47.00	1	1	0.000 0.000	5.7500	13.5000	19.57

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

LDF5-50A(7/8)	C	No	No	Inside Pole	178.00 - 0.00	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.33 0.33 0.33 0.33
AVA5-50FX(7/8)	C	No	No	Inside Pole	178.00 - 0.00	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.29 0.29 0.29 0.29

2 1/2" Rigid Conduit	C	No	No	Inside Pole	170.00 - 0.00	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	3.00 3.00 3.00 3.00
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	170.00 - 0.00	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.06 0.06 0.06 0.06
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	170.00 - 0.00	4	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.58 0.58 0.58 0.58
LDF7-50A(1-5/8)	C	No	No	Inside Pole	170.00 - 0.00	12	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.82 0.82 0.82 0.82

MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	C	No	No	Inside Pole	157.00 - 0.00	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.68 0.68 0.68 0.68
LDF7-50A(1-5/8)	C	No	No	Inside Pole	157.00 - 0.00	12	No Ice	0.00	0.82

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
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82

LDF4-50A(1/2)	C	No	No	Inside Pole	90.00 - 0.00	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
HJ7-50A(1-5/8)	C	No	No	Inside Pole	90.00 - 0.00	6	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
							2" Ice	0.00	1.04

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	181.83-176.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	176.83-171.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L3	171.83-166.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.07
L4	166.83-161.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.10
L5	161.83-156.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.10
L6	156.83-151.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.15
L7	151.83-146.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.15
L8	146.83-141.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.15
L9	141.83-136.83	A	0.000	0.000	2.149	0.000	0.03
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.15
L10	136.83-132.91	A	0.000	0.000	2.659	0.000	0.03
		B	0.000	0.000	0.147	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.12
L11	132.91-131.67	A	0.000	0.000	0.846	0.000	0.01
		B	0.000	0.000	0.047	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L12	131.67-126.67	A	0.000	0.000	3.393	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.15
L13	126.67-121.67	A	0.000	0.000	3.393	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.15
L14	121.67-116.67	A	0.000	0.000	3.393	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.15

Tower Sectio 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
L15	116.67-111.67	A	0.000	0.000	3.393	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.15
L16	111.67-106.67	A	0.000	0.000	3.393	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.15
L17	106.67-101.67	A	0.000	0.000	3.393	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.15
L18	101.67-96.67	A	0.000	0.000	3.393	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.15
L19	96.67-87.30	A	0.000	0.000	6.888	0.000	0.08
		B	0.000	0.000	0.351	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.30
L20	87.30-86.30	A	0.000	0.000	1.545	0.000	0.02
		B	0.000	0.000	0.706	0.000	0.01
		C	0.000	0.000	0.669	0.000	0.05
L21	86.30-85.00	A	0.000	0.000	2.389	0.000	0.04
		B	0.000	0.000	1.297	0.000	0.03
		C	0.000	0.000	1.248	0.000	0.07
L22	85.00-84.75	A	0.000	0.000	0.459	0.000	0.01
		B	0.000	0.000	0.249	0.000	0.00
		C	0.000	0.000	0.240	0.000	0.01
L23	84.75-79.75	A	0.000	0.000	9.174	0.000	0.14
		B	0.000	0.000	4.979	0.000	0.10
		C	0.000	0.000	4.792	0.000	0.28
L24	79.75-75.00	A	0.000	0.000	10.632	0.000	0.18
		B	0.000	0.000	6.647	0.000	0.13
		C	0.000	0.000	6.469	0.000	0.31
L25	75.00-74.75	A	0.000	0.000	0.698	0.000	0.01
		B	0.000	0.000	0.489	0.000	0.01
		C	0.000	0.000	0.479	0.000	0.02
L26	74.75-74.00	A	0.000	0.000	2.095	0.000	0.04
		B	0.000	0.000	1.466	0.000	0.03
		C	0.000	0.000	1.438	0.000	0.06
L27	74.00-73.75	A	0.000	0.000	0.698	0.000	0.01
		B	0.000	0.000	0.489	0.000	0.01
		C	0.000	0.000	0.479	0.000	0.02
L28	73.75-68.75	A	0.000	0.000	11.117	0.000	0.18
		B	0.000	0.000	6.656	0.000	0.13
		C	0.000	0.000	6.469	0.000	0.32
L29	68.75-63.75	A	0.000	0.000	9.487	0.000	0.14
		B	0.000	0.000	4.979	0.000	0.10
		C	0.000	0.000	4.792	0.000	0.28
L30	63.75-58.75	A	0.000	0.000	9.487	0.000	0.14
		B	0.000	0.000	4.979	0.000	0.10
		C	0.000	0.000	4.792	0.000	0.28
L31	58.75-53.75	A	0.000	0.000	9.487	0.000	0.14
		B	0.000	0.000	4.979	0.000	0.10
		C	0.000	0.000	4.792	0.000	0.28
L32	53.75-49.00	A	0.000	0.000	9.012	0.000	0.14
		B	0.000	0.000	4.730	0.000	0.09
		C	0.000	0.000	4.552	0.000	0.27
L33	49.00-42.70	A	0.000	0.000	7.834	0.000	0.10
		B	0.000	0.000	2.153	0.000	0.04
		C	0.000	0.000	1.917	0.000	0.27
L34	42.70-41.70	A	0.000	0.000	0.939	0.000	0.01
		B	0.000	0.000	0.037	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L35	41.70-36.70	A	0.000	0.000	4.695	0.000	0.05
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.18
L36	36.70-31.70	A	0.000	0.000	4.695	0.000	0.05
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.18
L37	31.70-26.70	A	0.000	0.000	4.695	0.000	0.05
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.18

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L38	26.70-21.70	A	0.000	0.000	4.695	0.000	0.05
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.18
L39	21.70-16.70	A	0.000	0.000	4.695	0.000	0.05
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.18
L40	16.70-11.70	A	0.000	0.000	4.430	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.18
L41	11.70-6.70	A	0.000	0.000	0.313	0.000	0.00
		B	0.000	0.000	0.064	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.18
L42	6.70-1.70	A	0.000	0.000	0.313	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.18
L43	1.70-0.00	A	0.000	0.000	0.106	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.06

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	181.83-176.83	A	2.014	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.201	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.00
L2	176.83-171.83	A	2.008	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.195	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.02
L3	171.83-166.83	A	2.002	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.190	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.07
L4	166.83-161.83	A	1.996	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.184	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.10
L5	161.83-156.83	A	1.990	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.177	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.10
L6	156.83-151.83	A	1.984	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.171	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.15
L7	151.83-146.83	A	1.977	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.164	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.15
L8	146.83-141.83	A	1.970	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.158	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.15
L9	141.83-136.83	A	1.963	0.000	0.000	6.989	0.000	0.17
		B		0.000	0.000	2.151	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.15
L10	136.83-132.91	A	1.957	0.000	0.000	8.631	0.000	0.21
		B		0.000	0.000	1.681	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.12
L11	132.91-131.67	A	1.953	0.000	0.000	2.746	0.000	0.07
		B		0.000	0.000	0.535	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.04
L12	131.67-126.67	A	1.949	0.000	0.000	10.982	0.000	0.26
		B		0.000	0.000	2.136	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.15
L13	126.67-121.67	A	1.941	0.000	0.000	10.955	0.000	0.26
		B		0.000	0.000	2.128	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.15
L14	121.67-116.67	A	1.933	0.000	0.000	10.928	0.000	0.26
		B		0.000	0.000	2.120	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.15

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L15	116.67-111.67	A	1.925	0.000	0.000	10.899	0.000	0.26
		B		0.000	0.000	2.112	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.15
L16	111.67-106.67	A	1.916	0.000	0.000	10.869	0.000	0.26
		B		0.000	0.000	2.104	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.15
L17	106.67-101.67	A	1.907	0.000	0.000	10.837	0.000	0.26
		B		0.000	0.000	2.095	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.15
L18	101.67-96.67	A	1.898	0.000	0.000	10.804	0.000	0.26
		B		0.000	0.000	2.085	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.15
L19	96.67-87.30	A	1.883	0.000	0.000	21.694	0.000	0.50
		B		0.000	0.000	3.879	0.000	0.05
		C		0.000	0.000	0.000	0.000	0.30
L20	87.30-86.30	A	1.873	0.000	0.000	3.595	0.000	0.08
		B		0.000	0.000	1.283	0.000	0.03
		C		0.000	0.000	0.869	0.000	0.06
L21	86.30-85.00	A	1.870	0.000	0.000	5.151	0.000	0.12
		B		0.000	0.000	2.154	0.000	0.05
		C		0.000	0.000	1.618	0.000	0.09
L22	85.00-84.75	A	1.868	0.000	0.000	0.989	0.000	0.02
		B		0.000	0.000	0.413	0.000	0.01
		C		0.000	0.000	0.311	0.000	0.02
L23	84.75-79.75	A	1.863	0.000	0.000	19.744	0.000	0.47
		B		0.000	0.000	8.260	0.000	0.20
		C		0.000	0.000	6.210	0.000	0.36
L24	79.75-75.00	A	1.851	0.000	0.000	21.360	0.000	0.51
		B		0.000	0.000	10.488	0.000	0.26
		C		0.000	0.000	8.551	0.000	0.41
L25	75.00-74.75	A	1.845	0.000	0.000	1.315	0.000	0.03
		B		0.000	0.000	0.744	0.000	0.02
		C		0.000	0.000	0.642	0.000	0.03
L26	74.75-74.00	A	1.844	0.000	0.000	3.943	0.000	0.10
		B		0.000	0.000	2.230	0.000	0.06
		C		0.000	0.000	1.925	0.000	0.08
L27	74.00-73.75	A	1.843	0.000	0.000	1.314	0.000	0.03
		B		0.000	0.000	0.743	0.000	0.02
		C		0.000	0.000	0.642	0.000	0.03
L28	73.75-68.75	A	1.836	0.000	0.000	24.037	0.000	0.55
		B		0.000	0.000	10.820	0.000	0.26
		C		0.000	0.000	8.796	0.000	0.41
L29	68.75-63.75	A	1.823	0.000	0.000	22.104	0.000	0.49
		B		0.000	0.000	8.625	0.000	0.20
		C		0.000	0.000	6.614	0.000	0.35
L30	63.75-58.75	A	1.808	0.000	0.000	22.011	0.000	0.48
		B		0.000	0.000	8.596	0.000	0.19
		C		0.000	0.000	6.600	0.000	0.35
L31	58.75-53.75	A	1.793	0.000	0.000	21.912	0.000	0.48
		B		0.000	0.000	8.565	0.000	0.19
		C		0.000	0.000	6.585	0.000	0.35
L32	53.75-49.00	A	1.777	0.000	0.000	20.716	0.000	0.45
		B		0.000	0.000	8.106	0.000	0.18
		C		0.000	0.000	6.240	0.000	0.33
L33	49.00-42.70	A	1.757	0.000	0.000	21.686	0.000	0.45
		B		0.000	0.000	5.070	0.000	0.10
		C		0.000	0.000	2.619	0.000	0.30
L34	42.70-41.70	A	1.742	0.000	0.000	3.025	0.000	0.06
		B		0.000	0.000	0.389	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L35	41.70-36.70	A	1.729	0.000	0.000	14.977	0.000	0.30
		B		0.000	0.000	1.917	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.18
L36	36.70-31.70	A	1.706	0.000	0.000	14.848	0.000	0.29
		B		0.000	0.000	1.894	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.18
L37	31.70-26.70	A	1.679	0.000	0.000	14.701	0.000	0.29
		B		0.000	0.000	1.867	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.18

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L38	26.70-21.70	A	1.648	0.000	0.000	14.529	0.000	0.28
		B		0.000	0.000	1.836	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.18
L39	21.70-16.70	A	1.610	0.000	0.000	14.322	0.000	0.27
		B		0.000	0.000	1.798	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.18
L40	16.70-11.70	A	1.562	0.000	0.000	13.322	0.000	0.25
		B		0.000	0.000	1.750	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.18
L41	11.70-6.70	A	1.496	0.000	0.000	1.808	0.000	0.02
		B		0.000	0.000	0.572	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.18
L42	6.70-1.70	A	1.383	0.000	0.000	1.695	0.000	0.02
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.18
L43	1.70-0.00	A	1.179	0.000	0.000	0.506	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.06

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	181.83-176.83	0.2919	0.0685	1.3975	0.3278
L2	176.83-171.83	0.2921	0.0685	1.4293	0.3352
L3	171.83-166.83	0.2923	0.0686	1.4577	0.3419
L4	166.83-161.83	0.2925	0.0686	1.4831	0.3479
L5	161.83-156.83	0.2927	0.0687	1.5058	0.3532
L6	156.83-151.83	0.2929	0.0687	1.5262	0.3580
L7	151.83-146.83	0.2930	0.0687	1.5444	0.3622
L8	146.83-141.83	0.2931	0.0688	1.5608	0.3661
L9	141.83-136.83	-2.4532	-0.8537	-2.2571	-0.4009
L10	136.83-132.91	-3.3317	-1.1473	-3.3980	-0.6300
L11	132.91-131.67	-3.3391	-1.1499	-3.4063	-0.6315
L12	131.67-126.67	-3.3846	-1.1657	-3.4579	-0.6421
L13	126.67-121.67	-3.4551	-1.1903	-3.5391	-0.6582
L14	121.67-116.67	-3.5228	-1.2139	-3.6172	-0.6738
L15	116.67-111.67	-3.5880	-1.2366	-3.6922	-0.6889
L16	111.67-106.67	-3.6507	-1.2584	-3.7644	-0.7035
L17	106.67-101.67	-3.7111	-1.2794	-3.8337	-0.7178
L18	101.67-96.67	-3.7693	-1.2997	-3.9003	-0.7316
L19	96.67-87.30	-3.9822	-1.5838	-4.1550	-1.0506
L20	87.30-86.30	-2.6326	-1.3238	-3.4536	-1.3142
L21	86.30-85.00	-2.2603	-1.1366	-3.1394	-1.1955
L22	85.00-84.75	-2.2669	-1.1400	-3.1490	-1.1993
L23	84.75-79.75	-2.2893	-1.1512	-3.1812	-1.2119
L24	79.75-75.00	-1.6119	-0.8106	-2.8425	-1.0836
L25	75.00-74.75	-1.3565	-0.6821	-2.4451	-0.9324
L26	74.75-74.00	-1.3590	-0.6834	-2.4502	-0.9344
L27	74.00-73.75	-1.3610	-0.6844	-2.4546	-0.9361
L28	73.75-68.75	-2.0409	-1.1679	-2.8895	-1.6042
L29	68.75-63.75	-2.4071	-1.4064	-3.2273	-1.8881
L30	63.75-58.75	-2.4460	-1.4293	-3.2817	-1.9199
L31	58.75-53.75	-2.4840	-1.4517	-3.3342	-1.9505
L32	53.75-49.00	-2.5203	-1.4731	-3.3835	-1.9792
L33	49.00-42.70	-3.6367	-2.1258	-4.3022	-2.5163
L34	42.70-41.70	-4.5228	-2.6438	-4.8781	-2.8532
L35	41.70-36.70	-4.5381	-2.6529	-4.8995	-2.8649
L36	36.70-31.70	-4.5628	-2.6676	-4.9445	-2.8906
L37	31.70-26.70	-4.5866	-2.6817	-4.9851	-2.9136
L38	26.70-21.70	-4.6096	-2.6954	-5.0205	-2.9332
L39	21.70-16.70	-4.6318	-2.7086	-5.0490	-2.9485
L40	16.70-11.70	-4.4127	-2.6090	-4.8082	-2.8870
L41	11.70-6.70	0.0704	-0.4772	0.3920	-1.4615

Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
L42	6.70-1.70	-0.0279	-0.5022	-0.0843	-1.5179
L43	1.70-0.00	-0.0279	-0.5022	-0.0753	-1.3547

