



10 INDUSTRIAL AVE,
SUITE 3
MAHWAH NJ 07430

PHONE: 201.684.0055
FAX: 201.684.0066

December 10, 2021

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
355 Route 85, Colchester, CT 06415
Latitude: 41.54481944
Longitude: -72.30489167
T-Mobile/Sprint Site#: CTHA359A-CT73XC017

Dear Ms. Bachman:

T-Mobile/Sprint currently maintains six (6) antennas at the 180-foot level of the existing 180-foot monopole at 355 Route 85, Colchester, CT. The 180-foot monopole is owned and operated by American Tower Corporation. The property is owned by American Tower Corporation. T-Mobile/Sprint now intends to remove the six (6) existing antennas and add nine (9) new 600/700/1900/2100/2500 MHz antennas. The new antennas will be installed at the 180-foot level of the tower and will support 5G services.

Planned Modifications:

Tower:

Remove:

- (6) Alcatel-Lucent RRH2X50-08 RRU
- (3) Alcatel-Lucent 1900 MHz 4X45 RRH
- (3) Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield
- (3) Commscope NNVV-65B-R4 Antennas
- (3) RFS APXVTM14-ALU-I20 Antennas
- (6) 1 5/8" Coax
- (2) 1 1/4" Hybriflex Cable

Install New:

- (3) 1.99" Hybrid Cables
- (3) Ericsson Radio 4460 B25+B66 RRU
- (3) Ericsson Radio 4480 B71+B85A RRU
- (3) Ericsson Air6449 B41 Antennas
- (3) Commscope VV-65A-R1 Antennas
- (3) RFS APXVAALL24 43-U-NA20 Antennas
- (1) Platform Mount

Ground:

Remove:

(1) Generic Cabinet from existing concrete pad

Existing Sprint Equipment in shelter to be relocated to existing T-Mobile concrete pad

Install New:

(1) Enclosure 6160

(1) B160 Battery Cabinet

This site was originally zoning approved by the Town of Colchester on May 8, 1998. This site was approved by the Connecticut Siting Council in Sub-Petition No. 1133 on July 12, 2016. T-Mobile/Sprint has been approved for subsequent modifications at their facility.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to First Selectman Andreas Bisbikos, Elected Official, and Daphne Schaub, Acting Zoning Officer, as well as the tower and property owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

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

For the foregoing reasons, T-Mobile/Sprint respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Dave DePinto

Transcend Wireless

Cell: 973-907-3243

Email: ddepinto@transcendwireless.com

Attachments

cc: Andreas Bisbikos – First Selectman of the Town of Colchester

Daphne Schaub– Acting Zoning Officer

American Tower Corporation – Tower & Property Owner

UPS Ship Notification, Tracking Number 1ZV257424298696914

UPS <pkginfo@ups.com>
To: ddepinto@transcendwireless.com

Fri, Dec 10, 2021 at 2:09 PM

**You have a package coming.****Scheduled Delivery Date:** Monday, 12/13/2021

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV257424298696914
Ship To:	Daphne Schaub Town of Colchester-Zoning Dept 127 Norwich Avenue Colchester, CT 06415 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	12/13/2021
Signature Required:	A signature is required for package delivery
Weight:	1.8 LBS
Reference Number 1:	CTHA359A-CT73XC017

[Download the UPS mobile app](#)

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UPS Ship Notification, Tracking Number 1ZV25742A892623735

UPS <pkginfo@ups.com>
To: ddepinto@transcendwireless.com

Fri, Dec 10, 2021 at 2:05 PM

**You have a package coming.****Scheduled Delivery Date:** Monday, 12/13/2021

This message was sent to you at the request of Transcend Wireless to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV25742A892623735
Ship To:	Andreas Bisbikos Town of Colchester 127 Norwich Avenue Colchester, CT 06415 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	12/13/2021
Signature Required:	Adult must be at least 21 years of age
Weight:	1.8 LBS
Reference Number 1:	CTHA359A-CT73XC017

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UPS Ship Notification, Tracking Number 1ZV257424299866907

UPS <pkginfo@ups.com>
To: ddepinto@transcendwireless.com

Fri, Dec 10, 2021 at 2:01 PM

**You have a package coming.****Scheduled Delivery Date:** Tuesday, 12/14/2021

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV257424299866907
Ship To:	Patrick Massey American Tower Corp 3500 Regency Parkway Suite 100 CARY, NC 27518 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	12/14/2021
Signature Required:	A signature is required for package delivery
Weight:	1.8 LBS
Reference Number 1:	CTHA359A-CT73XC017

[Download the UPS mobile app](#)

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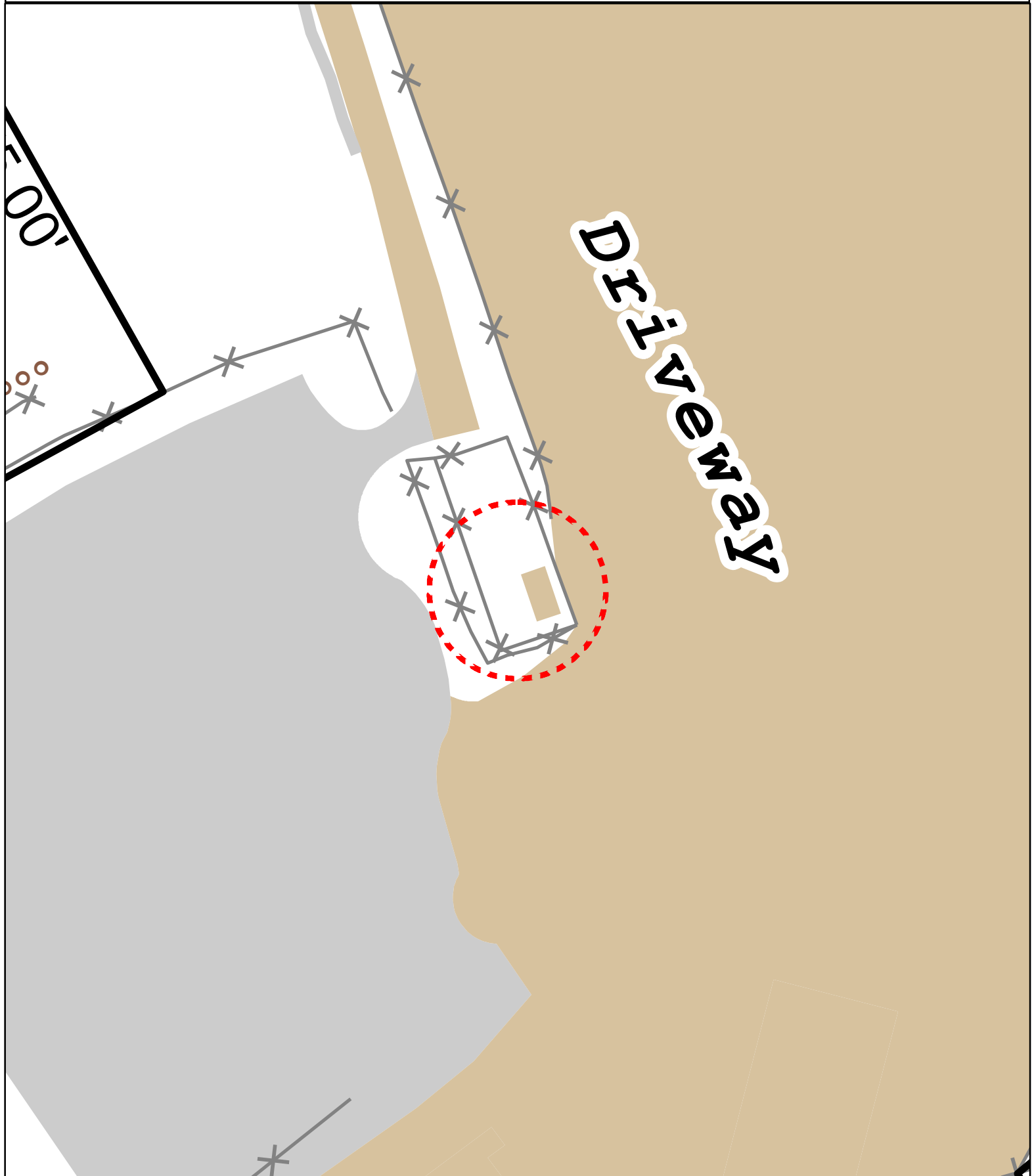
[For Questions, Visit Our Help and Support Center](#)



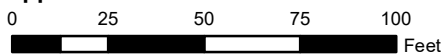
Town of Colchester, Connecticut - Assessment Parcel Map

Parcel: 02-08-003-000-TWR

Address: 355 NEW LONDON RD



Approximate Scale: 1 inch = 50 feet



Map Produced: April 2021 / Grand List: 2020

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



Town of Colchester, CT

Property Report

Map Block Lot

02-08/003-000/TWR

PID 105117

Building # 1

Section # 1

Account

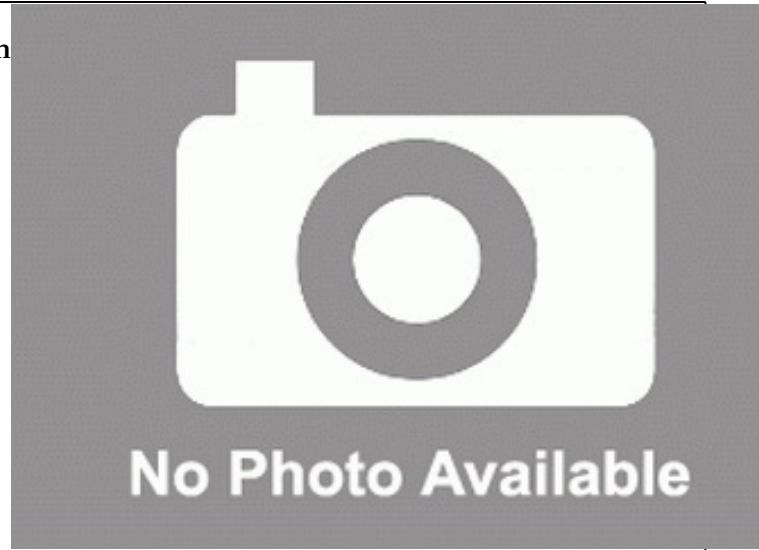
11AT0007

Property Information

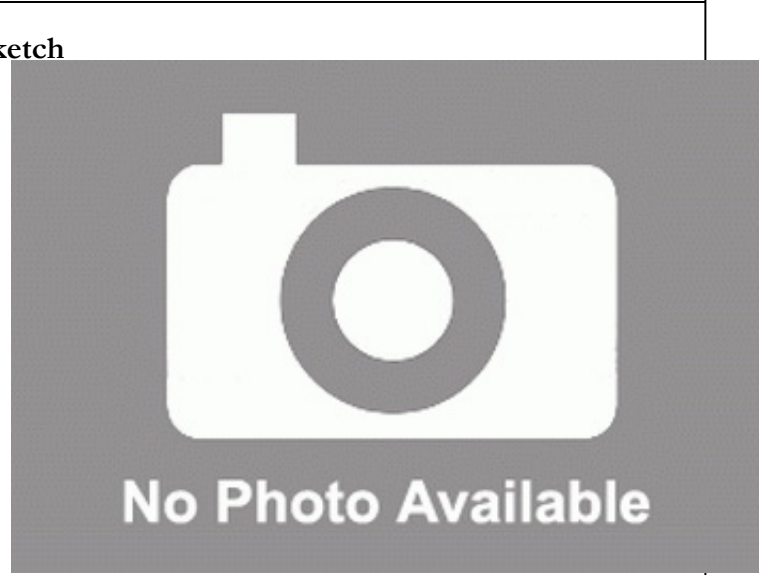
Property Location	355 NEW LONDON RD
Owner	SPECTRASITE COMMUNICATIONS INC
Co-Owner	ATTN TAX MANAGER
Mailing Address	PO BOX 723597 ATLANTA GA 31139
Land Use	4310 Tel Rel Tw
Land Class	I
Zoning Code	R60
Census Tract	

Neighborhood	
Acreage	0
Utilities	UNKNOWN
Lot Setting/Desc	UNKNOWN UNKNOWN
Additional Info	

Ph



Sketch



Primary Construction Details

Year Built	0
Stories	
Building Style	UNKNOWN
Building Use	Vacant
Building Condition	
Interior Floors 1	
Interior Floors 2	NA
Total Rooms	0
Basement Garages	
Occupancy	
Building Grade	

Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Bath Style	
Kitchen Style	
Roof Style	
Roof Cover	
AC Type	
Fireplaces	0

Exterior Walls	
Exterior Walls 2	NA
Interior Walls	
Interior Walls 2	NA
Heating Type	
Heating Fuel	
Sq. Ft. Basement	
Fin BSMT Quality	
Extra Kitchens	



Town of Colchester, CT

Property Report

Map Block Lot

02-08/003-000/TWR

PID 105117

Building # 1

Section # 1

Account

11AT0007

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

Item	Appraised	Assessed
Buildings	0	0
Extras	0	0
Improvements		
Outbuildings	668300	467800
Land	0	0
Total	668300	467800

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area		0

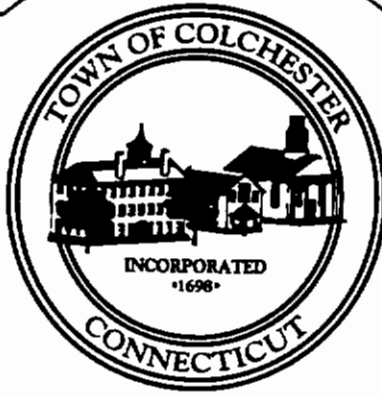
Outbuilding and Extra Features

Type	Description
Cell Tower	4 SITES
Cell Shed	240 S.F.
Fence 8' Chain	260 L.F.

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
SPECTRASITE COMMUNICATIONS INC	0000/0000	10/1/2011	0

CT-0877



Code Administration

CERTIFIED

May 8, 1998

Seth M. Mandelbam
Snyder & Snyder
6 Avery Court
White Plains, NY 10604

RE: SDP #98-222 Nextel Communication - Site Development Plan prepared by Donald A. Benvie, Project #1170, C877 - Dated: April 23, 1998; revised through April 28, 1998.

Dear Mr. Mandelbam,

The above referenced site development plan was approved by the Zoning and Planning Commission at their regular meeting held May 6, 1998. Also, permission was granted for exception to the height limit pursuant to section 13.5 of the Zoning Regulations.

Per Section 12.10.1 of the Zoning Regulations, a bond in the amount of 25% of the total cost of site improvements must be posted prior to the endorsement of this plan and/or commencement of work. A bond estimate must be submitted to the Town Engineer for his review and approval.

If you have any questions, please call me at 537-7283.

Very truly yours,

Alicia Lathrop
Zoning Enforcement Officer

AL/am

98-222



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

www.ct.gov/csc

August 15, 2016

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **PE1133-VER-20160713** – Cellco Partnership d/b/a Verizon Wireless sub-petition for a declaratory ruling for approval of an eligible facility request for modifications to an existing telecommunications facility located at 355 New London Road, Colchester, Connecticut.

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) hereby approves your Eligible Facilities Request (EFR) to install antennas and associated equipment at the above-referenced facility pursuant to the Federal Communications Commission Wireless Infrastructure Report and Order, with the following conditions:

1. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
2. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by the Petitioner shall be removed within 60 days of the date the antenna ceased to function;
3. The validity of this action shall expire one year from the date of this letter; and
4. The Petitioner may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the EFR dated July 12, 2016.

Thank you for your attention and cooperation.

Very truly yours,

Melanie Bachman
Acting Executive Director

MB/CW

c: The Honorable Arthur P. Shilosky, First Selectman, Town of Colchester
Randall Benson, Town Planner, Town of Colchester

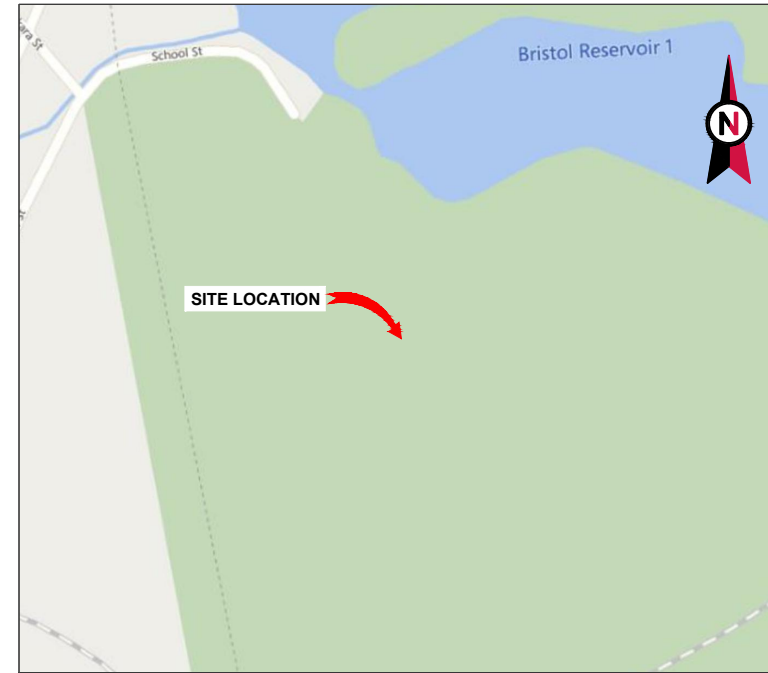


VICINITY MAP



AMERICAN TOWER®

ATC SITE NAME: COLCHESTER CT 6
 ATC SITE NUMBER: 302465
 SPRINT SITE NAME: CTHA359A
 SPRINT SITE NUMBER: CTHA359A
 SITE ADDRESS: 355 ROUTE 85
 COLCHESTER, CT 06415



LOCATION MAP

**SPRINT SPRINT RETAIN ANTENNA AMENDMENT PLAN
 67E5A998E 6160 CONFIGURATION**

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
<p>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.</p> <ol style="list-style-type: none"> 2018 CONNECTICUT STATE BUILDING CODE, INCORPORATING THE 2015 IBC 2017 NATIONAL ELECTRICAL CODE - NFPA 70 LOCAL BUILDING CODE CITY/COUNTY ORDINANCES 	<p><u>SITE ADDRESS:</u> 355 ROUTE 85 COLCHESTER, CT 06415 COUNTY: NEW LONDON</p> <p><u>GEOGRAPHIC COORDINATES:</u> LATITUDE: 41.54481944 LONGITUDE: -72.30489167 GROUND ELEVATION: 559' AMSL</p>	<p>THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:</p> <p><u>TOWER WORK:</u> REMOVE (6) ANTENNA(s), (12) RRH(s), AND (6) COAX CABLE(s) AND (2) HYBRID CABLE(s)</p> <p>INSTALL (1) PLATFORM MOUNT(s), (9) ANTENNA(s), (6) RRH(s), AND (3) HYBRID CABLE(s)</p> <p><u>GROUND WORK:</u> INSTALL (1) ENCLOSURE 6160 AND (1) B160 REMOVE ALL SHELTER EQUIPMENT AND (1) GENERIC CABINET(s)</p>	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<p><u>PROJECT TEAM</u></p> <p><u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801</p> <p><u>APPLICANT:</u> T-MOBILE</p> <p><u>ENGINEER:</u> COLLIER'S ENGINEERING & DESIGN CT, P.C. 135 NEW ROAD MADISON, CT 06443</p> <p>PROJECT #: 21904284A</p> <p><u>PROPERTY OWNER:</u> M & J AUTO RECYCLING INC 355 ROUTE 85 COLCHESTER, CT 06415</p>	<p><u>PROJECT NOTES</u></p> <ol style="list-style-type: none"> THE FACILITY IS UNMANNED. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED. HANDICAP ACCESS IS NOT REQUIRED. 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	1	10/29/21	DEH
<p><u>UTILITY COMPANIES</u></p> <p>POWER COMPANY: EVER SOURCE PHONE: (877) 659-6326</p> <p>TELEPHONE COMPANY: FRONTIER COMMUNICATIONS PHONE: (800) 376-6843</p>	<p><u>PROJECT LOCATION DIRECTIONS</u></p> <p>FROM NEW LONDON, TAKE I 395 NORTH TO RT 2 WEST. FOLLOW RT WEST TO RT 85 SOUTH. FOLLOW RT 2 SOUTH TO DUTTON RD. TURN ON TO DUTTON RD AND ROAD GATE ON RIGHT.</p>		G-002	GENERAL NOTES	1	10/29/21	DEH
	<p><u>PROJECT LOCATION DIRECTIONS</u></p>		C-101	DETAILED SITE PLAN	1	10/29/21	DEH
	<p><u>PROJECT LOCATION DIRECTIONS</u></p>		C-201	TOWER ELEVATION	1	10/29/21	DEH
	<p><u>PROJECT LOCATION DIRECTIONS</u></p>		C-401	ANTENNA INFORMATION & SCHEDULE	1	10/29/21	DEH
	<p><u>PROJECT LOCATION DIRECTIONS</u></p>		C-501	CONSTRUCTION DETAILS	1	10/29/21	DEH
	<p><u>PROJECT LOCATION DIRECTIONS</u></p>		E-501	GROUNDING DETAILS	1	10/29/21	DEH
	<p><u>PROJECT LOCATION DIRECTIONS</u></p>		E-502	ELECTRICAL DETAILS	1	10/29/21	DEH
<p><u>PROJECT LOCATION DIRECTIONS</u></p>		R-601	SUPPLEMENTAL				
<p><u>PROJECT LOCATION DIRECTIONS</u></p>		R-602	SUPPLEMENTAL				
<p><u>PROJECT LOCATION DIRECTIONS</u></p>		R-603	SUPPLEMENTAL				
<p><u>PROJECT LOCATION DIRECTIONS</u></p>		R-604	SUPPLEMENTAL				
<p><u>PROJECT LOCATION DIRECTIONS</u></p>		R-605	SUPPLEMENTAL				
<p><u>PROJECT LOCATION DIRECTIONS</u></p>		R-606	SUPPLEMENTAL				



Colliers Engineering & Design

www.colliersengineering.com
 Doing Business as MASER
 MADISON
 135 New Road
 Madison, CT 06443
 Phone: 860.395.0055
 COLLIER'S ENGINEERING & DESIGN CT, P.C.
 DOING BUSINESS AS MASER CONSULTING

REV.	DESCRIPTION	BY	DATE
A	PRELIM	DEH	08/12/21
0	FOR CONSTRUCTION	RMD	09/10/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:
 302465

ATC SITE NAME:
 COLCHESTER CT 6

SPRINT SITE NAME:
 CTHA359A

SITE ADDRESS:
 355 ROUTE 85
 COLCHESTER, CT 06415

SEAL:

COA: JPC.0000131



DATE DRAWN:	08/12/21
ATC JOB NO:	13711921_G3
CUSTOMER ID:	CTHA359A
CUSTOMER #:	CTHA359A

TITLE SHEET

SHEET NUMBER:
G-001

REVISION:
1

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GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, SPRINT "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 SPRINT 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 ANSIEIA/ITIA-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 SPRINT REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE SPRINT REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE SPRINT 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 SPRINT 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 SPRINT 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 SPRINT 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 SPRINT 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 SPRINT REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY SPRINT MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH SPRINT SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO SPRINT FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO SPRINT 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 SPRINT 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 SPRINT REP. ANY WORK FOUND BY THE SPRINT 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. SPRINT FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE SPRINT 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. SPRINT 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 SPRINT OR THEIR ARCHITECT/ENGINEER.

