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

December 9, 2020

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

RE: **Notice of Exempt Modification for T-Mobile:**
857012 - T-Mobile Site ID: CT11378G
335 South Washington Street, Plainville, CT 06062
Latitude: 41° 39′ 11.03″ / Longitude: -72° 52′ 36.90″

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 98-foot mount on the existing 121-foot Monopole Tower, located at 335 South Washington Street, Plainfield, CT. The tower is owned by Crown Castle and the property is owned by Display Properties LLC. T-Mobile now intends to replace six (6) existing antennas with three (3) new 1900 MHz antennas, three (3) new 600/700/2100 MHz antennas, and three (3) new 2500 MHz antennas. The new antennas will be installed at the 98-ft level of the tower. Three of the new antennas proposed will be 5G enabled. T-Mobile is also proposing mount modifications pursuant to the enclosed Mount Analysis Report.

Planned Modifications:
Tower:

Remove and Replace:
(3) AIR21_B2P_B4A Antenna **(REMOVE)** - (3) RFS-APXVAALL24_43-U-NA20 Antenna 600/700/1900 MHz **(5G) (REPLACE)**
(3) AIR21_B2P_B4P Antenna **(REMOVE) –** (3) AIR6449 B41 Antenna 2500 MHz **(REPLACE)**

Install New:
(3) Diplexer
(3) Radio 4415 B25
(3) AIR32_B66A_B2A Antenna 1900 MHz
(3) 1 5/8" Hybrid Fiber Line

Existing to Remain:
(3) Twin Style TMA
(3) Radio 4449 B71+B85
(6) 1 5/8" Coax

Ground:

Upgrade to existing ground cabinet. (Internally)
Install new 6160 SSC Cabinet and B160 Battery Cabinet.

The facility was approved by the Connecticut Siting Council in Docket No. 281 on June 23, 2004. This approval included conditions which this exempt modification follows.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Robert E. Lee, Town Manager for the Town of Plainville, Garrett Daigle, Town Planner, Display Properties LLC as the property owner and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Anne Marie Zsamba
Site Acquisition Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
(201) 236-9224
AnneMarie.Zsamba@crowncastle.com

Attachments

cc:

Robert E. Lee, Town Manager
Plainville Municipal Center
1 Central Square
Plainville, CT 06062

860-793-0221

Garrett Daigle, Town Planner
Plainville Municipal Center
1 Central Square – Room 100
Plainville, CT 06062
860-793-0221

Display Properties LLC
335 S Washington Street
Plainville, CT 06062

Crown Castle, Tower Owner

After printing this label:
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 ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ORIGIN ID:SCHA (518) 350-3639
ANNE MARIE ZSAMBA
CROWN CASTLE
21 HEATHER DRIVE

GANSEVOORT, NY 12831
UNITED STATES US

SHIP DATE: 09DEC20
ACTWGT: 1.00 LB
CAD: 104924194/INET4280

BILL SENDER

TO **ROBERT E. LEE, TOWN MANAGER**
TOWN OF PLAINVILLE
1 CENTRAL SQUARE

PLAINVILLE CT 06062
(860) 793-0221
REF: 1734.7680
INV:
PO:
DEPT:

56BJ2/9196/B766

J202020071401uv

FedEx Express

THU - 10 DEC 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7723 0674 0199**

EB KXAA

06062
BDL
CT-US

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ORIGIN ID:SCHA (518) 350-3639
ANNE MARIE ZSAMBA
CROWN CASTLE
21 HEATHER DRIVE

GANSEVOORT, NY 12831
UNITED STATES US

SHIP DATE: 09DEC20
ACTWGT: 1.00 LB
CAD: 104924194/INET4280

BILL SENDER

TO **GARRETT DAIGLE, TOWN PLANNER**
TOWN OF PLAINVILLE
1 CENTRAL SQUARE

PLAINVILLE CT 06062
(860) 793-0221
REF: 1734.7680
INV:
PO:
DEPT:

J202020071401uv

FedEx Express

56BJ2/9196/B766

THU - 10 DEC 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7723 0674 5628**

EB KXAA

06062
BDL
CT-US

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Exhibit A

Original Facility Approval

DOCKET NO. 281 – New Cingular Wireless PCS, LLC Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility at 355 South Washington Street, Plainville, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		June 23, 2004

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when ith the policies of the State concerning such effects, and lication and therefore directs that a Certificate of Environmen vided by General Statutes § 16-50k, be issued to

AT&T Wireless PCS d/b/a AT&T Wireless for the construction, maintenance and operation of a wireless telecommunications facility at Site B, 355 South Washington Street, Plainville, Connecticut. The Council denies certification of Site A, located off of Town Line Road, Plainville, Connecticut.

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

1. The tower shall be designed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T Wireless PCS LLC, Omnipoint Communications Inc. d/b/a T-Mobile, Cellco partnership d/b/a Verizon Wireless and other entities, both public and private, but such tower shall not exceed a total height of 120 feet above ground level. The height at the top of the antennas shall not exceed a height of 123 feet above ground level.
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Plainville and all parties and intervenors, as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction. The D&M shall include:

a. a detailed site development plan that depicts the location of the access road, compound, tower, utility line, erosion and sedimentation control features, and landscaping;

b. specifications for the tower, tower foundation, antennas, equipment building, and security fence; and

c. construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

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

4. Upon the ral radio frequency standards applicable to frequencies shall be brought into compliance with such standards.

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any municipal antennas, provided such antennas are compatible with the structural integrity of the tower.

7. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

8. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.

9. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved. Any request for extensions of the period shall be filed with the Council not later than sixty days prior to expiration date of the Certificate and shall be served on all parties and intervenors, as listed in the service list. Any proposed modifications to this Decision and Order shall likewise be so served.

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

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

The parties and intervenors to this proceeding are:

Applicant	**Its Representative**
AT&T Wireless PCS, LLC d/b/a AT&T Wireless	Christopher B. Fisher, Esq. Cuddy & Feder, LLP 90 Maple Avenue White Plains, NY 10601

Intervenor	**Its Representative**
Omnipoint Communications Inc d/b/a T-Mobile	Stephen J. Humes LeBoeuf, Lamb, Greene & MacRae, LLP Goodwin Square 25 Asylum Street Hartford, CT 06103
Intervenor	**Its Representative**
Cellco Partnership d/b/a Verizon Wireless	Kenneth C. Baldwin, Esq. Robinson & Cole, LLP 280 Trumbull Street Hartford, CT 06103-3597
Party	
Robert S. Bocwinski 1785 St. Andrews Place New Richmond, WI 54017-6050	

Add "N" Alt Business

TOWN OF PLAINVILLE
BUILDING PERMIT
793-0221

PERMIT#: 35717
DATE: 10/03/05
RECEIPT: 045638

ESTIMATED COST:	78,000.00
PERMIT FEE:	1,175.00
CERT OF OCCUP FEE:	.00
ZONING CERT:	.00
STATE FEE:	12.48
TOTAL FEE:	1,187.48
MISCELLANEOUS INCOME	.00

#CO: 00000

#ZP: 00000

I hereby apply for a building permit to:
cell tower facility w/85' X 90' fenced gravel compound

Lot#: Location: 335 South Washington St.

OWNER: Display Properties LLC
335 S. Washington Street
Plainville, CT 06062
747-9110

CONTRACTOR: New Cingular Wireless PCS
500 Enterprise Drive
Rocky Hill, CT 06067

I hereby certify that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as an authorized agent and we agree to conform to all of the requirements of the laws of the State of Connecticut and the ordinances of the Town of Plainville and to notify the Building Official of any alteration in the plans or specifications of the building for which the permit is asked.

Applicant _____ _____ Approved By Wm Vinn 10/20/05
Date Date

Exhibit B

Property Card

Plainville, CT : Assessor Database

Property Search:

Parcel ID:	Alternate ID:	Owner 1 Name:	Street Number:	Street Name:
				...

Search Reset

Property Detail:

Parcel ID:	Alternate ID/Map Block Lot:	Card:	Card:	Street Name:	Street Number:	Zoning:	LUC:	Acres:
42-A-03	R05380	1	1	S WASHINGTON ST	335	RI	Manufacturing Warehouse Facilities	8.00

Owner Information:

Owner 1 Name:	DISPLAY PROPERTIES LLC
Owner 2 Name:	
Street 1:	335 S WASHINGTON ST
Street 2:	
City:	PLAINVILLE
State:	CT
Zip:	06062
Volume:	374
Page:	357
Deed Date:	0000-00-00

Building Information:

Building Number:	1
Units:	1
Structure Type:	WAREHOUSE
Grade:	B-
Identical Units:	1
Year Built:	1989

Valuation:

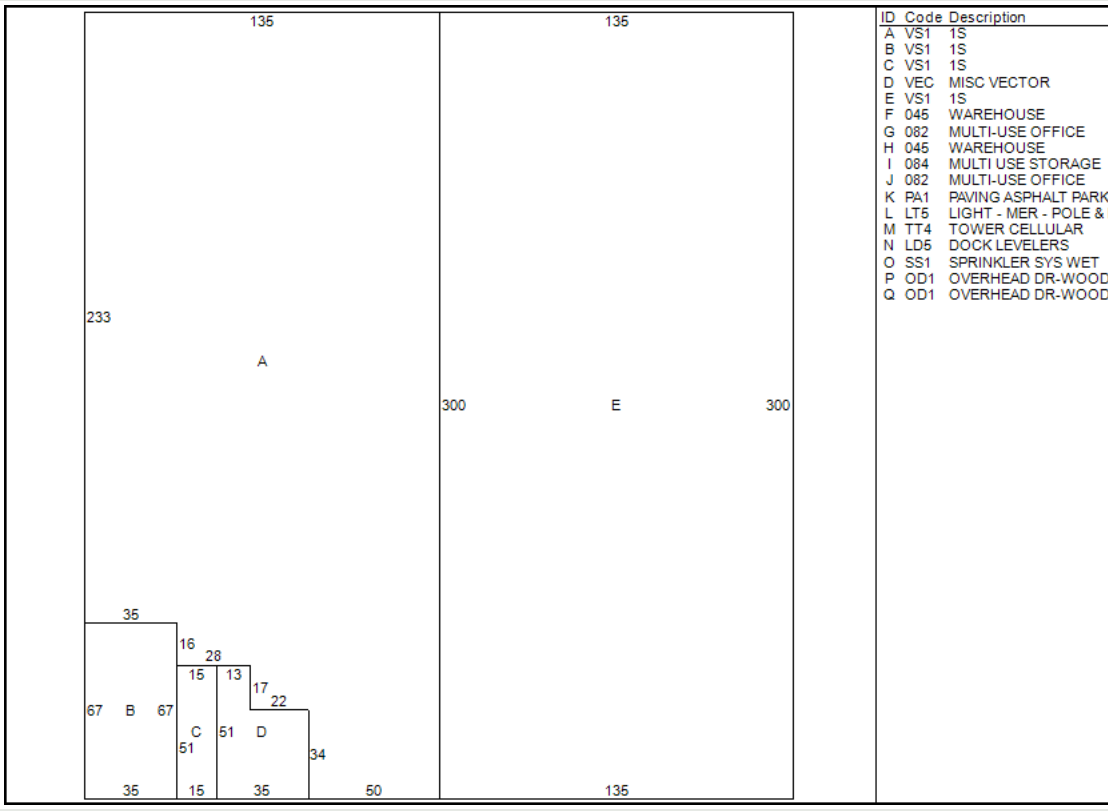
Appraised Land:	$467,600.00
Appraised Bldg:	$3,284,900.00
Appraised Total:	$3,752,500.00
Total Assessment:	$2,626,750.00

Property Images:

Picture:

There is no picture available.

Sketch:



Sales History:

Book:	Page:	Sale Date:	Price:	Validity:	Sale Type:
374	357	03/27/2001	1,953,261	B	2
130	418	05/07/1963			
261	271	09/14/1988			
261	313	09/14/1988			
374	357	03/27/2001			

Out-Buildings:

Code:	Description:	Units:	Year Built:	Size1:	Size2:	Area:	Grade:	Condition:
PA1	PAVING ASPHALT PARKING	1	1989	1	9200	9200	C	NORMAL (Comm)
LT5	LIGHT - MER - POLE & BRK	4	2006	0	0	1	C	NORMAL (Comm)
TT4	TOWER CELLULAR	1	2000	1	120	120	C	NORMAL (Comm)

Building Interior/Exterior Information:

Floor From:	Floor To:	Area:	Use Type:	Exterior Walls:	Contruction Type:	Heating:	A/C:	Plumbing:	Functional Ut
01	01	39140	WAREHOUSE	METAL, SANDWICH	FIRE RESISTANT	UNIT HEATERS	NONE	NORMAL	3
01	01	34279	WAREHOUSE	METAL, SANDWICH	FIRE RESISTANT	UNIT HEATERS	NONE	NORMAL	3
01	01	7584	MULTI-USE OFFICE	METAL, SANDWICH	FIRE RESISTANT	HOT AIR	CENTRAL	NORMAL	2
M1	M1	2179	MULTI USE STORAGE	METAL, SANDWICH	FIRE RESISTANT	HOT AIR	NONE	NONE	3

M2	M2	429	MULTI-USE OFFICE	METAL, SANDWICH	FIRE RESISTANT	HOT AIR	CENTRAL	NORMAL	3

Town of Plainville, Connecticut - Assessment Parcel Map

Parcel: 42-A-03 Address: 335 S WASHINGTON ST

0 50 100 150 200

Feet

Approximate Scale:
1 inch = 150 feet

Map Produced July 2020

Exhibit C

Construction Drawings

T · · Mobile · · ·

T-MOBILE SITE NUMBER: CT11378G
T-MOBILE SITE NAME: CT378/ATT FT PLAINVILLE2
SITE TYPE: MONOPOLE
TOWER HEIGHT: 121'-0"

BUSINESS UNIT #: 857012
SITE ADDRESS: 335 WASHINGTON ST PLAINVILLE, CT 06062
COUNTY: HARTFORD
JURISDICTION: HARTFORD COUNTY

T-MOBILE ANCHOR SITE CONFIGURATION: 67D5997DB_2xAIR+1OP

SITE INFORMATION

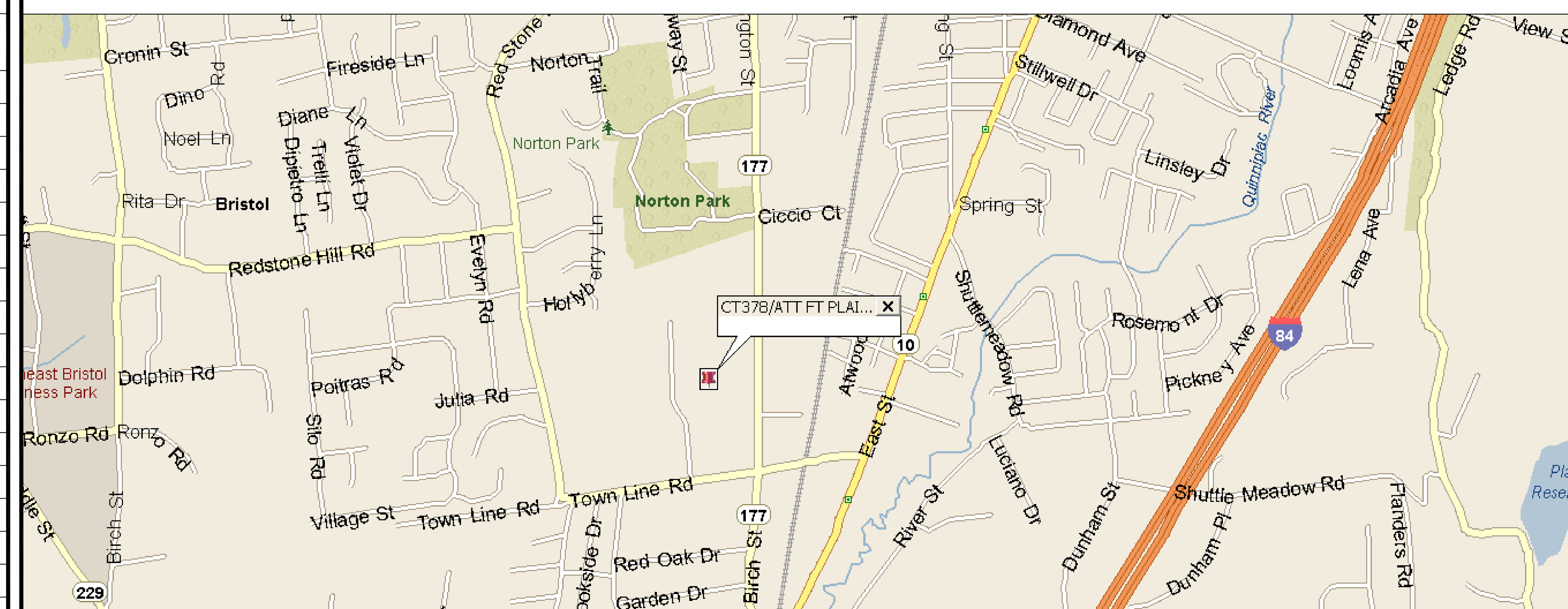
CROWN CASTLE USA INC. SITE NAME:	PLAINEVILLE SOUTH
SITE ADDRESS:	335 WASHINGTON ST PLAINVILLE, CT 06062
COUNTY:	HARTFORD
MAP/PARCEL #:	42-A-03
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.653100°
LONGITUDE:	-72.876900°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	185'
CURRENT ZONING:	RI
JURISDICTION:	HARTFORD COUNTY
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	DISPLAY PROPERTIES LLC
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054
ELECTRIC PROVIDER:	NOT PROVIDED
TELCO PROVIDER:	NOT PROVIDED

DRAWING INDEX

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

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 24X36. 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.

LOCATION MAP



NO SCALE

PROJECT TEAM

A&E FIRM:	CROWN CASTLE USA INC. 2000 CORPORATE DRIVE CANONSBURG, PA 15317 CROWNAE.APPROVAL@CROWNCASTLE.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277

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) COAX CABLES
- RELOCATE (3) TMAs
- INSTALL (6) ANTENNAS
- INSTALL (3) RADIOS
- INSTALL (3) 6x12 HCS CABLES
- INSTALL (3) DIPLEXERS
- INSTALL (1) SITE PRO1 HRK 14 SUPPORT RAIL KIT

GROUND SCOPE OF WORK:
- INSTALL (1) 6160 CABINET
- INSTALL (1) B160 BATTERY
- INSTALL (2) BB 6630s
- INSTALL (1) BB 6648
- INSTALL (1) PSU 4813

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

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 BUILDING CODE OF CONNECTICUT
MECHANICAL	2018 BUILDING CODE OF CONNECTICUT
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	BY OTHERS
DATED:	
MOUNT ANALYSIS:	BY OTHERS
DATED:	
RFDS REVISION:	4
DATED:	9/23/20
ORDER ID:	479830
REVISION:	1

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

811

APPROVALS

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

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

T · · Mobile · · ·
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

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

T-MOBILE SITE NUMBER:
CT11378G

BU #: **857012**
PLAINEVILLE SOUTH

335 WASHINGTON ST
PLAINVILLE, CT 06062

EXISTING
121'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/1/19	MLC	CONSTRUCTION	RMC
1	11/7/20	JTS	CONSTRUCTION	MTJ
2	11/25/20	JTS	CONSTRUCTION	MTJ
3	12/1/20	JTS	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

SHEET NUMBER:	REVISION:
T-1	3

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 PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, 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.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: T–MOBILE
   TOWER OWNER: 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°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER 40 ksi
   #5 BARS AND LARGER 60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER 2"
   #5 BARS AND SMALLER 1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   SLAB AND WALLS 3/4"
   BEAMS AND COLUMNS 1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY 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/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T–MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

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
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

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

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

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

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–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

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CHARLOTTE, NC 28277

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

T-MOBILE SITE NUMBER:
CT11378G

BU #: **857012**
PLAINEVILLE SOUTH

335 WASHINGTON ST
PLAINVILLE, CT 06062

EXISTING
121'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/1/19	MLC	CONSTRUCTION	RMC
1	11/7/20	JTS	CONSTRUCTION	MTJ
2	11/25/20	JTS	CONSTRUCTION	MTJ
3	12/1/20	JTS	CONSTRUCTION	MTJ

STATE OF CONNECTICUT LICENSED PROFESSIONAL ENGINEER 31627
12/1/20

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

SHEET NUMBER: **T-2**
REVISION: **3**

SITE PLAN DISCLAIMER:

PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS OR FROM ASSESSORS MAPS. CROWN CASTLE USA INC. HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET

PARCEL: 41-C-18
ZONING: RI

PARCEL: 42-A-02
ZONING: RI

APPROXIMATE LOCATION OF PROPERTY LINE

APPROXIMATE LOCATION OF PROPERTY LINE

ROBERT JACKSON WAY

PARCEL: 41-C-17
ZONING: RI

(E) COMPOUND

(E) 121'-0" MONOPOLE

PARCEL: 42-A-03
ZONING: RI

PARCEL: 41-C-16
ZONING: RI

(E) ACCESS ROAD

1 OVERALL SITE PLAN
SCALE: 30' 15' 0 30' 1"=30'-0" (FULL SIZE) 1"=60'-0" (11x17)

N

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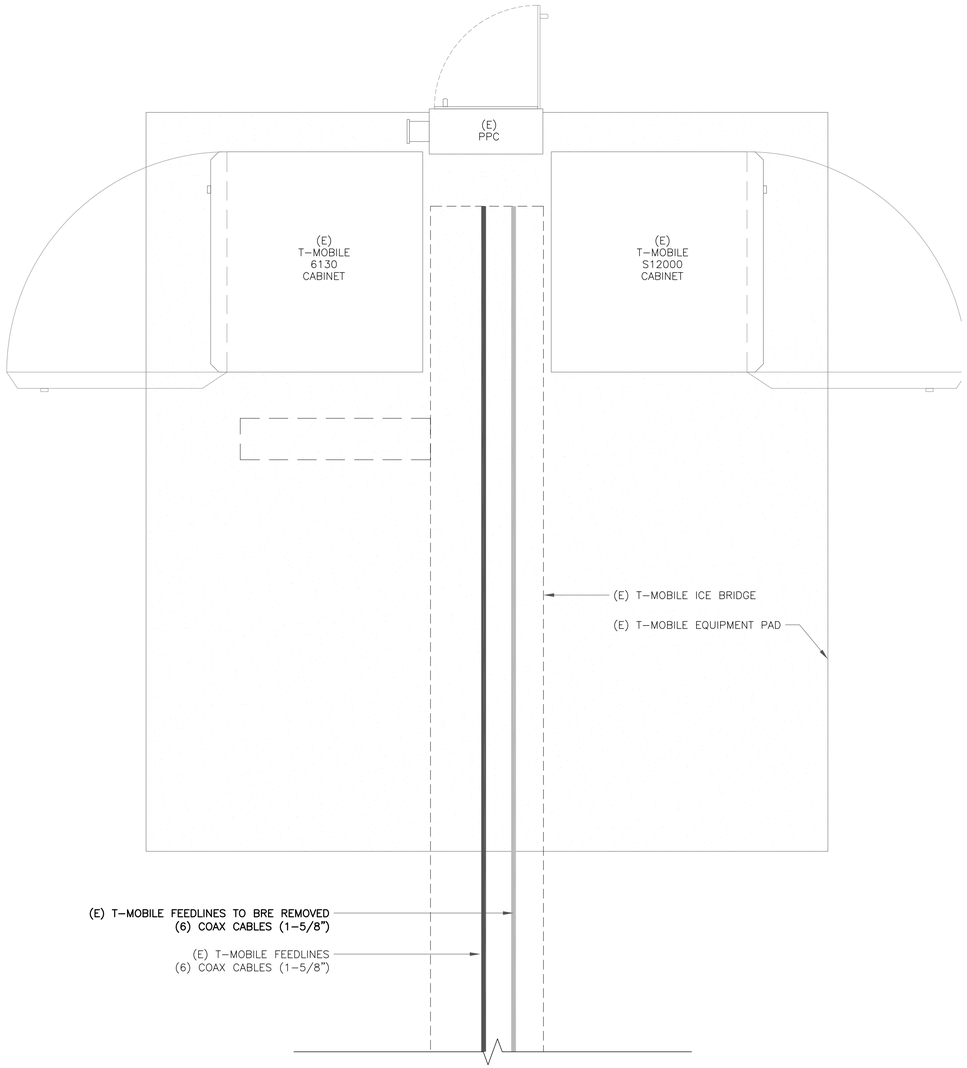
SHEET NUMBER: C-1.1