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	1	Safety Line 3/8	176.83 - 181.83	1.0000	1.0000
L2	1	Safety Line 3/8	171.83 - 176.83	1.0000	1.0000
L3	1	Safety Line 3/8	166.83 - 171.83	1.0000	1.0000
L4	1	Safety Line 3/8	161.83 - 166.83	1.0000	1.0000
L5	1	Safety Line 3/8	156.83 - 161.83	1.0000	1.0000
L6	1	Safety Line 3/8	151.83 - 156.83	1.0000	1.0000
L7	1	Safety Line 3/8	146.83 - 151.83	1.0000	1.0000
L8	1	Safety Line 3/8	141.83 - 146.83	1.0000	1.0000
L9	1	Safety Line 3/8	136.83 - 141.83	1.0000	1.0000
L9	17	LDF4-50A(1/2)	136.83 - 140.00	1.0000	1.0000
L9	18	LDF12-50A(2-1/4)	136.83 - 140.00	1.0000	1.0000
L9	20	(1) HB114-21U3M12- XXXF(1-1/4) + (3) HB114- 1-0813U4-M5F(1-1/4)	136.83 - 140.00	1.0000	1.0000
L10	1	Safety Line 3/8	132.91 - 136.83	1.0000	1.0000
L10	17	LDF4-50A(1/2)	132.91 - 136.83	1.0000	1.0000
L10	18	LDF12-50A(2-1/4)	132.91 - 136.83	1.0000	1.0000
L10	20	(1) HB114-21U3M12- XXXF(1-1/4) + (3) HB114- 1-0813U4-M5F(1-1/4)	132.91 - 136.83	1.0000	1.0000
L12	1	Safety Line 3/8	126.67 - 131.67	1.0000	1.0000
L12	17	LDF4-50A(1/2)	126.67 - 131.67	1.0000	1.0000
L12	18	LDF12-50A(2-1/4)	126.67 - 131.67	1.0000	1.0000
L12	20	(1) HB114-21U3M12- XXXF(1-1/4) + (3) HB114- 1-0813U4-M5F(1-1/4)	126.67 - 131.67	1.0000	1.0000
L13	1	Safety Line 3/8	121.67 - 126.67	1.0000	1.0000
L13	17	LDF4-50A(1/2)	121.67 - 126.67	1.0000	1.0000
L13	18	LDF12-50A(2-1/4)	121.67 - 126.67	1.0000	1.0000
L13	20	(1) HB114-21U3M12- XXXF(1-1/4) + (3) HB114- 1-0813U4-M5F(1-1/4)	121.67 - 126.67	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L14	1	Safety Line 3/8	116.67 - 121.67	1.0000	1.0000
L14	17	LDF4-50A(1/2)	116.67 - 121.67	1.0000	1.0000
L14	18	LDF12-50A(2-1/4)	116.67 - 121.67	1.0000	1.0000
L14	20	(1) HB114-21U3M12- XXXF(1-1/4) + (3) HB114- 1-0813U4-M5F(1-1/4)	116.67 - 121.67	1.0000	1.0000
L15	1	Safety Line 3/8	111.67 - 116.67	1.0000	1.0000
L15	17	LDF4-50A(1/2)	111.67 - 116.67	1.0000	1.0000
L15	18	LDF12-50A(2-1/4)	111.67 - 116.67	1.0000	1.0000
L15	20	(1) HB114-21U3M12- XXXF(1-1/4) + (3) HB114- 1-0813U4-M5F(1-1/4)	111.67 - 116.67	1.0000	1.0000
L16	1	Safety Line 3/8	106.67 - 111.67	1.0000	1.0000
L16	17	LDF4-50A(1/2)	106.67 - 111.67	1.0000	1.0000
L16	18	LDF12-50A(2-1/4)	106.67 - 111.67	1.0000	1.0000
L16	20	(1) HB114-21U3M12- XXXF(1-1/4) + (3) HB114- 1-0813U4-M5F(1-1/4)	106.67 - 111.67	1.0000	1.0000
L17	1	Safety Line 3/8	101.67 - 106.67	1.0000	1.0000
L17	17	LDF4-50A(1/2)	101.67 - 106.67	1.0000	1.0000
L17	18	LDF12-50A(2-1/4)	101.67 - 106.67	1.0000	1.0000
L17	20	(1) HB114-21U3M12- XXXF(1-1/4) + (3) HB114- 1-0813U4-M5F(1-1/4)	101.67 - 106.67	1.0000	1.0000
L18	1	Safety Line 3/8	96.67 - 101.67	1.0000	1.0000
L18	17	LDF4-50A(1/2)	96.67 - 101.67	1.0000	1.0000
L18	18	LDF12-50A(2-1/4)	96.67 - 101.67	1.0000	1.0000
L18	20	(1) HB114-21U3M12- XXXF(1-1/4) + (3) HB114- 1-0813U4-M5F(1-1/4)	96.67 - 101.67	1.0000	1.0000
L19	1	Safety Line 3/8	87.30 - 96.67	1.0000	1.0000
L19	17	LDF4-50A(1/2)	87.30 - 96.67	1.0000	1.0000
L19	18	LDF12-50A(2-1/4)	87.30 - 96.67	1.0000	1.0000
L19	20	(1) HB114-21U3M12- XXXF(1-1/4) + (3) HB114- 1-0813U4-M5F(1-1/4)	87.30 - 96.67	1.0000	1.0000
L19	24	HB158-1-08U8-S8J18(1- 5/8)	87.30 - 90.00	1.0000	1.0000
L19	28	PL1x5.75 Reinforcement - Wind Area	87.30 - 87.00	1.0000	1.0000
L19	29	PL1x5.75 Reinforcement - Wind Area	87.30 - 87.00	1.0000	1.0000
L19	30	PL1x5.75 Reinforcement - Wind Area	87.30 - 87.00	1.0000	1.0000
L21	1	Safety Line 3/8	85.00 - 86.30	1.0000	1.0000
L21	17	LDF4-50A(1/2)	85.00 - 86.30	1.0000	1.0000
L21	18	LDF12-50A(2-1/4)	85.00 - 86.30	1.0000	1.0000
L21	20	(1) HB114-21U3M12-	85.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
		XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	86.30		
L21	24	HB158-1-08U8-S8J18(1-5/8)	85.00 - 86.30	1.0000	1.0000
L21	28	PL1x5.75 Reinforcement - Wind Area	85.00 - 86.30	1.0000	1.0000
L21	29	PL1x5.75 Reinforcement - Wind Area	85.00 - 86.30	1.0000	1.0000
L21	30	PL1x5.75 Reinforcement - Wind Area	85.00 - 86.30	1.0000	1.0000
L22	1	Safety Line 3/8	84.75 - 85.00	1.0000	1.0000
L22	17	LDF4-50A(1/2)	84.75 - 85.00	1.0000	1.0000
L22	18	LDF12-50A(2-1/4)	84.75 - 85.00	1.0000	1.0000
L22	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	84.75 - 85.00	1.0000	1.0000
L22	24	HB158-1-08U8-S8J18(1-5/8)	84.75 - 85.00	1.0000	1.0000
L22	28	PL1x5.75 Reinforcement - Wind Area	84.75 - 85.00	1.0000	1.0000
L22	29	PL1x5.75 Reinforcement - Wind Area	84.75 - 85.00	1.0000	1.0000
L22	30	PL1x5.75 Reinforcement - Wind Area	84.75 - 85.00	1.0000	1.0000
L23	1	Safety Line 3/8	79.75 - 84.75	1.0000	1.0000
L23	17	LDF4-50A(1/2)	79.75 - 84.75	1.0000	1.0000
L23	18	LDF12-50A(2-1/4)	79.75 - 84.75	1.0000	1.0000
L23	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	79.75 - 84.75	1.0000	1.0000
L23	24	HB158-1-08U8-S8J18(1-5/8)	79.75 - 84.75	1.0000	1.0000
L23	28	PL1x5.75 Reinforcement - Wind Area	79.75 - 84.75	1.0000	1.0000
L23	29	PL1x5.75 Reinforcement - Wind Area	79.75 - 84.75	1.0000	1.0000
L23	30	PL1x5.75 Reinforcement - Wind Area	79.75 - 84.75	1.0000	1.0000
L24	1	Safety Line 3/8	75.00 - 79.75	1.0000	1.0000
L24	17	LDF4-50A(1/2)	75.00 - 79.75	1.0000	1.0000
L24	18	LDF12-50A(2-1/4)	75.00 - 79.75	1.0000	1.0000
L24	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	75.00 - 79.75	1.0000	1.0000
L24	24	HB158-1-08U8-S8J18(1-5/8)	75.00 - 79.75	1.0000	1.0000
L24	28	PL1x5.75 Reinforcement - Wind Area	75.00 - 79.75	1.0000	1.0000
L24	29	PL1x5.75 Reinforcement - Wind Area	75.00 - 79.75	1.0000	1.0000
L24	30	PL1x5.75 Reinforcement - Wind Area	75.00 - 79.75	1.0000	1.0000
L24	31	PL1x5.75 Reinforcement - Wind Area	75.00 - 77.00	1.0000	1.0000
L24	32	PL1x5.75 Reinforcement - Wind Area	75.00 - 77.00	1.0000	1.0000
L24	33	PL1x5.75 Reinforcement - Wind Area	75.00 - 77.00	1.0000	1.0000
L25	1	Safety Line 3/8	74.75 - 75.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L25	17	LDF4-50A(1/2)	74.75 - 75.00	1.0000	1.0000
L25	18	LDF12-50A(2-1/4)	74.75 - 75.00	1.0000	1.0000
L25	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	74.75 - 75.00	1.0000	1.0000
L25	24	HB158-1-08U8-S8J18(1-5/8)	74.75 - 75.00	1.0000	1.0000
L25	28	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	29	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	30	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	31	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	32	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	33	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L26	1	Safety Line 3/8	74.00 - 74.75	1.0000	1.0000
L26	17	LDF4-50A(1/2)	74.00 - 74.75	1.0000	1.0000
L26	18	LDF12-50A(2-1/4)	74.00 - 74.75	1.0000	1.0000
L26	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	74.00 - 74.75	1.0000	1.0000
L26	24	HB158-1-08U8-S8J18(1-5/8)	74.00 - 74.75	1.0000	1.0000
L26	28	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L26	29	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L26	30	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L26	31	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L26	32	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L26	33	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L27	1	Safety Line 3/8	73.75 - 74.00	1.0000	1.0000
L27	17	LDF4-50A(1/2)	73.75 - 74.00	1.0000	1.0000
L27	18	LDF12-50A(2-1/4)	73.75 - 74.00	1.0000	1.0000
L27	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	73.75 - 74.00	1.0000	1.0000
L27	24	HB158-1-08U8-S8J18(1-5/8)	73.75 - 74.00	1.0000	1.0000
L27	28	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L27	29	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L27	30	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L27	31	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L27	32	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L27	33	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L28	1	Safety Line 3/8	68.75 - 73.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L28	17	LDF4-50A(1/2)	68.75 - 73.75	1.0000	1.0000
L28	18	LDF12-50A(2-1/4)	68.75 - 73.75	1.0000	1.0000
L28	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	68.75 - 73.75	1.0000	1.0000
L28	24	HB158-1-08U8-S8J18(1-5/8)	68.75 - 73.75	1.0000	1.0000
L28	26	LDF4-50A(1/2)	68.75 - 73.00	1.0000	1.0000
L28	28	PL1x5.75 Reinforcement - Wind Area	72.00 - 73.75	1.0000	1.0000
L28	29	PL1x5.75 Reinforcement - Wind Area	72.00 - 73.75	1.0000	1.0000
L28	30	PL1x5.75 Reinforcement - Wind Area	72.00 - 73.75	1.0000	1.0000
L28	31	PL1x5.75 Reinforcement - Wind Area	68.75 - 73.75	1.0000	1.0000
L28	32	PL1x5.75 Reinforcement - Wind Area	68.75 - 73.75	1.0000	1.0000
L28	33	PL1x5.75 Reinforcement - Wind Area	68.75 - 73.75	1.0000	1.0000
L29	1	Safety Line 3/8	63.75 - 68.75	1.0000	1.0000
L29	17	LDF4-50A(1/2)	63.75 - 68.75	1.0000	1.0000
L29	18	LDF12-50A(2-1/4)	63.75 - 68.75	1.0000	1.0000
L29	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	63.75 - 68.75	1.0000	1.0000
L29	24	HB158-1-08U8-S8J18(1-5/8)	63.75 - 68.75	1.0000	1.0000
L29	26	LDF4-50A(1/2)	63.75 - 68.75	1.0000	1.0000
L29	31	PL1x5.75 Reinforcement - Wind Area	63.75 - 68.75	1.0000	1.0000
L29	32	PL1x5.75 Reinforcement - Wind Area	63.75 - 68.75	1.0000	1.0000
L29	33	PL1x5.75 Reinforcement - Wind Area	63.75 - 68.75	1.0000	1.0000
L30	1	Safety Line 3/8	58.75 - 63.75	1.0000	1.0000
L30	17	LDF4-50A(1/2)	58.75 - 63.75	1.0000	1.0000
L30	18	LDF12-50A(2-1/4)	58.75 - 63.75	1.0000	1.0000
L30	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	58.75 - 63.75	1.0000	1.0000
L30	24	HB158-1-08U8-S8J18(1-5/8)	58.75 - 63.75	1.0000	1.0000
L30	26	LDF4-50A(1/2)	58.75 - 63.75	1.0000	1.0000
L30	31	PL1x5.75 Reinforcement - Wind Area	58.75 - 63.75	1.0000	1.0000
L30	32	PL1x5.75 Reinforcement - Wind Area	58.75 - 63.75	1.0000	1.0000
L30	33	PL1x5.75 Reinforcement - Wind Area	58.75 - 63.75	1.0000	1.0000
L31	1	Safety Line 3/8	53.75 - 58.75	1.0000	1.0000
L31	17	LDF4-50A(1/2)	53.75 - 58.75	1.0000	1.0000
L31	18	LDF12-50A(2-1/4)	53.75 - 58.75	1.0000	1.0000
L31	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-	53.75 - 58.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L31	24	1-0813U4-M5F(1-1/4) HB158-1-08U8-S8J18(1-5/8)	53.75 - 58.75	1.0000	1.0000
L31	26	LDF4-50A(1/2)	53.75 - 58.75	1.0000	1.0000
L31	31	PL1x5.75 Reinforcement - Wind Area	53.75 - 58.75	1.0000	1.0000
L31	32	PL1x5.75 Reinforcement - Wind Area	53.75 - 58.75	1.0000	1.0000
L31	33	PL1x5.75 Reinforcement - Wind Area	53.75 - 58.75	1.0000	1.0000
L32	1	Safety Line 3/8	49.00 - 53.75	1.0000	1.0000
L32	17	LDF4-50A(1/2)	49.00 - 53.75	1.0000	1.0000
L32	18	LDF12-50A(2-1/4)	49.00 - 53.75	1.0000	1.0000
L32	20	(1) HB114-21U3M12- XXXF(1-1/4) + (3) HB114- 1-0813U4-M5F(1-1/4)	49.00 - 53.75	1.0000	1.0000
L32	24	HB158-1-08U8-S8J18(1-5/8)	49.00 - 53.75	1.0000	1.0000
L32	26	LDF4-50A(1/2)	49.00 - 53.75	1.0000	1.0000
L32	31	PL1x5.75 Reinforcement - Wind Area	49.00 - 53.75	1.0000	1.0000
L32	32	PL1x5.75 Reinforcement - Wind Area	49.00 - 53.75	1.0000	1.0000
L32	33	PL1x5.75 Reinforcement - Wind Area	49.00 - 53.75	1.0000	1.0000
L33	1	Safety Line 3/8	42.70 - 49.00	1.0000	1.0000
L33	17	LDF4-50A(1/2)	42.70 - 49.00	1.0000	1.0000
L33	18	LDF12-50A(2-1/4)	42.70 - 49.00	1.0000	1.0000
L33	20	(1) HB114-21U3M12- XXXF(1-1/4) + (3) HB114- 1-0813U4-M5F(1-1/4)	42.70 - 49.00	1.0000	1.0000
L33	24	HB158-1-08U8-S8J18(1-5/8)	42.70 - 49.00	1.0000	1.0000
L33	26	LDF4-50A(1/2)	42.70 - 49.00	1.0000	1.0000
L33	31	PL1x5.75 Reinforcement - Wind Area	47.00 - 49.00	1.0000	1.0000
L33	32	PL1x5.75 Reinforcement - Wind Area	47.00 - 49.00	1.0000	1.0000
L33	33	PL1x5.75 Reinforcement - Wind Area	47.00 - 49.00	1.0000	1.0000
L35	1	Safety Line 3/8	36.70 - 41.70	1.0000	1.0000
L35	17	LDF4-50A(1/2)	36.70 - 41.70	1.0000	1.0000
L35	18	LDF12-50A(2-1/4)	36.70 - 41.70	1.0000	1.0000
L35	20	(1) HB114-21U3M12- XXXF(1-1/4) + (3) HB114- 1-0813U4-M5F(1-1/4)	36.70 - 41.70	1.0000	1.0000
L35	24	HB158-1-08U8-S8J18(1-5/8)	36.70 - 41.70	1.0000	1.0000
L35	26	LDF4-50A(1/2)	36.70 - 41.70	1.0000	1.0000
L36	1	Safety Line 3/8	31.70 - 36.70	1.0000	1.0000
L36	17	LDF4-50A(1/2)	31.70 - 36.70	1.0000	1.0000
L36	18	LDF12-50A(2-1/4)	31.70 - 36.70	1.0000	1.0000
L36	20	(1) HB114-21U3M12-	31.70 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
		XXXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	36.70		
L36	24	HB158-1-08U8-S8J18(1-5/8)	31.70 - 36.70	1.0000	1.0000
L36	26	LDF4-50A(1/2)	31.70 - 36.70	1.0000	1.0000
L37	1	Safety Line 3/8	26.70 - 31.70	1.0000	1.0000
L37	17	LDF4-50A(1/2)	26.70 - 31.70	1.0000	1.0000
L37	18	LDF12-50A(2-1/4)	26.70 - 31.70	1.0000	1.0000
L37	20	(1) HB114-21U3M12-XXXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	26.70 - 31.70	1.0000	1.0000
L37	24	HB158-1-08U8-S8J18(1-5/8)	26.70 - 31.70	1.0000	1.0000
L37	26	LDF4-50A(1/2)	26.70 - 31.70	1.0000	1.0000
L38	1	Safety Line 3/8	21.70 - 26.70	1.0000	1.0000
L38	17	LDF4-50A(1/2)	21.70 - 26.70	1.0000	1.0000
L38	18	LDF12-50A(2-1/4)	21.70 - 26.70	1.0000	1.0000
L38	20	(1) HB114-21U3M12-XXXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	21.70 - 26.70	1.0000	1.0000
L38	24	HB158-1-08U8-S8J18(1-5/8)	21.70 - 26.70	1.0000	1.0000
L38	26	LDF4-50A(1/2)	21.70 - 26.70	1.0000	1.0000
L39	1	Safety Line 3/8	16.70 - 21.70	1.0000	1.0000
L39	17	LDF4-50A(1/2)	16.70 - 21.70	1.0000	1.0000
L39	18	LDF12-50A(2-1/4)	16.70 - 21.70	1.0000	1.0000
L39	20	(1) HB114-21U3M12-XXXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	16.70 - 21.70	1.0000	1.0000
L39	24	HB158-1-08U8-S8J18(1-5/8)	16.70 - 21.70	1.0000	1.0000
L39	26	LDF4-50A(1/2)	16.70 - 21.70	1.0000	1.0000
L40	1	Safety Line 3/8	11.70 - 16.70	1.0000	1.0000
L40	17	LDF4-50A(1/2)	12.00 - 16.70	1.0000	1.0000
L40	18	LDF12-50A(2-1/4)	12.00 - 16.70	1.0000	1.0000
L40	20	(1) HB114-21U3M12-XXXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	12.00 - 16.70	1.0000	1.0000
L40	24	HB158-1-08U8-S8J18(1-5/8)	12.00 - 16.70	1.0000	1.0000
L40	26	LDF4-50A(1/2)	11.70 - 16.70	1.0000	1.0000
L41	1	Safety Line 3/8	10.00 - 11.70	1.0000	1.0000
L41	26	LDF4-50A(1/2)	6.70 - 11.70	1.0000	1.0000
L42	26	LDF4-50A(1/2)	1.70 - 6.70	1.0000	1.0000
L43	26	LDF4-50A(1/2)	0.00 - 1.70	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
Side Arm Mount [SO 702-3]	C	None		0.0000	178.00	No Ice	2.53	2.53	0.08
						1/2"	3.37	3.37	0.13
						Ice	4.12	4.12	0.19
						1" Ice	5.76	5.76	0.36
6'x2" Mount Pipe	A	From Face	7.00 -2.00 0.00	0.0000	178.00	2" Ice No Ice	1.43	1.43	0.02
						1/2"	1.92	1.92	0.03
						Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
6'x2" Mount Pipe	A	From Face	7.00 2.00 0.00	0.0000	178.00	2" Ice No Ice	1.43	1.43	0.02
						1/2"	1.92	1.92	0.03
						Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
6'x2" Mount Pipe	B	From Face	7.00 -2.00 0.00	0.0000	178.00	2" Ice No Ice	1.43	1.43	0.02
						1/2"	1.92	1.92	0.03
						Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
6'x2" Mount Pipe	B	From Face	7.00 2.00 0.00	0.0000	178.00	2" Ice No Ice	1.43	1.43	0.02
						1/2"	1.92	1.92	0.03
						Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
6'x2" Mount Pipe	C	From Face	7.00 -2.00 0.00	0.0000	178.00	2" Ice No Ice	1.43	1.43	0.02
						1/2"	1.92	1.92	0.03
						Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
6'x2" Mount Pipe	C	From Face	7.00 2.00 0.00	0.0000	178.00	2" Ice No Ice	1.43	1.43	0.02
						1/2"	1.92	1.92	0.03
						Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
DS4C06F36D-D	A	From Face	7.00 -2.00 12.00	0.0000	178.00	2" Ice No Ice	5.82	5.82	0.05
						1/2"	7.79	7.79	0.09
						Ice	9.78	9.78	0.15
						1" Ice	13.81	13.81	0.29
APC-2163	A	From Face	7.00 2.00 13.00	0.0000	178.00	2" Ice No Ice	3.38	3.38	0.01
						1/2"	4.75	4.75	0.04
						Ice	6.15	6.15	0.07
						1" Ice	8.99	8.99	0.17
DS4C06F36D-D	B	From Face	7.00 -2.00 12.00	0.0000	178.00	2" Ice No Ice	5.82	5.82	0.05
						1/2"	7.79	7.79	0.09
						Ice	9.78	9.78	0.15
						1" Ice	13.81	13.81	0.29
APC-1362	B	From Face	7.00 2.00 13.00	0.0000	178.00	2" Ice No Ice	3.50	3.50	0.02
						1/2"	4.93	4.93	0.04
						Ice	6.38	6.38	0.08
						1" Ice	9.32	9.32	0.17
APC-301	C	From Face	7.00 -2.00 13.00	0.0000	178.00	2" Ice No Ice	3.00	3.00	0.01
						1/2"	4.23	4.23	0.04
						Ice	5.47	5.47	0.07
						1" Ice	7.69	7.69	0.15
ANT450D6-9	C	From Face	7.00 -2.00	0.0000	178.00	2" Ice No Ice	0.50	0.50	0.02
						1/2"	0.90	0.90	0.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			-3.00			Ice	1.30	1.30	0.03
						1" Ice	2.10	2.10	0.04
						2" Ice			
APC-4065	C	From Face	7.00	0.0000	178.00	No Ice	3.13	3.13	0.01
			2.00			1/2"	4.40	4.40	0.04
			13.00			Ice	5.70	5.70	0.07
						1" Ice	8.14	8.14	0.15
						2" Ice			

Platform Mount [LP 601-1]	C	None		0.0000	170.00	No Ice	28.50	28.50	1.12
						1/2"	31.69	31.69	1.68
						Ice	34.87	34.87	2.28
						1" Ice	41.23	41.23	3.65
						2" Ice			
Transition Ladder	A	From Leg	0.00	0.0000	170.00	No Ice	6.00	6.00	0.16
			0.00			1/2"	8.00	8.00	0.24
			-2.00			Ice	10.00	10.00	0.32
						1" Ice	14.00	14.00	0.48
						2" Ice			
7770.00 w/ Mount Pipe	A	From Face	3.00	0.0000	170.00	No Ice	5.75	4.25	0.06
			-6.00			1/2"	6.18	5.01	0.10
			-2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
7770.00 w/ Mount Pipe	B	From Face	3.00	0.0000	170.00	No Ice	5.75	4.25	0.06
			-6.00			1/2"	6.18	5.01	0.10
			-2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
7770.00 w/ Mount Pipe	C	From Face	3.00	0.0000	170.00	No Ice	5.75	4.25	0.06
			-6.00			1/2"	6.18	5.01	0.10
			-2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
QS66512-2 w/ Mount Pipe	A	From Face	3.00	0.0000	170.00	No Ice	4.04	4.18	0.14
			-2.00			1/2"	4.42	4.57	0.21
			-2.00			Ice	4.82	4.97	0.29
						1" Ice	5.63	5.79	0.48
						2" Ice			
QS66512-2 w/ Mount Pipe	B	From Face	3.00	0.0000	170.00	No Ice	4.04	4.18	0.14
			-2.00			1/2"	4.42	4.57	0.21
			-2.00			Ice	4.82	4.97	0.29
						1" Ice	5.63	5.79	0.48
						2" Ice			
QS66512-2 w/ Mount Pipe	C	From Face	3.00	0.0000	170.00	No Ice	4.04	4.18	0.14
			-2.00			1/2"	4.42	4.57	0.21
			-2.00			Ice	4.82	4.97	0.29
						1" Ice	5.63	5.79	0.48
						2" Ice			
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Face	3.00	0.0000	170.00	No Ice	9.22	6.25	0.07
			6.00			1/2"	9.98	6.96	0.14
			-2.00			Ice	10.76	7.70	0.22
						1" Ice	12.36	9.22	0.42
						2" Ice			
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Face	3.00	0.0000	170.00	No Ice	9.22	6.25	0.07
			6.00			1/2"	9.98	6.96	0.14
			-2.00			Ice	10.76	7.70	0.22
						1" Ice	12.36	9.22	0.42
						2" Ice			
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Face	3.00	0.0000	170.00	No Ice	9.22	6.25	0.07
			6.00			1/2"	9.98	6.96	0.14
			-2.00			Ice	10.76	7.70	0.22
						1" Ice	12.36	9.22	0.42
						2" Ice			
(2) LGP21401	A	From Face	3.00	0.0000	170.00	No Ice	1.10	0.35	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			0.00			1/2"	1.24	0.44	0.02
			-2.00			Ice	1.38	0.54	0.03
						1" Ice	1.69	0.77	0.05
						2" Ice			
(2) LGP21401	B	From Face	3.00	0.0000	170.00	No Ice	1.10	0.35	0.01
			0.00			1/2"	1.24	0.44	0.02
			-2.00			Ice	1.38	0.54	0.03
						1" Ice	1.69	0.77	0.05
						2" Ice			
(2) LGP21401	C	From Face	3.00	0.0000	170.00	No Ice	1.10	0.35	0.01
			0.00			1/2"	1.24	0.44	0.02
			-2.00			Ice	1.38	0.54	0.03
						1" Ice	1.69	0.77	0.05
						2" Ice			
RRUS 32 B2	A	From Face	3.00	0.0000	170.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			-2.00			Ice	3.18	2.05	0.10
						1" Ice	3.66	2.46	0.16
						2" Ice			
RRUS 32 B2	B	From Face	3.00	0.0000	170.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			-2.00			Ice	3.18	2.05	0.10
						1" Ice	3.66	2.46	0.16
						2" Ice			
RRUS 32 B2	C	From Face	3.00	0.0000	170.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			-2.00			Ice	3.18	2.05	0.10
						1" Ice	3.66	2.46	0.16
						2" Ice			
RRUS 32	A	From Face	3.00	0.0000	170.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			-2.00			Ice	3.32	2.17	0.10
						1" Ice	3.81	2.58	0.16
						2" Ice			
RRUS 32	B	From Face	3.00	0.0000	170.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			-2.00			Ice	3.32	2.17	0.10
						1" Ice	3.81	2.58	0.16
						2" Ice			
RRUS 32	C	From Face	3.00	0.0000	170.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			-2.00			Ice	3.32	2.17	0.10
						1" Ice	3.81	2.58	0.16
						2" Ice			
RRUS 11	A	From Face	3.00	0.0000	170.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			-2.00			Ice	3.21	1.49	0.10
						1" Ice	3.66	1.83	0.15
						2" Ice			
RRUS 11	B	From Face	3.00	0.0000	170.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			-2.00			Ice	3.21	1.49	0.10
						1" Ice	3.66	1.83	0.15
						2" Ice			
RRUS 11	C	From Face	3.00	0.0000	170.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			-2.00			Ice	3.21	1.49	0.10
						1" Ice	3.66	1.83	0.15
						2" Ice			
RRUS 32 B66	A	From Face	3.00	0.0000	170.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			-2.00			Ice	3.19	2.05	0.10
						1" Ice	3.68	2.46	0.16
						2" Ice			
RRUS 32 B66	B	From Face	3.00	0.0000	170.00	No Ice	2.74	1.67	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			0.00			1/2"	2.96	1.86	0.07
			-2.00			Ice	3.19	2.05	0.10
						1" Ice	3.68	2.46	0.16
						2" Ice			
RRUS 32 B66	C	From Face	3.00	0.0000	170.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			-2.00			Ice	3.19	2.05	0.10
						1" Ice	3.68	2.46	0.16
						2" Ice			
(2) TPX-070821	B	From Face	3.00	0.0000	170.00	No Ice	0.47	0.10	0.01
			0.00			1/2"	0.56	0.15	0.01
			-2.00			Ice	0.66	0.20	0.02
						1" Ice	0.87	0.33	0.03
						2" Ice			
(2) TPX-070821	C	From Face	3.00	0.0000	170.00	No Ice	0.47	0.10	0.01
			0.00			1/2"	0.56	0.15	0.01
			-2.00			Ice	0.66	0.20	0.02
						1" Ice	0.87	0.33	0.03
						2" Ice			
DC6-48-60-18-8F	C	From Face	1.00	0.0000	170.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			-2.00			Ice	1.64	1.64	0.06
						1" Ice	2.04	2.04	0.11
						2" Ice			
DC6-48-60-18-8C	C	From Face	1.00	0.0000	170.00	No Ice	1.14	1.14	0.03
			0.00			1/2"	1.79	1.79	0.05
			-2.00			Ice	2.00	2.00	0.07
						1" Ice	2.45	2.45	0.13
						2" Ice			