SPECIAL CONSTRUCTION

ANTENNA INSTALLATION NOTES:

1. WORK INCLUDED:
 - A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY SPRINT 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 AND
 - B. INSTALL ANTENNA AS INDICATE ON DRAWINGS AND SPRINT SPECIFICATIONS.
 - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS
 - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT TEST.
 - 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 GREED GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #22123 OR EQUAL.
3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF

COAXIAL CABLE (NOT WITHIN BENDS)

ELECTRICAL NOTES:

1. ELECTRICAL DESIGN SHALL BE PERFORMED BY ELECTRICAL CONTRACTOR. STRUCTURAL DESIGN SHALL BE PERFORMED BY GENERAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL ENSURE THAT ALL WORK COMPLIES WITH ALL APPLICABLE LOCAL AND STATE CODES AND NATIONAL ELECTRICAL CODE.
2. ALL SUGGESTED ELECTRICAL ELEMENTS (SUCH AS BREAKER SIZES, WIRE SIZES, CONDUITS SIZES ARE FOR ZONING PURPOSES ONLY. IT IS THE RESPONSIBILITY TO OF THE ELECTRICAL CONTRACTOR TO CONFIRM COMPLIANCE WITH LOCAL ELECTRICAL CODES AND PASS ALL APPLICABLE AND NECESSARY INSPECTIONS. IN SOME EVENTS, IT MAY BE NECESSARY TO PERFORM AN ELECTRICAL LOAD STUDY TO VERIFY THE CAPACITY OF THE EXISTING SERVICE. THIS IS NOT THE RESPONSIBILITY OF CONCORDIA. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
3. CONTRACTOR SHALL FIELD LOCATE ALL BELOW GRADE GROUND LINES AND UTILITY LINES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR RELOCATION OF ALL UTILITIES AND GROUND LINES THAT MAY BECOME DISTURBED OR CONFLICTING IN THE COURSE OF CONSTRUCTION.

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.



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	DEH	08/12/21
0	FOR CONSTRUCTION	RMD	09/10/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:
302465

ATC SITE NAME:
COLCHESTER CT 6

SPRINT SITE NAME:
CTHA359A

SITE ADDRESS:
 355 ROUTE 85
 COLCHESTER, CT 06415

SEAL:

COA: JPC.0000131



DATE DRAWN:	08/12/21
ATC JOB NO:	13711921_G3
CUSTOMER ID:	CTHA359A
CUSTOMER #:	CTHA359A

GENERAL NOTES

SHEET NUMBER:
G-002

REVISION:
1

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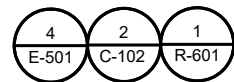
SITE PLAN NOTES:

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. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE SPRINT REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.

LEGEND	
⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACAL
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

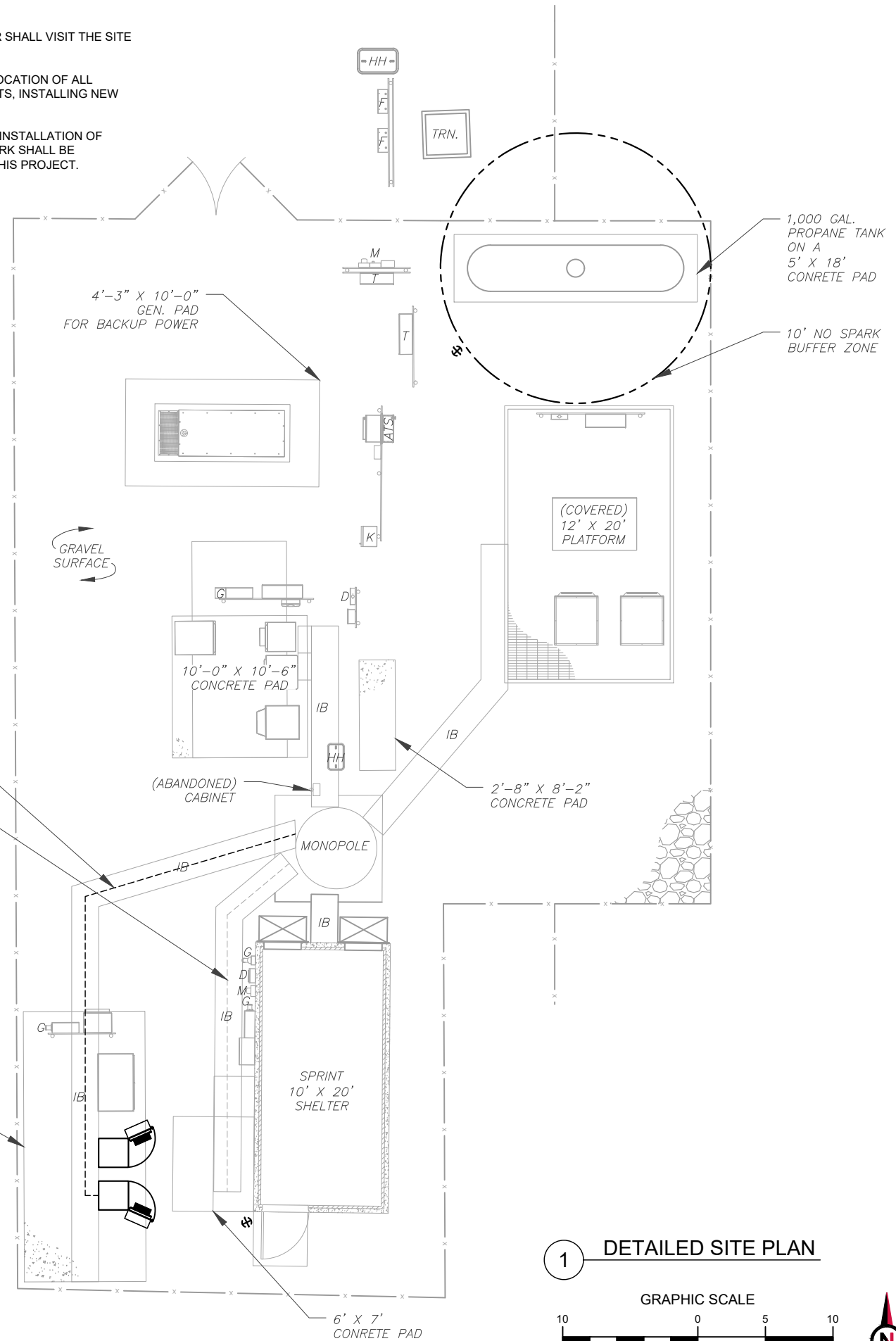
PROPOSED CABLE LENGTH:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **210'**. 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. WHERE POSSIBLE UTILIZE EXISTING CABLE SUPPORT STRUCTURES AS PROVIDED FOR CARRIER TO ADEQUATELY SECURE CABLES, USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER. OTHERWISE, ATTACH CABLES TO HORIZONTAL OR DIAGONAL TOWER MEMBERS USING PROPOSED STAINLESS STEEL ADAPTERS (DO NOT ATTACH TO TOWER LEG).

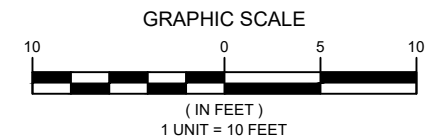


EXISTING T-MOBILE EQUIPMENT ON A 9' X 20' CONCRETE PAD (MODIFIED AS REQUIRED FOR UPGRADE FROM SPRINT TO T-MOBILE 67E5A998E 6160 CONFIGURATION)

PROPOSED (3) T-MOBILE 1.99" 6/24 4AWG HYBRID CABLES
 (6) SPRINT 1-5/8" COAX CABLES AND (2) SPRINT 1-1/4" HYBRID CABLES (TO BE REMOVED)



1 DETAILED SITE PLAN



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	DEH	08/12/21
0	FOR CONSTRUCTION	RMD	09/10/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:
302465

ATC SITE NAME:
COLCHESTER CT 6

SPRINT SITE NAME:
CTHA359A

SITE ADDRESS:
 355 ROUTE 85
 COLCHESTER, CT 06415

SEAL:

COA: JPC.0000131



DATE DRAWN:	08/12/21
ATC JOB NO:	13711921_G3
CUSTOMER ID:	CTHA359A
CUSTOMER #:	CTHA359A

DETAILED SITE PLAN

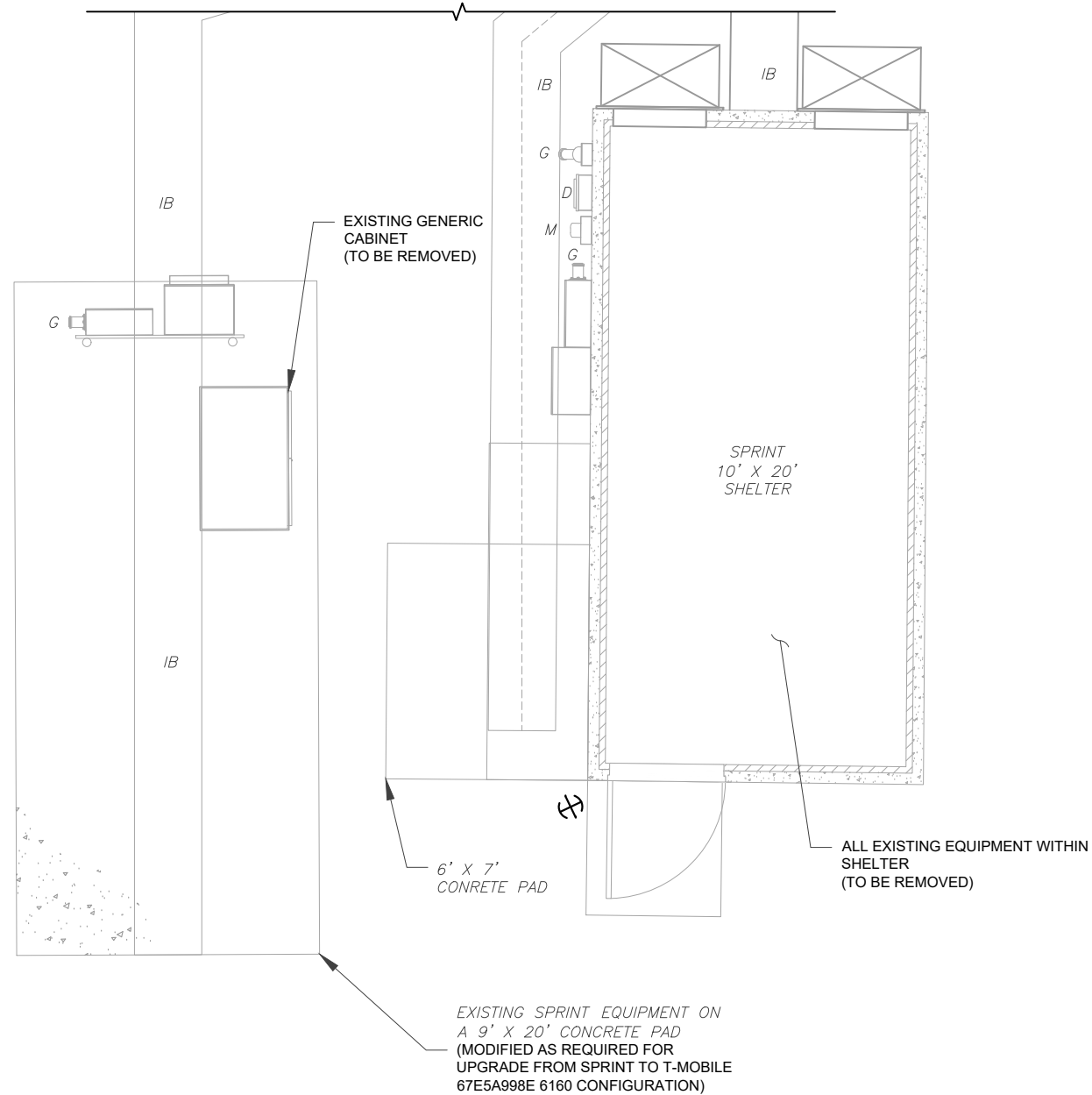
SHEET NUMBER:
C-101

REVISION:
1

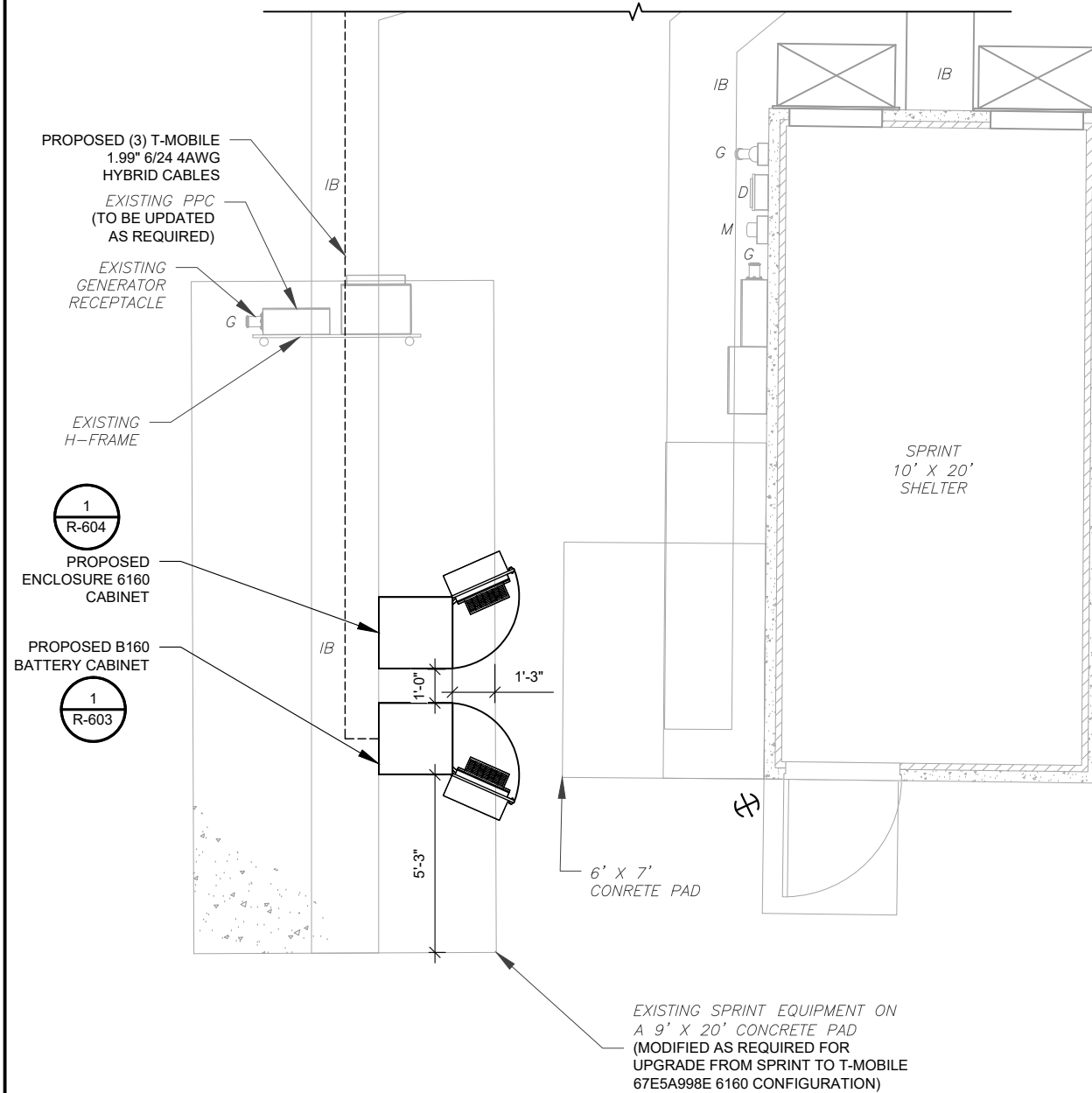
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SITE PLAN NOTES:

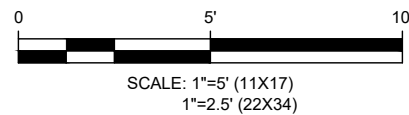
1. CONTRACTOR TO VERIFY THERE IS NO LIVE AAV FIBER RUNNING THROUGH EXISTING DEAD EQUIPMENT. IF SO, THIS WILL NEED TO BE RERUN THROUGH CONDUIT PRIOR TO REMOVING DEAD 2G (6201 CABS) EQUIPMENT.
2. REMOVE EXISTING 2G CABINETS, AND POWER / TELCO WHIPS ASSOCIATED WITH THE DEAD EQUIPMENT IF APPLICABLE.
3. ALL OPEN PORTS NEED TO BE SEALED / WEATHERPROOFED PROPERLY
4. ALL UNNEEDED / EXCESS EQUIPMENT AND GARBAGE TO BE REMOVED FROM EQUIPMENT AREA. DISPOSE OF MATERIALS PROPERLY OFF SITE.



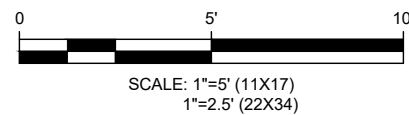
T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS



1 EXISTING GROUND EQUIPMENT LAYOUT



2 PROPOSED GROUND EQUIPMENT LAYOUT



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	DEH	08/12/21
0	FOR CONSTRUCTION	RMD	09/10/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:
302465

ATC SITE NAME:
COLCHESTER CT 6

SPRINT SITE NAME:
CTHA359A

SITE ADDRESS:
355 ROUTE 85
COLCHESTER, CT 06415

SEAL:

COA: JPC.0000131

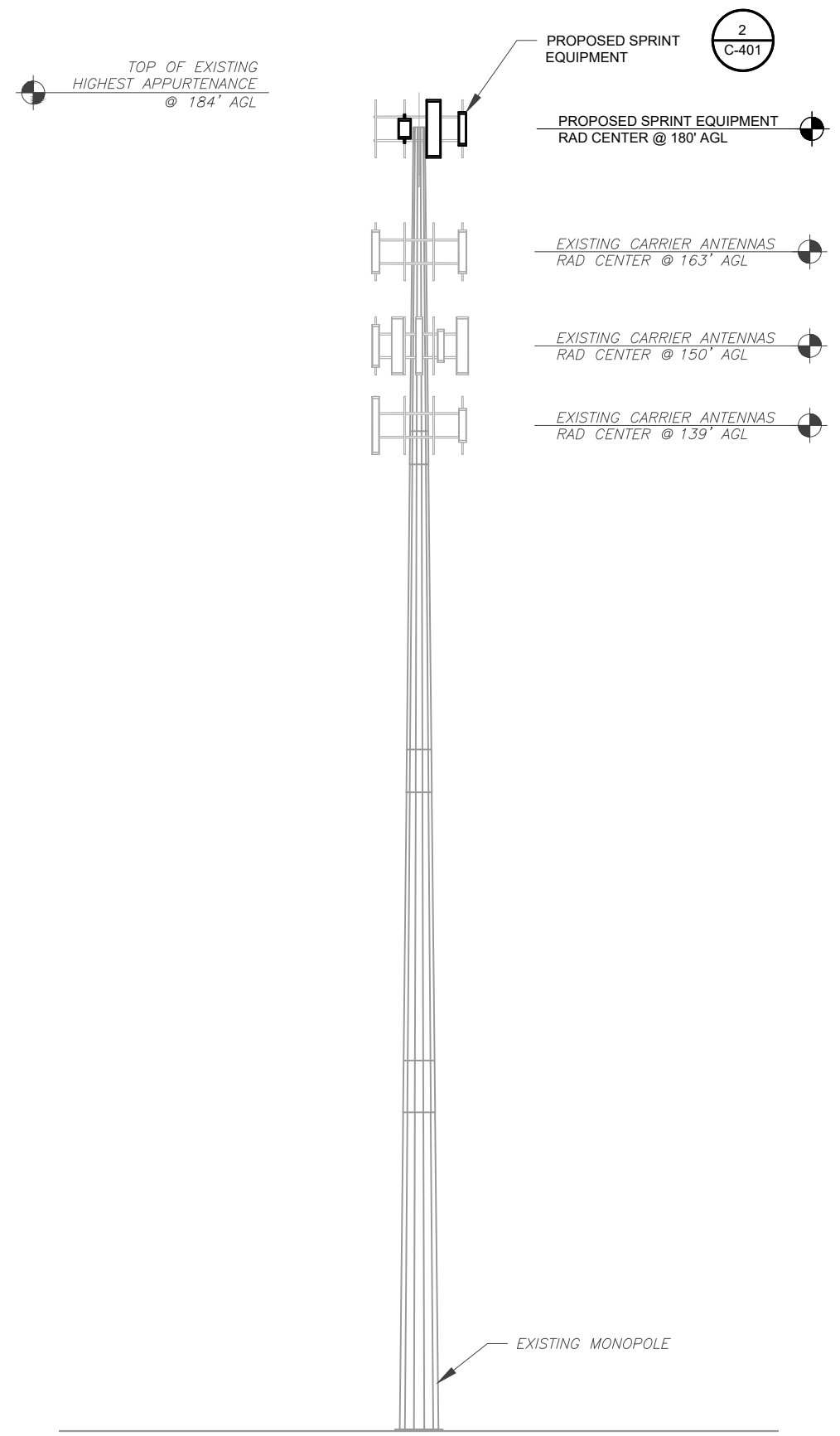


DATE DRAWN:	08/12/21
ATC JOB NO:	13711921_G3
CUSTOMER ID:	CTHA359A
CUSTOMER #:	CTHA359A

DETAILED GROUND PLAN

SHEET NUMBER:	REVISION:
C-102	1

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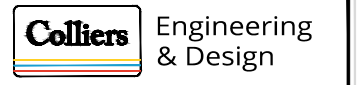


PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 10/25/21, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.