REVISION: 3

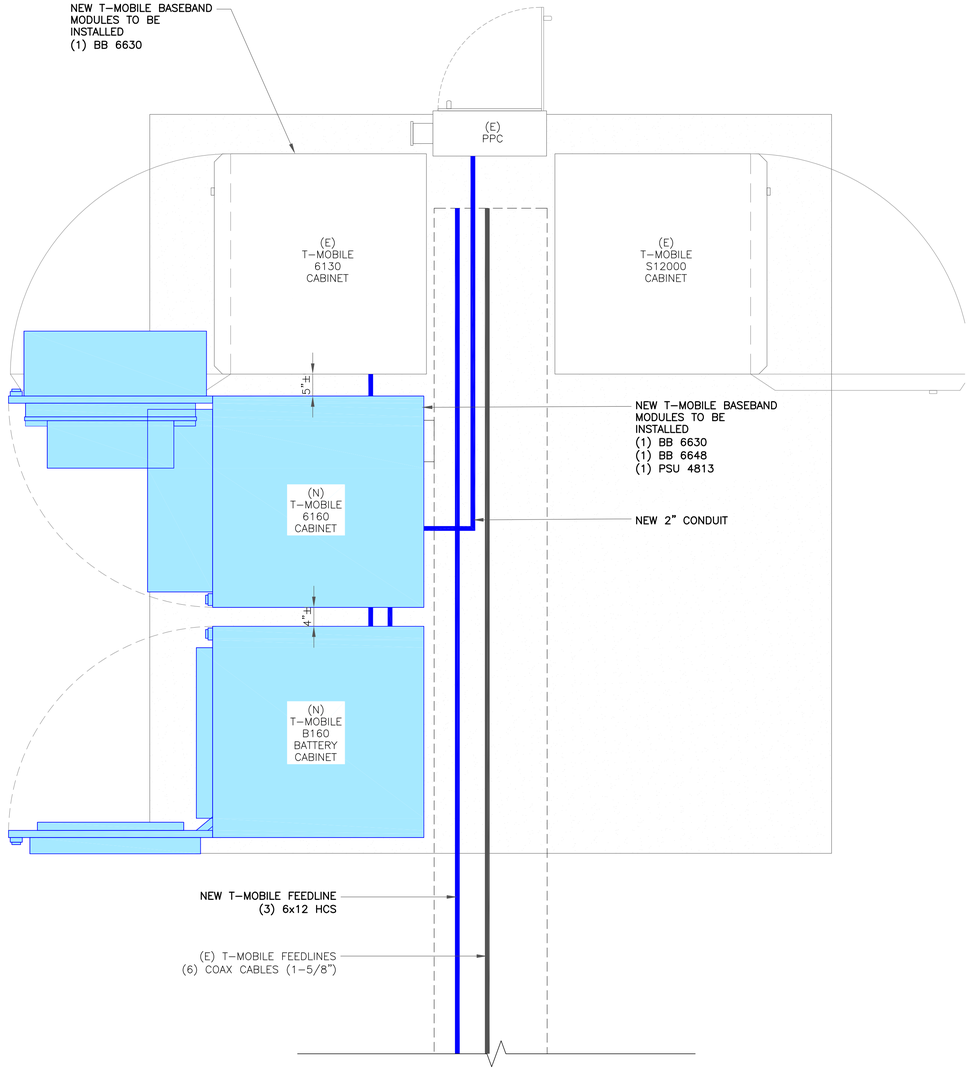
EQUIPMENT LEGEND:

- EXISTING
- TO BE RELOCATED/REMOVED
- NEW



1 EXISTING EQUIPMENT PLAN
SCALE: 1' 6" 0 1' 3/4"=1'–0" (FULL SIZE) 3/8"=1'–0" (11x17)

N



2 FINAL EQUIPMENT PLAN
SCALE: 1' 6" 0 1' 3/4"=1'–0" (FULL SIZE) 3/8"=1'–0" (11x17)

N

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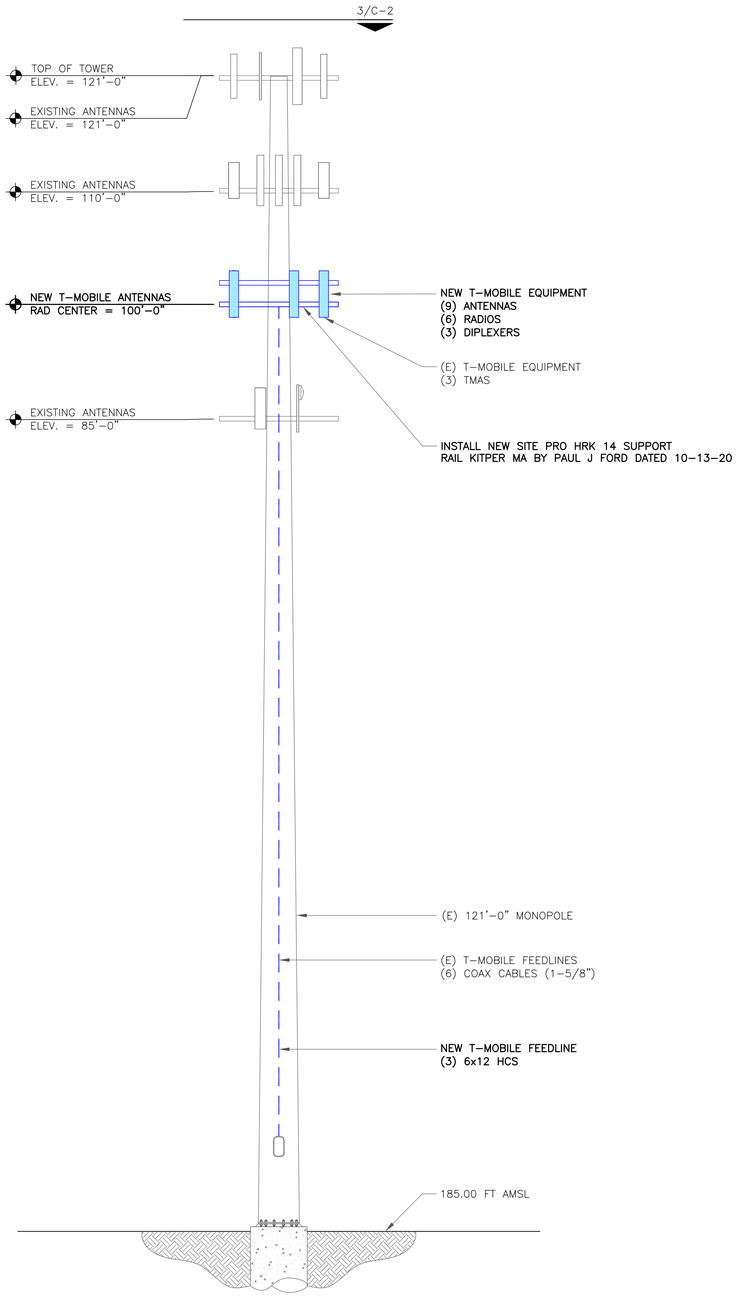
REVISION: 3

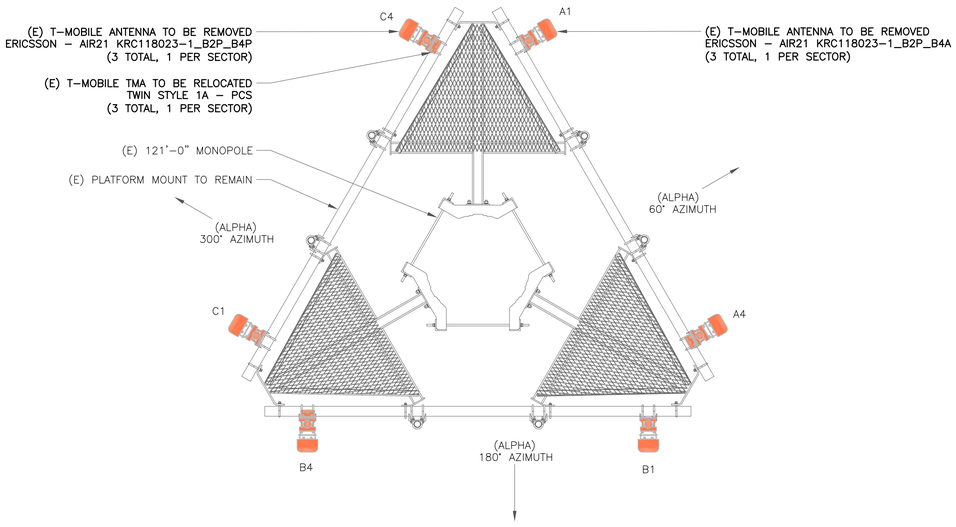
T–MOBILE EQUIPMENT

ANTENNA CL: 100'–0"
MOUNT CL: ----

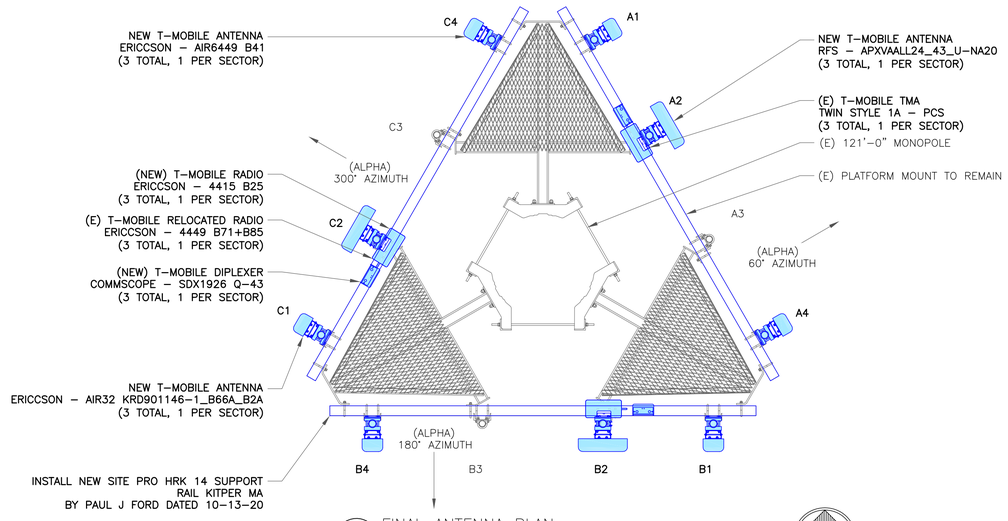
ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB



1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN
SCALE: NOT TO SCALE



3 FINAL ANTENNA PLAN
SCALE: NOT TO SCALE

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B&T ENGINEERING, INC.
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SHEET NUMBER: C-2

REVISION: 3

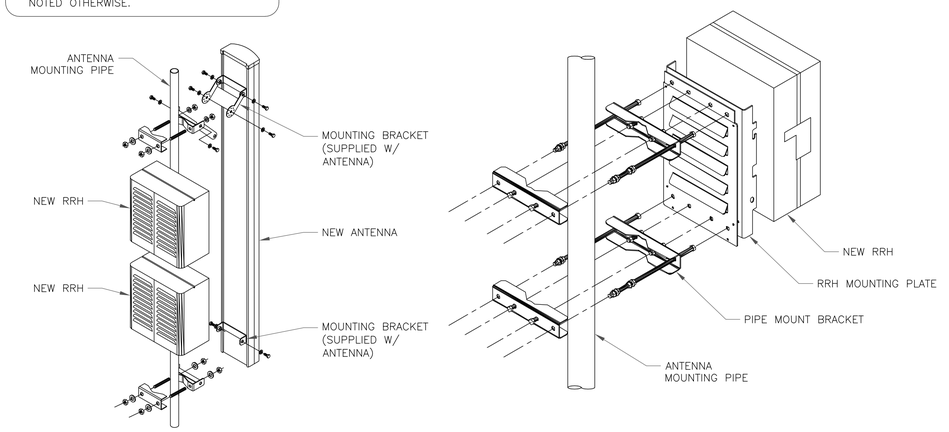
RF SYSTEM SCHEDULE

SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	CABLE TYPE	CABLE DIAMETER	CABLE LENGTH
ALPHA	A-1	L2100/G1900/ L4900	ERICSSON	AIR32 KRD901146-1_B66A_B2A	60°	0°	2°/2°/2°/2°	100'-0"	-	(1) FIBER	6x12 HYBRID	110'
	A-2	L700/L600/ N600/L1900/ U2100	RFS	APXVAALL24_43-U-NA20	60°	0°	2°/2°	100'-0"	TMA 1A-PCS/4449 B71+B85/4415 B25	(2) COAX (2 FIBER)	1 5/8"	
	A-3	L2500/N2500	ERICSSON	AIR6449 B41	60°	0°	2°/2°	100'-0"	-	(1) FIBER	6x12 HYBRID	
BETA	B-1	L2100/G1900/ L4900	ERICSSON	AIR32 KRD901146-1_B66A_B2A	180°	0°	2°/2°/2°/2°	100'-0"	-	(1) FIBER	6x12 HYBRID	
	B-2	L700/L600/ N600/L1900/ U2100	RFS	APXVAALL24_43-U-NA20	180°	0°	2°/2°	100'-0"	TMA 1A-PCS/4449 B71+B85/4415 B25	(2) COAX (2 FIBER)	1 5/8"	
	B-3	L2500/N2500	ERICSSON	AIR6449 B41	180°	0°	2°/2°	100'-0"	-	(1) FIBER	6x12 HYBRID	
GAMMA	C-1	L2100/G1900/ L4900	ERICSSON	AIR32 KRD901146-1_B66A_B2A	300°	0°	2°/2°/2°/2°	100'-0"	-	(1) FIBER	6x12 HYBRID	
	C-2	L700/L600/ N600/L1900/ U2100	RFS	APXVAALL24_43-U-NA20	300°	0°	2°/2°	100'-0"	TMA 1A-PCS/4449 B71+B85/4415 B25	(2) COAX (2 FIBER)	1 5/8"	
	B-3	L2500/N2500	ERICSSON	AIR6449 B41	300°	0°	2°/2°	100'-0"	-	(1) FIBER	6x12 HYBRID	

1 ANTENNA & FEEDLINE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

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



2 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE

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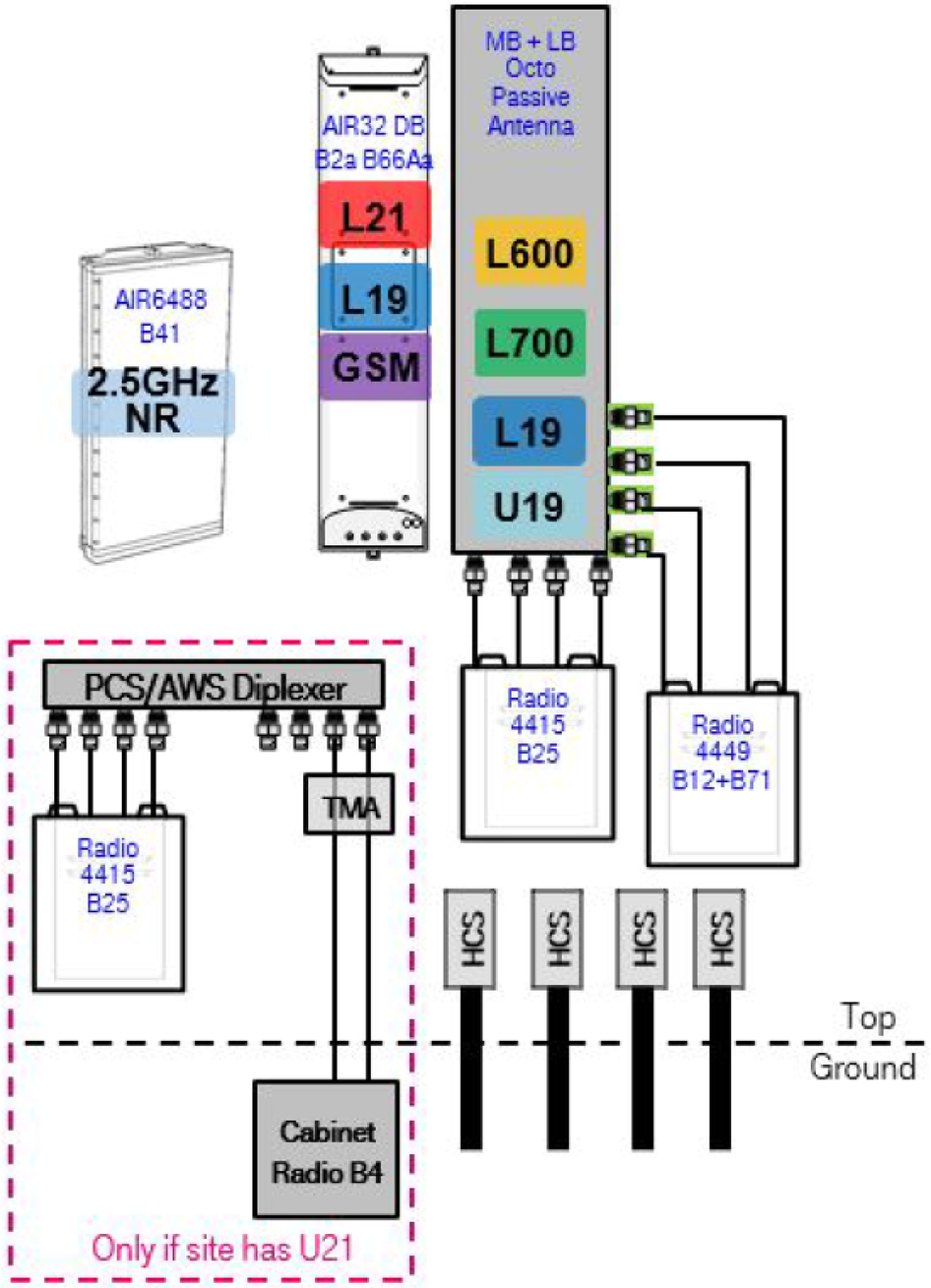
SHEET NUMBER: C-3

REVISION: 3



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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12/1/20

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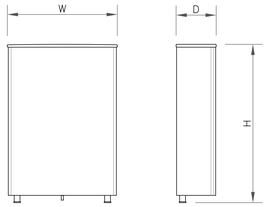
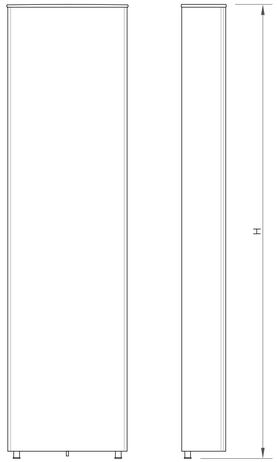
SHEET NUMBER: C-4
REVISION: 3



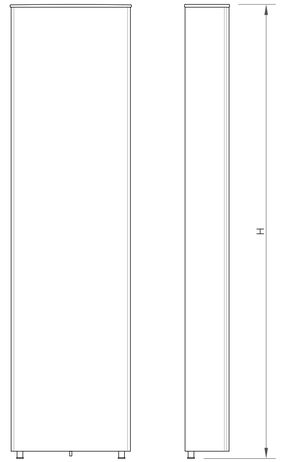
ANTENNA SPECS	
MANUFACTURER	ERRICSSON
MODEL #	AIR6449 B41
WIDTH	20.51"
DEPTH	8.54"
HEIGHT	33.11"
WEIGHT	114.63 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



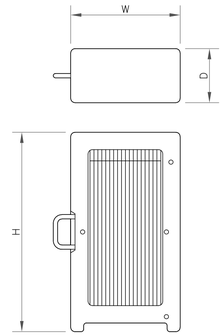
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVAARR24_43-U-NA20
WIDTH	24.00"
DEPTH	8.70"
HEIGHT	95.90"
WEIGHT	128.00 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



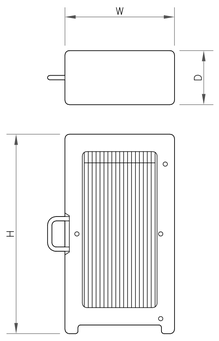
ANTENNA SPECS	
MANUFACTURER	ERICCSON
MODEL #	AIR32 B2A B66AA
WIDTH	12.87"
DEPTH	8.70"
HEIGHT	59.95
WEIGHT	171.96 LBS

3 ANTENNA SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4424 B25
WIDTH	14.40"
DEPTH	11.30"
HEIGHT	17.10"
WEIGHT	86.0 LBS

4 RRU SPECS
SCALE: NOT TO SCALE

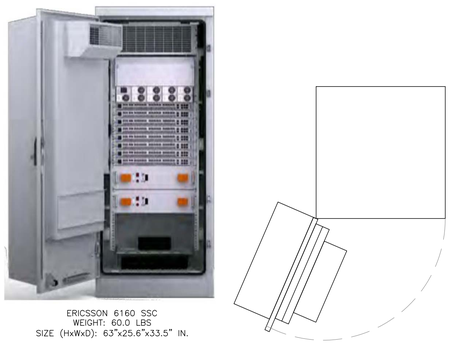


RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4415 B66A
WIDTH	13.19
DEPTH	5.39"
HEIGHT	14.96"
WEIGHT	44.0 LBS

5 RRU SPECS
SCALE: 5

DIPLEXER SPECIFICATIONS	
MANUFACTURER	COMMSCOPE
MODEL #	SDX1926Q-43
WIDTH	6.93"
DEPTH	2.91"
HEIGHT	4.17"
WEIGHT	6.17 LBS

6 DIPLEXER SPECS
SCALE: NOT TO SCALE



7 ERICSSON 6160 SSC
SCALE: NOT TO SCALE

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

8 ERICSSON B160 BATTERY CABINET
SCALE: NOT TO SCALE

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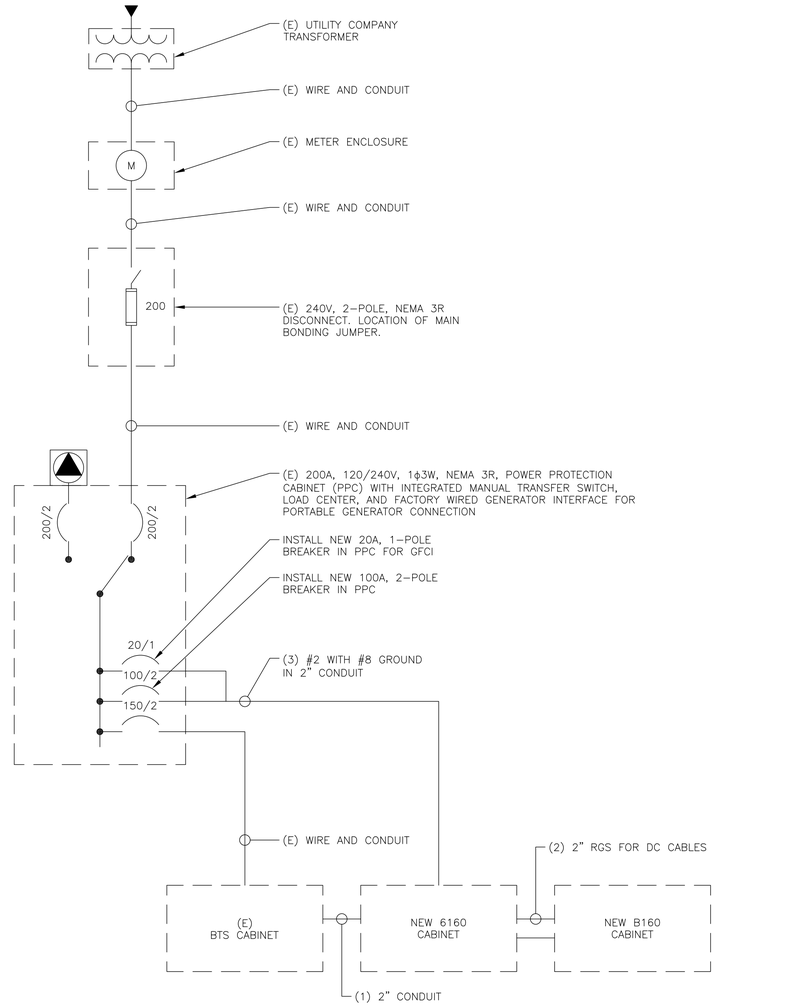
FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
SURGE	2	60A	1	2	20A	1	REC
			3	4	100A	2	6160 CABINET
BTS 1	2	60A	5	6			
			7	8	20A	1	6160 GFCI
SPOTLIGHT	1	20A	9	10			

RATED VOLTAGE: ■120/240 □_____, 1 PHASE, 3 WIRE	BRANCH POLES: □12 □24 ■30 □42	APPROVED MF'RS
RATED AMPS: □100 ■200 □400 □_____.	CABINET: ■SURFACE □FLUSH	NEMA □1 ■3R □4X
MAIN LUGS ONLY | MAIN 200 AMPS ■BREAKER □FUSED SWITCH	■HINGED DOOR	■KEYED DOOR LATCH
FUSED ■CIRCUIT BREAKER BRANCH DEVICES	□_____ TO BE GFCI BREAKERS	FULL NEUTRAL BUS | GROUND BAR
ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL		

REPLACE EXISTING BREAKER IN POSITION 4 AND 6 WITH A NEW 2P 100A BREAKER
REPLACE EXISTING BREAKER IN POSITION 8 WITH A NEW 1P 20A BREAKER
REPLACE EXISTING WIRES FOR EXISTING 6201 CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #6G AWG. MINIMUM CONDUIT SIZE TO BE 2".
IF 100A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL QO12040M200RB (OR APPROVED EQUAL).
UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING PHOTOS

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



NOTES:

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

2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

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STATE OF CONNECTICUT
MICHAEL T. JONES
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LICENSED PROFESSIONAL ENGINEER
12/1/20

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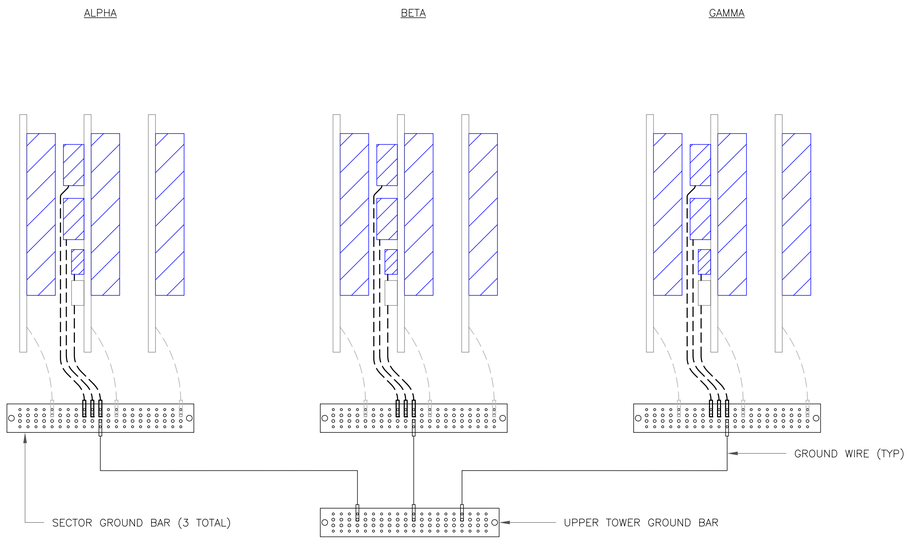
SHEET NUMBER: E-1
REVISION: 3