Platform Mount [LP 305-1]	C	None		0.0000	157.00	No Ice	18.04	18.04	1.12
						1/2"	22.04	22.04	1.47
						Ice	26.06	26.06	1.88
						1" Ice	34.16	34.16	2.90
						2" Ice			
6'x2" Mount Pipe	A	From Leg	3.00	0.0000	157.00	No Ice	1.43	1.43	0.02
			6.00			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'x2" Mount Pipe	B	From Leg	3.00	0.0000	157.00	No Ice	1.43	1.43	0.02
			6.00			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'x2" Mount Pipe	C	From Leg	3.00	0.0000	157.00	No Ice	1.43	1.43	0.02
			6.00			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			
Ericsson Air 21 B4A B12P- B8P 4FT w/ Mount Pipe	A	From Leg	3.00	0.0000	157.00	No Ice	7.89	6.69	0.15
			-6.00			1/2"	8.37	7.54	0.21
			1.00			Ice	8.83	8.29	0.29
						1" Ice	9.79	9.82	0.47
						2" Ice			
Ericsson Air 21 B4A B12P- B8P 4FT w/ Mount Pipe	B	From Leg	3.00	0.0000	157.00	No Ice	7.89	6.69	0.15
			-6.00			1/2"	8.37	7.54	0.21
			1.00			Ice	8.83	8.29	0.29
						1" Ice	9.79	9.82	0.47
						2" Ice			
Ericsson Air 21 B4A B12P- B8P 4FT w/ Mount Pipe	C	From Leg	3.00	0.0000	157.00	No Ice	7.89	6.69	0.15
			-6.00			1/2"	8.37	7.54	0.21
			1.00			Ice	8.83	8.29	0.29
						1" Ice	9.79	9.82	0.47
						2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	3.00 -2.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	3.00 -2.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	3.00 -2.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
RRUS 11 B12	A	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.83 3.04 3.26 3.71	1.18 1.33 1.48 1.83	0.05 0.07 0.10 0.15
RRUS 11 B12	B	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.83 3.04 3.26 3.71	1.18 1.33 1.48 1.83	0.05 0.07 0.10 0.15
RRUS 11 B12	C	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.83 3.04 3.26 3.71	1.18 1.33 1.48 1.83	0.05 0.07 0.10 0.15
ATMAA1412D-1A20	A	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.00 1.13 1.26 1.55	0.41 0.50 0.59 0.81	0.01 0.02 0.03 0.06
ATMAA1412D-1A20	B	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.00 1.13 1.26 1.55	0.41 0.50 0.59 0.81	0.01 0.02 0.03 0.06
ATMAA1412D-1A20	C	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.00 1.13 1.26 1.55	0.41 0.50 0.59 0.81	0.01 0.02 0.03 0.06
*** Platform Mount [12' LP 1201-1]	C	None		0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	15.75 18.95 22.17 28.69	15.75 18.95 22.17 28.69	1.80 2.27 2.80 4.00
APXVSP18-C-A20 w/ Mount Pipe	A	From Face	3.00 -6.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSP18-C-A20 w/ Mount Pipe	B	From Face	3.00 -6.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSP18-C-A20 w/ Mount Pipe	C	From Face	3.00 -6.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42

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
APXVTM14-C-120 w/ Mount Pipe	A	From Face	3.00 6.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-C-120 w/ Mount Pipe	B	From Face	3.00 6.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-C-120 w/ Mount Pipe	C	From Face	3.00 6.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
800MHZ RRH	A	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51 2.92	1.77 1.95 2.13 2.51	0.05 0.07 0.10 0.16
800MHZ RRH	B	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51 2.92	1.77 1.95 2.13 2.51	0.05 0.07 0.10 0.16
800MHZ RRH	C	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51 2.92	1.77 1.95 2.13 2.51	0.05 0.07 0.10 0.16
800 EXTERNAL NOTCH FILTER	A	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87 1.11	0.32 0.40 0.48 0.67	0.01 0.02 0.02 0.04
800 EXTERNAL NOTCH FILTER	B	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87 1.11	0.32 0.40 0.48 0.67	0.01 0.02 0.02 0.04
800 EXTERNAL NOTCH FILTER	C	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87 1.11	0.32 0.40 0.48 0.67	0.01 0.02 0.02 0.04
1900MHz RRH (65MHz)	A	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
1900MHz RRH (65MHz)	B	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
1900MHz RRH (65MHz)	C	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
TD-RRH8x20-25	A	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.30	0.07 0.10 0.13 0.20

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
TD-RRH8x20-25	B	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.30	0.07 0.10 0.13 0.20
TD-RRH8x20-25	C	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.30	0.07 0.10 0.13 0.20
840 10054 w/ Mount Pipe	A	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	4.44 4.88 5.34 6.31	1.94 2.32 2.72 3.57	0.05 0.08 0.12 0.22
840 10054 w/ Mount Pipe	B	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	4.44 4.88 5.34 6.31	1.94 2.32 2.72 3.57	0.05 0.08 0.12 0.22
840 10054 w/ Mount Pipe	C	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	4.44 4.88 5.34 6.31	1.94 2.32 2.72 3.57	0.05 0.08 0.12 0.22
URAS-FLEXIBLE	A	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	1.55 1.70 1.87 2.22	0.68 0.80 0.92 1.19	0.03 0.04 0.06 0.09
URAS-FLEXIBLE	B	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	1.55 1.70 1.87 2.22	0.68 0.80 0.92 1.19	0.03 0.04 0.06 0.09
URAS-FLEXIBLE	C	From Face	3.00 0.00 0.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	1.55 1.70 1.87 2.22	0.68 0.80 0.92 1.19	0.03 0.04 0.06 0.09
Horizon Compact	A	From Face	3.00 0.00 4.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	0.72 0.83 0.94 1.19	0.37 0.45 0.54 0.74	0.01 0.02 0.03 0.05
Horizon Compact	B	From Face	3.00 0.00 4.00	0.0000	140.00	2" Ice No Ice 1/2" Ice 1" Ice	0.72 0.83 0.94 1.19	0.37 0.45 0.54 0.74	0.01 0.02 0.03 0.05
*** Platform Mount [LP 1201- 1_HR-1]	C	None		0.0000	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	26.39 31.40 36.20 45.40	26.39 31.40 36.20 45.40	2.36 3.06 3.86 5.76
Side Arm Mount [SO 102- 3]	A	None		0.0000	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.60 4.18 4.75 5.90	3.60 4.18 4.75 5.90	0.07 0.11 0.14 0.20
Site Pro 1 PRK-SFS-L Handrail Reinforcement Kit	A	From Face	4.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice	1.97 2.54 3.13	0.06 0.10 0.14	0.07 0.09 0.12

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
						1" Ice	4.35	0.26	0.20
						2" Ice			
Site Pro 1 PRK-SFS-L	B	From Face	4.00	0.0000	90.00	No Ice	1.97	0.06	0.07
Handrail Reinforcement Kit			0.00			1/2"	2.54	0.10	0.09
			0.00			Ice	3.13	0.14	0.12
						1" Ice	4.35	0.26	0.20
						2" Ice			
Site Pro 1 PRK-SFS-L	C	From Face	4.00	0.0000	90.00	No Ice	1.97	0.06	0.07
Handrail Reinforcement Kit			0.00			1/2"	2.54	0.10	0.09
			0.00			Ice	3.13	0.14	0.12
						1" Ice	4.35	0.26	0.20
						2" Ice			
GPS_A	A	From Face	4.00	0.0000	90.00	No Ice	0.26	0.26	0.00
			-7.00			1/2"	0.32	0.32	0.00
			0.00			Ice	0.39	0.39	0.01
						1" Ice	0.56	0.56	0.02
						2" Ice			
NHH-65B-R2B w/ Mount	A	From Face	4.00	0.0000	90.00	No Ice	4.09	3.29	0.07
Pipe			-7.00			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			
NHH-65B-R2B w/ Mount	B	From Face	4.00	0.0000	90.00	No Ice	4.09	3.29	0.07
Pipe			-7.00			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			
NHH-65B-R2B w/ Mount	C	From Face	4.00	0.0000	90.00	No Ice	4.09	3.29	0.07
Pipe			-7.00			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			
NHH-65B-R2B w/ Mount	A	From Face	4.00	0.0000	90.00	No Ice	4.09	3.29	0.07
Pipe			-2.50			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			
NHH-65B-R2B w/ Mount	B	From Face	4.00	0.0000	90.00	No Ice	4.09	3.29	0.07
Pipe			-2.50			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			
NHH-65B-R2B w/ Mount	C	From Face	4.00	0.0000	90.00	No Ice	4.09	3.29	0.07
Pipe			-2.50			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			
HBXX-6517DS-A2M w/	A	From Face	4.00	0.0000	90.00	No Ice	7.97	5.99	0.08
Mount Pipe			2.50			1/2"	8.73	6.72	0.14
			0.00			Ice	9.51	7.47	0.21
						1" Ice	11.11	9.02	0.40
						2" Ice			
HBXX-6517DS-A2M w/	B	From Face	4.00	0.0000	90.00	No Ice	7.97	5.99	0.08
Mount Pipe			2.50			1/2"	8.73	6.72	0.14
			0.00			Ice	9.51	7.47	0.21
						1" Ice	11.11	9.02	0.40
						2" Ice			
HBXX-6517DS-A2M w/	C	From Face	4.00	0.0000	90.00	No Ice	7.97	5.99	0.08
Mount Pipe			2.50			1/2"	8.73	6.72	0.14
			0.00			Ice	9.51	7.47	0.21
						1" Ice	11.11	9.02	0.40
						2" Ice			
BXA-70080-4BF-EDIN-0	A	From Face	4.00	0.0000	90.00	No Ice	3.81	3.97	0.03
w/ Mount Pipe			7.00			1/2"	4.17	4.58	0.07
			0.00			Ice	4.54	5.19	0.11

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
						1" Ice	5.31	6.46	0.22
						2" Ice			
BXA-70080-4BF-EDIN-0 w/ Mount Pipe	B	From Face	4.00	0.0000	90.00	No Ice	3.81	3.97	0.03
			7.00			1/2"	4.17	4.58	0.07
			0.00			Ice	4.54	5.19	0.11
						1" Ice	5.31	6.46	0.22
						2" Ice			
BXA-70080-4BF-EDIN-0 w/ Mount Pipe	C	From Face	4.00	0.0000	90.00	No Ice	3.81	3.97	0.03
			7.00			1/2"	4.17	4.58	0.07
			0.00			Ice	4.54	5.19	0.11
						1" Ice	5.31	6.46	0.22
						2" Ice			
RFV01U-D1A	A	From Face	4.00	0.0000	90.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			0.00			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
RFV01U-D1A	B	From Face	4.00	0.0000	90.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			0.00			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
RFV01U-D1A	C	From Face	4.00	0.0000	90.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			0.00			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
RFV01U-D2A	A	From Face	4.00	0.0000	90.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			0.00			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
RFV01U-D2A	B	From Face	4.00	0.0000	90.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			0.00			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
RFV01U-D2A	C	From Face	4.00	0.0000	90.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			0.00			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
DB-T1-6Z-8AB-0Z	A	From Face	4.00	0.0000	90.00	No Ice	4.80	2.00	0.04
			0.00			1/2"	5.07	2.19	0.08
			0.00			Ice	5.35	2.39	0.12
						1" Ice	5.93	2.81	0.21
						2" Ice			

Side Arm Mount [SO 701- 1]	A	From Face	0.00	0.0000	73.00	No Ice	0.85	1.67	0.07
			0.00			1/2"	1.14	2.34	0.08
			0.00			Ice	1.43	3.01	0.09
						1" Ice	2.01	4.35	0.12
						2" Ice			
GPS_A	A	From Face	3.00	0.0000	73.00	No Ice	0.26	0.26	0.00
			0.00			1/2"	0.32	0.32	0.00
			2.00			Ice	0.39	0.39	0.01
						1" Ice	0.56	0.56	0.02
						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 ft ²	Weight K
HPD2-4.7	A	Paraboloid w/Shroud (HP)	From Face	7.00 -2.00 0.00	75.0000		178.00	2.04	No Ice 1/2" Ice 1" Ice 2" Ice	3.27 3.55 3.82 4.36	0.03 0.05 0.06 0.10
HPD2-4.7	B	Paraboloid w/Shroud (HP)	From Face	7.00 -2.00 0.00	-24.0000		178.00	2.04	No Ice 1/2" Ice 1" Ice 2" Ice	3.27 3.55 3.82 4.36	0.03 0.05 0.06 0.10

VHLP2.5-10W	A	Paraboloid w/Shroud (HP)	From Leg	3.00 0.00 4.00	0.0000		140.00	2.92	No Ice 1/2" Ice 1" Ice 2" Ice	6.68 7.07 7.46 8.23	0.05 0.08 0.12 0.19
VHLP2.5-10W	B	Paraboloid w/Shroud (HP)	From Leg	3.00 0.00 4.00	0.0000		140.00	2.92	No Ice 1/2" Ice 1" Ice 2" Ice	6.68 7.07 7.46 8.23	0.05 0.08 0.12 0.19

Load Combinations

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

Comb. No.	Description
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	181.833 - 176.833	Pole	Max Tension	39	0.00	-0.00	0.00
			Max. Compression	26	-2.98	0.33	1.78
			Max. Mx	20	-0.31	20.79	-0.05
			Max. My	2	-0.29	-0.26	21.33
			Max. Vy	20	-2.59	20.79	-0.05
			Max. Vx	14	2.75	-0.07	-20.44
			Max. Torque	18			-2.69
L2	176.833 - 171.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-3.52	0.31	1.80
			Max. Mx	20	-0.54	34.57	-0.92
			Max. My	2	-0.53	-0.73	35.44
			Max. Vy	20	-2.92	34.57	-0.92
			Max. Vx	14	3.08	0.56	-34.99
			Max. Torque	18			-2.69
L3	171.833 - 166.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-15.01	0.11	1.70
			Max. Mx	20	-3.25	61.51	-1.83
			Max. My	14	-3.18	1.16	-62.83
			Max. Vy	20	-9.45	61.51	-1.83
			Max. Vx	14	9.63	1.16	-62.83
			Max. Torque	18			-2.73
L4	166.833 - 161.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-15.70	0.11	1.77
			Max. Mx	20	-3.64	109.67	-2.77
			Max. My	14	-3.57	1.88	-111.92
			Max. Vy	20	-9.82	109.67	-2.77
			Max. Vx	14	10.01	1.88	-111.92
			Max. Torque	18			-2.73
L5	161.833 - 156.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-23.18	0.11	1.85
			Max. Mx	20	-6.04	162.44	-3.71
			Max. My	14	-5.96	2.60	-165.62
			Max. Vy	20	-13.87	162.44	-3.71
			Max. Vx	14	14.07	2.60	-165.62
			Max. Torque	18			-2.73
L6	156.833 - 151.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.01	0.13	1.94
			Max. Mx	20	-6.57	232.79	-4.67
			Max. My	14	-6.49	3.32	-236.95
			Max. Vy	20	-14.27	232.79	-4.67
			Max. Vx	14	14.47	3.32	-236.95
			Max. Torque	18			-2.73

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L7	151.833 - 146.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.87	0.14	2.03
			Max. Mx	20	-7.14	305.15	-5.62
			Max. My	14	-7.05	4.05	-310.30
			Max. Vy	20	-14.68	305.15	-5.62
			Max. Vx	14	14.88	4.05	-310.30
L8	146.833 - 141.833	Pole	Max. Torque	18		-2.72	
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-26.16	-0.53	2.52
			Max. Mx	20	-7.75	380.79	-6.16
			Max. My	14	-7.66	4.36	-387.18
			Max. Vy	20	-15.75	380.79	-6.16
L9	141.833 - 136.833	Pole	Max. Vx	14	16.03	4.36	-387.18
			Max. Torque	8		2.95	
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.77	-0.34	2.92
			Max. Mx	20	-11.66	473.24	-6.15
			Max. My	14	-11.55	4.40	-480.84
L10	136.833 - 132.914	Pole	Max. Vy	20	-20.09	473.24	-6.15
			Max. Vx	14	20.36	4.40	-480.84
			Max. Torque	8		3.01	
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.81	-0.33	2.93
			Max. Mx	20	-11.70	476.58	-6.15
L11	132.914 - 131.667	Pole	Max. My	14	-11.59	4.40	-484.22
			Max. Vy	20	-20.10	476.58	-6.15
			Max. Vx	14	20.37	4.40	-484.22
			Max. Torque	8		3.01	
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.79	-0.03	3.19
L12	131.667 - 126.667	Pole	Max. Mx	20	-12.84	578.46	-6.16
			Max. My	14	-12.72	4.45	-587.52
			Max. Vy	20	-20.63	578.46	-6.16
			Max. Vx	14	20.95	4.45	-587.52
			Max. Torque	8		3.01	
			Max Tension	1	0.00	0.00	0.00
L13	126.667 - 121.667	Pole	Max. Compression	26	-40.25	0.28	3.47
			Max. Mx	20	-13.76	682.76	-6.17
			Max. My	14	-13.64	4.51	-693.43
			Max. Vy	20	-21.09	682.76	-6.17
			Max. Vx	14	21.45	4.51	-693.43
			Max. Torque	8		3.00	
L14	121.667 - 116.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.74	0.60	3.74
			Max. Mx	20	-14.72	789.37	-6.18
			Max. My	14	-14.60	4.56	-801.85
			Max. Vy	20	-21.56	789.37	-6.18
			Max. Vx	14	21.95	4.56	-801.85
L15	116.667 - 111.667	Pole	Max. Torque	8		3.00	
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.28	0.93	4.02
			Max. Mx	20	-15.71	898.33	-6.20
			Max. My	14	-15.59	4.62	-912.78
			Max. Vy	20	-22.03	898.33	-6.20
			Max. Vx	14	22.45	4.62	-912.78
			Max. Torque	8		3.00	
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.85	1.27	4.30
			Max. Mx	20	-16.73	1009.67	-6.21
			Max. My	14	-16.61	4.68	-1026.20

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L16	111.667 - 106.667	Pole	Max. Vy	20	-22.51	1009.67	-6.21
			Max. Vx	14	22.95	4.68	-1026.20
			Max. Torque	8			3.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.46	1.62	4.59
L17	106.667 - 101.667	Pole	Max. Mx	20	-17.79	1123.42	-6.22
			Max. My	14	-17.67	4.73	-1142.13
			Max. Vy	20	-22.99	1123.42	-6.22
			Max. Vx	14	23.45	4.73	-1142.13
			Max. Torque	8			2.99
L18	101.667 - 96.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.11	1.98	4.88
			Max. Mx	20	-18.87	1239.61	-6.22
			Max. My	14	-18.76	4.79	-1260.56
			Max. Vy	20	-23.48	1239.61	-6.22
L19	96.667 - 87.302	Pole	Max. Vx	14	23.96	4.79	-1260.56
			Max. Torque	8			2.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.80	2.35	5.17
			Max. Mx	20	-19.99	1358.25	-6.23
L20	87.302 - 86.302	Pole	Max. My	14	-19.88	4.85	-1381.49
			Max. Vy	20	-23.98	1358.25	-6.23
			Max. Vx	14	24.46	4.85	-1381.49
			Max. Torque	8			2.99
			Max Tension	1	0.00	0.00	0.00
L21	86.302 - 85	Pole	Max. Compression	26	-51.32	2.69	5.43
			Max. Mx	20	-21.00	1463.35	-6.23
			Max. My	14	-20.89	4.90	-1488.58
			Max. Vy	20	-24.41	1463.35	-6.23
			Max. Vx	14	24.89	4.90	-1488.58
L22	85 - 84.75	Pole	Max. Torque	8			2.98
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.00	4.38	6.32
			Max. Mx	20	-27.52	1629.95	-5.95
			Max. My	14	-27.40	5.00	-1657.48
L23	84.75 - 79.75	Pole	Max. Vy	20	-29.77	1629.95	-5.95
			Max. Vx	14	30.28	5.00	-1657.48
			Max. Torque	9			3.16
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.63	4.50	6.41
L24	79.75 - 75	Pole	Max. Mx	20	-27.94	1668.79	-5.88
			Max. My	14	-27.81	4.96	-1697.02
			Max. Vy	20	-29.90	1668.79	-5.88
			Max. Vx	14	30.51	4.96	-1697.02
			Max. Torque	9			3.16
L25		Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.75	4.53	6.43
			Max. Mx	20	-28.04	1676.26	-5.87
			Max. My	14	-27.91	4.95	-1704.64
			Max. Vy	20	-29.91	1676.26	-5.87
L26		Pole	Max. Vx	14	30.54	4.95	-1704.64
			Max. Torque	9			3.16
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.21	5.00	6.79
			Max. Mx	20	-29.67	1827.06	-5.63
L27		Pole	Max. My	14	-29.52	4.79	-1859.40
			Max. Vy	20	-30.40	1827.06	-5.63
			Max. Vx	14	31.41	4.79	-1859.40
			Max. Torque	9			3.15
			Max Tension	1	0.00	0.00	0.00
L28		Pole	Max. Compression	26	-72.80	5.45	7.13
			Max. Mx	20	-31.38	1973.37	-5.41
			Max. My	14	-31.23	4.63	-2010.51

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L25	75 - 74.75	Pole	Max. Vy	20	-31.21	1973.37	-5.41
			Max. Vx	14	32.28	4.63	-2010.51
			Max. Torque	9			3.15
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.99	5.48	7.15
			Max. Mx	20	-31.53	1981.18	-5.39
			Max. My	14	-31.38	4.62	-2018.58
			Max. Vy	20	-31.24	1981.18	-5.39
L26	74.75 - 74	Pole	Max. Vx	14	32.31	4.62	-2018.58
			Max. Torque	9			3.15
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.55	5.55	7.20
			Max. Mx	20	-31.92	2004.67	-5.36
			Max. My	14	-31.77	4.60	-2042.87
			Max. Vy	20	-31.40	2004.67	-5.36
			Max. Vx	14	32.48	4.60	-2042.87
L27	74 - 73.75	Pole	Max. Torque	9			3.15
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.71	5.57	7.22
			Max. Mx	20	-32.03	2012.53	-5.34
			Max. My	14	-31.87	4.59	-2050.99
			Max. Vy	20	-31.44	2012.53	-5.34
			Max. Vx	14	32.53	4.59	-2050.99
			Max. Torque	9			3.15
L28	73.75 - 68.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.61	6.36	7.75
			Max. Mx	20	-33.93	2171.39	-5.11
			Max. My	14	-33.76	4.60	-2216.10
			Max. Vy	20	-32.00	2171.39	-5.11
			Max. Vx	14	33.52	4.60	-2216.10
			Max. Torque	19			-3.26
			Max Tension	1	0.00	0.00	0.00
L29	68.75 - 63.75	Pole	Max. Compression	26	-79.20	6.89	8.13
			Max. Mx	20	-35.68	2332.51	-4.95
			Max. My	14	-35.49	4.52	-2385.68
			Max. Vy	20	-32.46	2332.51	-4.95
			Max. Vx	14	34.37	4.52	-2385.68
			Max. Torque	19			-3.26
			Max Tension	1	0.00	0.00	0.00
L30	63.75 - 58.75	Pole	Max. Compression	26	-81.82	7.43	8.52
			Max. Mx	20	-37.46	2495.92	-4.79
			Max. My	14	-37.27	4.45	-2559.49
			Max. Vy	20	-32.91	2495.92	-4.79
			Max. Vx	14	35.22	4.45	-2559.49
			Max. Torque	19			-3.25
			Max Tension	1	0.00	0.00	0.00
L31	58.75 - 53.75	Pole	Max. Compression	26	-84.46	7.96	8.90
			Max. Mx	20	-39.27	2661.59	-4.62
			Max. My	14	-39.08	4.37	-2737.51
			Max. Vy	20	-33.36	2661.59	-4.62
			Max. Vx	14	36.06	4.37	-2737.51
			Max. Torque	19			-3.25
			Max Tension	1	0.00	0.00	0.00
L32	53.75 - 49	Pole	Max. Compression	26	-87.01	8.47	9.26
			Max. Mx	20	-41.02	2821.01	-4.46
			Max. My	14	-40.83	4.30	-2910.48
			Max. Vy	20	-33.78	2821.01	-4.46
			Max. Vx	14	36.85	4.30	-2910.48
			Max. Torque	19			-3.25
			Max Tension	1	0.00	0.00	0.00
L33	49 - 42.698	Pole	Max. Compression	26	-87.04	8.48	9.27
			Max. Mx	20	-41.07	2823.54	-4.46
			Max. My	14	-40.88	4.30	-2913.24
			Max. Vy	20	-33.77	2823.54	-4.46
			Max. Vx	14	36.84	4.30	-2913.24
			Max. Torque	19			-3.25

