



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

October 18, 2022

Jack Andrews
Zoning Manager
Centerline Communications, LLC
10130 Donleigh Drive
Columbia, MD 21046
jmandrews@clinellc.com

RE: **EM-AT&T-052-220804** – AT&T notice of intent to modify an existing telecommunications facility located at 199 Town Farm Road, Farmington, Connecticut.

Dear Jack Andrews:

The Connecticut Siting Council (Council) is in receipt of your correspondence of October 14, 2022 submitted in response to the Council's August 29, 2022 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

A handwritten signature in dark ink, appearing to read "Melanie Bachman".

Melanie Bachman
Executive Director

MAB/RDM/laf

From: John Andrews <jmandrews@clinellc.com>

Sent: Friday, October 14, 2022 10:08 AM

To: Robidoux, Evan <Evan.Robidoux@ct.gov>

Cc: CSC-DL Siting Council <Siting.Council@ct.gov>

Subject: Council Incomplete Letter for EM-CING-052-220804 (199 Town Farm Road, Farmington)

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

Attached is an electronic copy of the revised Structural, Construction drawings and the EME Report in a single document, as requested in the Council Incomplete Letter. Hard copies will be mailed to you this afternoon.

Thanks



John Andrews Jr. | Project Manager
10130 Donleigh Drive, Columbia, MD 21046
Centerline Communications
750 W Center St, Suite 301 | West Bridgewater, MA 02379
Mobile: 443.677.0144
jmandrews@clinellc.com | www.centerlinecommunications.com



October 14, 2022

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

RE: EM-AT&T-052-220804 – AT&T notice of intent to modify an existing telecommunications facility located at 199 Town Farm Road, Farmington, Connecticut

Dear Ms. Bachman,

In a letter dated August 29, 2022, the Council advised me that the Structural and Radio-Frequency reports submitted with the application do not include T-Mobile's approved equipment. In addition, I was told that the submitted drawings lacked any notations on the Site Plans regarding how the antennas will be concealed within the existing branch pattern or notes specifying what branches are to be removed/and or replaced.

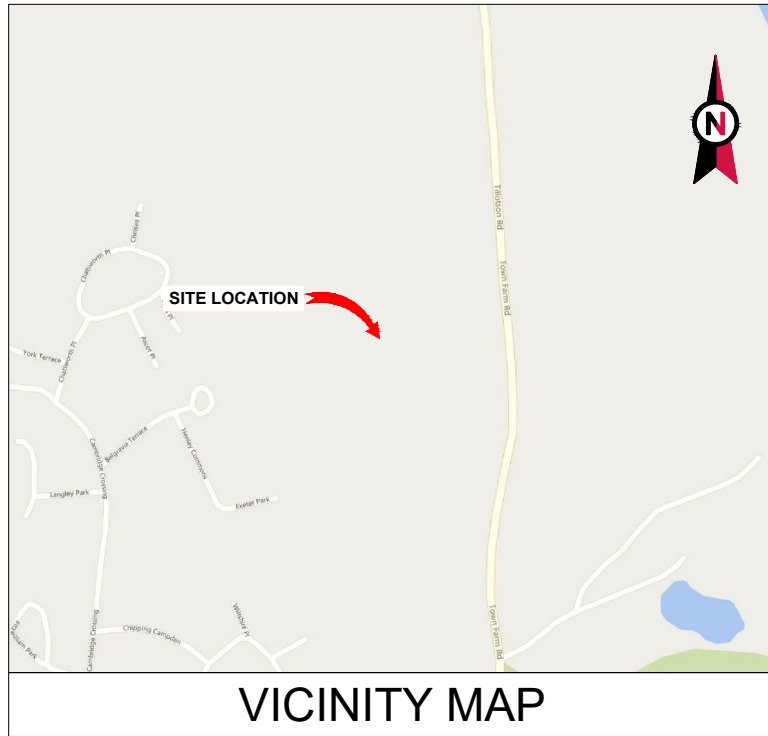
Accordingly, enclosed please find: a set of revised drawings with camouflage notations on pages C-201 and C-401; a passing Revised Structural Report dated August 31, 2022; and a Revised EME Report.

AT&T respectfully requests that the Council approve this Exempt Modification request for this tower located at 199 Town Farm Road, Farmington, Connecticut. If you have any questions, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Jack Andrews', is written over the printed name.

Jack Andrews
Zoning Manager, Centerline Communications
443-677-0144



VICINITY MAP

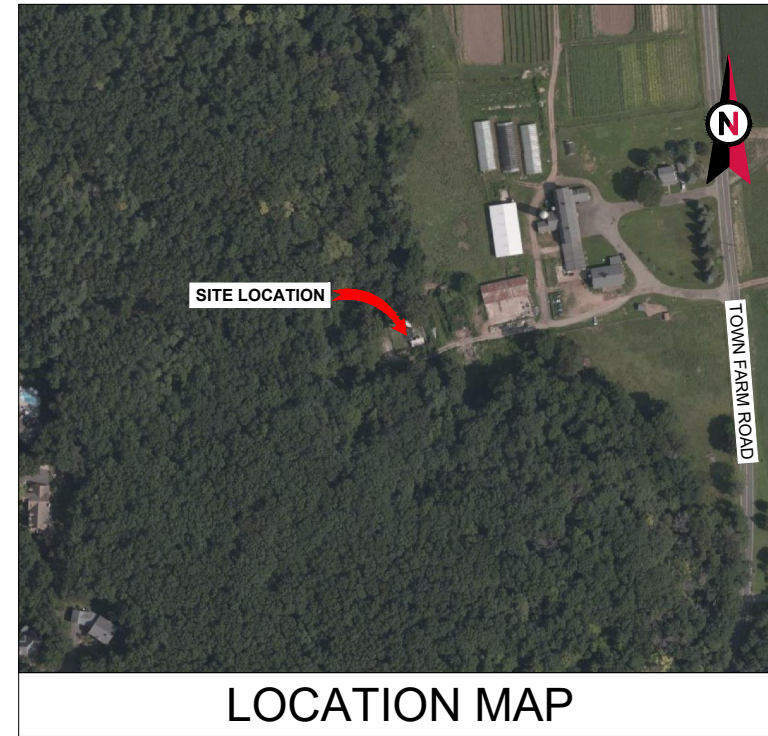


AMERICAN TOWER®

ATC SITE NAME: FARMINGTON NORTH 2 CT
 ATC SITE NUMBER: 411258
 AT&T PACE NUMBERS: MRCTB054329, MRCTB056307,
 MRCTB055325, MRCTB053999,
 MRCTB055853, MRCTB055843,
 MRCTB056286, MRCTB055398

AT&T SITE ID: CT2580
 AT&T FA CODE: 10141396
 AT&T SITE NAME: CT2580
 SITE ADDRESS: 199 TOWN FARM ROAD
 FARMINGTON, CT 06032

AT&T CBAND 5G NR AMENDMENT PLAN



LOCATION MAP

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 UNDER APPLICABLE LAW.



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 Madison, CT 06443
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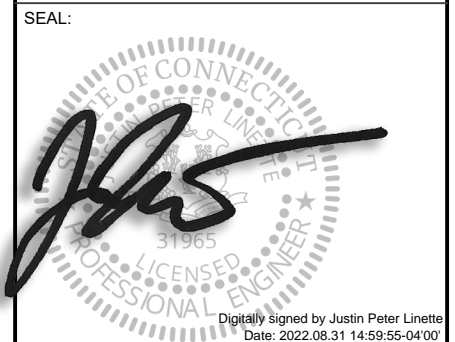
REV.	DESCRIPTION	BY	DATE
A	PRELIM	JLK	03/25/22
B	PRELIM	JLK	04/12/22
0	FOR CONSTRUCTION	AMN	05/16/22
1	FOR CONSTRUCTION	AMN	08/31/22

ATC SITE NUMBER:
411258

 ATC SITE NAME:
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 AT&T SITE NAME:
CT2580

 SITE ADDRESS:
199 TOWN FARM ROAD
FARMINGTON, CT 06032



DATE DRAWN:	03/25/22
ATC JOB NO:	13757816_G5
CUSTOMER ID:	CT2580
CUSTOMER #:	10141396

TITLE SHEET

SHEET NUMBER:
G-001
 REVISION:
1

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES. 1. CT STATE BUILDING CODE, INCORPORATING THE 2018 INTERNATIONAL BUILDING CODE 2. 2017 NATIONAL ELECTRIC CODE (NEC) 3. LOCAL BUILDING CODE 4. CITY/COUNTY ORDINANCES	<u>SITE ADDRESS:</u> 199 TOWN FARM ROAD FARMINGTON, CT 06032 COUNTY: HARTFORD <u>GEOGRAPHIC COORDINATES:</u> LATITUDE: 41.75777516 LONGITUDE: -72.82993932 GROUND ELEVATION: 183' AMSL	THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW: <u>TOWER WORK:</u> REMOVE (9) ANTENNA(S), (6) RRR(S) AND (3) TTA(S) INSTALL (12) ANTENNA(S), (9) RRR(S), (1) SQUID(S), (1) CONDUIT(S), (2) 6AWG6 DC TRUNK(S), (6) Y CABLE(S) AND (1) FIBER TRUNK(S) EXISTING (3) RRR(S), (2) SQUID(S), (4) 8AWG6 DC TRUNK(S), (2) 18 PAIR FIBER TRUNK(S), (6) COAX CABLE(S) AND (2) CONDUIT(S) TO REMAIN <u>GROUND WORK:</u> INSTALL 6648 WITH XCEDE CABLES	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<u>PROJECT TEAM</u> <u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801 <u>ENGINEER:</u> COLLIER ENGINEERING & DESIGN CT, P.C. 135 NEW ROAD MADISON, CT 06443 PROJECT #: 22904275A <u>PROPERTY OWNER:</u> TOWN OF FARMINGTON CT 199 TOWN FARM ROAD FARMINGTON, CT 06032	<u>PROJECT NOTES</u> 1. THE FACILITY IS UNMANNED. 2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE. 3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE. 4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED. 5. HANDICAP ACCESS IS NOT REQUIRED. 6. THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).	G-001 TITLE SHEET G-002 GENERAL NOTES C-101 DETAILED SITE PLAN C-201 TOWER ELEVATION C-401 ANTENNA INSTALLATION C-402 RF SCHEDULE C-501 CONSTRUCTION DETAILS E-501 GROUNDING DETAILS R-601 SUPPLEMENTAL R-602 SUPPLEMENTAL R-603 SUPPLEMENTAL R-604 SUPPLEMENTAL R-605 SUPPLEMENTAL				
<u>UTILITY COMPANIES</u> POWER COMPANY: UNKNOWN PHONE: N/A TELEPHONE COMPANY: UNKNOWN PHONE: N/A	<u>PROJECT LOCATION DIRECTIONS</u> HEAD NORTHEAST ON I-84 E, USE THE LEFT LANE TO TAKE EXIT 39 TOWARD CT-4/FARMINGTON, CONTINUE ONTO STATE HWY 508, STATE HWY 508 TURNS SLIGHTLY RIGHT AND BECOMES CT-4 W, TURN RIGHT ONTO TOWN FARM RD, DESTINATION WILL BE ON THE LEFT						



Know what's below.
Call before you dig.

GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, AT&T "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
 - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
 - B. AC/TELCO INTERFACE BOX (PPC)
 - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
 - D. TOWERS, MONOPOLES
 - E. TOWER LIGHTING
 - F. GENERATORS & LIQUID PROPANE TANK
 - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
 - H. ANTENNAS (INSTALLED BY OTHERS)
 - I. TRANSMISSION LINE
 - J. TRANSMISSION LINE JUMPERS
 - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
 - L. TRANSMISSION LINE GROUND KITS
 - M. HANGERS
 - N. HOISTING GRIPS
 - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF AT&T TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE AT&T REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE AT&T REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE AT&T REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE AT&T CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE AT&T REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH AT&T AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH AT&T REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH AT&T REP TO

- DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY AT&T MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH AT&T SPECIFICATIONS AND REQUIREMENTS.
 24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO AT&T FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
 25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO AT&T SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
 26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
 27. CONTRACTOR SHALL NOTIFY AT&T REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
 28. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
 29. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
 30. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE AT&T REP. ANY WORK FOUND BY THE AT&T REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
 31. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.
 32. AT&T FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE AT&T WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
 33. AT&T OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO AT&T OR THEIR ARCHITECT/ENGINEER.

**SPECIAL CONSTRUCTION
ANTENNA INSTALLATION NOTES:**

1. WORK INCLUDED:
 - A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY AT&T UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL.
 - B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND AT&T SPECIFICATIONS.
 - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
 - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE.
 - E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
 - F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
 - G. ANTENNA AND COAXIAL CABLE GROUNDING:
 2. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.
 3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)

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ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.



Colliers Engineering & Design

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COLLIERS ENGINEERING & DESIGN CT, P.C.
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REV.	DESCRIPTION	BY	DATE
A	PRELIM	JLK	03/25/22
B	PRELIM	JLK	04/12/22
0	FOR CONSTRUCTION	AMN	05/16/22
1	FOR CONSTRUCTION	AMN	08/31/22
△			

ATC SITE NUMBER:
411258

ATC SITE NAME:
FARMINGTON NORTH 2 CT

AT&T SITE NAME:
CT2580

SITE ADDRESS:
199 TOWN FARM ROAD
FARMINGTON, CT 06032

SEAL:

Digitally signed by Justin Peter Linette
Date: 2022.08.31 15:00:09-04'00



DATE DRAWN:	03/25/22
ATC JOB NO:	13757816_G5
CUSTOMER ID:	CT2580
CUSTOMER #:	10141396

GENERAL NOTES

SHEET NUMBER:
G-002

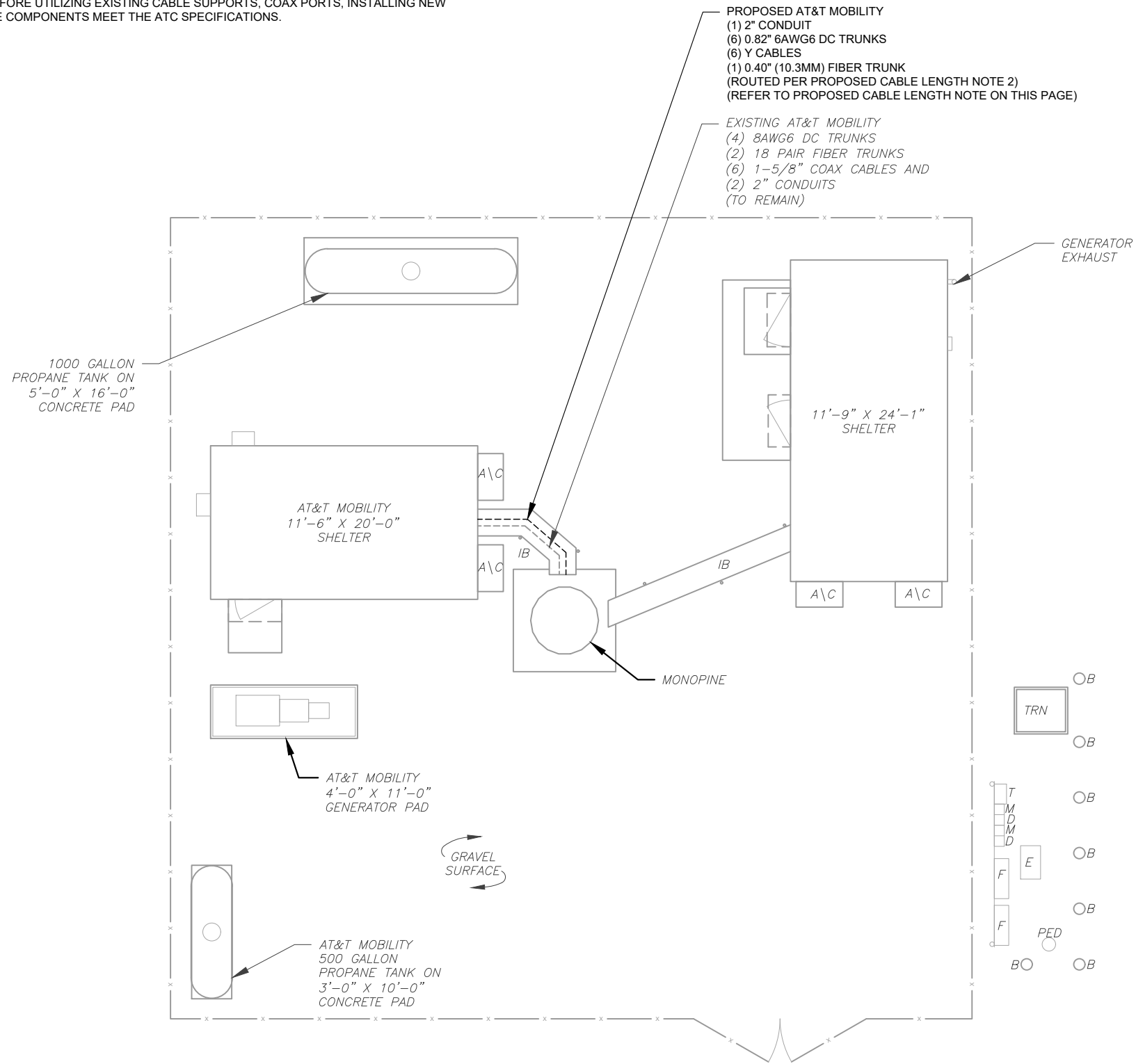
REVISION:
1

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SITE PLAN NOTES:

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3. THIS PROJECT INCLUDES NO INSTALL OR MODIFICATION AT GRADE.

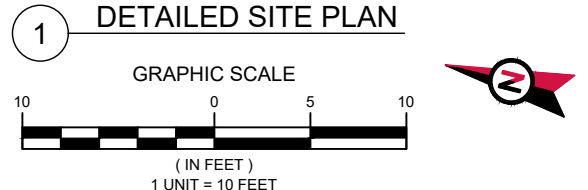
LEGEND	
⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACLE
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
x	CHAINLINK FENCE



PROPOSED CABLE LENGTH:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **130'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES), CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.

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Colliers Engineering & Design

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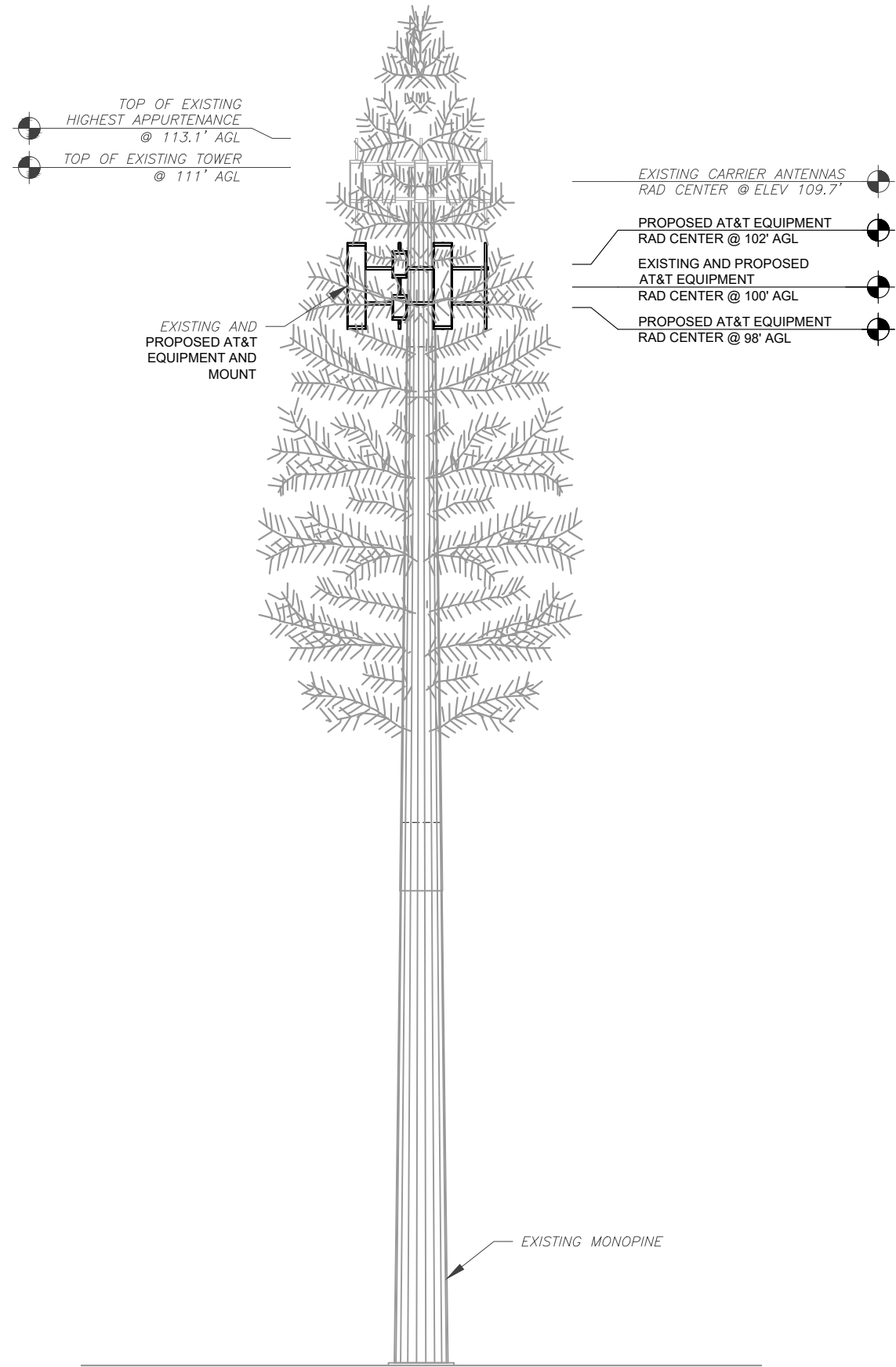


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CUSTOMER ID:	CT2580
CUSTOMER #:	10141396

DETAILED SITE PLAN	
SHEET NUMBER: C-101	REVISION: 1

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PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 03/22/22, THE EXISTING MOUNT CAN NOT ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT REPLACEMENT PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT.