NOTE:

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

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

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

T-MOBILE SITE NUMBER:
CT11378G

BU #: **857012**
PLAINEVILLE SOUTH

335 WASHINGTON ST
PLAINVILLE, CT 06062

EXISTING
121'-0" MONOPOLE

ISSUED FOR:

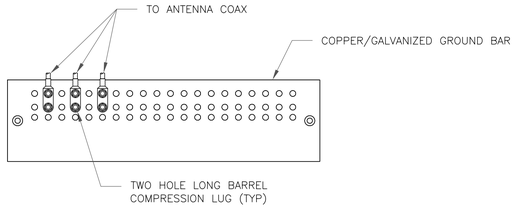
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	8/1/19	MLC	CONSTRUCTION	RMC
1	11/7/20	JTS	CONSTRUCTION	MTJ
2	11/25/20	JTS	CONSTRUCTION	MTJ
3	12/1/20	JTS	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
31627
LICENSED PROFESSIONAL ENGINEER
12/1/20

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

SHEET NUMBER: G-1

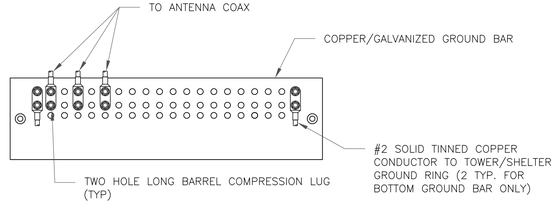
REVISION: 3



NOTES:

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

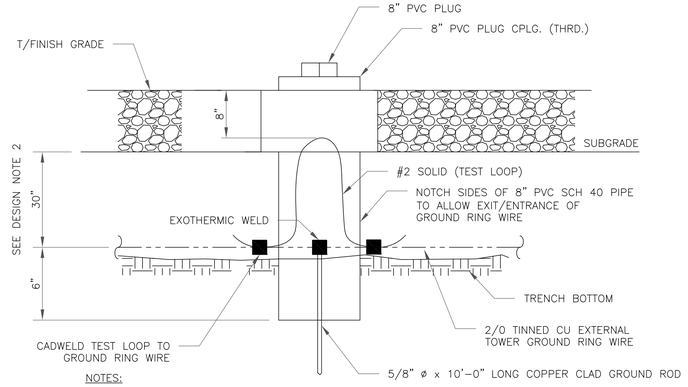
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

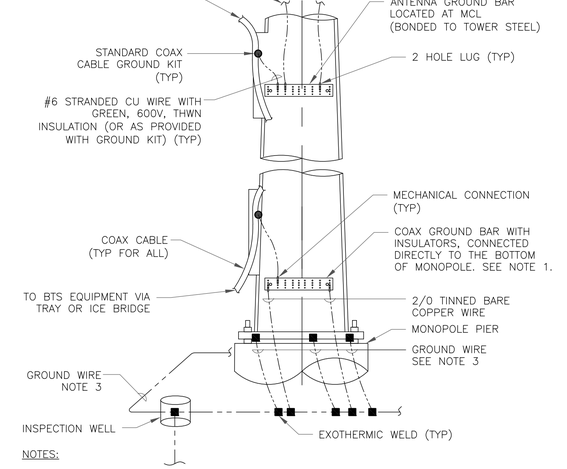
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

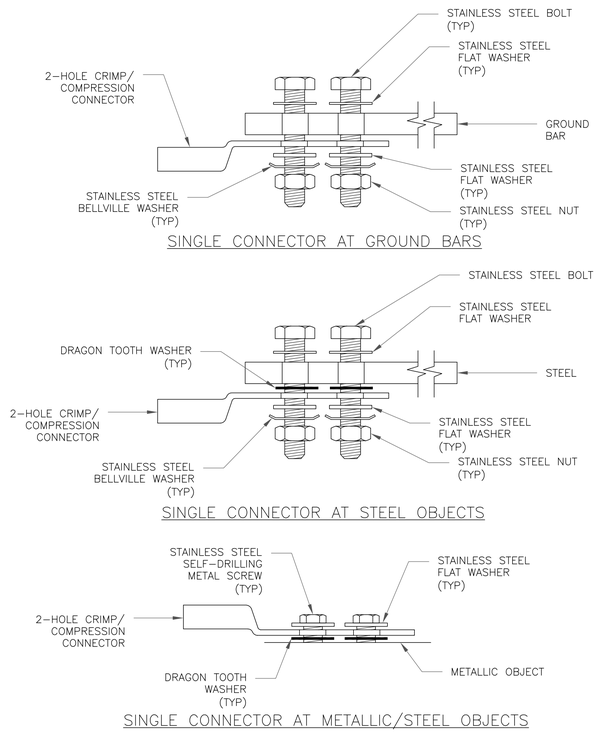
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



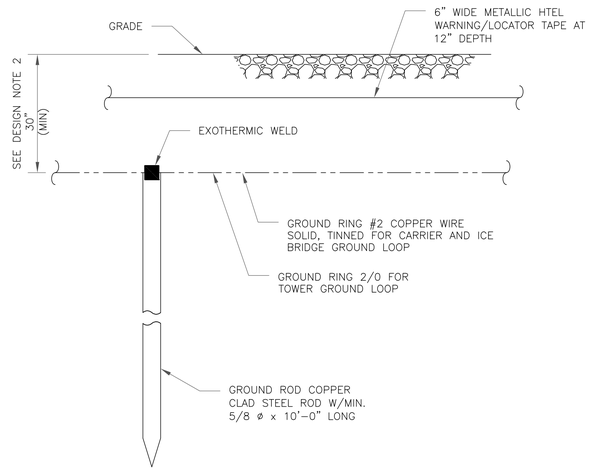
NOTES:

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

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
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335 WASHINGTON ST
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EXISTING
121'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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1	11/7/20	JTS	CONSTRUCTION	MTJ
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3	12/1/20	JTS	CONSTRUCTION	MTJ

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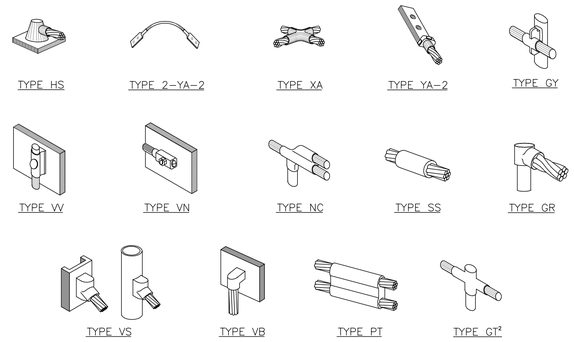
SHEET NUMBER: G-2
REVISION: 3

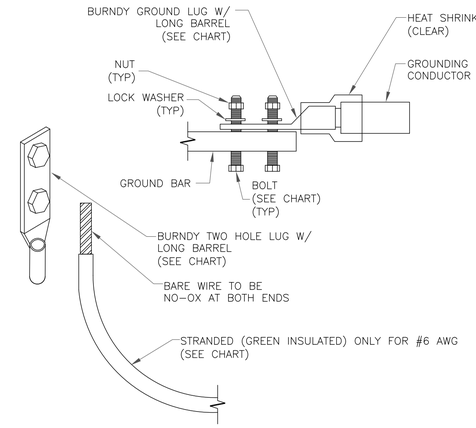


NOTE:

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

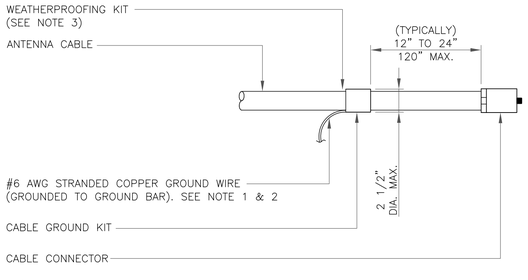
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



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.

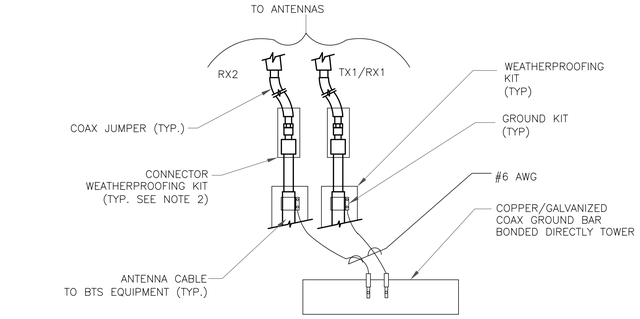
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

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

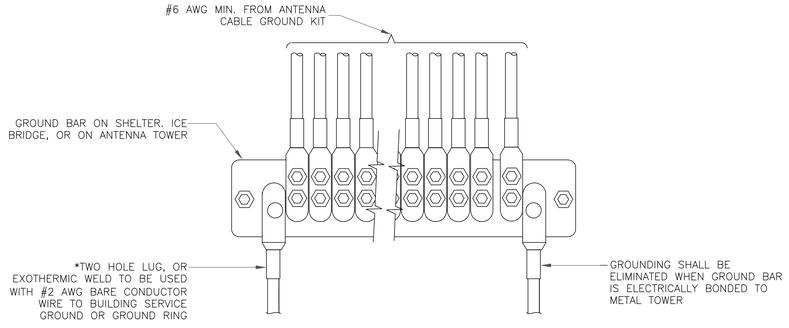
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



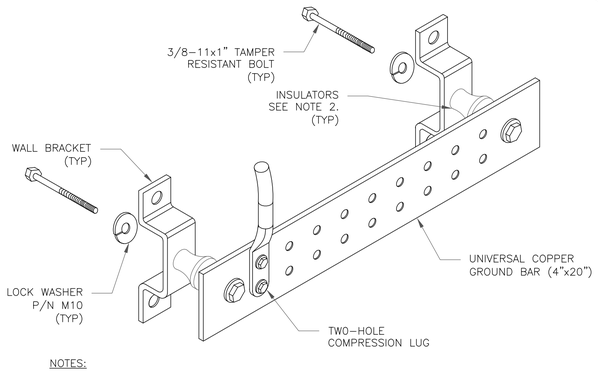
NOTES:

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

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



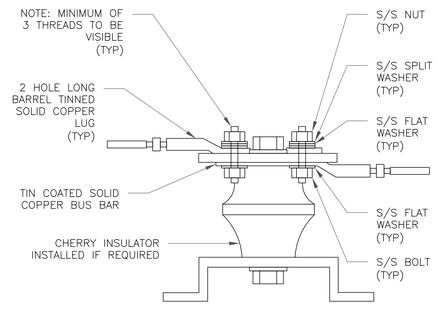
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



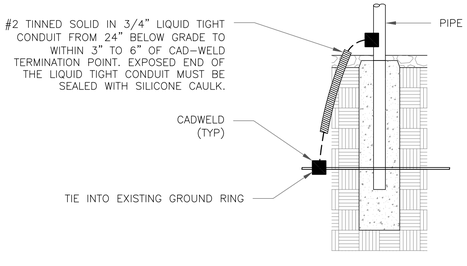
NOTES:

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

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
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T-MOBILE SITE NUMBER:
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EXISTING
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3	12/1/20	JTS	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

SHEET NUMBER: G-3
REVISION: 3

Exhibit D

Structural Analysis Report

Date: **October 16, 2020**

Denice Nicholson
Crown Castle
3 Corporate Dr
Clifton Park, NY 12065

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11378G
	Carrier Site Name:	CT378/ATT FT Plainville2
Crown Castle Designation:	**Crown Castle BU Number:**	857012
	Crown Castle Site Name:	PLAINVILLE SOUTH WASHINGTON ST
	Crown Castle JDE Job Number:	559287
	Crown Castle Work Order Number:	1891036
	Crown Castle Order Number:	479830 Rev. 1
Engineering Firm Designation:	**Crown Castle Project Number:**	1891036
Site Data:	**335 SOUTH WASHINGTON STREET, PLAINVILLE, Hartford County, CT**	
	Latitude *41° 39' 11.03"*, Longitude *-72° 52' 36.9"*	
	119 Foot - Monopole Tower	

Dear Denice Nicholson,

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

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

LC7: Proposed Equipment Configuration **Sufficient Capacity- 96.8%**

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: Abigail Ruiz /AM

Respectfully submitted by:

Digitally signed by Maham Barimani
Date: 2020.10.16 17:34:11 -04'00'

STATE OF CONNECTICUT
MAHAM BARIMANI
30501
LICENSED
PROFESSIONAL ENGINEER

Maham Barimani, P.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 119 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC..

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125
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)
98.0	100.0	3	andrew	ONEBASE TWIN DUAL DUPLEX TMA	10	1-5/8
		3	commscope	SDX1926Q-43		
		3	ericsson	AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe		
		3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	ericsson	RRUS 4415 B25		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
	98.0	1	SitePro1	HRK14		
		1	SitePro1	PRK-1245		
		1	tower mounts	Platform Mount [LP 601-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
121.0	122.0	1	raycap	DC6-48-60-18-8F	12 6 2 2	1-5/8 3/4 3/8 Conduit
	121.0	3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe		
		3	ericsson	RRUS 11 B12		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B30		
		3	ericsson	RRUS 4426 B66		
		3	ericsson	RRUS 4478 B14		
		3	ericsson	RRUS 4478 B5		
		3	kaelus	DBC0061F1V51-2		
		6	kaelus	DBCT108F1V92-1		
		3	kathrein	80010965 w/ Mount Pipe		
		6	powerwave technologies	7020.00		
		6	powerwave technologies	LGP21401		
		3	powerwave technologies	RA21.7770.00 w/ Mount Pipe		
		3	quintel technology	QS66512-2 w/ Mount Pipe		
		2	raycap	DC6-48-60-18-8C		
		1	tower mounts	13.667 ft Platform with Support Rails		
110.0	112.0	3	ericsson	B13 RRH 4X30	19	1-5/8
		3	ericsson	B4 RRH2X60-4R		
		2	amphenol	BXA-70063-6CF-EDIN-X w/ Mount Pipe		
		6	andrew	SBNHH-1D65B w/ Mount Pipe		
		6	antel	LPA-80063-4CF-EDIN-5 w/ Mount Pipe		
		1	kathrein	800 10735V01 w/ Mount Pipe		
		1	raycap	RRFDC-3315-PF-48		
	110.0	1	tower mounts	Platform Mount [LP 1201-1]		
86.0	88.0	3	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ	6 3 1 1	5/16 1-5/8 1/4 Conduit
		1	andrew	VHLP2.5-18		
		3	argus technologies	LLPX310R-V1 w/ Mount Pipe		
		3	commscope	NNVV-65B-R4 w/ Mount Pipe		
		3	dragonwave	HORIZON DUO		
		3	nokia	AHCC		
		3	samsung telecommunications	URAS-FLEXIBLE		
	86.0	1	tower mounts	Platform Mount [LP 303-1_KCKR-HR-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Tectonic	4566990	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	EEI	4566996	CCISITES
4-TOWER MANUFACTURER DRAWINGS	EEI	5121623	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.7.5), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 Standard.

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	119 - 95	Pole	TP27.38x21x0.1875	1	-9.3122	955.1661	48.4	Pass
L2	95 - 47.25	Pole	TP39.57x25.9417x0.25	2	-25.1228	1845.8894	96.8	Pass
L3	47.25 - 0	Pole	TP51.5x37.6216x0.3125	3	-40.4403	3118.6469	92.7	Pass
							Summary	
						Pole (L2)	96.8	Pass
						Rating =	96.8	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	56.9	Pass
1	Base Plate	0	72.4	Pass
1	Base Foundation (Structure)	0	69.4	Pass
1	Base Foundation (Soil Interaction)	0	36.1	Pass

Structure Rating (max from all components) =	96.8%

Notes:
1) See additional documentation in “Appendix C - Additional Calculations” for calculations supporting the % capacity consumed.

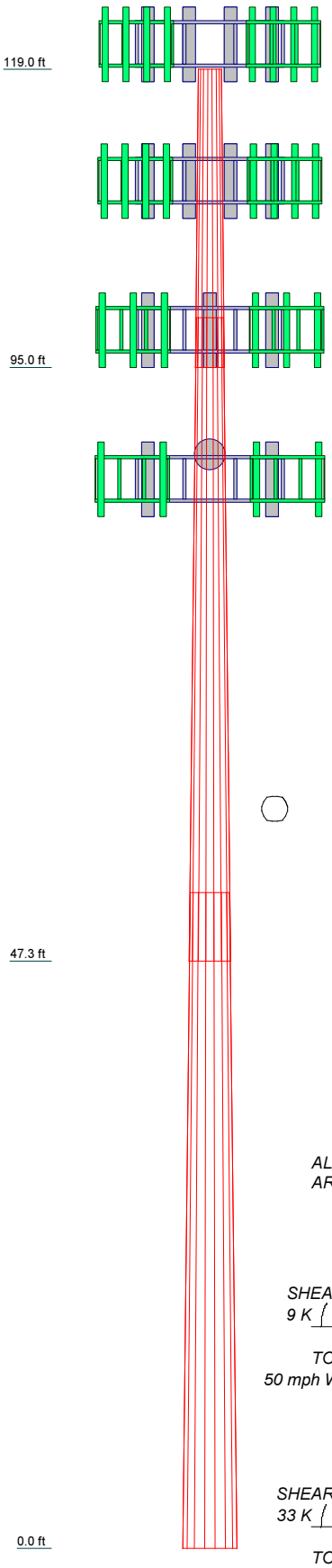
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	24.0000	18	0.1875	4.0000	21.0000	27.3800	A572-65	1.2
2	51.7500	18	0.2500	5.5000	25.9417	39.5700		4.5
3	52.7500	18	0.3125		37.6216	51.5000		7.9
								13.6



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 0.0000 ft
8. TOWER RATING: 96.8%

ALL REACTIONS ARE FACTORED

AXIAL 86 K

SHEAR 9 K *MOMENT 866 kip-ft*

TORQUE 0 kip-ft
50 mph WIND - 2.0000 in ICE

AXIAL 40 K

SHEAR 33 K *MOMENT 3156 kip-ft*

TORQUE 1 kip-ft
REACTIONS - 125 mph WIND

CROWN CASTLE
The Pathway to Possible

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

Job: ***BU# 857012***			
Project:			
Client: Crown Castle	Drawn by: abruiz		App'd:
Code: TIA-222-H	Date: 10/16/20		Scale: NTS
Path: C:\Users\AbRuiz\Desktop\857012\WO 1891036 - SA\Prod\857012_RPA.eri			Dwg No. E-1

Tower Input Data

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

3) Tower is located in Hartford County, Connecticut.
4) Tower base elevation above sea level: 181.0000 ft.
5) Basic wind speed of 125 mph.
6) Risk Category II.
7) Exposure Category C.
8) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
9) Topographic Category: 1.
10) Crest Height: 0.0000 ft.
11) Nominal ice thickness of 2.0000 in.
12) Ice thickness is considered to increase with height.
13) Ice density of 56.0000 pcf.
14) A wind speed of 50 mph is used in combination with ice.
15) Temperature drop of 50.0000 °F.
16) Deflections calculated using a wind speed of 60 mph.
17) A non-linear (P-delta) analysis was used.
18) Pressures are calculated at each section.
19) Stress ratio used in pole design is 1.05.
20) Tower analysis based on target reliabilities in accordance with Annex S.
21) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
22) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	119.0000-95.0000	24.0000	4.0000	18	21.0000	27.3800	0.1875	0.7500	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	95.0000-47.2500	51.7500	5.5000	18	25.9417	39.5700	0.2500	1.0000	A572-65 (65 ksi)
L3	47.2500-0.0000	52.7500		18	37.6216	51.5000	0.3125	1.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	21.2950	12.3860	677.8263	7.3884	10.6680	63.5383	1356.5444	6.1942	3.3660	17.952
	27.7735	16.1829	1511.7955	9.6533	13.9090	108.6916	3025.5803	8.0930	4.4889	23.941
L2	27.3729	20.3863	1700.0482	9.1205	13.1784	129.0030	3402.3334	10.1951	4.1257	16.503
	40.1419	31.2004	6094.3152	13.9586	20.1016	303.1762	12196.6494	15.6032	6.5243	26.097
L3	39.6231	37.0059	6507.8561	13.2447	19.1118	340.5158	13024.2755	18.5065	6.0714	19.428
	52.2463	50.7716	16806.8433	18.1716	26.1620	642.4143	33635.8015	25.3906	8.5140	27.245

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 119.0000-95.0000				1	1	1			
L2 95.0000-47.2500				1	1	1			
L3 47.2500-0.0000				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
LDF7-50A(1-5/8)	B	No	Surface Ar (CaAa)	110.0000 - 0.0000	7	6	-0.200 0.000	1.9800		0.8200
LDF7-50A(1-5/8")	A	No	Surface Ar (CaAa)	98.0000 - 0.0000	3	3	-0.250 -0.125	1.9800		0.8200
********** ********** ********** **********										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF7-50A(1-5/8)	A	No	No	Inside Pole	119.0000 - 0.0000	12	No Ice	0.0000	0.8200
							1/2" Ice	0.0000	0.8200
							1" Ice	0.0000	0.8200
							2" Ice	0.0000	0.8200
WR-VG86ST-	A	No	No	Inside Pole	119.0000 -	6	No Ice	0.0000	0.5840

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
BRD(3/4)					0.0000		1/2" Ice	0.0000	0.5840
							1" Ice	0.0000	0.5840
							2" Ice	0.0000	0.5840
FB-L98B-034-XXX(3/8)	A	No	No	Inside Pole	119.0000 - 0.0000	2	No Ice	0.0000	0.0570
							1/2" Ice	0.0000	0.0570
							1" Ice	0.0000	0.0570
							2" Ice	0.0000	0.0570
2" Rigid Conduit	A	No	No	Inside Pole	119.0000 - 0.0000	2	No Ice	0.0000	2.8000
							1/2" Ice	0.0000	2.8000
							1" Ice	0.0000	2.8000
							2" Ice	0.0000	2.8000
**									
LDF7-50A(1-5/8)	B	No	No	Inside Pole	110.0000 - 0.0000	12	No Ice	0.0000	0.8200
							1/2" Ice	0.0000	0.8200
							1" Ice	0.0000	0.8200
							2" Ice	0.0000	0.8200
**									
MLE Hybrid 9Power/18Fiber RL 2(1-5/8")	A	No	No	Inside Pole	98.0000 - 0.0000	7	No Ice	0.0000	1.0700
							1/2" Ice	0.0000	1.0700
							1" Ice	0.0000	1.0700
							2" Ice	0.0000	1.0700
**									
HB158-21U6M48-30F(1-5/8)	C	No	No	Inside Pole	86.0000 - 0.0000	3	No Ice	0.0000	2.3900
							1/2" Ice	0.0000	2.3900
							1" Ice	0.0000	2.3900
							2" Ice	0.0000	2.3900
9207(5/16)	C	No	No	Inside Pole	86.0000 - 0.0000	6	No Ice	0.0000	0.6000
							1/2" Ice	0.0000	0.6000
							1" Ice	0.0000	0.6000
							2" Ice	0.0000	0.6000
CAT5E(1/4)	C	No	No	Inside Pole	86.0000 - 0.0000	1	No Ice	0.0000	0.0410
							1/2" Ice	0.0000	0.0410
							1" Ice	0.0000	0.0410
							2" Ice	0.0000	0.0410
2" Rigid Conduit	C	No	No	Inside Pole	86.0000 - 0.0000	1	No Ice	0.0000	2.8000
							1/2" Ice	0.0000	2.8000
							1" Ice	0.0000	2.8000
							2" Ice	0.0000	2.8000
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Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	119.0000-95.0000	A	0.000	0.000	1.782	0.000	0.4872
		B	0.000	0.000	17.820	0.000	0.2337
		C	0.000	0.000	0.000	0.000	0.0000
L2	95.0000-47.2500	A	0.000	0.000	28.363	0.000	1.3851
		B	0.000	0.000	56.727	0.000	0.7439
		C	0.000	0.000	0.000	0.000	0.5274
L3	47.2500-0.0000	A	0.000	0.000	28.067	0.000	1.3706
		B	0.000	0.000	56.133	0.000	0.7362
		C	0.000	0.000	0.000	0.000	0.6431

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	119.0000-95.0000	A	1.911	0.000	0.000	3.661	0.000	0.5341
		B		0.000	0.000	29.442	0.000	0.6541
		C		0.000	0.000	0.000	0.000	0.0000
L2	95.0000-47.2500	A	1.833	0.000	0.000	58.270	0.000	2.1313
		B		0.000	0.000	93.724	0.000	2.0821
		C		0.000	0.000	0.000	0.000	0.5274
L3	47.2500-0.0000	A	1.644	0.000	0.000	56.734	0.000	2.0717
		B		0.000	0.000	91.817	0.000	2.0018
		C		0.000	0.000	0.000	0.000	0.6431

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	119.0000-95.0000	3.0445	-3.2177	2.3507	-2.5915
L2	95.0000-47.2500	1.5790	-4.2157	0.6961	-3.2551
L3	47.2500-0.0000	1.7089	-4.6773	0.7833	-3.7688

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	7	LDF7-50A(1-5/8)	95.00 - 110.00	1.0000	1.0000
L1	10	LDF7-50A(1-5/8")	95.00 - 98.00	1.0000	1.0000
L2	7	LDF7-50A(1-5/8)	47.25 - 95.00	1.0000	1.0000
L2	10	LDF7-50A(1-5/8")	47.25 - 95.00	1.0000	1.0000
L3	7	LDF7-50A(1-5/8)	0.00 - 47.25	1.0000	1.0000
L3	10	LDF7-50A(1-5/8")	0.00 - 47.25	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RA21.7770.00 w/ Mount Pipe	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.1400 4.5700 5.0100 5.9300	2.4600 2.8700 3.2900 4.1500	0.0629 0.1110 0.1687 0.3141