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L34	42.698 - 41.698	Pole	Max. Torque	19			-3.25
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.59	9.26	9.81
			Max. Mx	20	-44.85	3070.69	-4.21
			Max. My	14	-44.68	4.19	-3182.37
			Max. Vy	20	-34.59	3070.69	-4.21
			Max. Vx	14	37.66	4.19	-3182.37
L35	41.698 - 36.698	Pole	Max. Torque	19			-3.25
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-94.93	9.80	10.19
			Max. Mx	20	-46.56	3244.68	-4.04
			Max. My	14	-46.41	4.11	-3371.53
			Max. Vy	20	-35.01	3244.68	-4.04
			Max. Vx	14	38.07	4.11	-3371.53
L36	36.698 - 31.698	Pole	Max. Torque	19			-3.25
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-97.31	10.33	10.56
			Max. Mx	20	-48.31	3420.71	-3.86
			Max. My	14	-48.17	4.04	-3562.72
			Max. Vy	20	-35.41	3420.71	-3.86
			Max. Vx	14	38.47	4.04	-3562.72
L37	31.698 - 26.698	Pole	Max. Torque	19			-3.25
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-99.72	10.84	10.91
			Max. Mx	20	-50.09	3598.72	-3.69
			Max. My	14	-49.97	3.97	-3755.85
			Max. Vy	20	-35.80	3598.72	-3.69
			Max. Vx	14	38.85	3.97	-3755.85
L38	26.698 - 21.698	Pole	Max. Torque	19			-3.25
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-102.15	11.33	11.24
			Max. Mx	20	-51.90	3778.63	-3.51
			Max. My	14	-51.81	3.89	-3950.84
			Max. Vy	20	-36.17	3778.63	-3.51
			Max. Vx	14	39.21	3.89	-3950.84
L39	21.698 - 16.698	Pole	Max. Torque	19			-3.25
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-104.61	11.82	11.56
			Max. Mx	20	-53.75	3960.34	-3.33
			Max. My	14	-53.68	3.82	-4147.57
			Max. Vy	20	-36.52	3960.34	-3.33
			Max. Vx	14	39.55	3.82	-4147.57
L40	16.698 - 11.698	Pole	Max. Torque	19			-3.24
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-107.07	12.28	11.87
			Max. Mx	20	-55.62	4143.71	-3.16
			Max. My	14	-55.57	3.75	-4345.93
			Max. Vy	20	-36.84	4143.71	-3.16
			Max. Vx	14	39.86	3.75	-4345.93
L41	11.698 - 6.698	Pole	Max. Torque	19			-3.24
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-109.31	12.30	11.90
			Max. Mx	20	-57.48	4328.60	-3.04
			Max. My	14	-57.45	3.57	-4545.91
			Max. Vy	20	-37.16	4328.60	-3.04
			Max. Vx	14	40.18	3.57	-4545.91
L42	6.698 - 1.698	Pole	Max. Torque	19			-3.24
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-111.54	12.34	11.92
			Max. Mx	20	-59.37	4515.11	-2.92

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L43	1.698 - 0	Pole	Max. My	14	-59.36	3.39	-4747.45
			Max. Vy	20	-37.49	4515.11	-2.92
			Max. Vx	14	40.49	3.39	-4747.45
			Max. Torque	19			-3.24
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-112.28	12.35	11.92
			Max. Mx	20	-60.01	4578.82	-2.88
			Max. My	14	-60.00	3.33	-4816.26
			Max. Vy	20	-37.62	4578.82	-2.88
			Max. Vx	14	40.62	3.33	-4816.26
			Max. Torque	19			-3.24

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	112.28	0.02	10.19
	Max. H _x	20	60.03	37.58	0.02
	Max. H _z	2	60.03	0.15	37.81
	Max. M _x	2	4613.99	0.15	37.81
	Max. M _z	8	4558.12	-37.47	0.04
	Max. Torsion	9	3.22	-37.47	0.04
	Min. Vert	19	45.03	32.50	-18.93
	Min. H _x	8	60.03	-37.47	0.04
	Min. H _z	14	60.03	-0.04	-40.58
	Min. M _x	14	-4816.26	-0.04	-40.58
	Min. M _z	20	-4578.82	37.58	0.02
	Min. Torsion	19	-3.24	32.50	-18.93

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	50.03	0.00	0.00	-1.71	1.68	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	60.03	-0.15	-37.81	-4613.99	19.36	-1.08
0.9 Dead+1.0 Wind 0 deg - No Ice	45.03	-0.15	-37.81	-4538.40	18.61	-1.08
1.2 Dead+1.0 Wind 30 deg - No Ice	60.03	18.69	-32.55	-3973.07	-2274.21	-1.83
0.9 Dead+1.0 Wind 30 deg - No Ice	45.03	18.69	-32.55	-3907.83	-2237.71	-1.83
1.2 Dead+1.0 Wind 60 deg - No Ice	60.03	34.68	-20.14	-2394.94	-4096.95	-3.01
0.9 Dead+1.0 Wind 60 deg - No Ice	45.03	34.68	-20.14	-2356.06	-4032.11	-3.02
1.2 Dead+1.0 Wind 90 deg - No Ice	60.03	37.47	-0.04	-14.74	-4558.12	-3.22
0.9 Dead+1.0 Wind 90 deg - No Ice	45.03	37.47	-0.04	-13.85	-4484.53	-3.22
1.2 Dead+1.0 Wind 120 deg - No Ice	60.03	32.39	18.99	2315.98	-3935.34	-1.65
0.9 Dead+1.0 Wind 120 deg - No Ice	45.03	32.39	18.99	2278.84	-3871.92	-1.65
1.2 Dead+1.0 Wind 150 deg - No Ice	60.03	18.67	32.76	4001.13	-2260.40	0.10
0.9 Dead+1.0 Wind 150 deg - No Ice	45.03	18.67	32.76	3936.49	-2224.30	0.10
1.2 Dead+1.0 Wind 180 deg	60.03	0.04	40.58	4816.26	3.33	1.19

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
- No Ice						
0.9 Dead+1.0 Wind 180 deg	45.03	0.04	40.58	4739.85	2.67	1.19
- No Ice						
1.2 Dead+1.0 Wind 210 deg	60.03	-18.69	32.77	4005.07	2279.32	2.10
- No Ice						
0.9 Dead+1.0 Wind 210 deg	45.03	-18.69	32.77	3940.33	2241.70	2.11
- No Ice						
1.2 Dead+1.0 Wind 240 deg	60.03	-32.50	18.93	2318.43	3960.66	3.24
- No Ice						
0.9 Dead+1.0 Wind 240 deg	45.03	-32.50	18.93	2281.07	3895.73	3.24
- No Ice						
1.2 Dead+1.0 Wind 270 deg	60.03	-37.58	-0.02	2.88	4578.82	3.13
- No Ice						
0.9 Dead+1.0 Wind 270 deg	45.03	-37.58	-0.02	3.22	4503.85	3.13
- No Ice						
1.2 Dead+1.0 Wind 300 deg	60.03	-34.75	-20.27	-2406.39	4108.87	1.93
- No Ice						
0.9 Dead+1.0 Wind 300 deg	45.03	-34.75	-20.27	-2367.43	4042.85	1.93
- No Ice						
1.2 Dead+1.0 Wind 330 deg	60.03	-18.75	-32.68	-3989.77	2278.62	0.35
- No Ice						
0.9 Dead+1.0 Wind 330 deg	45.03	-18.75	-32.68	-3924.28	2241.16	0.34
- No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	112.28	-0.00	-0.00	-11.92	12.35	0.00
1.2 Dead+1.0 Wind 0	112.28	-0.02	-10.19	-1392.31	15.20	-0.26
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 30	112.28	5.07	-8.82	-1207.41	-674.09	-0.51
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 60	112.28	8.83	-5.13	-706.93	-1179.03	-0.82
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 90	112.28	10.15	-0.01	-15.92	-1360.94	-0.87
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 120	112.28	8.78	5.12	682.84	-1173.93	-0.49
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 150	112.28	5.06	8.86	1190.17	-669.24	-0.04
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 180	112.28	-0.00	10.27	1378.23	13.86	0.29
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 210	112.28	-5.07	8.87	1191.77	699.42	0.57
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 240	112.28	-8.81	5.13	685.34	1204.38	0.87
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 270	112.28	-10.18	0.00	-9.52	1389.52	0.85
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 300	112.28	-8.84	-5.14	-707.89	1204.87	0.55
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330	112.28	-5.07	-8.84	-1210.46	697.34	0.14
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	50.03	-0.03	-8.20	-995.03	5.47	-0.24
Dead+Wind 30 deg - Service	50.03	4.06	-7.06	-856.96	-488.46	-0.41
Dead+Wind 60 deg - Service	50.03	7.52	-4.37	-517.20	-881.15	-0.68
Dead+Wind 90 deg - Service	50.03	8.13	-0.01	-4.52	-980.27	-0.72
Dead+Wind 120 deg - Service	50.03	7.03	4.12	497.39	-846.17	-0.37
Dead+Wind 150 deg - Service	50.03	4.05	7.11	860.33	-485.50	0.02
Dead+Wind 180 deg - Service	50.03	0.01	8.80	1036.15	2.02	0.27
Dead+Wind 210 deg - Service	50.03	-4.06	7.11	861.20	492.20	0.47
Dead+Wind 240 deg - Service	50.03	-7.05	4.11	497.93	854.27	0.73
Dead+Wind 270 deg - Service	50.03	-8.15	-0.01	-0.74	987.35	0.70
Dead+Wind 300 deg - Service	50.03	-7.54	-4.40	-519.67	886.32	0.43
Dead+Wind 330 deg - Service	50.03	-4.07	-7.09	-860.56	492.02	0.08

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	-50.03	0.00	0.00	50.03	0.00	0.000%
2	-0.15	-60.03	-37.81	0.15	60.03	37.81	0.000%
3	-0.15	-45.03	-37.81	0.15	45.03	37.81	0.000%
4	18.69	-60.03	-32.55	-18.69	60.03	32.55	0.000%
5	18.69	-45.03	-32.55	-18.69	45.03	32.55	0.000%
6	34.68	-60.03	-20.14	-34.68	60.03	20.14	0.000%
7	34.68	-45.03	-20.14	-34.68	45.03	20.14	0.000%
8	37.47	-60.03	-0.04	-37.47	60.03	0.04	0.000%
9	37.47	-45.03	-0.04	-37.47	45.03	0.04	0.000%
10	32.39	-60.03	18.99	-32.39	60.03	-18.99	0.000%
11	32.39	-45.03	18.99	-32.39	45.03	-18.99	0.000%
12	18.67	-60.03	32.76	-18.67	60.03	-32.76	0.000%
13	18.67	-45.03	32.76	-18.67	45.03	-32.76	0.000%
14	0.04	-60.03	40.58	-0.04	60.03	-40.58	0.000%
15	0.04	-45.03	40.58	-0.04	45.03	-40.58	0.000%
16	-18.69	-60.03	32.77	18.69	60.03	-32.77	0.000%
17	-18.69	-45.03	32.77	18.69	45.03	-32.77	0.000%
18	-32.50	-60.03	18.93	32.50	60.03	-18.93	0.000%
19	-32.50	-45.03	18.93	32.50	45.03	-18.93	0.000%
20	-37.58	-60.03	-0.02	37.58	60.03	0.02	0.000%
21	-37.58	-45.03	-0.02	37.58	45.03	0.02	0.000%
22	-34.75	-60.03	-20.27	34.75	60.03	20.27	0.000%
23	-34.75	-45.03	-20.27	34.75	45.03	20.27	0.000%
24	-18.75	-60.03	-32.68	18.75	60.03	32.68	0.000%
25	-18.75	-45.03	-32.68	18.75	45.03	32.68	0.000%
26	0.00	-112.28	0.00	0.00	112.28	0.00	0.000%
27	-0.02	-112.28	-10.19	0.02	112.28	10.19	0.000%
28	5.07	-112.28	-8.82	-5.07	112.28	8.82	0.000%
29	8.83	-112.28	-5.13	-8.83	112.28	5.13	0.000%
30	10.15	-112.28	-0.01	-10.15	112.28	0.01	0.000%
31	8.78	-112.28	5.12	-8.78	112.28	-5.12	0.000%
32	5.06	-112.28	8.86	-5.06	112.28	-8.86	0.000%
33	-0.00	-112.28	10.27	0.00	112.28	-10.27	0.000%
34	-5.07	-112.28	8.87	5.07	112.28	-8.87	0.000%
35	-8.81	-112.28	5.13	8.81	112.28	-5.13	0.000%
36	-10.18	-112.28	0.00	10.18	112.28	-0.00	0.000%
37	-8.84	-112.28	-5.14	8.84	112.28	5.14	0.000%
38	-5.07	-112.28	-8.84	5.07	112.28	8.84	0.000%
39	-0.03	-50.03	-8.20	0.03	50.03	8.20	0.000%
40	4.06	-50.03	-7.06	-4.06	50.03	7.06	0.000%
41	7.52	-50.03	-4.37	-7.52	50.03	4.37	0.000%
42	8.13	-50.03	-0.01	-8.13	50.03	0.01	0.000%
43	7.03	-50.03	4.12	-7.03	50.03	-4.12	0.000%
44	4.05	-50.03	7.11	-4.05	50.03	-7.11	0.000%
45	0.01	-50.03	8.80	-0.01	50.03	-8.80	0.000%
46	-4.06	-50.03	7.11	4.06	50.03	-7.11	0.000%
47	-7.05	-50.03	4.11	7.05	50.03	-4.11	0.000%
48	-8.15	-50.03	-0.01	8.15	50.03	0.01	0.000%
49	-7.54	-50.03	-4.40	7.54	50.03	4.40	0.000%
50	-4.07	-50.03	-7.09	4.07	50.03	7.09	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000513
2	Yes	6	0.00000001	0.00036139
3	Yes	6	0.00000001	0.00010316
4	Yes	7	0.00000001	0.00060809
5	Yes	7	0.00000001	0.00012487

6	Yes	7	0.00000001	0.00066024
7	Yes	7	0.00000001	0.00013602
8	Yes	6	0.00000001	0.00071608
9	Yes	6	0.00000001	0.00022389
10	Yes	7	0.00000001	0.00061180
11	Yes	7	0.00000001	0.00012574
12	Yes	7	0.00000001	0.00062344
13	Yes	7	0.00000001	0.00012895
14	Yes	6	0.00000001	0.00032595
15	Yes	6	0.00000001	0.00008994
16	Yes	7	0.00000001	0.00064071
17	Yes	7	0.00000001	0.00013255
18	Yes	7	0.00000001	0.00060140
19	Yes	7	0.00000001	0.00012219
20	Yes	6	0.00000001	0.00057311
21	Yes	6	0.00000001	0.00017812
22	Yes	7	0.00000001	0.00065634
23	Yes	7	0.00000001	0.00013476
24	Yes	7	0.00000001	0.00062141
25	Yes	7	0.00000001	0.00012815
26	Yes	6	0.00000001	0.00038462
27	Yes	9	0.00000001	0.00022918
28	Yes	9	0.00000001	0.00027541
29	Yes	9	0.00000001	0.00027800
30	Yes	9	0.00000001	0.00022429
31	Yes	9	0.00000001	0.00026918
32	Yes	9	0.00000001	0.00027043
33	Yes	9	0.00000001	0.00022580
34	Yes	9	0.00000001	0.00027758
35	Yes	9	0.00000001	0.00027511
36	Yes	9	0.00000001	0.00022800
37	Yes	9	0.00000001	0.00028187
38	Yes	9	0.00000001	0.00028019
39	Yes	5	0.00000001	0.00076645
40	Yes	6	0.00000001	0.00015650
41	Yes	6	0.00000001	0.00018364
42	Yes	5	0.00000001	0.00088344
43	Yes	6	0.00000001	0.00015590
44	Yes	6	0.00000001	0.00016113
45	Yes	5	0.00000001	0.00077906
46	Yes	6	0.00000001	0.00017328
47	Yes	6	0.00000001	0.00015566
48	Yes	5	0.00000001	0.00086934
49	Yes	6	0.00000001	0.00018053
50	Yes	6	0.00000001	0.00016187

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	181.833 - 176.833	43.470	45	2.2383	0.0173
L2	176.833 - 171.833	41.127	45	2.2347	0.0166
L3	171.833 - 166.833	38.798	45	2.2150	0.0139
L4	166.833 - 161.833	36.491	45	2.1892	0.0118
L5	161.833 - 156.833	34.220	45	2.1468	0.0100
L6	156.833 - 151.833	32.001	45	2.0910	0.0085
L7	151.833 - 146.833	29.846	45	2.0223	0.0073
L8	146.833 - 141.833	27.770	45	1.9429	0.0063
L9	141.833 -	25.780	45	1.8566	0.0054

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L10	136.833 136.833 - 132.914	23.884	45	1.7644	0.0046
L11	136.667 136.667 - 131.667	23.823	45	1.7612	0.0046
L12	131.667 131.667 - 126.667	22.001	45	1.7124	0.0042
L13	126.667 126.667 - 121.667	20.246	45	1.6384	0.0038
L14	121.667 121.667 - 116.667	18.570	45	1.5628	0.0033
L15	116.667 116.667 - 111.667	16.974	45	1.4863	0.0030
L16	111.667 111.667 - 106.667	15.458	45	1.4097	0.0027
L17	106.667 106.667 - 101.667	14.022	45	1.3334	0.0024
L18	101.667 - 96.667	12.665	45	1.2578	0.0022
L19	96.667 - 87.302	11.387	45	1.1833	0.0020
L20	92.323 - 86.302	10.340	45	1.1195	0.0018
L21	86.302 - 85	8.957	45	1.0666	0.0017
L22	85 - 84.75	8.669	45	1.0469	0.0016
L23	84.75 - 79.75	8.614	45	1.0431	0.0016
L24	79.75 - 75	7.562	45	0.9669	0.0014
L25	75 - 74.75	6.636	45	0.8953	0.0013
L26	74.75 - 74	6.589	45	0.8931	0.0013
L27	74 - 73.75	6.449	45	0.8867	0.0013
L28	73.75 - 68.75	6.403	45	0.8829	0.0013
L29	68.75 - 63.75	5.517	45	0.8087	0.0011
L30	63.75 - 58.75	4.709	45	0.7354	0.0010
L31	58.75 - 53.75	3.977	45	0.6631	0.0008
L32	53.75 - 49	3.320	45	0.5919	0.0007
L33	49 - 42.698	2.764	45	0.5254	0.0006
L34	48.925 - 41.698	2.756	45	0.5243	0.0006
L35	41.698 - 36.698	1.998	45	0.4713	0.0005
L36	36.698 - 31.698	1.537	45	0.4105	0.0004
L37	31.698 - 26.698	1.138	45	0.3508	0.0004
L38	26.698 - 21.698	0.801	45	0.2923	0.0003
L39	21.698 - 16.698	0.525	45	0.2350	0.0002
L40	16.698 - 11.698	0.309	45	0.1789	0.0002
L41	11.698 - 6.698	0.150	45	0.1239	0.0001
L42	6.698 - 1.698	0.049	45	0.0701	0.0001
L43	1.698 - 0	0.003	45	0.0174	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.00	HPD2-4.7	45	41.674	2.2368	0.0169	19736
170.00	Platform Mount [LP 601-1]	45	37.949	2.2066	0.0131	10252
157.00	Platform Mount [LP 305-1]	45	32.074	2.0931	0.0086	4593
144.00	VHLP2.5-10W	45	26.631	1.8947	0.0058	3303
140.00	Platform Mount [12' LP 1201-1]	45	25.074	1.8236	0.0051	3253
90.00	Platform Mount [LP 1201-1_HR-1]	45	9.797	1.1000	0.0018	5601
73.00	Side Arm Mount [SO 701-1]	45	6.265	0.8712	0.0012	4081

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	181.833 - 176.833	201.767	14	10.4233	0.0821
L2	176.833 - 171.833	190.914	14	10.4053	0.0790
L3	171.833 - 166.833	180.124	14	10.3107	0.0669
L4	166.833 - 161.833	169.443	14	10.1886	0.0568
L5	161.833 - 156.833	158.926	14	9.9903	0.0482
L6	156.833 - 151.833	148.647	14	9.7305	0.0411
L7	151.833 - 146.833	138.666	14	9.4111	0.0352
L8	146.833 - 141.833	129.041	14	9.0427	0.0307
L9	141.833 - 136.833	119.816	14	8.6417	0.0263
L10	136.833 - 132.914	111.020	14	8.2135	0.0220
L11	132.914 - 131.667	110.736	14	8.1987	0.0219
L12	131.667 - 126.667	102.281	14	7.9718	0.0201
L13	126.667 - 121.667	94.137	14	7.6280	0.0178
L14	121.667 - 116.667	86.355	14	7.2762	0.0158
L15	116.667 - 111.667	78.940	14	6.9205	0.0140
L16	111.667 - 106.667	71.896	14	6.5640	0.0126
L17	106.667 - 101.667	65.222	14	6.2092	0.0113
L18	101.667 - 96.667	58.916	14	5.8575	0.0101
L19	96.667 - 87.302	52.974	14	5.5105	0.0091
L20	92.323 - 86.302	48.103	14	5.2133	0.0083
L21	86.302 - 85	41.672	14	4.9670	0.0077
L22	85 - 84.75	40.332	14	4.8752	0.0074
L23	84.75 - 79.75	40.077	14	4.8574	0.0074
L24	79.75 - 75	35.182	14	4.5026	0.0065
L25	75 - 74.75	30.873	14	4.1689	0.0058
L26	74.75 - 74	30.656	14	4.1588	0.0058
L27	74 - 73.75	30.005	14	4.1287	0.0057
L28	73.75 - 68.75	29.790	14	4.1113	0.0057
L29	68.75 - 63.75	25.669	14	3.7653	0.0050
L30	63.75 - 58.75	21.908	14	3.4237	0.0043
L31	58.75 - 53.75	18.501	14	3.0871	0.0037
L32	53.75 - 49	15.444	14	2.7554	0.0032
L33	49 - 42.698	12.858	14	2.4452	0.0027
L34	48.925 - 41.698	12.820	14	2.4403	0.0027
L35	41.698 - 36.698	9.295	14	2.1934	0.0024
L36	36.698 - 31.698	7.147	14	1.9101	0.0020
L37	31.698 - 26.698	5.293	14	1.6322	0.0017
L38	26.698 - 21.698	3.727	14	1.3599	0.0013
L39	21.698 - 16.698	2.443	14	1.0931	0.0011
L40	16.698 - 11.698	1.436	14	0.8319	0.0008
L41	11.698 - 6.698	0.699	14	0.5762	0.0005
L42	6.698 - 1.698	0.227	14	0.3259	0.0003
L43	1.698 - 0	0.014	14	0.0811	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
178.00	HPD2-4.7	14	193.444	10.4158	0.0805	4868
170.00	Platform Mount [LP 601-1]	14	176.193	10.2706	0.0627	2453
157.00	Platform Mount [LP 305-1]	14	148.986	9.7401	0.0413	1056
144.00	VHLP2.5-10W	14	123.764	8.8186	0.0282	747
140.00	Platform Mount [12' LP 1201-1]	14	116.540	8.4888	0.0247	733
90.00	Platform Mount [LP 1201-1_HR-1]	14	45.580	5.1225	0.0081	1221
73.00	Side Arm Mount [SO 701-1]	14	29.148	4.0569	0.0056	884