1

MONOPINE ANTENNA NOTES:

1. ANTENNAS SHALL BE MOUNTED WITHIN THE FOLIAGE OF THE MONOPINE AND ALL BRANCHES SHALL EXTEND BEYOND THE ANTENNA PANELS AND MOUNTING HARDWARE. ADD AND/OR REPLACE BRANCHES AS REQUIRED.
2. ANTENNAS SHALL BE PAINTED/SOCKED TO MATCH EXISTING.
3. ANTENNA MOUNTS SHALL BE PAINTED TO MATCH EXISTING.

TOWER NOTE:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS. WHERE APPLICABLE, ALL NEW ANTENNAS, EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
3. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)
4. TOWER ELEVATION DEPICTION MAY NOT REFLECT ALL EQUIPMENT INCLUDED IN STRUCTURAL ANALYSIS. REFER TO STRUCTURAL ANALYSIS FOR FULL TOWER LOADING.

1 TOWER ELEVATION
SCALE: N.T.S.



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A	PRELIM	JLK	03/25/22
B	PRELIM	JLK	04/12/22
0	FOR CONSTRUCTION	AMN	05/16/22
1	FOR CONSTRUCTION	AMN	08/31/22

ATC SITE NUMBER:
411258

ATC SITE NAME:
FARMINGTON NORTH 2 CT

AT&T SITE NAME:
CT2580

SITE ADDRESS:
**199 TOWN FARM ROAD
FARMINGTON, CT 06032**

SEAL:

Digitally signed by Justin Peter Linette
Date: 2022.08.31 15:00:09-04'00'

DATE DRAWN:	03/25/22
ATC JOB NO:	13757816_G5
CUSTOMER ID:	CT2580
CUSTOMER #:	10141396

TOWER ELEVATION

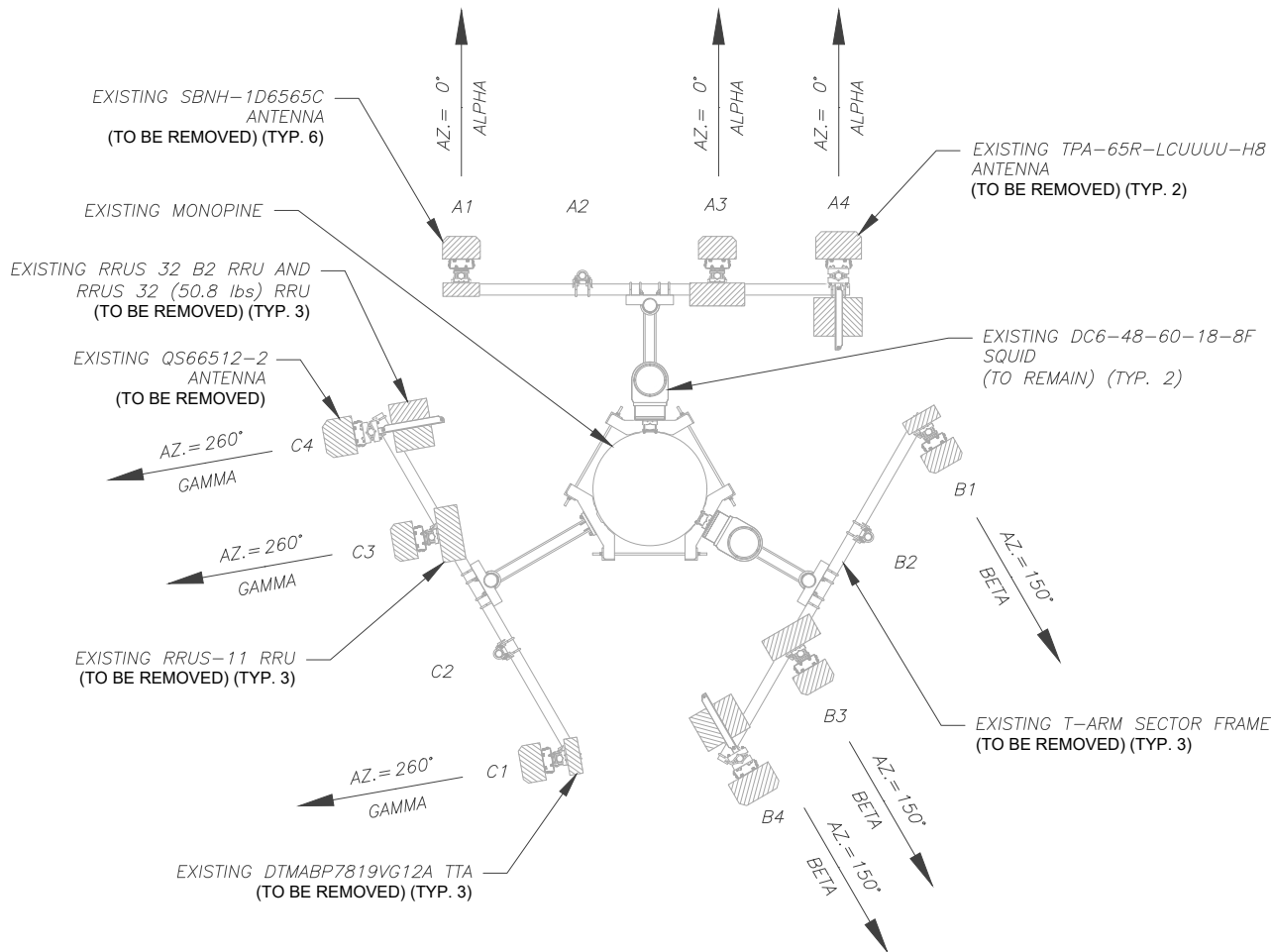
SHEET NUMBER: C-201	REVISION: 1
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EXISTING CONFIGURATIONS ARE BASED ON RFDS. CONTRACTOR TO VERIFY EXISTING CONDITIONS.

MONOPINE BRANCHES NOT SHOWN FOR CLARITY.

1



1 CURRENT ANTENNA PLAN
SCALE: 1"=5'
0 5' 10'
SCALE: 1"=5' (11X17)
1"=2.5' (22X34)

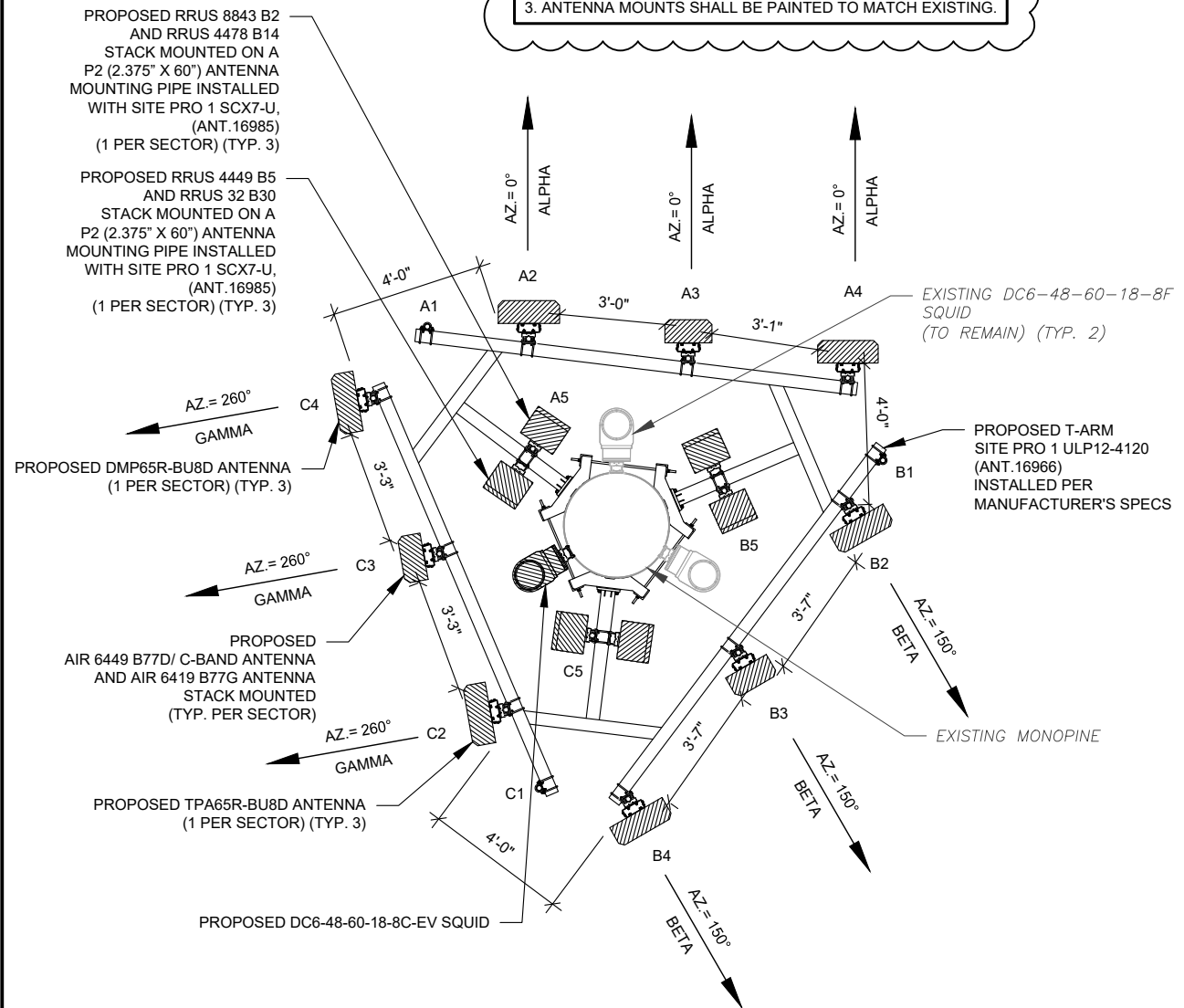
PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 03/22/22, THE EXISTING MOUNT CAN NOT ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT REPLACEMENT PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT.

1

MONOPINE BRANCHES NOT SHOWN FOR CLARITY.

MONOPINE ANTENNA NOTES:

1. ANTENNAS SHALL BE MOUNTED WITHIN THE FOLIAGE OF THE MONOPINE AND ALL BRANCHES SHALL EXTEND BEYOND THE ANTENNA PANELS AND MOUNTING HARDWARE. ADD AND/OR REPLACE BRANCHES AS REQUIRED.
2. ANTENNAS SHALL BE PAINTED/SOCKED TO MATCH EXISTING.
3. ANTENNA MOUNTS SHALL BE PAINTED TO MATCH EXISTING.



2 FINAL ANTENNA PLAN
SCALE: 1"=5'
0 5' 10'
SCALE: 1"=5' (11X17)
1"=2.5' (22X34)

PROPOSED RRUS MUST BE INSTALLED A MINIMUM OF 8" AWAY FROM ALL ANTENNAS

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ATC SITE NAME:
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AT&T SITE NAME:
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SITE ADDRESS:
199 TOWN FARM ROAD
FARMINGTON, CT 06032

SEAL:

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Date: 2022.08.31 15:00:09+00'



DATE DRAWN:	03/25/22
ATC JOB NO:	13757816_G5
CUSTOMER ID:	CT2580
CUSTOMER #:	10141396

ANTENNA INSTALLATION

SHEET NUMBER:
C-401
REVISION:
1

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EXISTING ANTENNA SCHEDULE								
LOCATION			ANTENNA SUMMARY			NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	
ALPHA	100'	0°	A1	SBNH-1D6565C	UMTS 850	RMV	DTMABP7819VG12A	
			A2	-	-	-	-	
			A3	SBNH-1D6565C	LTE 700	RMV	RRUS-11	RMV
			A4	TPA-65R-LCUUUU-H8	LTE 1900/WCS	RMV	RRUS 32 B2 RRUS 32	RMV
BETA	100'	150°	B1	SBNH-1D6565C	UMTS 850	RMV	DTMABP7819VG12A	
			B2	-	-	-	-	
			B3	SBNH-1D6565C	LTE 700	RMV	RRUS-11	RMV
			B4	TPA-65R-LCUUUU-H8	LTE 1900/WCS	RMV	RRUS 32 B2 RRUS 32	RMV
GAMMA	100'	260°	C1	SBNH-1D6565C	UMTS 850	RMV	DTMABP7819VG12A	
			C2	-	-	-	-	
			C3	SBNH-1D6565C	LTE 700	RMV	RRUS-11	RMV
			C4	QS66512-2	LTE 1900/WCS	RMV	RRUS 32 B2 RRUS 32	RMV

NOTES

- CONFIRM WITH AT&T REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
- THE ANTENNA ORIENTATION PLAN IS A SCHEMATIC. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA AZIMUTHS, MOUNT CONFIGURATIONS AND TOWER ORIENTATION. SCALES SHOWN ARE FOR REFERENCE ONLY AND EXISTING DIMENSIONS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO INSTALLATION AND NOTIFY ATC OF ANY DISCREPANCIES.
- CONTRACTOR TO ENSURE PROPER SEPARATION IN ACCORDANCE WITH AT&T'S FIRSTNET REQUIREMENTS (SEE SHEET R-602)

FINAL ANTENNA SCHEDULE								
LOCATION			ANTENNA SUMMARY			NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	
ALPHA	100'	0°	A1	-	-	-	-	
			A2	TPA65R-BU8D	LTE 700/1900/AWS 5G 1900/AWS	ADD	RRUS 4478 B14 RRUS 8843 B2, B66A	ADD ADD
			A3	AIR 6419 B77G AIR 6449 B77D/ C-Band	5G CBAND/DOD	ADD ADD	-	-
	98' 102'	100'	A4	DMP65R-BU8D	LTE 700/WCS/5G 850	ADD	-	-
			A5	-	-	-	RRUS 4449 B5, B12 RRUS 32 B30	ADD ADD
BETA	100'	150°	B1	-	-	-	-	
			B2	TPA65R-BU8D	LTE 700/1900/AWS 5G 1900/AWS	ADD	-	-
			B3	AIR 6419 B77G AIR 6449 B77D/ C-Band	5G CBAND/DOD	ADD ADD	-	-
	98' 102'	100'	B4	DMP65R-BU8D	LTE 700/WCS/5G 850	ADD	-	-
			B5	-	-	-	RRUS 4449 B5, B12 RRUS 4478 B14 RRUS 8843 B2, B66A	ADD ADD ADD
GAMMA	100'	260°	C1	-	-	-	-	
			C2	TPA65R-BU8D	LTE 700/1900/AWS 5G 1900/AWS	ADD	-	-
			C3	AIR 6419 B77G AIR 6449 B77D/ C-Band	5G CBAND/DOD	ADD ADD	-	-
	98' 102'	100'	C4	DMP65R-BU8D	LTE 700/WCS/5G 850	ADD	-	-
			C5	-	-	-	RRUS 4449 B5, B12 RRUS 4478 B14 RRUS 8843 B2, B66A	ADD ADD ADD

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ATC SITE NAME:
FARMINGTON NORTH 2 CT

AT&T SITE NAME:
CT2580

SITE ADDRESS:
199 TOWN FARM ROAD
FARMINGTON, CT 06032

SEAL:

Digitally signed by Justin Peter Linette
Date: 2022.08.31 15:00:09-04'00

STATUS ABBREVIATIONS

RMV: TO BE REMOVED
 RMN: TO REMAIN
 REL: TO BE RELOCATED
 ADD: TO BE ADDED

CABLE LENGTHS FOR JUMPERS

JUNCTION BOX TO RRU: 15'
 RRU TO ANTENNA: 10'

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EXISTING FIBER DISTRIBUTION/SQUID		EXISTING CABLING SUMMARY			
MODEL NUMBER	STATUS	COAX	DC	FIBER	STATUS
(2) DC6-48-60-18-8F ("Squid")	RMN	(6) 1-5/8" (2) 2" CONDUIT	(4) 8AWG6	(2) 18 PAIR	RMN

3 EQUIPMENT SCHEDULES

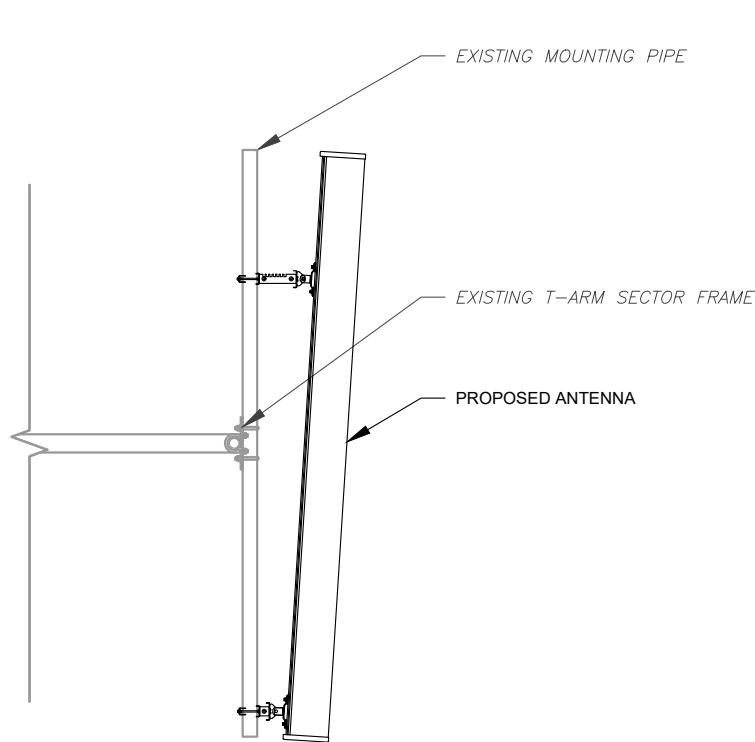
FINAL FIBER DISTRIBUTION/SQUID		FINAL CABLING SUMMARY			
MODEL NUMBER	STATUS	COAX	DC	FIBER	STATUS
(2) DC6-48-60-18-8F ("Squid")	RMN	(6) 1-5/8" (2) 2" CONDUIT	(4) 8AWG6	(2) 18 PAIR	RMN
(1) DC6-48-60-18-8C-EV	ADD	(1) 2" CONDUIT (6) Y CABLES	(6) 6AWG6	(1) 18 PAIR	ADD

DATE DRAWN: 03/25/22
 ATC JOB NO: 13757816_G5
 CUSTOMER ID: CT2580
 CUSTOMER #: 10141396

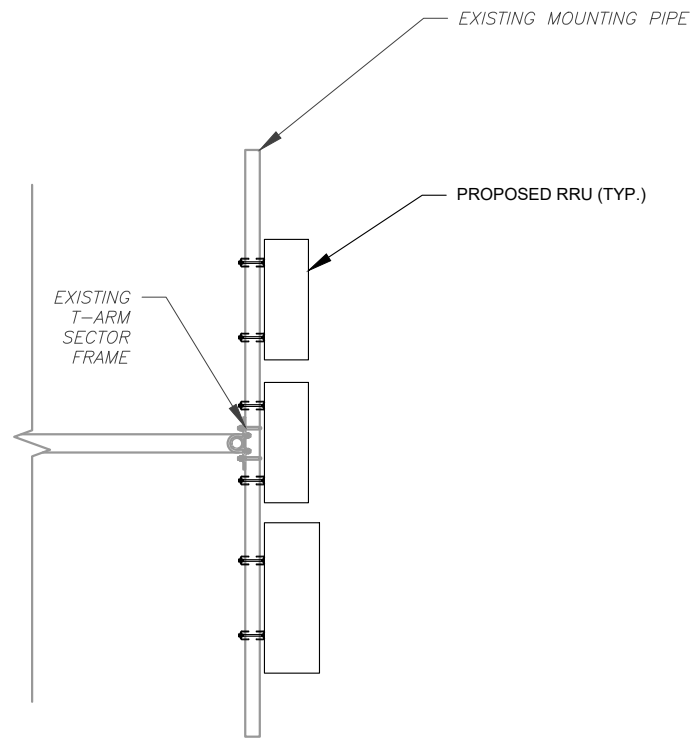
RF SCHEDULE

SHEET NUMBER:
C-402

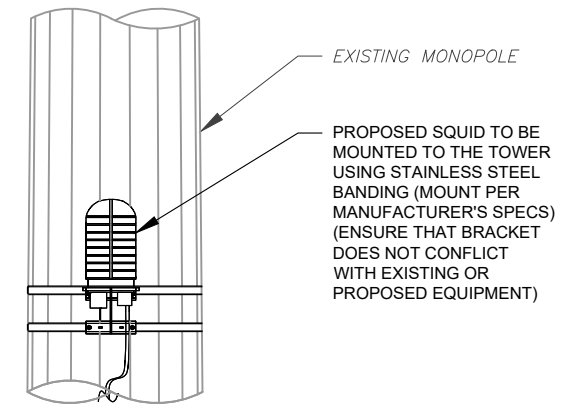
REVISION:
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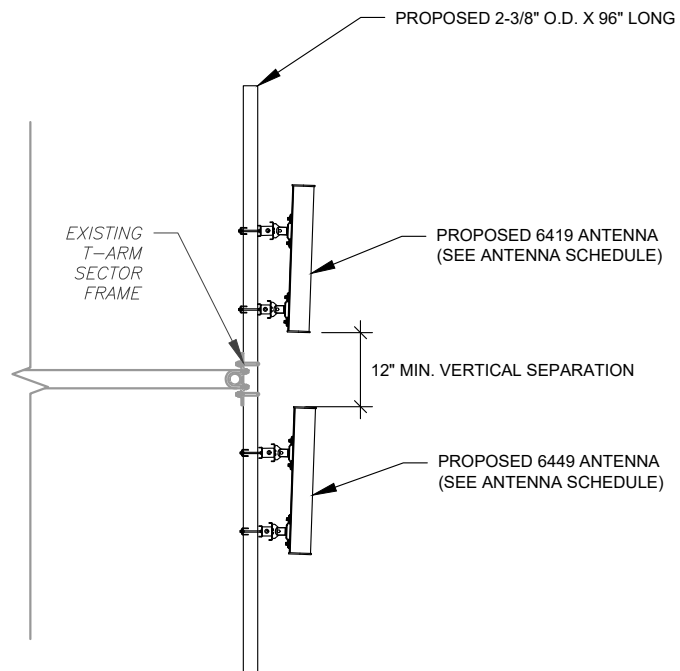
1 ANTENNA DETAIL
SCALE: N.T.S.