1 TOWER ELEVATION
SCALE: N.T.S.

TOWER NOTE:

- 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.
- 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.
- TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	DEH	03/30/20
0	FOR CONSTRUCTION	RMD	09/10/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:
302465

ATC SITE NAME:
COLCHESTER CT 6

SPRINT SITE NAME:
CTHA359A

SITE ADDRESS:
355 ROUTE 85
COLCHESTER, CT 06415

SEAL:

COA: JPC.0000131

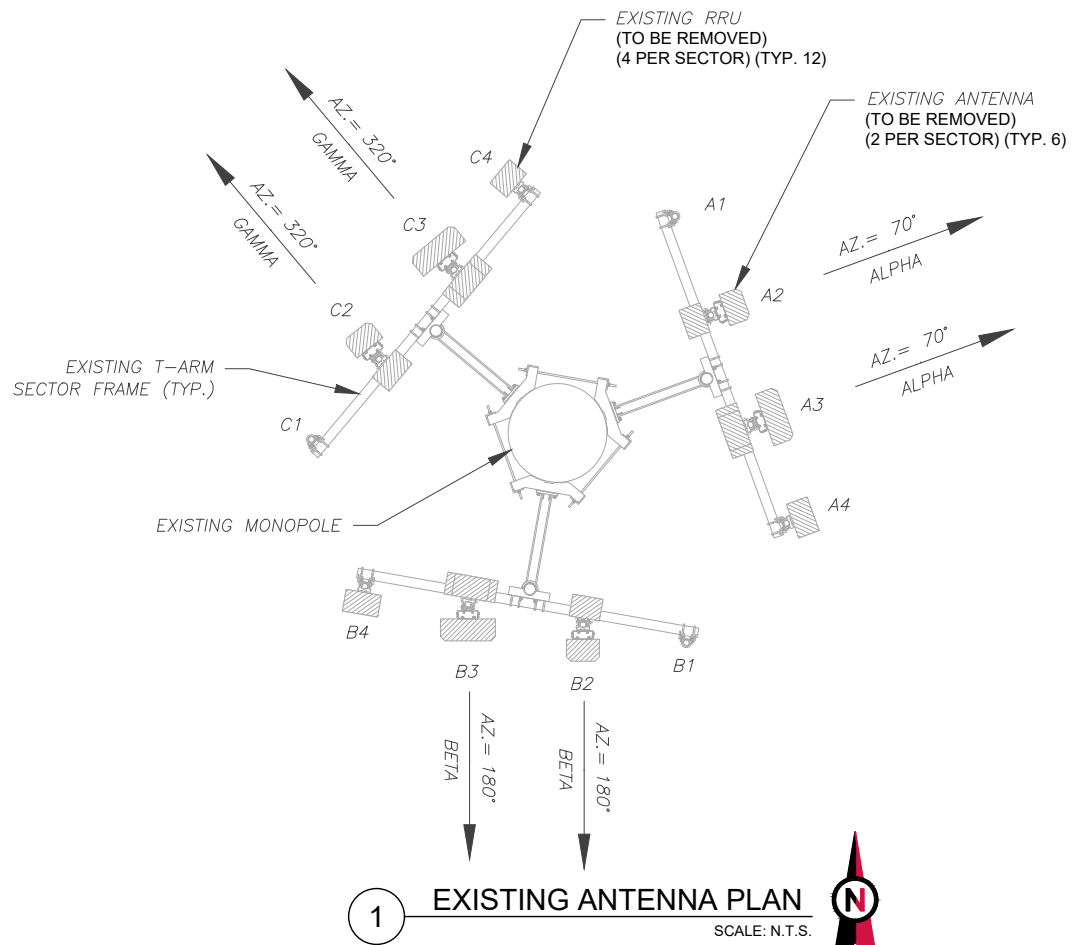


DATE DRAWN:	08/12/21
ATC JOB NO:	13711921_G3
CUSTOMER ID:	CTHA359A
CUSTOMER #:	CTHA359A

TOWER ELEVATION

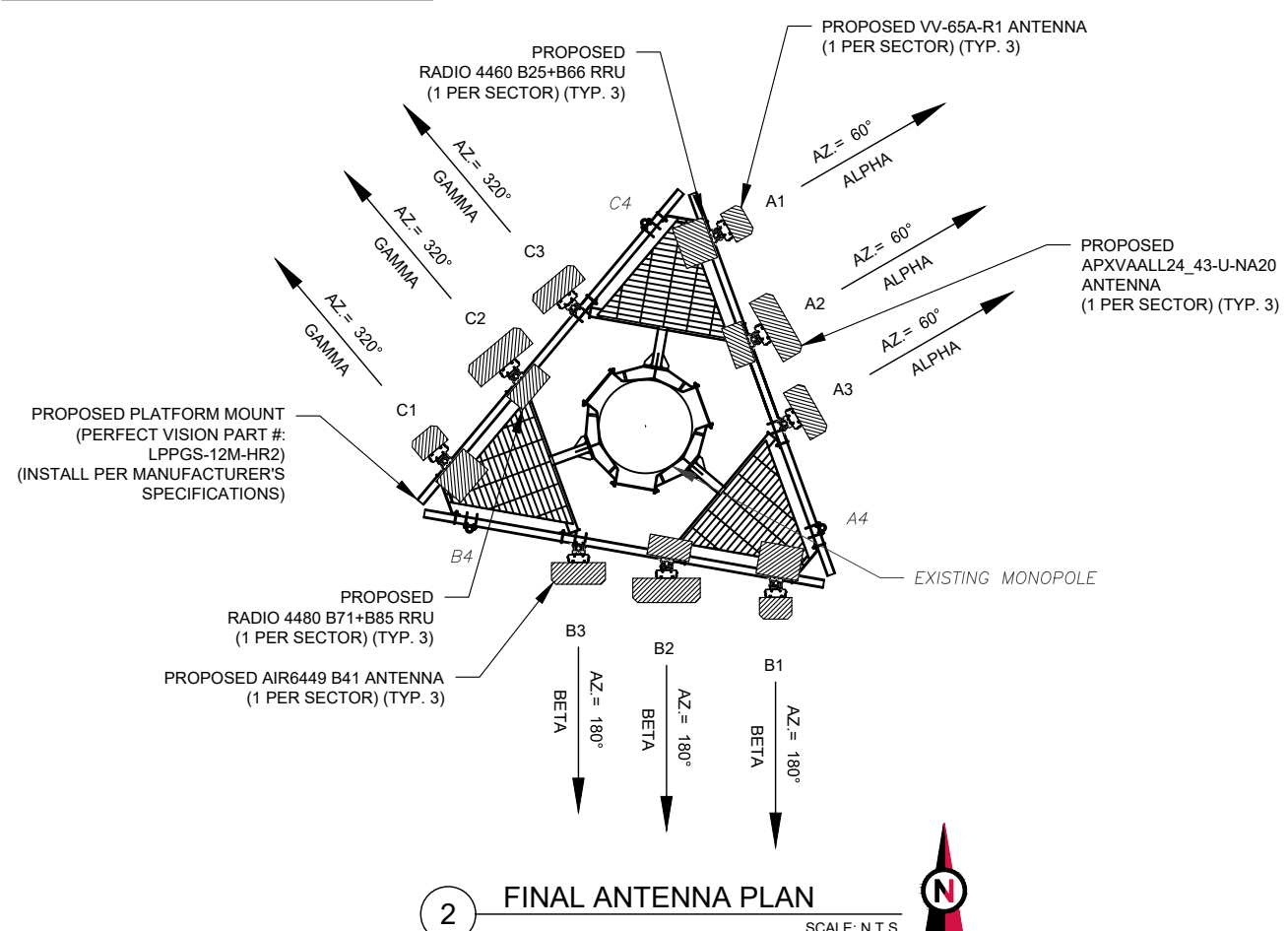
SHEET NUMBER: C-201	REVISION: 1
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1 EXISTING ANTENNA PLAN
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 10/25/21, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.



2 FINAL ANTENNA PLAN
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE									
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	180°	70°	A1	-	-	-	-	-	-
			A2	APXVTM14-ALU-I20	LTE	0/0	RMV	1900 MHz 4X45 RRH	RMV
			A3	NNVV-65B-R4	LTE	0/0	RMV	RRH2x50-08 TD-RRH8x20-25 w/ Solar Shield	RMV
			A4	-	-	-	-	RRH2x50-08	RMV
BETA	180°	180°	B1	-	-	-	-	-	-
			B2	APXVTM14-ALU-I20	LTE	0/0	RMV	1900 MHz 4X45 RRH	RMV
			B3	NNVV-65B-R4	LTE	0/0	RMV	RRH2x50-08 TD-RRH8x20-25 w/ Solar Shield	RMV
			B4	-	-	-	-	RRH2x50-08	RMV
GAMMA	180°	320°	C1	-	-	-	-	-	-
			C2	APXVTM14-ALU-I20	LTE	0/0	RMV	1900 MHz 4X45 RRH	RMV
			C3	NNVV-65B-R4	LTE	0/0	RMV	RRH2x50-08 TD-RRH8x20-25 w/ Solar Shield	RMV
			C4	-	-	-	-	RRH2x50-08	RMV

NOTES

- CONFIRM WITH SPRINT 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.

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'

FINAL ANTENNA SCHEDULE									
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	180°	60°	A1	VV-65A-R1	L2100/L1900/G1900	0/2/2	ADD	Radio 4460 B25+B66	ADD
			A2	APXVAALL24 43-U-NA20	L700/L600/N600	0/2/2/2/2	ADD	Radio 4480 B71+B85A	ADD
			A3	Air6449 B41	L2500/N2500	0/2/2	ADD	-	-
			A4	-	-	-	-	-	-
BETA	180°	180°	B1	VV-65A-R1	L2100/L1900/G1900	0/2/2	ADD	Radio 4460 B25+B66	ADD
			B2	APXVAALL24 43-U-NA20	L700/L600/N600	0/2/2/2/2	ADD	Radio 4480 B71+B85A	ADD
			B3	Air6449 B41	L2500/N2500	0/2/2	ADD	-	-
			B4	-	-	-	-	-	-
GAMMA	180°	320°	C1	VV-65A-R1	L2100/L1900/G1900	0/2/2	ADD	Radio 4460 B25+B66	ADD
			C2	APXVAALL24 43-U-NA20	L700/L600/N600	0/2/2/2/2	ADD	Radio 4480 B71+B85A	ADD
			C3	Air6449 B41	L2500/N2500	0/2/2	ADD	-	-
			C4	-	-	-	-	-	-

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	(6) 1-5/8"	(2) 1-1/4"	RMV

3 EQUIPMENT SCHEDULES

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(3) 1.99" 6/24 4AWG	ADD



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	DEH	08/12/21
0	FOR CONSTRUCTION	RMD	09/10/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:
302465

ATC SITE NAME:
COLCHESTER CT 6

SPRINT SITE NAME:
CTHA359A

SITE ADDRESS:
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COLCHESTER, CT 06415

SEAL:

COA: JPC.0000131

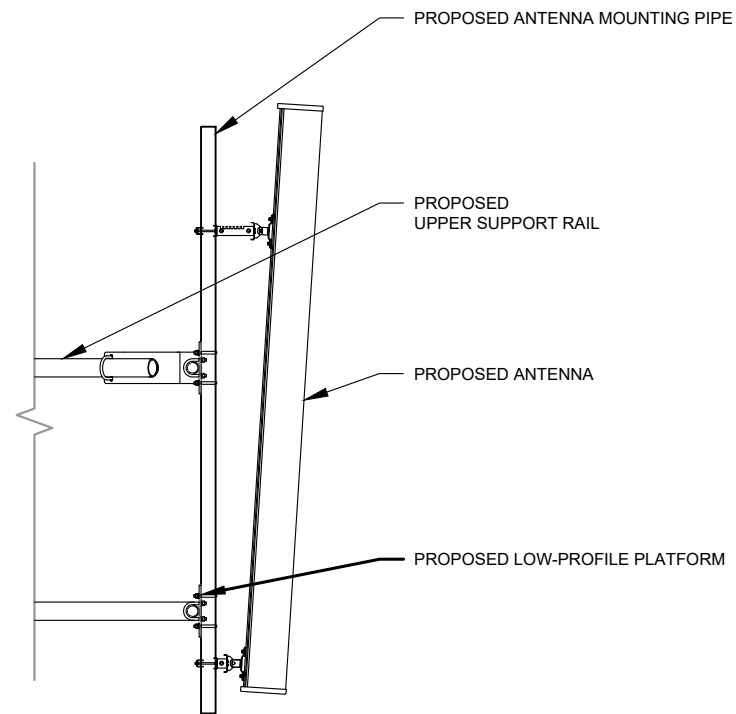


DATE DRAWN:	08/12/21
ATC JOB NO:	13711921_G3
CUSTOMER ID:	CTHA359A
CUSTOMER #:	CTHA359A

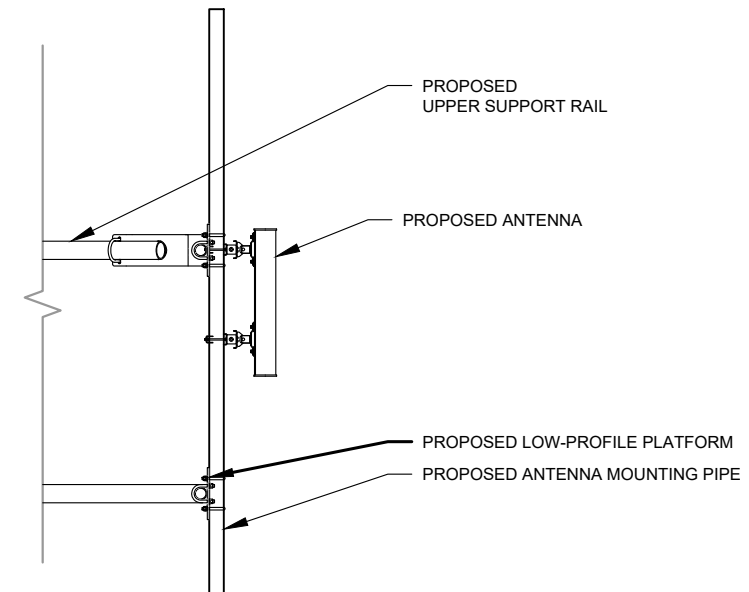
ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER: C-401	REVISION: 1
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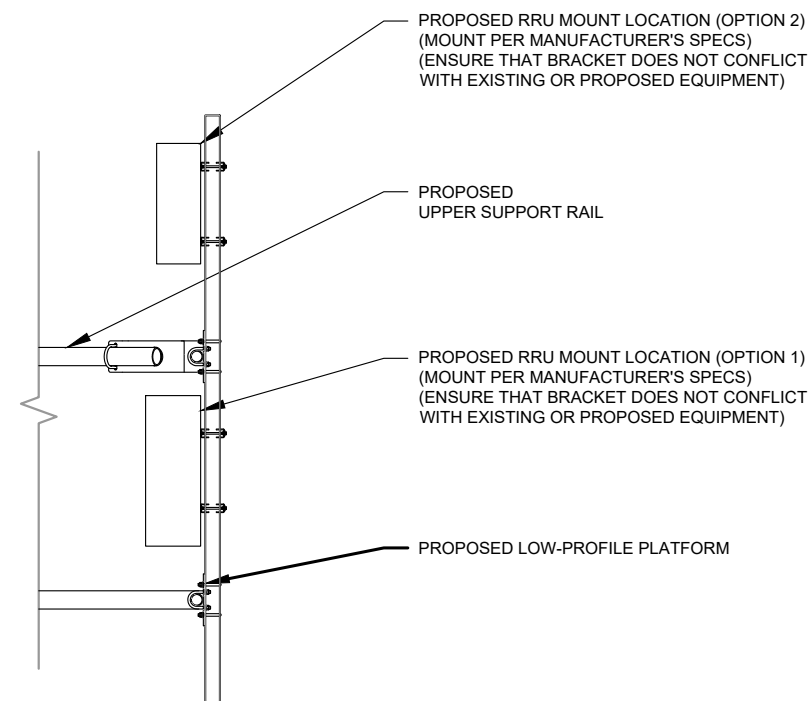
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1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL
SCALE: NOT TO SCALE



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



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



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	DEH	08/12/21
0	FOR CONSTRUCTION	RMD	09/10/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:
302465

ATC SITE NAME:
COLCHESTER CT 6

SPRINT SITE NAME:
CTHA359A

SITE ADDRESS:
355 ROUTE 85
COLCHESTER, CT 06415

SEAL:

COA: JPC.0000131

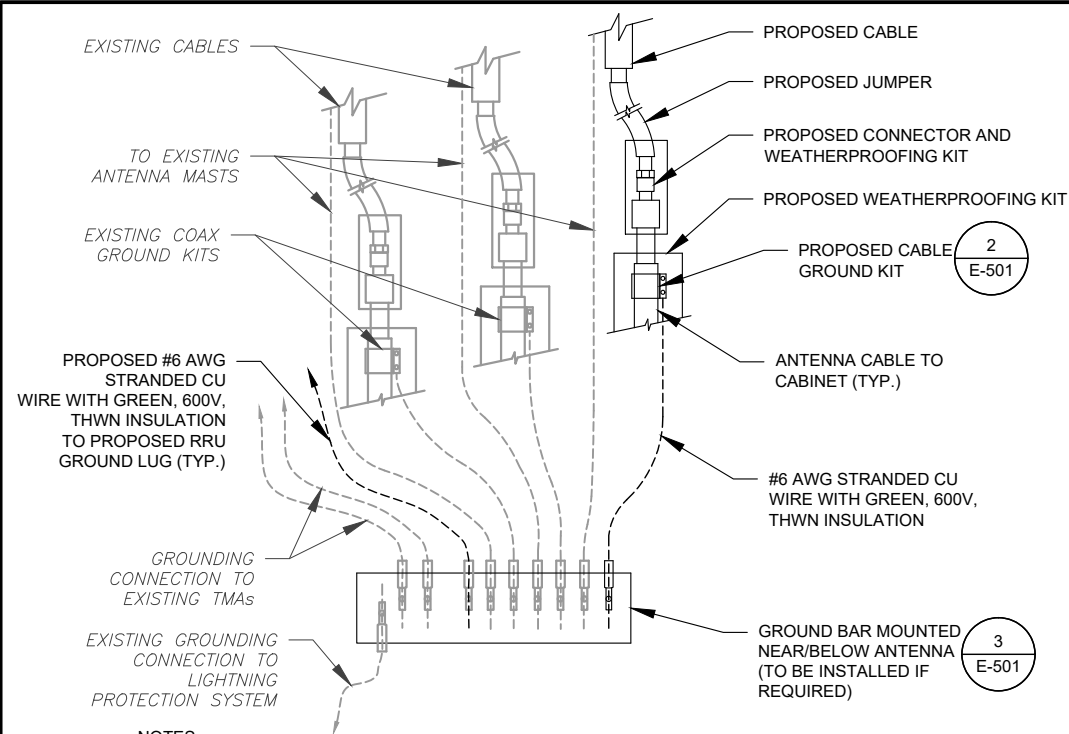


DATE DRAWN:	08/12/21
ATC JOB NO:	13711921_G3
CUSTOMER ID:	CTHA359A
CUSTOMER #:	CTHA359A

CONSTRUCTION
DETAILS

SHEET NUMBER:	REVISION:
C-501	1

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NOTES:

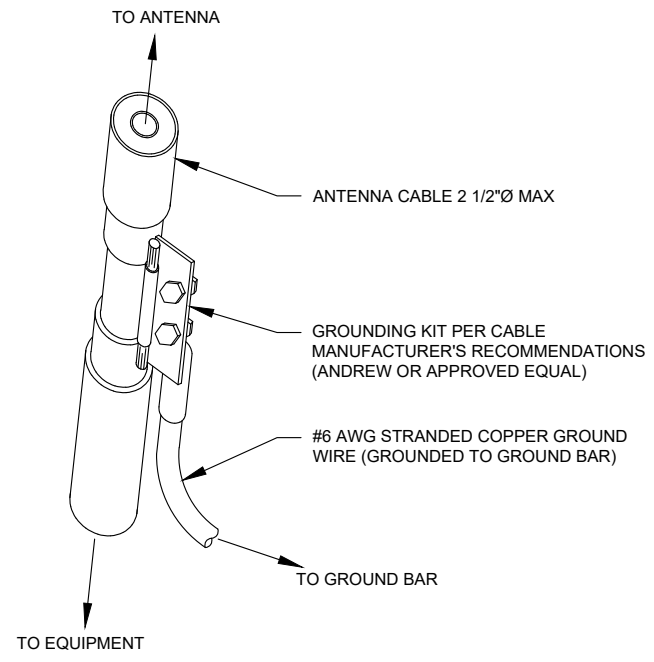
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH SPRINT GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH SPRINT 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.

ELECTRICAL NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
2. ATC HAS NOT VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER. PROPOSED CABLE AND CONDUIT SHALL BE MINIMUM SIZE PER BELOW IN CHART.
3. FOR SPECIFIC CABINET / ANCILLARY EQUIPMENT WIRING REQUIREMENTS, THE T-MOBILE CONTRACTOR SHOULD REFERENCE DESIGN DOCUMENTS PROVIDED BY T-MOBILE FOR THIS CURRENT PROJECT CONFIGURATION, IN ACCORDANCE WITH LOCAL JURISDICTION REQUIREMENTS & NEC STANDARDS & PRACTICES.

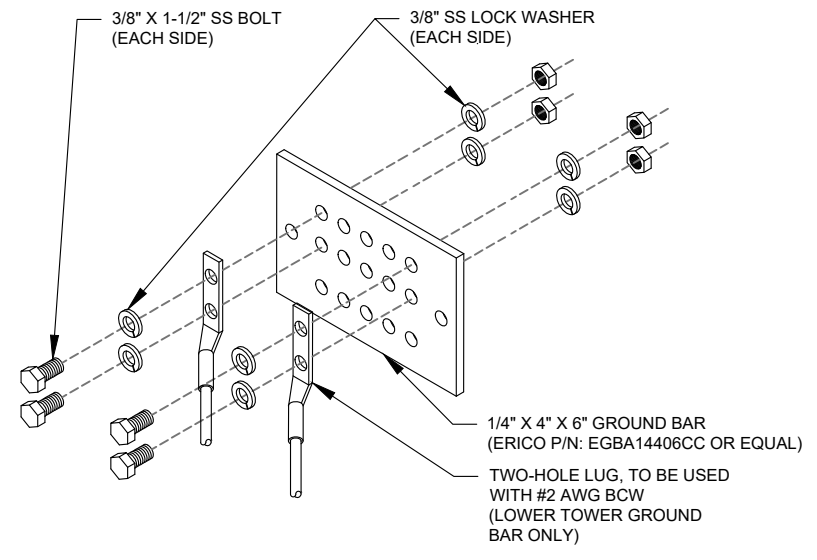
OCPD SIZE	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
80A/2P	2#3 AWG	#8 AWG	1-1/4"
100/2P	2#2 AWG	#8 AWG	1-1/4"
125A/2P	2#1 AWG	#8 AWG	1-1/2"
150A/2P	2#1/0 AWG	#8 AWG	1-1/2"



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.

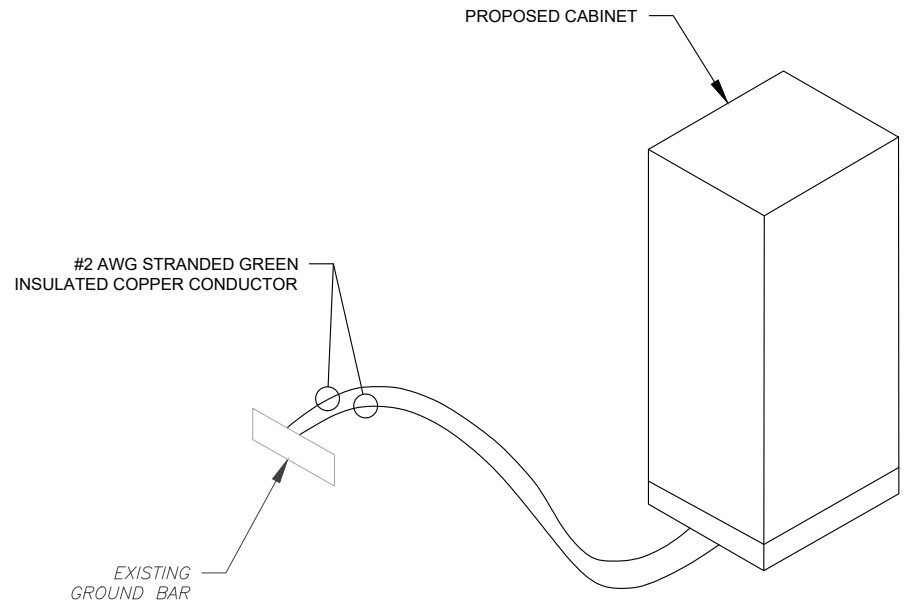
2 CABLE GROUND KIT CONNECTION DETAIL
SCALE: N.T.S.



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.