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	KI/r	A	P _u	φP _n	Ratio P _u φP _n
	ft		ft	ft		in ²	K	K	
L1	181.833 - 176.833 (1)	TP15.6778x14.5x0.25	5.00	0.00	0.0	12.242 0	-0.29	716.15	0.000
L2	176.833 - 171.833 (2)	TP16.8556x15.6778x0.25	5.00	0.00	0.0	13.176 5	-0.52	770.83	0.001
L3	171.833 - 166.833 (3)	TP18.0334x16.8556x0.25	5.00	0.00	0.0	14.111 1	-3.20	825.50	0.004
L4	166.833 - 161.833 (4)	TP19.2112x18.0334x0.25	5.00	0.00	0.0	15.045 7	-3.58	880.17	0.004
L5	161.833 - 156.833 (5)	TP20.389x19.2112x0.25	5.00	0.00	0.0	15.980 3	-5.98	934.85	0.006
L6	156.833 - 151.833 (6)	TP21.5668x20.389x0.25	5.00	0.00	0.0	16.914 9	-6.51	989.52	0.007
L7	151.833 - 146.833 (7)	TP22.7446x21.5668x0.25	5.00	0.00	0.0	17.849 4	-7.08	1044.19	0.007
L8	146.833 - 141.833 (8)	TP23.9224x22.7446x0.25	5.00	0.00	0.0	18.784 0	-7.70	1098.86	0.007
L9	141.833 - 136.833 (9)	TP25.1001x23.9224x0.25	5.00	0.00	0.0	19.718 6	-11.60	1153.54	0.010
L10	136.833 - 132.914 (10)	TP26.0233x25.1001x0.25	3.92	0.00	0.0	19.749 6	-11.64	1155.35	0.010
L11	132.914 - 131.667 (11)	TP25.8062x24.6392x0.37	5.00	0.00	0.0	30.269 5	-12.78	1770.77	0.007
L12	131.667 - 126.667 (12)	TP26.9732x25.8062x0.37	5.00	0.00	0.0	31.658 5	-13.64	1852.02	0.007
L13	126.667 - 121.667 (13)	TP28.1401x26.9732x0.37	5.00	0.00	0.0	33.047 4	-14.60	1933.27	0.008
L14	121.667 - 116.667 (14)	TP29.3071x28.1401x0.37	5.00	0.00	0.0	34.436 4	-15.59	2014.53	0.008
L15	116.667 - 111.667 (15)	TP30.474x29.3071x0.375	5.00	0.00	0.0	35.825 4	-16.61	2095.78	0.008
L16	111.667 - 106.667 (16)	TP31.641x30.474x0.375	5.00	0.00	0.0	37.214 3	-17.67	2177.04	0.008
L17	106.667 - 101.667 (17)	TP32.8079x31.641x0.375	5.00	0.00	0.0	38.603 3	-18.76	2258.29	0.008
L18	101.667 - 96.667 (18)	TP33.9749x32.8079x0.37	5.00	0.00	0.0	39.992 3	-19.88	2339.55	0.008
L19	96.667 - 87.302 (19)	TP36.1606x33.9749x0.37	9.36	0.00	0.0	41.199 0	-20.89	2410.14	0.009
L20	87.302 - 86.302 (20)	TP35.642x34.2387x0.375	6.02	0.00	0.0	41.976 6	-27.40	2455.63	0.011
L21	86.302 - 85 (21)	TP35.9455x35.642x0.375	1.30	0.00	0.0	42.337 8	-27.81	2476.76	0.011
L22	85 - 84.75 (22)	TP36.0038x35.9455x0.37	0.25	0.00	0.0	42.407 1	-27.91	2480.82	0.011
L23	84.75 - 79.75 (23)	TP37.1691x36.0038x0.37	5.00	0.00	0.0	43.794 2	-29.52	2561.96	0.012

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L24	79.75 - 75 (24)	TP38.2762x37.1691x0.37 5	4.75	0.00	0.0	45.111 9	-31.23	2639.04	0.012
L25	75 - 74.75 (25)	TP38.3344x38.2762x0.66 25	0.25	0.00	0.0	79.215 6	-31.38	4634.11	0.007
L26	74.75 - 74 (26)	TP38.5092x38.3344x0.66 25	0.75	0.00	0.0	79.583 2	-31.77	4655.62	0.007
L27	74 - 73.75 (27)	TP38.5675x38.5092x0.37 5	0.25	0.00	0.0	45.458 6	-31.87	2659.33	0.012
L28	73.75 - 68.75 (28)	TP39.7328x38.5675x0.37 5	5.00	0.00	0.0	46.845 7	-33.76	2740.47	0.012
L29	68.75 - 63.75 (29)	TP40.8982x39.7328x0.37 5	5.00	0.00	0.0	48.232 7	-35.49	2821.61	0.013
L30	63.75 - 58.75 (30)	TP42.0635x40.8982x0.37 5	5.00	0.00	0.0	49.619 7	-37.27	2902.76	0.013
L31	58.75 - 53.75 (31)	TP43.2288x42.0635x0.37 5	5.00	0.00	0.0	51.006 8	-39.08	2983.90	0.013
L32	53.75 - 49 (32)	TP44.3359x43.2288x0.37 5	4.75	0.00	0.0	52.324 5	-40.83	3060.98	0.013
L33	49 - 42.698 (33)	TP45.8047x44.3359x0.37 5	6.30	0.00	0.0	52.345 3	-40.88	3062.20	0.013
L34	42.698 - 41.698 (34)	TP45.2869x43.6034x0.43 75	7.23	0.00	0.0	62.278 9	-44.68	3643.32	0.012
L35	41.698 - 36.698 (35)	TP46.4516x45.2869x0.43 75	5.00	0.00	0.0	63.896 3	-46.41	3737.93	0.012
L36	36.698 - 31.698 (36)	TP47.6163x46.4516x0.43 75	5.00	0.00	0.0	65.513 6	-48.17	3832.55	0.013
L37	31.698 - 26.698 (37)	TP48.781x47.6163x0.437 5	5.00	0.00	0.0	67.130 9	-49.97	3927.16	0.013
L38	26.698 - 21.698 (38)	TP49.9457x48.781x0.437 5	5.00	0.00	0.0	68.748 3	-51.81	4021.77	0.013
L39	21.698 - 16.698 (39)	TP51.1104x49.9457x0.43 75	5.00	0.00	0.0	70.365 6	-53.68	4116.39	0.013
L40	16.698 - 11.698 (40)	TP52.2751x51.1104x0.43 75	5.00	0.00	0.0	71.982 9	-55.57	4211.00	0.013
L41	11.698 - 6.698 (41)	TP53.4398x52.2751x0.43 75	5.00	0.00	0.0	73.600 3	-57.45	4305.62	0.013
L42	6.698 - 1.698 (42)	TP54.6045x53.4398x0.43 75	5.00	0.00	0.0	75.217 6	-59.36	4400.23	0.013
L43	1.698 - 0 (43)	TP55x54.6045x0.4375	1.70	0.00	0.0	75.766 9	-60.00	4432.36	0.014

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	181.833 - 176.833 (1)	TP15.6778x14.5x0.25	21.34	286.17	0.075	0.00	286.17	0.000
L2	176.833 - 171.833 (2)	TP16.8556x15.6778x0.25	35.49	331.91	0.107	0.00	331.91	0.000
L3	171.833 - 166.833 (3)	TP18.0334x16.8556x0.25	63.18	381.04	0.166	0.00	381.04	0.000
L4	166.833 - 161.833 (4)	TP19.2112x18.0334x0.25	112.41	433.55	0.259	0.00	433.55	0.000
L5	161.833 - 156.833 (5)	TP20.389x19.2112x0.25	166.25	489.46	0.340	0.00	489.46	0.000
L6	156.833 - 151.833 (6)	TP21.5668x20.389x0.25	237.69	548.75	0.433	0.00	548.75	0.000
L7	151.833 - 146.833 (7)	TP22.7446x21.5668x0.25	311.15	611.44	0.509	0.00	611.44	0.000
L8	146.833 - 141.833 (8)	TP23.9224x22.7446x0.25	387.88	677.52	0.573	0.00	677.52	0.000
L9	141.833 - 136.833 (9)	TP25.1001x23.9224x0.25	481.30	738.85	0.651	0.00	738.85	0.000
L10	136.833 -	TP26.0233x25.1001x0.25	484.67	740.90	0.654	0.00	740.90	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L11	132.914 (10)							
	132.914 - 131.667 (11)	TP25.8062x24.6392x0.375	587.58	1168.07	0.503	0.00	1168.07	0.000
L12	131.667 - 126.667 (12)	TP26.9732x25.8062x0.375	693.45	1278.53	0.542	0.00	1278.53	0.000
L13	126.667 - 121.667 (13)	TP28.1401x26.9732x0.375	801.87	1394.00	0.575	0.00	1394.00	0.000
L14	121.667 - 116.667 (14)	TP29.3071x28.1401x0.375	912.78	1514.46	0.603	0.00	1514.46	0.000
L15	116.667 - 111.667 (15)	TP30.474x29.3071x0.375	1026.21	1639.90	0.626	0.00	1639.90	0.000
L16	111.667 - 106.667 (16)	TP31.641x30.474x0.375	1142.14	1770.34	0.645	0.00	1770.34	0.000
L17	106.667 - 101.667 (17)	TP32.8079x31.641x0.375	1260.58	1905.77	0.661	0.00	1905.77	0.000
L18	101.667 - 96.667 (18)	TP33.9749x32.8079x0.375	1381.50	2046.19	0.675	0.00	2046.19	0.000
L19	96.667 - 87.302 (19)	TP36.1606x33.9749x0.375	1488.59	2172.24	0.685	0.00	2172.24	0.000
L20	87.302 - 86.302 (20)	TP35.642x34.2387x0.375	1657.48	2255.46	0.735	0.00	2255.46	0.000
L21	86.302 - 85 (21)	TP35.9455x35.642x0.375	1697.03	2294.64	0.740	0.00	2294.64	0.000
L22	85 - 84.75 (22)	TP36.0038x35.9455x0.375	1704.65	2302.21	0.740	0.00	2302.21	0.000
L23	84.75 - 79.75 (23)	TP37.1691x36.0038x0.375	1859.41	2437.26	0.763	0.00	2437.26	0.000
L24	79.75 - 75 (24)	TP38.2762x37.1691x0.375	2010.52	2567.60	0.783	0.00	2567.60	0.000
L25	75 - 74.75 (25)	TP38.3344x38.2762x0.6625	2018.58	4515.54	0.447	0.00	4515.54	0.000
L26	74.75 - 74 (26)	TP38.5092x38.3344x0.6625	2042.88	4557.91	0.448	0.00	4557.91	0.000
L27	74 - 73.75 (27)	TP38.5675x38.5092x0.375	2050.99	2602.26	0.788	0.00	2602.26	0.000
L28	73.75 - 68.75 (28)	TP39.7328x38.5675x0.375	2216.11	2742.37	0.808	0.00	2742.37	0.000
L29	68.75 - 63.75 (29)	TP40.8982x39.7328x0.375	2385.68	2884.72	0.827	0.00	2884.72	0.000
L30	63.75 - 58.75 (30)	TP42.0635x40.8982x0.375	2559.49	3029.20	0.845	0.00	3029.20	0.000
L31	58.75 - 53.75 (31)	TP43.2288x42.0635x0.375	2737.51	3175.70	0.862	0.00	3175.70	0.000
L32	53.75 - 49 (32)	TP44.3359x43.2288x0.375	2910.48	3316.63	0.878	0.00	3316.63	0.000
L33	49 - 42.698 (33)	TP45.8047x44.3359x0.375	2913.25	3318.87	0.878	0.00	3318.87	0.000
L34	42.698 - 41.698 (34)	TP45.2869x43.6034x0.4375	3182.37	4179.68	0.761	0.00	4179.68	0.000
L35	41.698 - 36.698 (35)	TP46.4516x45.2869x0.4375	3371.53	4370.72	0.771	0.00	4370.72	0.000
L36	36.698 - 31.698 (36)	TP47.6163x46.4516x0.4375	3562.72	4564.37	0.781	0.00	4564.37	0.000
L37	31.698 - 26.698 (37)	TP48.781x47.6163x0.4375	3755.85	4760.52	0.789	0.00	4760.52	0.000
L38	26.698 - 21.698 (38)	TP49.9457x48.781x0.4375	3950.83	4959.03	0.797	0.00	4959.03	0.000
L39	21.698 - 16.698 (39)	TP51.1104x49.9457x0.4375	4147.57	5159.82	0.804	0.00	5159.82	0.000
L40	16.698 - 11.698 (40)	TP52.2751x51.1104x0.4375	4345.93	5362.74	0.810	0.00	5362.74	0.000
L41	11.698 - 6.698 (41)	TP53.4398x52.2751x0.4375	4545.91	5567.69	0.816	0.00	5567.69	0.000
L42	6.698 - 1.698 (42)	TP54.6045x53.4398x0.4375	4747.46	5774.56	0.822	0.00	5774.56	0.000
L43	1.698 - 0 (43)	TP55x54.6045x0.4375	4816.26	5845.22	0.824	0.00	5845.22	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	181.833 - 176.833 (1)	TP15.6778x14.5x0.25	2.66	211.57	0.013	1.05	290.28	0.004
L2	176.833 - 171.833 (2)	TP16.8556x15.6778x0.25	3.01	231.25	0.013	1.86	336.29	0.006
L3	171.833 - 166.833 (3)	TP18.0334x16.8556x0.25	9.66	247.65	0.039	2.18	385.69	0.006
L4	166.833 - 161.833 (4)	TP19.2112x18.0334x0.25	10.04	264.05	0.038	2.18	438.46	0.005
L5	161.833 - 156.833 (5)	TP20.389x19.2112x0.25	14.09	280.45	0.050	2.18	494.63	0.004
L6	156.833 - 151.833 (6)	TP21.5668x20.389x0.25	14.49	296.86	0.049	2.18	554.17	0.004
L7	151.833 - 146.833 (7)	TP22.7446x21.5668x0.25	14.90	313.26	0.048	2.17	617.11	0.004
L8	146.833 - 141.833 (8)	TP23.9224x22.7446x0.25	15.97	329.66	0.048	1.46	683.42	0.002
L9	141.833 - 136.833 (9)	TP25.1001x23.9224x0.25	20.31	346.06	0.059	1.49	753.12	0.002
L10	136.833 - 132.914 (10)	TP26.0233x25.1001x0.25	20.32	346.61	0.059	1.49	755.49	0.002
L11	132.914 - 131.667 (11)	TP25.8062x24.6392x0.37 5	20.85	531.23	0.039	1.49	1183.13	0.001
L12	131.667 - 126.667 (12)	TP26.9732x25.8062x0.37 5	21.45	555.61	0.039	0.61	1294.19	0.000
L13	126.667 - 121.667 (13)	TP28.1401x26.9732x0.37 5	21.95	579.98	0.038	0.61	1410.24	0.000
L14	121.667 - 116.667 (14)	TP29.3071x28.1401x0.37 5	22.45	604.36	0.037	0.60	1531.28	0.000
L15	116.667 - 111.667 (15)	TP30.474x29.3071x0.375	22.95	628.74	0.037	0.60	1657.30	0.000
L16	111.667 - 106.667 (16)	TP31.641x30.474x0.375	23.45	653.11	0.036	0.60	1788.30	0.000
L17	106.667 - 101.667 (17)	TP32.8079x31.641x0.375	23.96	677.49	0.035	0.60	1924.28	0.000
L18	101.667 - 96.667 (18)	TP33.9749x32.8079x0.37 5	24.46	701.86	0.035	0.60	2065.24	0.000
L19	96.667 - 87.302 (19)	TP36.1606x33.9749x0.37 5	24.89	717.75	0.035	0.60	2191.76	0.000
L20	87.302 - 86.302 (20)	TP35.642x34.2387x0.375	30.28	731.82	0.041	1.04	2275.28	0.000
L21	86.302 - 85 (21)	TP35.9455x35.642x0.375	30.51	736.69	0.041	1.04	2314.59	0.000
L22	85 - 84.75 (22)	TP36.0038x35.9455x0.37 5	30.54	743.03	0.041	1.04	2322.18	0.000
L23	84.75 - 79.75 (23)	TP37.1691x36.0038x0.37 5	31.41	763.72	0.041	1.04	2476.57	0.000
L24	79.75 - 75 (24)	TP38.2762x37.1691x0.37 5	32.28	785.93	0.041	1.04	2627.85	0.000
L25	75 - 74.75 (25)	TP38.3344x38.2762x0.66 25	32.31	1388.08	0.023	1.04	4586.54	0.000
L26	74.75 - 74 (26)	TP38.5092x38.3344x0.66 25	32.48	1390.23	0.023	1.04	4629.21	0.000
L27	74 - 73.75 (27)	TP38.5675x38.5092x0.37 5	32.53	796.58	0.041	1.04	2668.40	0.000
L28	73.75 - 68.75 (28)	TP39.7328x38.5675x0.37 5	33.52	817.27	0.041	1.19	2833.72	0.000
L29	68.75 - 63.75 (29)	TP40.8982x39.7328x0.37 5	34.37	841.62	0.041	1.19	3004.02	0.000
L30	63.75 - 58.75 (30)	TP42.0635x40.8982x0.37 5	35.22	865.96	0.041	1.19	3179.28	0.000
L31	58.75 - 53.75 (31)	TP43.2288x42.0635x0.37 5	36.06	890.30	0.040	1.19	3359.50	0.000
L32	53.75 - 49 (32)	TP44.3359x43.2288x0.37 5	36.85	912.51	0.040	1.19	3535.32	0.000
L33	49 - 42.698	TP45.8047x44.3359x0.37	36.84	918.29	0.040	1.19	3538.13	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	(33)	5						
L34	42.698 - 41.698 (34)	TP45.2869x43.6034x0.43 75	37.66	1087.32	0.035	1.19	4292.93	0.000
L35	41.698 - 36.698 (35)	TP46.4516x45.2869x0.43 75	38.07	1115.70	0.034	1.19	4518.80	0.000
L36	36.698 - 31.698 (36)	TP47.6163x46.4516x0.43 75	38.47	1144.09	0.034	1.19	4750.45	0.000
L37	31.698 - 26.698 (37)	TP48.781x47.6163x0.437 5	38.85	1172.47	0.033	1.19	4987.90	0.000
L38	26.698 - 21.698 (38)	TP49.9457x48.781x0.437 5	39.21	1200.86	0.033	1.19	5231.13	0.000
L39	21.698 - 16.698 (39)	TP51.1104x49.9457x0.43 75	39.55	1229.24	0.032	1.19	5480.16	0.000
L40	16.698 - 11.698 (40)	TP52.2751x51.1104x0.43 75	39.86	1257.62	0.032	1.19	5734.97	0.000
L41	11.698 - 6.698 (41)	TP53.4398x52.2751x0.43 75	40.18	1286.01	0.031	1.19	5995.57	0.000
L42	6.698 - 1.698 (42)	TP54.6045x53.4398x0.43 75	40.49	1314.39	0.031	1.19	6261.97	0.000
L43	1.698 - 0 (43)	TP55x54.6045x0.4375	40.62	1320.07	0.031	1.19	6353.76	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	181.833 - 176.833 (1)	0.000	0.075	0.000	0.013	0.004	0.075	1.050	4.8.2
L2	176.833 - 171.833 (2)	0.001	0.107	0.000	0.013	0.006	0.108	1.050	4.8.2
L3	171.833 - 166.833 (3)	0.004	0.166	0.000	0.039	0.006	0.172	1.050	4.8.2
L4	166.833 - 161.833 (4)	0.004	0.259	0.000	0.038	0.005	0.265	1.050	4.8.2
L5	161.833 - 156.833 (5)	0.006	0.340	0.000	0.050	0.004	0.349	1.050	4.8.2
L6	156.833 - 151.833 (6)	0.007	0.433	0.000	0.049	0.004	0.443	1.050	4.8.2
L7	151.833 - 146.833 (7)	0.007	0.509	0.000	0.048	0.004	0.518	1.050	4.8.2
L8	146.833 - 141.833 (8)	0.007	0.573	0.000	0.048	0.002	0.582	1.050	4.8.2
L9	141.833 - 136.833 (9)	0.010	0.651	0.000	0.059	0.002	0.665	1.050	4.8.2
L10	136.833 - 132.914 (10)	0.010	0.654	0.000	0.059	0.002	0.668	1.050	4.8.2
L11	132.914 - 131.667 (11)	0.007	0.503	0.000	0.039	0.001	0.512	1.050	4.8.2
L12	131.667 - 126.667 (12)	0.007	0.542	0.000	0.039	0.000	0.551	1.050	4.8.2
L13	126.667 - 121.667 (13)	0.008	0.575	0.000	0.038	0.000	0.584	1.050	4.8.2
L14	121.667 - 116.667 (14)	0.008	0.603	0.000	0.037	0.000	0.612	1.050	4.8.2
L15	116.667 - 111.667 (15)	0.008	0.626	0.000	0.037	0.000	0.635	1.050	4.8.2
L16	111.667 - 106.667 (16)	0.008	0.645	0.000	0.036	0.000	0.655	1.050	4.8.2
L17	106.667 - 101.667 (17)	0.008	0.661	0.000	0.035	0.000	0.671	1.050	4.8.2
L18	101.667 - 96.667 (18)	0.008	0.675	0.000	0.035	0.000	0.685	1.050	4.8.2
L19	96.667 -	0.009	0.685	0.000	0.035	0.000	0.695	1.050	4.8.2