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RA21.7770.00 w/ Mount Pipe	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.1400 4.5700 5.0100 5.9300	2.4600 2.8700 3.2900 4.1500	0.0629 0.1110 0.1687 0.3141
RA21.7770.00 w/ Mount Pipe	C	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.1400 4.5700 5.0100 5.9300	2.4600 2.8700 3.2900 4.1500	0.0629 0.1110 0.1687 0.3141
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	9.2200 9.9800 10.7600 12.3600	6.2500 6.9600 7.7000 9.2200	0.0736 0.1434 0.2242 0.4201
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	9.2200 9.9800 10.7600 12.3600	6.2500 6.9600 7.7000 9.2200	0.0736 0.1434 0.2242 0.4201
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	9.2200 9.9800 10.7600 12.3600	6.2500 6.9600 7.7000 9.2200	0.0736 0.1434 0.2242 0.4201
80010965 w/ Mount Pipe	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	12.2600 13.0300 13.8000 15.4100	5.7900 6.4700 7.1700 8.6000	0.1362 0.2262 0.3282 0.5697
80010965 w/ Mount Pipe	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	12.2600 13.0300 13.8000 15.4100	5.7900 6.4700 7.1700 8.6000	0.1362 0.2262 0.3282 0.5697
80010965 w/ Mount Pipe	C	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	12.2600 13.0300 13.8000 15.4100	5.7900 6.4700 7.1700 8.6000	0.1362 0.2262 0.3282 0.5697
QS66512-2 w/ Mount Pipe	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.0400 4.4200 4.8200 5.6300	4.1800 4.5700 4.9700 5.7900	0.1366 0.2062 0.2868 0.4821
QS66512-2 w/ Mount Pipe	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.0400 4.4200 4.8200 5.6300	4.1800 4.5700 4.9700 5.7900	0.1366 0.2062 0.2868 0.4821
QS66512-2 w/ Mount Pipe	C	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.0400 4.4200 4.8200 5.6300	4.1800 4.5700 4.9700 5.7900	0.1366 0.2062 0.2868 0.4821
RRUS 11 B12	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.8333 3.0426 3.2593 3.7148	1.1821 1.3299 1.4848 1.8259	0.0507 0.0716 0.0955 0.1532
RRUS 11 B12	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.8333 3.0426 3.2593 3.7148	1.1821 1.3299 1.4848 1.8259	0.0507 0.0716 0.0955 0.1532

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRUS 11 B12	C	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.8333 3.0426 3.2593 3.7148	1.1821 1.3299 1.4848 1.8259	0.0507 0.0716 0.0955 0.1532
RRUS 32 B2	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7313 2.9531 3.1823 3.6628	1.6681 1.8552 2.0493 2.4585	0.0529 0.0740 0.0982 0.1571
RRUS 32 B2	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7313 2.9531 3.1823 3.6628	1.6681 1.8552 2.0493 2.4585	0.0529 0.0740 0.0982 0.1571
RRUS 32 B2	C	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7313 2.9531 3.1823 3.6628	1.6681 1.8552 2.0493 2.4585	0.0529 0.0740 0.0982 0.1571
RRUS 32 B30	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.6923 2.9115 3.1382 3.6137	1.5727 1.7556 1.9455 2.3462	0.0600 0.0804 0.1039 0.1612
RRUS 32 B30	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.6923 2.9115 3.1382 3.6137	1.5727 1.7556 1.9455 2.3462	0.0600 0.0804 0.1039 0.1612
RRUS 32 B30	C	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.6923 2.9115 3.1382 3.6137	1.5727 1.7556 1.9455 2.3462	0.0600 0.0804 0.1039 0.1612
RRUS 4426 B66	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.6444 1.8044 1.9719 2.3292	0.7252 0.8421 0.9685 1.2437	0.0484 0.0612 0.0764 0.1148
RRUS 4426 B66	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.6444 1.8044 1.9719 2.3292	0.7252 0.8421 0.9685 1.2437	0.0484 0.0612 0.0764 0.1148
RRUS 4426 B66	C	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.6444 1.8044 1.9719 2.3292	0.7252 0.8421 0.9685 1.2437	0.0484 0.0612 0.0764 0.1148
RRUS 4478 B14	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.8425 2.0123 2.1895 2.5662	1.0588 1.1969 1.3425 1.6558	0.0599 0.0758 0.0943 0.1400
RRUS 4478 B14	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.8425 2.0123 2.1895 2.5662	1.0588 1.1969 1.3425 1.6558	0.0599 0.0758 0.0943 0.1400
RRUS 4478 B14	C	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.8425 2.0123 2.1895 2.5662	1.0588 1.1969 1.3425 1.6558	0.0599 0.0758 0.0943 0.1400

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRUS 4478 B5	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.8425 2.0123 2.1895 2.5662	1.0588 1.1969 1.3425 1.6558	0.0599 0.0758 0.0943 0.1400
RRUS 4478 B5	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.8425 2.0123 2.1895 2.5662	1.0588 1.1969 1.3425 1.6558	0.0599 0.0758 0.0943 0.1400
RRUS 4478 B5	C	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.8425 2.0123 2.1895 2.5662	1.0588 1.1969 1.3425 1.6558	0.0599 0.0758 0.0943 0.1400
DBC0061F1V51-2	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.4133 0.4959 0.5859 0.7881	0.4333 0.5176 0.6093 0.8148	0.0254 0.0307 0.0375 0.0566
DBC0061F1V51-2	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.4133 0.4959 0.5859 0.7881	0.4333 0.5176 0.6093 0.8148	0.0254 0.0307 0.0375 0.0566
DBC0061F1V51-2	C	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.4133 0.4959 0.5859 0.7881	0.4333 0.5176 0.6093 0.8148	0.0254 0.0307 0.0375 0.0566
(2) DBCT108F1V92-1	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.3205 0.4001 0.4871 0.6896	0.6372 0.7401 0.8504 1.0932	0.0287 0.0339 0.0407 0.0599
(2) DBCT108F1V92-1	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.3205 0.4001 0.4871 0.6896	0.6372 0.7401 0.8504 1.0932	0.0287 0.0339 0.0407 0.0599
(2) DBCT108F1V92-1	C	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.3205 0.4001 0.4871 0.6896	0.6372 0.7401 0.8504 1.0932	0.0287 0.0339 0.0407 0.0599
(2) 7020.00	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.1021 0.1469 0.1991 0.3258	0.1750 0.2393 0.3109 0.4765	0.0022 0.0052 0.0093 0.0221
(2) 7020.00	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.1021 0.1469 0.1991 0.3258	0.1750 0.2393 0.3109 0.4765	0.0022 0.0052 0.0093 0.0221
(2) 7020.00	C	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.1021 0.1469 0.1991 0.3258	0.1750 0.2393 0.3109 0.4765	0.0022 0.0052 0.0093 0.0221
(2) LGP21401	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.1040 1.2388 1.3810 1.6877	0.2070 0.2738 0.3475 0.5208	0.0141 0.0213 0.0303 0.0549

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) LGP21401	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.1040 1.2388 1.3810 1.6877	0.2070 0.2738 0.3475 0.5208	0.0141 0.0213 0.0303 0.0549
(2) LGP21401	C	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.1040 1.2388 1.3810 1.6877	0.2070 0.2738 0.3475 0.5208	0.0141 0.0213 0.0303 0.0549
DC6-48-60-18-8C	A	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.1450 1.7924 2.0024 2.4512	1.1450 1.7924 2.0024 2.4512	0.0262 0.0466 0.0698 0.1251
DC6-48-60-18-8C	B	From Leg	4.0000 0.0000 0.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.1450 1.7924 2.0024 2.4512	1.1450 1.7924 2.0024 2.4512	0.0262 0.0466 0.0698 0.1251
DC6-48-60-18-8F	C	From Leg	4.0000 0.0000 1.0000	0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.2117 1.8924 2.1051 2.5703	1.2117 1.8924 2.1051 2.5703	0.0200 0.0420 0.0668 0.1256
Platform Mount [LP 601-1_KCKR]	C	None		0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	39.7300 45.9100 52.2600 65.4800	39.7300 45.9100 52.2600 65.4800	1.3970 2.0924 2.8798 4.7377
Miscellaneous [NA 507-1]	C	None		0.0000	121.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.5600 6.3900 8.1800 11.6600	4.5600 6.3900 8.1800 11.6600	0.2450 0.3114 0.4019 0.6570
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(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	A	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3790 6.7781 7.1861 8.0285	6.5644 7.1921 7.8358 9.1719	0.0381 0.1036 0.1758 0.3426
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	B	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3790 6.7781 7.1861 8.0285	6.5644 7.1921 7.8358 9.1719	0.0381 0.1036 0.1758 0.3426
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	C	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3790 6.7781 7.1861 8.0285	6.5644 7.1921 7.8358 9.1719	0.0381 0.1036 0.1758 0.3426
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.0900 4.4900 4.8900 5.7200	3.3000 3.6800 4.0700 4.8700	0.0665 0.1297 0.2037 0.3859
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.0900 4.4900 4.8900 5.7200	3.3000 3.6800 4.0700 4.8700	0.0665 0.1297 0.2037 0.3859
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice	4.0900 4.4900 4.8900 5.7200	3.3000 3.6800 4.0700 4.8700	0.0665 0.1297 0.2037 0.3859

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
800 10735V01 w/ Mount Pipe	A	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	8.8727 9.4550 10.0100 11.1272	5.4888 6.7103 7.6880 9.5633	0.0577 0.1206 0.1915 0.3615
BXA-70063-6CF-EDIN-X w/ Mount Pipe	B	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	7.4000 8.1400 8.9000 10.4600	5.3900 6.1000 6.8300 8.3400	0.0583 0.1131 0.1783 0.3417
BXA-70063-6CF-EDIN-X w/ Mount Pipe	C	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	7.4000 8.1400 8.9000 10.4600	5.3900 6.1000 6.8300 8.3400	0.0583 0.1131 0.1783 0.3417
B4 RRH2X60-4R	A	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	2.0048 2.2369 2.4759 2.9750	0.0550 0.0782 0.1049 0.1702
B4 RRH2X60-4R	B	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	2.0048 2.2369 2.4759 2.9750	0.0550 0.0782 0.1049 0.1702
B4 RRH2X60-4R	C	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	2.0048 2.2369 2.4759 2.9750	0.0550 0.0782 0.1049 0.1702
B13 RRH 4X30	A	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	1.3201 1.4754 1.6377 1.9966	0.0560 0.0729 0.0930 0.1423
B13 RRH 4X30	B	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	1.3201 1.4754 1.6377 1.9966	0.0560 0.0729 0.0930 0.1423
B13 RRH 4X30	C	From Leg	4.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	1.3201 1.4754 1.6377 1.9966	0.0560 0.0729 0.0930 0.1423
RRFDC-3315-PF-48	A	From Leg	1.0000 0.0000 2.0000	0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	3.3636 3.5972 3.8383 4.3426	2.1921 2.3950 2.6056 3.0491	0.0320 0.0605 0.0926 0.1682
Platform Mount [LP 1201-1]	C	None		0.0000	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	18.3800 22.1100 25.8700 33.4700	18.3800 22.1100 25.8700 33.4700	2.1000 2.6519 3.2630 4.6624
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AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	A	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice 1/2" Ice 1" Ice 2" Ice	7.0872 7.5606 8.0206 8.9662	6.3915 7.2487 7.9915 9.5258	0.1936 0.2571 0.3276 0.4932
AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	B	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice 1/2" Ice	7.0872 7.5606 8.0206	6.3915 7.2487 7.9915	0.1936 0.2571 0.3276

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	8.9662	9.5258	0.4932
						2" Ice			
AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	C	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	7.0872	6.3915	0.1936
						1/2" Ice	7.5606	7.2487	0.2571
						1" Ice	8.0206	7.9915	0.3276
						2" Ice	8.9662	9.5258	0.4932
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	14.6900	6.8700	0.1862
						1/2" Ice	15.4600	7.5500	0.3147
						1" Ice	16.2300	8.2500	0.4577
						2" Ice	17.8200	9.6700	0.7882
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	14.6900	6.8700	0.1862
						1/2" Ice	15.4600	7.5500	0.3147
						1" Ice	16.2300	8.2500	0.4577
						2" Ice	17.8200	9.6700	0.7882
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	14.6900	6.8700	0.1862
						1/2" Ice	15.4600	7.5500	0.3147
						1" Ice	16.2300	8.2500	0.4577
						2" Ice	17.8200	9.6700	0.7882
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	5.8701	3.2700	0.1284
						1/2" Ice	6.2332	3.7282	0.1773
						1" Ice	6.6061	4.2026	0.2317
						2" Ice	7.3816	5.2001	0.3593
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	5.8701	3.2700	0.1284
						1/2" Ice	6.2332	3.7282	0.1773
						1" Ice	6.6061	4.2026	0.2317
						2" Ice	7.3816	5.2001	0.3593
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	5.8701	3.2700	0.1284
						1/2" Ice	6.2332	3.7282	0.1773
						1" Ice	6.6061	4.2026	0.2317
						2" Ice	7.3816	5.2001	0.3593
SDX1926Q-43	A	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	0.2410	0.1013	0.0062
						1/2" Ice	0.3063	0.1444	0.0086
						1" Ice	0.3791	0.1948	0.0122
						2" Ice	0.5469	0.3180	0.0235
SDX1926Q-43	B	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	0.2410	0.1013	0.0062
						1/2" Ice	0.3063	0.1444	0.0086
						1" Ice	0.3791	0.1948	0.0122
						2" Ice	0.5469	0.3180	0.0235
SDX1926Q-43	C	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	0.2410	0.1013	0.0062
						1/2" Ice	0.3063	0.1444	0.0086
						1" Ice	0.3791	0.1948	0.0122
						2" Ice	0.5469	0.3180	0.0235
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	1.9701	1.5865	0.0732
						1/2" Ice	2.1466	1.7488	0.0930
						1" Ice	2.3306	1.9185	0.1156
						2" Ice	2.7207	2.2800	0.1704
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	1.9701	1.5865	0.0732
						1/2" Ice	2.1466	1.7488	0.0930
						1" Ice	2.3306	1.9185	0.1156
						2" Ice	2.7207	2.2800	0.1704
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	1.9701	1.5865	0.0732
						1/2" Ice	2.1466	1.7488	0.0930
						1" Ice	2.3306	1.9185	0.1156

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	2.7207	2.2800	0.1704
						2" Ice			
RRUS 4415 B25	A	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	1.6444	0.6788	0.0440
						1/2" Ice	1.8044	0.7911	0.0564
						1" Ice	1.9719	0.9129	0.0712
						2" Ice	2.3292	1.1834	0.1087
RRUS 4415 B25	B	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	1.6444	0.6788	0.0440
						1/2" Ice	1.8044	0.7911	0.0564
						1" Ice	1.9719	0.9129	0.0712
						2" Ice	2.3292	1.1834	0.1087
RRUS 4415 B25	C	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	1.6444	0.6788	0.0440
						1/2" Ice	1.8044	0.7911	0.0564
						1" Ice	1.9719	0.9129	0.0712
						2" Ice	2.3292	1.1834	0.1087
ONEBASE TWIN DUAL DUPLEX TMA	A	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	0.5775	0.2632	0.0110
						1/2" Ice	0.6740	0.3356	0.0158
						1" Ice	0.7779	0.4162	0.0222
						2" Ice	1.0079	0.5995	0.0401
ONEBASE TWIN DUAL DUPLEX TMA	B	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	0.5775	0.2632	0.0110
						1/2" Ice	0.6740	0.3356	0.0158
						1" Ice	0.7779	0.4162	0.0222
						2" Ice	1.0079	0.5995	0.0401
ONEBASE TWIN DUAL DUPLEX TMA	C	From Leg	4.0000 0.0000 2.0000	0.0000	98.0000	No Ice	0.5775	0.2632	0.0110
						1/2" Ice	0.6740	0.3356	0.0158
						1" Ice	0.7779	0.4162	0.0222
						2" Ice	1.0079	0.5995	0.0401
6' x 2" Mount Pipe	A	From Leg	4.0000 0.0000 0.0000	0.0000	98.0000	No Ice	1.4250	1.4250	0.0220
						1/2" Ice	1.9250	1.9250	0.0328
						1" Ice	2.2939	2.2939	0.0477
						2" Ice	3.0596	3.0596	0.0903
6' x 2" Mount Pipe	B	From Leg	4.0000 0.0000 0.0000	0.0000	98.0000	No Ice	1.4250	1.4250	0.0220
						1/2" Ice	1.9250	1.9250	0.0328
						1" Ice	2.2939	2.2939	0.0477
						2" Ice	3.0596	3.0596	0.0903
6' x 2" Mount Pipe	C	From Leg	4.0000 0.0000 0.0000	0.0000	98.0000	No Ice	1.4250	1.4250	0.0220
						1/2" Ice	1.9250	1.9250	0.0328
						1" Ice	2.2939	2.2939	0.0477
						2" Ice	3.0596	3.0596	0.0903
Platform Mount [LP 601-1_KCKR]	C	None		0.0000	98.0000	No Ice	39.7300	39.7300	1.3970
						1/2" Ice	45.9100	45.9100	2.0924
						1" Ice	52.2600	52.2600	2.8798
						2" Ice	65.4800	65.4800	4.7377
Miscellaneous [NA 510-1]	C	None		0.0000	98.0000	No Ice	6.3600	6.3600	0.2557
						1/2" Ice	8.5200	8.5200	0.3438
						1" Ice	10.6200	10.6200	0.4587
						2" Ice	14.6400	14.6400	0.7690
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NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.0000 0.0000 2.0000	0.0000	86.0000	No Ice	7.5500	4.2300	0.1102
						1/2" Ice	8.0400	4.6700	0.1975
						1" Ice	8.5300	5.1200	0.2961
						2" Ice	9.5600	6.0500	0.5290
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.0000 0.0000	0.0000	86.0000	No Ice	7.5500	4.2300	0.1102
						1/2"	8.0400	4.6700	0.1975

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			2.0000			Ice	8.5300	5.1200	0.2961
						1" Ice	9.5600	6.0500	0.5290
						2" Ice			
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.0000 0.0000 2.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	7.5500 8.0400 8.5300 9.5600	4.2300 4.6700 5.1200 6.0500	0.1102 0.1975 0.2961 0.5290
LLPX310R-V1 w/ Mount Pipe	A	From Leg	4.0000 0.0000 2.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	3.8800 4.2900 4.7200 5.6100	2.3600 2.7300 3.1200 3.9400	0.0573 0.0913 0.1325 0.2376
LLPX310R-V1 w/ Mount Pipe	B	From Leg	4.0000 0.0000 2.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	3.8800 4.2900 4.7200 5.6100	2.3600 2.7300 3.1200 3.9400	0.0573 0.0913 0.1325 0.2376
LLPX310R-V1 w/ Mount Pipe	C	From Leg	4.0000 0.0000 2.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	3.8800 4.2900 4.7200 5.6100	2.3600 2.7300 3.1200 3.9400	0.0573 0.0913 0.1325 0.2376
AHCC	A	From Leg	4.0000 0.0000 2.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.6283 1.7900 1.9591 2.3196	1.1388 1.2811 1.4309 1.7525	0.0452 0.0602 0.0778 0.1215
(2) AHCC	C	From Leg	4.0000 0.0000 2.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.6283 1.7900 1.9591 2.3196	1.1388 1.2811 1.4309 1.7525	0.0452 0.0602 0.0778 0.1215
URAS-FLEXIBLE	A	From Leg	4.0000 0.0000 2.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.5467 1.7037 1.8681 2.2193	0.6840 0.7999 0.9228 1.1926	0.0330 0.0446 0.0585 0.0939
(2) URAS-FLEXIBLE	B	From Leg	4.0000 0.0000 2.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.5467 1.7037 1.8681 2.2193	0.6840 0.7999 0.9228 1.1926	0.0330 0.0446 0.0585 0.0939
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.0000 0.0000 2.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.3218 2.5266 2.7388 3.1855	2.2381 2.4407 2.6507 3.0929	0.0600 0.0831 0.1095 0.1727
(2) PCS 1900MHZ 4X45W-65MHZ	B	From Leg	4.0000 0.0000 2.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.3218 2.5266 2.7388 3.1855	2.2381 2.4407 2.6507 3.0929	0.0600 0.0831 0.1095 0.1727
HORIZON DUO	A	From Leg	4.0000 0.0000 2.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.4688 0.5558 0.6502 0.8613	0.2938 0.3652 0.4441 0.6241	0.0070 0.0118 0.0180 0.0357
HORIZON DUO	B	From Leg	4.0000 0.0000 2.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.4688 0.5558 0.6502 0.8613	0.2938 0.3652 0.4441 0.6241	0.0070 0.0118 0.0180 0.0357
HORIZON DUO	C	From Leg	4.0000 0.0000	0.0000	86.0000	No Ice 1/2"	0.4688 0.5558	0.2938 0.3652	0.0070 0.0118

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			2.0000			Ice	0.6502	0.4441	0.0180
						1" Ice	0.8613	0.6241	0.0357
						2" Ice			
Platform Mount [LP 303-1_KCKR-HR-1]	C	None		0.0000	86.0000	No Ice	28.3100	28.3100	1.7700
						1/2" Ice	35.6900	35.6900	2.2974
						1" Ice	43.1100	43.1100	2.9434
						2" Ice	58.2100	58.2100	4.6027
6' x 2" Mount Pipe	A	From Leg	4.0000 0.0000 0.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.4250 1.9250 2.2939 3.0596	1.4250 1.9250 2.2939 3.0596	0.0220 0.0328 0.0477 0.0903
6' x 2" Mount Pipe	B	From Leg	4.0000 0.0000 0.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.4250 1.9250 2.2939 3.0596	1.4250 1.9250 2.2939 3.0596	0.0220 0.0328 0.0477 0.0903
6' x 2" Mount Pipe	C	From Leg	4.0000 0.0000 0.0000	0.0000	86.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.4250 1.9250 2.2939 3.0596	1.4250 1.9250 2.2939 3.0596	0.0220 0.0328 0.0477 0.0903
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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
VHLP2.5-18	A	Paraboloid w/Shroud (HP)	From Leg	1.0000 0.0000 2.0000	0.0000		86.0000	2.5000	No Ice 1/2" Ice 1" Ice 2" Ice	6.6800 7.0600 7.4600 8.2900	0.0480 0.0510 0.0600 0.0970
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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

Comb. No.	Description
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
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	119 - 95	Pole	Max Tension	1	0.0000	0.0000	0.0000
			Max. Compression	26	-30.1620	-0.5367	0.8503
			Max. Mx	8	-9.3347	-271.6356	0.1608
			Max. My	2	-9.3122	-0.1364	273.1149
			Max. Vy	8	15.4137	-271.6356	0.1608
			Max. Vx	2	-15.5251	-0.1364	273.1149
			Max. Torque	9			0.1848
L2	95 - 47.25	Pole	Max Tension	1	0.0000	0.0000	0.0000
			Max. Compression	26	-64.6678	-3.3764	3.2986
			Max. Mx	8	-25.1678	-1476.7944	1.3864
			Max. My	14	-25.1372	-1.5055	-1489.4399
			Max. Vy	8	28.8925	-1476.7944	1.3864
			Max. Vx	14	29.2151	-1.5055	-1489.4399

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L3	47.25 - 0	Pole	Max. Torque	22			-0.8638
			Max Tension	1	0.0000	0.0000	0.0000
			Max. Compression	26	-86.1429	-4.9854	6.0807
			Max. Mx	8	-40.4414	-3114.0516	3.0056
			Max. My	14	-40.4407	-2.7302	-3142.5861
			Max. Vy	8	32.9706	-3114.0516	3.0056
			Max. Vx	14	33.2819	-2.7302	-3142.5861
			Max. Torque	22			-0.8582

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	86.1429	0.0029	8.5844
	Max. H_x	21	30.3596	32.9239	0.0509
	Max. H_z	2	40.4795	0.0154	33.1548
	Max. M_x	2	3137.6160	0.0154	33.1548
	Max. M_z	8	3114.0516	-32.9239	0.0201
	Max. Torsion	12	0.7638	-16.5698	-29.0358
	Min. Vert	19	30.3596	28.4487	-16.7061
	Min. H_x	9	30.3596	-32.9239	0.0201
	Min. H_z	15	30.3596	-0.0154	-33.2347
	Min. M_x	14	-3142.5861	-0.0154	-33.2347
	Min. M_z	20	-3111.4086	32.9239	0.0509
	Min. Torsion	22	-0.8560	28.6471	16.7491

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	33.7329	0.0000	0.0000	-0.9298	-1.0447	0.0000
1.2 Dead+1.0 Wind 0 deg - No Ice	40.4795	-0.0154	-33.1548	-3137.6160	0.0850	0.6145
0.9 Dead+1.0 Wind 0 deg - No Ice	30.3596	-0.0154	-33.1548	-3100.6092	0.4165	0.6119
1.2 Dead+1.0 Wind 30 deg - No Ice	40.4795	16.4042	-28.7304	-2719.0514	-1552.3739	0.2724
0.9 Dead+1.0 Wind 30 deg - No Ice	30.3596	16.4042	-28.7304	-2686.9313	-1533.8595	0.2709
1.2 Dead+1.0 Wind 60 deg - No Ice	40.4795	28.4715	-16.6300	-1574.2527	-2693.2224	-0.2408
0.9 Dead+1.0 Wind 60 deg - No Ice	30.3596	28.4715	-16.6300	-1555.5392	-2661.3506	-0.2407
1.2 Dead+1.0 Wind 90 deg - No Ice	40.4795	32.9239	-0.0201	-3.0054	-3114.0516	-0.7114
0.9 Dead+1.0 Wind 90 deg - No Ice	30.3596	32.9239	-0.0201	-2.6841	-3077.2522	-0.7096
1.2 Dead+1.0 Wind 120 deg - No Ice	40.4795	28.6242	16.8252	1587.9826	-2704.0818	-0.7397
0.9 Dead+1.0 Wind 120 deg - No Ice	30.3596	28.6242	16.8252	1569.7233	-2672.1211	-0.7365
1.2 Dead+1.0 Wind 150 deg - No Ice	40.4795	16.5698	29.0358	2740.7775	-1565.2767	-0.7638
0.9 Dead+1.0 Wind 150 deg - No Ice	30.3596	16.5698	29.0358	2709.0450	-1546.6461	-0.7604