4 CABINET GROUNDING DETAIL
SCALE: N.T.S.



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	DEH	08/12/21
0	FOR CONSTRUCTION	RMD	09/10/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:
302465

ATC SITE NAME:
COLCHESTER CT 6

SPRINT SITE NAME:
CTHA359A

SITE ADDRESS:
355 ROUTE 85
COLCHESTER, CT 06415

SEAL:

COA: JPC.0000131



DATE DRAWN:	08/12/21
ATC JOB NO:	13711921_G3
CUSTOMER ID:	CTHA359A
CUSTOMER #:	CTHA359A

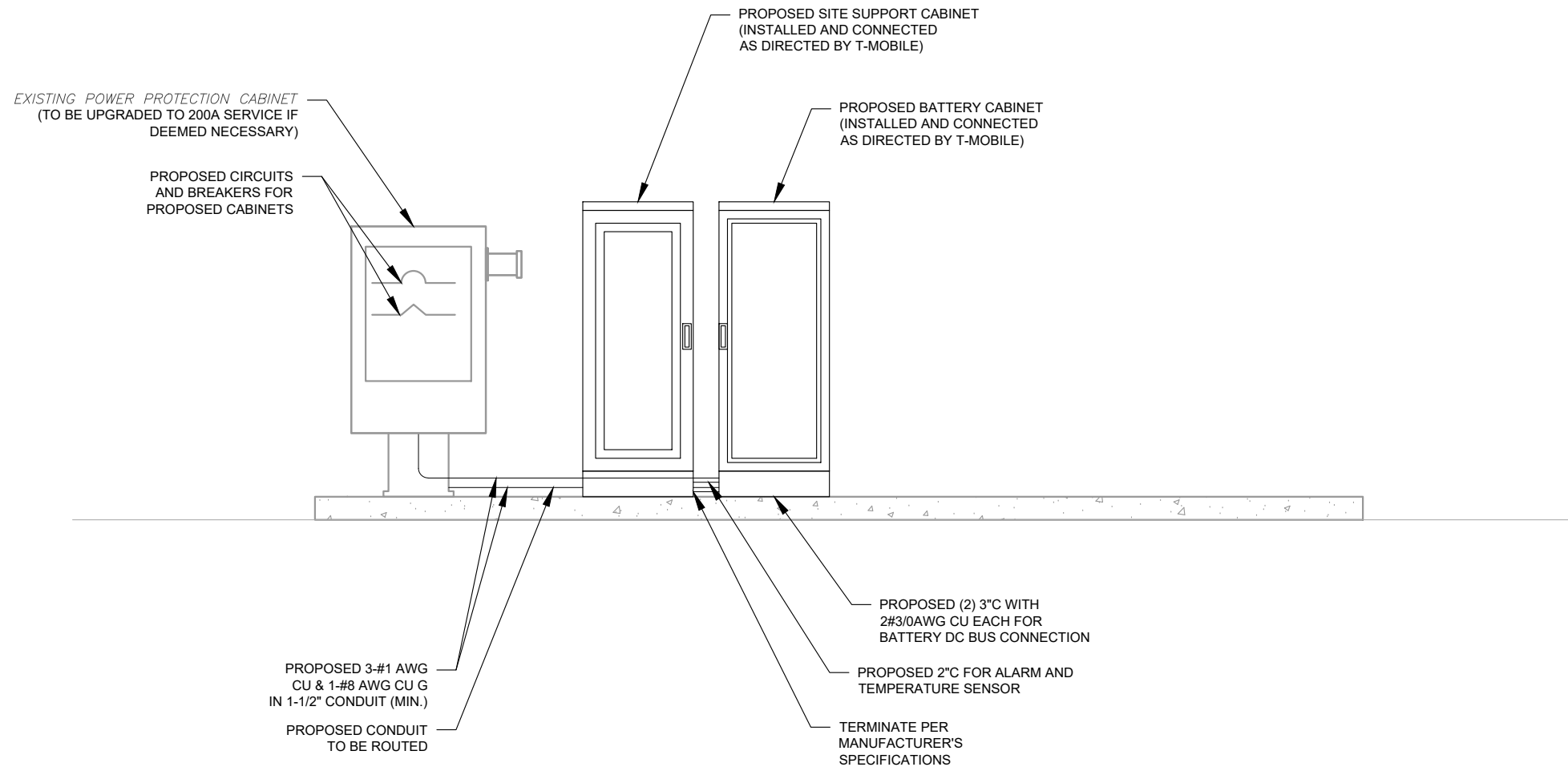
GROUNDING DETAILS

SHEET NUMBER: E-501	REVISION: 1
-------------------------------	-----------------------

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NOTES:

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2017 EDITION OF NATIONAL ELECTRICAL CODE (NEC), NATIONAL ELECTRICAL SAFETY CODE, NAPA, NETA, OSHA, AND ALL OTHER EXISTING CODES AND REGULATIONS OF AUTHORITIES WHICH WOULD HAVE JURISDICTION.
2. ALL NEW WIRING SHALL BE WITH THWN-2 OR XHHW-2 INSULATION AND RATED FOR 75 DEG CELSIUS.
3. ALL UNDERGROUND CONDUIT SHALL BE PVC SCH40. ALL ABOVE GROUND CONDUIT SHALL BE PVC SCH80 OR RMC.



ELECTRICAL NOTES:

1. THIS DIAGRAM 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. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE SPRINT REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
3. ATC HAS NOT YET VERIFIED ANY EXISTING SPRINT GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY SPRINT. CONTRACTOR TO VERIFY EXISTING SPRINT PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER.

1 ELECTRICAL UPGRADE DIAGRAM
SCALE: NOT TO SCALE



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REV.	DESCRIPTION	BY	DATE
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0	FOR CONSTRUCTION	RMD	09/10/21
1	FOR CONSTRUCTION	RMD	10/29/21

ATC SITE NUMBER:
302465

ATC SITE NAME:
COLCHESTER CT 6

SPRINT SITE NAME:
CTHA359A

SITE ADDRESS:
355 ROUTE 85
COLCHESTER, CT 06415

SEAL:

COA: JPC.0000131



DATE DRAWN:	08/12/21
ATC JOB NO:	13711921_G3
CUSTOMER ID:	CTHA359A
CUSTOMER #:	CTHA359A

ELECTRICAL DETAILS

SHEET NUMBER: E-502	REVISION: 1
-------------------------------	-----------------------

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6/16/2021

CTHA359A_Sprint Retain_1_draft_2021-06-16

RAN Template: 67E5A998E 6160
 A&L Template: 67E5998E_1xAIR+1OP+1QP

CTHA359A_Sprint Retain_1_draft

Print Name: Standard

Section 5 - RAN Equipment

Existing RAN Equipment

----- This section is intentionally blank. -----

Proposed RAN Equipment

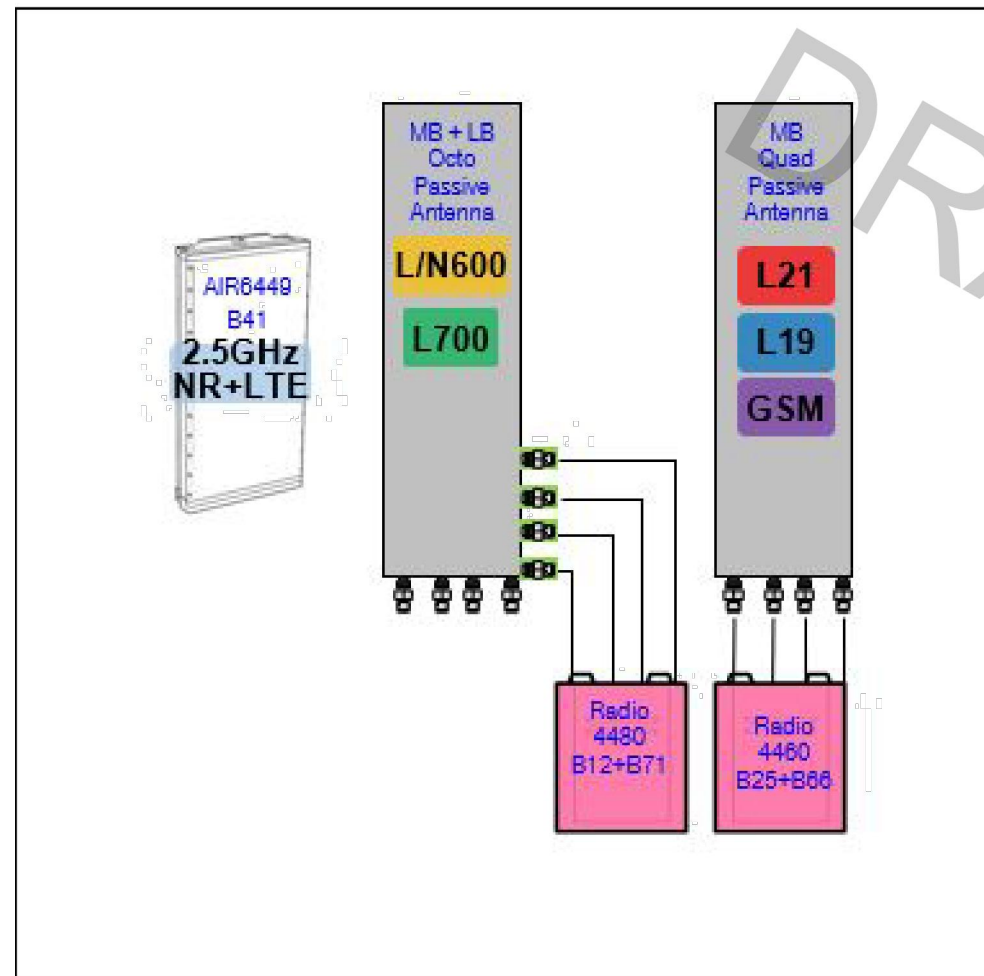
Template: 67E5A998E 6160

Enclosure	1	2	3
Enclosure Type	Enclosure 6160	RBS 6601	B160
Baseband	BB 6648 L700 L600 N600	BB 6648 L2500 N2500	BB 6648 L2100 L1900
Transport System	CSR IXRe V2 (Gen2)	DUG20 G1900	
Functionality Groups	Ericsson Hybrid Trunk 6/24 4AWG *Select Length* (x 3)		

RAN Scope of Work:

CT73XC017
 Existing azimuth 70/180/320
 New azimuth 60/180/320
 Existing 200A
 Previous TMO unfinished NSD CTHA059

67E5A998E.JPG



Notes:

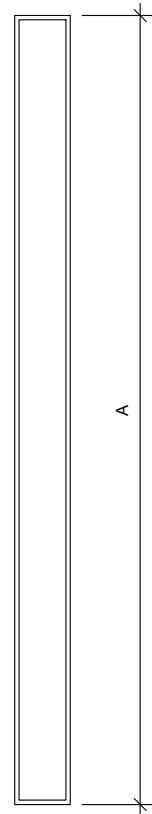
2 ANTENNA CONFIGURATION
 SCALE: NOT TO SCALE

SUPPLEMENTAL

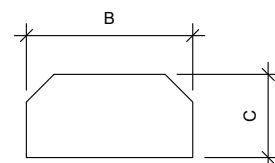
SHEET NUMBER: REVISION:

R-601 -

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



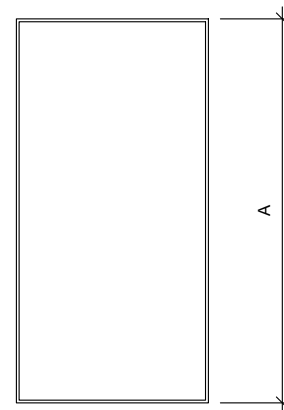
FRONT VIEW



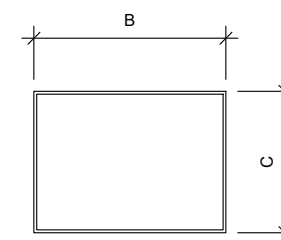
TOP VIEW

1 ANTENNA SPECIFICATIONS
FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
AIR6449 B41	33.1"	20.6"	8.6"	104.0
VV-65A-R1	54.7"	12.1"	4.6"	23.8
APXVAALL24_43-U-NA20	95.9"	24.0"	8.5"	122.8



FRONT VIEW



TOP VIEW

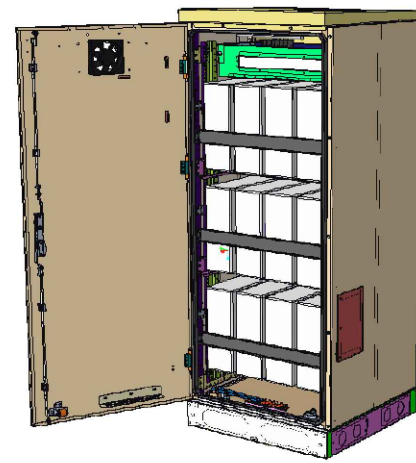
2 RRU SPECIFICATIONS
FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
RADIO 4460 B25+B66	19.6"	15.7"	12.1"	75.0
RADIO 4480 B71+B85	16.5"	13.4"	5.9"	46

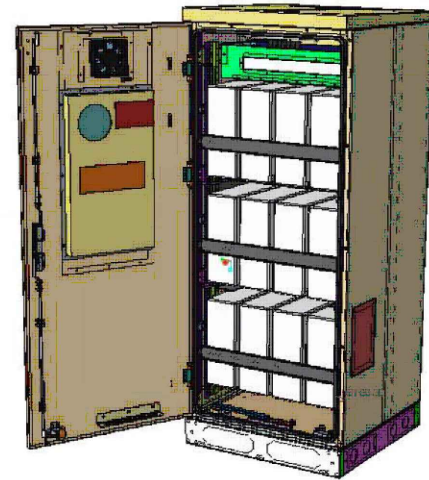
SUPPLEMENTAL

SHEET NUMBER: **R-602** REVISION: -

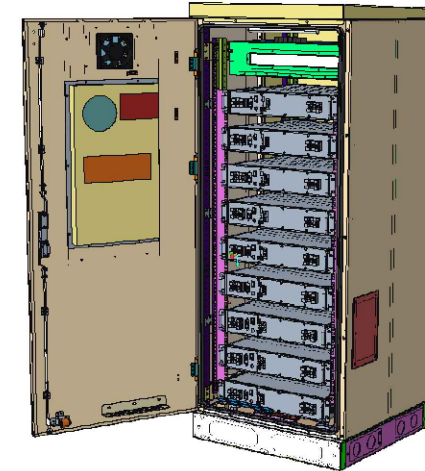
Enclosure B160



Enclosure B160
AirCon + VRLA



Enclosure B160
AirCon + Li-Ion



Enclosure B160
Convection Cooling
+ VRLA

PA1 | 2019-02-03 | Ericsson Confidential | Page 1

Enclosure B160

Capacity

- VRLA 12V: 100Ah / 150Ah / 170Ah / 190Ah / 210Ah
- Li-Ion: 24U 19" / 23"
- Sodium-Nickel: 3x FIAMM

Electrical specification

- DC Output: -48VDC/200A
- Battery breakers: 2x 125/2p
- Alarms: Door open, Climate failure, MCB Connection

Mechanical specification

- Weight: 134kg
- Dimensions: 63 x 26 x 26 in. (incl. Base frame)
- Base frame height: 6 in.
- Material: Galvanized steel (180g/m²)
- Color: Powder paint NCS 2002-B
- Door: Front access
- Locking type: Pad lock / cylinder

Environmental specification

- Ingress protection: VRLA/Sodium IP44
Li-Ion IP55
 - Relative humidity: 15-100%
- ## Climate system
- Air Conditioner
 - Fan type: DC
 - Cooling capacity: 500W @L35/L35
 - Convection cooling
 - Emergency fan

PA1 | 2019-02-03 | Ericsson Confidential | Page 2

SUPPLEMENTAL

SHEET NUMBER:

R-603

REVISION:

-

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Enclosure 6160 AC

The Enclosure 6160 is a multi-purpose site cabinet designed to support a multitude of equipment such as ERS Baseband, Transport, Li-Ion battery and 3PP vendor equipment. It also provides a highly capable power system and battery back-up - all in a streamlined design and minimized footprint to support cost efficient expansion of mobile broadband.

Being an all-in-one enclosure, the Enclosure 6160 is a very fitting choice for all types of sites where the capacity need is large or room for future expansion is needed. It is ideally used for modernizing existing sites or in greenfield scenarios to match both current and future needs.

With a robust design, IP65 compliance and a sealed Heat Exchanger (HEX) climate system the Enclosure 6160 ensures optimal environmental protection of the active equipment - enabling them for a long-lasting service. The complete system is also integrated and verified for the entire Ericsson Radio System and ensures best-in-class service.

The power system offers 31,5kW of power in total and provides 24kW of -48V DC power for both internal and external consumers.

The equipment space allows 19U of rack space ensuring well enough capacity for existing need and future expansion.

One of the main advantages of the Enclosure 6160 is its default integration with ENM - allowing for advanced remote monitoring and control such as fault management (alarms), inventory management and performance measurements. The cabinet also provides an open O&M interface for integration to 3PP O&M systems.



Preliminary technical specification for Enclosure 6160 AC

CAPACITY

Rack space user equipment	19U (19" rack)
Hardware capabilities	Power and CPRI support for multi-standard remote radios (RRU or AIR) ERS Baseband and Transport units Li-Ion batteries 3PP equipment Additional power feed available as option

MECHANICAL SPECIFICATION

Weight	145 kg (excluding active equipment) 320 lbs (excluding active equipment)
Dimension (H x W x D)	1600 x 650 x 650 mm (incl. Base frame) 63 x 26 x 26 in. (incl. Base frame)
Base frame height	150 mm 6 in.
Mounting position	Ground
Enclosure material	Aluminum
Color	Power paint NCS 2002-B
Door	Front access
Rack type	19" (IEC 60297-3-100)
Locking type	Pad lock or Cylinder

POWER SYSTEM

Input voltage	3P+N+PE: 346/200-415/240 VAC 2P+N+PE: 208/120-220/127 VAC 1P+N+PE: 200-250 VAC
Input power	<33kW
Output load (-48VDC)	24kW
Total capacity (-48VDC)	31.5kW
AC SPD	Class 2/Type 2
DC SPD	Class 2/Type 2
PSU Slots	9x
Service outlet	Optional
Priority load	8x Circuit Breaker
LLVD 1	6x Circuit Breaker
LLVD 2	6x Circuit Breaker
CB ratings	3A / 5A / 10A / 15A / 20A / 25A / 30A / 40A / 50A / 60A / 80A / 100A
Battery Interface	2x Circuit Breaker
Battery Circuit Breaker rating	125A 2pol (200A)
PSU capacity	3500W

SUPPLEMENTAL

SHEET NUMBER:

R-604

REVISION:

-

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



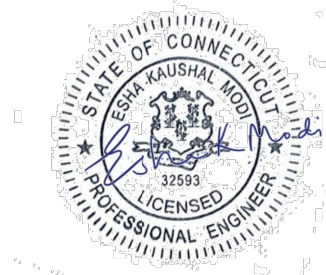
Eng. Number 13711921_C8_07
 October 25, 2021
 Page 2

Mount Analysis Report

ATC Site Name : Colchester CT 6, CT
ATC Site Number : 302465
Engineering Number : 13711921_C8_07
Mount Elevation : 180 ft
Carrier : Sprint Nextel
Carrier Site Name : CTHA359A
Carrier Site Number : CTHA359A
Site Location : 355 Route 85
 Colchester, CT 06415-1825
 41.54481944 , -72.30489167
County : New London
Date : October 25, 2021
Max Usage : 52%
Result : Pass

Prepared By:
 Jayon Woodard
 Structural Engineer

Reviewed By:



Authorized by "EOR"
 27 Oct 2021 04:52:10

COA: PEC.0001553

Application Loading

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
180.0	180.0	3	Commscope VV-65A-R1
		3	Ericsson Air6449 B41
		3	RFS APXVAALL24 43-U-NA20
		3	Ericsson Radio 4480 B71+B85A
		3	Ericsson Radio 4460 B25+B66

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Horizontals	32%	Pass
Mount Pipes	52%	Pass

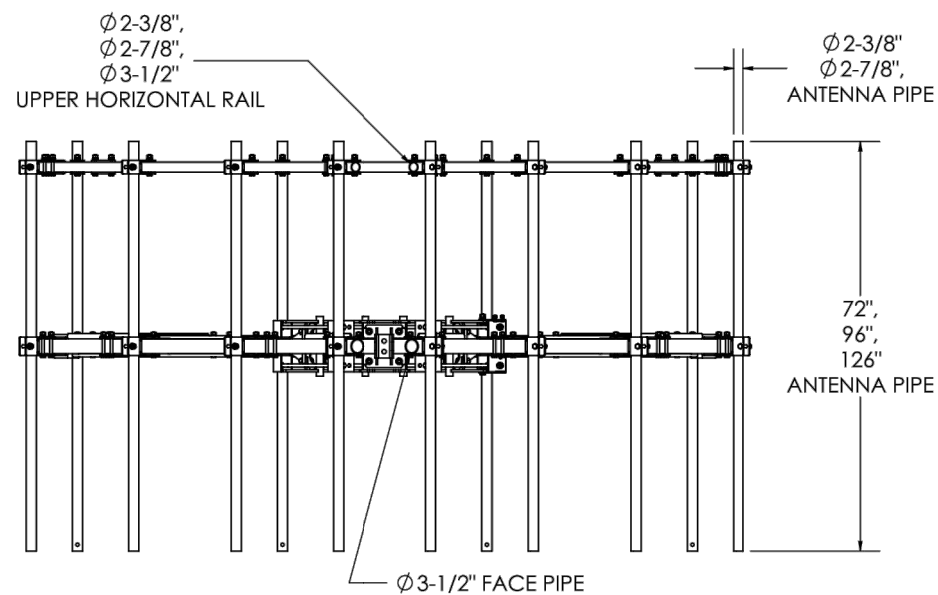
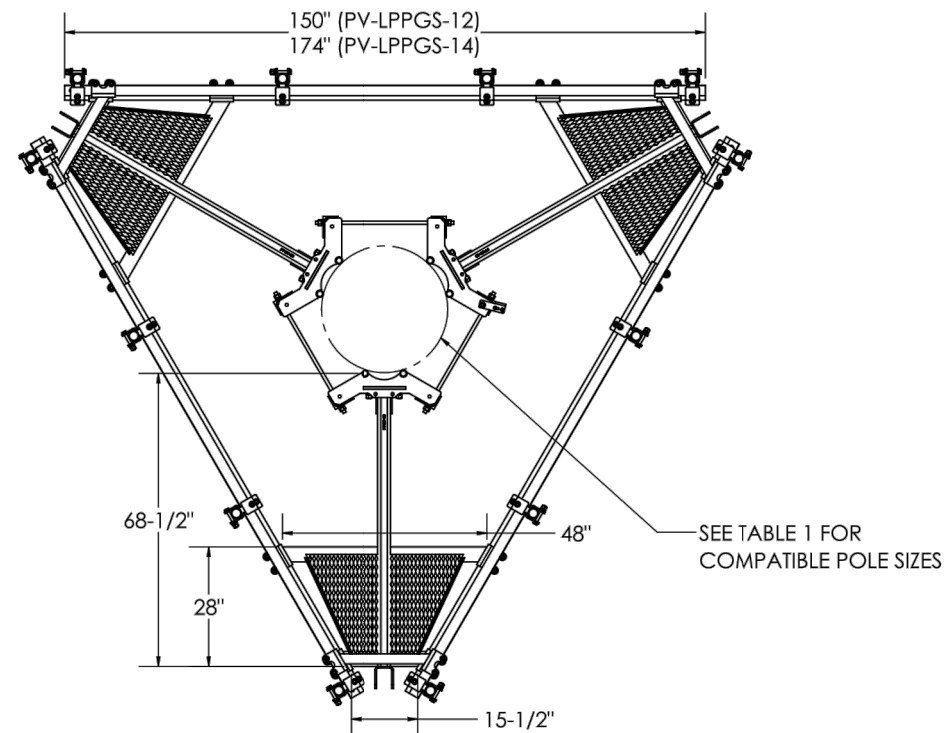
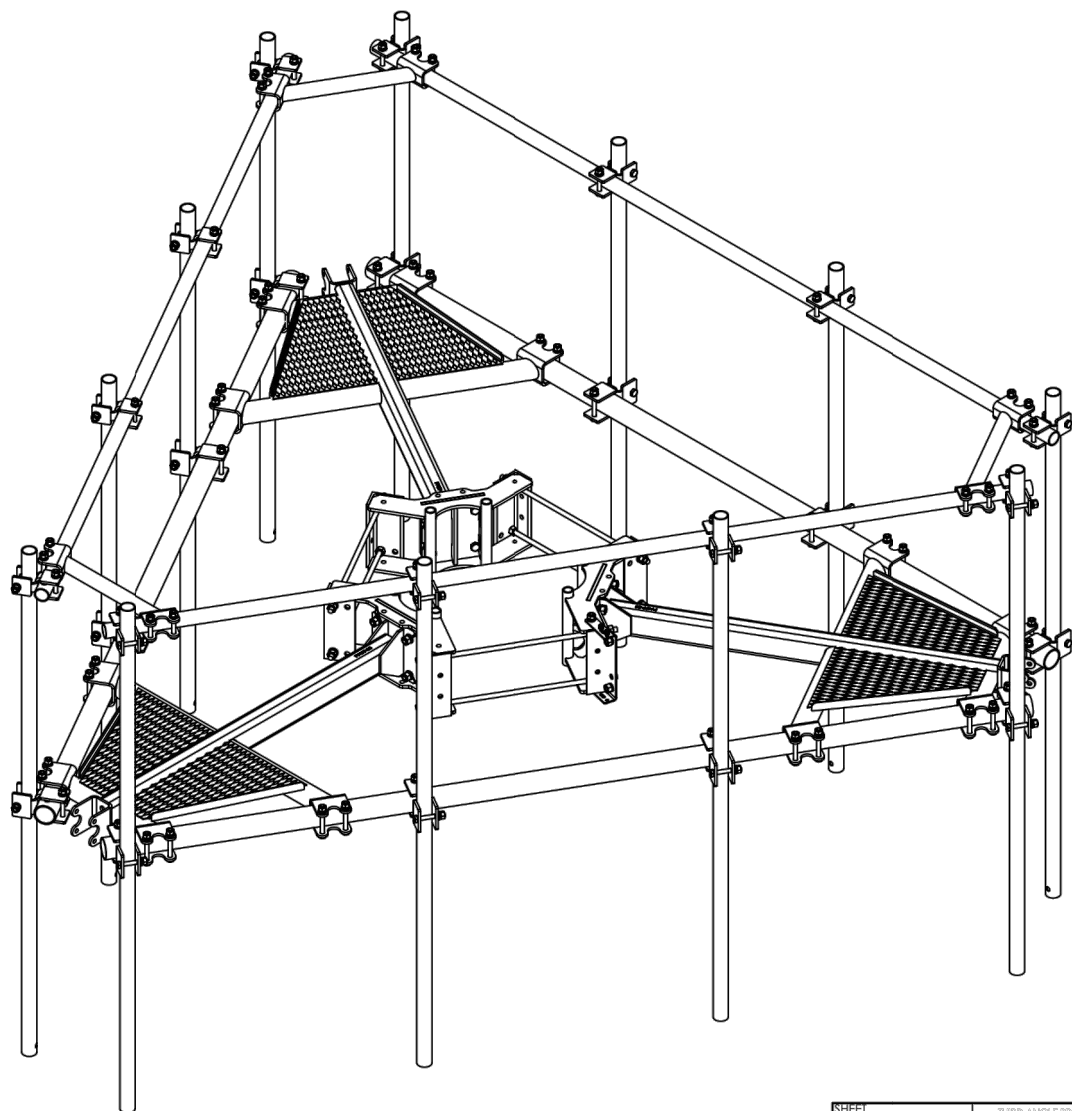
NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERIFY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