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
L20	87.302 (19)								
L21	87.302 - 86.302 (20)	0.011	0.735	0.000	0.041	0.000	0.748	1.050	4.8.2
L22	86.302 - 85 (21)	0.011	0.740	0.000	0.041	0.000	0.753	1.050	4.8.2
L23	85 - 84.75 (22)	0.011	0.740	0.000	0.041	0.000	0.753	1.050	4.8.2
L24	84.75 - 79.75 (23)	0.012	0.763	0.000	0.041	0.000	0.776	1.050	4.8.2
L25	79.75 - 75 (24)	0.012	0.783	0.000	0.041	0.000	0.797	1.050	4.8.2
L26	75 - 74.75 (25)	0.007	0.447	0.000	0.023	0.000	0.454	1.050	4.8.2
L27	74.75 - 74 (26)	0.007	0.448	0.000	0.023	0.000	0.456	1.050	4.8.2
L28	74 - 73.75 (27)	0.012	0.788	0.000	0.041	0.000	0.802	1.050	4.8.2
L29	73.75 - 68.75 (28)	0.012	0.808	0.000	0.041	0.000	0.822	1.050	4.8.2
L30	68.75 - 63.75 (29)	0.013	0.827	0.000	0.041	0.000	0.841	1.050	4.8.2
L31	63.75 - 58.75 (30)	0.013	0.845	0.000	0.041	0.000	0.859	1.050	4.8.2
L32	58.75 - 53.75 (31)	0.013	0.862	0.000	0.040	0.000	0.877	1.050	4.8.2
L33	53.75 - 49 (32)	0.013	0.878	0.000	0.040	0.000	0.893	1.050	4.8.2
L34	49 - 42.698 (33)	0.013	0.878	0.000	0.040	0.000	0.893	1.050	4.8.2
L35	42.698 - 41.698 (34)	0.012	0.761	0.000	0.035	0.000	0.775	1.050	4.8.2
L36	41.698 - 36.698 (35)	0.012	0.771	0.000	0.034	0.000	0.785	1.050	4.8.2
L37	36.698 - 31.698 (36)	0.013	0.781	0.000	0.034	0.000	0.794	1.050	4.8.2
L38	31.698 - 26.698 (37)	0.013	0.789	0.000	0.033	0.000	0.803	1.050	4.8.2
L39	26.698 - 21.698 (38)	0.013	0.797	0.000	0.033	0.000	0.811	1.050	4.8.2
L40	21.698 - 16.698 (39)	0.013	0.804	0.000	0.032	0.000	0.818	1.050	4.8.2
L41	16.698 - 11.698 (40)	0.013	0.810	0.000	0.032	0.000	0.825	1.050	4.8.2
L42	11.698 - 6.698 (41)	0.013	0.816	0.000	0.031	0.000	0.831	1.050	4.8.2
L43	6.698 - 1.698 (42)	0.013	0.822	0.000	0.031	0.000	0.837	1.050	4.8.2
L43	1.698 - 0 (43)	0.014	0.824	0.000	0.031	0.000	0.838	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	181.833 - 176.833	Pole	TP15.6778x14.5x0.25	1	-0.29	751.96	7.2	Pass
L2	176.833 - 171.833	Pole	TP16.8556x15.6778x0.25	2	-0.52	809.37	10.3	Pass
L3	171.833 - 166.833	Pole	TP18.0334x16.8556x0.25	3	-3.20	866.77	16.3	Pass
L4	166.833 - 161.833	Pole	TP19.2112x18.0334x0.25	4	-3.58	924.18	25.3	Pass
L5	161.833 -	Pole	TP20.389x19.2112x0.25	5	-5.98	981.59	33.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L6	156.833	Pole	TP21.5668x20.389x0.25	6	-6.51	1038.99	42.1	Pass
L7	156.833 - 151.833	Pole	TP22.7446x21.5668x0.25	7	-7.08	1096.40	49.4	Pass
L8	151.833 - 146.833	Pole	TP23.9224x22.7446x0.25	8	-7.70	1153.80	55.4	Pass
L9	146.833 - 141.833	Pole	TP25.1001x23.9224x0.25	9	-11.60	1211.22	63.3	Pass
L10	141.833 - 136.833	Pole	TP26.0233x25.1001x0.25	10	-11.64	1213.12	63.6	Pass
L11	136.833 - 132.914	Pole	TP25.8062x24.6392x0.375	11	-12.78	1859.31	48.8	Pass
L12	132.914 - 131.667	Pole	TP26.9732x25.8062x0.375	12	-13.64	1944.62	52.5	Pass
L13	131.667 - 126.667	Pole	TP28.1401x26.9732x0.375	13	-14.60	2029.93	55.6	Pass
L14	126.667 - 121.667	Pole	TP29.3071x28.1401x0.375	14	-15.59	2115.26	58.3	Pass
L15	121.667 - 116.667	Pole	TP30.474x29.3071x0.375	15	-16.61	2200.57	60.5	Pass
L16	116.667 - 111.667	Pole	TP31.641x30.474x0.375	16	-17.67	2285.89	62.3	Pass
L17	111.667 - 106.667	Pole	TP32.8079x31.641x0.375	17	-18.76	2371.20	63.9	Pass
L18	106.667 - 101.667	Pole	TP33.9749x32.8079x0.375	18	-19.88	2456.53	65.2	Pass
L19	101.667 - 96.667	Pole	TP36.1606x33.9749x0.375	19	-20.89	2530.65	66.2	Pass
L20	96.667 - 87.302	Pole	TP35.642x34.2387x0.375	20	-27.40	2578.41	71.2	Pass
L21	87.302 - 86.302	Pole	TP35.9455x35.642x0.375	21	-27.81	2600.60	71.7	Pass
L22	86.302 - 85	Pole	TP36.0038x35.9455x0.375	22	-27.91	2604.86	71.8	Pass
L23	85 - 84.75	Pole	TP37.1691x36.0038x0.375	23	-29.52	2690.06	73.9	Pass
L24	84.75 - 79.75	Pole	TP38.2762x37.1691x0.375	24	-31.23	2770.99	75.9	Pass
L25	79.75 - 75	Pole	TP38.3344x38.2762x0.6625	25	-31.38	4865.82	43.3	Pass
L26	75 - 74.75	Pole	TP38.5092x38.3344x0.6625	26	-31.77	4888.40	43.4	Pass
L27	74.75 - 74	Pole	TP38.5675x38.5092x0.375	27	-31.87	2792.30	76.4	Pass
L28	74 - 73.75	Pole	TP39.7328x38.5675x0.375	28	-33.76	2877.49	78.3	Pass
L29	73.75 - 68.75	Pole	TP40.8982x39.7328x0.375	29	-35.49	2962.69	80.1	Pass
L30	68.75 - 63.75	Pole	TP42.0635x40.8982x0.375	30	-37.27	3047.90	81.9	Pass
L31	63.75 - 58.75	Pole	TP43.2288x42.0635x0.375	31	-39.08	3133.09	83.5	Pass
L32	58.75 - 53.75	Pole	TP44.3359x43.2288x0.375	32	-40.83	3214.03	85.0	Pass
L33	53.75 - 49	Pole	TP45.8047x44.3359x0.375	33	-40.88	3215.31	85.0	Pass
L34	49 - 42.698	Pole	TP45.2869x43.6034x0.4375	34	-44.68	3825.49	73.8	Pass
L35	42.698 - 41.698	Pole	TP46.4516x45.2869x0.4375	35	-46.41	3924.83	74.8	Pass
L36	41.698 - 36.698	Pole	TP47.6163x46.4516x0.4375	36	-48.17	4024.18	75.6	Pass
L37	36.698 - 31.698	Pole	TP48.781x47.6163x0.4375	37	-49.97	4123.52	76.5	Pass
L38	31.698 - 26.698	Pole	TP49.9457x48.781x0.4375	38	-51.81	4222.86	77.2	Pass
L39	26.698 - 21.698	Pole	TP51.1104x49.9457x0.4375	39	-53.68	4322.21	77.9	Pass
L40	21.698 - 16.698	Pole	TP52.2751x51.1104x0.4375	40	-55.57	4421.55	78.5	Pass
L41	16.698 - 11.698	Pole	TP53.4398x52.2751x0.4375	41	-57.45	4520.90	79.1	Pass
L42	11.698 - 6.698	Pole	TP54.6045x53.4398x0.4375	42	-59.36	4620.24	79.7	Pass
L43	6.698 - 1.698	Pole	TP55x54.6045x0.4375	43	-60.00	4653.98	79.9	Pass
							Summary	
							Pole (L33)	Pass
							RATING =	Pass

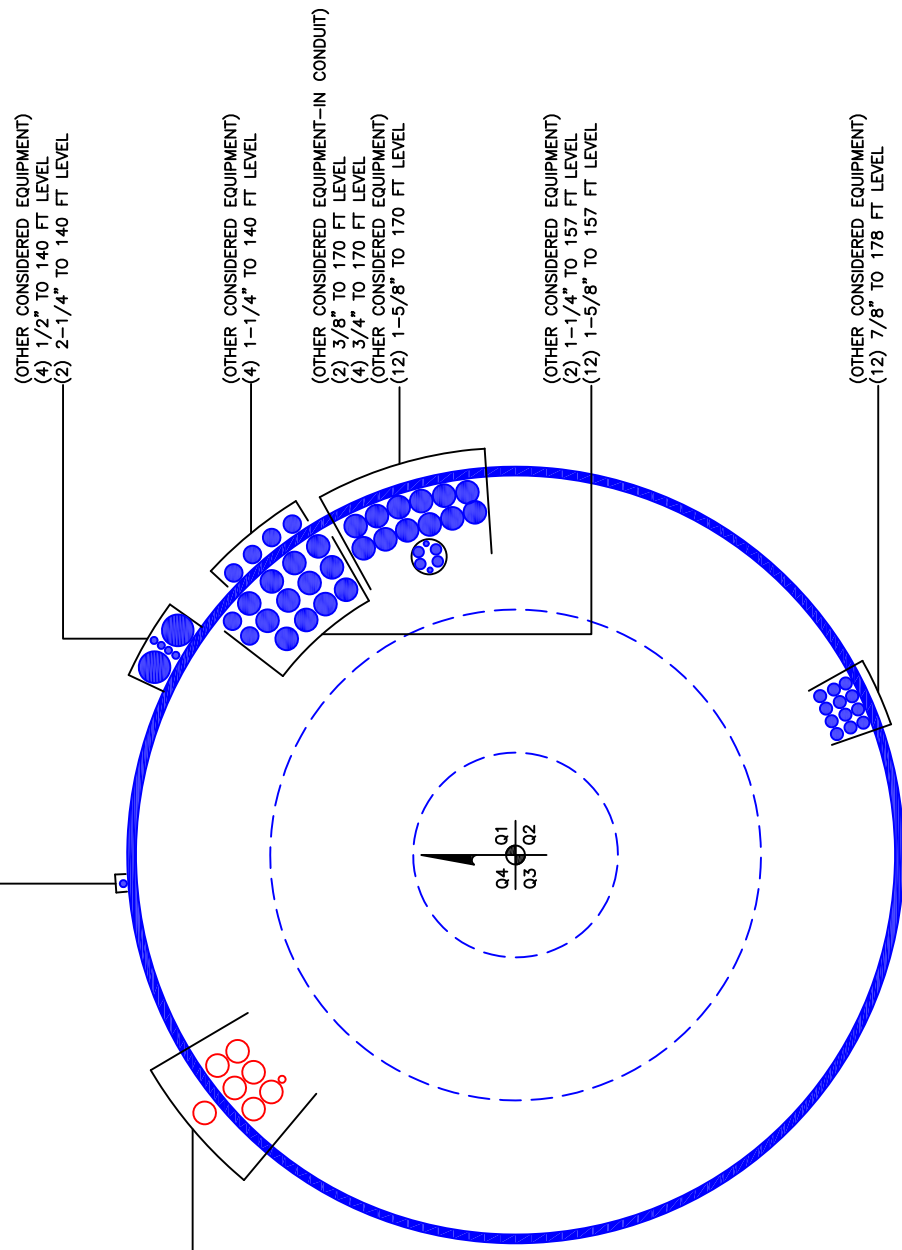
*NOTE: Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix C.

APPENDIX B
BASE LEVEL DRAWING



(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 73 FT LEVEL

(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1/2" TO 90 FT LEVEL
(7) 1-5/8" TO 90 FT LEVEL



APPENDIX C

ADDITIONAL CALCULATIONS

Site BU: 842872
Work Order: 1815525

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Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	181.833	48.919	3.753	18	14.5	26.0233	0.25	Auto	A572-65
2	136.667	49.365	5.021	18	24.64	36.1606	0.375	Auto	A572-65
3	92.323	49.625	6.227	18	34.24	45.8047	0.375	Auto	A572-65
4	48.925	48.925	0	18	43.60	55	0.4375	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	74	85	plate	PL 1x5.75	3				E						E						E		
2	49	75	plate	PL 1x5.75	3		E							E						E			
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L _u (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	5.75	1	5.75	0.5	24.000	24.000	14.000	4.438	1.2500	A572-65
2	5.75	1	5.75	0.5	24.000	24.000	14.000	4.438	1.2500	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	181.833 - 176.833	5		18	14.500	15.678	0.25	A572-65	1.000
2	176.833 - 171.833	5		18	15.678	16.856	0.25	A572-65	1.000
3	171.833 - 166.833	5		18	16.856	18.033	0.25	A572-65	1.000
4	166.833 - 161.833	5		18	18.033	19.211	0.25	A572-65	1.000
5	161.833 - 156.833	5		18	19.211	20.389	0.25	A572-65	1.000
6	156.833 - 151.833	5		18	20.389	21.567	0.25	A572-65	1.000
7	151.833 - 146.833	5		18	21.567	22.745	0.25	A572-65	1.000
8	146.833 - 141.833	5		18	22.745	23.922	0.25	A572-65	1.000
9	141.833 - 136.833	5		18	23.922	25.100	0.25	A572-65	1.000
10	136.833 - 136.667	3.919	3.753	18	25.100	26.023	0.25	A572-65	1.000
11	136.667 - 131.667	5		18	24.639	25.806	0.375	A572-65	1.000
12	131.667 - 126.667	5		18	25.806	26.973	0.375	A572-65	1.000
13	126.667 - 121.667	5		18	26.973	28.140	0.375	A572-65	1.000
14	121.667 - 116.667	5		18	28.140	29.307	0.375	A572-65	1.000
15	116.667 - 111.667	5		18	29.307	30.474	0.375	A572-65	1.000
16	111.667 - 106.667	5		18	30.474	31.641	0.375	A572-65	1.000
17	106.667 - 101.667	5		18	31.641	32.808	0.375	A572-65	1.000
18	101.667 - 96.667	5		18	32.808	33.975	0.375	A572-65	1.000
19	96.667 - 92.323	9.365	5.021	18	33.975	36.161	0.375	A572-65	1.000
20	92.323 - 86.302	6.021		18	34.239	35.642	0.375	A572-65	1.000
21	86.302 - 85	1.302		18	35.642	35.945	0.375	A572-65	1.000
22	85 - 84.75	0.25		18	35.945	36.004	0.375	A572-65	1.000
23	84.75 - 79.75	5		18	36.004	37.169	0.375	A572-65	1.000
24	79.75 - 75	4.75		18	37.169	38.276	0.375	A572-65	1.000
25	75 - 74.75	0.25		18	38.276	38.334	0.6625	A572-65	1.006
26	74.75 - 74	0.75		18	38.334	38.509	0.6625	A572-65	1.004
27	74 - 73.75	0.25		18	38.509	38.567	0.375	A572-65	1.000
28	73.75 - 68.75	5		18	38.567	39.733	0.375	A572-65	1.000
29	68.75 - 63.75	5		18	39.733	40.898	0.375	A572-65	1.000
30	63.75 - 58.75	5		18	40.898	42.064	0.375	A572-65	1.000
31	58.75 - 53.75	5		18	42.064	43.229	0.375	A572-65	1.000
32	53.75 - 49	4.75		18	43.229	44.336	0.375	A572-65	1.000
33	49 - 48.925	6.302	6.227	18	44.336	45.805	0.375	A572-65	1.000
34	48.925 - 41.698	7.227		18	43.603	45.287	0.4375	A572-65	1.000
35	41.698 - 36.698	5		18	45.287	46.452	0.4375	A572-65	1.000
36	36.698 - 31.698	5		18	46.452	47.616	0.4375	A572-65	1.000
37	31.698 - 26.698	5		18	47.616	48.781	0.4375	A572-65	1.000
38	26.698 - 21.698	5		18	48.781	49.946	0.4375	A572-65	1.000
39	21.698 - 16.698	5		18	49.946	51.110	0.4375	A572-65	1.000
40	16.698 - 11.698	5		18	51.110	52.275	0.4375	A572-65	1.000
41	11.698 - 6.698	5		18	52.275	53.440	0.4375	A572-65	1.000
42	6.698 - 1.698	5		18	53.440	54.604	0.4375	A572-65	1.000
43	1.698 - 0	1.698		18	54.604	55.000	0.4375	A572-65	1.000

TNX Section Forces

Increment (ft):		TNX Output			
	5				
	Section Height (ft)	P _u (K)	M _{ux} (kip-ft)	V _u (K)	
1	181.833 - 176.833	0.76	21.41	2.57	
2	176.833 - 171.833	0.52	35.49	3.01	
3	171.833 - 166.833	3.20	63.18	9.66	
4	166.833 - 161.833	3.58	112.41	10.04	
5	161.833 - 156.833	5.98	166.25	14.09	
6	156.833 - 151.833	6.51	237.69	14.49	
7	151.833 - 146.833	7.08	311.15	14.90	
8	146.833 - 141.833	7.70	387.88	15.97	
9	141.833 - 136.833	11.60	481.30	20.31	
10	136.833 - 136.667	11.64	484.67	20.32	
11	136.667 - 131.667	12.78	587.58	20.85	
12	131.667 - 126.667	13.64	693.45	21.45	
13	126.667 - 121.667	14.60	801.87	21.95	
14	121.667 - 116.667	15.59	912.79	22.45	
15	116.667 - 111.667	16.61	1026.21	22.95	
16	111.667 - 106.667	17.67	1142.14	23.45	
17	106.667 - 101.667	18.76	1260.57	23.96	
18	101.667 - 96.667	19.88	1381.50	24.46	
19	96.667 - 92.323	20.89	1488.59	24.89	
20	92.323 - 86.302	27.40	1657.48	30.28	
21	86.302 - 85	27.81	1697.02	30.51	
22	85 - 84.75	27.91	1704.65	30.54	
23	84.75 - 79.75	29.52	1859.41	31.41	
24	79.75 - 75	31.23	2010.52	32.28	
25	75 - 74.75	31.38	2018.59	32.31	
26	74.75 - 74	31.77	2042.87	32.48	
27	74 - 73.75	31.87	2051.00	32.53	
28	73.75 - 68.75	33.76	2216.11	33.52	
29	68.75 - 63.75	35.49	2385.68	34.37	
30	63.75 - 58.75	37.27	2559.49	35.22	
31	58.75 - 53.75	39.08	2737.51	36.06	
32	53.75 - 49	40.83	2910.49	36.85	
33	49 - 48.925	40.88	2913.25	36.84	
34	48.925 - 41.698	44.68	3182.37	37.66	
35	41.698 - 36.698	46.41	3371.54	38.07	
36	36.698 - 31.698	48.17	3562.72	38.47	
37	31.698 - 26.698	49.97	3755.85	38.85	
38	26.698 - 21.698	51.81	3950.84	39.21	
39	21.698 - 16.698	53.68	4147.57	39.55	
40	16.698 - 11.698	55.57	4345.93	39.86	
41	11.698 - 6.698	57.45	4545.91	40.18	
42	6.698 - 1.698	59.36	4747.46	40.49	
43	1.698 - 0	60.00	4816.26	40.62	

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
181.83 - 176.83	Pole	TP15.678x14.5x0.25	Pole	7.2%	Pass
176.83 - 171.83	Pole	TP16.856x15.678x0.25	Pole	10.2%	Pass
171.83 - 166.83	Pole	TP18.033x16.856x0.25	Pole	16.1%	Pass
166.83 - 161.83	Pole	TP19.211x18.033x0.25	Pole	25.0%	Pass
161.83 - 156.83	Pole	TP20.389x19.211x0.25	Pole	32.9%	Pass
156.83 - 151.83	Pole	TP21.567x20.389x0.25	Pole	41.8%	Pass
151.83 - 146.83	Pole	TP22.745x21.567x0.25	Pole	49.0%	Pass
146.83 - 141.83	Pole	TP23.922x22.745x0.25	Pole	55.1%	Pass
141.83 - 136.83	Pole	TP25.1x23.922x0.25	Pole	62.9%	Pass
136.83 - 136.67	Pole	TP26.023x25.1x0.25	Pole	63.1%	Pass
136.67 - 131.67	Pole	TP25.806x24.639x0.375	Pole	48.4%	Pass
131.67 - 126.67	Pole	TP26.973x25.806x0.375	Pole	52.2%	Pass
126.67 - 121.67	Pole	TP28.14x26.973x0.375	Pole	55.3%	Pass
121.67 - 116.67	Pole	TP29.307x28.14x0.375	Pole	58.0%	Pass
116.67 - 111.67	Pole	TP30.474x29.307x0.375	Pole	60.2%	Pass
111.67 - 106.67	Pole	TP31.641x30.474x0.375	Pole	62.0%	Pass
106.67 - 101.67	Pole	TP32.808x31.641x0.375	Pole	63.6%	Pass
101.67 - 96.67	Pole	TP33.975x32.808x0.375	Pole	64.9%	Pass
96.67 - 92.32	Pole	TP36.161x33.975x0.375	Pole	65.9%	Pass
92.32 - 86.3	Pole	TP35.642x34.239x0.375	Pole	70.8%	Pass
86.3 - 85	Pole	TP35.945x35.642x0.375	Pole	71.3%	Pass
85 - 84.75	Pole	TP36.004x35.945x0.375	Pole	71.4%	Pass
84.75 - 79.75	Pole	TP37.169x36.004x0.375	Pole	73.6%	Pass
79.75 - 75	Pole	TP38.276x37.169x0.375	Pole	75.5%	Pass
75 - 74.75	Pole + Reinf.	TP38.334x38.276x0.6625	Reinf. 1 Tension Rupture	70.2%	Pass
74.75 - 74	Pole + Reinf.	TP38.509x38.334x0.6625	Reinf. 1 Tension Rupture	70.5%	Pass
74 - 73.75	Pole	TP38.567x38.509x0.375	Pole	76.0%	Pass
73.75 - 68.75	Pole	TP39.733x38.567x0.375	Pole	77.9%	Pass
68.75 - 63.75	Pole	TP40.898x39.733x0.375	Pole	79.8%	Pass
63.75 - 58.75	Pole	TP42.064x40.898x0.375	Pole	81.5%	Pass
58.75 - 53.75	Pole	TP43.229x42.064x0.375	Pole	83.2%	Pass
53.75 - 49	Pole	TP44.336x43.229x0.375	Pole	84.7%	Pass
49 - 48.93	Pole	TP45.805x44.336x0.375	Pole	84.7%	Pass
48.93 - 41.7	Pole	TP45.287x43.603x0.4375	Pole	73.5%	Pass
41.7 - 36.7	Pole	TP46.452x45.287x0.4375	Pole	74.4%	Pass
36.7 - 31.7	Pole	TP47.616x46.452x0.4375	Pole	75.3%	Pass
31.7 - 26.7	Pole	TP48.781x47.616x0.4375	Pole	76.2%	Pass
26.7 - 21.7	Pole	TP49.946x48.781x0.4375	Pole	76.9%	Pass
21.7 - 16.7	Pole	TP51.11x49.946x0.4375	Pole	77.6%	Pass
16.7 - 11.7	Pole	TP52.275x51.11x0.4375	Pole	78.3%	Pass
11.7 - 6.7	Pole	TP53.44x52.275x0.4375	Pole	78.9%	Pass
6.7 - 1.7	Pole	TP54.604x53.44x0.4375	Pole	79.4%	Pass
1.7 - 0	Pole	TP55x54.604x0.4375	Pole	79.6%	Pass
				Summary	
			Pole	84.7%	Pass
			Reinforcement	70.5%	Pass
			Overall	84.7%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity*		
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2
181.83 - 176.83	368	n/a	368	12.24	n/a	12.24	7.2%		
176.83 - 171.83	459	n/a	459	13.18	n/a	13.18	10.2%		
171.83 - 166.83	564	n/a	564	14.11	n/a	14.11	16.1%		
166.83 - 161.83	683	n/a	683	15.05	n/a	15.05	25.0%		
161.83 - 156.83	819	n/a	819	15.98	n/a	15.98	32.9%		
156.83 - 151.83	971	n/a	971	16.91	n/a	16.91	41.8%		
151.83 - 146.83	1141	n/a	1141	17.85	n/a	17.85	49.0%		
146.83 - 141.83	1329	n/a	1329	18.78	n/a	18.78	55.1%		
141.83 - 136.83	1538	n/a	1538	19.72	n/a	19.72	62.9%		
136.83 - 136.67	1545	n/a	1545	19.75	n/a	19.75	63.1%		
136.67 - 131.67	2473	n/a	2473	30.27	n/a	30.27	48.4%		
131.67 - 126.67	2829	n/a	2829	31.66	n/a	31.66	52.2%		
126.67 - 121.67	3218	n/a	3218	33.05	n/a	33.05	55.3%		
121.67 - 116.67	3641	n/a	3641	34.44	n/a	34.44	58.0%		
116.67 - 111.67	4099	n/a	4099	35.82	n/a	35.82	60.2%		
111.67 - 106.67	4595	n/a	4595	37.21	n/a	37.21	62.0%		
106.67 - 101.67	5128	n/a	5128	38.60	n/a	38.60	63.6%		
101.67 - 96.67	5702	n/a	5702	39.99	n/a	39.99	64.9%		
96.67 - 92.32	6234	n/a	6234	41.20	n/a	41.20	65.9%		
92.32 - 86.3	6594	n/a	6594	41.98	n/a	41.98	70.8%		
86.3 - 85	6765	n/a	6765	42.34	n/a	42.34	71.3%		
85 - 84.75	6799	n/a	6799	42.41	n/a	42.41	71.4%		
84.75 - 79.75	7488	n/a	7488	43.79	n/a	43.79	73.6%		
79.75 - 75	8184	n/a	8184	45.11	n/a	45.11	75.5%		
75 - 74.75	8226	6001	14227	45.18	34.50	79.68	44.2%	70.2%	67.1%
74.75 - 74	8340	6054	14394	45.39	34.50	79.89	44.5%	70.5%	67.4%
74 - 73.75	8374	n/a	8374	45.46	n/a	45.46	76.0%		
73.75 - 68.75	9165	n/a	9165	46.84	n/a	46.84	77.9%		
68.75 - 63.75	10003	n/a	10003	48.23	n/a	48.23	79.8%		
63.75 - 58.75	10891	n/a	10891	49.62	n/a	49.62	81.5%		
58.75 - 53.75	11830	n/a	11830	51.00	n/a	51.00	83.2%		
53.75 - 49	12771	n/a	12771	52.32	n/a	52.32	84.7%		
49 - 48.93	12786	n/a	12786	52.34	n/a	52.34	84.7%		
48.93 - 41.7	15821	n/a	15821	62.28	n/a	62.28	73.5%		
41.7 - 36.7	17086	n/a	17086	63.89	n/a	63.89	74.4%		
36.7 - 31.7	18417	n/a	18417	65.51	n/a	65.51	75.3%		
31.7 - 26.7	19814	n/a	19814	67.13	n/a	67.13	76.2%		
26.7 - 21.7	21281	n/a	21281	68.75	n/a	68.75	76.9%		
21.7 - 16.7	22819	n/a	22819	70.36	n/a	70.36	77.6%		
16.7 - 11.7	24429	n/a	24429	71.98	n/a	71.98	78.3%		
11.7 - 6.7	26113	n/a	26113	73.60	n/a	73.60	78.9%		
6.7 - 1.7	27872	n/a	27872	75.21	n/a	75.21	79.4%		
1.7 - 0	28487	n/a	28487	75.76	n/a	75.76	79.6%		