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 180 deg - No Ice	40.4795	0.0154	33.2347	3142.5861	-2.7300	-0.6151
0.9 Dead+1.0 Wind 180 deg - No Ice	30.3596	0.0154	33.2347	3106.0919	-2.3697	-0.6126
1.2 Dead+1.0 Wind 210 deg - No Ice	40.4795	-16.4232	28.8128	2724.2379	1551.4569	-0.3014
0.9 Dead+1.0 Wind 210 deg - No Ice	30.3596	-16.4232	28.8128	2692.6474	1533.6169	-0.3003
1.2 Dead+1.0 Wind 240 deg - No Ice	40.4795	-28.4487	16.7061	1578.8798	2688.4845	0.1251
0.9 Dead+1.0 Wind 240 deg - No Ice	30.3596	-28.4487	16.7061	1560.7007	2657.3258	0.1245
1.2 Dead+1.0 Wind 270 deg - No Ice	40.4795	-32.9239	-0.0509	-5.8205	3111.4086	0.7121
0.9 Dead+1.0 Wind 270 deg - No Ice	30.3596	-32.9239	-0.0509	-5.4703	3075.3003	0.7103
1.2 Dead+1.0 Wind 300 deg - No Ice	40.4795	-28.6471	-16.7491	-1583.3577	2703.5329	0.8560
0.9 Dead+1.0 Wind 300 deg - No Ice	30.3596	-28.6471	-16.7491	-1564.5632	2672.2415	0.8533
1.2 Dead+1.0 Wind 330 deg - No Ice	40.4795	-16.5508	-28.9534	-2735.5933	1560.9049	0.7922
0.9 Dead+1.0 Wind 330 deg - No Ice	30.3596	-16.5508	-28.9534	-2703.3304	1542.9832	0.7891
1.2 Dead+1.0 Ice+1.0 Temp	86.1429	0.0000	-0.0000	-6.0807	-4.9854	0.0000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	86.1429	-0.0029	-8.5844	-865.4655	-4.7906	0.1405
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	86.1429	4.2658	-7.4376	-750.7269	-432.0858	0.0510
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	86.1429	7.4000	-4.3025	-436.8708	-745.7952	-0.0706
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	86.1429	8.5543	-0.0040	-6.5839	-861.2491	-0.1762
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	86.1429	7.3985	4.3225	426.4523	-745.6456	-0.1840
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	86.1429	4.2746	7.4567	740.2196	-432.9518	-0.1831
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	86.1429	0.0029	8.6001	854.6222	-5.3676	-0.1405
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	86.1429	-4.2695	7.4538	739.9322	422.2938	-0.0602
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	86.1429	-7.3955	4.3174	425.9536	735.2000	0.0436
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	86.1429	-8.5543	-0.0099	-7.1609	851.0932	0.1763
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	86.1429	-7.4029	-4.3076	-437.3715	735.9264	0.2112
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	86.1429	-4.2709	-7.4405	-751.0164	422.4271	0.1925
Dead+Wind 0 deg - Service	33.7329	-0.0033	-7.1945	-677.5810	-0.7952	0.1347
Dead+Wind 30 deg - Service	33.7329	3.5597	-6.2344	-587.2773	-335.6937	0.0578
Dead+Wind 60 deg - Service	33.7329	6.1782	-3.6087	-340.3151	-581.7910	-0.0549
Dead+Wind 90 deg - Service	33.7329	7.1444	-0.0044	-1.3678	-672.5680	-0.1565
Dead+Wind 120 deg - Service	33.7329	6.2114	3.6510	341.8468	-584.1456	-0.1600
Dead+Wind 150 deg - Service	33.7329	3.5956	6.3007	590.5484	-338.4896	-0.1656
Dead+Wind 180 deg - Service	33.7329	0.0033	7.2118	677.2171	-1.4028	-0.1347
Dead+Wind 210 deg - Service	33.7329	-3.5638	6.2523	586.9636	333.8712	-0.0678
Dead+Wind 240 deg - Service	33.7329	-6.1733	3.6252	339.8764	579.1423	0.0253
Dead+Wind 270 deg - Service	33.7329	-7.1444	-0.0110	-1.9754	670.3701	0.1565
Dead+Wind 300 deg - Service	33.7329	-6.2163	-3.6345	-342.2870	582.4010	0.1897
Dead+Wind 330 deg - Service	33.7329	-3.5915	-6.2828	-590.8597	335.9148	0.1755

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.0000	-33.7329	0.0000	0.0000	33.7329	0.0000	0.000%
2	-0.0154	-40.4795	-33.1548	0.0154	40.4795	33.1548	0.000%
3	-0.0154	-30.3596	-33.1548	0.0154	30.3596	33.1548	0.000%
4	16.4042	-40.4795	-28.7304	-16.4042	40.4795	28.7304	0.000%
5	16.4042	-30.3596	-28.7304	-16.4042	30.3596	28.7304	0.000%
6	28.4715	-40.4795	-16.6300	-28.4715	40.4795	16.6300	0.000%
7	28.4715	-30.3596	-16.6300	-28.4715	30.3596	16.6300	0.000%
8	32.9239	-40.4795	-0.0201	-32.9239	40.4795	0.0201	0.000%
9	32.9239	-30.3596	-0.0201	-32.9239	30.3596	0.0201	0.000%
10	28.6242	-40.4795	16.8252	-28.6242	40.4795	-16.8252	0.000%
11	28.6242	-30.3596	16.8252	-28.6242	30.3596	-16.8252	0.000%
12	16.5698	-40.4795	29.0358	-16.5698	40.4795	-29.0358	0.000%
13	16.5698	-30.3596	29.0358	-16.5698	30.3596	-29.0358	0.000%
14	0.0154	-40.4795	33.2347	-0.0154	40.4795	-33.2347	0.000%
15	0.0154	-30.3596	33.2347	-0.0154	30.3596	-33.2347	0.000%
16	-16.4232	-40.4795	28.8128	16.4232	40.4795	-28.8128	0.000%
17	-16.4232	-30.3596	28.8128	16.4232	30.3596	-28.8128	0.000%
18	-28.4487	-40.4795	16.7061	28.4487	40.4795	-16.7061	0.000%
19	-28.4487	-30.3596	16.7061	28.4487	30.3596	-16.7061	0.000%
20	-32.9239	-40.4795	-0.0509	32.9239	40.4795	0.0509	0.000%
21	-32.9239	-30.3596	-0.0509	32.9239	30.3596	0.0509	0.000%
22	-28.6471	-40.4795	-16.7491	28.6471	40.4795	16.7491	0.000%
23	-28.6471	-30.3596	-16.7491	28.6471	30.3596	16.7491	0.000%
24	-16.5508	-40.4795	-28.9534	16.5508	40.4795	28.9534	0.000%
25	-16.5508	-30.3596	-28.9534	16.5508	30.3596	28.9534	0.000%
26	0.0000	-86.1429	0.0000	-0.0000	86.1429	0.0000	0.000%
27	-0.0029	-86.1429	-8.5841	0.0029	86.1429	8.5844	0.000%
28	4.2658	-86.1429	-7.4375	-4.2658	86.1429	7.4376	0.000%
29	7.4000	-86.1429	-4.3025	-7.4000	86.1429	4.3025	0.000%
30	8.5541	-86.1429	-0.0040	-8.5543	86.1429	0.0040	0.000%
31	7.3984	-86.1429	4.3225	-7.3985	86.1429	-4.3225	0.000%
32	4.2746	-86.1429	7.4567	-4.2746	86.1429	-7.4567	0.000%
33	0.0029	-86.1429	8.5998	-0.0029	86.1429	-8.6001	0.000%
34	-4.2695	-86.1429	7.4537	4.2695	86.1429	-7.4538	0.000%
35	-7.3955	-86.1429	4.3174	7.3955	86.1429	-4.3174	0.000%
36	-8.5541	-86.1429	-0.0099	8.5543	86.1429	0.0099	0.000%
37	-7.4029	-86.1429	-4.3076	7.4029	86.1429	4.3076	0.000%
38	-4.2709	-86.1429	-7.4405	4.2709	86.1429	7.4405	0.000%
39	-0.0033	-33.7329	-7.1945	0.0033	33.7329	7.1945	0.000%
40	3.5597	-33.7329	-6.2344	-3.5597	33.7329	6.2344	0.000%
41	6.1782	-33.7329	-3.6087	-6.1782	33.7329	3.6087	0.000%
42	7.1444	-33.7329	-0.0044	-7.1444	33.7329	0.0044	0.000%
43	6.2114	-33.7329	3.6510	-6.2114	33.7329	-3.6510	0.000%
44	3.5956	-33.7329	6.3007	-3.5956	33.7329	-6.3007	0.000%
45	0.0033	-33.7329	7.2118	-0.0033	33.7329	-7.2118	0.000%
46	-3.5638	-33.7329	6.2523	3.5638	33.7329	-6.2523	0.000%
47	-6.1733	-33.7329	3.6252	6.1733	33.7329	-3.6252	0.000%
48	-7.1444	-33.7329	-0.0110	7.1444	33.7329	0.0110	0.000%
49	-6.2163	-33.7329	-3.6345	6.2163	33.7329	3.6345	0.000%
50	-3.5915	-33.7329	-6.2828	3.5915	33.7329	6.2828	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00090379
3	Yes	4	0.00000001	0.00046390
4	Yes	6	0.00000001	0.00016808

5	Yes	6	0.00000001	0.00004908
6	Yes	6	0.00000001	0.00016885
7	Yes	6	0.00000001	0.00004933
8	Yes	5	0.00000001	0.00006414
9	Yes	4	0.00000001	0.00073211
10	Yes	6	0.00000001	0.00016700
11	Yes	6	0.00000001	0.00004854
12	Yes	6	0.00000001	0.00017031
13	Yes	6	0.00000001	0.00004968
14	Yes	5	0.00000001	0.00004762
15	Yes	4	0.00000001	0.00053648
16	Yes	6	0.00000001	0.00016704
17	Yes	6	0.00000001	0.00004874
18	Yes	6	0.00000001	0.00016736
19	Yes	6	0.00000001	0.00004884
20	Yes	5	0.00000001	0.00007080
21	Yes	4	0.00000001	0.00080635
22	Yes	6	0.00000001	0.00017046
23	Yes	6	0.00000001	0.00004981
24	Yes	6	0.00000001	0.00016637
25	Yes	6	0.00000001	0.00004838
26	Yes	4	0.00000001	0.00006349
27	Yes	5	0.00000001	0.00087864
28	Yes	6	0.00000001	0.00027770
29	Yes	6	0.00000001	0.00027902
30	Yes	5	0.00000001	0.00087704
31	Yes	6	0.00000001	0.00026912
32	Yes	6	0.00000001	0.00027428
33	Yes	5	0.00000001	0.00086624
34	Yes	6	0.00000001	0.00026465
35	Yes	6	0.00000001	0.00026430
36	Yes	5	0.00000001	0.00086377
37	Yes	6	0.00000001	0.00027464
38	Yes	6	0.00000001	0.00026854
39	Yes	4	0.00000001	0.00007770
40	Yes	4	0.00000001	0.00098036
41	Yes	4	0.00000001	0.00098905
42	Yes	4	0.00000001	0.00009147
43	Yes	4	0.00000001	0.00095098
44	Yes	5	0.00000001	0.00005083
45	Yes	4	0.00000001	0.00007862
46	Yes	4	0.00000001	0.00095320
47	Yes	4	0.00000001	0.00095263
48	Yes	4	0.00000001	0.00009227
49	Yes	5	0.00000001	0.00005072
50	Yes	4	0.00000001	0.00094492

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	119 - 95	19.4053	44	1.4718	0.0012
L2	99 - 47.25	13.4758	44	1.3223	0.0011
L3	52.75 - 0	3.6165	44	0.6461	0.0003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
121.0000	RA21.7770.00 w/ Mount Pipe	44	19.4053	1.4718	0.0012	19571
110.0000	(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	44	16.6786	1.4136	0.0011	10872

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
98.0000	AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	44	13.1968	1.3121	0.0011	4914
88.0000	VHLP2.5-18	44	10.5479	1.1919	0.0009	4326
86.0000	NNVV-65B-R4 w/ Mount Pipe	44	10.0504	1.1645	0.0009	4237

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	119 - 95	89.8874	12	6.8326	0.0057
L2	99 - 47.25	62.4584	12	6.1398	0.0051
L3	52.75 - 0	16.7771	12	2.9994	0.0015

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
121.0000	RA21.7770.00 w/ Mount Pipe	12	89.8874	6.8326	0.0057	4337
110.0000	(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	12	77.2762	6.5631	0.0055	2408
98.0000	AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	12	61.1673	6.0925	0.0050	1085
88.0000	VHLP2.5-18	12	48.9034	5.5343	0.0044	951
86.0000	NNVV-65B-R4 w/ Mount Pipe	12	46.5991	5.4069	0.0042	930

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	119 - 95 (1)	TP27.38x21x0.1875	24.0000	0.0000	0.0	15.5501	-9.3122	909.6820	0.010
L2	95 - 47.25 (2)	TP39.57x25.9417x0.25	51.7500	0.0000	0.0	30.0511	-25.1228	1757.9900	0.014
L3	47.25 - 0 (3)	TP51.5x37.6216x0.3125	52.7500	0.0000	0.0	50.7716	-40.4403	2970.1400	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	119 - 95 (1)	TP27.38x21x0.1875	273.1150	552.1708	0.495	0.0000	552.1708	0.000
L2	95 - 47.25 (2)	TP39.57x25.9417x0.25	1492.4250	1494.5583	0.999	0.0000	1494.5583	0.000
L3	47.25 - 0 (3)	TP51.5x37.6216x0.3125	3156.2583	3291.7833	0.959	0.0000	3291.7833	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	119 - 95 (1)	TP27.38x21x0.1875	15.5251	272.9050	0.057	0.0118	624.4767	0.000
L2	95 - 47.25 (2)	TP39.57x25.9417x0.25	29.3856	527.3970	0.056	0.7662	1749.1667	0.000
L3	47.25 - 0 (3)	TP51.5x37.6216x0.3125	33.4785	891.0420	0.038	0.7638	3994.3083	0.000

Pole Interaction Design Data

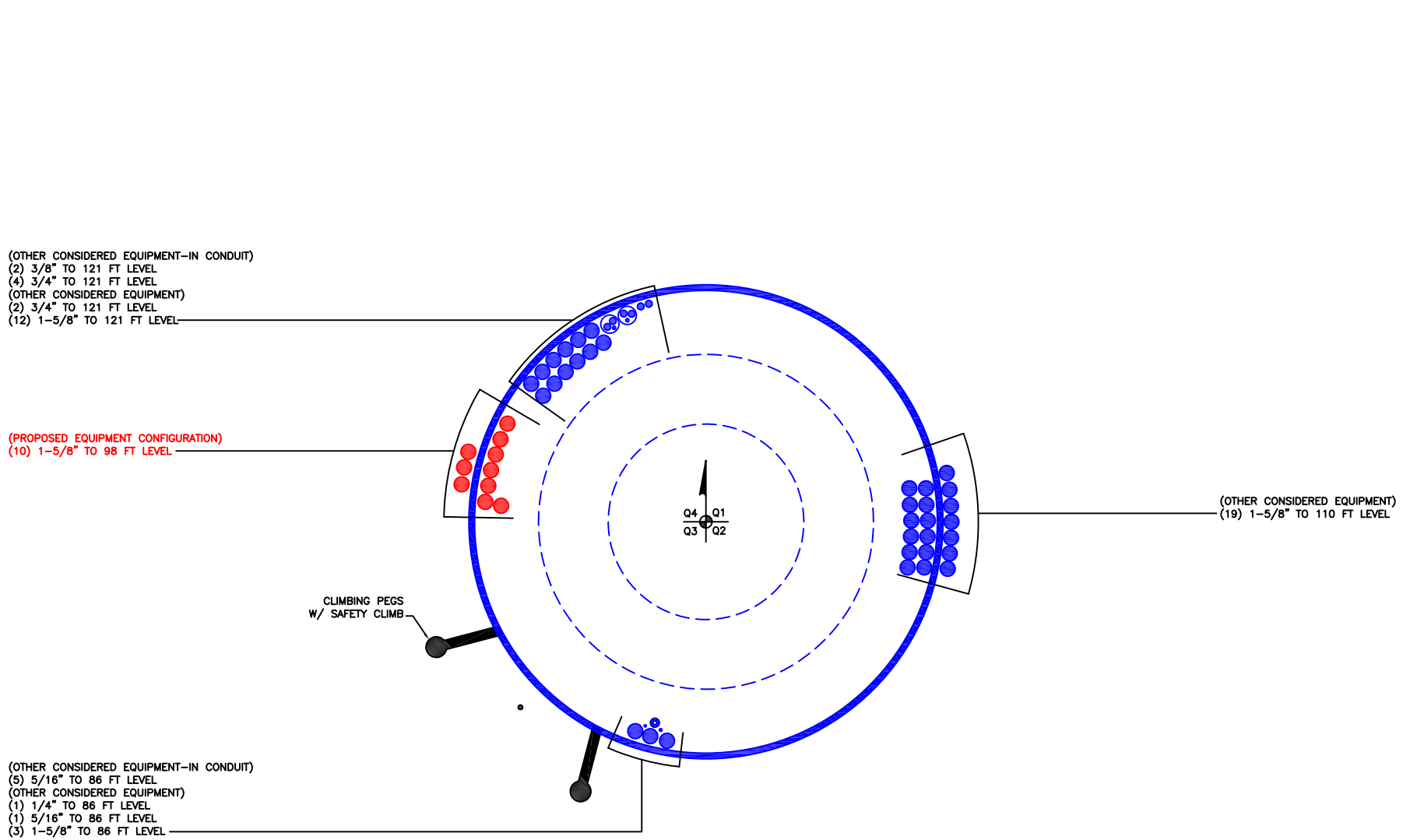
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	119 - 95 (1)	0.010	0.495	0.000	0.057	0.000	0.508	1.050	4.8.2
L2	95 - 47.25 (2)	0.014	0.999	0.000	0.056	0.000	1.016	1.050	4.8.2
L3	47.25 - 0 (3)	0.014	0.959	0.000	0.038	0.000	0.974	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	119 - 95	Pole	TP27.38x21x0.1875	1	-9.3122	955.1661	48.4	Pass
L2	95 - 47.25	Pole	TP39.57x25.9417x0.25	2	-25.1228	1845.8894	96.8	Pass
L3	47.25 - 0	Pole	TP51.5x37.6216x0.3125	3	-40.4403	3118.6469	92.7	Pass
							Summary	
						Pole (L2)	96.8	Pass
						RATING =	**96.8**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT-IN CONDUIT)
(2) 3/8" TO 121 FT LEVEL
(4) 3/4" TO 121 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(2) 3/4" TO 121 FT LEVEL
(12) 1-5/8" TO 121 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(10) 1-5/8" TO 98 FT LEVEL
Q4
Q1
Q3
Q2
(OTHER CONSIDERED EQUIPMENT)
(19) 1-5/8" TO 110 FT LEVEL
CLIMBING PEGS
W/ SAFETY CLIMB
(OTHER CONSIDERED EQUIPMENT-IN CONDUIT)
(5) 5/16" TO 86 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1/4" TO 86 FT LEVEL
(1) 5/16" TO 86 FT LEVEL
(3) 1-5/8" TO 86 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

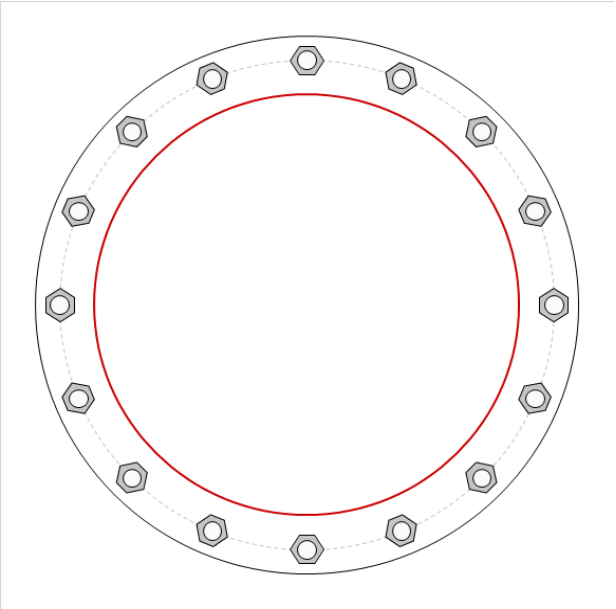
Monopole Base Plate Connection

Site Info	
BU #	857012
Site Name	ILLE SOUTH WASHING
Order #	479830 rev.1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	2.25

Applied Loads	
Moment (kip-ft)	3156.26
Axial Force (kips)	40.44
Shear Force (kips)	33.48

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 60" BC

Base Plate Data

66" OD x 2" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

51.5" x 0.3125" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_c = 160.25	ϕPn_c = 268.39	**Stress Rating**
Vu = 2.09	ϕVn = 120.77	**56.9%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	41.06	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**72.4%**	**Pass**

Drilled Pier Foundation

BU # :	857012
Site Name:	PLAINVILLE SOUTH V
Order Number:	479830 rev.1

TIA-222 Revison:	H
Tower Type:	Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	3156.26	
Axial Force (kips)	40.48	
Shear Force (kips)	33.43	

Material Properties		
Concrete Strength, f'c:	4	ksi
Rebar Strength, Fy:	60	ksi
Tie Yield Strength, Fyt:	40	ksi

Pier Design Data		
Depth	37	ft
Ext. Above Grade	1	ft
Pier Section 1		
From 1' above grade to 37' below grade		
Pier Diameter	7	ft
Rebar Quantity	18	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	
Tie Spacing		in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	8.76	-
Soil Safety Factor	5.09	-
Max Moment (kip-ft)	3397.60	-
Rating*	*24.9%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	314.36	-
End Bearing (kips)	235.67	-
Weight of Concrete (kips)	168.13	-
Total Capacity (kips)	550.03	-
Axial (kips)	208.61	-
Rating*	*36.1%*	-
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	8.57	-
Critical Moment (kip-ft)	3397.42	-
Critical Moment Capacity	4661.20	-
Rating*	*69.4%*	-
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	25.95	-
Critical Shear (kip)	244.30	-
Critical Shear Capacity	536.96	-
Rating*	*43.3%*	-

Soil Interaction Rating*	**36.1%**
Structural Foundation Rating*	**69.4%**

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	☑
N/A	☐
Shear Design Options	
Check Shear along Depth of Pier:	☑
Utilize Shear-Friction Methodology:	☐

Go to Soil Calculations

Soil Profile

Groundwater Depth	4	# of Layers	7

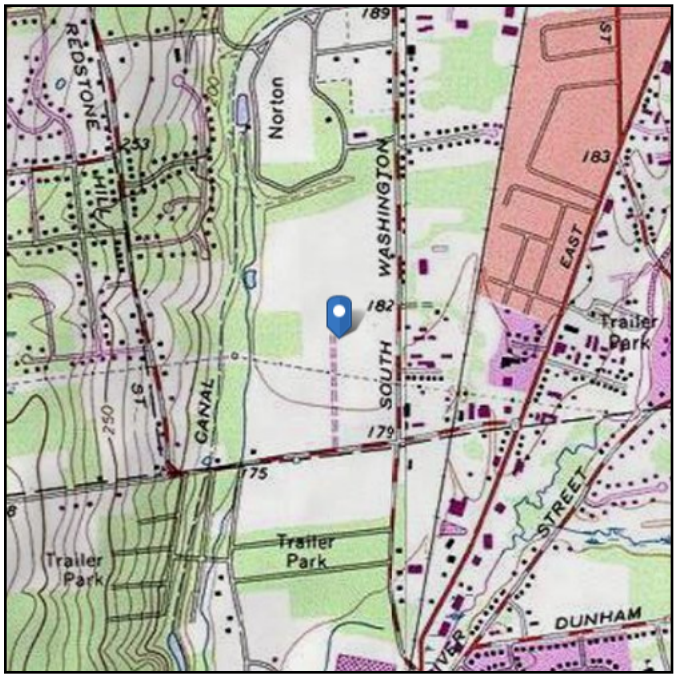
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3.5	3.5	117.4	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3.5	4	0.5	117.4	150	0	33	0.000	0.000	0.32	0.32			Cohesionless
3	4	13	9	55	87.6	0	33	0.000	0.000	0.32	0.32			Cohesionless
4	13	15	2	45	87.6	0	28	0.000	0.000	0.50	0.50			Cohesionless
5	15	19	4	45	87.6	0	28	0.000	0.000	0.56	0.56			Cohesionless
6	19	23	4	55	87.6	0	33	0.000	0.000	0.64	0.64			Cohesionless
7	23	37	14	40	87.6	0	28	0.00	0.00	0.73	0.73	8.165		Cohesionless

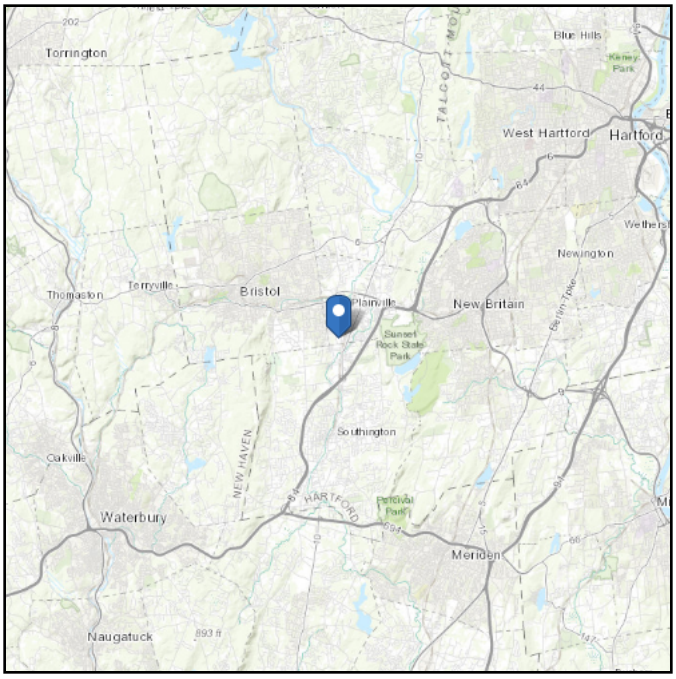
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 181.15 ft (NAVD 88)
Latitude: 41.653064
Longitude: -72.876917





Wind

Results:

Wind Speed:	121 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Wed Oct 14 2020

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

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

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

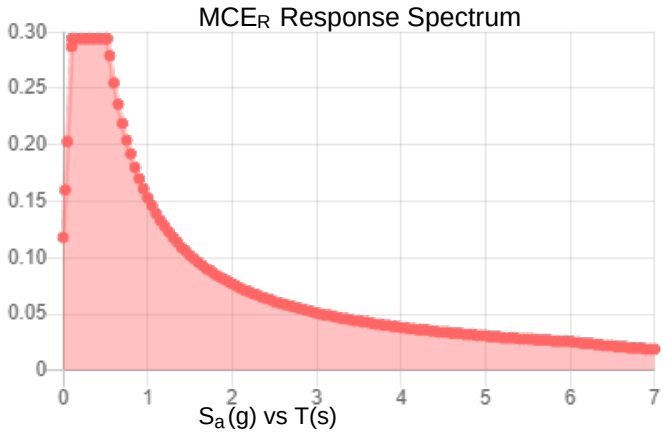
Seismic

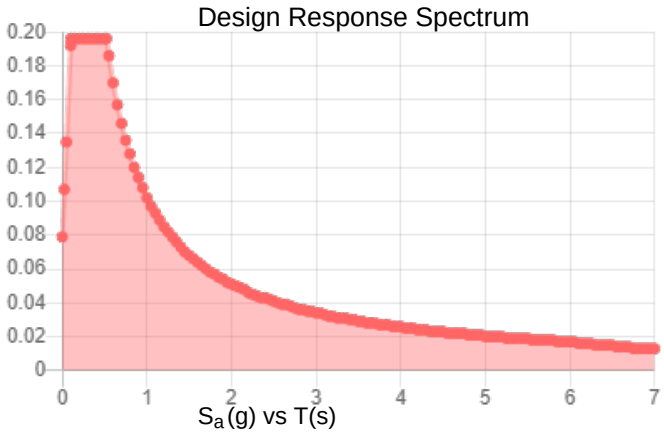
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.184	S_{DS} :	0.196
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.094
S_{MS} :	0.294	PGA_M :	0.15
S_{M1} :	0.153	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Oct 14 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:	Wed Oct 14 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.