SUPPLEMENTAL

SHEET NUMBER: R-605	REVISION: -
-------------------------------	----------------

PV-LPPGS MONOPOLE GUARDIAN MOUNT

SEE SHEET 2 - TABLE 1 FOR FULL CONFIGURATION DETAILS



SHEET	THIRD ANGLE PROJECTION	CATEGORY	9	ACC1 REPLACE ACC2, PV-CMX-CG-BO REPLACE	3/16/21	PERFECT VISION
1 OF 16		02_Monopole	9	115-242		
4/27/2021	SCALE 1:36	SERIES	8	KKGS UPDATE	2/2/21	MONOPOLE GUARDIAN MOUNT
		01_Triangular	8			
		TYPE	7	REPLACED PKBK WITH PV-KKRS	11/11/20	DOCUMENT NUMBER
		BY	6	ADDED ALL THREAD NOTE TO COLLARS	7/27/20	LPPGS-ENG-01-R9
		CHECKED	5	ADDED HR2-AP3 CONFIGS	1/20/20	REV
		STATUS	APPROVED	REV	DESCRIPTION	DATE
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4", BEND ±2° ALL OTHERS: ±1/16"						9

C:\PVA\Steel\Catalog_SW Working Files\Engineering Details\

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1 MOUNT SPECIFICATIONS

SUPPLEMENTAL

SHEET NUMBER:
R-606

REVISION:
-

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AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 180 ft Monopole
ATC Site Name : Colchester CT 6,CT
ATC Site Number : 302465
Engineering Number : 13711921_C3_08
Proposed Carrier : SPRINT NEXTEL
Carrier Site Name : CTHA359A
Carrier Site Number : CTHA359A
Site Location : 355 Route 85
Colchester, CT 06415-1825
41.5448, -72.3049
County : New London
Date : October 30, 2021
Max Usage : 72%
Result : Pass

Prepared By:

Sarah Kramer
Structural Engineer

Sarah D. Kramer

Reviewed By:



COA : PEC.0001553



Table of Contents

Introduction.....3
Supporting Documents3
Analysis3
Conclusion3
Existing and Reserved Equipment.....4
Equipment to be Removed4
Proposed Equipment5
Structure Usages.....6
Foundations6
Deflection and Sway*6
Standard Conditions7
CalculationsAttached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 180 ft Monopole to reflect the change in loading by SPRINT NEXTEL.

Supporting Documents

Tower Drawings	Valmont order #17494-98, dated June 8, 1998
Foundation Drawing	Valmont drawing #17494-S-01, dated July 10, 1998
Geotechnical Report	Tectonic Engineering Consultants Project #1170.C877, dated June 5, 1998
Mount Analysis	ATC Project #13711921_C8_07, dated October 25, 2021

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:	122 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	$S_s = 0.20, S_i = 0.06$
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
172.0	2	Generic 6' Omni	Side Arm	(2) 0.405" (10.3mm) Coax	OTHER
163.0	3	Samsung MT6407-77A	Triangular Platform with Handrails	(2) 1 5/8" Hybriflex	VERIZON WIRELESS
	2	RFS DB-B1-6C-12AB-0Z			
	3	Samsung B5/B13 RRH-BR04C			
	3	Samsung B2/B66A RRH-BR049			
	3	Commscope CBC78T-DS-43-2X			
	6	Commscope JAHH-65B-R3B			
150.0	3	Powerwave Allgon 7770.00	Triangular Platform with Handrails	(2) 0.39" (10mm) Fiber Trunk (2) 0.65" (16.4mm) 8 AWG 2C (6) 0.78" (19.7mm) 8 AWG 6 (12) 1 1/4" Coax (1) 2" Carflex Non-Metallic Conduit (1) 3" conduit	AT&T MOBILITY
	3	Ericsson RRUS 4449 B5, B12			
	3	Ericsson Radio 8843 - B2 + B66A			
	2	Raycap DC6-48-60-18-8F (23.5" Height)			
	6	Powerwave Allgon LGP21401			
	6	LGP Allgon LGP21903			
	1	CCI HPA65R-BU6A			
	2	Kathrein Scala 80010966			
	1	Kathrein Scala 80010965			
2	CCI HPA65R-BU8A				
138.0	3	Commscope LNX-6515DS-A1M (96.6" Height)	Triangular Platform with Handrails	(1) 1 1/4" Hybriflex Cable (1) 1" (25.4mm) Hybrid (1) 1 5/8" (1.63"-41.3mm) Fiber	T-MOBILE
	3	Ericsson RRUS 11 B4			
	3	Ericsson RRUS 11 B2			
	3	RFS APX16DWV-16DWVS-E-A20			
	3	Ericsson RRUS 11 B12			
120.0	1	Commscope RDIDC-9181-PF-48	Triangular Platform with Handrails	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B604			
	3	JMA Wireless MX08FRO665-21			
	3	Fujitsu TA08025-B605			

Equipment to be Removed

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
180.0	6	Alcatel-Lucent RRH2x50-08	T-Arm	(4) 1 1/4" Hybriflex Cable (6) 1 5/8" Coax	SPRINT NEXTEL
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
	3	Commscope NNVV-65B-R4			
	3	RFS APXVTM14-ALU-I20			
	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			



Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
180.0	3	Ericsson Radio 4460 B25+B66	Perfect Vision PV-LPPGS-12M-HR2 Triangular Platform with Handrails	(3) 1.99" (50.7mm) Hybrid	SPRINT NEXTEL
	3	Ericsson Radio 4480 B71+B85A			
	3	Ericsson Air6449 B41			
	3	Commscope VV-65A-R1			
	3	RFS APXVAALL24 43-U-NA20			

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	65%	Pass
Shaft	72%	Pass
Base Plate	28%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	4550.7	61%
Axial (Kips)	66.6	66%
Shear (Kips)	37.7	37%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
180.0	Ericsson Radio 4460 B25+B66	SPRINT NEXTEL	2.116	1.320
	Ericsson Radio 4480 B71+B85A			
	RFS APXVAALL24 43-U-NA20			
	Commscope VV-65A-R1			
	Ericsson Air6449 B41			

*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 Service, PLLC 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 Service, PLLC

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

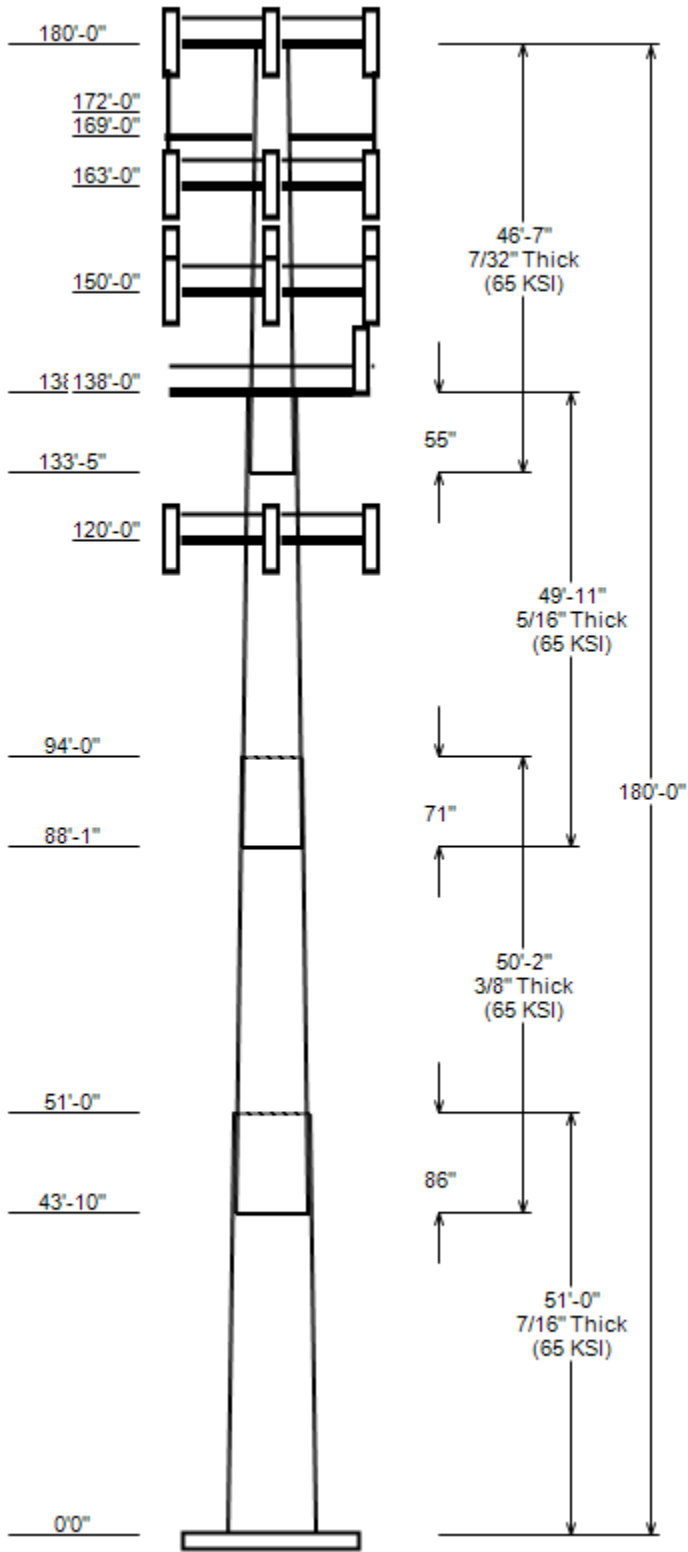
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively “American Tower”) are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, 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 Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

Asset : 302465, Colchester CT 6
 Client : SPRINT NEXTEL
 Code : ANSI/TIA-222-H

Height : 180 ft
 Base Width : 64
 Shape : 12 Sides



SITE PARAMETERS

Base Elev (ft): 0.00 Structure Class: II
 Taper : 0.26100 (In/ft) Exposure : B
 Topographic Category : 1 Topographic Feature:
 Topo Method : Method 1

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Overlap Length (in)	Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom			
1	51.000	50.70	64.00	0.438	0.000	65
2	50.167	40.24	53.32	0.375	86.000	65
3	49.917	29.39	42.40	0.312	71.000	65
4	46.583	18.87	31.02	0.219	55.000	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.0	180.0	3	Ericsson Radio 4460 B25+B66
180.0	180.0	3	Ericsson Radio 4480 B71+B85A
180.0	180.0	3	Ericsson Air6449 B41
180.0	180.0	3	Commscope VV-65A-R1
180.0	180.0	3	RFS APXVAALL24 43-U-NA20
180.0	180.0	1	Generic Round Platform with Ha
172.0	172.0	2	Generic 6' Omni
169.0	169.0	2	Generic Round Side Arm
163.0	163.0	3	Commscope CBC78T-DS-43-2X
163.0	163.0	3	Samsung B2/B66A RRH-BR049
163.0	163.0	3	Samsung B5/B13 RRH-BR04C
163.0	163.0	2	RFS DB-B1-6C-12AB-0Z
163.0	163.0	3	Samsung MT6407-77A
163.0	163.0	6	Commscope JAHH-65B-R3B
163.0	163.0	1	Generic Round Platform with Ha
150.0	152.0	6	LGP Allgon LGP21903
150.0	153.0	6	Powerwave Allgon LGP21401
150.0	153.0	2	Raycap DC6-48-60-18-8F (23.5"
150.0	150.0	3	Ericsson Radio 8843 - B2 + B66
150.0	150.0	3	Ericsson RRUS 4449 B5, B12
150.0	153.0	3	Powerwave Allgon 7770.00
150.0	150.0	1	CCI HPA65R-BU6A
150.0	150.0	2	CCI HPA65R-BU8A
150.0	150.0	1	Kathrein Scala 80010965
150.0	150.0	2	Kathrein Scala 80010966
150.0	150.0	1	Generic Round Platform with Ha
138.0	139.0	3	Ericsson RRUS 11 B4
138.0	139.0	3	Ericsson RRUS 11 B12
138.0	139.0	3	Ericsson RRUS 11 B2
138.0	139.0	3	RFS APX16DWV-16DWVS-E-A20
138.0	139.0	3	Commscope LNX-6515DS-A1M (96.6
138.0	138.0	1	Generic Round Platform with Ha
120.0	120.0	1	Commscope RDIDC-9181-PF-48
120.0	120.0	3	Fujitsu TA08025-B604
120.0	120.0	3	Fujitsu TA08025-B605
120.0	120.0	3	JMA Wireless MX08FRO665-21
120.0	120.0	1	Generic Flat Platform with Han

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	180.0	1.99" (50.7mm) Hybrid	No
0.0	172.0	0.405" (10.3mm) Coax	No

JOB INFORMATION

Asset : 302465, Colchester CT 6
 Client : SPRINT NEXTEL
 Code : ANSI/TIA-222-H

Height : 180 ft
 Base Width : 64
 Shape : 12 Sides

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	163.0	1 5/8" Hybriflex	No
0.0	150.0	3" conduit	No
0.0	150.0	2" Carflex Non-Metallic Conduit	No
0.0	150.0	1 1/4" Coax	No
0.0	150.0	0.78" (19.7mm) 8 AWG 6	No
0.0	150.0	0.78" (19.7mm) 8 AWG 6	No
0.0	150.0	0.65" (16.4mm) 8 AWG 2C	No
0.0	150.0	0.39" (10mm) Fiber Trunk	No
0.0	139.0	1" (25.4mm) Hybrid	Yes
0.0	139.0	1 1/4" Hybriflex Cable	Yes
0.0	138.0	1 5/8" (1.63"-41.3mm) Fiber	No
0.0	120.0	1.60" (40.6mm) Hybrid	No

LOAD CASES

1.2D + 1.0W	122 mph wind with no ice
0.9D + 1.0W	122 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	50 mph wind with 1" 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	4550.73	37.72	66.55
0.9D + 1.0W	4487.50	37.70	49.90
1.2D + 1.0Di + 1.0Wi	1051.58	8.46	86.92
1.2D + 1.0Ev + 1.0Eh	249.68	1.67	66.94
0.9D - 1.0Ev + 1.0Eh	244.99	1.67	46.08
1.0D + 1.0W	976.78	8.16	55.50

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
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ASSET: 302465, Colchester CT 6
CUSTOMER: SPRINT NEXTEL

CODE: ANSI/TIA-222-H
ENG NO: 13711921_C3_08

ANALYSIS PARAMETERS

Location:	New London County,CT	Height:	180 ft
Type and Shape:	Taper, 12 Sides	Base Diameter:	64.00 in
Manufacturer:	Valmont	Top Diameter:	18.87 in
K _d (non-service):	0.95	Taper:	0.2610 in/ft
K _e :	0.98	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed w/o Ice:	122 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:	1.00 in
Crest Height:	0 ft	HMSL:	559.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	2.86		
T _L (sec):	6	P:	1	C _s :	0.030
S _s :	0.205	S ₁ :	0.055	C _s Max:	0.030
F _a :	1.600	F _v :	2.400	C _s Min:	0.030
S _{ds} :	0.219	S _{d1} :	0.088		

LOAD CASES

1.2D + 1.0W	122 mph wind with no ice
0.9D + 1.0W	122 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	50 mph wind with 1" 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

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Bottom						Top							
						Weight (lb)	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)
1-12	51.00	0.4375	65		0.00	13,914	64.00	0.000	89.54	46,176.7	36.52	146.29	50.70	51.00	70.81	22,831.9	28.37	115.89	0.2608
2-12	50.17	0.3750	65	Slip	86.00	9,565	53.32	43.833	63.93	22,872.5	35.42	142.18	40.24	94.00	48.13	9,761.2	26.07	107.30	0.2608
3-12	49.92	0.3125	65	Slip	71.00	6,082	42.40	88.083	42.35	9,577.7	33.68	135.69	29.39	138.00	29.25	3,156.3	22.52	94.04	0.2608
4-12	46.58	0.2188	65	Slip	55.00	2,761	31.02	133.417	21.70	2,627.4	35.31	141.77	18.87	180.00	13.14	583.5	20.43	86.24	0.2608

Shaft Weight 32,322

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
180.00	Ericsson Air6449 B41	3	0.75	0.000	104.00	5.682	0.63	196.59	6.760	0.63
180.00	Commscope VV-65A-R1	3	0.75	0.000	23.80	5.928	0.63	103.57	7.367	0.63
180.00	RFS APXVAALL24 43-U-NA20	3	0.75	0.000	122.80	20.243	0.63	387.42	22.763	0.63
180.00	Ericsson Radio 4460 B25+B66	3	0.75	0.000	109.00	2.564	0.67	169.05	3.280	0.67
180.00	Ericsson Radio 4480 B71+B85A	3	0.75	0.000	84.00	2.852	0.67	135.33	3.611	0.67
180.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3600.40	43.807	1.00
172.00	Generic 6' Omni	2	1.00	0.000	25.00	1.760	1.00	56.20	2.611	1.00
169.00	Generic Round Side Arm	2	1.00	0.000	187.50	5.200	1.00	249.24	7.035	1.00
163.00	Commscope JAHH-65B-R3B	6	0.75	0.000	60.60	9.113	0.69	196.75	10.980	0.69
163.00	Samsung MT6407-77A	3	0.75	0.000	81.60	4.709	0.61	150.20	5.731	0.61
163.00	RFS DB-B1-6C-12AB-OZ	2	0.75	0.000	21.40	2.512	0.67	75.12	3.213	0.67
163.00	Commscope CBC78T-DS-43-2X	3	0.75	0.000	20.70	0.552	0.50	35.57	0.894	0.50
163.00	Samsung B2/B66A RRH-BR049	3	0.75	0.000	84.40	1.875	0.50	127.33	2.482	0.50
163.00	Samsung B5/B13 RRH-BR04C	3	0.75	0.000	70.30	1.875	0.50	108.80	2.482	0.50
163.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3590.06	43.651	1.00
150.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3580.22	43.502	1.00
150.00	Kathrein Scala 80010966	2	0.75	0.000	114.60	17.363	0.72	328.75	19.823	0.72
150.00	Kathrein Scala 80010965	1	0.75	0.000	97.60	13.814	1.00	275.40	15.849	1.00
150.00	CCI HPA65R-BU6A	1	0.75	0.000	41.90	7.864	1.00	158.78	9.705	1.00
150.00	Powerwave Allgon 7770.00	3	0.75	3.000	35.00	5.508	0.65	110.81	6.926	0.65
150.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.969	0.50	113.98	2.591	0.50
150.00	Ericsson Radio 8843 - B2 + B66	3	0.75	0.000	71.90	1.650	0.50	112.99	2.215	0.50
150.00	Raycap DC6-48-60-18-8F (23.5"	2	0.75	3.000	20.00	1.260	1.00	55.12	1.699	1.00
150.00	Powerwave Allgon LGP21401	6	0.75	3.000	14.10	1.104	0.50	30.74	1.580	0.50
150.00	LGP Allgon LGP21903	6	0.75	2.000	5.50	0.231	0.50	11.11	0.457	0.50
150.00	CCI HPA65R-BU8A	2	0.75	0.000	54.00	11.230	0.78	208.92	13.380	0.78
138.00	Ericsson RRUS 11 B2	3	0.75	1.000	50.70	2.791	0.50	98.62	3.517	0.50
138.00	Ericsson RRUS 11 B4	3	0.75	1.000	50.70	2.791	0.50	98.62	3.517	0.50
138.00	RFS APX16DWV-16DWVS-E-A20	3	0.75	1.000	40.70	6.586	0.60	118.01	8.019	0.60
138.00	Commscope LNX-6515DS-A1M (96.6	3	0.75	1.000	43.70	11.470	0.70	195.83	13.617	0.70
138.00	Ericsson RRUS 11 B12	3	0.75	1.000	50.70	2.791	0.67	98.62	3.517	0.67
138.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3571.88	43.376	1.00
120.00	Commscope RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	1.00	59.00	2.454	1.00
120.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	115.84	2.562	0.50
120.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	101.92	2.562	0.50
120.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	232.06	14.321	0.64
120.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3658.12	56.072	1.00

Totals Num Loadings: 37 98 17,942.80 30,305.64

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : _

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	180.00	3	1.99" (50.7mm) Hybrid	1.99	1.9	N	0	0	0	0	0	N	SPRINT NEXTEL
0.00	172.00	2	0.405" (10.3mm) Coax	0.41	0.11	N	0	0	0	0	0	N	OTHER
0.00	163.00	2	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	VERIZON WIREL
0.00	150.00	12	1 1/4" Coax	1.55	0.63	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	150.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	150.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	150.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	150.00	2	0.65" (16.4mm) 8 AWG	0.65	0.31	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	150.00	1	2" Carflex Non-Metall	2.36	0.68	N	0	0	0	0	0	N	AT&T MOBILITY

ASSET: 302465, Colchester CT 6
 CUSTOMER: SPRINT NEXTEL

CODE: ANSI/TIA-222-H
 ENG NO: 13711921_C3_08

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	150.00	1	3" conduit	3.5	7.58	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	139.00	1	1 1/4" Hybriflex Cabl	1.54	1	N	1	0	0	270	1	Y	T-MOBILE
0.00	139.00	1	1" (25.4mm) Hybrid	1	0.65	N	1	0	0	270	1	Y	T-MOBILE
0.00	138.00	1	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0	0	0	0	N	T-MOBILE
0.00	120.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	0	N	DISH WIRELESS