2 PROPOSED RRU MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



3 PROPOSED SQUID MOUNTING
SCALE: N.T.S.



4 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.

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FARMINGTON, CT 06032

SEAL:



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Date: 2022.08.31 15:00:09-04'00'

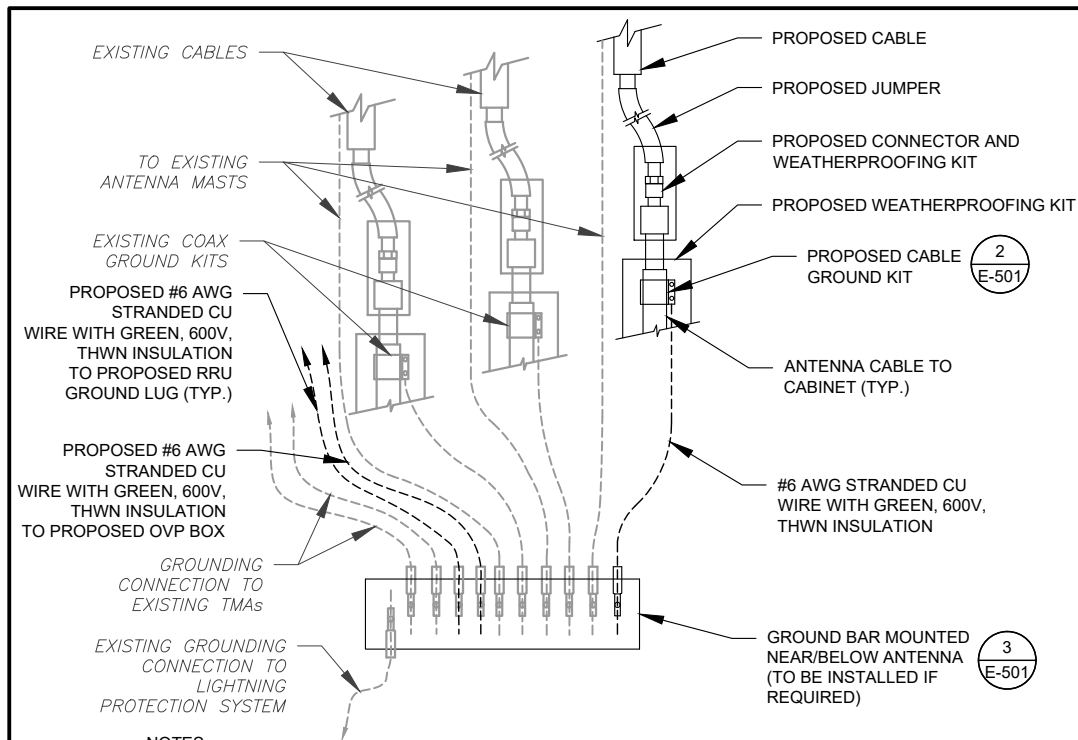


DATE DRAWN:	03/25/22
ATC JOB NO:	13757816_G5
CUSTOMER ID:	CT2580
CUSTOMER #:	10141396

CONSTRUCTION
DETAILS

SHEET NUMBER:	REVISION:
C-501	1

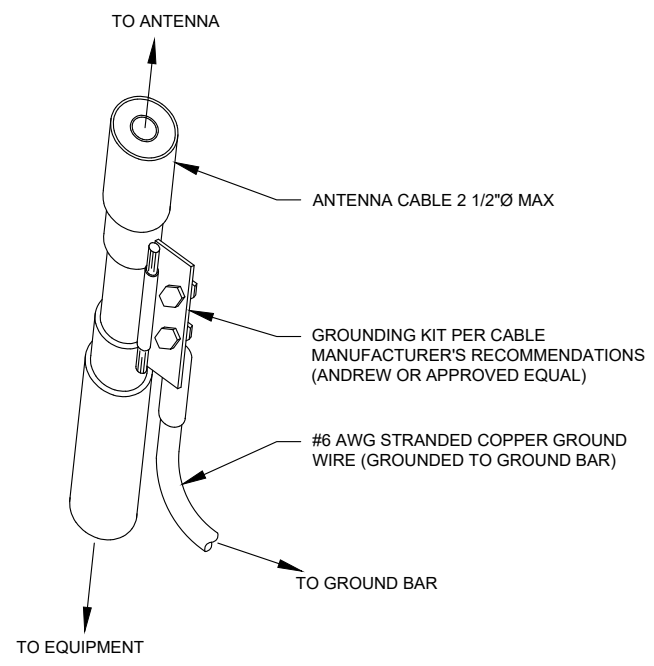
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NOTES:

1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH AT&T GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH AT&T GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

1 TYPICAL ANTENNA GROUNDING DIAGRAM
SCALE: N.T.S.

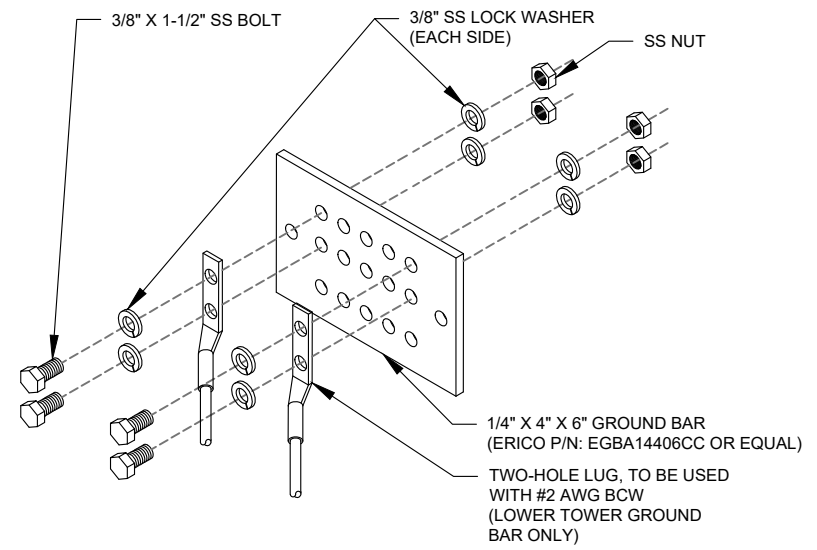


GROUND KIT NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

2 CABLE GROUND KIT CONNECTION DETAIL
SCALE: N.T.S.

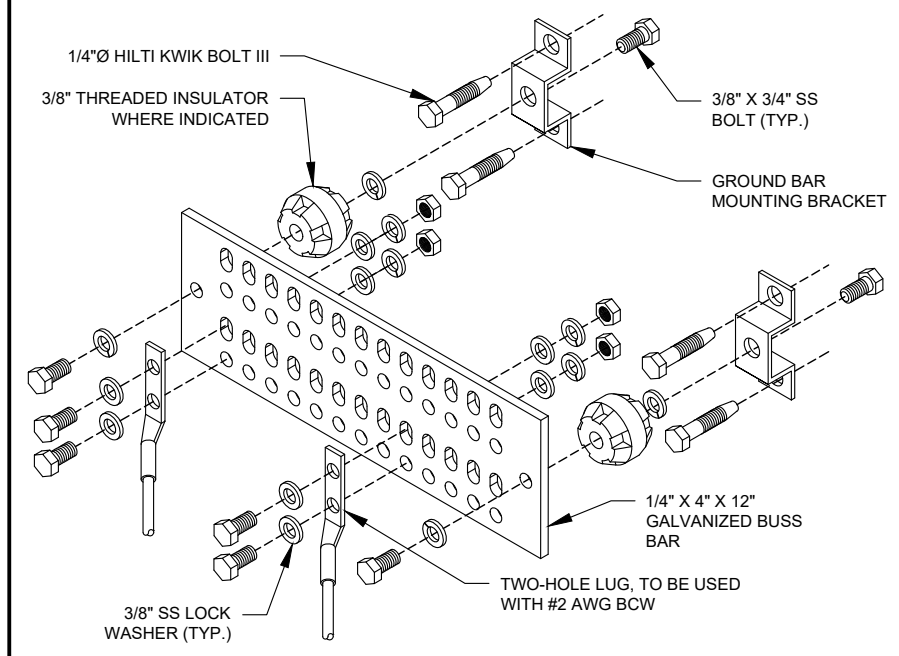
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GROUND BAR NOTES:

1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

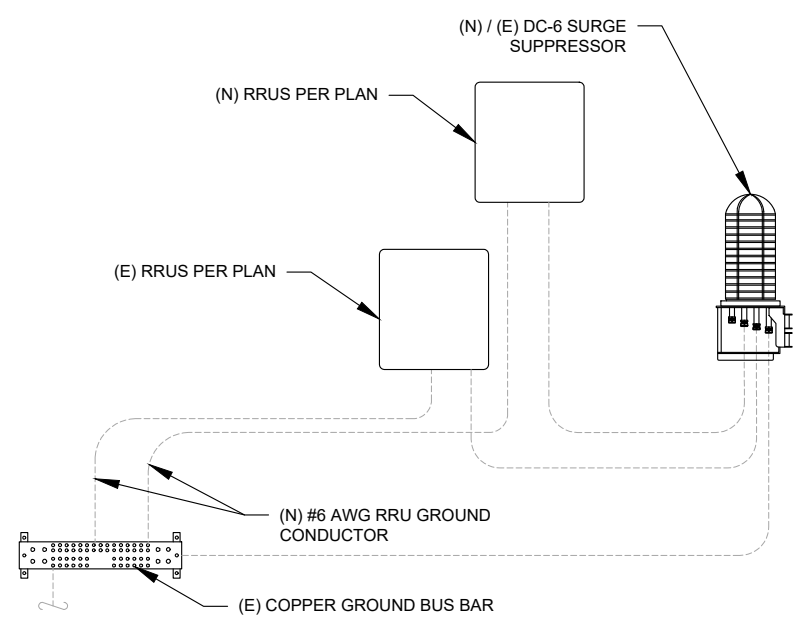
3 TOWER GROUND BAR DETAIL
SCALE: N.T.S.



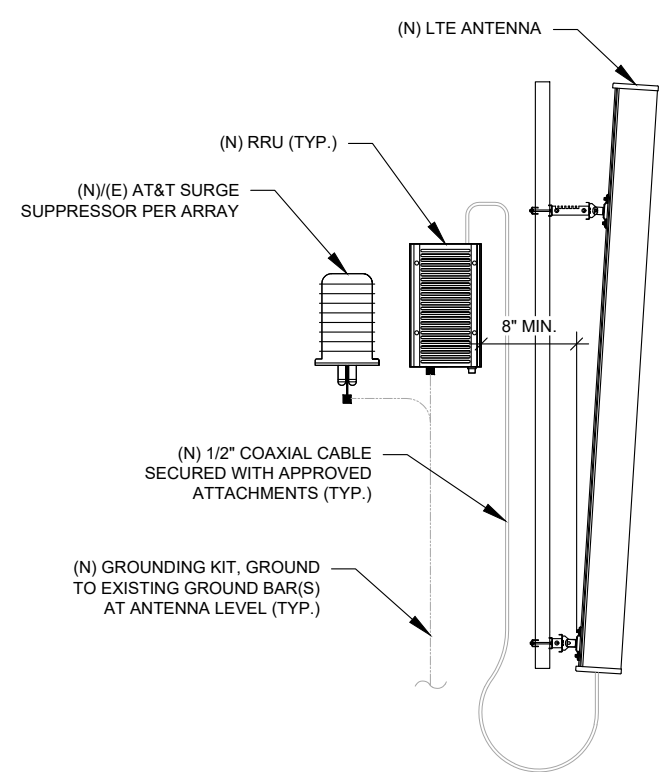
GROUND BAR NOTES

1. GROUND KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR SHALL BE BOLTED TO STRUCTURAL MEMBER OR ANCHORED TO CONCRETE SLAB W/ HILTI KWIK BOLT III.

4 MAIN GROUND BAR DETAIL
SCALE: N.T.S.



5 RRU GROUNDING
SCALE: N.T.S.



6 ANTENNA/RRU GROUNDING
SCALE: N.T.S.



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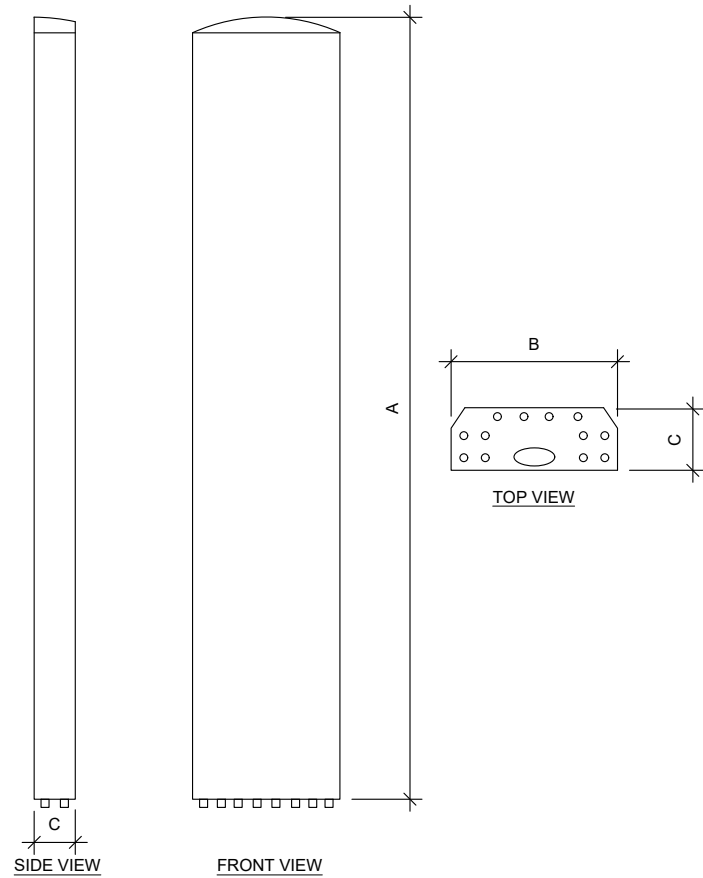
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CUSTOMER ID:	CT2580
CUSTOMER #:	10141396

GROUNDING DETAILS

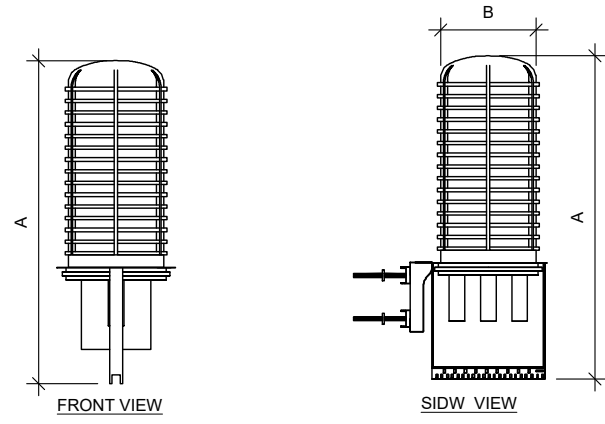
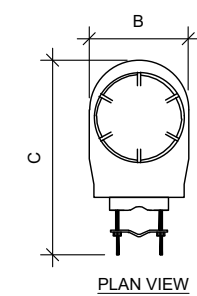
SHEET NUMBER:
E-501

REVISION:
1

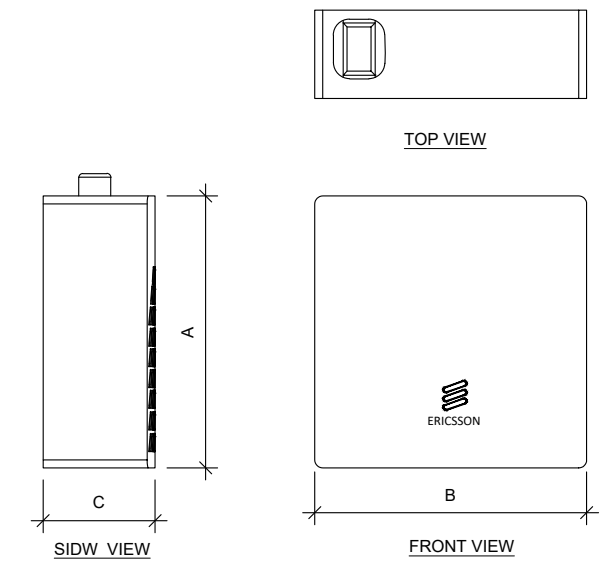
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ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
TPA65R-BU8D	96.0"	21.0"	7.8"	82.5
DMP65R-BU8D	96.0"	20.7"	7.7"	95.7
AIR 6419 B77G	28.3"	16.1"	7.9"	66.1
AIR 6449 B77D/C-BAND	30.4"	15.9"	10.6"	81.6



RAYCAP SPECIFICATIONS				
RAYCAP MODEL	A	B	C	WEIGHT (LBS)
DC6-48-60-18-8C-EV	31.4"	18.3"	10.2"	16.0



RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
4449 B5, B12	17.9"	13.2"	9.4"	71.0
4478 B14	18.1"	13.4"	8.3"	59.4
8843 B2, B66A	14.9"	13.2"	10.9"	72.0

1 EQUIPMENT SPECIFICATIONS
SCALE: N.T.S.

SUPPLEMENTAL

SHEET NUMBER: **R-601**
REVISION: -

RF REQUIREMENTS FOR 700 B14 FIRSTNET, 700 B12, 700D B29 ANTENNA SEPARATION

- Horizontal separation (side to side of antenna): $\geq 3'$
- Vertical separation (between the tips of the antennas): $> 3'$
- Inter-sector separation: $> 4'$ between the center of the antenna backplanes.



- Please note additional horizontal separation may be required if B14 antennas azimuth are different from others or antennas are severely angled with respect to the mount.
- Typical 3' horizontal separation can tolerate skew angle up to 6° .



NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER:
R-602

REVISION:
-



Mount Analysis Report

ATC Site Name : Farmington North 2 CT, CT
 ATC Site Number : 411258
 Engineering Number : 13757816_C8_01
 Mount Elevation : 100 ft
 Carrier : AT&T Mobility
 Carrier Site Name : MRCTB056286
 Carrier Site Number : CT2580
 Site Location : 199 Town Farm Road
 Farmington, CT 06032-1554
 41.75777516 , -72.82993932
 County : Hartford
 Date : March 22, 2022
 Max Usage : 88%
 Result : Contingent Pass

Prepared By:
 Aviskar Ghansam
 Structural Engineer

Reviewed By:



Authorized by "EOR"
 22 Mar 2022 09:48:06

COA: PEC.0001553

Application Loading

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
100.0	102.0	3	Ericsson AIR 6449 B77D/ C-Band
	100.0	3	CCI TPA65R-BU8D
		3	CCI DMP65R-BU8D
		1	Raycap DC6-48-60-18-8C-EV
		1	Raycap DC6-48-60-18-8F(32.8 lbs)
		1	Raycap DC6-48-60-18-8F ("Squid")
		3	Ericsson RRUS 4478 B14
		3	Ericsson RRUS 4449 B5, B12
	3	Ericsson RRUS 8843 B2, B66A	
	98.0	3	Ericsson AIR 6419 B77G

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Horizontals	88%	Pass
Mount Pipes	65%	Pass
Serviceability	N/A	Pass

Conclusion

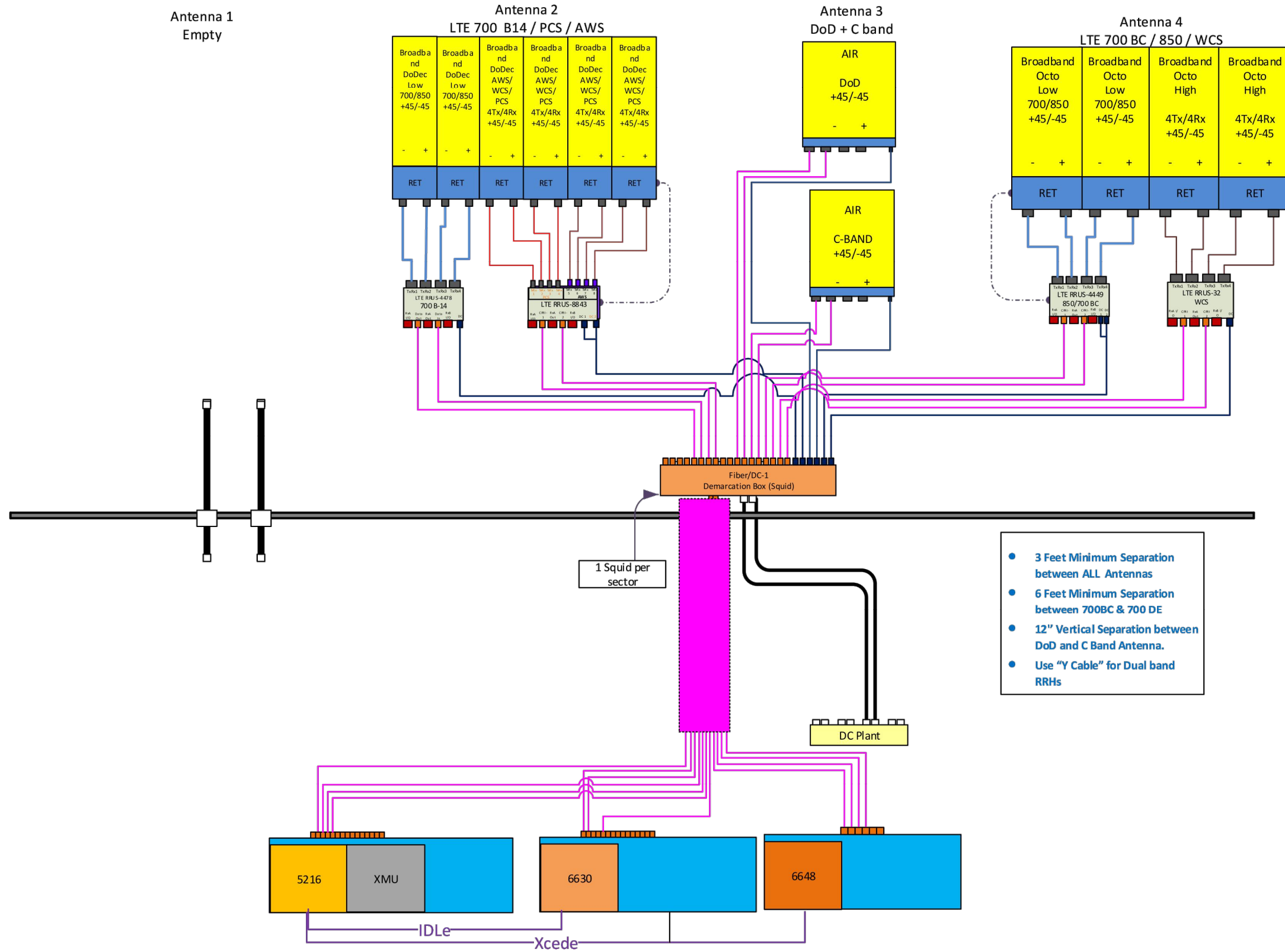
Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above provided the modifications listed below are completed:

- Analysis based on a new install of a Site Pro 1 ULP12-4120 (ANT.16966).
- Install P2 (2.375" x 60") antenna mounting pipe (Mount Pipe M, N, O) with Site Pro 1 SCX7-U, (ANT.16985), (or approved equivalent) crossover plate kits.
- No structural failures were addressed with the noted contingencies. Contingencies address Carrier's antenna spacing requirements.

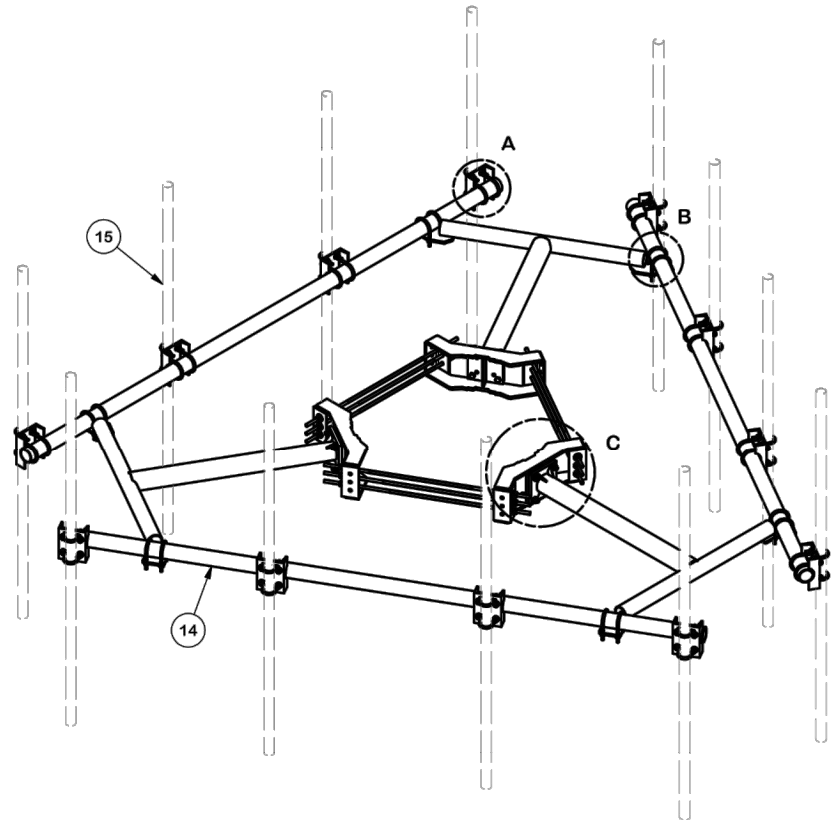
SUPPLEMENTAL

SHEET NUMBER: **R-603**
 REVISION: -

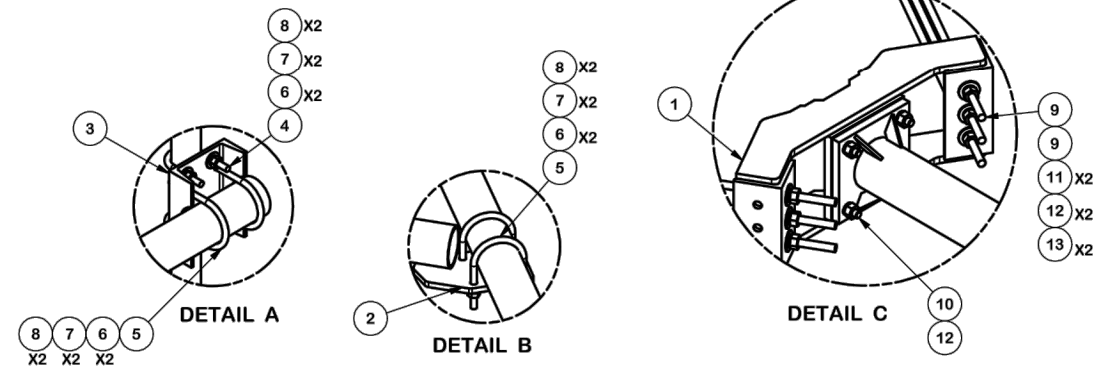
NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONSTRUCTION.



NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. GENERAL CONTRACTOR IS TO CHECK WITH THE AT&T CM TO ENSURE THIS IS THE MOST RECENT VERSION OF THE RFDS.



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	3	X-ULP	SUPPORT ARM WELDMENT		103.07	309.20
3	12	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	103.33
4	24	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.26	6.17
5	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.26	9.25
6	120	G12FW	1/2" HDG USS FLATWASHER	0.095	0.03	4.09
7	120	G12LW	1/2" HDG LOCKWASHER	.125	0.01	1.67
8	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.60
9	9	G58R-24	5/8" X 24" GALV THREADED ROD		2.20	19.76
9	9	G58R-48	5/8" X 48" GALV THREADED ROD		4.39	39.52
10	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2.75	0.36	4.27
11	18	G58FW	5/8" HDG USS FLATWASHER	.122	0.07	1.27
12	30	G58LW	5/8" HDG LOCKWASHER	.156	0.03	0.78
13	30	G58NUT	5/8" HDG HEAVY 2H HEX NUT	5/8	0.13	3.90
14	3	P3150	3-1/2" X 150" SCH 40 GALVANIZED PIPE	150.000 in	94.80	284.40
15	12	A	B	C	D	



ANTENNA PIPES					
"ASSEMBLY NO."	PART NO. "A"	PART DESCRIPTION "B"	LENGTH "C"	UNIT WT. "D"	TOTAL WT.
ULP12-472	P272	2-3/8" O.D. SCH. 40 PIPE	72"	23.07	1,311.05
ULP12-484	P284	2-3/8" O.D. SCH. 40 PIPE	84"	26.91	1,357.13
ULP12-496	P296	2-3/8" O.D. SCH. 40 PIPE	96"	30.76	1,403.33
ULP12-4126	P2126	2-3/8" O.D. SCH. 40 PIPE	126"	40.76	1523.33

<p>TOLERANCE NOTES</p> <p>TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$) DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES BENDS ARE $\pm 1/2$ DEGREE ALL OTHER MACHINING ($\pm 0.030"$) ALL OTHER ASSEMBLY ($\pm 0.060"$)</p>	<p>DESCRIPTION</p> <p>ULTRA LOW PROFILE RIDGED T-ARM FOR 12 ANTENNAS</p>	<p>Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX</p> <p>Engineering Support Team: 1-888-753-7446</p>	<p>CPD NO. 5416</p> <p>DRAWN BY LMD 12/20/2012</p> <p>ENG. APPROVAL</p> <p>PART NO. SEE "ASSEMBLY NO."</p> <p>CLASS 81 SUB 01</p> <p>DRAWING USAGE CUSTOMER</p> <p>CHECKED BY BMC 12/27/2012</p> <p>DWG. NO. ULP12-4XX</p>										
<p>REVISION HISTORY</p> <table border="1" style="width: 100%;"> <thead> <tr> <th>REV</th> <th>DESCRIPTION OF REVISIONS</th> <th>CPD</th> <th>BY</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>ADDED 10' 6" ANTENNA MOUNTING PIPES</td> <td>5416</td> <td>CEK</td> <td>7/2/2015</td> </tr> </tbody> </table>	REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE	A	ADDED 10' 6" ANTENNA MOUNTING PIPES	5416	CEK	7/2/2015	<p>PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.</p>		
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE									
A	ADDED 10' 6" ANTENNA MOUNTING PIPES	5416	CEK	7/2/2015									



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 111 ft Monopine
ATC Site Name : Farmington North 2 CT, CT
ATC Site Number : 411258
Engineering Number : 13757816_C3_04
Proposed Carrier : AT&T MOBILITY
Carrier Site Name : MRCTB056286
Carrier Site Number : CT2580
Site Location : 199 Town Farm Road
Farmington, CT 06032-1554
41.7578, -72.83
County : Hartford
Date : August 31, 2022
Max Usage : 74%
Result : Pass

Prepared By:

Daniel Hinshaw
Structural Engineer II

Reviewed By:



COA : PEC.0001553



Table of Contents

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Calculations	Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 111 ft Monopine to reflect the change in loading by AT&T MOBILITY.

Supporting Documents

Tower Drawings	EEI Project #16046 Rev. 3, dated February 8, 2011
Foundation Drawing	EEI Project #16046 Rev. 2, dated December 14, 2010
Geotechnical Report	Clarence Welti Associates, Inc. Project Name Verizon Wireless Cell Tower, dated September 11, 2009

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	117 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.50" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	$S_s = 0.18, S_i = 0.06$
Site Class:	D - Stiff Soil - Default

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
109.0	2	Raycap RC2DC-3315-PF-48	T-Arm	(2) 1 1/4" Hybriflex Cable (12) 1 5/8" Coax	VERIZON WIRELESS
	3	Samsung B2/B66A RRH-BR049			
	3	Samsung B5/B13 RRH-BR04C			
	3	Samsung MT6407-77A			
	1	VZW Unused Reserve (13207.33 sqin)			
	6	Commscope SBNHH-1D65B			
	6	Antel LPA-80063/4CF			
100.0	1	Raycap DC6-48-60-18-8F(32.8 lbs)	T-Arm	(6) 1 5/8" Coax (1) 2" conduit	AT&T MOBILITY
	1	Raycap DC6-48-60-18-8F ("Squid")			
90.0	3	JMA Wireless MX08FRO665-21	Sector Frame	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B605			
	3	Fujitsu TA08025-B604			
	1	Commscope RDIDC-9181-PF-48			
75.0	3	Ericsson 4480 BAND 71	Triangular Platform with Handrails	(3) 1.99" (50.7mm) Hybrid	T-MOBILE
	3	Commscope VV-65A-R1B			
	3	Ericsson AIR 6419 B41			
	3	RFS APXVAALL24 43-U-NA20			
	3	Ericsson 4460 BAND 2/25			

Equipment to be Removed

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
100.0	18	Generic RCU (Remote Control Unit)	-	(2) 0.39" (10mm) Fiber Trunk (4) 0.78" (19.7mm) 8 AWG 6 (12) 1 5/8" Coax (1) 3/8" (0.38"-9.5mm) RET Control Cable	AT&T MOBILITY
	9	CCI DTMABP7819VG12A (w/ Bracket)			
	3	Ericsson RRUS 32 B2			
	2	CCI TPA-65R-LCUUUU-H8			
	3	Ericsson RRUS 32 (50.8 lbs)			
	1	Quintel QS66512-2			
	6	Andrew SBNH-1D6565C (60.8 lbs)			
	3	Ericsson RRUS-11 (50 lbs.)			

Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
102.0	3	Ericsson AIR 6449 B77D/ C-Band	T-Arm	(3) 0.40" (10.3mm) Fiber (6) 0.82" (20.8mm) 8 AWG 6 (2) 2" conduit	AT&T MOBILITY
100.0	3	CCI TPA65R-BU8D			
	3	Ericsson RRUS 8843 B2, B66A			
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 4449 B5, B12			
	1	Raycap DC6-48-60-18-8C-EV			
	3	CCI DMP65R-BU8D			
98.0	3	Ericsson AIR 6419 B77G			

¹ Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	54%	Pass
Shaft	55%	Pass
Base Plate	22%	Pass

Foundations

Reaction Component	Original Design Reactions	Analysis Reactions	% of Design
Moment (Kips-Ft)	6395.5	4243.4	66%
Shear (Kips)	68.9	50.7	74%

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
102.0	Ericsson AIR 6449 B77D/ C-Band	AT&T MOBILITY	0.618	0.620
100.0	CCI TPA65R-BU8D		0.598	0.610
	Ericsson RRUS 8843 B2, B66A			
	CCI DMP65R-BU8D			
	Ericsson RRUS 4478 B14			
	Ericsson RRUS 4449 B5, B12			
Raycap DC6-48-60-18-8C-EV				
98.0	Ericsson AIR 6419 B77G	0.576	0.610	

*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H

Standard Conditions

All engineering services performed by A.T. Engineering Services LLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Services LLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Services LLC and used in the performance of our engineering services is correct and complete.

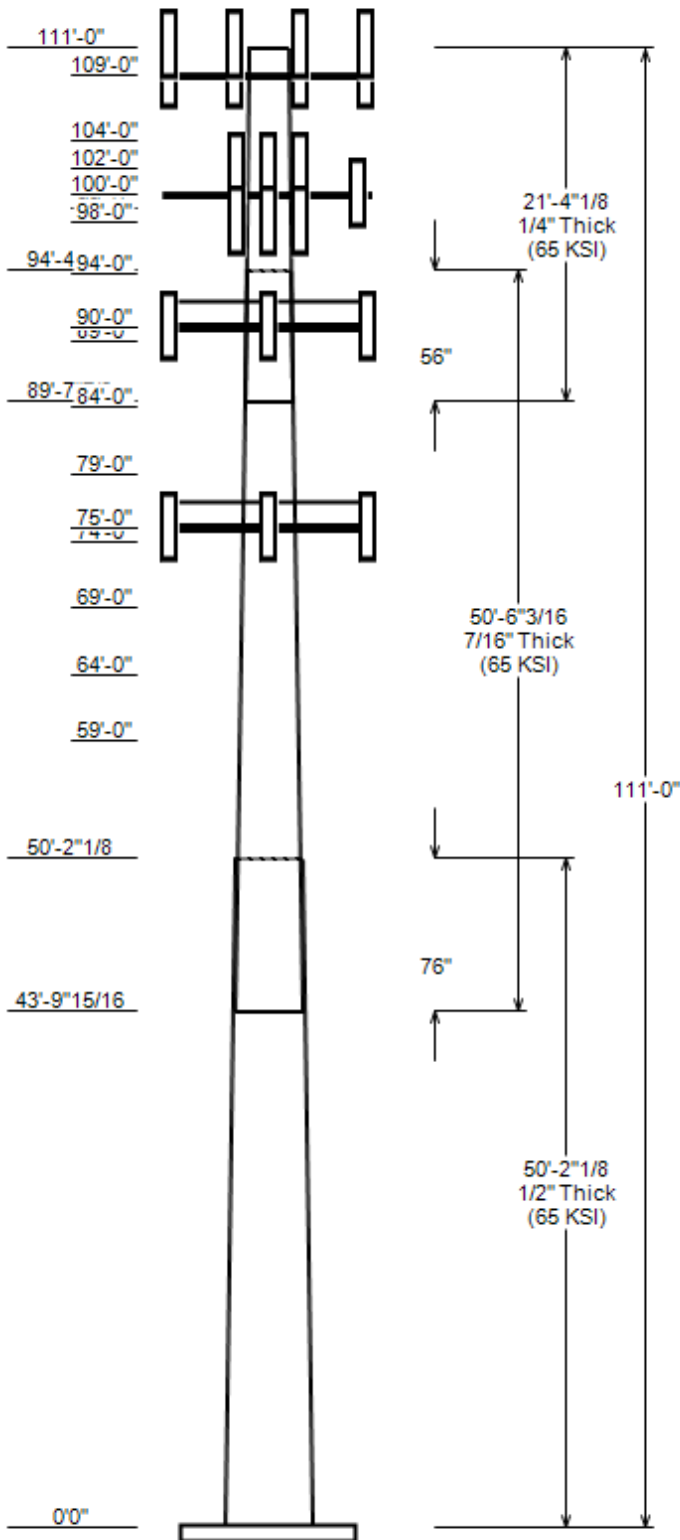
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively “American Tower”) are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Services LLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Services LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

Asset : 411258, Farmington North 2 CT
 Client : AT&T MOBILITY
 Code : ANSI/TIA-222-H

Height : 111 ft
 Base Width : 59
 Shape : 18 Sides



SITE PARAMETERS

Nominal Wind: 117 mph wind with no ice **Topo Category:** 1
Ice Wind: 50 mph wind with 1.5" radi **Topo Method:** Method 1
Base Elev (ft): 0.00 **Taper :** 0.30000 (in/ft) **Topo Feature:**
Structure Class: II **Exposure :** C **S_s :** 0.185 **S₁ :** 0.055