Exhibit E

Mount Analysis

PAUL J. FORD & COMPANY

Date: October 13, 2020

Darcy Tarr
Crown Castle
6325 Ardrey Kell Road
Charlotte, NC 28277

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

Subject:	**Mount Analysis Report**	
Carrier Designation:	***T-Mobile* Equipment Change-out**	
	Carrier Site Number:	CT11378G
	Carrier Site Name:	CT378/ATT FT Plainville2
Crown Castle Designation:	**Crown Castle BU Number:**	857012
	Crown Castle Site Name:	PLAINVILLE SOUTH WASHINGTON ST
	Crown Castle JDE Job Number:	559287
	Crown Castle Purchase Order Number:	1576211
	Crown Castle Order Number:	479830 Rev. 1
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	A37520-2224.001.7190
Site Data:	**335 South Washington Street, Plainville, Hartford County, CT 06062** **Latitude 41.653064°, Longitude -72.876917°**	
Structure Information:	**Tower Height & Type:**	**119 Foot Monopole**
	Mount Elevation:	**98 Foot**
	Mount Type:	**(3)-Sector 13.3 Foot Platform**

Dear Darcy Tarr,

Paul J Ford and Company is pleased to submit this "Mount Analysis Report" to determine the structural integrity of the T-Mobile 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:

13.3' Platform **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

RMD

STATE OF CONNECTICUT · JUSTIN T. KLINE · No. 30301 · LICENSED PROFESSIONAL ENGINEER

Justin T. Kline
2020.10.15
12:02:26-04'00'

TABLE OF CONTENTS

1) INTRODUCTION

The existing mount under consideration is a (3)-Sector 13.3' Platform mount, mapped by P-SEC on 4/11/2019.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor at Base:	1.00
Topographic Factor at Mount:	1.00
Ice Thickness:	2.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.184
Seismic S_1:	0.064
Maintenance Loading Wind Speed:	30 mph
Maintenance Load at Mid/End-Points, L_v:	250 lb
Maintenance Load at Mount Pipes, L_m:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
98	100	3	ERICSSON	AIR 32 B2A B66AA_T-MOBILE	(3)-SECTOR 13.3' MOUNT
		3	ERICSSON	AIR6449 B41_T-MOBILE	
		3	RFS CELWAVE	APXVAARR24_43-U-NA20	
		3	ANDREW	ONEBASE TWIN DUAL DUPLEX TMA	
		3	COMMSCOPE	SDX1926Q-43	
		3	ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	
		3	ERICSSON	RRUS 4415 B25	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Mount Mapping	P-Sec, 19651-01 Dated: 4/11/2019	8339499	CCISites
Previous Mount Modification	FDH, 19BMAH1400 Rev 0 Dated: 6/7/2019	8459958	CCISites
Photos	Dated: 9/28/2020	-	CCISites
Order	ID: 479830 Rev. 1 Dated: 5/24/2019	-	CCISites
Radio Frequency Data Sheet	RFDS ID #: CT11378G Version 8, Dated: 9/23/2020	-	Crown Castle

3.1) Analysis Method

RISA-3D (version 17.0.3), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases.

A tool internally developed, using Microsoft Excel, by Paul J. Ford and Company was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

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

3.2) Assumptions

1) *The analysis of the existing tower or the effect of the mount attachment to the tower is not within the current scope of work.*
2) *The antenna mounting system was properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications and all bolts are tightened as specified by the manufacturer and AISC requirements.*
3) *The configuration of antennas, mounts, and other appurtenances are as specified in Table 1.*
4) *All member connections have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report. All U-Bolt connections have been properly tightened. This analysis will be required to be revised if the existing conditions in the field differ from those shown in the above referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.*
5) *Steel grades are as follows, unless noted otherwise:*
   a) Channel, Solid Round, Angle, Plate, Unistrut ASTM A36 (GR 36)
   b) Pipe ASTM A53 (GR 35)
   c) HSS (Rectangular) ASTM 500 (GR B-46)
   d) HSS (Round) ASTM 500 (GR B-42)
   e) Threaded Rods ASTM A36 (GR 36)
   f) Connection Bolts ASTM A325
   g) U-Bolts SAE J429 (GR 2)
6) *Proposed equipment is to be installed in the locations specified in Appendix A. Any changes to the proposed equipment locations will render this report invalid.*
7) *Mount will be modified in conformance with the proposed modification drawings.*

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J Ford and Company should be notified to determine the effect on the structural integrity of the mount.

4) ANALYSIS RESULTS

Table 3- Mount Component Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Face Horizontals	98	32.1	Pass
1,2	Support Rails		65.8	Pass
1,2	Grating Support Members		83.9	Pass
1,2	Standoff Members		27.7	Pass
1,2	Kick-Brace		38.8	Pass
1,2	Corner Plates		53.3	Pass
1,2	Mount Pipes		21.4	Pass
1,2	Mount to Tower Connection		31.3	Pass

Mount Rating (max from all components) =	**83.9%**

Notes:
1) See additional documentation in "Appendix B – Software Analysis Output" for calculations supporting the % capacity consumed.
2) Rating per TIA-222-H, Section 15.5

4.1) Recommendations

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

- All modifications designed by FDH (Project #: 19BMAH1400, dated 6/7/2019) must be installed prior to installation of the proposed loading.
  - Install SitePro1 HRK14 support rail kit or EOR approved equivalent.
  - Install Sitepro1 PRK-1245 Platform Reinforcing Kit or EOR approved equivalent.

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

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING MOUNTS BY PAUL J. FORD AND COMPANY

1) It is the responsibility of the client to ensure that the information provided to Paul J. Ford and Company is accurate and complete. Paul J. Ford and Company will rely on the accuracy and completeness of such information in performing or furnishing services under this project.

2) If the existing conditions are not as represented on the referenced drawings and/or documents, Paul J. Ford and Company should be contacted immediately to evaluate the significance of the deviation.

3) The mount has been analyzed according to the minimum design loads recommended by the Reference Standard. If additional design loads are required, Paul J. Ford and Company should be made aware of this prior to the start of the project.

4) The standard of care for all Professional Engineering Services performed or furnished by Paul J. Ford and Company under this project will be the skill and care used by members of the Consultant's profession practicing under similar circumstances at the same time and in the same locality.

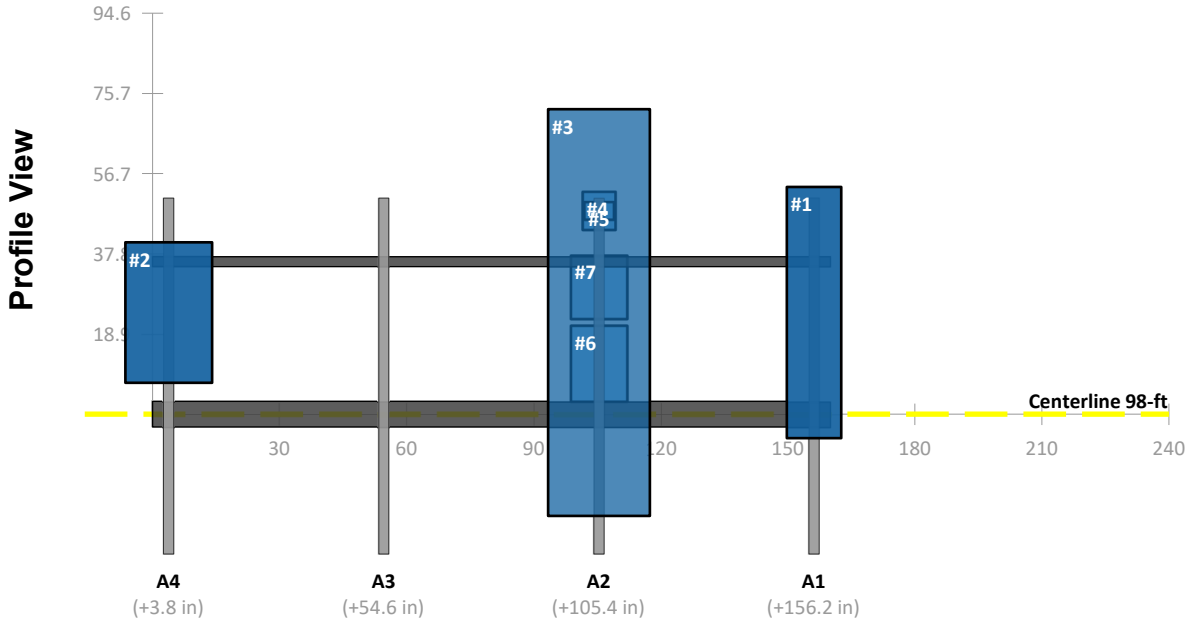
5) All Services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Paul J. Ford and Company is not responsible for the conclusions, opinions and/or recommendations made by others based on the information supplied herein.

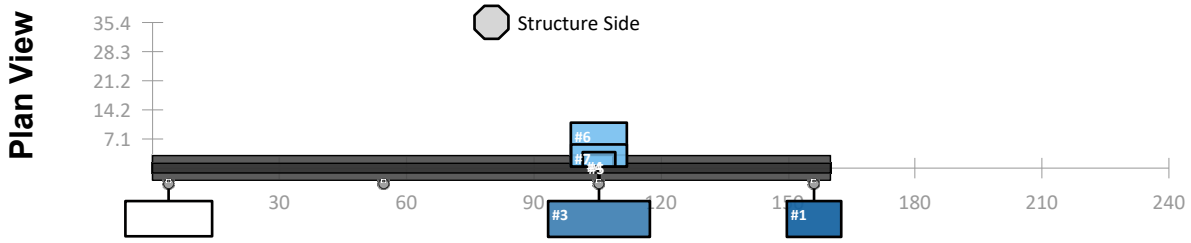
****

APPENDIX A

SOFTWARE INPUT CALCULATION

ALL SECTORS TYPICAL





Ref ID	Type	Manufacturer	Model	Height (in)	Width (in)	Depth (in)	Center Line (ft)	Mount Pipe	Tangential Offset (in)	Normal Offset (in)
#1	Antenna	ERICSSON	AIR 32 B2A B66AA_T-MOBILE	59.25	12.87	8.70	100.00	A1	0.00	3.00
#2	Antenna	ERICSSON	AIR6449 B41_T-MOBILE	33.11	20.51	8.54	100.00	A4	0.00	3.00
#3	Antenna	RFS CELWAVE	APXVAARR24_43-U-NA20	95.90	24.00	8.70	100.00	A2	0.00	3.00
#4	TME/RRH	ANDREW	ONEBASE TWIN DUAL DUPLEX TMA	9.00	7.70	3.50	102.00	A2	0.00	-3.00
#5	TME/RRH	COMMSCOPE	SDX1926Q-43	4.17	6.93	2.91	102.00	A2	0.00	-3.00
#6	TME/RRH	ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	17.91	13.20	10.63	99.00	A2	0.00	-3.00
#7	TME/RRH	ERICSSON	RRUS 4415 B25	14.96	13.19	5.39	100.50	A2	0.00	-3.00

1. A 6" tolerance for proposed equipment is acceptable.
2. Contractor to verify location of existing equipment prior to installation of proposed equipment. Notify for any deviations.
3. Install shall not cause harm to the structure, climbing facility, safety climb, or any system installed on the structure

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

Project Number: 37520-2224
Date: 10/13/2020
Engineer: AMS

Mount Loading per TIA-222-H (Version v3.0 - Effective 9/14/2020)

Structure & Wind Speed

Structure Type = Mount
Mount Type = 3 Sectors
Mount Centerline (z) = 98.00 ft
Risa $^{C}/_{L}$ Y-Coordinate = 0.00 in

Ultimate Wind Speed = 125 mph
Ice Wind Speed = 50 mph
Service Wind Speed = 30 mph
Non-Op Wind Speed = - mph
Op Wind Speed = - mph

Ice Thickness = 2 in

Topography

Risk Category = II
Exposure Category = C
Topographic Category = 1
Structure Base Height (Z_b) = 181 ft
Crest Height (H) = ft

Velocity Pressure Coefficients

z_g = 900 ft (Table 2-4)
α' = 9.50 (Table 2-4)
K_z = 1.26 (Section 2.6.5.2)
K_{zmin} = 0.85
K_{zcalc} = 1.26
K_{zmax} = 2.01

Override
K_{zt} = 1.00 (Section 2.6.6.2.1)
K_d = 0.95 (Section 16.6)
K_e = 0.99 (Section 2.6.8)
G_h = 1.00 (Section 16.6)
K_{es} = 1.0 (Annex S - Wind Force)
q_z = 47.58 psf (Section 2.6.11.6)

Ice Loading

h = 1.00 in (Bar Grating Height)

I_i = 1.00 (Table 2-3)
K_{es} = 1.0 (Annex S - Ice)
q_z = 7.66 psf (Section 2.6.11.6)
K_{iz} = 1.11 (Section 2.6.10)
t_{iz} = 2.23 in (Section 2.6.10)

W_i = 15.07 psf (Grating Ice Weight)

Wind Pressure

Override
K_a = 0.9 (on all Appurt. / Member Forces)
$(q_z)(G_h)(K_{es})$ = 47.58 psf
$(q_{iz})(G_h)(K_{es})$ = 7.66 psf (Ice)

Analysis Settings

Analysis Scope = Client
Analysis Wind Direction Increment = 30°
EPA Calculation Method = TIA
Construction Duration =

File Suffix = _Client.r3d

Maintenance Point Loads

	Load	Label	Node #		Load	Label	Node #
L_{m1} =	500 lbs	N139	30	L_{v1} =	250 lbs	B1	1
L_{m2} =	500 lbs	N67A	19	L_{v2} =	250 lbs	B1	1
L_{m3} =	500 lbs	N136A	42	L_{v3} =	250 lbs	B2	2
L_{m4} =	500 lbs	N145	33	L_{v4} =	250 lbs	B2	2

Risa3D Source: G:\TOWER\375_Crown_Castle\2020\37520-2224_857012_PLAINVILLE SOUTH WASHIN\37520-2224.001.7190_MA\37520-2224.001.7190.r3d (45 Total Populated Members)

Antennas

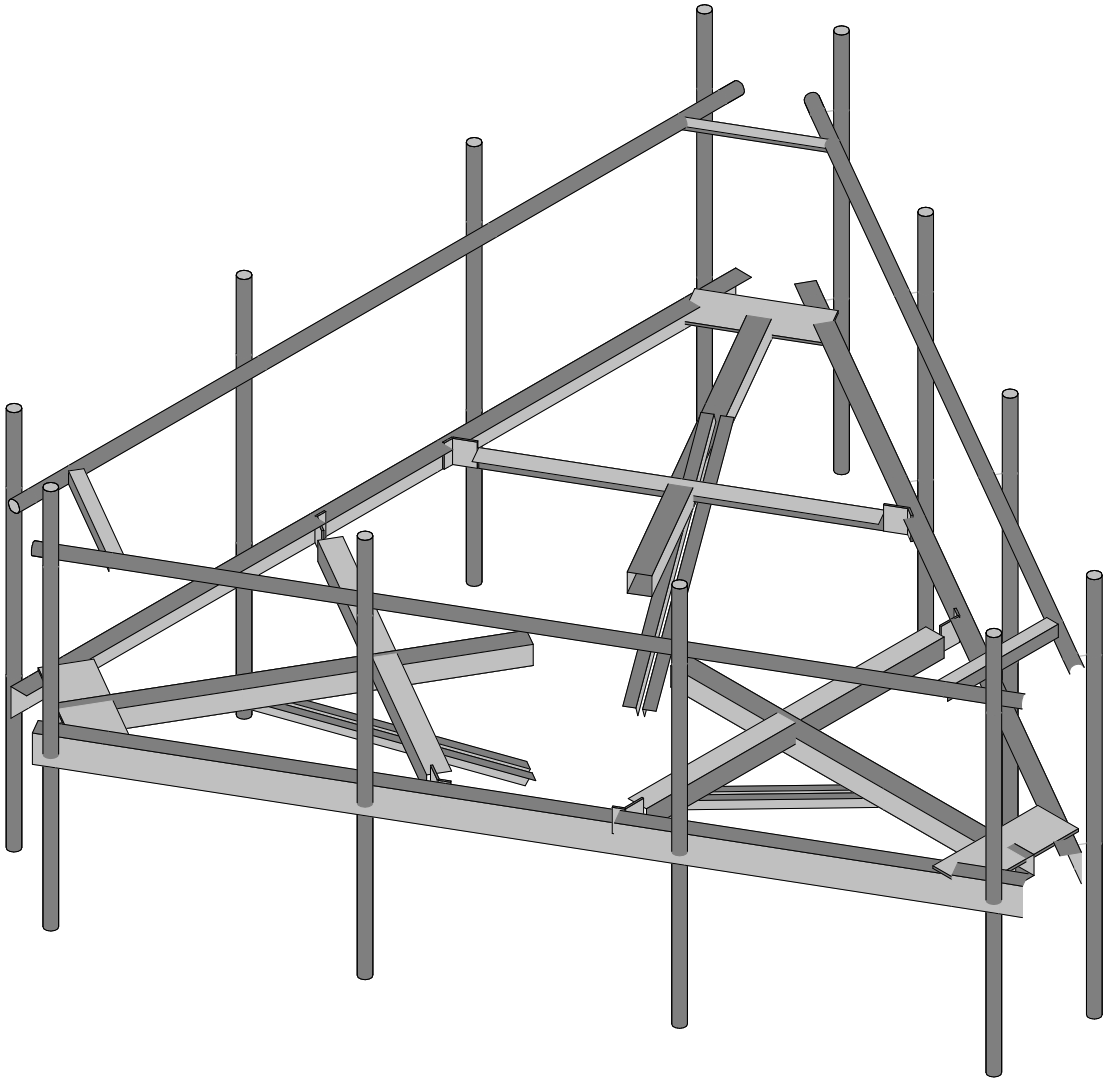
Item	Include Loading	Status	Mounting Location	Manufacturer	Antenna	Height (in)	Width (in)	Depth (in)	Flat or Round	Weight (lbs)	Sector / Face	Position	Quantity	Orientation	Use tnxTower C_AA_A (CFD)	Top/Bottom Mounting Point Spacing	Override Spacing (in)	Max Antenna C/L (ft)	Min Antenna C/L (ft)	Antenna C/L (ft)	Antenna Top Mount Location from Mount Pipe Bottom (in)	Antenna Bottom Mount Location from Mount Pipe Bottom (in)	Override Top Antenna Mounting Location (in)	Override Bottom Antenna Mounting Location (in)	Normal Wind Force per Antenna (lbs)	Transverse Wind Force per Antenna (lbs)
1	Yes	Proposed	Mount	ERICSSON	AIR 32 B2A B66AA_T-MOBILE	59.25	12.87	8.7	Flat	171.96	A	1	1	Normal	No	53.25		100.031	97.469	100	83.63	30.38			293.296	213.298
2	Yes	Proposed	Mount	ERICSSON	AIR 32 B2A B66AA_T-MOBILE	59.25	12.87	8.7	Flat	171.96	B	1	1	Normal	No	53.25		100.031	97.469	100	83.63	30.38			293.296	213.298
3	Yes	Proposed	Mount	ERICSSON	AIR 32 B2A B66AA_T-MOBILE	59.25	12.87	8.7	Flat	171.96	C	1	1	Normal	No	53.25		100.031	97.469	100	83.63	30.38			293.296	213.298
4	Yes	Proposed	Mount	ERICSSON	AIR6449 B41_T-MOBILE	33.11	20.51	8.54	Flat	114.63	A	4	1	Normal	No	27.11		101.120	96.380	100	70.56	43.45			242.315	106.041
5	Yes	Proposed	Mount	ERICSSON	AIR6449 B41_T-MOBILE	33.11	20.51	8.54	Flat	114.63	B	4	1	Normal	No	27.11		101.120	96.380	100	70.56	43.45			242.315	106.041
6	Yes	Proposed	Mount	ERICSSON	AIR6449 B41_T-MOBILE	33.11	20.51	8.54	Flat	114.63	C	4	1	Normal	No	27.11		101.120	96.380	100	70.56	43.45			242.315	106.041
7	Yes	Proposed	Mount	RFS CELWAVE	APXVAARR24_43-U-NA20_CCI CFD	95.9	24	8.7	Flat	153.3	A	2	1	Normal	Yes	89.90	50	100.167	97.333	100	82.00	32.00			628.154	227.797
8	Yes	Proposed	Mount	RFS CELWAVE	APXVAARR24_43-U-NA20_CCI CFD	95.9	24	8.7	Flat	153.3	B	2	1	Normal	Yes	89.90	50	100.167	97.333	100	82.00	32.00			628.154	227.797
9	Yes	Proposed	Mount	RFS CELWAVE	APXVAARR24_43-U-NA20_CCI CFD	95.9	24	8.7	Flat	153.3	C	2	1	Normal	Yes	89.90	50	100.167	97.333	100	82.00	32.00			628.154	227.797
10	Yes	Existing	Mount	ANDREW	ONEBASE TWIN DUAL DUPLEX TMA	9	7.7	3.5	Flat	11	A	2	1	Normal	No	3.00		102.125	95.375	102	82.50	79.50			24.728	11.270
11	Yes	Existing	Mount	ANDREW	ONEBASE TWIN DUAL DUPLEX TMA	9	7.7	3.5	Flat	11	B	2	1	Normal	No	3.00		102.125	95.375	102	82.50	79.50			24.728	11.270
12	Yes	Existing	Mount	ANDREW	ONEBASE TWIN DUAL DUPLEX TMA	9	7.7	3.5	Flat	11	C	2	1	Normal	No	3.00		102.125	95.375	102	82.50	79.50			24.728	11.270
13	Yes	Proposed	Mount	COMMSCOPE	SDX1926Q-43	4.173	6.929	2.913	Flat	6.17	A	2	1	Normal	No	1.00		102.208	95.292	102	81.50	80.50			10.317	4.338
14	Yes	Proposed	Mount	COMMSCOPE	SDX1926Q-43	4.173	6.929	2.913	Flat	6.17	B	2	1	Normal	No	1.00		102.208	95.292	102	81.50	80.50			10.317	4.338
15	Yes	Proposed	Mount	COMMSCOPE	SDX1926Q-43	4.173	6.929	2.913	Flat	6.17	C	2	1	Normal	No	1.00		102.208	95.292	102	81.50	80.50			10.317	4.338
16	Yes	Proposed	Mount	ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	17.91	13.2	10.63	Flat	73.21	A	2	1	Normal	No	11.91		101.754	95.746	99	50.96	39.05			84.358	67.933
17	Yes	Proposed	Mount	ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	17.91	13.2	10.63	Flat	73.21	B	2	1	Normal	No	11.91		101.754	95.746	99	50.96	39.05			84.358	67.933
18	Yes	Proposed	Mount	ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	17.91	13.2	10.63	Flat	73.21	C	2	1	Normal	No	11.91		101.754	95.746	99	50.96	39.05			84.358	67.933
19	Yes	Proposed	Mount	ERICSSON	RRUS 4415 B25	14.96	13.19	5.39	Flat	44	A	2	1	Normal	No	8.96		101.877	95.623	100.5	67.48	58.52			70.410	29.066
20	Yes	Proposed	Mount	ERICSSON	RRUS 4415 B25	14.96	13.19	5.39	Flat	44	B	2	1	Normal	No	8.96		101.877	95.623	100.5	67.48	58.52			70.410	29.066
21	Yes	Proposed	Mount	ERICSSON	RRUS 4415 B25	14.96	13.19	5.39	Flat	44	C	2	1	Normal	No	8.96		101.877	95.623	100.5	67.48	58.52			70.410	29.066