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		0.4375	64.000	89.544	46,176.70	36.52	146.29	64.9	1393.9	0.0	0.0
5.00		0.4375	62.696	87.707	43,392.70	35.72	143.31	65.8	1337.1	0.0	1,507.9
10.00		0.4375	61.392	85.870	40,722.90	34.92	140.32	66.6	1281.4	0.0	1,476.6
15.00		0.4375	60.088	84.033	38,165.00	34.12	137.34	67.5	1227.0	0.0	1,445.4
20.00		0.4375	58.784	82.196	35,716.40	33.32	134.36	68.4	1173.8	0.0	1,414.1
25.00		0.4375	57.480	80.359	33,374.90	32.52	131.38	69.2	1121.7	0.0	1,382.8
30.00		0.4375	56.176	78.522	31,138.10	31.73	128.40	70.1	1070.8	0.0	1,351.6
35.00		0.4375	54.872	76.685	29,003.40	30.93	125.42	71	1021.1	0.0	1,320.3
40.00		0.4375	53.568	74.848	26,968.70	30.13	122.44	71.9	972.6	0.0	1,289.1
43.83	Bot - Section 2	0.4375	52.569	73.440	25,474.80	29.52	120.16	72.5	936.2	0.0	967.1
45.00		0.4375	52.264	73.011	25,031.40	29.33	119.46	72.7	925.2	0.0	543.8
50.00		0.4375	50.960	71.174	23,189.20	28.53	116.48	73.6	879.1	0.0	2,294.6
51.00	Top - Section 1	0.3750	51.450	61.673	20,534.70	34.08	137.20	67.5	771.0	0.0	452.0
55.00		0.3750	50.406	60.413	19,302.00	33.34	134.42	68.4	739.8	0.0	830.9
60.00		0.3750	49.103	58.838	17,831.80	32.41	130.94	69.4	701.6	0.0	1,014.5
65.00		0.3750	47.799	57.264	16,438.20	31.47	127.46	70.4	664.4	0.0	987.7
70.00		0.3750	46.495	55.689	15,119.20	30.54	123.99	71.4	628.2	0.0	960.9
75.00		0.3750	45.191	54.115	13,872.70	29.61	120.51	72.4	593.0	0.0	934.1
80.00		0.3750	43.887	52.540	12,696.70	28.68	117.03	73.4	558.9	0.0	907.3
85.00		0.3750	42.583	50.966	11,589.10	27.75	113.55	74.5	525.8	0.0	880.5
88.08	Bot - Section 3	0.3750	41.779	49.995	10,939.20	27.17	111.41	75.1	505.8	0.0	529.6
90.00		0.3750	41.279	49.391	10,547.80	26.82	110.08	75.5	493.6	0.0	598.7
94.00	Top - Section 2	0.3125	40.861	40.802	8,562.50	32.36	130.75	69.4	404.8	0.0	1,226.2
95.00		0.3125	40.600	40.539	8,398.40	32.13	129.92	69.7	399.6	0.0	138.4
100.00		0.3125	39.296	39.227	7,609.00	31.01	125.75	70.9	374.1	0.0	678.6
105.00		0.3125	37.992	37.915	6,870.70	29.90	121.57	72.1	349.4	0.0	656.2
110.00		0.3125	36.688	36.603	6,181.80	28.78	117.40	73.3	325.5	0.0	633.9
115.00		0.3125	35.384	35.291	5,540.60	27.66	113.23	74.5	302.5	0.0	611.6
120.00		0.3125	34.080	33.979	4,945.30	26.54	109.06	75.8	280.3	0.0	589.3
125.00		0.3125	32.776	32.666	4,394.20	25.42	104.88	77	259.0	0.0	566.9
130.00		0.3125	31.472	31.354	3,885.70	24.31	100.71	78.2	238.5	0.0	544.6
133.42	Bot - Section 4	0.3125	30.581	30.458	3,561.80	23.54	97.86	79	225.0	0.0	359.3
135.00		0.3125	30.168	30.042	3,418.00	23.19	96.54	79.4	218.9	0.0	279.1
138.00	Top - Section 3	0.2188	29.823	20.857	2,333.30	33.84	136.30	67.8	151.1	0.0	518.4
140.00		0.2188	29.302	20.490	2,212.10	33.20	133.92	68.5	145.8	0.0	140.7
145.00		0.2188	27.998	19.571	1,927.70	31.61	127.96	70.2	133.0	0.0	340.8
150.00		0.2188	26.694	18.653	1,668.80	30.01	122.00	72	120.8	0.0	325.2
155.00		0.2188	25.390	17.734	1,434.20	28.41	116.04	73.7	109.1	0.0	309.5
160.00		0.2188	24.086	16.815	1,222.60	26.82	110.08	75.5	98.1	0.0	293.9
163.00		0.2188	23.304	16.264	1,106.30	25.86	106.51	76.5	91.7	0.0	168.8
165.00		0.2188	22.782	15.897	1,033.00	25.22	104.12	77.2	87.6	0.0	109.4
169.00		0.2188	21.739	15.162	896.20	23.94	99.35	78.6	79.6	0.0	211.4
170.00		0.2188	21.478	14.978	864.00	23.62	98.16	79	77.7	0.0	51.3
172.00		0.2188	20.956	14.610	802.00	22.98	95.78	79.6	73.9	0.0	100.7
175.00		0.2188	20.174	14.059	714.60	22.03	92.20	80.7	68.4	0.0	146.3
180.00		0.2188	18.870	13.141	583.50	20.43	86.24	81.9	59.7	0.0	231.4

Totals: 32,321.4

Load Case: 1.2D + 1.0W	122 mph wind with no ice	26 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	-66.55	-37.72	0.00	-4,550.7	0.00	4,550.73	5,229.17	1,571.49	9,421.69	6,783.18	0	0	0.684
5.00	-64.45	-37.17	0.00	-4,362.1	0.00	4,362.13	5,190.65	1,539.25	9,039.18	6,594.14	0.07	-0.14	0.675
10.00	-62.38	-36.63	0.00	-4,176.3	0.00	4,176.27	5,149.25	1,507.01	8,664.60	6,403.58	0.29	-0.28	0.665
15.00	-60.36	-36.10	0.00	-3,993.1	0.00	3,993.11	5,104.97	1,474.78	8,297.94	6,211.74	0.66	-0.42	0.655
20.00	-58.37	-35.58	0.00	-3,812.6	0.00	3,812.61	5,057.81	1,442.54	7,939.21	6,018.84	1.18	-0.57	0.646
25.00	-56.42	-35.06	0.00	-3,634.7	0.00	3,634.74	5,007.77	1,410.30	7,588.41	5,825.12	1.85	-0.71	0.636
30.00	-54.51	-34.54	0.00	-3,459.4	0.00	3,459.45	4,954.85	1,378.06	7,245.53	5,630.81	2.68	-0.86	0.626
35.00	-52.64	-34.01	0.00	-3,286.7	0.00	3,286.74	4,899.05	1,345.82	6,910.58	5,436.14	3.67	-1.02	0.616
40.00	-50.82	-33.53	0.00	-3,116.7	0.00	3,116.67	4,840.37	1,313.58	6,583.55	5,241.34	4.82	-1.18	0.606
43.83	-49.46	-33.24	0.00	-2,988.1	0.00	2,988.14	4,793.44	1,288.87	6,338.20	5,092.06	5.82	-1.3	0.598
45.00	-48.71	-32.90	0.00	-2,949.4	0.00	2,949.35	4,778.81	1,281.35	6,264.45	5,046.65	6.14	-1.34	0.595
50.00	-45.71	-32.51	0.00	-2,784.8	0.00	2,784.85	4,714.38	1,249.11	5,953.28	4,852.29	7.63	-1.5	0.584
51.00	-45.09	-32.22	0.00	-2,752.3	0.00	2,752.34	3,748.95	1,082.35	5,214.40	3,905.86	7.95	-1.54	0.718
55.00	-43.85	-31.71	0.00	-2,623.5	0.00	2,623.46	3,716.58	1,060.25	5,003.62	3,792.47	9.29	-1.67	0.704
60.00	-42.35	-31.13	0.00	-2,464.9	0.00	2,464.93	3,673.53	1,032.61	4,746.27	3,650.12	11.14	-1.86	0.688
65.00	-40.88	-30.56	0.00	-2,309.3	0.00	2,309.26	3,627.60	1,004.98	4,495.71	3,507.29	13.19	-2.05	0.671
70.00	-39.45	-29.98	0.00	-2,156.5	0.00	2,156.48	3,578.79	977.35	4,251.95	3,364.21	15.43	-2.24	0.653
75.00	-38.05	-29.40	0.00	-2,006.6	0.00	2,006.60	3,527.09	949.72	4,014.98	3,221.11	17.88	-2.44	0.635
80.00	-36.68	-28.82	0.00	-1,859.6	0.00	1,859.62	3,472.52	922.08	3,784.80	3,078.24	20.54	-2.63	0.616
85.00	-35.37	-28.34	0.00	-1,715.5	0.00	1,715.54	3,415.07	894.45	3,561.42	2,935.81	23.41	-2.83	0.596
88.08	-34.57	-28.04	0.00	-1,628.2	0.00	1,628.17	3,378.20	877.41	3,427.05	2,848.30	25.28	-2.96	0.583
90.00	-33.74	-27.69	0.00	-1,574.4	0.00	1,574.42	3,354.74	866.82	3,344.83	2,794.06	26.48	-3.04	0.575
94.00	-32.07	-27.34	0.00	-1,463.6	0.00	1,463.65	2,549.41	716.07	2,738.82	2,107.92	29.1	-3.2	0.708
95.00	-31.82	-27.03	0.00	-1,436.3	0.00	1,436.31	2,541.91	711.46	2,703.72	2,088.10	29.78	-3.25	0.702
100.00	-30.73	-26.48	0.00	-1,301.2	0.00	1,301.15	2,502.69	688.43	2,531.57	1,988.82	33.3	-3.48	0.668
105.00	-29.68	-25.93	0.00	-1,168.8	0.00	1,168.77	2,460.58	665.41	2,365.09	1,889.44	37.07	-3.71	0.632
110.00	-28.65	-25.38	0.00	-1,039.1	0.00	1,039.14	2,415.60	642.38	2,204.27	1,790.18	41.08	-3.94	0.594
115.00	-27.66	-24.84	0.00	-912.2	0.00	912.24	2,367.74	619.35	2,049.12	1,691.27	45.32	-4.16	0.553
120.00	-23.16	-21.33	0.00	-788.0	0.00	788.03	2,317.00	596.32	1,899.62	1,592.95	49.79	-4.38	0.506
125.00	-22.26	-20.80	0.00	-681.4	0.00	681.37	2,263.38	573.30	1,755.79	1,495.45	54.49	-4.59	0.467
130.00	-21.40	-20.34	0.00	-577.4	0.00	577.39	2,206.88	550.27	1,617.62	1,398.99	59.41	-4.8	0.424
133.42	-20.83	-20.06	0.00	-507.9	0.00	507.91	2,166.61	534.53	1,526.45	1,333.80	62.89	-4.93	0.392
135.00	-20.42	-19.82	0.00	-476.2	0.00	476.15	2,147.49	527.24	1,485.11	1,303.81	64.53	-4.99	0.376
138.00	-16.09	-16.46	0.00	-415.1	0.00	415.10	1,272.79	366.05	1,022.18	768.59	67.7	-5.11	0.555
140.00	-15.84	-16.12	0.00	-382.2	0.00	382.19	1,263.21	359.60	986.49	749.27	69.86	-5.18	0.525
145.00	-15.25	-15.64	0.00	-301.6	0.00	301.57	1,237.26	343.48	900.03	700.72	75.39	-5.4	0.445
150.00	-10.71	-10.74	0.00	-221.7	0.00	221.72	1,208.42	327.35	817.54	652.01	81.15	-5.59	0.350
155.00	-10.31	-10.27	0.00	-168.0	0.00	168.03	1,176.70	311.23	739.02	603.37	87.08	-5.76	0.288
160.00	-9.92	-9.90	0.00	-116.7	0.00	116.67	1,142.10	295.11	664.45	555.03	93.18	-5.9	0.220
163.00	-5.63	-6.16	0.00	-87.0	0.00	86.97	1,119.95	285.43	621.62	526.27	96.91	-5.97	0.171
165.00	-5.51	-5.90	0.00	-74.7	0.00	74.66	1,104.62	278.98	593.85	507.22	99.41	-6.01	0.153
169.00	-4.85	-5.16	0.00	-51.0	0.00	51.05	1,072.56	266.09	540.23	469.51	104.47	-6.08	0.114
170.00	-4.79	-5.04	0.00	-45.9	0.00	45.89	1,064.26	262.86	527.22	460.18	105.74	-6.1	0.105
172.00	-4.63	-4.67	0.00	-35.8	0.00	35.81	1,047.31	256.41	501.68	441.62	108.3	-6.12	0.086
175.00	-4.47	-4.36	0.00	-21.8	0.00	21.80	1,021.02	246.74	464.55	414.13	112.15	-6.15	0.057
180.00	0.00	-3.85	0.00	0.0	0.00	0.00	968.59	230.62	405.84	366.91	118.6	-6.17	0.000

Load Case: 0.9D + 1.0W	122 mph wind with no ice	25 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	-49.90	-37.70	0.00	-4,487.5	0.00	4,487.50	5,229.17	1,571.49	9,421.69	6,783.18	0	0	0.672
5.00	-48.30	-37.11	0.00	-4,299.0	0.00	4,299.01	5,190.65	1,539.25	9,039.18	6,594.14	0.07	-0.14	0.662
10.00	-46.74	-36.53	0.00	-4,113.5	0.00	4,113.46	5,149.25	1,507.01	8,664.60	6,403.58	0.29	-0.27	0.652
15.00	-45.20	-35.96	0.00	-3,930.8	0.00	3,930.80	5,104.97	1,474.78	8,297.94	6,211.74	0.65	-0.41	0.642
20.00	-43.69	-35.40	0.00	-3,751.0	0.00	3,750.99	5,057.81	1,442.54	7,939.21	6,018.84	1.16	-0.56	0.632
25.00	-42.21	-34.85	0.00	-3,574.0	0.00	3,573.98	5,007.77	1,410.30	7,588.41	5,825.12	1.82	-0.7	0.623
30.00	-40.75	-34.30	0.00	-3,399.7	0.00	3,399.72	4,954.85	1,378.06	7,245.53	5,630.81	2.64	-0.85	0.613
35.00	-39.33	-33.75	0.00	-3,228.2	0.00	3,228.20	4,899.05	1,345.82	6,910.58	5,436.14	3.61	-1	0.602
40.00	-37.95	-33.24	0.00	-3,059.5	0.00	3,059.47	4,840.37	1,313.58	6,583.55	5,241.34	4.75	-1.16	0.592
43.83	-36.92	-32.94	0.00	-2,932.1	0.00	2,932.06	4,793.44	1,288.87	6,338.20	5,092.06	5.73	-1.28	0.584
45.00	-36.35	-32.58	0.00	-2,893.6	0.00	2,893.64	4,778.81	1,281.35	6,264.45	5,046.65	6.04	-1.32	0.582
50.00	-34.09	-32.18	0.00	-2,730.7	0.00	2,730.74	4,714.38	1,249.11	5,953.28	4,852.29	7.51	-1.48	0.571
51.00	-33.61	-31.88	0.00	-2,698.6	0.00	2,698.56	3,748.95	1,082.35	5,214.40	3,905.86	7.82	-1.51	0.701
55.00	-32.67	-31.34	0.00	-2,571.0	0.00	2,571.04	3,716.58	1,060.25	5,003.62	3,792.47	9.14	-1.64	0.688
60.00	-31.53	-30.74	0.00	-2,414.3	0.00	2,414.32	3,673.53	1,032.61	4,746.27	3,650.12	10.96	-1.82	0.671
65.00	-30.41	-30.14	0.00	-2,260.6	0.00	2,260.60	3,627.60	1,004.98	4,495.71	3,507.29	12.97	-2.01	0.654
70.00	-29.32	-29.54	0.00	-2,109.9	0.00	2,109.89	3,578.79	977.35	4,251.95	3,364.21	15.18	-2.2	0.636
75.00	-28.25	-28.94	0.00	-1,962.2	0.00	1,962.20	3,527.09	949.72	4,014.98	3,221.11	17.58	-2.39	0.618
80.00	-27.21	-28.34	0.00	-1,817.5	0.00	1,817.51	3,472.52	922.08	3,784.80	3,078.24	20.19	-2.59	0.599
85.00	-26.22	-27.85	0.00	-1,675.8	0.00	1,675.83	3,415.07	894.45	3,561.42	2,935.81	23	-2.78	0.579
88.08	-25.61	-27.54	0.00	-1,590.0	0.00	1,589.97	3,378.20	877.41	3,427.05	2,848.30	24.84	-2.9	0.567
90.00	-24.98	-27.19	0.00	-1,537.2	0.00	1,537.18	3,354.74	866.82	3,344.83	2,794.06	26.02	-2.98	0.559
94.00	-23.72	-26.84	0.00	-1,428.4	0.00	1,428.43	2,549.41	716.07	2,738.82	2,107.92	28.59	-3.14	0.688
95.00	-23.53	-26.51	0.00	-1,401.6	0.00	1,401.59	2,541.91	711.46	2,703.72	2,088.10	29.25	-3.18	0.682
100.00	-22.70	-25.94	0.00	-1,269.0	0.00	1,269.02	2,502.69	688.43	2,531.57	1,988.82	32.71	-3.41	0.649
105.00	-21.89	-25.37	0.00	-1,139.3	0.00	1,139.32	2,460.58	665.41	2,365.09	1,889.44	36.4	-3.63	0.613
110.00	-21.11	-24.81	0.00	-1,012.5	0.00	1,012.46	2,415.60	642.38	2,204.27	1,790.18	40.32	-3.86	0.576
115.00	-20.36	-24.26	0.00	-888.4	0.00	888.40	2,367.74	619.35	2,049.12	1,691.27	44.48	-4.08	0.535
120.00	-17.03	-20.82	0.00	-767.1	0.00	767.09	2,317.00	596.32	1,899.62	1,592.95	48.86	-4.29	0.490
125.00	-16.35	-20.28	0.00	-663.0	0.00	663.00	2,263.38	573.30	1,755.79	1,495.45	53.46	-4.49	0.452
130.00	-15.69	-19.82	0.00	-561.6	0.00	561.62	2,206.88	550.27	1,617.62	1,398.99	58.27	-4.69	0.410
133.42	-15.26	-19.55	0.00	-493.9	0.00	493.90	2,166.61	534.53	1,526.45	1,333.80	61.68	-4.82	0.379
135.00	-14.96	-19.30	0.00	-463.0	0.00	462.96	2,147.49	527.24	1,485.11	1,303.81	63.28	-4.89	0.363
138.00	-11.77	-16.04	0.00	-403.5	0.00	403.46	1,272.79	366.05	1,022.18	768.59	66.39	-4.99	0.536
140.00	-11.58	-15.70	0.00	-371.4	0.00	371.38	1,263.21	359.60	986.49	749.27	68.49	-5.06	0.507
145.00	-11.13	-15.21	0.00	-292.9	0.00	292.87	1,237.26	343.48	900.03	700.72	73.91	-5.28	0.429
150.00	-7.82	-10.43	0.00	-215.1	0.00	215.14	1,208.42	327.35	817.54	652.01	79.53	-5.47	0.337
155.00	-7.52	-9.97	0.00	-163.0	0.00	162.99	1,176.70	311.23	739.02	603.37	85.33	-5.63	0.278
160.00	-7.24	-9.60	0.00	-113.2	0.00	113.15	1,142.10	295.11	664.45	555.03	91.29	-5.76	0.211
163.00	-4.10	-5.98	0.00	-84.4	0.00	84.35	1,119.95	285.43	621.62	526.27	94.93	-5.83	0.164
165.00	-4.01	-5.73	0.00	-72.4	0.00	72.39	1,104.62	278.98	593.85	507.22	97.38	-5.87	0.147
169.00	-3.53	-5.01	0.00	-49.5	0.00	49.47	1,072.56	266.09	540.23	469.51	102.32	-5.94	0.109
170.00	-3.49	-4.89	0.00	-44.5	0.00	44.46	1,064.26	262.86	527.22	460.18	103.57	-5.95	0.100
172.00	-3.37	-4.53	0.00	-34.7	0.00	34.68	1,047.31	256.41	501.68	441.62	106.06	-5.98	0.082
175.00	-3.26	-4.22	0.00	-21.1	0.00	21.10	1,021.02	246.74	464.55	414.13	109.82	-6.01	0.054
180.00	0.00	-3.85	0.00	0.0	0.00	0.00	968.59	230.62	405.84	366.91	116.12	-6.03	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph wind with 1" radial ice		25 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	-86.92	-8.46	0.00	-1,051.6	0.00	1,051.58	5,229.17	1,571.49	9,421.69	6,783.18	0	0	0.172
5.00	-84.58	-8.35	0.00	-1,009.3	0.00	1,009.31	5,190.65	1,539.25	9,039.18	6,594.14	0.02	-0.03	0.169
10.00	-82.24	-8.24	0.00	-967.6	0.00	967.56	5,149.25	1,507.01	8,664.60	6,403.58	0.07	-0.06	0.167
15.00	-79.92	-8.14	0.00	-926.3	0.00	926.34	5,104.97	1,474.78	8,297.94	6,211.74	0.15	-0.1	0.165
20.00	-77.65	-8.04	0.00	-885.6	0.00	885.64	5,057.81	1,442.54	7,939.21	6,018.84	0.27	-0.13	0.163
25.00	-75.40	-7.94	0.00	-845.4	0.00	845.45	5,007.77	1,410.30	7,588.41	5,825.12	0.43	-0.17	0.160
30.00	-73.20	-7.84	0.00	-805.8	0.00	805.76	4,954.85	1,378.06	7,245.53	5,630.81	0.62	-0.2	0.158
35.00	-71.03	-7.73	0.00	-766.6	0.00	766.58	4,899.05	1,345.82	6,910.58	5,436.14	0.85	-0.24	0.156
40.00	-68.90	-7.64	0.00	-727.9	0.00	727.92	4,840.37	1,313.58	6,583.55	5,241.34	1.12	-0.27	0.153
43.83	-67.30	-7.58	0.00	-698.6	0.00	698.65	4,793.44	1,288.87	6,338.20	5,092.06	1.35	-0.3	0.151
45.00	-66.51	-7.51	0.00	-689.8	0.00	689.81	4,778.81	1,281.35	6,264.45	5,046.65	1.42	-0.31	0.151
50.00	-63.19	-7.43	0.00	-652.3	0.00	652.27	4,714.38	1,249.11	5,953.28	4,852.29	1.77	-0.35	0.148
51.00	-62.53	-7.37	0.00	-644.8	0.00	644.84	3,748.95	1,082.35	5,214.40	3,905.86	1.84	-0.36	0.182
55.00	-61.07	-7.27	0.00	-615.4	0.00	615.36	3,716.58	1,060.25	5,003.62	3,792.47	2.16	-0.39	0.179
60.00	-59.29	-7.15	0.00	-579.0	0.00	579.01	3,673.53	1,032.61	4,746.27	3,650.12	2.59	-0.43	0.175
65.00	-57.55	-7.04	0.00	-543.2	0.00	543.25	3,627.60	1,004.98	4,495.71	3,507.29	3.07	-0.48	0.171
70.00	-55.84	-6.92	0.00	-508.1	0.00	508.06	3,578.79	977.35	4,251.95	3,364.21	3.59	-0.52	0.167
75.00	-54.18	-6.80	0.00	-473.5	0.00	473.46	3,527.09	949.72	4,014.98	3,221.11	4.16	-0.57	0.162
80.00	-52.55	-6.68	0.00	-439.4	0.00	439.45	3,472.52	922.08	3,784.80	3,078.24	4.78	-0.62	0.158
85.00	-50.96	-6.58	0.00	-406.0	0.00	406.03	3,415.07	894.45	3,561.42	2,935.81	5.45	-0.66	0.153
88.08	-50.00	-6.52	0.00	-385.7	0.00	385.73	3,378.20	877.41	3,427.05	2,848.30	5.89	-0.69	0.150
90.00	-49.08	-6.45	0.00	-373.2	0.00	373.23	3,354.74	866.82	3,344.83	2,794.06	6.17	-0.71	0.148
94.00	-47.19	-6.38	0.00	-347.4	0.00	347.42	2,549.41	716.07	2,738.82	2,107.92	6.79	-0.75	0.183
95.00	-46.92	-6.32	0.00	-341.0	0.00	341.04	2,541.91	711.46	2,703.72	2,088.10	6.95	-0.76	0.182
100.00	-45.59	-6.20	0.00	-309.5	0.00	309.46	2,502.69	688.43	2,531.57	1,988.82	7.77	-0.82	0.174
105.00	-44.30	-6.09	0.00	-278.4	0.00	278.45	2,460.58	665.41	2,365.09	1,889.44	8.66	-0.87	0.165
110.00	-43.04	-5.98	0.00	-248.0	0.00	248.00	2,415.60	642.38	2,204.27	1,790.18	9.6	-0.93	0.156
115.00	-41.82	-5.86	0.00	-218.1	0.00	218.12	2,367.74	619.35	2,049.12	1,691.27	10.6	-0.98	0.147
120.00	-35.38	-5.08	0.00	-188.8	0.00	188.80	2,317.00	596.32	1,899.62	1,592.95	11.65	-1.03	0.134
125.00	-34.24	-4.96	0.00	-163.4	0.00	163.40	2,263.38	573.30	1,755.79	1,495.45	12.76	-1.08	0.124
130.00	-33.14	-4.86	0.00	-138.6	0.00	138.58	2,206.88	550.27	1,617.62	1,398.99	13.92	-1.13	0.114
133.42	-32.41	-4.80	0.00	-122.0	0.00	121.97	2,166.61	534.53	1,526.45	1,333.80	14.74	-1.16	0.106
135.00	-31.93	-4.75	0.00	-114.4	0.00	114.37	2,147.49	527.24	1,485.11	1,303.81	15.13	-1.18	0.103
138.00	-25.50	-3.93	0.00	-99.8	0.00	99.80	1,272.79	366.05	1,022.18	768.59	15.88	-1.21	0.150
140.00	-25.16	-3.86	0.00	-91.9	0.00	91.93	1,263.21	359.60	986.49	749.27	16.39	-1.22	0.143
145.00	-24.36	-3.75	0.00	-72.6	0.00	72.63	1,237.26	343.48	900.03	700.72	17.7	-1.28	0.123
150.00	-17.02	-2.60	0.00	-53.5	0.00	53.50	1,208.42	327.35	817.54	652.01	19.06	-1.32	0.096
155.00	-16.39	-2.49	0.00	-40.5	0.00	40.51	1,176.70	311.23	739.02	603.37	20.47	-1.36	0.081
160.00	-15.80	-2.40	0.00	-28.1	0.00	28.06	1,142.10	295.11	664.45	555.03	21.91	-1.4	0.064
163.00	-9.09	-1.48	0.00	-20.9	0.00	20.86	1,119.95	285.43	621.62	526.27	22.8	-1.41	0.048
165.00	-8.87	-1.42	0.00	-17.9	0.00	17.90	1,104.62	278.98	593.85	507.22	23.39	-1.42	0.043
169.00	-7.91	-1.24	0.00	-12.2	0.00	12.24	1,072.56	266.09	540.23	469.51	24.59	-1.44	0.033
170.00	-7.81	-1.21	0.00	-11.0	0.00	10.99	1,064.26	262.86	527.22	460.18	24.89	-1.44	0.031
172.00	-7.50	-1.12	0.00	-8.6	0.00	8.57	1,047.31	256.41	501.68	441.62	25.5	-1.45	0.027
175.00	-7.20	-1.04	0.00	-5.2	0.00	5.21	1,021.02	246.74	464.55	414.13	26.41	-1.46	0.020
180.00	0.00	-0.86	0.00	0.0	0.00	0.00	968.59	230.62	405.84	366.91	27.94	-1.46	0.000