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in) Across Flats		Thick Joint (in) Type	Overlap Length (in) Shape	Steel Grade (ksi)
		Top	Bottom			
1	50.175	43.94	59.00	0.500	0.000 18 Sides	65
2	50.518	31.55	46.72	0.438 Slip Joint	76.160 18 Sides	65
3	21.341	27.05	33.46	0.250 Slip Joint	56.250 18 Sides	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
109.0	109.0	3	Samsung B5/B13 RRH-BR04C
109.0	109.0	3	Samsung B2/B66A RRH-BR049
109.0	109.0	2	Raycap RC2DC-3315-PF-48
109.0	109.0	3	Samsung MT6407-77A
109.0	111.0	6	Antel LPA-80063/4CF
109.0	111.0	6	Commscope SBNHH-1D65B
109.0	109.0	3	Generic Flat T-Arm
109.0	109.0	1	Pine Branch
109.0	109.0	1	VZW Unused Reserve (13207.33 s
104.0	104.0	1	Pine Branch
102.0	102.0	3	Ericsson AIR 6449 B77D/ C-Band
100.0	100.0	1	Raycap DC6-48-60-18-8F ("Squid
100.0	100.0	1	Raycap DC6-48-60-18-8F(32.8 lb
100.0	100.0	3	Ericsson RRUS 8843 B2, B66A
100.0	100.0	3	Ericsson RRUS 4478 B14
100.0	100.0	3	Ericsson RRUS 4449 B5, B12
100.0	100.0	1	Raycap DC6-48-60-18-8C-EV
100.0	100.0	3	Generic Flat T-Arm
100.0	100.0	3	CCI DMP65R-BU8D
100.0	100.0	3	CCI TPA65R-BU8D
99.0	99.0	1	Pine Branch
98.0	98.0	3	Ericsson AIR 6419 B77G
94.0	94.0	1	Pine Branch
90.0	90.0	1	Commscope RDIDC-9181-PF-48
90.0	90.0	3	Fujitsu TA08025-B604
90.0	90.0	3	Fujitsu TA08025-B605
90.0	90.0	3	JMA Wireless MX08FRO665-21
90.0	90.0	3	Generic Flat Light Sector Fram
89.0	89.0	1	Pine Branch
84.0	84.0	1	Pine Branch
79.0	79.0	1	Pine Branch
75.0	75.0	3	Ericsson 4460 BAND 2/25
75.0	75.0	3	Ericsson 4480 BAND 71
75.0	75.0	3	Commscope VV-65A-R1B
75.0	75.0	3	Ericsson AIR 6419 B41
75.0	75.0	1	Generic Mount Reinforcement
75.0	75.0	3	RFS APXVAALL24 43-U-NA20
75.0	75.0	1	Generic Round Platform with Ha
74.0	74.0	1	Pine Branch
69.0	69.0	1	Pine Branch
64.0	64.0	1	Pine Branch
59.0	59.0	1	Pine Branch

JOB INFORMATION

Asset : 411258, Farmington North 2 CT
 Client : AT&T MOBILITY
 Code : ANSI/TIA-222-H

Height : 111 ft
 Base Width : 59
 Shape : 18 Sides

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	109.0	1 5/8" Coax	No
0.0	109.0	1 1/4" Hybriflex Cable	No
0.0	100.0	2" conduit	No
0.0	100.0	2" conduit	No
0.0	100.0	1 5/8" Coax	No
0.0	100.0	0.82" (20.8mm) 8 AWG 6	No
0.0	100.0	0.40" (10.3mm) Fiber	No
0.0	90.0	1.60" (40.6mm) Hybrid	No
0.0	75.0	1.99" (50.7mm) Hybrid	No

LOAD CASES

1.2D + 1.0W	117 mph wind with no ice
0.9D + 1.0W	117 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	50 mph wind with 1.5" radial ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W	4243.36	50.72	55.87
0.9D + 1.0W	4224.84	50.71	41.89
1.2D + 1.0Di + 1.0Wi	1249.67	14.94	81.33
1.2D + 1.0Ev + 1.0Eh	184.50	2.22	55.60
0.9D - 1.0Ev + 1.0Eh	183.54	2.22	38.60
1.0D + 1.0W	995.86	11.93	46.61

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
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ASSET: 411258, Farmington North 2 CT
CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
ENG NO: 13757816_C3_04

ANALYSIS PARAMETERS

Location:	Hartford County,CT	Height:	111 ft
Type and Shape:	Taper, 18 Sides	Base Diameter:	59.00 in
Manufacturer:	Undetermined	Top Diameter:	27.05 in
K_d (non-service):	0.95	Taper:	0.3000 in/ft
K_e:	0.99	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	C	Design Wind Speed w/o Ice:	117 mph
Risk Category:	II	Design Wind Speed w/Ice:	50 mph
Topo Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.50 in
Crest Height:	0 ft	HMSL:	183.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	1.23
T_L (sec):	6	P:	1
S_s:	0.185	S₁:	0.055
F_a:	1.600	F_v:	2.400
S_{ds}:	0.197	S_{dt}:	0.088
		C_s:	0.048
		C_s Max:	0.048
		C_s Min:	0.030

LOAD CASES

1.2D + 1.0W	117 mph wind with no ice
0.9D + 1.0W	117 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	50 mph wind with 1.5" radial ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

ASSET: 411258, Farmington North 2 CT
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
 ENG NO: 13757816_C3_04

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	50.18	0.5000	65		0.00	13,809	59.00	-0.005	92.84	40,140.4	19.40	118.00	43.94	50.17	68.93	16,431.1	14.08	87.87	0.3002
2-18	50.52	0.4375	65	Slip	76.16	9,237	46.72	43.832	64.26	17,388.9	17.42	106.78	31.55	94.35	43.20	5,283.3	11.30	72.11	0.3002
3-18	21.34	0.2500	65	Slip	56.25	1,729	33.46	89.659	26.35	3,670.8	22.19	133.83	27.05	111.00	21.26	1,929.6	17.67	108.20	0.3002

Shaft Weight 24,775

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice			Ice		
					Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor
109.00	Antel LPA-80063/4CF	6	0.80	2.000	20.00	6.142	0.76	218.37	7.146	0.76
109.00	VZW Unused Reserve (13207.33 s	1	0.80	0.000	794.10	91.718	0.90	1330.04	153.618	0.90
109.00	Samsung B5/B13 RRH-BR04C	3	0.80	0.000	70.30	1.875	0.50	125.72	2.749	0.50
109.00	Samsung B2/B66A RRH-BR049	3	0.80	0.000	84.40	1.875	0.50	146.20	2.749	0.50
109.00	Raycap RC2DC-3315-PF-48	2	0.80	0.000	32.00	3.781	0.50	138.19	5.062	0.50
109.00	Samsung MT6407-77A	3	0.80	0.000	81.60	4.709	0.61	180.34	6.180	0.61
109.00	CommScope SBNHH-1D65B	6	0.80	2.000	50.70	8.173	0.69	220.73	10.914	0.69
109.00	Generic Flat T-Arm	3	0.75	0.000	312.50	12.900	0.67	565.59	20.823	0.67
109.00	Pine Branch	1	1.00	0.000	600.00	45.000	1.00	1004.94	75.370	1.00
104.00	Pine Branch	1	1.00	0.000	600.00	45.000	1.00	1003.40	75.255	1.00
102.00	Ericsson AIR 6449 B77D/ C-Band	3	0.80	0.000	81.60	4.028	0.70	193.79	5.350	0.70
100.00	CCI TPA65R-BU8D	3	0.80	0.000	82.50	18.089	0.63	414.10	21.640	0.63
100.00	CCI DMP65R-BU8D	3	0.80	0.000	95.70	17.871	0.63	422.58	21.415	0.63
100.00	Generic Flat T-Arm	3	0.75	0.000	312.50	12.900	0.67	563.75	20.765	0.67
100.00	Raycap DC6-48-60-18-8C-EV	1	0.80	0.000	16.00	4.788	0.50	140.19	6.203	0.50
100.00	Ericsson RRUS 4449 B5, B12	3	0.80	0.000	71.00	1.969	0.50	132.98	2.866	0.50
100.00	Ericsson RRUS 4478 B14	3	0.80	0.000	59.90	1.842	0.50	113.08	2.705	0.50
100.00	Ericsson RRUS 8843 B2, B66A	3	0.80	0.000	72.00	1.639	0.50	130.95	2.452	0.50
100.00	Raycap DC6-48-60-18-8F(32.8 lb	1	0.80	0.000	32.80	1.470	0.50	92.14	2.142	0.50
100.00	Raycap DC6-48-60-18-8F ("Squid	1	0.80	0.000	31.80	1.470	0.50	91.14	2.142	0.50
99.00	Pine Branch	1	1.00	0.000	600.00	45.000	1.00	1001.60	75.120	1.00
98.00	Ericsson AIR 6419 B77G	3	0.90	0.000	66.10	3.797	0.65	159.13	5.060	0.65
94.00	Pine Branch	1	1.00	0.000	600.00	45.000	1.00	998.87	74.915	1.00
90.00	CommScope RDIDC-9181-PF-48	1	0.80	0.000	21.90	1.867	0.50	76.07	2.724	0.50
90.00	Generic Flat Light Sector Fram	3	0.75	0.000	400.00	17.900	0.75	686.50	32.264	0.75
90.00	Fujitsu TA08025-B604	3	0.80	0.000	63.90	1.962	0.50	119.42	2.838	0.50
90.00	Fujitsu TA08025-B605	3	0.80	0.000	75.00	1.962	0.50	134.64	2.838	0.50
90.00	JMA Wireless MX08FRO665-21	3	0.80	0.000	64.50	12.489	0.64	309.18	15.164	0.64
89.00	Pine Branch	1	1.00	0.000	600.00	45.000	1.00	996.65	74.748	1.00
84.00	Pine Branch	1	1.00	0.000	600.00	45.000	1.00	994.31	74.573	1.00
79.00	Pine Branch	1	1.00	0.000	600.00	45.000	1.00	991.83	74.387	1.00
75.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	4013.35	50.039	1.00
75.00	CommScope VV-65A-R1B	3	0.75	0.000	24.70	5.887	0.63	133.91	7.864	0.63
75.00	Ericsson 4460 BAND 2/25	3	0.75	0.000	109.00	2.564	0.50	191.58	3.549	0.50
75.00	Ericsson 4480 BAND 71	3	0.75	0.000	81.00	2.878	0.50	152.12	3.927	0.50
75.00	Ericsson AIR 6419 B41	3	0.75	0.000	83.30	6.322	0.63	224.71	7.902	0.63
75.00	RFS APXVAALL24 43-U-NA20	3	0.75	0.000	122.80	20.243	0.63	486.72	23.708	0.63
75.00	Generic Mount Reinforcement	1	1.00	0.000	200.00	7.500	1.00	380.82	14.496	1.00
74.00	Pine Branch	1	1.00	0.000	600.00	45.000	1.00	989.21	74.191	1.00
69.00	Pine Branch	1	1.00	0.000	600.00	45.000	1.00	986.42	73.981	1.00
64.00	Pine Branch	1	1.00	0.000	600.00	45.000	1.00	983.43	73.758	1.00
59.00	Pine Branch	1	1.00	0.000	600.00	45.000	1.00	980.22	73.517	1.00

Totals Num Loadings: 42 95 17,927.70 36,726.58

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : 0.00_

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Flat	Coax/Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	109.00	12	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	VERIZON WIREL
0.00	109.00	2	1 1/4" Hybriflex Cabl	1.54	1	N	0	0	0	0	0	N	VERIZON WIREL
0.00	100.00	6	0.82" (20.8mm) 8 AWG	0.82	0.62	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	100.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY

ASSET: 411258, Farmington North 2 CT
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
 ENG NO: 13757816_C3_04

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	100.00	3	0.40" (10.3mm) Fiber	0.4	0.09	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	100.00	2	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	100.00	1	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	90.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	0	N	DISH WIRELESS
0.00	75.00	3	1.99" (50.7mm) Hybrid	1.99	1.9	N	0	0	0	0	0	N	T-MOBILE

SEGMENT PROPERTIES

(Max Len: 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F _y (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.5000	59.000	92.836	40,140.40	19.40	118.00	78.6	1340.0	0.0	0.0
5.00		0.5000	57.499	90.454	37,128.90	18.87	115.00	79.2	1271.8	0.0	1,559.2
10.00		0.5000	55.998	88.072	34,272.00	18.34	112.00	79.8	1205.5	0.0	1,518.7
15.00		0.5000	54.497	85.689	31,565.50	17.81	108.99	80.5	1140.8	0.0	1,478.2
20.00		0.5000	52.995	83.307	29,005.40	17.28	105.99	81.1	1078.0	0.0	1,437.6
25.00		0.5000	51.494	80.925	26,587.50	16.75	102.99	81.7	1017.0	0.0	1,397.1
30.00		0.5000	49.993	78.543	24,308.00	16.22	99.99	82.3	957.7	0.0	1,356.6
35.00		0.5000	48.492	76.160	22,162.50	15.69	96.98	82.6	900.2	0.0	1,316.1
40.00		0.5000	46.991	73.778	20,147.20	15.16	93.98	82.6	844.5	0.0	1,275.5
43.83	Bot - Section 2	0.5000	45.841	71.954	18,689.60	14.76	91.68	82.6	803.0	0.0	949.2
45.00		0.5000	45.490	71.396	18,258.00	14.63	90.98	82.6	790.5	0.0	541.0
50.00		0.5000	43.989	69.014	16,490.60	14.10	87.98	82.6	738.4	0.0	2,261.8
50.17	Top - Section 1	0.4375	44.811	61.616	15,328.30	16.65	102.43	81.8	673.7	0.0	77.7
55.00		0.4375	43.362	59.604	13,875.50	16.07	99.11	82.5	630.3	0.0	995.2
59.00		0.4375	42.161	57.937	12,743.20	15.58	96.37	82.6	595.3	0.0	799.9
60.00		0.4375	41.861	57.520	12,470.10	15.46	95.68	82.6	586.7	0.0	196.4
64.00		0.4375	40.660	55.852	11,416.60	14.98	92.94	82.6	553.0	0.0	771.6
65.00		0.4375	40.360	55.435	11,162.90	14.86	92.25	82.6	544.8	0.0	189.3
69.00		0.4375	39.159	53.768	10,185.50	14.37	89.51	82.6	512.3	0.0	743.2
70.00		0.4375	38.859	53.351	9,950.40	14.25	88.82	82.6	504.4	0.0	182.3
74.00		0.4375	37.658	51.683	9,046.20	13.77	86.08	82.6	473.1	0.0	714.8
75.00		0.4375	37.358	51.267	8,829.10	13.65	85.39	82.6	465.5	0.0	175.2
79.00		0.4375	36.157	49.599	7,995.30	13.16	82.64	82.6	435.5	0.0	686.4
80.00		0.4375	35.857	49.182	7,795.30	13.04	81.96	82.6	428.2	0.0	168.1
84.00		0.4375	34.656	47.515	7,029.00	12.56	79.21	82.6	399.5	0.0	658.1
85.00		0.4375	34.355	47.098	6,845.60	12.44	78.53	82.6	392.5	0.0	161.0
89.00		0.4375	33.155	45.430	6,143.90	11.95	75.78	82.6	365.0	0.0	629.7
89.66	Bot - Section 3	0.4375	32.957	45.155	6,033.10	11.87	75.33	82.6	360.6	0.0	101.5
90.00		0.4375	32.854	45.013	5,976.30	11.83	75.10	82.6	358.3	0.0	82.9
94.00		0.4375	31.653	43.346	5,336.40	11.35	72.35	82.6	332.1	0.0	952.4
94.35	Top - Section 2	0.2500	32.049	25.232	3,223.60	21.19	128.20	76.5	198.1	0.0	80.8
95.00		0.2500	31.853	25.076	3,164.30	21.06	127.41	76.6	195.7	0.0	55.9
98.00		0.2500	30.952	24.362	2,901.40	20.42	123.81	77.4	184.6	0.0	252.3
99.00		0.2500	30.652	24.123	2,817.10	20.21	122.61	77.6	181.0	0.0	82.5
100.00		0.2500	30.352	23.885	2,734.50	20.00	121.41	77.9	177.4	0.0	81.7
102.00		0.2500	29.752	23.409	2,574.10	19.57	119.01	78.4	170.4	0.0	160.9
104.00		0.2500	29.151	22.932	2,420.10	19.15	116.60	78.9	163.5	0.0	157.7
105.00		0.2500	28.851	22.694	2,345.40	18.94	115.40	79.1	160.1	0.0	77.6
109.00		0.2500	27.650	21.741	2,062.20	18.09	110.60	80.1	146.9	0.0	302.4
110.00		0.2500	27.350	21.503	1,995.20	17.88	109.40	80.4	143.7	0.0	73.6
111.00		0.2500	27.049	21.265	1,929.60	17.67	108.20	80.6	140.5	0.0	72.8

Totals: 24,774.9

Load Case: 1.2D + 1.0W	117 mph wind with no ice	19 Iterations
Gust Response Factor:	1.10	
Dead load Factor:	1.20	
Wind Load Factor:	1.00	

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-55.87	-50.72	0.00	-4,243.4	0.00	4,243.36	6,566.18	1,629.27	8,609.06	7,898.16	0	0	0.547
5.00	-53.64	-50.31	0.00	-3,989.7	0.00	3,989.74	6,448.38	1,587.47	8,172.95	7,555.74	0.08	-0.15	0.537
10.00	-51.45	-49.90	0.00	-3,738.2	0.00	3,738.20	6,327.90	1,545.66	7,748.19	7,217.60	0.31	-0.29	0.527
15.00	-49.31	-49.49	0.00	-3,488.7	0.00	3,488.70	6,204.76	1,503.85	7,334.75	6,884.01	0.7	-0.44	0.516
20.00	-47.22	-49.06	0.00	-3,241.2	0.00	3,241.25	6,078.95	1,462.04	6,932.65	6,555.20	1.25	-0.6	0.503
25.00	-45.18	-48.61	0.00	-2,996.0	0.00	2,995.95	5,950.46	1,420.23	6,541.89	6,231.43	1.96	-0.75	0.490
30.00	-43.19	-48.15	0.00	-2,752.9	0.00	2,752.89	5,819.31	1,378.42	6,162.46	5,912.94	2.83	-0.9	0.474
35.00	-41.26	-47.68	0.00	-2,512.1	0.00	2,512.13	5,658.34	1,336.62	5,794.36	5,573.27	3.85	-1.06	0.459
40.00	-39.39	-47.25	0.00	-2,273.7	0.00	2,273.74	5,481.35	1,294.81	5,437.60	5,228.32	5.04	-1.21	0.443
43.83	-38.01	-47.00	0.00	-2,092.8	0.00	2,092.85	5,345.84	1,262.80	5,172.10	4,971.66	6.06	-1.33	0.429
45.00	-37.23	-46.70	0.00	-2,037.8	0.00	2,037.79	5,304.37	1,253.00	5,092.17	4,894.40	6.4	-1.36	0.425
50.00	-34.23	-46.38	0.00	-1,804.3	0.00	1,804.29	5,127.38	1,211.19	4,758.08	4,571.50	7.91	-1.51	0.403
50.17	-34.07	-46.15	0.00	-1,796.2	0.00	1,796.19	4,537.14	1,081.36	4,334.29	4,134.27	7.96	-1.52	0.444
55.00	-32.56	-45.71	0.00	-1,573.5	0.00	1,573.50	4,425.85	1,046.06	4,055.94	3,899.91	9.57	-1.66	0.413
59.00	-30.70	-43.57	0.00	-1,390.7	0.00	1,390.67	4,304.41	1,016.79	3,832.20	3,685.72	11.02	-1.78	0.386
60.00	-30.37	-43.33	0.00	-1,347.1	0.00	1,347.11	4,273.44	1,009.47	3,777.26	3,632.60	11.4	-1.81	0.380
64.00	-28.55	-41.16	0.00	-1,173.8	0.00	1,173.78	4,149.55	980.21	3,561.45	3,423.96	12.97	-1.93	0.351
65.00	-28.23	-40.92	0.00	-1,132.6	0.00	1,132.62	4,118.58	972.89	3,508.49	3,372.76	13.37	-1.96	0.344
69.00	-26.47	-38.72	0.00	-968.9	0.00	968.94	3,994.69	943.63	3,300.62	3,171.83	15.06	-2.06	0.314
70.00	-26.17	-38.48	0.00	-930.2	0.00	930.22	3,963.71	936.31	3,249.64	3,122.56	15.5	-2.09	0.306
74.00	-24.44	-36.24	0.00	-776.3	0.00	776.30	3,839.82	907.04	3,049.71	2,929.35	17.29	-2.19	0.273
75.00	-19.56	-32.06	0.00	-740.1	0.00	740.06	3,808.85	899.73	3,000.72	2,882.01	17.75	-2.21	0.263
79.00	-17.91	-29.79	0.00	-611.8	0.00	611.81	3,684.96	870.46	2,808.71	2,696.51	19.65	-2.3	0.233
80.00	-17.65	-29.56	0.00	-582.0	0.00	582.02	3,653.98	863.15	2,761.70	2,651.10	20.13	-2.32	0.226
84.00	-16.05	-27.27	0.00	-463.8	0.00	463.78	3,530.09	833.88	2,577.64	2,473.31	22.11	-2.4	0.193
85.00	-15.81	-27.04	0.00	-436.5	0.00	436.51	3,499.12	826.56	2,532.61	2,429.83	22.61	-2.41	0.185
89.00	-14.25	-24.74	0.00	-328.4	0.00	328.37	3,375.23	797.30	2,356.48	2,259.75	24.66	-2.48	0.150
89.66	-14.10	-24.69	0.00	-312.1	0.00	312.07	3,354.82	792.48	2,328.08	2,232.33	25.01	-2.49	0.145
90.00	-11.90	-21.93	0.00	-303.6	0.00	303.64	3,344.25	789.98	2,313.44	2,218.20	25.18	-2.49	0.141
94.00	-9.97	-19.60	0.00	-215.9	0.00	215.93	3,220.36	760.72	2,145.24	2,055.84	27.3	-2.54	0.109
94.35	-9.86	-19.55	0.00	-209.2	0.00	209.15	1,736.60	442.82	1,271.87	1,136.24	27.48	-2.55	0.192
95.00	-9.77	-19.39	0.00	-196.4	0.00	196.36	1,729.55	440.09	1,256.22	1,124.59	27.83	-2.55	0.182
98.00	-9.13	-18.89	0.00	-138.2	0.00	138.19	1,696.64	427.54	1,185.65	1,071.51	29.45	-2.6	0.136
99.00	-8.37	-16.70	0.00	-119.3	0.00	119.31	1,685.46	423.36	1,162.57	1,053.95	30	-2.61	0.120
100.00	-5.82	-12.61	0.00	-102.6	0.00	102.61	1,674.17	419.18	1,139.73	1,036.47	30.54	-2.62	0.103
102.00	-5.32	-12.10	0.00	-77.4	0.00	77.40	1,651.27	410.82	1,094.72	1,001.73	31.65	-2.64	0.081
104.00	-4.49	-9.85	0.00	-53.2	0.00	53.20	1,627.94	402.46	1,050.61	967.31	32.76	-2.66	0.058
105.00	-4.39	-9.64	0.00	-43.4	0.00	43.35	1,616.11	398.28	1,028.90	950.22	33.31	-2.66	0.049
109.00	-0.17	-0.11	0.00	-0.2	0.00	0.15	1,567.75	381.56	944.32	882.74	35.55	-2.67	0.000
110.00	-0.09	-0.04	0.00	-0.0	0.00	0.04	1,555.39	377.37	923.74	866.10	36.11	-2.67	0.000
111.00	0.00	-0.03	0.00	0.0	0.00	0.00	1,542.92	373.19	903.39	849.55	36.67	-2.67	0.000