Dishes

Item	Include Loading	Status	Mounting Location	Manufacturer	Microwave Dish	Dia (in)	Dish Type	Weight (lbs)	Sector / Face	Position	Top/Bottom Mounting Point Spacing	Override Spacing (in)	Max Dish C/L (ft)	Min Dish C/L (ft)	Dish C/L (ft)	Dish Top Mount Location from Mount Pipe Bottom	Dish Bottom Mount Location from Mount Pipe Bottom	Override Top Dish Mounting Location (in)	Override Bottom Dish Mounting Location (in)

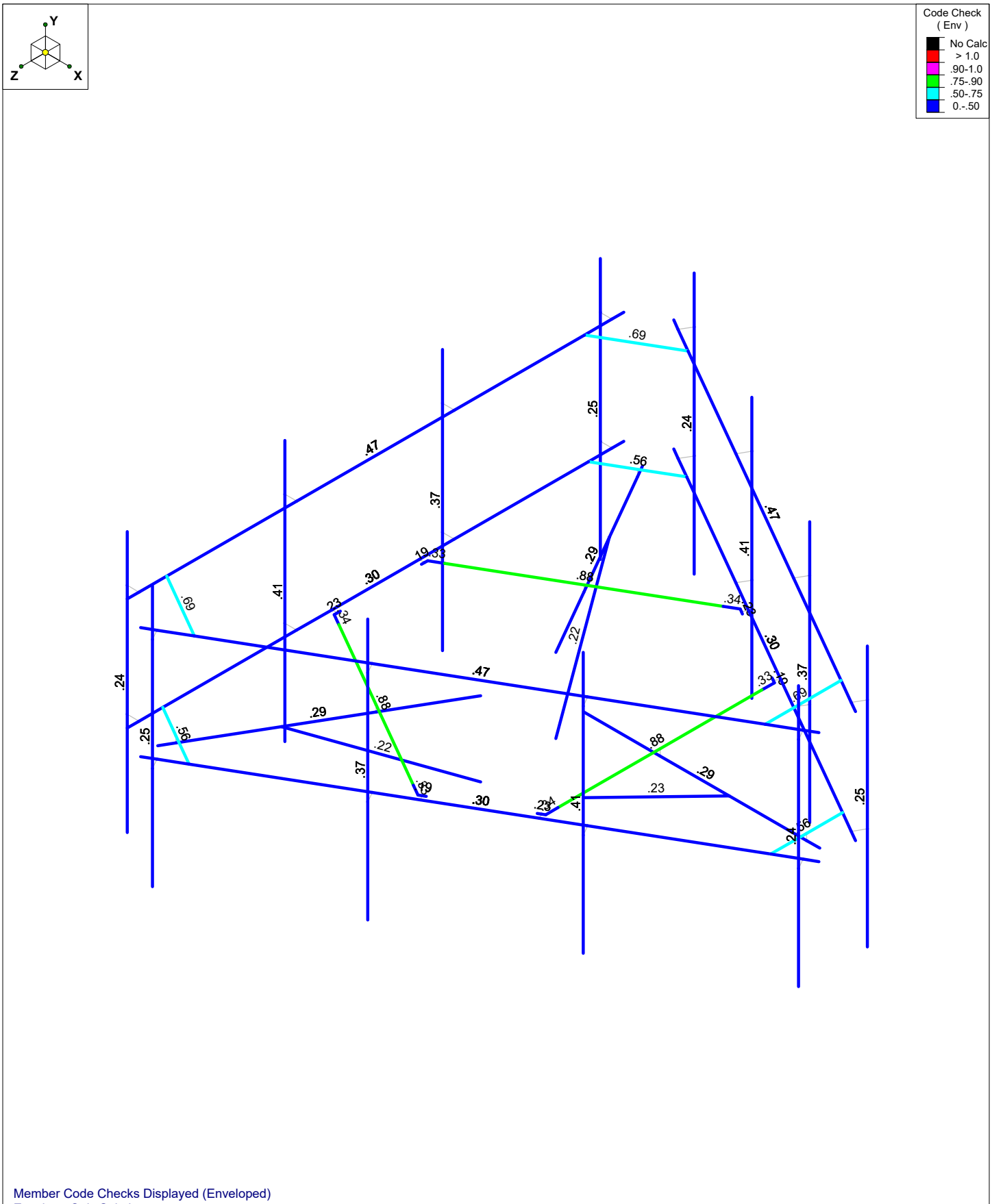
APPENDIX B

SOFTWARE ANALYSIS OUTPUT



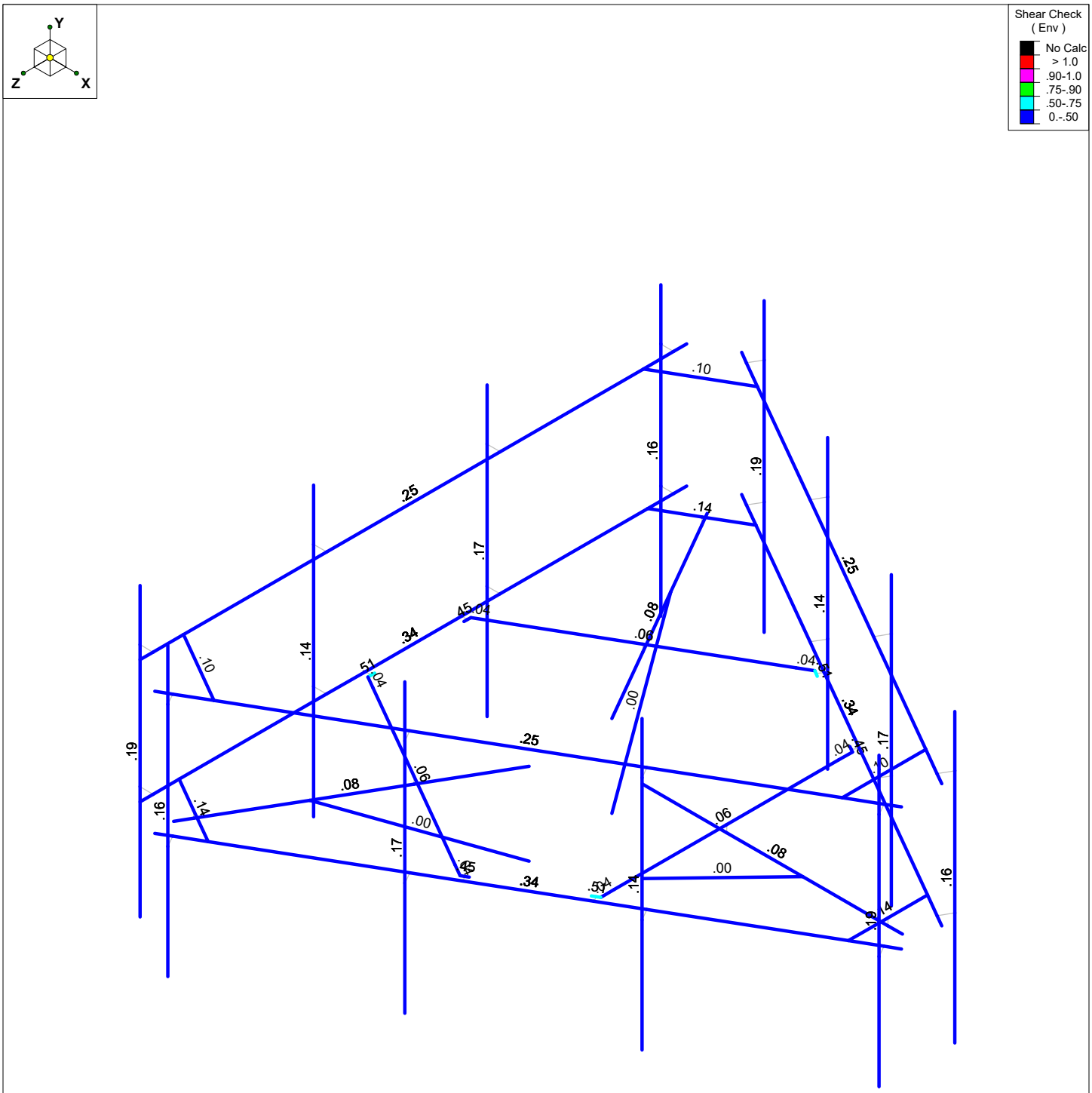
Envelope Only Solution

Paul J. Ford and Company	857012 - Plainville South Washington St	SK - 1
AMS		Oct 13, 2020 at 3:01 PM
37520-2224.001.7190		37520-2224.001.7190_Client.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Paul J. Ford and Company	857012 - Plainville South Washington St	SK - 2
AMS		Oct 13, 2020 at 3:02 PM
37520-2224.001.7190		37520-2224.001.7190_Client.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Paul J. Ford and Company	857012 - Plainville South Washington St	SK - 3
AMS		Oct 13, 2020 at 3:02 PM
37520-2224.001.7190		37520-2224.001.7190_Client.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	No
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-05
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Occupancy Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A53 Gr. B (35 ksi)	29000	11154	.3	.65	.49	35	1.5	60	1.2
2	A500 Gr. B (46ksi)	29000	11154	.3	.65	.49	46	1.5	58	1.2
3	A36 (36ksi)	29000	11154	.3	.65	.49	36	1.5	58	1.2

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	C4	N112	N111			PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
2	CBC1	B2	B1		180	L6X3.5X5	None	None	A36 (36ksi)	Typical
3	CBB1	N42	N41		180	L6X3.5X5	None	None	A36 (36ksi)	Typical
4	CBA1	N70	N69		180	L6X3.5X5	None	None	A36 (36ksi)	Typical
5	CBC2	N76	N77		90	PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
6	CBB2	N43	N44		90	PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
7	CBA2	N71	N72		90	PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
8	M19	N100A	N84			HSS4X4X3	None	None	A500 Gr. B (46...	Typical
9	M20	N74A	N118			PL5X3/8	None	None	A36 (36ksi)	Typical
10	M22	N80	N79		90	PL 9"x1/2"	None	None	A36 (36ksi)	Typical
11	M23	N62A	N64A		90	L2.5x2.5x4	None	None	A36 (36ksi)	Typical
12	M24	N61A	N66A		90	L2.5x2.5x4	None	None	A36 (36ksi)	Typical
13	M25	N63A	N65A		90	L2.5x2.5x4	None	None	A36 (36ksi)	Typical
14	M28	N146	N110			RIGID	None	None	RIGID	Typical
15	M29	N145	N108			RIGID	None	None	RIGID	Typical
16	M58	N156A	N155A		90	PL 9"x1/2"	None	None	A36 (36ksi)	Typical
17	M61	N161A	N160A		90	PL 9"x1/2"	None	None	A36 (36ksi)	Typical
18	C3	N78	N77A			PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
19	M26	N145A	N76A			RIGID	None	None	RIGID	Typical
20	M27	N136A	N75			RIGID	None	None	RIGID	Typical
21	C2	N85	N84A			PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
22	M29A	N142A	N83			RIGID	None	None	RIGID	Typical
23	M30	N67A	N82			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
24	C1	N89	N88			PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
25	M32	N140A	N87			RIGID	None	None	RIGID	Typical
26	M33	N139	N86			RIGID	None	None	RIGID	Typical
27	B4	N91	N90A			PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
28	M35	N115	N89A			RIGID	None	None	RIGID	Typical
29	M36	N114A	N88A			RIGID	None	None	RIGID	Typical
30	B3	N102A	N101			PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
31	M38	N125A	N100			RIGID	None	None	RIGID	Typical
32	M39	N116	N99			RIGID	None	None	RIGID	Typical
33	B2	N106	N105			PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
34	M41	N113A	N104			RIGID	None	None	RIGID	Typical
35	M42	N90	N103			RIGID	None	None	RIGID	Typical
36	B1	N110A	N109			PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
37	M44	N112A	N108A			RIGID	None	None	RIGID	Typical
38	M45	N111A	N107			RIGID	None	None	RIGID	Typical
39	A4	N115A	N114			PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
40	M47	N155	N113			RIGID	None	None	RIGID	Typical
41	M48	N154	N112B			RIGID	None	None	RIGID	Typical
42	A3	N126	N125			PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
43	M50	N165A	N124			RIGID	None	None	RIGID	Typical
44	M51	N156	N123			RIGID	None	None	RIGID	Typical
45	A2	N130A	N129			PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
46	M53	N153	N128			RIGID	None	None	RIGID	Typical
47	M54	N130	N127			RIGID	None	None	RIGID	Typical
48	A1	N134	N133			PIPE_2.0	None	None	A53 Gr. B (35 ...	Typical
49	M56	N152	N132			RIGID	None	None	RIGID	Typical
50	M57	N151	N131			RIGID	None	None	RIGID	Typical
51	M56A	N113B	N102			RIGID	None	None	RIGID	Typical
52	M57A	N114B	N163			RIGID	None	None	RIGID	Typical
53	M58A	N116A	N115B			HSS4X4X3	None	None	A500 Gr. B (46...	Typical
54	M59	N119	N151B			RIGID	None	None	RIGID	Typical
55	M60	N120	N164			RIGID	None	None	RIGID	Typical
56	M61A	N122	N121			HSS4X4X3	None	None	A500 Gr. B (46...	Typical
57	M62	N125B	N154A			RIGID	None	None	RIGID	Typical
58	M63	N126A	N165			RIGID	None	None	RIGID	Typical
59	M59A	N117	N121A		90	L4X4X4	None	None	A36 (36ksi)	Typical
60	M60A	N118	N117			PL5X3/8	None	None	A36 (36ksi)	Typical
61	M61B	N119A	N120A			RIGID	None	None	RIGID	Typical
62	M62A	N121B	N123A			PL5X3/8	None	None	A36 (36ksi)	Typical
63	M63A	N123A	N121A			PL5X3/8	None	None	A36 (36ksi)	Typical
64	M64	N124A	N125C			RIGID	None	None	RIGID	Typical
65	M65	N125D	N127A			PL5X3/8	None	None	A36 (36ksi)	Typical
66	M66	N126B	N130B		90	L4X4X4	None	None	A36 (36ksi)	Typical
67	M67	N127A	N126B			PL5X3/8	None	None	A36 (36ksi)	Typical
68	M68	N128A	N129A			RIGID	None	None	RIGID	Typical
69	M69	N131A	N132A			PL5X3/8	None	None	A36 (36ksi)	Typical
70	M70	N132A	N130B			PL5X3/8	None	None	A36 (36ksi)	Typical
71	M71	N133A	N134A			RIGID	None	None	RIGID	Typical
72	M72	N135	N137			PL5X3/8	None	None	A36 (36ksi)	Typical
73	M73	N136	N140		90	L4X4X4	None	None	A36 (36ksi)	Typical
74	M74	N137	N136			PL5X3/8	None	None	A36 (36ksi)	Typical
75	M75	N138	N139A			RIGID	None	None	RIGID	Typical
76	M76	N141	N142			PL5X3/8	None	None	A36 (36ksi)	Typical
77	M77	N142	N140			PL5X3/8	None	None	A36 (36ksi)	Typical
78	M78	N143	N144			RIGID	None	None	RIGID	Typical
79	M79	N145B	N146A			LL2.5x2.5x3x3	None	None	A36 (36ksi)	Typical
80	M80	N147	N148			LL2.5x2.5x3x3	None	None	A36 (36ksi)	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
81	M81	N149	N150			LL2.5x2.5x3x3	None	None	A36 (36ksi)	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	C4						Yes	** NA **			None
2	CBC1						Yes	** NA **			None
3	CBB1						Yes	** NA **			None
4	CBA1						Yes	** NA **			None
5	CBC2						Yes	** NA **			None
6	CBB2						Yes	** NA **			None
7	CBA2						Yes	** NA **			None
8	M19						Yes	** NA **			None
9	M20						Yes	** NA **			None
10	M22						Yes	** NA **			None
11	M23						Yes	** NA **			None
12	M24						Yes	** NA **			None
13	M25						Yes	** NA **			None
14	M28						Yes	** NA **		Exclude	None
15	M29						Yes	** NA **		Exclude	None
16	M58						Yes	** NA **			None
17	M61						Yes	** NA **			None
18	C3						Yes	** NA **			None
19	M26						Yes	** NA **		Exclude	None
20	M27						Yes	** NA **		Exclude	None
21	C2						Yes	** NA **			None
22	M29A						Yes	** NA **		Exclude	None
23	M30						Yes	** NA **		Exclude	None
24	C1						Yes	** NA **			None
25	M32						Yes	** NA **		Exclude	None
26	M33						Yes	** NA **		Exclude	None
27	B4						Yes	** NA **			None
28	M35						Yes	** NA **		Exclude	None
29	M36						Yes	** NA **		Exclude	None
30	B3						Yes	** NA **			None
31	M38						Yes	** NA **		Exclude	None
32	M39						Yes	** NA **		Exclude	None
33	B2						Yes	** NA **			None
34	M41						Yes	** NA **		Exclude	None
35	M42						Yes	** NA **		Exclude	None
36	B1						Yes	** NA **			None
37	M44						Yes	** NA **		Exclude	None
38	M45						Yes	** NA **		Exclude	None
39	A4						Yes	** NA **			None
40	M47						Yes	** NA **		Exclude	None
41	M48						Yes	** NA **		Exclude	None
42	A3						Yes	** NA **			None
43	M50						Yes	** NA **		Exclude	None
44	M51						Yes	** NA **		Exclude	None
45	A2						Yes	** NA **			None
46	M53						Yes	** NA **		Exclude	None
47	M54						Yes	** NA **		Exclude	None
48	A1						Yes	** NA **			None
49	M56						Yes	** NA **		Exclude	None
50	M57						Yes	** NA **		Exclude	None
51	M56A		BenPIN				Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
52	M57A		BenPIN				Yes	** NA **			None
53	M58A						Yes	** NA **			None
54	M59		BenPIN				Yes	** NA **			None
55	M60		BenPIN				Yes	** NA **			None
56	M61A						Yes	** NA **			None
57	M62		BenPIN				Yes	** NA **			None
58	M63		BenPIN				Yes	** NA **			None
59	M59A						Yes	** NA **			None
60	M60A						Yes	** NA **			None
61	M61B						Yes	** NA **			None
62	M62A						Yes	** NA **			None
63	M63A						Yes	** NA **			None
64	M64						Yes	** NA **			None
65	M65						Yes	** NA **			None
66	M66						Yes	** NA **			None
67	M67						Yes	** NA **			None
68	M68						Yes	** NA **			None
69	M69						Yes	** NA **			None
70	M70						Yes	** NA **			None
71	M71						Yes	** NA **			None
72	M72						Yes	** NA **			None
73	M73						Yes	** NA **			None
74	M74						Yes	** NA **			None
75	M75						Yes	** NA **			None
76	M76						Yes	** NA **			None
77	M77						Yes	** NA **			None
78	M78						Yes	** NA **			None
79	M79	BenPIN					Yes	** NA **			None
80	M80	BenPIN					Yes	** NA **			None
81	M81	BenPIN					Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	C4	PIPE_2.0	84									Lateral
2	CBC1	L6X3.5X5	160			Lbyy						Lateral
3	CBB1	L6X3.5X5	160			Lbyy						Lateral
4	CBA1	L6X3.5X5	160			Lbyy						Lateral
5	CBC2	PIPE_2.0	160			Lbyy						Lateral
6	CBB2	PIPE_2.0	160			Lbyy						Lateral
7	CBA2	PIPE_2.0	160			Lbyy						Lateral
8	M19	HSS4X4X3	76.148									Lateral
9	M20	PL5X3/8	2									Lateral
10	M22	PL 9"x1/2"	23.165									Lateral
11	M23	L2.5x2.5x4	24.444									Lateral
12	M24	L2.5x2.5x4	24.444									Lateral
13	M25	L2.5x2.5x4	24.444									Lateral
14	M58	PL 9"x1/2"	23.165									Lateral
15	M61	PL 9"x1/2"	23.165									Lateral
16	C3	PIPE_2.0	84									Lateral
17	C2	PIPE_2.0	84									Lateral
18	C1	PIPE_2.0	84									Lateral
19	B4	PIPE_2.0	84									Lateral
20	B3	PIPE_2.0	84									Lateral
21	B2	PIPE_2.0	84									Lateral
22	B1	PIPE_2.0	84									Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
23	A4	PIPE_2.0	84									Lateral
24	A3	PIPE_2.0	84									Lateral
25	A2	PIPE_2.0	84									Lateral
26	A1	PIPE_2.0	84									Lateral
27	M58A	HSS4X4X3	76.148									Lateral
28	M61A	HSS4X4X3	76.148									Lateral
29	M59A	L4X4X4	65.677									Lateral
30	M60A	PL5X3/8	4									Lateral
31	M62A	PL5X3/8	2									Lateral
32	M63A	PL5X3/8	4									Lateral
33	M65	PL5X3/8	2									Lateral
34	M66	L4X4X4	65.677									Lateral
35	M67	PL5X3/8	4									Lateral
36	M69	PL5X3/8	2									Lateral
37	M70	PL5X3/8	4									Lateral
38	M72	PL5X3/8	2									Lateral
39	M73	L4X4X4	65.677									Lateral
40	M74	PL5X3/8	4									Lateral
41	M76	PL5X3/8	2									Lateral
42	M77	PL5X3/8	4									Lateral
43	M79	LL2.5x2.5x3...	52.773									Lateral
44	M80	LL2.5x2.5x3...	52.773									Lateral
45	M81	LL2.5x2.5x3...	52.773									Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Dead	None		-1.1			42		3	
2	Wind 0	None					84	90		
3	Wind 30	None					84	90		
4	Wind 60	None					84	90		
5	Wind 90	None					84	90		
6	Wind 120	None					84	90		
7	Wind 150	None					84	90		
8	Ice Load	None					42	45	3	
9	Ice 0	None					84	90		
10	Ice 30	None					84	90		
11	Ice 60	None					84	90		
12	Ice 90	None					84	90		
13	Ice 120	None					84	90		
14	Ice 150	None					84	90		
15	Lm1	None				1				
16	Lm2	None				1				
17	Lm3	None				1				
18	Lm4	None				1				
19	Lv1	None				1				
20	Lv2	None				1				
21	Lv3	None				1				
22	Lv4	None				1				
23	BLC 1 Transient Area Loads	None						69		
24	BLC 8 Transient Area Loads	None						69		