Load Case: 1.0D + 1.0W	60 mph Wind with No Ice	24 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	-55.50	-8.16	0.00	-976.8	0.00	976.78	5,229.17	1,571.49	9,421.69	6,783.18	0	0	0.155
5.00	-53.81	-8.04	0.00	-936.0	0.00	935.99	5,190.65	1,539.25	9,039.18	6,594.14	0.02	-0.03	0.152
10.00	-52.16	-7.91	0.00	-895.8	0.00	895.81	5,149.25	1,507.01	8,664.60	6,403.58	0.06	-0.06	0.150
15.00	-50.54	-7.79	0.00	-856.2	0.00	856.25	5,104.97	1,474.78	8,297.94	6,211.74	0.14	-0.09	0.148
20.00	-48.95	-7.67	0.00	-817.3	0.00	817.29	5,057.81	1,442.54	7,939.21	6,018.84	0.25	-0.12	0.145
25.00	-47.39	-7.56	0.00	-778.9	0.00	778.92	5,007.77	1,410.30	7,588.41	5,825.12	0.4	-0.15	0.143
30.00	-45.87	-7.44	0.00	-741.1	0.00	741.14	4,954.85	1,378.06	7,245.53	5,630.81	0.57	-0.19	0.141
35.00	-44.37	-7.32	0.00	-703.9	0.00	703.93	4,899.05	1,345.82	6,910.58	5,436.14	0.79	-0.22	0.139
40.00	-42.91	-7.22	0.00	-667.3	0.00	667.32	4,840.37	1,313.58	6,583.55	5,241.34	1.03	-0.25	0.136
43.83	-41.81	-7.15	0.00	-639.7	0.00	639.66	4,793.44	1,288.87	6,338.20	5,092.06	1.25	-0.28	0.134
45.00	-41.22	-7.08	0.00	-631.3	0.00	631.31	4,778.81	1,281.35	6,264.45	5,046.65	1.32	-0.29	0.134
50.00	-38.76	-6.99	0.00	-595.9	0.00	595.94	4,714.38	1,249.11	5,953.28	4,852.29	1.64	-0.32	0.131
51.00	-38.27	-6.93	0.00	-589.0	0.00	588.95	3,748.95	1,082.35	5,214.40	3,905.86	1.7	-0.33	0.161
55.00	-37.30	-6.81	0.00	-561.2	0.00	561.25	3,716.58	1,060.25	5,003.62	3,792.47	1.99	-0.36	0.158
60.00	-36.11	-6.68	0.00	-527.2	0.00	527.19	3,673.53	1,032.61	4,746.27	3,650.12	2.39	-0.4	0.154
65.00	-34.95	-6.56	0.00	-493.8	0.00	493.77	3,627.60	1,004.98	4,495.71	3,507.29	2.83	-0.44	0.150
70.00	-33.81	-6.43	0.00	-461.0	0.00	460.99	3,578.79	977.35	4,251.95	3,364.21	3.31	-0.48	0.147
75.00	-32.70	-6.30	0.00	-428.8	0.00	428.84	3,527.09	949.72	4,014.98	3,221.11	3.83	-0.52	0.142
80.00	-31.62	-6.17	0.00	-397.3	0.00	397.34	3,472.52	922.08	3,784.80	3,078.24	4.4	-0.56	0.138
85.00	-30.57	-6.07	0.00	-366.5	0.00	366.48	3,415.07	894.45	3,561.42	2,935.81	5.02	-0.61	0.134
88.08	-29.93	-6.00	0.00	-347.8	0.00	347.77	3,378.20	877.41	3,427.05	2,848.30	5.42	-0.63	0.131
90.00	-29.26	-5.93	0.00	-336.3	0.00	336.26	3,354.74	866.82	3,344.83	2,794.06	5.67	-0.65	0.129
94.00	-27.90	-5.85	0.00	-312.6	0.00	312.55	2,549.41	716.07	2,738.82	2,107.92	6.24	-0.69	0.159
95.00	-27.72	-5.78	0.00	-306.7	0.00	306.70	2,541.91	711.46	2,703.72	2,088.10	6.38	-0.69	0.158
100.00	-26.87	-5.66	0.00	-277.8	0.00	277.78	2,502.69	688.43	2,531.57	1,988.82	7.13	-0.74	0.150
105.00	-26.04	-5.54	0.00	-249.5	0.00	249.47	2,460.58	665.41	2,365.09	1,889.44	7.94	-0.79	0.143
110.00	-25.23	-5.42	0.00	-221.8	0.00	221.76	2,415.60	642.38	2,204.27	1,790.18	8.8	-0.84	0.134
115.00	-24.45	-5.31	0.00	-194.6	0.00	194.65	2,367.74	619.35	2,049.12	1,691.27	9.71	-0.89	0.125
120.00	-20.56	-4.55	0.00	-168.1	0.00	168.13	2,317.00	596.32	1,899.62	1,592.95	10.66	-0.94	0.114
125.00	-19.84	-4.44	0.00	-145.4	0.00	145.35	2,263.38	573.30	1,755.79	1,495.45	11.67	-0.98	0.106
130.00	-19.13	-4.34	0.00	-123.2	0.00	123.16	2,206.88	550.27	1,617.62	1,398.99	12.72	-1.03	0.097
133.42	-18.66	-4.28	0.00	-108.3	0.00	108.33	2,166.61	534.53	1,526.45	1,333.80	13.47	-1.05	0.090
135.00	-18.33	-4.23	0.00	-101.6	0.00	101.56	2,147.49	527.24	1,485.11	1,303.81	13.82	-1.07	0.086
138.00	-14.52	-3.51	0.00	-88.5	0.00	88.53	1,272.79	366.05	1,022.18	768.59	14.5	-1.09	0.127
140.00	-14.32	-3.44	0.00	-81.5	0.00	81.50	1,263.21	359.60	986.49	749.27	14.96	-1.11	0.120
145.00	-13.84	-3.34	0.00	-64.3	0.00	64.29	1,237.26	343.48	900.03	700.72	16.14	-1.15	0.103
150.00	-9.72	-2.29	0.00	-47.2	0.00	47.25	1,208.42	327.35	817.54	652.01	17.38	-1.19	0.081
155.00	-9.37	-2.19	0.00	-35.8	0.00	35.80	1,176.70	311.23	739.02	603.37	18.65	-1.23	0.067
160.00	-9.03	-2.11	0.00	-24.9	0.00	24.86	1,142.10	295.11	664.45	555.03	19.95	-1.26	0.053
163.00	-5.18	-1.31	0.00	-18.5	0.00	18.53	1,119.95	285.43	621.62	526.27	20.75	-1.28	0.040
165.00	-5.06	-1.26	0.00	-15.9	0.00	15.91	1,104.62	278.98	593.85	507.22	21.29	-1.28	0.036
169.00	-4.45	-1.10	0.00	-10.9	0.00	10.87	1,072.56	266.09	540.23	469.51	22.37	-1.3	0.027
170.00	-4.39	-1.07	0.00	-9.8	0.00	9.77	1,064.26	262.86	527.22	460.18	22.64	-1.3	0.025
172.00	-4.23	-1.00	0.00	-7.6	0.00	7.63	1,047.31	256.41	501.68	441.62	23.19	-1.31	0.021
175.00	-4.07	-0.93	0.00	-4.6	0.00	4.64	1,021.02	246.74	464.55	414.13	24.01	-1.31	0.015
180.00	0.00	-0.83	0.00	0.0	0.00	0.00	968.59	230.62	405.84	366.91	25.39	-1.32	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS
(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.205
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.055
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	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}):	0.219
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.088
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_s :	0.030
Lower Limit C_s :	0.030
Period based on Rayleigh Method (sec):	2.860
Redundancy Factor (ρ):	1.000
Seismic Force Distribution Exponent (k):	2.000
Total Unfactored Dead Load:	55.500 k
Seismic Base Shear (E):	1.660 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)
45	177.5	260	8,188	0.012	20	323
44	173.5	163	4,920	0.007	12	203
43	171	113	3,290	0.005	8	140
42	169.5	57	1,643	0.002	4	71
41	167	235	6,555	0.010	16	292
40	164	121	3,262	0.005	8	151
39	161.5	194	5,070	0.008	13	242
38	157.5	337	8,348	0.012	21	419
37	152.5	352	8,189	0.012	20	438
36	147.5	468	10,188	0.015	25	582
35	142.5	484	9,826	0.015	25	602
34	139	200	3,856	0.006	10	248
33	136.5	614	11,441	0.017	29	764
32	134.2084	330	5,936	0.009	15	410
31	131.7084	468	8,123	0.012	20	582
30	127.5	704	11,445	0.017	29	876
29	122.5	726	10,900	0.016	27	903
28	117.5	760	10,498	0.016	26	946
27	112.5	783	9,906	0.015	25	973
26	107.5	805	9,303	0.014	23	1,001
25	102.5	827	8,692	0.013	22	1,029
24	97.5	850	8,077	0.012	20	1,057
23	94.5	173	1,541	0.002	4	215
22	92	1,363	11,537	0.017	29	1,695
21	89.0417	664	5,267	0.008	13	826
20	86.5417	635	4,757	0.007	12	790
19	82.5	1,052	7,158	0.011	18	1,308
18	77.5	1,078	6,477	0.010	16	1,341
17	72.5	1,105	5,809	0.009	15	1,375
16	67.5	1,132	5,158	0.008	13	1,408
15	62.5	1,159	4,526	0.007	11	1,441
14	57.5	1,186	3,920	0.006	10	1,475
13	53	968	2,718	0.004	7	1,204
12	50.5	486	1,240	0.002	3	605

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
11	47.5	2,466	5,563	0.008	14	3,067
10	44.4167	584	1,152	0.002	3	726
9	41.9167	1,098	1,930	0.003	5	1,366
8	37.5	1,460	2,053	0.003	5	1,816
7	32.5	1,491	1,575	0.002	4	1,855
6	27.5	1,523	1,152	0.002	3	1,894
5	22.5	1,554	787	0.001	2	1,933
4	17.5	1,585	485	0.001	1	1,972
3	12.5	1,616	253	0.000	1	2,010
2	7.5	1,648	93	0.000	0	2,049
1	2.5	1,679	10	0.000	0	2,088
Ericsson Radio 4460 B25+B66	180	327	10,595	0.016	27	407
Ericsson Radio 4480 B71+B85A	180	252	8,165	0.012	20	313
Ericsson Air6449 B41	180	312	10,109	0.015	25	388
Commscope VV-65A-R1	180	71	2,313	0.004	6	89
RFS APXVAALL24 43-U-NA20	180	368	11,936	0.018	30	458
Generic Round Platform with Handrails	180	2,500	81,000	0.122	203	3,109
Generic Round Platform with Handrails	163	2,500	66,422	0.100	166	3,109
Generic Round Platform with Handrails	150	2,500	56,250	0.084	141	3,109
Generic Round Platform with Handrails	138	2,500	47,610	0.072	119	3,109
Generic 6' Omni	172	50	1,479	0.002	4	62
Generic Round Side Arm	169	375	10,710	0.016	27	466
Commscope CBC78T-DS-43-2X	163	62	1,650	0.002	4	77
Samsung B2/B66A RRH-BR049	163	253	6,727	0.010	17	315
Samsung B5/B13 RRH-BR04C	163	211	5,603	0.008	14	262
RFS DB-B1-6C-12AB-0Z	163	43	1,137	0.002	3	53
Samsung MT6407-77A	163	245	6,504	0.010	16	304
Commscope JAHH-65B-R3B	163	364	9,660	0.014	24	452
LGP Allgon LGP21903	150	33	742	0.001	2	41
Powerwave Allgon LGP21401	150	85	1,904	0.003	5	105
Raycap DC6-48-60-18-8F (23.5" Height)	150	40	900	0.001	2	50
Ericsson Radio 8843 - B2 + B66A	150	216	4,853	0.007	12	268
Ericsson RRUS 4449 B5, B12	150	213	4,792	0.007	12	265
Powerwave Allgon 7770.00	150	105	2,362	0.004	6	131
CCI HPA65R-BU6A	150	42	943	0.001	2	52
CCI HPA65R-BU8A	150	108	2,430	0.004	6	134
Kathrein Scala 80010965	150	98	2,196	0.003	5	121
Kathrein Scala 80010966	150	229	5,157	0.008	13	285
Ericsson RRUS 11 B12	138	152	2,897	0.004	7	189
Ericsson RRUS 11 B2	138	152	2,897	0.004	7	189
Ericsson RRUS 11 B4	138	152	2,897	0.004	7	189
RFS APX16DWV-16DWVS-E-A20	138	122	2,325	0.004	6	152
Commscope LNX-6515DS-A1M (96.6" Height)	138	131	2,497	0.004	6	163
Commscope RDIDC-9181-PF-48	120	22	315	0.000	1	27
Fujitsu TA08025-B605	120	225	3,240	0.005	8	280
Fujitsu TA08025-B604	120	192	2,760	0.004	7	238
JMA Wireless MX08FRO665-21	120	194	2,786	0.004	7	241
Generic Flat Platform with Handrails	120	2,500	36,000	0.054	90	3,109
		55,499	665,584	1.000	1,665	69,026

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)
45	177.5	260	8,188	0.012	20	223
44	173.5	163	4,920	0.007	12	140
43	171	113	3,290	0.005	8	96
42	169.5	57	1,643	0.002	4	49
41	167	235	6,555	0.010	16	201
40	164	121	3,262	0.005	8	104
39	161.5	194	5,070	0.008	13	166
38	157.5	337	8,348	0.012	21	288
37	152.5	352	8,189	0.012	20	302

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
36	147.5	468	10,188	0.015	25	401
35	142.5	484	9,826	0.015	25	414
34	139	200	3,856	0.006	10	171
33	136.5	614	11,441	0.017	29	526
32	134.2084	330	5,936	0.009	15	282
31	131.7084	468	8,123	0.012	20	401
30	127.5	704	11,445	0.017	29	603
29	122.5	726	10,900	0.016	27	622
28	117.5	760	10,498	0.016	26	651
27	112.5	783	9,906	0.015	25	670
26	107.5	805	9,303	0.014	23	689
25	102.5	827	8,692	0.013	22	708
24	97.5	850	8,077	0.012	20	728
23	94.5	173	1,541	0.002	4	148
22	92	1,363	11,537	0.017	29	1,167
21	89.0417	664	5,267	0.008	13	569
20	86.5417	635	4,757	0.007	12	544
19	82.5	1,052	7,158	0.011	18	900
18	77.5	1,078	6,477	0.010	16	923
17	72.5	1,105	5,809	0.009	15	946
16	67.5	1,132	5,158	0.008	13	969
15	62.5	1,159	4,526	0.007	11	992
14	57.5	1,186	3,920	0.006	10	1,015
13	53	968	2,718	0.004	7	829
12	50.5	486	1,240	0.002	3	416
11	47.5	2,466	5,563	0.008	14	2,111
10	44.4167	584	1,152	0.002	3	500
9	41.9167	1,098	1,930	0.003	5	940
8	37.5	1,460	2,053	0.003	5	1,250
7	32.5	1,491	1,575	0.002	4	1,277
6	27.5	1,523	1,152	0.002	3	1,304
5	22.5	1,554	787	0.001	2	1,331
4	17.5	1,585	485	0.001	1	1,357
3	12.5	1,616	253	0.000	1	1,384
2	7.5	1,648	93	0.000	0	1,411
1	2.5	1,679	10	0.000	0	1,438
Ericsson Radio 4460 B25+B66	180	327	10,595	0.016	27	280
Ericsson Radio 4480 B71+B85A	180	252	8,165	0.012	20	216
Ericsson Air6449 B41	180	312	10,109	0.015	25	267
Commscope VV-65A-R1	180	71	2,313	0.004	6	61
RFS APXVAALL24 43-U-NA20	180	368	11,936	0.018	30	315
Generic Round Platform with Handrails	180	2,500	81,000	0.122	203	2,141
Generic Round Platform with Handrails	163	2,500	66,422	0.100	166	2,141
Generic Round Platform with Handrails	150	2,500	56,250	0.084	141	2,141
Generic Round Platform with Handrails	138	2,500	47,610	0.072	119	2,141
Generic 6' Omni	172	50	1,479	0.002	4	43
Generic Round Side Arm	169	375	10,710	0.016	27	321
Commscope CBC78T-DS-43-2X	163	62	1,650	0.002	4	53
Samsung B2/B66A RRH-BR049	163	253	6,727	0.010	17	217
Samsung B5/B13 RRH-BR04C	163	211	5,603	0.008	14	181
RFS DB-B1-6C-12AB-0Z	163	43	1,137	0.002	3	37
Samsung MT6407-77A	163	245	6,504	0.010	16	210
Commscope JAHH-65B-R3B	163	364	9,660	0.014	24	311
LGP Allgon LGP21903	150	33	742	0.001	2	28
Powerwave Allgon LGP21401	150	85	1,904	0.003	5	72
Raycap DC6-48-60-18-8F (23.5" Height)	150	40	900	0.001	2	34
Ericsson Radio 8843 - B2 + B66A	150	216	4,853	0.007	12	185
Ericsson RRUS 4449 B5, B12	150	213	4,792	0.007	12	182
Powerwave Allgon 7770.00	150	105	2,362	0.004	6	90
CCI HPA65R-BU6A	150	42	943	0.001	2	36
CCI HPA65R-BU8A	150	108	2,430	0.004	6	92
Kathrein Scala 80010965	150	98	2,196	0.003	5	84
Kathrein Scala 80010966	150	229	5,157	0.008	13	196
Ericsson RRUS 11 B12	138	152	2,897	0.004	7	130
Ericsson RRUS 11 B2	138	152	2,897	0.004	7	130
Ericsson RRUS 11 B4	138	152	2,897	0.004	7	130
RFS APX16DWV-16DWVS-E-A20	138	122	2,325	0.004	6	105
Commscope LNX-6515DS-A1M (96.6" Height)	138	131	2,497	0.004	6	112
Commscope RDIDC-9181-PF-48	120	22	315	0.000	1	19
Fujitsu TA08025-B605	120	225	3,240	0.005	8	193

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
Fujitsu TA08025-B604	120	192	2,760	0.004	7	164
JMA Wireless MX08FRO665-21	120	194	2,786	0.004	7	166
Generic Flat Platform with Handrails	120	2,500	36,000	0.054	90	2,141
		55,499	665,584	1.000	1,665	47,522