Load Case: 0.9D + 1.0W	117 mph wind with no ice	19 Iterations
Gust Response Factor:	1.10	
Dead load Factor:	0.90	
Wind Load Factor:	1.00	

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-41.89	-50.71	0.00	-4,224.8	0.00	4,224.84	6,566.18	1,629.27	8,609.06	7,898.16	0	0	0.542
5.00	-40.18	-50.26	0.00	-3,971.3	0.00	3,971.31	6,448.38	1,587.47	8,172.95	7,555.74	0.08	-0.15	0.533
10.00	-38.51	-49.82	0.00	-3,720.0	0.00	3,720.03	6,327.90	1,545.66	7,748.19	7,217.60	0.31	-0.29	0.523
15.00	-36.87	-49.37	0.00	-3,471.0	0.00	3,470.95	6,204.76	1,503.85	7,334.75	6,884.01	0.7	-0.44	0.511
20.00	-35.27	-48.92	0.00	-3,224.1	0.00	3,224.09	6,078.95	1,462.04	6,932.65	6,555.20	1.24	-0.59	0.499
25.00	-33.72	-48.45	0.00	-2,979.5	0.00	2,979.50	5,950.46	1,420.23	6,541.89	6,231.43	1.95	-0.74	0.485
30.00	-32.20	-47.96	0.00	-2,737.3	0.00	2,737.27	5,819.31	1,378.42	6,162.46	5,912.94	2.81	-0.9	0.470
35.00	-30.72	-47.47	0.00	-2,497.5	0.00	2,497.47	5,658.34	1,336.62	5,794.36	5,573.27	3.84	-1.05	0.455
40.00	-29.29	-47.02	0.00	-2,260.1	0.00	2,260.14	5,481.35	1,294.81	5,437.60	5,228.32	5.02	-1.2	0.439
43.83	-28.24	-46.76	0.00	-2,080.1	0.00	2,080.12	5,345.84	1,262.80	5,172.10	4,971.66	6.03	-1.32	0.425
45.00	-27.64	-46.45	0.00	-2,025.3	0.00	2,025.33	5,304.37	1,253.00	5,092.17	4,894.40	6.36	-1.36	0.420
50.00	-25.38	-46.15	0.00	-1,793.1	0.00	1,793.07	5,127.38	1,211.19	4,758.08	4,571.50	7.87	-1.51	0.399
50.17	-25.25	-45.90	0.00	-1,785.0	0.00	1,785.01	4,537.14	1,081.36	4,334.29	4,134.27	7.92	-1.51	0.439
55.00	-24.09	-45.45	0.00	-1,563.5	0.00	1,563.52	4,425.85	1,046.06	4,055.94	3,899.91	9.52	-1.65	0.408
59.00	-22.70	-43.31	0.00	-1,381.7	0.00	1,381.73	4,304.41	1,016.79	3,832.20	3,685.72	10.96	-1.77	0.382
60.00	-22.44	-43.07	0.00	-1,338.4	0.00	1,338.42	4,273.44	1,009.47	3,777.26	3,632.60	11.34	-1.8	0.376
64.00	-21.08	-40.90	0.00	-1,166.2	0.00	1,166.15	4,149.55	980.21	3,561.45	3,423.96	12.9	-1.92	0.347
65.00	-20.83	-40.66	0.00	-1,125.2	0.00	1,125.25	4,118.58	972.89	3,508.49	3,372.76	13.3	-1.95	0.340
69.00	-19.51	-38.46	0.00	-962.6	0.00	962.62	3,994.69	943.63	3,300.62	3,171.83	14.98	-2.05	0.310
70.00	-19.28	-38.22	0.00	-924.2	0.00	924.16	3,963.71	936.31	3,249.64	3,122.56	15.41	-2.08	0.302
74.00	-18.00	-35.99	0.00	-771.3	0.00	771.29	3,839.82	907.04	3,049.71	2,929.35	17.2	-2.18	0.270
75.00	-14.37	-31.85	0.00	-735.3	0.00	735.30	3,808.85	899.73	3,000.72	2,882.01	17.66	-2.2	0.260
79.00	-13.15	-29.60	0.00	-607.9	0.00	607.88	3,684.96	870.46	2,808.71	2,696.51	19.54	-2.29	0.230
80.00	-12.95	-29.36	0.00	-578.3	0.00	578.28	3,653.98	863.15	2,761.70	2,651.10	20.02	-2.31	0.223
84.00	-11.77	-27.09	0.00	-460.8	0.00	460.84	3,530.09	833.88	2,577.64	2,473.31	21.99	-2.38	0.191
85.00	-11.58	-26.85	0.00	-433.8	0.00	433.75	3,499.12	826.56	2,532.61	2,429.83	22.49	-2.4	0.183
89.00	-10.43	-24.57	0.00	-326.3	0.00	326.34	3,375.23	797.30	2,356.48	2,259.75	24.53	-2.46	0.148
89.66	-10.32	-24.52	0.00	-310.2	0.00	310.15	3,354.82	792.48	2,328.08	2,232.33	24.87	-2.47	0.143
90.00	-8.69	-21.78	0.00	-301.8	0.00	301.79	3,344.25	789.98	2,313.44	2,218.20	25.05	-2.48	0.139
94.00	-7.27	-19.48	0.00	-214.6	0.00	214.65	3,220.36	760.72	2,145.24	2,055.84	27.14	-2.53	0.107
94.35	-7.19	-19.43	0.00	-207.9	0.00	207.90	1,736.60	442.82	1,271.87	1,136.24	27.33	-2.53	0.189
95.00	-7.12	-19.27	0.00	-195.2	0.00	195.20	1,729.55	440.09	1,256.22	1,124.59	27.68	-2.54	0.180
98.00	-6.64	-18.77	0.00	-137.4	0.00	137.39	1,696.64	427.54	1,185.65	1,071.51	29.29	-2.58	0.134
99.00	-6.09	-16.59	0.00	-118.6	0.00	118.62	1,685.46	423.36	1,162.57	1,053.95	29.83	-2.6	0.118
100.00	-4.22	-12.53	0.00	-102.0	0.00	102.03	1,674.17	419.18	1,139.73	1,036.47	30.38	-2.61	0.102
102.00	-3.86	-12.03	0.00	-77.0	0.00	76.97	1,651.27	410.82	1,094.72	1,001.73	31.47	-2.63	0.080
104.00	-3.25	-9.79	0.00	-52.9	0.00	52.91	1,627.94	402.46	1,050.61	967.31	32.58	-2.64	0.057
105.00	-3.18	-9.58	0.00	-43.1	0.00	43.12	1,616.11	398.28	1,028.90	950.22	33.13	-2.65	0.048
109.00	-0.13	-0.11	0.00	-0.2	0.00	0.15	1,567.75	381.56	944.32	882.74	35.35	-2.66	0.000
110.00	-0.06	-0.04	0.00	-0.0	0.00	0.04	1,555.39	377.37	923.74	866.10	35.91	-2.66	0.000
111.00	0.00	-0.03	0.00	0.0	0.00	0.00	1,542.92	373.19	903.39	849.55	36.46	-2.66	0.000

ASSET: 411258, Farmington North 2 CT
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
 ENG NO: 13757816_C3_04

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph wind with 1.5" radial ice		18 Iterations
Gust Response Factor: 1.10	Ice Dead Load Factor	1.00	
Dead load Factor: 1.20			Ice Importance Factor 1.00
Wind Load Factor: 1.00			

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-81.33	-14.94	0.00	-1,249.7	0.00	1,249.67	6,566.18	1,629.27	8,609.06	7,898.16	0	0	0.171
5.00	-78.78	-14.83	0.00	-1,175.0	0.00	1,174.96	6,448.38	1,587.47	8,172.95	7,555.74	0.02	-0.04	0.168
10.00	-76.25	-14.72	0.00	-1,100.8	0.00	1,100.81	6,327.90	1,545.66	7,748.19	7,217.60	0.09	-0.09	0.165
15.00	-73.75	-14.60	0.00	-1,027.2	0.00	1,027.23	6,204.76	1,503.85	7,334.75	6,884.01	0.21	-0.13	0.161
20.00	-71.29	-14.48	0.00	-954.2	0.00	954.21	6,078.95	1,462.04	6,932.65	6,555.20	0.37	-0.18	0.157
25.00	-68.89	-14.36	0.00	-881.8	0.00	881.80	5,950.46	1,420.23	6,541.89	6,231.43	0.58	-0.22	0.153
30.00	-66.54	-14.22	0.00	-810.0	0.00	810.03	5,819.31	1,378.42	6,162.46	5,912.94	0.83	-0.27	0.149
35.00	-64.24	-14.09	0.00	-738.9	0.00	738.91	5,658.34	1,336.62	5,794.36	5,573.27	1.13	-0.31	0.144
40.00	-62.00	-13.96	0.00	-668.5	0.00	668.48	5,481.35	1,294.81	5,437.60	5,228.32	1.49	-0.36	0.139
43.83	-60.33	-13.89	0.00	-615.0	0.00	615.04	5,345.84	1,262.80	5,172.10	4,971.66	1.79	-0.39	0.135
45.00	-59.51	-13.80	0.00	-598.8	0.00	598.77	5,304.37	1,253.00	5,092.17	4,894.40	1.88	-0.4	0.134
50.00	-56.10	-13.70	0.00	-529.8	0.00	529.77	5,127.38	1,211.19	4,758.08	4,571.50	2.33	-0.45	0.127
50.17	-55.98	-13.64	0.00	-527.4	0.00	527.38	4,537.14	1,081.36	4,334.29	4,134.27	2.34	-0.45	0.140
55.00	-54.12	-13.50	0.00	-461.6	0.00	461.58	4,425.85	1,046.06	4,055.94	3,899.91	2.82	-0.49	0.131
59.00	-51.58	-12.86	0.00	-407.6	0.00	407.57	4,304.41	1,016.79	3,832.20	3,685.72	3.24	-0.52	0.123
60.00	-51.21	-12.79	0.00	-394.7	0.00	394.71	4,273.44	1,009.47	3,777.26	3,632.60	3.35	-0.53	0.121
64.00	-48.71	-12.13	0.00	-343.6	0.00	343.55	4,149.55	980.21	3,561.45	3,423.96	3.82	-0.57	0.112
65.00	-48.35	-12.06	0.00	-331.4	0.00	331.42	4,118.58	972.89	3,508.49	3,372.76	3.94	-0.58	0.110
69.00	-45.89	-11.39	0.00	-283.2	0.00	283.17	3,994.69	943.63	3,300.62	3,171.83	4.43	-0.61	0.101
70.00	-45.54	-11.32	0.00	-271.8	0.00	271.77	3,963.71	936.31	3,249.64	3,122.56	4.56	-0.61	0.099
74.00	-43.13	-10.64	0.00	-226.5	0.00	226.49	3,839.82	907.04	3,049.71	2,929.35	5.09	-0.64	0.089
75.00	-34.66	-9.45	0.00	-215.8	0.00	215.85	3,808.85	899.73	3,000.72	2,882.01	5.22	-0.65	0.084
79.00	-32.32	-8.76	0.00	-178.0	0.00	178.03	3,684.96	870.46	2,808.71	2,696.51	5.78	-0.68	0.075
80.00	-32.00	-8.68	0.00	-169.3	0.00	169.27	3,653.98	863.15	2,761.70	2,651.10	5.92	-0.68	0.073
84.00	-29.70	-7.98	0.00	-134.5	0.00	134.53	3,530.09	833.88	2,577.64	2,473.31	6.5	-0.7	0.063
85.00	-29.39	-7.91	0.00	-126.6	0.00	126.55	3,499.12	826.56	2,532.61	2,429.83	6.65	-0.71	0.061
89.00	-27.13	-7.20	0.00	-94.9	0.00	94.93	3,375.23	797.30	2,356.48	2,259.75	7.25	-0.73	0.050
89.66	-26.94	-7.18	0.00	-90.2	0.00	90.19	3,354.82	792.48	2,328.08	2,232.33	7.35	-0.73	0.049
90.00	-22.92	-6.36	0.00	-87.7	0.00	87.74	3,344.25	789.98	2,313.44	2,218.20	7.41	-0.73	0.046
94.00	-20.29	-5.64	0.00	-62.3	0.00	62.28	3,220.36	760.72	2,145.24	2,055.84	8.03	-0.75	0.037
94.35	-20.16	-5.63	0.00	-60.3	0.00	60.33	1,736.60	442.82	1,271.87	1,136.24	8.08	-0.75	0.065
95.00	-20.02	-5.58	0.00	-56.6	0.00	56.65	1,729.55	440.09	1,256.22	1,124.59	8.18	-0.75	0.062
98.00	-18.92	-5.43	0.00	-39.9	0.00	39.92	1,696.64	427.54	1,185.65	1,071.51	8.66	-0.76	0.049
99.00	-17.66	-4.76	0.00	-34.5	0.00	34.49	1,685.46	423.36	1,162.57	1,053.95	8.82	-0.77	0.043
100.00	-11.91	-3.71	0.00	-29.7	0.00	29.73	1,674.17	419.18	1,139.73	1,036.47	8.98	-0.77	0.036
102.00	-10.98	-3.57	0.00	-22.3	0.00	22.31	1,651.27	410.82	1,094.72	1,001.73	9.3	-0.77	0.029
104.00	-9.57	-2.87	0.00	-15.2	0.00	15.18	1,627.94	402.46	1,050.61	967.31	9.63	-0.78	0.022
105.00	-9.40	-2.80	0.00	-12.3	0.00	12.31	1,616.11	398.28	1,028.90	950.22	9.79	-0.78	0.019
109.00	-0.30	-0.04	0.00	-0.0	0.00	0.05	1,567.75	381.56	944.32	882.74	10.45	-0.78	0.000
110.00	-0.15	-0.01	0.00	-0.0	0.00	0.01	1,555.39	377.37	923.74	866.10	10.61	-0.78	0.000
111.00	0.00	-0.01	0.00	0.0	0.00	0.00	1,542.92	373.19	903.39	849.55	10.77	-0.78	0.000

ASSET: 411258, Farmington North 2 CT
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
 ENG NO: 13757816_C3_04

Load Case: 1.0D + 1.0W	60 mph Wind with No Ice	18 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 1.00		
Wind Load Factor: 1.00		

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.61	-11.93	0.00	-995.9	0.00	995.86	6,566.18	1,629.27	8,609.06	7,898.16	0	0	0.133
5.00	-44.85	-11.83	0.00	-936.2	0.00	936.20	6,448.38	1,587.47	8,172.95	7,555.74	0.02	-0.03	0.131
10.00	-43.12	-11.73	0.00	-877.0	0.00	877.05	6,327.90	1,545.66	7,748.19	7,217.60	0.07	-0.07	0.128
15.00	-41.44	-11.63	0.00	-818.4	0.00	818.41	6,204.76	1,503.85	7,334.75	6,884.01	0.16	-0.1	0.126
20.00	-39.80	-11.52	0.00	-760.3	0.00	760.28	6,078.95	1,462.04	6,932.65	6,555.20	0.29	-0.14	0.123
25.00	-38.19	-11.41	0.00	-702.7	0.00	702.67	5,950.46	1,420.23	6,541.89	6,231.43	0.46	-0.18	0.119
30.00	-36.63	-11.30	0.00	-645.6	0.00	645.60	5,819.31	1,378.42	6,162.46	5,912.94	0.66	-0.21	0.116
35.00	-35.11	-11.19	0.00	-589.1	0.00	589.10	5,658.34	1,336.62	5,794.36	5,573.27	0.9	-0.25	0.112
40.00	-33.63	-11.08	0.00	-533.2	0.00	533.16	5,481.35	1,294.81	5,437.60	5,228.32	1.18	-0.28	0.108
43.83	-32.53	-11.02	0.00	-490.7	0.00	490.73	5,345.84	1,262.80	5,172.10	4,971.66	1.42	-0.31	0.105
45.00	-31.94	-10.95	0.00	-477.8	0.00	477.81	5,304.37	1,253.00	5,092.17	4,894.40	1.5	-0.32	0.104
50.00	-29.47	-10.88	0.00	-423.0	0.00	423.05	5,127.38	1,211.19	4,758.08	4,571.50	1.86	-0.36	0.098
50.17	-29.38	-10.82	0.00	-421.2	0.00	421.15	4,537.14	1,081.36	4,334.29	4,134.27	1.87	-0.36	0.108
55.00	-28.19	-10.72	0.00	-368.9	0.00	368.92	4,425.85	1,046.06	4,055.94	3,899.91	2.25	-0.39	0.101
59.00	-26.63	-10.22	0.00	-326.0	0.00	326.05	4,304.41	1,016.79	3,832.20	3,685.72	2.59	-0.42	0.095
60.00	-26.40	-10.16	0.00	-315.8	0.00	315.83	4,273.44	1,009.47	3,777.26	3,632.60	2.67	-0.43	0.093
64.00	-24.87	-9.65	0.00	-275.2	0.00	275.19	4,149.55	980.21	3,561.45	3,423.96	3.04	-0.45	0.086
65.00	-24.63	-9.59	0.00	-265.5	0.00	265.54	4,118.58	972.89	3,508.49	3,372.76	3.14	-0.46	0.085
69.00	-23.13	-9.07	0.00	-227.2	0.00	227.17	3,994.69	943.63	3,300.62	3,171.83	3.53	-0.48	0.078
70.00	-22.91	-9.02	0.00	-218.1	0.00	218.10	3,963.71	936.31	3,249.64	3,122.56	3.64	-0.49	0.076
74.00	-21.44	-8.49	0.00	-182.0	0.00	182.02	3,839.82	907.04	3,049.71	2,929.35	4.06	-0.51	0.068
75.00	-17.27	-7.52	0.00	-173.5	0.00	173.53	3,808.85	899.73	3,000.72	2,882.01	4.16	-0.52	0.065
79.00	-15.85	-6.99	0.00	-143.5	0.00	143.46	3,684.96	870.46	2,808.71	2,696.51	4.61	-0.54	0.058
80.00	-15.65	-6.93	0.00	-136.5	0.00	136.48	3,653.98	863.15	2,761.70	2,651.10	4.72	-0.54	0.056
84.00	-14.26	-6.39	0.00	-108.8	0.00	108.76	3,530.09	833.88	2,577.64	2,473.31	5.19	-0.56	0.048
85.00	-14.06	-6.34	0.00	-102.4	0.00	102.37	3,499.12	826.56	2,532.61	2,429.83	5.3	-0.57	0.046
89.00	-12.70	-5.80	0.00	-77.0	0.00	77.02	3,375.23	797.30	2,356.48	2,259.75	5.79	-0.58	0.038
89.66	-12.58	-5.79	0.00	-73.2	0.00	73.19	3,354.82	792.48	2,328.08	2,232.33	5.87	-0.58	0.037
90.00	-10.65	-5.14	0.00	-71.2	0.00	71.22	3,344.25	789.98	2,313.44	2,218.20	5.91	-0.58	0.035
94.00	-8.98	-4.60	0.00	-50.6	0.00	50.65	3,220.36	760.72	2,145.24	2,055.84	6.4	-0.6	0.027
94.35	-8.89	-4.59	0.00	-49.1	0.00	49.06	1,736.60	442.82	1,271.87	1,136.24	6.45	-0.6	0.048
95.00	-8.81	-4.55	0.00	-46.1	0.00	46.06	1,729.55	440.09	1,256.22	1,124.59	6.53	-0.6	0.046
98.00	-8.27	-4.43	0.00	-32.4	0.00	32.42	1,696.64	427.54	1,185.65	1,071.51	6.91	-0.61	0.035
99.00	-7.56	-3.92	0.00	-28.0	0.00	27.99	1,685.46	423.36	1,162.57	1,053.95	7.04	-0.61	0.031
100.00	-5.29	-2.96	0.00	-24.1	0.00	24.08	1,674.17	419.18	1,139.73	1,036.47	7.17	-0.61	0.026
102.00	-4.87	-2.84	0.00	-18.2	0.00	18.16	1,651.27	410.82	1,094.72	1,001.73	7.42	-0.62	0.021
104.00	-4.09	-2.31	0.00	-12.5	0.00	12.48	1,627.94	402.46	1,050.61	967.31	7.68	-0.62	0.015
105.00	-4.00	-2.26	0.00	-10.2	0.00	10.17	1,616.11	398.28	1,028.90	950.22	7.82	-0.62	0.013
109.00	-0.15	-0.03	0.00	-0.0	0.00	0.03	1,567.75	381.56	944.32	882.74	8.34	-0.63	0.000
110.00	-0.07	-0.01	0.00	-0.0	0.00	0.01	1,555.39	377.37	923.74	866.10	8.47	-0.63	0.000
111.00	0.00	-0.01	0.00	0.0	0.00	0.00	1,542.92	373.19	903.39	849.55	8.6	-0.63	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.185
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.055
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_a):	1.000
Site Coefficient F_a :	1.600
Site Coefficient F_v :	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.197
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.088
Seismic Response Coefficient (C_s):	0.048
Upper Limit C_s :	0.048
Lower Limit C_s :	0.030
Period based on Rayleigh Method (sec):	1.230
Redundancy Factor (ρ):	1.000
Seismic Force Distribution Exponent (k):	1.370
Total Unfactored Dead Load:	46.620 k
Seismic Base Shear (E):	2.220 k