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4 D	Yes	Y		1	1.4																				
2	1.2 D + 1.0 Wo @ 0	Yes	Y		1	1.2	2	1																		
3	1.2 D + 1.0 Wo @ 30	Yes	Y		1	1.2	3	1																		
4	1.2 D + 1.0 Wo @ 60	Yes	Y		1	1.2	4	1																		
5	1.2 D + 1.0 Wo @ 90	Yes	Y		1	1.2	5	1																		
6	1.2 D + 1.0 Wo @ 120	Yes	Y		1	1.2	6	1																		
7	1.2 D + 1.0 Wo @ 150	Yes	Y		1	1.2	7	1																		
8	1.2 D + 1.0 Wo @ 180	Yes	Y		1	1.2	2	-1																		
9	1.2 D + 1.0 Wo @ 210	Yes	Y		1	1.2	3	-1																		
10	1.2 D + 1.0 Wo @ 240	Yes	Y		1	1.2	4	-1																		
11	1.2 D + 1.0 Wo @ 270	Yes	Y		1	1.2	5	-1																		
12	1.2 D + 1.0 Wo @ 300	Yes	Y		1	1.2	6	-1																		
13	1.2 D + 1.0 Wo @ 330	Yes	Y		1	1.2	7	-1																		
14	1.2 D + 1.0 Di + 1.0 Wi @ 0	Yes	Y		1	1.2	8	1	9	1																
15	1.2 D + 1.0 Di + 1.0 Wi @ 30	Yes	Y		1	1.2	8	1	10	1																
16	1.2 D + 1.0 Di + 1.0 Wi @ 60	Yes	Y		1	1.2	8	1	11	1																
17	1.2 D + 1.0 Di + 1.0 Wi @ 90	Yes	Y		1	1.2	8	1	12	1																
18	1.2 D + 1.0 Di + 1.0 Wi @ 120	Yes	Y		1	1.2	8	1	13	1																
19	1.2 D + 1.0 Di + 1.0 Wi @ 150	Yes	Y		1	1.2	8	1	14	1																
20	1.2 D + 1.0 Di + 1.0 Wi @ 180	Yes	Y		1	1.2	8	1	9	-1																
21	1.2 D + 1.0 Di + 1.0 Wi @ 210	Yes	Y		1	1.2	8	1	10	-1																
22	1.2 D + 1.0 Di + 1.0 Wi @ 240	Yes	Y		1	1.2	8	1	11	-1																
23	1.2 D + 1.0 Di + 1.0 Wi @ 270	Yes	Y		1	1.2	8	1	12	-1																
24	1.2 D + 1.0 Di + 1.0 Wi @ 300	Yes	Y		1	1.2	8	1	13	-1																
25	1.2 D + 1.0 Di + 1.0 Wi @ 330	Yes	Y		1	1.2	8	1	14	-1																
26	1.2 D + 1.5 Lm1 + 1.0 Wm @ 0	Yes	Y		1	1.2	15	1.5	2	.058																
27	1.2 D + 1.5 Lm1 + 1.0 Wm @ 30	Yes	Y		1	1.2	15	1.5	3	.058																
28	1.2 D + 1.5 Lm1 + 1.0 Wm @ 60	Yes	Y		1	1.2	15	1.5	4	.058																
29	1.2 D + 1.5 Lm1 + 1.0 Wm @ 90	Yes	Y		1	1.2	15	1.5	5	.058																
30	1.2 D + 1.5 Lm1 + 1.0 Wm @ 120	Yes	Y		1	1.2	15	1.5	6	.058																
31	1.2 D + 1.5 Lm1 + 1.0 Wm @ 150	Yes	Y		1	1.2	15	1.5	7	.058																
32	1.2 D + 1.5 Lm1 + 1.0 Wm @ 180	Yes	Y		1	1.2	15	1.5	2	.058																
33	1.2 D + 1.5 Lm1 + 1.0 Wm @ 210	Yes	Y		1	1.2	15	1.5	3	.058																
34	1.2 D + 1.5 Lm1 + 1.0 Wm @ 240	Yes	Y		1	1.2	15	1.5	4	.058																
35	1.2 D + 1.5 Lm1 + 1.0 Wm @ 270	Yes	Y		1	1.2	15	1.5	5	.058																
36	1.2 D + 1.5 Lm1 + 1.0 Wm @ 300	Yes	Y		1	1.2	15	1.5	6	.058																
37	1.2 D + 1.5 Lm1 + 1.0 Wm @ 330	Yes	Y		1	1.2	15	1.5	7	.058																
38	1.2 D + 1.5 Lm2 + 1.0 Wm @ 0	Yes	Y		1	1.2	16	1.5	2	.058																
39	1.2 D + 1.5 Lm2 + 1.0 Wm @ 30	Yes	Y		1	1.2	16	1.5	3	.058																
40	1.2 D + 1.5 Lm2 + 1.0 Wm @ 60	Yes	Y		1	1.2	16	1.5	4	.058																
41	1.2 D + 1.5 Lm2 + 1.0 Wm @ 90	Yes	Y		1	1.2	16	1.5	5	.058																
42	1.2 D + 1.5 Lm2 + 1.0 Wm @ 120	Yes	Y		1	1.2	16	1.5	6	.058																
43	1.2 D + 1.5 Lm2 + 1.0 Wm @ 150	Yes	Y		1	1.2	16	1.5	7	.058																
44	1.2 D + 1.5 Lm2 + 1.0 Wm @ 180	Yes	Y		1	1.2	16	1.5	2	.058																
45	1.2 D + 1.5 Lm2 + 1.0 Wm @ 210	Yes	Y		1	1.2	16	1.5	3	.058																
46	1.2 D + 1.5 Lm2 + 1.0 Wm @ 240	Yes	Y		1	1.2	16	1.5	4	.058																
47	1.2 D + 1.5 Lm2 + 1.0 Wm @ 270	Yes	Y		1	1.2	16	1.5	5	.058																
48	1.2 D + 1.5 Lm2 + 1.0 Wm @ 300	Yes	Y		1	1.2	16	1.5	6	.058																
49	1.2 D + 1.5 Lm2 + 1.0 Wm @ 330	Yes	Y		1	1.2	16	1.5	7	.058																
50	1.2 D + 1.5 Lm3 + 1.0 Wm @ 0	Yes	Y		1	1.2	17	1.5	2	.058																
51	1.2 D + 1.5 Lm3 + 1.0 Wm @ 30	Yes	Y		1	1.2	17	1.5	3	.058																
52	1.2 D + 1.5 Lm3 + 1.0 Wm @ 60	Yes	Y		1	1.2	17	1.5	4	.058																
53	1.2 D + 1.5 Lm3 + 1.0 Wm @ 90	Yes	Y		1	1.2	17	1.5	5	.058																
54	1.2 D + 1.5 Lm3 + 1.0 Wm @ 120	Yes	Y		1	1.2	17	1.5	6	.058																
55	1.2 D + 1.5 Lm3 + 1.0 Wm @ 150	Yes	Y		1	1.2	17	1.5	7	.058																
56	1.2 D + 1.5 Lm3 + 1.0 Wm @ 180	Yes	Y		1	1.2	17	1.5	2	.058																

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
57	1.2 D + 1.5 Lm3 + 1.0 Wm @ 210	Yes	Y		1	1.2	17	1.5	3	.058																
58	1.2 D + 1.5 Lm3 + 1.0 Wm @ 240	Yes	Y		1	1.2	17	1.5	4	.058																
59	1.2 D + 1.5 Lm3 + 1.0 Wm @ 270	Yes	Y		1	1.2	17	1.5	5	.058																
60	1.2 D + 1.5 Lm3 + 1.0 Wm @ 300	Yes	Y		1	1.2	17	1.5	6	.058																
61	1.2 D + 1.5 Lm3 + 1.0 Wm @ 330	Yes	Y		1	1.2	17	1.5	7	.058																
62	1.2 D + 1.5 Lm4 + 1.0 Wm @ 0	Yes	Y		1	1.2	18	1.5	2	.058																
63	1.2 D + 1.5 Lm4 + 1.0 Wm @ 30	Yes	Y		1	1.2	18	1.5	3	.058																
64	1.2 D + 1.5 Lm4 + 1.0 Wm @ 60	Yes	Y		1	1.2	18	1.5	4	.058																
65	1.2 D + 1.5 Lm4 + 1.0 Wm @ 90	Yes	Y		1	1.2	18	1.5	5	.058																
66	1.2 D + 1.5 Lm4 + 1.0 Wm @ 120	Yes	Y		1	1.2	18	1.5	6	.058																
67	1.2 D + 1.5 Lm4 + 1.0 Wm @ 150	Yes	Y		1	1.2	18	1.5	7	.058																
68	1.2 D + 1.5 Lm4 + 1.0 Wm @ 180	Yes	Y		1	1.2	18	1.5	2	-.0...																
69	1.2 D + 1.5 Lm4 + 1.0 Wm @ 210	Yes	Y		1	1.2	18	1.5	3	-.0...																
70	1.2 D + 1.5 Lm4 + 1.0 Wm @ 240	Yes	Y		1	1.2	18	1.5	4	-.0...																
71	1.2 D + 1.5 Lm4 + 1.0 Wm @ 270	Yes	Y		1	1.2	18	1.5	5	-.0...																
72	1.2 D + 1.5 Lm4 + 1.0 Wm @ 300	Yes	Y		1	1.2	18	1.5	6	-.0...																
73	1.2 D + 1.5 Lm4 + 1.0 Wm @ 330	Yes	Y		1	1.2	18	1.5	7	-.0...																
74	1.2 D + 1.5 Lv1	Yes	Y		1	1.2	19	1.5																		
75	1.2 D + 1.5 Lv2	Yes	Y		1	1.2	20	1.5																		
76	1.2 D + 1.5 Lv3	Yes	Y		1	1.2	21	1.5																		
77	1.2 D + 1.5 Lv4	Yes	Y		1	1.2	22	1.5																		
78	1.0 D	Yes	Y		1	1																				

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N84	max	4240.003	11	375.769	23	1591.379	2	.237	2	2.453	8	.48	24
2		min	-5478.263	5	-105.741	5	-1553.776	8	-.231	8	-2.397	2	-.015	6
3	N115B	max	2618.114	13	375.857	19	4811.915	13	.406	19	2.453	4	.154	4
4		min	-1966.474	7	-138.989	73	-3762.547	7	-.072	62	-2.398	10	-.285	10
5	N121	max	2858.776	9	375.495	15	3583.713	3	.067	11	2.453	12	.125	6
6		min	-2274.553	3	-132.345	31	-4673.879	9	-.433	17	-2.398	6	-.258	24
7	N146A	max	7939.4	17	4120.5	17	33.272	2	0	78	0	78	0	78
8		min	285.445	11	149.603	11	-32.789	8	0	1	0	1	0	1
9	N148	max	-141.973	7	4117.683	25	-245.918	7	0	78	0	78	0	78
10		min	-3965.289	25	148.843	7	-6871.88	25	0	1	0	1	0	1
11	N150	max	-142.366	3	4118.995	21	6872.213	21	0	78	0	78	0	78
12		min	-3969.867	21	149.232	3	246.57	3	0	1	0	1	0	1
13	Totals:	max	5645.457	11	12363.973	19	5645.288	2						
14		min	-5645.448	5	3414.043	78	-5645.28	8						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M73	L4X4X4	.881	32.838	20	.060	32.838	z	22	41767.21	62532	3.138	6.124	1....	H2-1
2	M59A	L4X4X4	.881	32.838	16	.060	32.838	z	18	41767.21	62532	3.138	6.124	1....	H2-1
3	M66	L4X4X4	.880	32.839	24	.060	32.839	z	14	41767.21	62532	3.138	6.124	1....	H2-1
4	M23	L2.5x2.5x4	.691	0	11	.098	0	y	11	33673.5...	38556	1.114	2.537	1....	H2-1
5	M24	L2.5x2.5x4	.691	0	3	.098	0	y	3	33673.5...	38556	1.114	2.537	1....	H2-1
6	M25	L2.5x2.5x4	.691	0	7	.098	0	y	7	33673.5...	38556	1.114	2.537	1....	H2-1
7	M61	PL 9"x1/2"	.561	11.582	21	.138	11.582	y	12	39468.3...	145800	1.519	27.338	1....	H1-1b
8	M22	PL 9"x1/2"	.560	11.582	17	.138	0	y	8	39468.3...	145800	1.519	27.338	1....	H1-1b
9	M58	PL 9"x1/2"	.560	11.582	25	.138	0	y	4	39468.3...	145800	1.519	27.338	1....	H1-1b
10	CBC2	PIPE_2.0	.471	53.333	11	.248	13.333		11	5533.086	32130	1.872	1.872	2....	H3-6
11	CBA2	PIPE_2.0	.471	53.333	3	.248	13.333		3	5533.086	32130	1.872	1.872	2....	H3-6
12	CBB2	PIPE_2.0	.471	53.333	7	.248	13.333		7	5533.086	32130	1.872	1.872	2....	H3-6

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

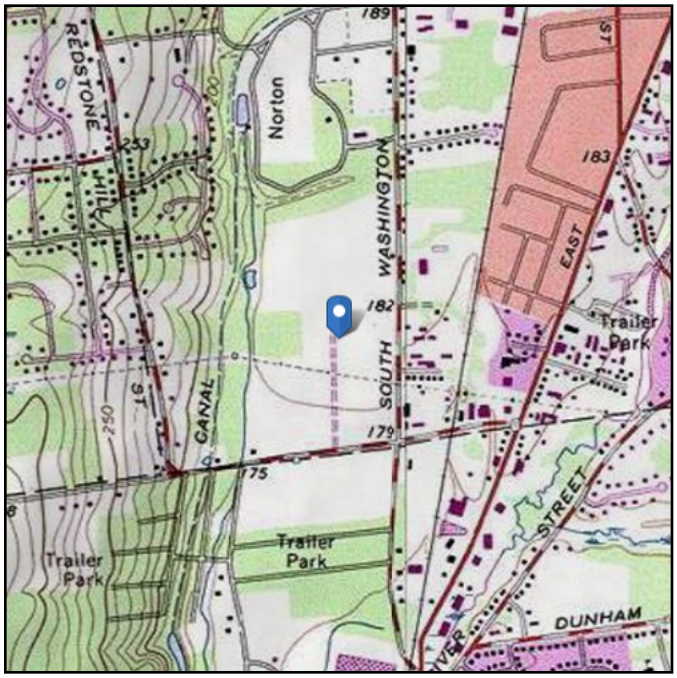
	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
13	C2	PIPE_2.0	.407	33.25	2	.140	33.25		4	17855.0...	32130	1.872	1.872	1....	H1-1b
14	A2	PIPE_2.0	.407	33.25	6	.139	33.25		8	17855.0...	32130	1.872	1.872	1....	H1-1b
15	B2	PIPE_2.0	.407	33.25	10	.140	33.25		12	17855.0...	32130	1.872	1.872	2....	H1-1b
16	B3	PIPE_2.0	.368	33.25	10	.167	33.25		8	17855.0...	32130	1.872	1.872	1....	H1-1b
17	A3	PIPE_2.0	.368	33.25	6	.167	33.25		4	17855.0...	32130	1.872	1.872	1....	H1-1b
18	C3	PIPE_2.0	.368	33.25	2	.167	33.25		12	17855.0...	32130	1.872	1.872	2....	H1-1b
19	M77	PL5X3/8	.343	4	22	.042	4	y	21	56536.8...	60750	.475	6.328	1....	H1-1b
20	M63A	PL5X3/8	.342	4	18	.042	4	y	17	56536.8...	60750	.475	6.328	1....	H1-1b
21	M70	PL5X3/8	.342	4	14	.042	4	y	25	56536.8...	60750	.475	6.328	1....	H1-1b
22	M74	PL5X3/8	.333	4	19	.043	4	y	22	56536.7...	60750	.475	6.328	1....	H1-1b
23	M60A	PL5X3/8	.333	4	15	.043	4	y	18	56536.7...	60750	.475	6.328	1....	H1-1b
24	M67	PL5X3/8	.332	4	23	.043	4	y	14	56536.7...	60750	.475	6.328	1....	H1-1b
25	CBB1	L6X3.5X5	.296	105	24	.335	150	y	16	15003.3...	93636	3.396	10.611	2....	H2-1
26	CBA1	L6X3.5X5	.296	105	20	.335	150	y	24	15003.3...	93636	3.396	10.592	2....	H2-1
27	CBC1	L6X3.5X5	.296	105	16	.337	150	y	20	15003.3...	93636	3.396	10.584	2....	H2-1
28	M19	HSS4X4X3	.291	28.555	16	.075	76.148	z	2	90832.7...	106812	12.662	12.662	2....	H1-1b
29	M61A	HSS4X4X3	.290	28.555	20	.075	76.148	z	6	90832.7...	106812	12.662	12.662	2....	H1-1b
30	M58A	HSS4X4X3	.290	28.555	24	.075	76.148	z	10	90832.7...	106812	12.662	12.662	2....	H1-1b
31	C4	PIPE_2.0	.253	33.25	8	.162	33.25		4	17855.0...	32130	1.872	1.872	2....	H1-1b
32	A4	PIPE_2.0	.253	33.25	12	.162	33.25		8	17855.0...	32130	1.872	1.872	2....	H1-1b
33	B4	PIPE_2.0	.253	33.25	4	.162	33.25		12	17855.0...	32130	1.872	1.872	2....	H1-1b
34	B1	PIPE_2.0	.241	33.25	4	.186	68.25		7	17855.0...	32130	1.872	1.872	2....	H1-1b
35	A1	PIPE_2.0	.241	33.25	12	.186	68.25		3	17855.0...	32130	1.872	1.872	2....	H1-1b
36	C1	PIPE_2.0	.241	33.25	8	.186	68.25		11	17855.0...	32130	1.872	1.872	2....	H1-1b
37	M76	PL5X3/8	.234	1	11	.511	2	y	11	59668.1...	60750	.475	6.328	1....	H1-1b
38	M62A	PL5X3/8	.234	1	7	.511	2	y	7	59668.1...	60750	.475	6.328	1....	H1-1b
39	M69	PL5X3/8	.234	1	3	.511	2	y	3	59668.1...	60750	.475	6.328	1....	H1-1b
40	M79	LL2.5x2.5x3...	.225	26.387	17	.003	52.773	y	17	44475.9...	58320	3.954	2.55	1	H1-1a
41	M81	LL2.5x2.5x3...	.225	26.387	21	.003	0	y	21	44475.9...	58320	3.954	2.55	1	H1-1a
42	M80	LL2.5x2.5x3...	.225	26.387	25	.003	52.773	y	25	44475.9...	58320	3.954	2.55	1	H1-1a
43	M20	PL5X3/8	.193	1	15	.450	2	y	3	59668.1...	60750	.475	6.328	2....	H1-1b
44	M72	PL5X3/8	.193	1	19	.450	2	y	7	59668.1...	60750	.475	6.328	2....	H1-1b
45	M65	PL5X3/8	.193	1	23	.450	2	y	11	59668.1...	60750	.475	6.328	2....	H1-1b

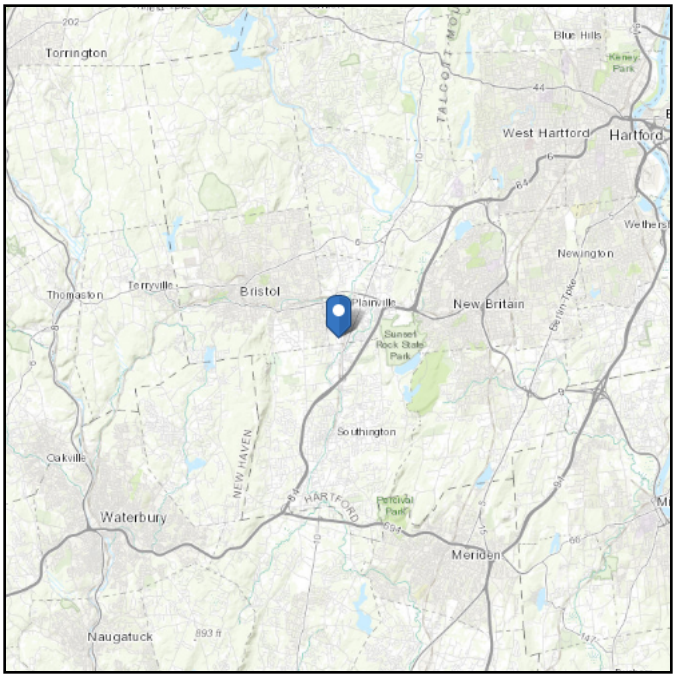
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 181.15 ft (NAVD 88)
Latitude: 41.653064
Longitude: -72.876917





Wind

Results:

Wind Speed:	121 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Wed Oct 07 2020

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

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

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

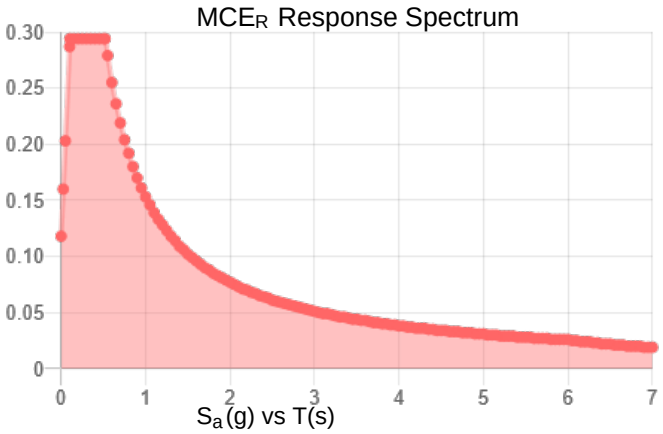
Seismic

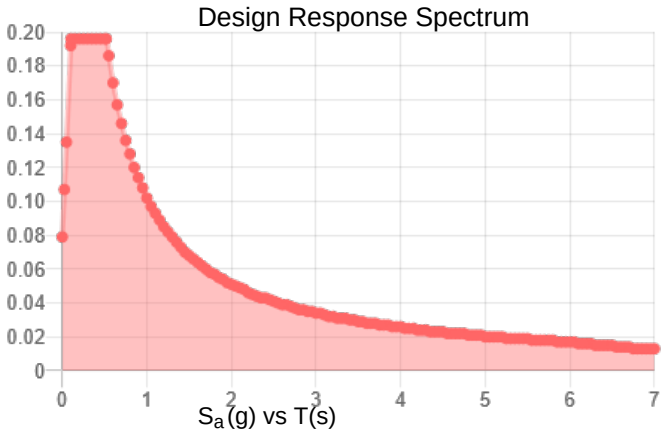
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.184	S_{DS} :	0.196
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.094
S_{MS} :	0.294	PGA_M :	0.15
S_{M1} :	0.153	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Oct 07 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:	Wed Oct 07 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.

APPENDIX C

ADDITIONAL CALCULATIONS

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

Project # 37520-2224.001.7190
By AMS
Date: 10/13/20
v3.6, Effective 08/10/2020

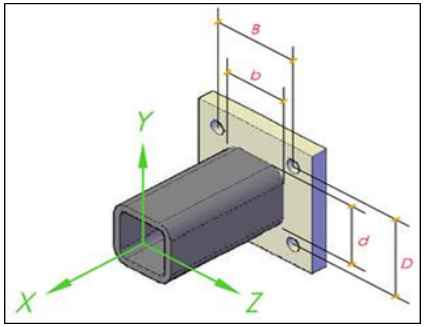
MOUNT TO TOWER CONNECTION CHECKS-LRFD

TIA Rev.	**H-15.5**	**AISC**	**15th**
Mount Type	**3-Sector**	**Checks**	**Bolts & Welds**

REACTIONS FROM RISA-3D

NODE	LC	Horizontal Shear (k)	Vertical Shear (k)	Axial along member(k)	Moment about horizontal axis (ft-k)	Moment about Vertical axis (ft-k)	Torque (ft-k)
N84	**Envelope**	**1.59**	**0.38**	**5.48**	**0.48**	**2.45**	**0.24**

Bolt Information	Type	Dia (in)	Quantity	Vertical Bolt spacing (D) (in)	Horizontal Bolt spacing (B) (in)
	A325N	**0.625**	**4**	**6**	**6**



CHECKS	Forces	Strength	**Rating**
TENSION (K)	4.30	20.7	**20.8%**
		Reduced Tensile Rating	**-**
SHEAR (k)	0.58	12.4	**4.6%**

Note: Tension reduction not required if tension or shear capacity < 30%

Standoff Member	Type	Width (b) (in)	Depth (d) (in)	thickness (in)	Weld Size	Weld Assumed?	Stiffeners present
	Rectangle	**4**	**4**	**0.1875**	**0.1875**	**yes**	**No**

WELDS CHECKS	Resultant (k)	Strength (k)	**Rating**
	1.37	4.18	**32.8%**

Controlling Rating per TIA-222-H Section 15.5:	**31.3%**

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11378G

CT378/ATT FT Plainville2
335 S. Washington Street
Plainville, Connecticut 06062

October 28, 2020

EBI Project Number: 6220005611

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**33.05%**

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

October 28, 2020

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

Emissions Analysis for Site: CT11378G - CT378/ATT FT Plainville2

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **335 S. Washington Street** in **Plainville, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 335 S. Washington Street in Plainville, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 4 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

7) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

8) 2 LTE channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

9) 2 NR channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

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

11) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

12) The antennas used in this modeling are the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector A, the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B, the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative

estimate as gain reductions for these particular antennas are typically much higher in this direction.

13) The antenna mounting height centerline of the proposed antennas is 100 feet above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd
Height (AGL):	100 feet	Height (AGL):	100 feet	Height (AGL):	100 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts
ERP (W):	12,841.53	ERP (W):	12,841.53	ERP (W):	12,841.53
Antenna A1 MPE %:	**4.62%**	Antenna B1 MPE %:	**4.62%**	Antenna C1 MPE %:	**4.62%**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 16.45 dBd
Height (AGL):	100 feet	Height (AGL):	100 feet	Height (AGL):	100 feet
Channel Count:	9	Channel Count:	9	Channel Count:	9
Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts
ERP (W):	11,010.27	ERP (W):	11,010.27	ERP (W):	11,010.27
Antenna A2 MPE %:	**6.02%**	Antenna B2 MPE %:	**6.02%**	Antenna C2 MPE %:	**6.02%**
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	100 feet	Height (AGL):	100 feet	Height (AGL):	100 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts
ERP (W):	25,651.93	ERP (W):	25,651.93	ERP (W):	25,651.93
Antenna A3 MPE %:	**9.22%**	Antenna B3 MPE %:	**9.22%**	Antenna C3 MPE %:	**9.22%**

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	19.86%
AT&T	5.59%
Verizon	4.84%
Clearwire	0.28%
Metro PCS	2.48%
Site Total MPE % :	33.05%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	19.86%
T-Mobile Sector B Total:	19.86%
T-Mobile Sector C Total:	19.86%
Site Total MPE % :	33.05%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 1900 MHz GSM	4	1028.30	100.0	14.79	1900 MHz GSM	1000	1.48%
T-Mobile 1900 MHz LTE	2	2056.61	100.0	14.79	1900 MHz LTE	1000	1.48%
T-Mobile 2100 MHz LTE	2	2307.55	100.0	16.59	2100 MHz LTE	1000	1.66%
T-Mobile 600 MHz LTE	2	591.73	100.0	4.25	600 MHz LTE	400	1.06%
T-Mobile 600 MHz NR	1	1577.94	100.0	5.67	600 MHz NR	400	1.42%
T-Mobile 700 MHz LTE	2	695.22	100.0	5.00	700 MHz LTE	467	1.07%
T-Mobile 1900 MHz LTE	2	2104.51	100.0	15.13	1900 MHz LTE	1000	1.51%
T-Mobile 2100 MHz UMTS	2	1324.71	100.0	9.53	2100 MHz UMTS	1000	0.95%
T-Mobile 2500 MHz LTE	2	6412.98	100.0	46.11	2500 MHz LTE	1000	4.61%
T-Mobile 2500 MHz LTE	2	6412.98	100.0	46.11	2500 MHz LTE	1000	4.61%
						Total:	**19.86%**

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	19.86%
Sector B:	19.86%
Sector C:	19.86%
T-Mobile Maximum MPE % (Sector A):	19.86%
Site Total:	33.05%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **33.05%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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