Note: Section capacity checked in 5 degree increments.

Rating per TIA-222-H Section 15.5.

Microsoft Excel



Ineffective reinforcement summary:

Reinforcement 1 ineffective at 84.75 ft.

Reinforcement 1 ineffective at 79.75 ft.

Reinforcement 1 ineffective at 75 ft.

Reinforcement 2 ineffective at 73.75 ft.

Reinforcement 2 ineffective at 68.75 ft.

Reinforcement 2 ineffective at 63.75 ft.

Reinforcement 2 ineffective at 58.75 ft.

Reinforcement 2 ineffective at 53.75 ft.

Reinforcement 2 ineffective at 49 ft.

OK

Monopole Base Plate Connection

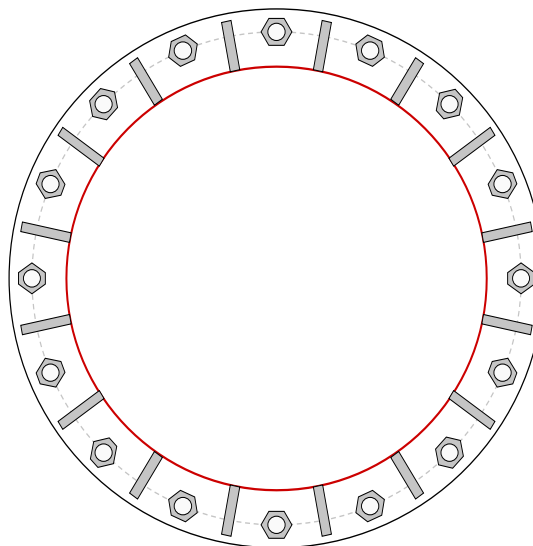


Site Info	
BU #	842872
Site Name	ROCKY HILL
Order #	507430 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{ar} (in)	2.75

Applied Loads	
Moment (kip-ft)	4816.26
Axial Force (kips)	60.00
Shear Force (kips)	40.62

*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; $F_y=75$ ksi, $F_u=100$ ksi) on 64" BC		$Pu_t = 221.9$	$\phi Pn_t = 243.75$ Stress Rating
Base Plate Data		$Vu = 2.54$	$\phi Vn = 149.1$ 85.2%
70" OD x 2" Plate (A871 Gr. 60; $F_y=60$ ksi, $F_u=75$ ksi)		$Mu = 4.54$	$\phi Mn = 128.14$ Pass
Stiffener Data		Base Plate Summary	
(16) 36"H x 6.5"W x 1.25"T, Notch: 0.75"		Max Stress (ksi):	38.1 (Roark's Flexural)
plate: $F_y=65$ ksi ; weld: $F_y=70$ ksi		Allowable Stress (ksi):	54
horiz. weld: 0.625" fillet		Stress Rating:	67.2% Pass
vert. weld: 0.375" fillet		Stiffener Summary	
Pole Data		Horizontal Weld:	93.6% Pass
55" x 0.4375" 18-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)		Vertical Weld:	26.2% Pass
		Plate Flexure+Shear:	2.5% Pass
		Plate Tension+Shear:	35.9% Pass
		Plate Compression:	30.2% Pass
		Pole Summary	
		Punching Shear:	3.6% Pass

Drilled Pier Foundation

BU #: 842872
 Site Name: ROCKY HILL
 Order Number: 507430 Rev. 0

TIA-222 Revision: H
 Tower Type: Monopole



Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	4816	
Axial Force (kips)	60	
Shear Force (kips)	41	

Material Properties		
Concrete Strength, f _c :	3	ksi
Rebar Strength, F _y :	60	ksi

Pier Design Data		
Depth	17.67	ft
Ext. Above Grade	0.83	ft
Pier Section 1		
<i>From 0.83' above grade to 9.92' below grade</i>		
Pier Diameter	7	ft
Rebar Quantity	20	
Rebar Size	11	
Clear Cover to Ties	3	in
Tie Size	3	
Rebar Quantity	4	
Rebar Size	11	
Rebar Cage Diameter	71	in
Pier Section 2		
<i>From 9.92' below grade to 17.67' below grade</i>		
Pier Diameter	7	ft
Rebar Quantity	20	
Rebar Size	11	
Clear Cover to Ties	3	in
Tie Size	3	

Analysis Results		
Soil Lateral Capacity	Compression	Uplift
D _{v=0} (ft from TOC)	6.56	-
Soil Safety Factor	1.72	-
Max Moment (kip-ft)	5074.02	-
Rating*	73.8%	-
Soil Vertical Capacity	Compression	Uplift
Skin Friction (kips)	439.95	-
End Bearing (kips)	659.53	-
Weight of Concrete (kips)	101.73	-
Total Capacity (kips)	1099.48	-
Axial (kips)	161.73	-
Rating*	14.0%	-
Reinforced Concrete Capacity	Compression	Uplift
Critical Depth (ft from TOC)	6.47	-
Critical Moment (kip-ft)	5073.78	-
Critical Moment Capacity	5878.69	-
Rating*	82.2%	-
Soil Interaction Rating* 73.8%		
Structural Foundation Rating* 82.2%		

Check Limitation	
Apply TIA-222-H Section 15.5:	☒
N/A	☐

*Rating per TIA-222-H Section 15.5

Soil Profile		
Groundwater Depth	8.5	ft
# of Layers	6	

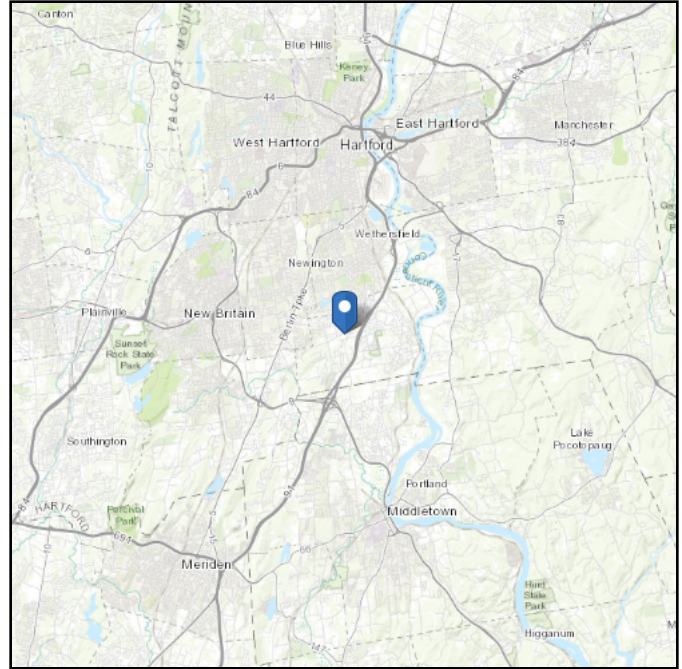
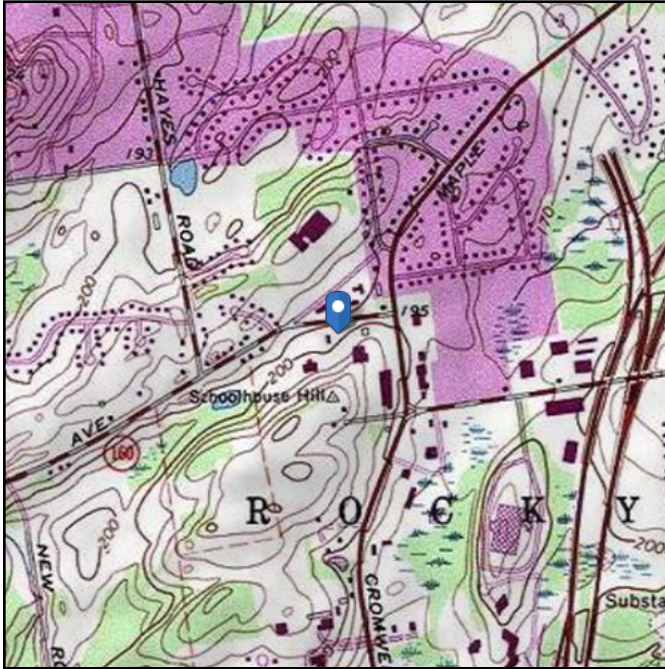
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	Y _{soil} (pcf)	Y _{concrete} (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3	3	110	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3	5	2	120	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
3	5	7	2	110	150	1.75		0.963	0.963	0.96	0.96			Cohesive
4	7	8.5	1.5	135	150	5		2.321	2.321	2.32	2.32			Cohesive
5	8.5	12	3.5	72.6	87.6	5		2.321	2.321	2.32	2.32			Cohesive
6	12	17.67	5.67	72.6	87.6	5		2.321	2.321	2.32	2.32	22.85		Cohesive

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 198.53 ft (NAVD 88)
Latitude: 41.660247
Longitude: -72.680717



Site Soil Class: D - Stiff Soil

Results:

S_S :	0.181	S_{DS} :	0.193
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.092
S_{MS} :	0.29	PGA_M :	0.147
S_{M1} :	0.152	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category
Data Accessed:

B
Mon Jan 13 2020

Date Source:

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

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

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

Date Accessed: Mon Jan 13 2020

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

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

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

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

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

Exhibit E

Mount Analysis

Date: January 9, 2020

Kevin Morrow
Crown Castle
3530 Toringdon Way
Charlotte, NC 28277

Paul J Ford and Company
250 E. Broad Street, Suite 600
Columbus, OH 43215
614.221.6679

Subject: Mount Modification Report

Carrier Designation: Verizon Wireless Equipment Change-out
Carrier Site Number: NG37621
Carrier Site Name: ROCKY HILL 3 CT

Crown Castle Designation: Crown Castle BU Number: 842872
Crown Castle Site Name: Rocky Hill
Crown Castle JDE Job Number: 593541
Crown Castle Purchase Order Number: 1487323
Crown Castle Order Number: 507430 Rev. 0

Engineering Firm Designation: Paul J Ford and Company Project Number: A37519-3739.002.7191

Site Data: 52 New Britain Ave, Rocky Hill, Hartford County, CT 06067
Latitude 41.660247°, Longitude -72.680717°

Structure Information: Tower Height & Type: 182 Foot Monopole
Mount Elevation: 90 Foot
Mount Type: (1) 14 Foot Platform

Dear Kevin Morrow,

Paul J Ford and Company is pleased to submit this "Mount Modification Report" to determine the structural integrity of the Verizon Wireless antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point is not part of this document.

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

14' Platform

81.4%

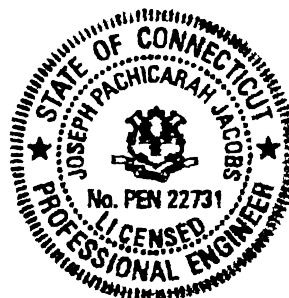
SUFFICIENT*

*The mount has sufficient capacity once the modifications, as described in Section 4.1 Recommendations of this report, are completed.

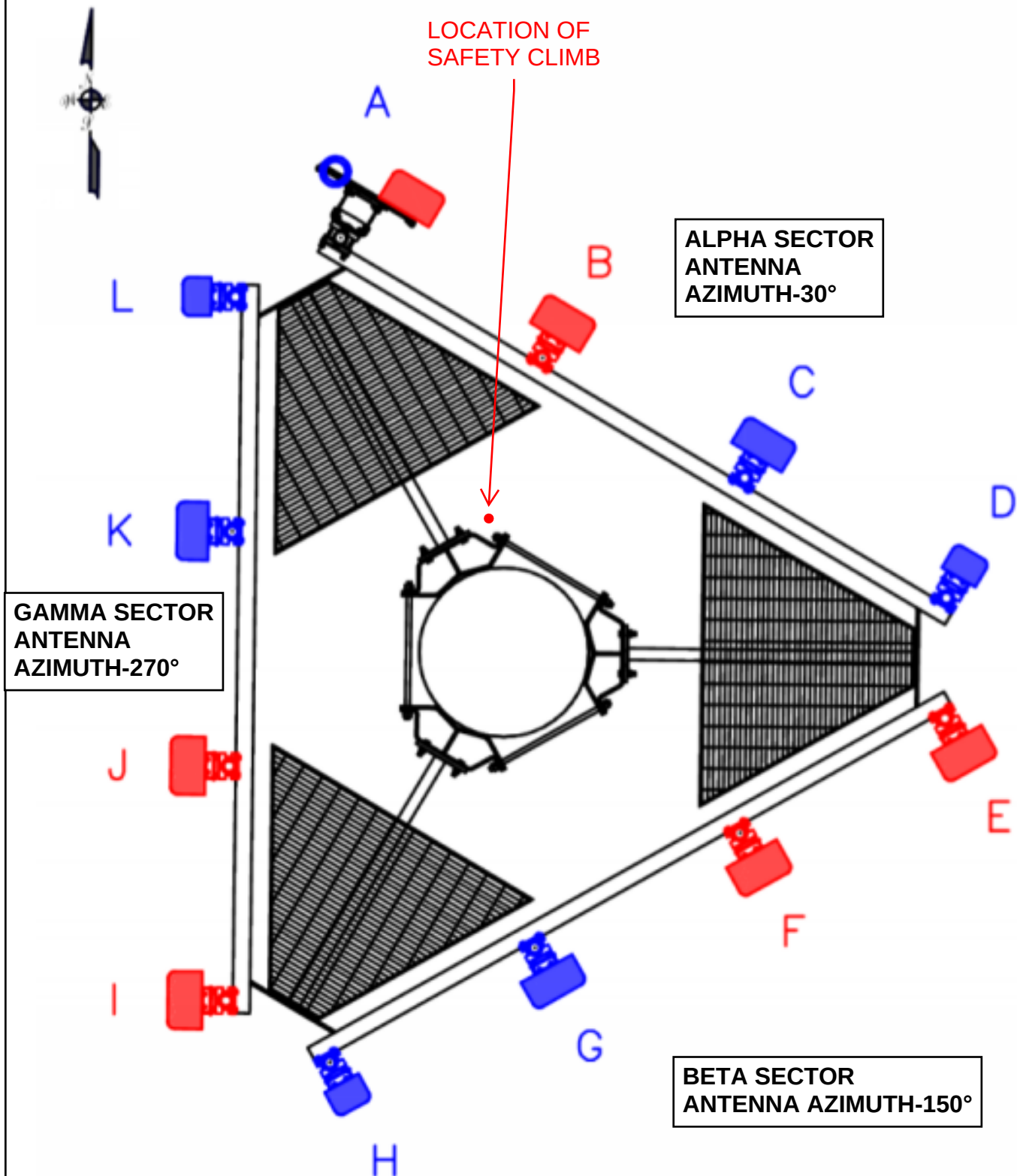
This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:


Angela Sage, E.I.
Structural Designer
asage@pauljford.com JGF

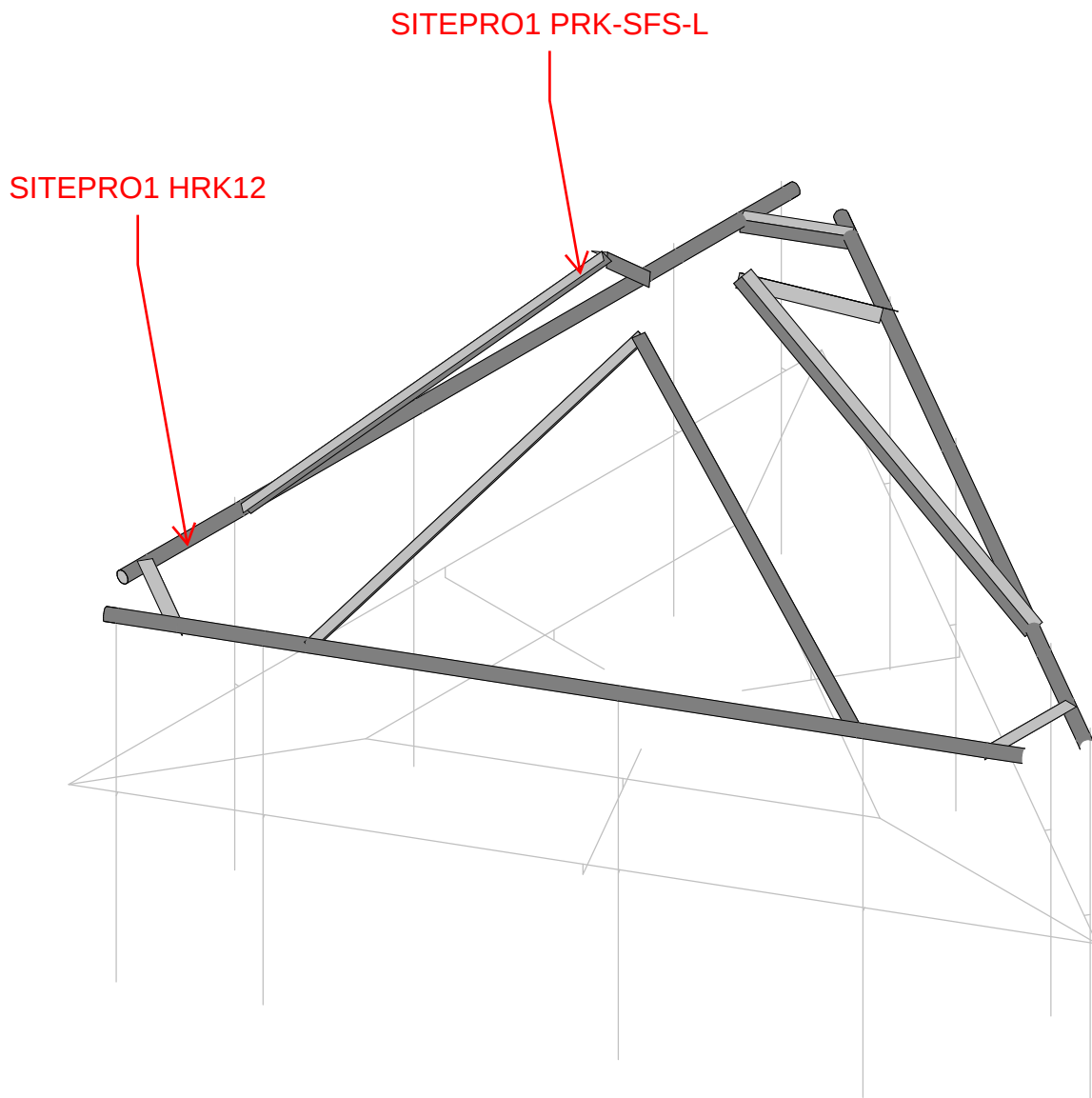
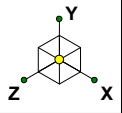


01/09/2020



NOTES:

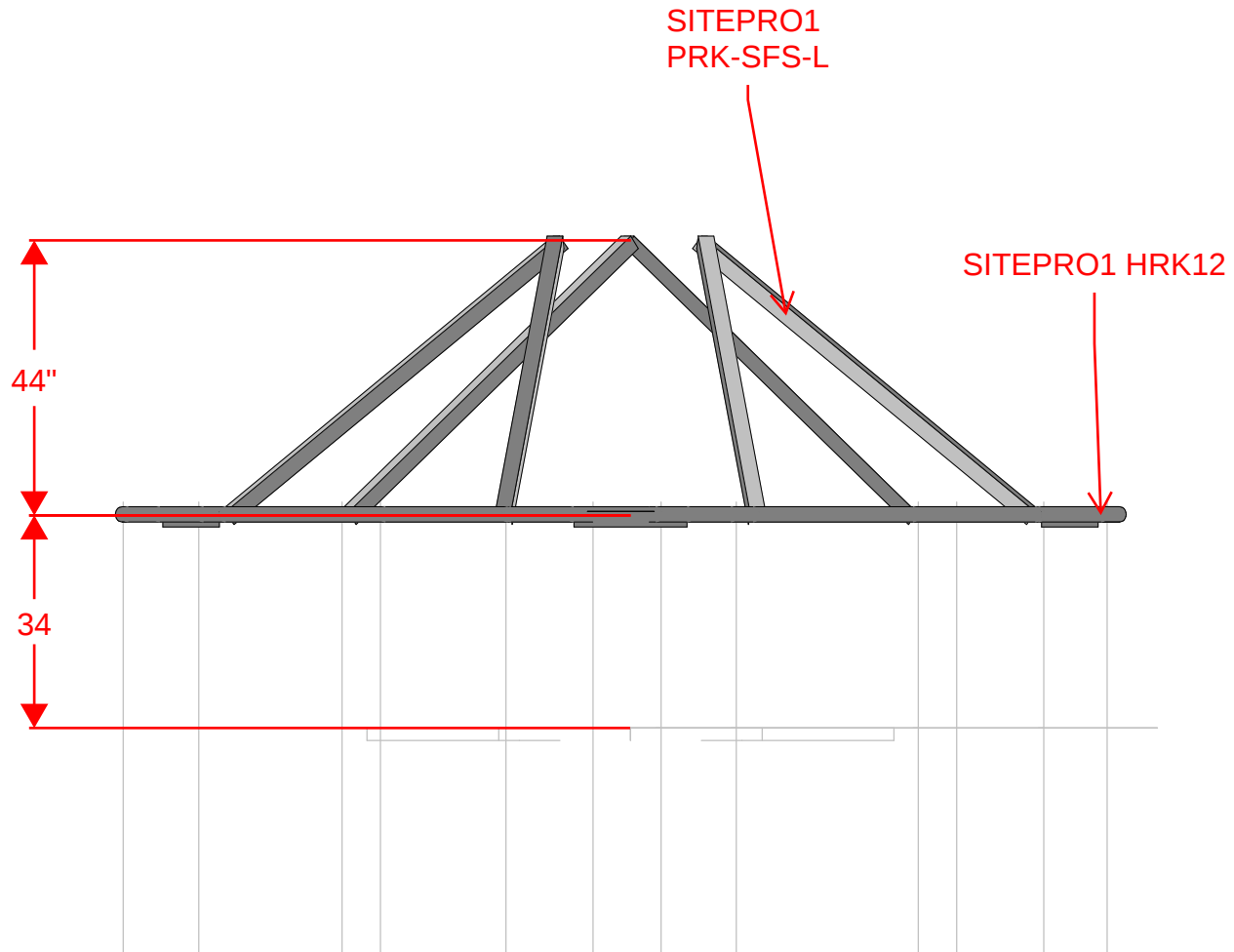
- 1) A 6" VERTICAL TOLERANCE FOR PROPOSED EQUIPMENT IS ACCEPTABLE.
- 2) CONTRACTOR TO VERIFY LOCATION OF EXISTING EQUIPMENT PRIOR TO INSTALLATION OF PROPOSED EQUIPMENT. NOTIFY EOR FOR ANY DEVIATIONS.
- 3) INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB OR ANY SYSTEM INSTALLED ON THE STRUCTURE.