1.2D + 1.0Ev + 1.0Eh Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
40	110.5	73	45	0.003	7	90
39	109.5	74	45	0.003	7	91
38	107	350	208	0.014	32	434
37	104.5	89	52	0.004	8	111
36	103	181	102	0.007	16	225
35	101	185	102	0.007	16	229
34	99.5	113	61	0.004	9	141
33	98.5	114	61	0.004	9	142
32	96.5	347	180	0.012	28	431
31	94.6732	77	39	0.003	6	95
30	94.1732	92	46	0.003	7	114
29	92	1,079	523	0.036	81	1,338
28	89.8294	94	44	0.003	7	117
27	89.3294	124	58	0.004	9	154
26	87	766	344	0.024	53	949
25	84.5	195	84	0.006	13	242
24	82	794	329	0.023	51	984
23	79.5	202	80	0.006	12	251
22	77	823	312	0.022	48	1,020
21	74.5	215	78	0.005	12	266
20	72	874	303	0.021	47	1,083
19	69.5	222	73	0.005	11	275
18	67	902	283	0.020	44	1,118
17	64.5	229	68	0.005	11	284
16	62	931	263	0.018	41	1,153
15	59.5	236	63	0.004	10	293
14	57	959	241	0.017	37	1,189
13	52.5874	1,187	268	0.019	41	1,471
12	50.0874	85	18	0.001	3	105
11	47.5	2,460	483	0.034	75	3,050
10	44.4142	588	105	0.007	16	728
9	41.9142	1,101	182	0.013	28	1,365
8	37.5	1,474	209	0.015	32	1,827
7	32.5	1,515	177	0.012	27	1,877

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
6	27.5	1,555	144	0.010	22	1,928
5	22.5	1,596	113	0.008	17	1,978
4	17.5	1,636	82	0.006	13	2,028
3	12.5	1,677	53	0.004	8	2,078
2	7.5	1,717	27	0.002	4	2,129
1	2.5	1,758	6	0.000	1	2,179
Samsung B5/B13 RRH-BR04C	109	211	129	0.009	20	261
Samsung B2/B66A RRH-BR049	109	253	155	0.011	24	314
Raycap RC2DC-3315-PF-48	109	64	39	0.003	6	79
Samsung MT6407-77A	109	245	149	0.010	23	303
Antel LPA-80063/4CF	109	120	73	0.005	11	149
Commscope SBNHH-1D65B	109	304	186	0.013	29	377
Generic Flat T-Arm	109	938	572	0.040	89	1,162
Generic Flat T-Arm	100	938	509	0.036	79	1,162
Pine Branch	109	600	366	0.026	57	744
Pine Branch	104	600	344	0.024	53	744
Pine Branch	99	600	321	0.022	50	744
Pine Branch	94	600	299	0.021	46	744
Pine Branch	89	600	278	0.019	43	744
Pine Branch	84	600	257	0.018	40	744
Pine Branch	79	600	236	0.016	37	744
Pine Branch	74	600	216	0.015	33	744
Pine Branch	69	600	196	0.014	30	744
Pine Branch	64	600	177	0.012	27	744
Pine Branch	59	600	158	0.011	24	744
VZW Unused Reserve (13207.33 sqin)	109	794	485	0.034	75	984
Ericsson AIR 6449 B77D/ C-Band	102	245	136	0.010	21	303
Raycap DC6-48-60-18-8F ("Squid")	100	32	17	0.001	3	39
Raycap DC6-48-60-18-8F(32.8 lbs)	100	33	18	0.001	3	41
Ericsson RRUS 8843 B2, B66A	100	216	117	0.008	18	268
Ericsson RRUS 4478 B14	100	180	98	0.007	15	223
Ericsson RRUS 4449 B5, B12	100	213	116	0.008	18	264
Raycap DC6-48-60-18-8C-EV	100	16	9	0.001	1	20
CCI DMP65R-BU8D	100	287	156	0.011	24	356
CCI TPA65R-BU8D	100	248	134	0.009	21	307
Ericsson AIR 6419 B77G	98	198	105	0.007	16	246
Commscope RDIDC-9181-PF-48	90	22	10	0.001	2	27
Fujitsu TA08025-B604	90	192	90	0.006	14	238
Fujitsu TA08025-B605	90	225	106	0.007	16	279
JMA Wireless MX08FRO665-21	90	194	91	0.006	14	240
Generic Flat Light Sector Frame	90	1,200	564	0.039	87	1,487
Ericsson 4460 BAND 2/25	75	327	120	0.008	19	405
Ericsson 4480 BAND 71	75	243	89	0.006	14	301
Commscope VV-65A-R1B	75	74	27	0.002	4	92
Ericsson AIR 6419 B41	75	250	92	0.006	14	310
Generic Mount Reinforcement	75	200	73	0.005	11	248
RFS APXVAALL24 43-U-NA20	75	368	135	0.009	21	457
Generic Round Platform with Handrails	75	2,500	916	0.064	142	3,099
		46,617	14,313	1.000	2,215	57,780

0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
40	110.5	73	45	0.003	7	63
39	109.5	74	45	0.003	7	63
38	107	350	208	0.014	32	301
37	104.5	89	52	0.004	8	77
36	103	181	102	0.007	16	156
35	101	185	102	0.007	16	159
34	99.5	113	61	0.004	9	98
33	98.5	114	61	0.004	9	98
32	96.5	347	180	0.012	28	299

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
31	94.6732	77	39	0.003	6	66
30	94.1732	92	46	0.003	7	79
29	92	1,079	523	0.036	81	929
28	89.8294	94	44	0.003	7	81
27	89.3294	124	58	0.004	9	107
26	87	766	344	0.024	53	659
25	84.5	195	84	0.006	13	168
24	82	794	329	0.023	51	683
23	79.5	202	80	0.006	12	174
22	77	823	312	0.022	48	708
21	74.5	215	78	0.005	12	185
20	72	874	303	0.021	47	752
19	69.5	222	73	0.005	11	191
18	67	902	283	0.020	44	776
17	64.5	229	68	0.005	11	197
16	62	931	263	0.018	41	801
15	59.5	236	63	0.004	10	203
14	57	959	241	0.017	37	825
13	52.5874	1,187	268	0.019	41	1,021
12	50.0874	85	18	0.001	3	73
11	47.5	2,460	483	0.034	75	2,117
10	44.4142	588	105	0.007	16	506
9	41.9142	1,101	182	0.013	28	948
8	37.5	1,474	209	0.015	32	1,269
7	32.5	1,515	177	0.012	27	1,303
6	27.5	1,555	144	0.010	22	1,338
5	22.5	1,596	113	0.008	17	1,373
4	17.5	1,636	82	0.006	13	1,408
3	12.5	1,677	53	0.004	8	1,443
2	7.5	1,717	27	0.002	4	1,478
1	2.5	1,758	6	0.000	1	1,513
Samsung B5/B13 RRH-BR04C	109	211	129	0.009	20	181
Samsung B2/B66A RRH-BR049	109	253	155	0.011	24	218
Raycap RC2DC-3315-PF-48	109	64	39	0.003	6	55
Samsung MT6407-77A	109	245	149	0.010	23	211
Antel LPA-80063/4CF	109	120	73	0.005	11	103
Commscope SBNHH-1D65B	109	304	186	0.013	29	262
Generic Flat T-Arm	109	938	572	0.040	89	807
Generic Flat T-Arm	100	938	509	0.036	79	807
Pine Branch	109	600	366	0.026	57	516
Pine Branch	104	600	344	0.024	53	516
Pine Branch	99	600	321	0.022	50	516
Pine Branch	94	600	299	0.021	46	516
Pine Branch	89	600	278	0.019	43	516
Pine Branch	84	600	257	0.018	40	516
Pine Branch	79	600	236	0.016	37	516
Pine Branch	74	600	216	0.015	33	516
Pine Branch	69	600	196	0.014	30	516
Pine Branch	64	600	177	0.012	27	516
Pine Branch	59	600	158	0.011	24	516
VZW Unused Reserve (13207.33 sqin)	109	794	485	0.034	75	683
Ericsson AIR 6449 B77D/ C-Band	102	245	136	0.010	21	211
Raycap DC6-48-60-18-8F ("Squid")	100	32	17	0.001	3	27
Raycap DC6-48-60-18-8F(32.8 lbs)	100	33	18	0.001	3	28
Ericsson RRUS 8843 B2, B66A	100	216	117	0.008	18	186
Ericsson RRUS 4478 B14	100	180	98	0.007	15	155
Ericsson RRUS 4449 B5, B12	100	213	116	0.008	18	183
Raycap DC6-48-60-18-8C-EV	100	16	9	0.001	1	14
CCI DMP65R-BU8D	100	287	156	0.011	24	247
CCI TPA65R-BU8D	100	248	134	0.009	21	213
Ericsson AIR 6419 B77G	98	198	105	0.007	16	171
Commscope RDIDC-9181-PF-48	90	22	10	0.001	2	19
Fujitsu TA08025-B604	90	192	90	0.006	14	165
Fujitsu TA08025-B605	90	225	106	0.007	16	194
JMA Wireless MX08FRO665-21	90	194	91	0.006	14	167
Generic Flat Light Sector Frame	90	1,200	564	0.039	87	1,033
Ericsson 4460 BAND 2/25	75	327	120	0.008	19	281
Ericsson 4480 BAND 71	75	243	89	0.006	14	209
Commscope VV-65A-R1B	75	74	27	0.002	4	64
Ericsson AIR 6419 B41	75	250	92	0.006	14	215

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vz}	Horizontal Force (lb)	Vertical Force (lb)
Generic Mount Reinforcement	75	200	73	0.005	11	172
RFS APXVAALL24 43-U-NA20	75	368	135	0.009	21	317
Generic Round Platform with Handrails	75	2,500	916	0.064	142	2,151
		46,617	14,313	1.000	2,215	40,116

1.2D + 1.0Ev + 1.0Eh Seismic

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-55.60	-2.22	0.00	-184.50	0.00	184.50	6,566.18	1,629.27	8,609	7,898.16	0.00	0.00	0.03
5.00	-53.47	-2.22	0.00	-173.42	0.00	173.42	6,448.38	1,587.47	8,173	7,555.74	0.00	-0.01	0.03
10.00	-51.39	-2.22	0.00	-162.33	0.00	162.33	6,327.90	1,545.66	7,748	7,217.60	0.01	-0.01	0.03
15.00	-49.37	-2.21	0.00	-151.25	0.00	151.25	6,204.76	1,503.85	7,335	6,884.01	0.03	-0.02	0.03
20.00	-47.39	-2.20	0.00	-140.20	0.00	140.20	6,078.95	1,462.04	6,933	6,555.20	0.05	-0.03	0.03
25.00	-45.46	-2.18	0.00	-129.23	0.00	129.23	5,950.46	1,420.23	6,542	6,231.43	0.08	-0.03	0.03
30.00	-43.58	-2.15	0.00	-118.34	0.00	118.34	5,819.31	1,378.42	6,162	5,912.94	0.12	-0.04	0.03
35.00	-41.75	-2.13	0.00	-107.57	0.00	107.57	5,658.34	1,336.62	5,794	5,573.27	0.17	-0.05	0.03
40.00	-40.39	-2.10	0.00	-96.94	0.00	96.94	5,481.35	1,294.81	5,438	5,228.32	0.22	-0.05	0.03
43.83	-39.66	-2.09	0.00	-88.91	0.00	88.91	5,345.84	1,262.80	5,172	4,971.66	0.26	-0.06	0.03
45.00	-36.61	-2.01	0.00	-86.46	0.00	86.46	5,304.37	1,253.00	5,092	4,894.40	0.28	-0.06	0.03
50.00	-36.51	-2.01	0.00	-76.41	0.00	76.41	5,127.38	1,211.19	4,758	4,571.50	0.34	-0.07	0.02
50.17	-35.03	-1.97	0.00	-76.06	0.00	76.06	4,537.14	1,081.36	4,334	4,134.27	0.34	-0.07	0.03
55.00	-33.85	-1.93	0.00	-66.57	0.00	66.57	4,425.85	1,046.06	4,056	3,899.91	0.41	-0.07	0.03
59.00	-32.81	-1.90	0.00	-58.84	0.00	58.84	4,304.41	1,016.79	3,832	3,685.72	0.48	-0.08	0.02
60.00	-31.66	-1.86	0.00	-56.94	0.00	56.94	4,273.44	1,009.47	3,777	3,632.60	0.49	-0.08	0.02
64.00	-30.63	-1.82	0.00	-49.51	0.00	49.51	4,149.55	980.21	3,561	3,423.96	0.56	-0.08	0.02
65.00	-29.51	-1.78	0.00	-47.69	0.00	47.69	4,118.58	972.89	3,508	3,372.76	0.58	-0.08	0.02
69.00	-28.49	-1.73	0.00	-40.58	0.00	40.58	3,994.69	943.63	3,301	3,171.83	0.65	-0.09	0.02
70.00	-27.41	-1.69	0.00	-38.85	0.00	38.85	3,963.71	936.31	3,250	3,122.56	0.67	-0.09	0.02
74.00	-26.40	-1.64	0.00	-32.10	0.00	32.10	3,839.82	907.04	3,050	2,929.35	0.74	-0.09	0.02
75.00	-20.47	-1.36	0.00	-30.45	0.00	30.45	3,808.85	899.73	3,001	2,882.01	0.76	-0.09	0.02
79.00	-19.47	-1.31	0.00	-25.02	0.00	25.02	3,684.96	870.46	2,809	2,696.51	0.85	-0.10	0.02
80.00	-18.49	-1.26	0.00	-23.71	0.00	23.71	3,653.98	863.15	2,762	2,651.10	0.87	-0.10	0.01
84.00	-17.50	-1.20	0.00	-18.67	0.00	18.67	3,530.09	833.88	2,578	2,473.31	0.95	-0.10	0.01
85.00	-16.55	-1.15	0.00	-17.47	0.00	17.47	3,499.12	826.56	2,533	2,429.83	0.97	-0.10	0.01
89.00	-15.66	-1.10	0.00	-12.87	0.00	12.87	3,375.23	797.30	2,356	2,259.75	1.06	-0.11	0.01
89.66	-15.54	-1.09	0.00	-12.15	0.00	12.15	3,354.82	792.48	2,328	2,232.33	1.07	-0.11	0.01
90.00	-11.93	-0.87	0.00	-11.78	0.00	11.78	3,344.25	789.98	2,313	2,218.20	1.08	-0.11	0.01
94.00	-11.07	-0.81	0.00	-8.30	0.00	8.30	3,220.36	760.72	2,145	2,055.84	1.17	-0.11	0.01
94.35	-10.98	-0.81	0.00	-8.02	0.00	8.02	1,736.60	442.82	1,272	1,136.24	1.18	-0.11	0.01
95.00	-10.55	-0.78	0.00	-7.49	0.00	7.49	1,729.55	440.09	1,256	1,124.59	1.19	-0.11	0.01
98.00	-10.16	-0.75	0.00	-5.15	0.00	5.15	1,696.64	427.54	1,186	1,071.51	1.26	-0.11	0.01
99.00	-9.28	-0.69	0.00	-4.40	0.00	4.40	1,685.46	423.36	1,163	1,053.95	1.29	-0.11	0.01
100.00	-6.37	-0.49	0.00	-3.71	0.00	3.71	1,674.17	419.18	1,140	1,036.47	1.31	-0.11	0.01
102.00	-5.84	-0.45	0.00	-2.73	0.00	2.73	1,651.27	410.82	1,095	1,001.73	1.35	-0.11	0.01
104.00	-4.99	-0.39	0.00	-1.82	0.00	1.82	1,627.94	402.46	1,051	967.31	1.40	-0.11	0.01
105.00	-4.55	-0.36	0.00	-1.43	0.00	1.43	1,616.11	398.28	1,029	950.22	1.43	-0.11	0.00
109.00	-0.09	-0.01	0.00	-0.01	0.00	0.01	1,567.75	381.56	944	882.74	1.52	-0.11	0.00
110.00	0.00	0.00	0.00	0.00	0.00	0.00	1,555.39	377.37	924	866.10	1.54	-0.11	0.00
111.00	0.00	0.00	0.00	0.00	0.00	0.00	1,542.92	373.19	903	849.55	1.57	-0.11	0.00

0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-38.60	-2.22	0.00	-183.54	0.00	183.54	6,566.18	1,629.27	8,609	7,898.16	0.00	0.00	0.03
5.00	-37.12	-2.22	0.00	-172.46	0.00	172.46	6,448.38	1,587.47	8,173	7,555.74	0.00	-0.01	0.03
10.00	-35.68	-2.21	0.00	-161.38	0.00	161.38	6,327.90	1,545.66	7,748	7,217.60	0.01	-0.01	0.03