**NOTES:**

- 1) A 6" VERTICAL TOLERANCE FOR PROPOSED EQUIPMENT IS ACCEPTABLE.
- 2) CONTRACTOR TO VERIFY LOCATION OF EXISTING EQUIPMENT PRIOR TO INSTALLATION OF PROPOSED EQUIPMENT. NOTIFY EOR FOR ANY DEVIATIONS.
- 3) INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB OR ANY SYSTEM INSTALLED ON THE STRUCTURE.

Envelope Only Solution

Paul J. Ford and Company	842872 / ROCKY HILL	SK - 10
AMS		Jan 9, 2020 at 9:57 AM
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NOTES:

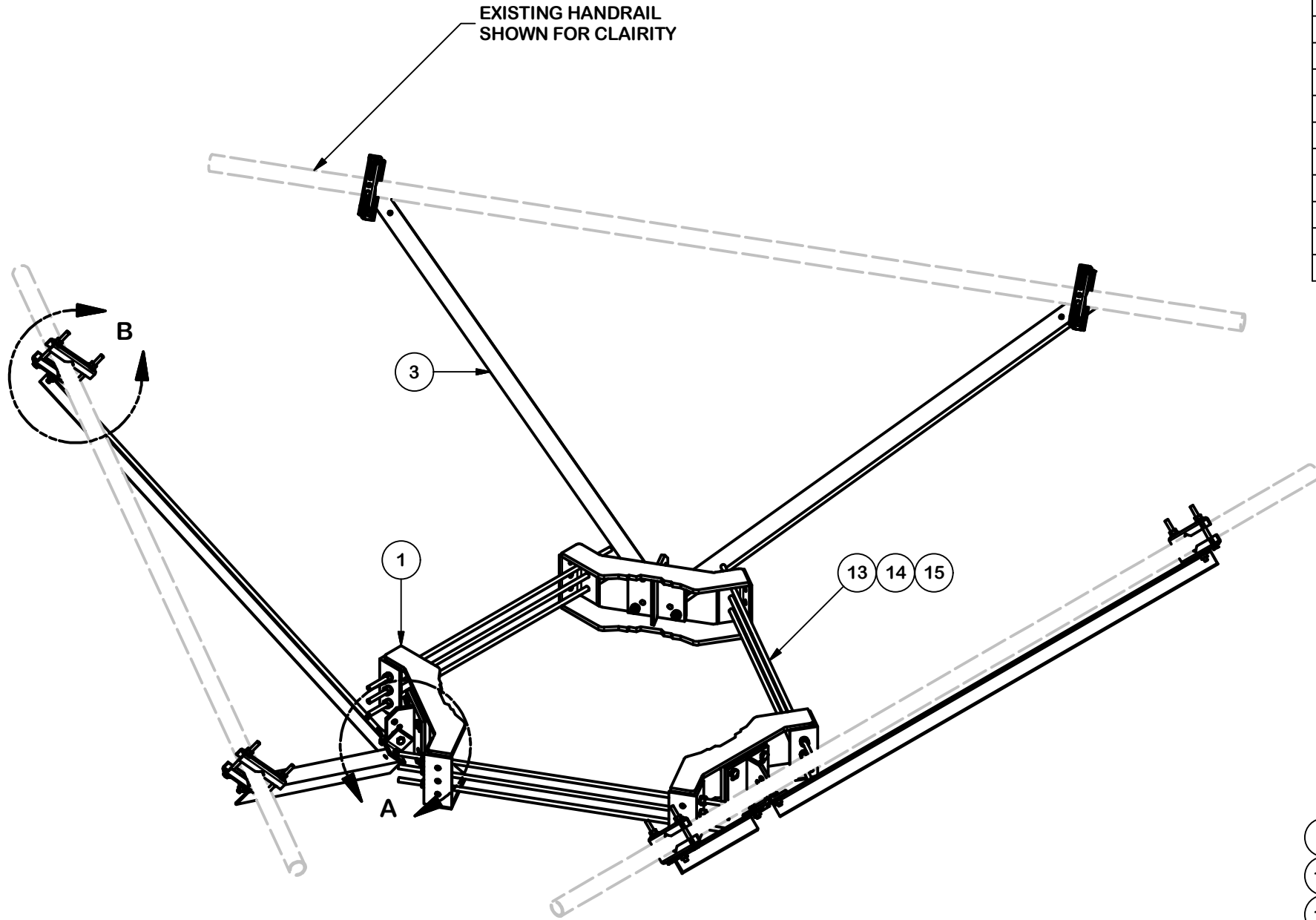
- 1) A 6" VERTICAL TOLERANCE FOR PROPOSED EQUIPMENT IS ACCEPTABLE.
- 2) CONTRACTOR TO VERIFY LOCATION OF EXISTING EQUIPMENT PRIOR TO INSTALLATION OF PROPOSED EQUIPMENT. NOTIFY EOR FOR ANY DEVIATIONS.
- 3) INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB OR ANY SYSTEM INSTALLED ON THE STRUCTURE.

Envelope Only Solution

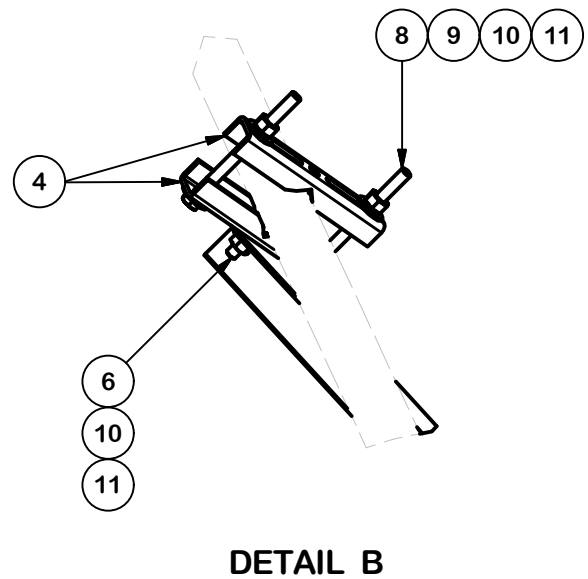
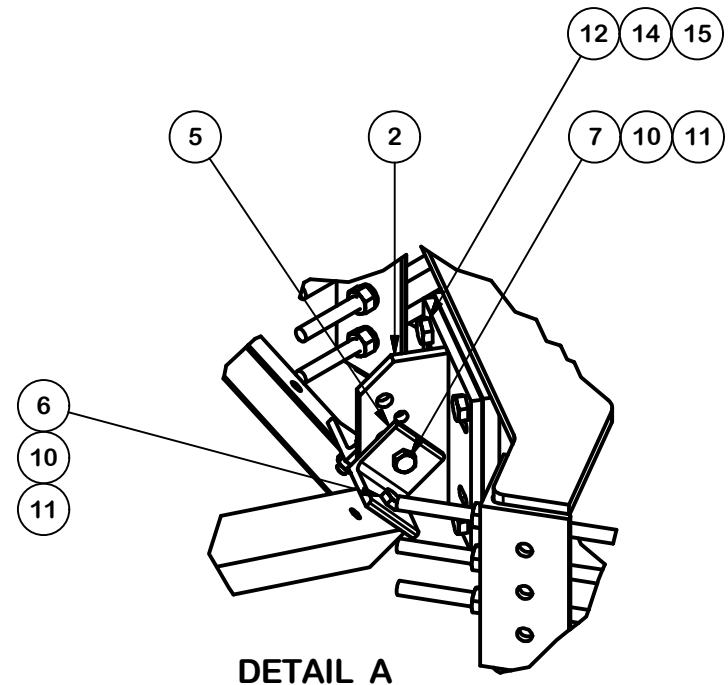
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AMS		Jan 9, 2020 at 9:57 AM
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APPENDIX E

MANUFACTURER DRAWINGS (FOR REFERENCE ONLY)



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	3	X-TBW	T-BRACKET WELDMENT		13.60	40.80
3	6	X-254924	DIAGONAL ANGLE - SITE PRO 1	72 in	19.71	118.24
4	12	X-STU	STIFF ARM CHANNEL BRACKET	8 1/2 in	1.37	16.46
5	6	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.86	11.15
6	12	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	1.77
7	3	G12212	1/2" x 2-1/2" HDG HEX BOLT GR5	2 1/2 in	0.20	0.61
8	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
9	24	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.82
10	27	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.38
11	27	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.93
12	12	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	3.75
13	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)	24 in	0.40	3.59
13	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)	48 in	0.40	3.59
14	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
15	30	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	3.90
					TOTAL WT. #	642.04

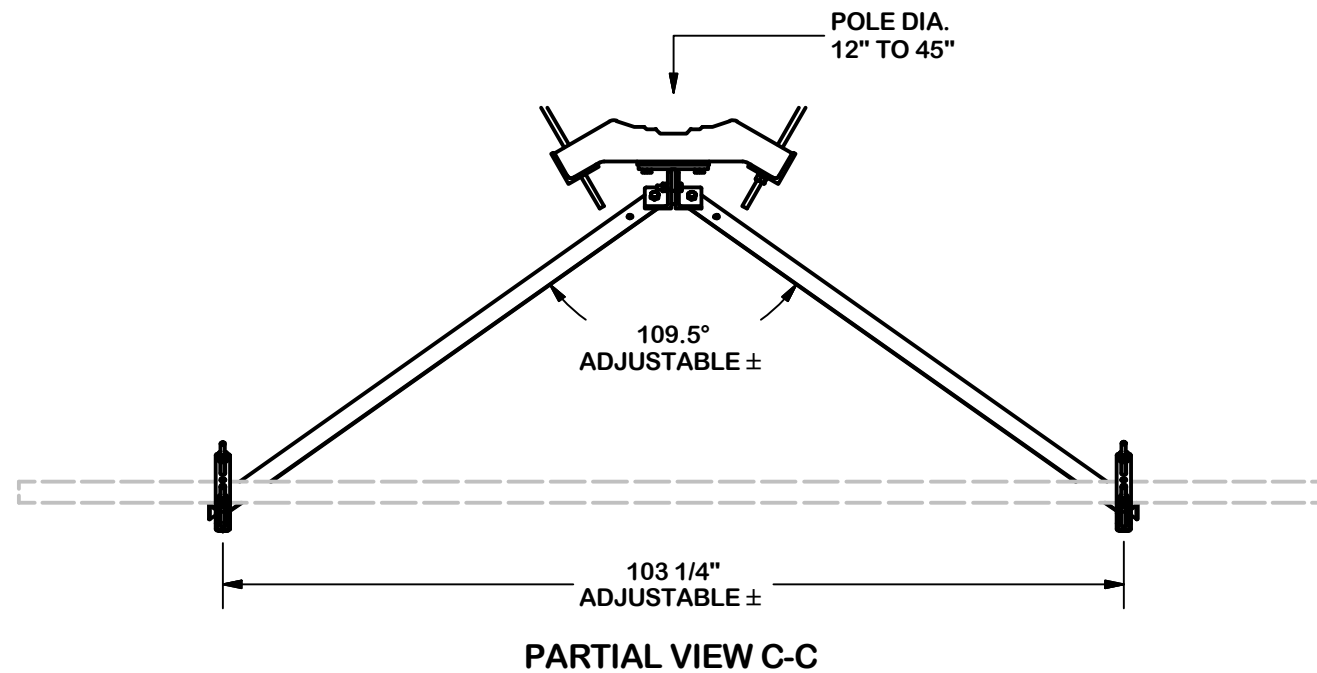


REVISION HISTORY				
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	10/25/2017

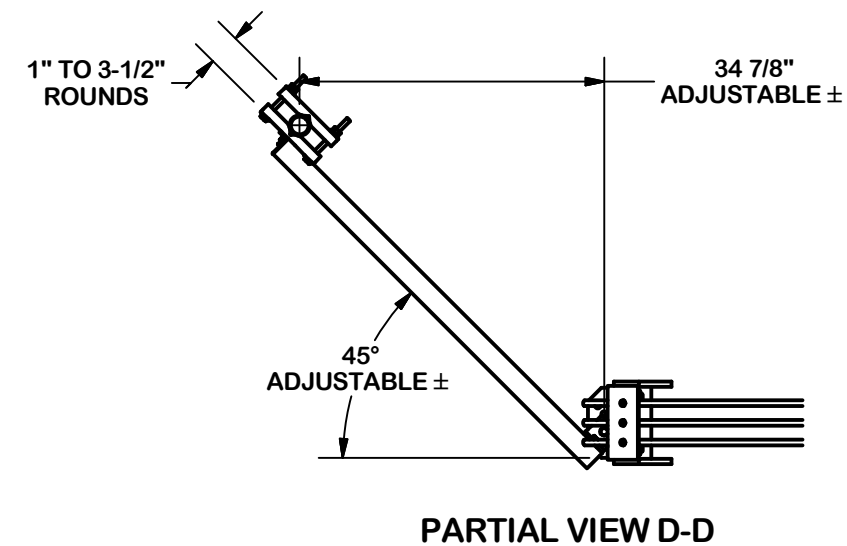
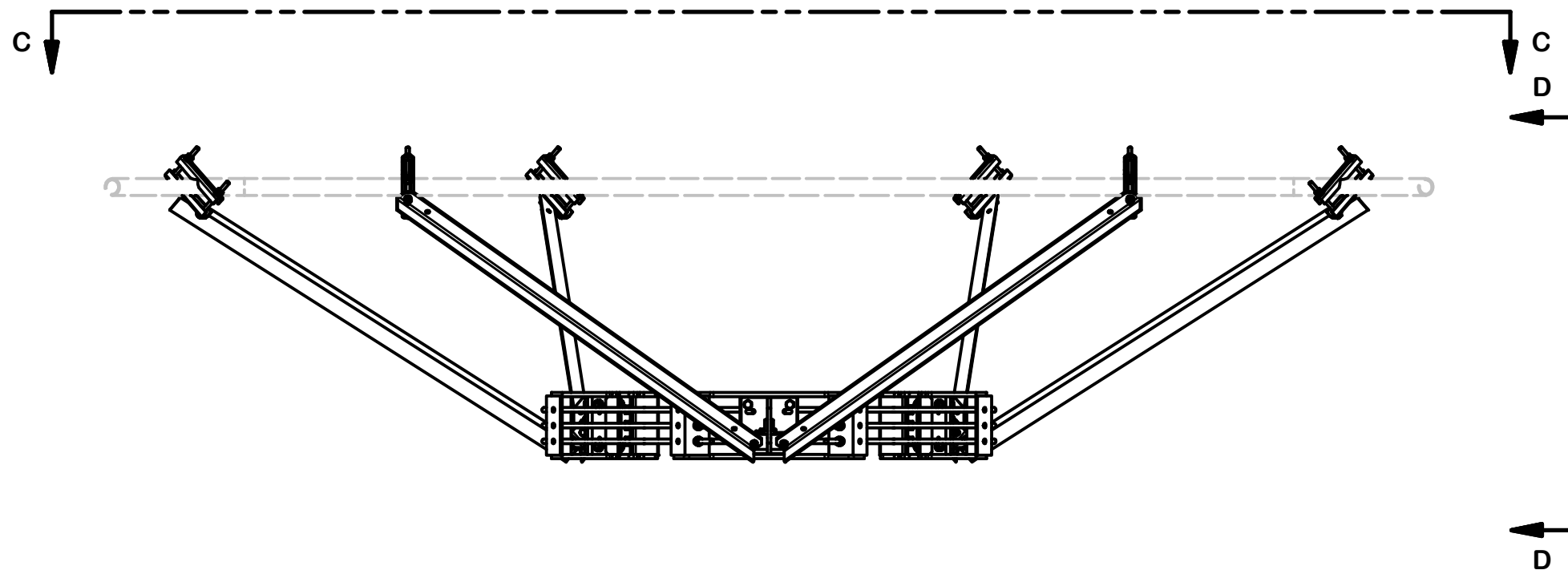
TOLERANCE NOTES	
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES (± 0.030") DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES BENDS ARE ± 1/2 DEGREE ALL OTHER MACHINING (± 0.030") ALL OTHER ASSEMBLY (± 0.060")	
PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.	

DESCRIPTION			
HANDRAIL REINFORCEMENT KIT (LONG)			
CPD NO.	DRAWN BY	ENG. APPROVAL	
SP1	CSL3 2/23/2017	3RD PARTY	
CLASS	SUB	DRAWING USAGE	CHECKED BY
81	02	SHOP	BMC 9/8/2017

SITE PRO 1 A valmont COMPANY Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX		PART NO.	PRK-SFS-L	1 OF 3 PAGE
		DWG. NO.	PRK-SFS-L	



VERTICAL POSITION



REVISION HISTORY				
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	10/25/2017
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE

TOLERANCE NOTES				
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES (± 0.030") DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES BENDS ARE ± 1/2 DEGREE ALL OTHER MACHINING (± 0.030") ALL OTHER ASSEMBLY (± 0.060")				
PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.				

DESCRIPTION			
HANDRAIL REINFORCEMENT KIT (LONG)			
CPD NO.	DRAWN BY	ENG. APPROVAL	
SP1	CSL3 2/23/2017	3RD PARTY	
CLASS	SUB	DRAWING USAGE	CHECKED BY
81	02	SHOP	BMC 9/8/2017

SITE PRO 1 A valmont COMPANY		Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX
Engineering Support Team: 1-888-753-7446		
PART NO.	PRK-SFS-L	
DWG. NO.	PRK-SFS-L	

APPENDIX F

POST MODIFICATION INSPECTION (PMI) REQUIREMENTS FOR DESKTOP REVIEW

Post Modification Inspection (PMI) Report Requirements Documents & Photos Required from Contractor

Purpose – to provide PJF the proper documentation in order 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:

- Provide “as built drawings” showing contractor’s name, preparer’s signature, and date. Any deviations from the drawing (proposed modification) must be shown.
- Notation that all hardware was properly installed, and the existing hardware was inspected for any issues.
- Verification that loading is as communicated in the modification drawings. NOTE if loading is different than what is conveyed in the modification drawing contact PJF immediately.
- Each photo should be time and date stamped.
- Photos should be high resolution and submitted in a Zip File and should be organized in the file structure as depicted in Schedule A attached.
- Any special photos outside of the standard requirements will be indicated on the drawings.
- Contractor shall ensure that the safety climb wire rope is supported and 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.
- The photos in the file structure should be uploaded to pjfmount@pauljford.com as depicted on the drawings.

Photo Requirements:

- Base and “During Installation Photos”
 - Base pictures include
 - Photo of Gate Signs showing the tower owner, site name, and number.
 - Photo of carrier shelter showing the carrier site name and number if available.
 - Photos of the galvanizing compound and/or paint used (if applicable), clearly showing the label and name.
 - “During Installation” Photos if provided – must be placed only in this folder
- Photos taken at ground level
 - Overall tower structure before and after installation of the modifications
 - Photos of the appropriate mount before and 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 each individual sector before and after installation of modifications. Each entire sector must be in one photo to show in the inter-connection of members.
 - Close-up photos of each installed modification per the modification drawings; pictures should also include connection hardware (U-bolts, bolts, nuts, all-threaded rods, etc.)
 - Photos showing the measurements of the installed modification member sizes (i.e. lengths, widths, depths, diameters, thicknesses).
 - Photos showing the elevation or distances of the installed modifications from the appropriate reference locations shown in the modification drawings.

Schedule A – Photo & Document File Structure

- VzW Site Number / Name
 - Base & “During Installation” Photos
 - Pre-Installation Photos
 - Alpha
 - Beta
 - Gamma
 - Ground Level
 - Tape Drop
 - Post-Installation Photos
 - Alpha
 - Beta
 - Gamma
 - Ground Level
 - Tape Drop
 - Material Certification – Submission of this document including executed certification on Page 2
 - Specific Required Additional Photos
 - Required Additional Photos

Special Instructions / Validation as required from the MA or any other information the contractor deems necessary to share that was identified:

Issue:

Response:

Exhibit F

Power Density/RF Emissions Report

General Power Density

Site Name: Rocky Hill 3, CT
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm ²)	(mW/cm ²)	(%)
VZW PCS	1970	1	6000	6000	90	0.2664	1.0	26.64%
VZW Cellular LTE	869	1	1400	1400	90	0.0622	0.579333333	10.73%
VZW Cellular	869	2	422	844	90	0.0375	0.579333333	6.47%
VZW AWS	2145	1	6690	6690	90	0.2970	1.0	29.70%
VZW 700	746	1	2750	2750	90	0.1221	0.497333333	24.55%

Total Percentage of Maximum Permissible Exposure 98.09%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Section 1.13101 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz

mW/cm² = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used, including the following assumptions:

1. closest accessible point is distance from antenna to base of pole;
2. continuous transmission from all available channels at full power for indefinite time period; and,
3. all RF energy is assumed to be directed solely to the base of the pole.