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
15.00	-34.27	-2.20	0.00	-150.33	0.00	150.33	6,204.76	1,503.85	7,335	6,884.01	0.03	-0.02	0.03
20.00	-32.90	-2.19	0.00	-139.31	0.00	139.31	6,078.95	1,462.04	6,933	6,555.20	0.05	-0.03	0.03
25.00	-31.56	-2.17	0.00	-128.37	0.00	128.37	5,950.46	1,420.23	6,542	6,231.43	0.08	-0.03	0.03
30.00	-30.26	-2.14	0.00	-117.53	0.00	117.53	5,819.31	1,378.42	6,162	5,912.94	0.12	-0.04	0.03
35.00	-28.99	-2.11	0.00	-106.81	0.00	106.81	5,658.34	1,336.62	5,794	5,573.27	0.17	-0.05	0.02
40.00	-28.04	-2.09	0.00	-96.24	0.00	96.24	5,481.35	1,294.81	5,438	5,228.32	0.22	-0.05	0.02
43.83	-27.53	-2.07	0.00	-88.25	0.00	88.25	5,345.84	1,262.80	5,172	4,971.66	0.26	-0.06	0.02
45.00	-25.42	-2.00	0.00	-85.82	0.00	85.82	5,304.37	1,253.00	5,092	4,894.40	0.28	-0.06	0.02
50.00	-25.34	-2.00	0.00	-75.83	0.00	75.83	5,127.38	1,211.19	4,758	4,571.50	0.34	-0.06	0.02
50.17	-24.32	-1.95	0.00	-75.48	0.00	75.48	4,537.14	1,081.36	4,334	4,134.27	0.34	-0.06	0.02
55.00	-23.50	-1.92	0.00	-66.05	0.00	66.05	4,425.85	1,046.06	4,056	3,899.91	0.41	-0.07	0.02
59.00	-22.78	-1.88	0.00	-58.38	0.00	58.38	4,304.41	1,016.79	3,832	3,685.72	0.47	-0.08	0.02
60.00	-21.98	-1.84	0.00	-56.49	0.00	56.49	4,273.44	1,009.47	3,777	3,632.60	0.49	-0.08	0.02
64.00	-21.26	-1.81	0.00	-49.11	0.00	49.11	4,149.55	980.21	3,561	3,423.96	0.56	-0.08	0.02
65.00	-20.49	-1.76	0.00	-47.31	0.00	47.31	4,118.58	972.89	3,508	3,372.76	0.57	-0.08	0.02
69.00	-19.78	-1.72	0.00	-40.26	0.00	40.26	3,994.69	943.63	3,301	3,171.83	0.65	-0.09	0.02
70.00	-19.03	-1.67	0.00	-38.53	0.00	38.53	3,963.71	936.31	3,250	3,122.56	0.66	-0.09	0.02
74.00	-18.33	-1.63	0.00	-31.84	0.00	31.84	3,839.82	907.04	3,050	2,929.35	0.74	-0.09	0.02
75.00	-14.21	-1.35	0.00	-30.21	0.00	30.21	3,808.85	899.73	3,001	2,882.01	0.76	-0.09	0.01
79.00	-13.52	-1.30	0.00	-24.82	0.00	24.82	3,684.96	870.46	2,809	2,696.51	0.84	-0.10	0.01
80.00	-12.84	-1.25	0.00	-23.52	0.00	23.52	3,653.98	863.15	2,762	2,651.10	0.86	-0.10	0.01
84.00	-12.15	-1.19	0.00	-18.53	0.00	18.53	3,530.09	833.88	2,578	2,473.31	0.94	-0.10	0.01
85.00	-11.49	-1.14	0.00	-17.33	0.00	17.33	3,499.12	826.56	2,533	2,429.83	0.97	-0.10	0.01
89.00	-10.87	-1.09	0.00	-12.77	0.00	12.77	3,375.23	797.30	2,356	2,259.75	1.05	-0.10	0.01
89.66	-10.79	-1.08	0.00	-12.05	0.00	12.05	3,354.82	792.48	2,328	2,232.33	1.07	-0.10	0.01
90.00	-8.28	-0.86	0.00	-11.68	0.00	11.68	3,344.25	789.98	2,313	2,218.20	1.07	-0.11	0.01
94.00	-7.69	-0.81	0.00	-8.24	0.00	8.24	3,220.36	760.72	2,145	2,055.84	1.16	-0.11	0.01
94.35	-7.62	-0.80	0.00	-7.96	0.00	7.96	1,736.60	442.82	1,272	1,136.24	1.17	-0.11	0.01
95.00	-7.32	-0.77	0.00	-7.43	0.00	7.43	1,729.55	440.09	1,256	1,124.59	1.19	-0.11	0.01
98.00	-7.05	-0.75	0.00	-5.11	0.00	5.11	1,696.64	427.54	1,186	1,071.51	1.25	-0.11	0.01
99.00	-6.44	-0.69	0.00	-4.36	0.00	4.36	1,685.46	423.36	1,163	1,053.95	1.28	-0.11	0.01
100.00	-4.42	-0.49	0.00	-3.68	0.00	3.68	1,674.17	419.18	1,140	1,036.47	1.30	-0.11	0.01
102.00	-4.06	-0.45	0.00	-2.70	0.00	2.70	1,651.27	410.82	1,095	1,001.73	1.35	-0.11	0.01
104.00	-3.46	-0.39	0.00	-1.81	0.00	1.81	1,627.94	402.46	1,051	967.31	1.39	-0.11	0.00
105.00	-3.16	-0.35	0.00	-1.42	0.00	1.42	1,616.11	398.28	1,029	950.22	1.42	-0.11	0.00
109.00	-0.06	-0.01	0.00	-0.01	0.00	0.01	1,567.75	381.56	944	882.74	1.51	-0.11	0.00
110.00	0.00	0.00	0.00	0.00	0.00	0.00	1,555.39	377.37	924	866.10	1.53	-0.11	0.00
111.00	0.00	0.00	0.00	0.00	0.00	0.00	1,542.92	373.19	903	849.55	1.56	-0.11	0.00

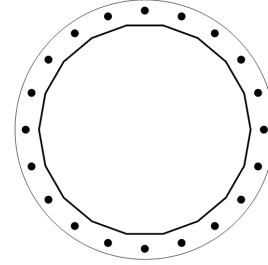
ANALYSIS SUMMARY

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	50.72	0.00	55.87	0.00	0.00	4243.36	0.00	0.55
0.9D + 1.0W	50.71	0.00	41.89	0.00	0.00	4224.84	0.00	0.54
1.2D + 1.0Di + 1.0Wi	14.94	0.00	81.33	0.00	0.00	1249.67	0.00	0.17
1.2D + 1.0Ev + 1.0Eh	2.22	0.00	55.60	0.00	0.00	184.50	0.00	0.03
0.9D - 1.0Ev + 1.0Eh	2.22	0.00	38.60	0.00	0.00	183.54	0.00	0.03
1.0D + 1.0W	11.93	0.00	46.61	0.00	0.00	995.86	0.00	0.13

BASE PLATE ANALYSIS @ 0 FT

PLATE PARAMETERS (ID# 16361)

Diameter:	73	in
Shape:	Round	
Thickness:	3	in
Grade:	A572-50	
Yield Strength:	50	ksi
Tensile Strength:	65	ksi
Rod Detail Type:	d	
Clear Distance	5.25	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	18	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 16747]	Radial	20	2.25	67	A615-75	75	100	-	-

ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ORIGINAL (20) 2.25"Ø [ID 16747]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in ⁴)	Axial Load (k)	Shear Load (k)
1	0.314	31.86	10.35	0.000	0.839	-119.69	4.02
2	0.628	27.10	19.69	9.946	322.142	130.87	3.82
3	0.942	19.69	27.10	18.919	1163.322	130.87	3.25
4	1.257	10.35	31.86	26.040	2203.078	130.87	2.36
5	1.571	0.00	33.50	30.612	3044.258	130.87	1.24
6	1.885	-10.35	31.86	32.188	3365.560	130.87	0.00
7	2.199	-19.69	27.10	30.612	3044.258	130.87	1.24
8	2.513	-27.10	19.69	26.040	2203.078	130.87	2.36
9	2.827	-31.86	10.35	18.919	1163.322	130.87	3.25
10	3.142	-33.50	0.00	9.946	322.142	130.87	3.82
11	3.456	-31.86	-10.35	0.000	0.839	130.87	4.02
12	3.770	-27.10	-19.69	-9.946	322.142	-119.69	3.82
13	4.084	-19.69	-27.10	-18.919	1163.322	-119.69	3.25
14	4.398	-10.35	-31.86	-26.040	2203.078	-119.69	2.36
15	4.712	0.00	-33.50	-30.612	3044.258	-119.69	1.24
16	5.027	10.35	-31.86	-32.188	3365.560	-119.69	0.00
17	5.341	19.69	-27.10	-30.612	3044.258	-119.69	1.24
18	5.655	27.10	-19.69	-26.040	2203.078	-119.69	2.36
19	5.969	31.86	-10.35	-18.919	1163.322	-119.69	3.25
20	6.283	33.50	0.00	-9.946	322.142	-119.69	3.82

ASSET: 411258, Farmington North 2 CT
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
 ENG NO: 14099648

REACTION DISTRIBUTION

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	59"ø x 0.5" (18 Sides)	4243.4	55.87	50.72	1.000
Bolt Group	Original (20) 2.25"ø	4243.4	-	50.72	1.000
TOTALS		4243.36	55.87	50.72	

COMPONENT PROPERTIES

Component	ID	Gross Area (in ²)	Net Area (in ²)	Individual Inertia (in ⁴)	Moment of Inertia (in ⁴)	Threads/in
Pole	59"ø x 0.5" (18 Sides)	91.4258	-	-	39117.88	-
Bolt Group	Original (20) 2.25"ø	3.9761	3.2477	0.8393	33663.99	4.5

EXTERNAL BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter: 59.12 in
 Point-to-Point Diameter: 60.04 in
 Flat Width: 10.425 in
 Flat Radians: 0.349 rad

PLATE PROPERTIES

Neutral Axis: 18 °
 Bend Line Lower Limit: 1.393 rad
 Bend Line Upper Limit: 2.377 rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in ³)	Applied Moment Mu (k-in)	Moment Capacity φMn (k-in)	Ratio
Flat	38.197	0.00	85.943	744.0	3867.4	0.192
Corner	36.746	0.00	82.679	530.9	3720.6	0.143
Circumferential	45.490	0.00	102.352	1013.5	4605.9	0.220

PLASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity φPn (k)	Ratio
Original	20	2.25	130.8	4.0	243.6	0.537



Radio Frequency Exposure Analysis Report

September 23, 2022

American Tower on behalf of AT&T

AT&T Site Name: Farmington North 2 CT

Site Number: CT2580

FA#: 10141396

USID: 114784

Site Address: 199 TOWN FARM ROAD, FARMINGTON, CT 06032

Site Compliance Summary

AT&T Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	172.48340 $\mu\text{W}/\text{cm}^2$
Cumulative General Population % MPE (Ground Level):	17.248809999999999%



September 23, 2022

Centerline
Attn: John Luca, Associate Project Manager
750 W Center St, Suite 301
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **Farmington North 2 CT**

Centerline Communications, LLC (“Centerline”) was contracted to analyze the proposed AT&T facility at **199 TOWN FARM ROAD, FARMINGTON, CT 06032** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in mW/cm^2) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ($f_{\text{MHz}}/1500$). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of $1 \text{ mW}/\text{cm}^2$ ($1000 \mu\text{W}/\text{cm}^2$). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the 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.

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, 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.



Calculation Methodology

Centerline Communications, LLC has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.



Data & Results

The following table details the antennas and operating parameters for the AT&T antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at the ground.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.



Maximum Calculated Cumulative Power Density (Location: approximately 205' northwest of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
AT&T A 1	CCI TPA65R-BU8D	700	13.05	100.00	4.00	30.00	2422.04	0.00025	466.67	0.00005
AT&T A 1	CCI TPA65R-BU8D	1900	14.35	100.00	4.00	30.00	3267.24	0.00015	1000.00	0.00002
AT&T A 1	CCI TPA65R-BU8D	2100	15.25	100.00	4.00	30.00	4019.59	0.00015	1000.00	0.00002
AT&T A 2	Ericsson AIR6449	3700	23.45	100.00	1.00	108.40	23989.95	0.00267	1000.00	0.00027
AT&T A 3	Ericsson AIR6419	3450	23.45	100.00	1.00	108.40	23989.95	0.00240	1000.00	0.00024
AT&T A 4	CCI DMP65R-BU8D	700	12.25	100.00	4.00	30.00	2014.56	0.00027	466.67	0.00006
AT&T A 4	CCI DMP65R-BU8D	850	12.55	100.00	4.00	30.00	2158.65	0.00015	566.67	0.00003
AT&T A 4	CCI DMP65R-BU8D	2300	14.25	100.00	4.00	18.00	1915.72	0.00012	1000.00	0.00001
AT&T B 5	CCI TPA65R-BU8D	700	13.05	100.00	4.00	30.00	2422.04	0.00000	466.67	0.00000
AT&T B 5	CCI TPA65R-BU8D	1900	14.35	100.00	4.00	30.00	3267.24	0.00000	1000.00	0.00000
AT&T B 5	CCI TPA65R-BU8D	2100	15.25	100.00	4.00	30.00	4019.59	0.00000	1000.00	0.00000
AT&T B 6	Ericsson AIR6449	3700	23.45	100.00	1.00	108.40	23989.95	0.00001	1000.00	0.00000
AT&T B 7	Ericsson AIR6419	3450	23.45	100.00	1.00	108.40	23989.95	0.00001	1000.00	0.00000
AT&T B 8	CCI DMP65R-BU8D	700	12.25	100.00	4.00	30.00	2014.56	0.00000	466.67	0.00000
AT&T B 8	CCI DMP65R-BU8D	850	12.55	100.00	4.00	30.00	2158.65	0.00000	566.67	0.00000
AT&T B 8	CCI DMP65R-BU8D	2300	14.25	100.00	4.00	18.00	1915.72	0.00000	1000.00	0.00000
AT&T C 9	CCI TPA65R-BU8D	700	13.05	100.00	4.00	30.00	2422.04	0.00014	466.67	0.00003
AT&T C 9	CCI TPA65R-BU8D	1900	14.35	100.00	4.00	30.00	3267.24	0.00015	1000.00	0.00002
AT&T C 9	CCI TPA65R-BU8D	2100	15.25	100.00	4.00	30.00	4019.59	0.00010	1000.00	0.00001
AT&T C 10	Ericsson AIR6449	3700	23.45	100.00	1.00	108.40	23989.95	0.00267	1000.00	0.00027
AT&T C 11	Ericsson AIR6419	3450	23.45	100.00	1.00	108.40	23989.95	0.00240	1000.00	0.00024
AT&T C 12	CCI DMP65R-BU8D	700	12.25	100.00	4.00	30.00	2014.56	0.00013	466.67	0.00003
AT&T C 12	CCI DMP65R-BU8D	850	12.55	100.00	4.00	30.00	2158.65	0.00014	566.67	0.00002
AT&T C 12	CCI DMP65R-BU8D	2300	14.25	100.00	4.00	18.00	1915.72	0.00009	1000.00	0.00001
Verizon A 13	AMPHENOL LPA-80063-4CF	850	13.00	109.00	4.00	20.00	1596.21	0.00007	566.67	0.00001
Verizon A 14	COMMSCOPE SBNHH-1D65B	700	12.38	109.00	2.00	40.00	1383.85	0.00008	466.67	0.00002
Verizon A 14	COMMSCOPE SBNHH-1D65B	850	12.67	109.00	2.00	40.00	1479.41	0.00006	566.67	0.00001
Verizon A 14	COMMSCOPE SBNHH-1D65B	1900	15.89	109.00	4.00	30.00	4657.80	0.00008	1000.00	0.00001
Verizon A 15	COMMSCOPE SBNHH-1D65B	700	12.38	109.00	2.00	40.00	1383.85	0.00008	466.67	0.00002
Verizon A 15	COMMSCOPE SBNHH-1D65B	850	12.67	109.00	2.00	40.00	1479.41	0.00006	566.67	0.00001
Verizon A 15	COMMSCOPE SBNHH-1D65B	2100	16.44	109.00	4.00	45.00	7929.99	0.00018	1000.00	0.00002
Verizon A 16	SAMSUNG MT6407	3700	23.35	109.00	4.00	50.00	43254.37	0.00356	1000.00	0.00036
Verizon A 17	AMPHENOL LPA-80063-4CF	850	13.00	109.00	3.00	20.00	1197.16	0.00005	566.67	0.00001
Verizon B 18	AMPHENOL LPA-80063-4CF	850	13.00	109.00	4.00	20.00	1596.21	0.00000	566.67	0.00000
Verizon B 19	COMMSCOPE SBNHH-1D65B	700	12.38	109.00	2.00	40.00	1383.85	0.00000	466.67	0.00000



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
Verizon B 19	COMMSCOPE SBNHH-1D65B	850	12.67	109.00	2.00	40.00	1479.41	0.00000	566.67	0.00000
Verizon B 19	COMMSCOPE SBNHH-1D65B	1900	15.89	109.00	4.00	30.00	4657.80	0.00000	1000.00	0.00000
Verizon B 20	COMMSCOPE SBNHH-1D65B	700	12.38	109.00	2.00	40.00	1383.85	0.00000	466.67	0.00000
Verizon B 20	COMMSCOPE SBNHH-1D65B	850	12.67	109.00	2.00	40.00	1479.41	0.00000	566.67	0.00000
Verizon B 20	COMMSCOPE SBNHH-1D65B	2100	16.44	109.00	4.00	45.00	7929.99	0.00000	1000.00	0.00000
Verizon B 21	SAMSUNG MT6407	3700	23.35	109.00	4.00	50.00	43254.37	0.00003	1000.00	0.00000
Verizon B 22	AMPHENOL LPA-80063-4CF	850	13.00	109.00	3.00	20.00	1197.16	0.00000	566.67	0.00000
Verizon C 23	AMPHENOL LPA-80063-4CF	850	13.00	109.00	4.00	20.00	1596.21	0.00008	566.67	0.00001
Verizon C 24	COMMSCOPE SBNHH-1D65B	700	12.38	109.00	2.00	40.00	1383.85	0.00009	466.67	0.00002
Verizon C 24	COMMSCOPE SBNHH-1D65B	850	12.67	109.00	2.00	40.00	1479.41	0.00008	566.67	0.00001
Verizon C 24	COMMSCOPE SBNHH-1D65B	1900	15.89	109.00	4.00	30.00	4657.80	0.00009	1000.00	0.00001
Verizon C 25	COMMSCOPE SBNHH-1D65B	700	12.38	109.00	2.00	40.00	1383.85	0.00009	466.67	0.00002
Verizon C 25	COMMSCOPE SBNHH-1D65B	850	12.67	109.00	2.00	40.00	1479.41	0.00008	566.67	0.00001
Verizon C 25	COMMSCOPE SBNHH-1D65B	2100	16.44	109.00	4.00	45.00	7929.99	0.00012	1000.00	0.00001
Verizon C 26	SAMSUNG MT6407	3700	23.35	109.00	4.00	50.00	43254.37	0.00364	1000.00	0.00036
Verizon C 27	AMPHENOL LPA-80063-4CF	850	13.00	109.00	3.00	20.00	1197.16	0.00006	566.67	0.00001
Dish A 28	JMA MX08FRO665-21	700	12.05	90.00	4.00	40.00	2565.19	0.00027	466.67	0.00006
Dish A 28	JMA MX08FRO665-21	1900	15.75	90.00	4.00	40.00	6013.40	0.00019	1000.00	0.00002
Dish B 29	JMA MX08FRO665-21	700	12.05	90.00	4.00	40.00	2565.19	0.00000	466.67	0.00000
Dish B 29	JMA MX08FRO665-21	1900	15.75	90.00	4.00	40.00	6013.40	0.00000	1000.00	0.00000
Dish C 30	JMA MX08FRO665-21	700	12.05	90.00	4.00	40.00	2565.19	0.00018	466.67	0.00004
Dish C 30	JMA MX08FRO665-21	1900	15.75	90.00	4.00	40.00	6013.40	0.00014	1000.00	0.00001
T-Mobile A 31	RFS APXVAALL24 43-U-NA20	700	13.65	75.00	2.00	40.00	1853.92	0.00017	466.67	0.00004
T-Mobile A 31	RFS APXVAALL24 43-U-NA20	600	12.95	75.00	4.00	40.00	3155.88	0.00055	400.00	0.00014
T-Mobile A 31	RFS APXVAALL24 43-U-NA20	600	12.95	75.00	2.00	40.00	1577.94	0.00027	400.00	0.00007
T-Mobile A 32	ERICSSON AIR6419	2500	22.05	75.00	2.00	80.00	25651.93	43.07612	1000.00	4.30761
T-Mobile A 32	ERICSSON AIR6419	2500	22.05	75.00	2.00	80.00	25651.93	43.07612	1000.00	4.30761
T-Mobile A 33	COMMSCOPE VV-65A-R1B	1900	15.15	75.00	2.00	140.00	9165.54	0.00081	1000.00	0.00008
T-Mobile A 33	COMMSCOPE VV-65A-R1B	2100	15.80	75.00	2.00	140.00	10645.30	0.00085	1000.00	0.00009
T-Mobile B 34	RFS APXVAALL24 43-U-NA20	700	13.65	75.00	2.00	40.00	1853.92	0.00000	466.67	0.00000
T-Mobile B 34	RFS APXVAALL24 43-U-NA20	600	12.95	75.00	4.00	40.00	3155.88	0.00000	400.00	0.00000
T-Mobile B 34	RFS APXVAALL24 43-U-NA20	600	12.95	75.00	2.00	40.00	1577.94	0.00000	400.00	0.00000
T-Mobile B 35	ERICSSON AIR6419	2500	22.05	75.00	2.00	80.00	25651.93	0.07660	1000.00	0.00766
T-Mobile B 35	ERICSSON AIR6419	2500	22.05	75.00	2.00	80.00	25651.93	0.07660	1000.00	0.00766
T-Mobile B 36	COMMSCOPE VV-65A-R1B	1900	15.15	75.00	2.00	140.00	9165.54	0.00000	1000.00	0.00000
T-Mobile B 36	COMMSCOPE VV-65A-R1B	2100	15.80	75.00	2.00	140.00	10645.30	0.00000	1000.00	0.00000



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
T-Mobile C 37	RFS APXVAALL24 43-U-NA20	700	13.65	75.00	2.00	40.00	1853.92	0.00000	466.67	0.00004
T-Mobile C 37	RFS APXVAALL24 43-U-NA20	600	12.95	75.00	4.00	40.00	3155.88	0.00030	400.00	0.00008
T-Mobile C 37	RFS APXVAALL24 43-U-NA20	600	12.95	75.00	2.00	40.00	1577.94	0.00015	400.00	0.00004
T-Mobile C 38	ERICSSON AIR6419	2500	22.05	75.00	2.00	80.00	25651.93	43.07612	1000.00	4.30761
T-Mobile C 38	ERICSSON AIR6419	2500	22.05	75.00	2.00	80.00	25651.93	43.07612	1000.00	4.30761
T-Mobile C 39	COMMSCOPE VV-65A-R1B	1900	15.15	75.00	2.00	140.00	9165.54	0.00063	1000.00	0.00006
T-Mobile C 39	COMMSCOPE VV-65A-R1B	2100	15.80	75.00	2.00	140.00	10645.30	0.00049	1000.00	0.00005
							Cumulative Power Density:	172.48340 $\mu\text{W}/\text{cm}^2$	Cumulative % MPE:	17.24881%



Summary

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at ground that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **Compliant** with FCC rules and regulations.

Katrina Styx
RF EME Technical Writer
Centerline Communications, LLC

A handwritten signature in black ink, appearing to read "Katrina Styx", is positioned below the typed name and title.