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	-66.94	-1.67	0.00	-249.68	0.00	249.68	5,229.17	1,571.49	9,422	6,783.18	0.00	0.00	0.05
5.00	-64.89	-1.68	0.00	-241.34	0.00	241.34	5,190.65	1,539.25	9,039	6,594.14	0.00	-0.01	0.05
10.00	-62.88	-1.68	0.00	-232.95	0.00	232.95	5,149.25	1,507.01	8,665	6,403.58	0.02	-0.02	0.05
15.00	-60.91	-1.69	0.00	-224.53	0.00	224.53	5,104.97	1,474.78	8,298	6,211.74	0.04	-0.02	0.05
20.00	-58.97	-1.70	0.00	-216.07	0.00	216.07	5,057.81	1,442.54	7,939	6,018.84	0.07	-0.03	0.05
25.00	-57.08	-1.70	0.00	-207.59	0.00	207.59	5,007.77	1,410.30	7,588	5,825.12	0.10	-0.04	0.05
30.00	-55.22	-1.70	0.00	-199.08	0.00	199.08	4,954.85	1,378.06	7,246	5,630.81	0.15	-0.05	0.05
35.00	-53.41	-1.71	0.00	-190.56	0.00	190.56	4,899.05	1,345.82	6,911	5,436.14	0.21	-0.06	0.05
40.00	-52.04	-1.71	0.00	-182.03	0.00	182.03	4,840.37	1,313.58	6,584	5,241.34	0.27	-0.07	0.05
43.83	-51.31	-1.71	0.00	-175.48	0.00	175.48	4,793.44	1,288.87	6,338	5,092.06	0.33	-0.07	0.05
45.00	-48.25	-1.69	0.00	-173.49	0.00	173.49	4,778.81	1,281.35	6,264	5,046.65	0.35	-0.08	0.04
50.00	-47.64	-1.70	0.00	-165.02	0.00	165.02	4,714.38	1,249.11	5,953	4,852.29	0.43	-0.09	0.04
51.00	-46.44	-1.69	0.00	-163.32	0.00	163.32	3,748.95	1,082.35	5,214	3,905.86	0.45	-0.09	0.05
55.00	-44.96	-1.69	0.00	-156.56	0.00	156.56	3,716.58	1,060.25	5,004	3,792.47	0.53	-0.10	0.05
60.00	-43.52	-1.68	0.00	-148.13	0.00	148.13	3,673.53	1,032.61	4,746	3,650.12	0.63	-0.11	0.05
65.00	-42.12	-1.67	0.00	-139.72	0.00	139.72	3,627.60	1,004.98	4,496	3,507.29	0.75	-0.12	0.05
70.00	-40.74	-1.67	0.00	-131.35	0.00	131.35	3,578.79	977.35	4,252	3,364.21	0.88	-0.13	0.05
75.00	-39.40	-1.65	0.00	-123.02	0.00	123.02	3,527.09	949.72	4,015	3,221.11	1.02	-0.14	0.05
80.00	-38.09	-1.64	0.00	-114.76	0.00	114.76	3,472.52	922.08	3,785	3,078.24	1.18	-0.15	0.05
85.00	-37.30	-1.63	0.00	-106.55	0.00	106.55	3,415.07	894.45	3,561	2,935.81	1.35	-0.17	0.05
88.08	-36.47	-1.62	0.00	-101.52	0.00	101.52	3,378.20	877.41	3,427	2,848.30	1.46	-0.17	0.05
90.00	-34.78	-1.59	0.00	-98.41	0.00	98.41	3,354.74	866.82	3,345	2,794.06	1.53	-0.18	0.05
94.00	-34.56	-1.59	0.00	-92.04	0.00	92.04	2,549.41	716.07	2,739	2,107.92	1.68	-0.19	0.06
95.00	-33.51	-1.57	0.00	-90.45	0.00	90.45	2,541.91	711.46	2,704	2,088.10	1.72	-0.19	0.06
100.00	-32.48	-1.56	0.00	-82.58	0.00	82.58	2,502.69	688.43	2,532	1,988.82	1.93	-0.21	0.06
105.00	-31.48	-1.54	0.00	-74.80	0.00	74.80	2,460.58	665.41	2,365	1,889.44	2.16	-0.22	0.05
110.00	-30.50	-1.52	0.00	-67.12	0.00	67.12	2,415.60	642.38	2,204	1,790.18	2.40	-0.24	0.05
115.00	-29.56	-1.49	0.00	-59.53	0.00	59.53	2,367.74	619.35	2,049	1,691.27	2.65	-0.25	0.05
120.00	-24.76	-1.34	0.00	-52.07	0.00	52.07	2,317.00	596.32	1,900	1,592.95	2.93	-0.27	0.04
125.00	-23.88	-1.31	0.00	-45.38	0.00	45.38	2,263.38	573.30	1,756	1,495.45	3.21	-0.28	0.04
130.00	-23.30	-1.29	0.00	-38.82	0.00	38.82	2,206.88	550.27	1,618	1,398.99	3.51	-0.29	0.04
133.42	-22.89	-1.28	0.00	-34.41	0.00	34.41	2,166.61	534.53	1,526	1,333.80	3.72	-0.30	0.04
135.00	-22.13	-1.25	0.00	-32.38	0.00	32.38	2,147.49	527.24	1,485	1,303.81	3.83	-0.31	0.04
138.00	-17.89	-1.06	0.00	-28.64	0.00	28.64	1,272.79	366.05	1,022	768.59	4.02	-0.31	0.05
140.00	-17.28	-1.04	0.00	-26.51	0.00	26.51	1,263.21	359.60	986	749.27	4.15	-0.32	0.05
145.00	-16.70	-1.01	0.00	-21.32	0.00	21.32	1,237.26	343.48	900	700.72	4.50	-0.33	0.04
150.00	-11.70	-0.76	0.00	-16.24	0.00	16.24	1,208.42	327.35	818	652.01	4.85	-0.35	0.04
155.00	-11.28	-0.74	0.00	-12.44	0.00	12.44	1,176.70	311.23	739	603.37	5.23	-0.36	0.03
160.00	-11.04	-0.73	0.00	-8.74	0.00	8.74	1,142.10	295.11	664	555.03	5.61	-0.37	0.03
163.00	-6.32	-0.44	0.00	-6.56	0.00	6.56	1,119.95	285.43	622	526.27	5.84	-0.38	0.02
165.00	-6.03	-0.43	0.00	-5.67	0.00	5.67	1,104.62	278.98	594	507.22	6.00	-0.38	0.02
169.00	-5.49	-0.39	0.00	-3.97	0.00	3.97	1,072.56	266.09	540	469.51	6.32	-0.38	0.01
170.00	-5.35	-0.38	0.00	-3.58	0.00	3.58	1,064.26	262.86	527	460.18	6.40	-0.39	0.01
172.00	-5.09	-0.37	0.00	-2.81	0.00	2.81	1,047.31	256.41	502	441.62	6.57	-0.39	0.01
175.00	-4.76	-0.34	0.00	-1.72	0.00	1.72	1,021.02	246.74	465	414.13	6.81	-0.39	0.01
180.00	0.00	-0.31	0.00	0.00	0.00	0.00	968.59	230.62	406	366.91	7.22	-0.39	0.00

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

CALCULATED FORCES

ASSET: 302465, Colchester CT 6
 CUSTOMER: SPRINT NEXTEL

CODE: ANSI/TIA-222-H
 ENG NO: 13711921_C3_08

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 (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.08	-1.67	0.00	-244.99	0.00	244.99	5,229.17	1,571.49	9,422	6,783.18	0.00	0.00	0.05
5.00	-44.67	-1.67	0.00	-236.66	0.00	236.66	5,190.65	1,539.25	9,039	6,594.14	0.00	-0.01	0.04
10.00	-43.29	-1.68	0.00	-228.29	0.00	228.29	5,149.25	1,507.01	8,665	6,403.58	0.02	-0.02	0.04
15.00	-41.93	-1.68	0.00	-219.90	0.00	219.90	5,104.97	1,474.78	8,298	6,211.74	0.04	-0.02	0.04
20.00	-40.60	-1.69	0.00	-211.49	0.00	211.49	5,057.81	1,442.54	7,939	6,018.84	0.06	-0.03	0.04
25.00	-39.30	-1.69	0.00	-203.07	0.00	203.07	5,007.77	1,410.30	7,588	5,825.12	0.10	-0.04	0.04
30.00	-38.02	-1.69	0.00	-194.63	0.00	194.63	4,954.85	1,378.06	7,246	5,630.81	0.15	-0.05	0.04
35.00	-36.77	-1.69	0.00	-186.19	0.00	186.19	4,899.05	1,345.82	6,911	5,436.14	0.20	-0.06	0.04
40.00	-35.83	-1.69	0.00	-177.76	0.00	177.76	4,840.37	1,313.58	6,584	5,241.34	0.26	-0.07	0.04
43.83	-35.33	-1.69	0.00	-171.29	0.00	171.29	4,793.44	1,288.87	6,338	5,092.06	0.32	-0.07	0.04
45.00	-33.22	-1.67	0.00	-169.33	0.00	169.33	4,778.81	1,281.35	6,264	5,046.65	0.34	-0.07	0.04
50.00	-32.80	-1.67	0.00	-160.96	0.00	160.96	4,714.38	1,249.11	5,953	4,852.29	0.42	-0.08	0.04
51.00	-31.97	-1.67	0.00	-159.29	0.00	159.29	3,748.95	1,082.35	5,214	3,905.86	0.44	-0.09	0.05
55.00	-30.96	-1.66	0.00	-152.62	0.00	152.62	3,716.58	1,060.25	5,004	3,792.47	0.51	-0.09	0.05
60.00	-29.96	-1.65	0.00	-144.32	0.00	144.32	3,673.53	1,032.61	4,746	3,650.12	0.62	-0.10	0.05
65.00	-28.99	-1.64	0.00	-136.06	0.00	136.06	3,627.60	1,004.98	4,496	3,507.29	0.73	-0.12	0.05
70.00	-28.05	-1.63	0.00	-127.83	0.00	127.83	3,578.79	977.35	4,252	3,364.21	0.86	-0.13	0.05
75.00	-27.12	-1.62	0.00	-119.67	0.00	119.67	3,527.09	949.72	4,015	3,221.11	1.00	-0.14	0.05
80.00	-26.22	-1.61	0.00	-111.56	0.00	111.56	3,472.52	922.08	3,785	3,078.24	1.15	-0.15	0.04
85.00	-25.68	-1.60	0.00	-103.54	0.00	103.54	3,415.07	894.45	3,561	2,935.81	1.32	-0.16	0.04
88.08	-25.11	-1.58	0.00	-98.61	0.00	98.61	3,378.20	877.41	3,427	2,848.30	1.42	-0.17	0.04
90.00	-23.94	-1.56	0.00	-95.57	0.00	95.57	3,354.74	866.82	3,345	2,794.06	1.49	-0.18	0.04
94.00	-23.79	-1.55	0.00	-89.35	0.00	89.35	2,549.41	716.07	2,739	2,107.92	1.65	-0.19	0.05
95.00	-23.07	-1.53	0.00	-87.80	0.00	87.80	2,541.91	711.46	2,704	2,088.10	1.68	-0.19	0.05
100.00	-22.36	-1.52	0.00	-80.12	0.00	80.12	2,502.69	688.43	2,532	1,988.82	1.89	-0.20	0.05
105.00	-21.67	-1.50	0.00	-72.54	0.00	72.54	2,460.58	665.41	2,365	1,889.44	2.11	-0.22	0.05
110.00	-21.00	-1.47	0.00	-65.07	0.00	65.07	2,415.60	642.38	2,204	1,790.18	2.34	-0.23	0.05
115.00	-20.35	-1.45	0.00	-57.70	0.00	57.70	2,367.74	619.35	2,049	1,691.27	2.59	-0.24	0.04
120.00	-17.04	-1.30	0.00	-50.45	0.00	50.45	2,317.00	596.32	1,900	1,592.95	2.86	-0.26	0.04
125.00	-16.44	-1.27	0.00	-43.96	0.00	43.96	2,263.38	573.30	1,756	1,495.45	3.13	-0.27	0.04
130.00	-16.04	-1.25	0.00	-37.60	0.00	37.60	2,206.88	550.27	1,618	1,398.99	3.43	-0.29	0.03
133.42	-15.76	-1.24	0.00	-33.32	0.00	33.32	2,166.61	534.53	1,526	1,333.80	3.63	-0.29	0.03
135.00	-15.23	-1.21	0.00	-31.36	0.00	31.36	2,147.49	527.24	1,485	1,303.81	3.73	-0.30	0.03
138.00	-12.31	-1.03	0.00	-27.73	0.00	27.73	1,272.79	366.05	1,022	768.59	3.92	-0.31	0.05
140.00	-11.90	-1.01	0.00	-25.67	0.00	25.67	1,263.21	359.60	986	749.27	4.05	-0.31	0.04
145.00	-11.50	-0.98	0.00	-20.64	0.00	20.64	1,237.26	343.48	900	700.72	4.38	-0.33	0.04
150.00	-8.06	-0.74	0.00	-15.73	0.00	15.73	1,208.42	327.35	818	652.01	4.73	-0.34	0.03
155.00	-7.77	-0.72	0.00	-12.04	0.00	12.04	1,176.70	311.23	739	603.37	5.09	-0.35	0.03
160.00	-7.60	-0.70	0.00	-8.47	0.00	8.47	1,142.10	295.11	664	555.03	5.47	-0.36	0.02
163.00	-4.35	-0.43	0.00	-6.36	0.00	6.36	1,119.95	285.43	622	526.27	5.69	-0.37	0.02
165.00	-4.15	-0.41	0.00	-5.50	0.00	5.50	1,104.62	278.98	594	507.22	5.85	-0.37	0.02
169.00	-3.78	-0.38	0.00	-3.85	0.00	3.85	1,072.56	266.09	540	469.51	6.16	-0.37	0.01
170.00	-3.68	-0.37	0.00	-3.47	0.00	3.47	1,064.26	262.86	527	460.18	6.24	-0.38	0.01
172.00	-3.50	-0.35	0.00	-2.72	0.00	2.72	1,047.31	256.41	502	441.62	6.40	-0.38	0.01
175.00	-3.28	-0.33	0.00	-1.66	0.00	1.66	1,021.02	246.74	465	414.13	6.63	-0.38	0.01
180.00	0.00	-0.31	0.00	0.00	0.00	0.00	968.59	230.62	406	366.91	7.03	-0.38	0.00

ASSET: 302465, Colchester CT 6
 CUSTOMER: SPRINT NEXTEL

CODE: ANSI/TIA-222-H
 ENG NO: 13711921_C3_08

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	37.72	0.00	66.55	0.00	0.00	4550.73	51.00	0.72
0.9D + 1.0W	37.70	0.00	49.90	0.00	0.00	4487.50	51.00	0.7
1.2D + 1.0Di + 1.0Wi	8.46	0.00	86.92	0.00	0.00	1051.58	94.00	0.18
1.2D + 1.0Ev + 1.0Eh	1.71	0.00	66.94	0.00	0.00	249.68	94.00	0.06
0.9D - 1.0Ev + 1.0Eh	1.69	0.00	46.08	0.00	0.00	244.99	94.00	0.05
1.0D + 1.0W	8.16	0.00	55.50	0.00	0.00	976.78	51.00	0.16

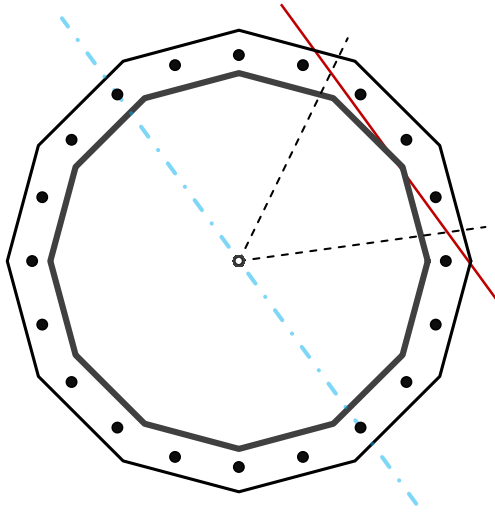
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	12	-
Diameter	64	in
Thickness	7/16	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	4,550.7	k-ft
Axial, Pu	66.6	k
Shear, Vu	37.7	k
Neutral Axis	306	°

Report Capacities		
Component	Capacity	Result
Base Plate	28%	Pass
Anchor Rods	65%	Pass
Dwyidag	-	-

Base Plate		
Number of Sides	12	-
Diameter, ϕ	78.76	in
Thickness	2 1/2	in
Grade	A871-60	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	d	$\eta=0.5$
Clear Distance	6 3/4	in
Applied Moment, Mu	920.5	k
Bending Stress, ϕMn	3239.4	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	20	-
Diameter, ϕ	2 1/4	in
Bolt Circle	72.76	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	11.4	in
Orientation Offset	0	°
Applied Force, Pu	158.4	k
Anchor Rods, ϕPn	243.6	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	37.7	4550.7	1.00
Anchor Rod Forces	37.7	4550.7	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in ²	in ²	in ⁴	#	in ⁴
Pole	86.3687	7.1974	0.4608		43623.80
Bolt	3.9761	3.2477	0.8393	4.5	40239.81
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	12	-
Width, W	78.76	in
Thickness, t	2.5	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	45.904	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	6.75	-

Anchor Rods		
Anchor Rod Quantity, N	20	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	72.76	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	158.4	k
Applied Shear, Vu	0.9	k
Compressive Capacity, φPn	243.6	k
Tensile Capacity, φRnt	0.650	OK
Interaction Capacity	0.462	OK

External Base Plate		
Chord Length AA	47.258	in
Additional AA	5.000	in
Section Modulus, Z	81.654	in ³
Applied Moment, Mu	920.5	k-ft
Bending Capacity, φMn	4409.3	k-ft
Capacity, Mu/φMn	0.209	OK
Chord Length AB	44.996	in
Additional AB	5.000	in
Section Modulus, Z	78.119	in ³
Applied Moment, Mu	400.1	k-ft
Bending Capacity, φMn	4218.4	k-ft
Capacity, Mu/φMn	0.095	OK
Bend Line Length	38.393	in
Additional Bend Line	0.000	in
Section Modulus, Z	59.989	in ³
Applied Moment, Mu	920.5	k-ft
Bending Capacity, φMn	3239.4	k-ft
Capacity, Mu/φMn	0.284	OK

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in ³
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		

Site Name: Colchester CT6, CT
Site Number: 302465
Tower Type: MP
Design Loads (Factored) - Analysis per TIA-222-H Standards

Monolithic Mat & Pier Foundation Analysis

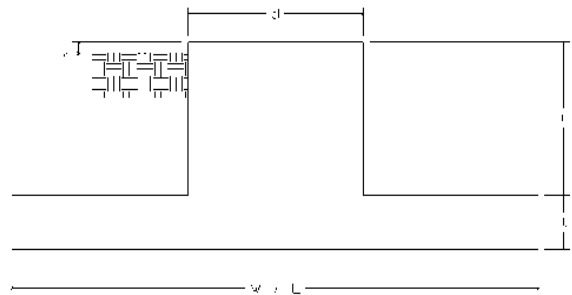
Foundation Analysis Parameters		
Design / Analysis / Mapping:	Analysis	-
Compression/Leg:	66.6	k
Uplift/Leg:	0.0	k
Total Shear:	37.7	k
Moment:	4,550.7	k-ft
Tower + Appurtenance Weight:	66.6	k
Depth to Base of Foundation (l + t - h):	8.5	ft
Diameter of Pier (d):	7	ft
Length of Pier (l):	5.5	ft
Height of Pier above Ground (h):	0.5	ft
Width of Pad (W):	25	ft
Length of Pad (L):	25	ft
Thickness of Pad (t):	3.5	ft
Tower Leg Center to Center:	0	ft
Number of Tower Legs:	1	-
Tower Center from Mat Center:	0	ft
Depth Below Ground Surface to Water Table:	10	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil Above Water Table:	125	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	62.6	pcf
Friction Angle of Uplift:	15	°
Coefficient of Shear Friction:	0.3	-
Ultimate Compressive Bearing Pressure:	10,000	psf
Ultimate Passive Pressure on Pad Face:	100	psf
f _{Soil and Concrete Weight} :	0.9	-
f _{Soil} :	0.75	-

Overturning Moment Usage		
Design OTM:	4890.2	k-ft
OTM Resistance:	9327.0	k-ft
Design OTM / OTM Resistance:	52%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:	4935	psf
Factored Nominal Bearing Pressure:	7500	psf
Factored Nominal (Net) Bearing Pressure:	66%	Pass
Load Direction Controlling Design Bearing Pressure:	Diagonal to Pad Edge	

Sliding Factor of Safety		
Ultimate Friction Resistance:	234.6	k
Ultimate Passive Pressure Resistance:	6.6	k
Total Factored Sliding Resistance:	180.9	k
Sliding Design / Sliding Resistance:	21%	Pass

Foundation Steel Parameters		
Shear/Leg (Compression):	25.1	k
Shear/Leg (Uplift):	20.7	k
Concrete Strength (f _c):	4,000	psi
Pad Tension Steel Depth:	38.31	in
Dead Load Factor:	0.9	-
f _{Shear} :	0.75	-
f _{Flexure / Tension} :	0.9	-
f _{Compression} :	0.65	-
b:	0.85	-
Bottom Pad Rebar Size #:	11	-
# of Bottom Pad Rebar:	30	-
Pad Bottom Steel Area:	46.80	in ²
Pad Steel F _y :	60,000	psi
Top Pad Rebar Size #:	11	-
# of Top Pad Rebar:	30	-
Pad Top Steel Area:	46.80	in ²
Pier Rebar Size #:	11	-
Pier Steel Area (Single Bar):	1.56	in ²
# of Pier Rebar:	30	-
Pier Steel F _y :	60,000	psi
Pier Cage Diameter:	75.4	in
Rebar Strain Limit:	0.008	-
Steel Elastic Modulus:	29,000	ksi
Tie Rebar Size #:	5	-
Tie Steel Area (Single Bar):	0.31	in ²
Tie Spacing:	12	in
Tie Steel F _y :	60,000	psi
Clear Cover:	3	in



Pad Strength Capacity			
Factored One Way Shear (V_u):	352.2	k	
One Way Shear Capacity (fV_n):	958.2	k	ACI 318-14 25.5.5.1
V_u / fV_n :	37%	Pass	
Load Direction Controlling Shear Capacity:	Diagonal to Pad Edge		
Lower Steel Pad Factored Moment (M_u):	2626.4	k-ft	
Lower Steel Pad Moment Capacity (fM_n):	7822.2	k-ft	ACI 318-14 22.3.1.1
M_u / fM_n :	34%	Pass	
Load Direction Controlling Flexural Capacity:	Parallel to Pad Edge		
Upper Steel Pad Factored Moment (M_u):	1163.6	k-ft	
Upper Steel Pad Moment Capacity (fM_n):	7822.2	k-ft	
M_u / fM_n :	15%	Pass	
Lower Pad Flexural Reinforcement Ratio:	0.0041		OK - ACI 318-14 7.6.1.1 & 8.6.1.1
Upper Pad Flexural Reinforcement Ratio:	0.0041		OK - ACI 318-14 7.6.1.1 & 8.6.1.1
Pad Shrinkage Reinforcement Ratio:	0.0081		OK - ACI 318-14 24.4.3.2
Lower Pad Reinforcement Spacing:	10.1	in	OK - ACI 318-14 7.7.2.3, 8.7.2.2, & 24.4.3.3
Upper Pad Reinforcement Spacing:	10.1	in	OK - ACI 318-14 7.7.2.3, 8.7.2.2, & 24.4.3.3
Ultimate Punching Shear Stress, v_u :	34.72	psi	ACI 318-14 R8.4.4.2.3
Nominal Punching Shear Capacity ($f_c v_c$):	189.7	psi	ACI 318-14 22.6.5.2
$v_u / f_c v_c$:	18%	Pass	
Pier Moment Pad Flexure Transfer Ratio, γ_f :	0.60		TIA-222-H 9.4.2
Moment Transfer Effective Flexural Width, B_{eff} :	17.50	ft	TIA-222-H 9.4.2
Moment Transfer Through Pad Flexure:	34258.97	k-in	TIA-222-H 9.4.2
Moment Transfer Flexural Capacity ($fM_{sc,f}$):	68015.48	k-in	
$g_f M_{sc} / fM_{sc,f}$:	0%	Pass	

Pier Strength Capacity			
Factored Moment in Pier (M_u):	4758.2	k-ft	
Pier Moment Capacity (fM_n):	7768.3	k-ft	
M_u / fM_n :	61%	Pass	
Factored Shear in Pier (V_u):	37.7	k	
Pier Shear Capacity (fV_n):	685.1	k	ACI 318-14 22.5.1.1
V_u / fV_n :	6%	Pass	
Pier Shear Reinforcement Ratio:	0.0007		OK - No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier (T_u):	0.0	k	
Pier Tension Capacity (fT_n):	2527.2	k	
T_u / fT_n :	0%	Pass	
Factored Compression in Pier (P_u):	66.6	k	
Pier Compression Capacity (fP_n):	9763.8	k	ACI 318-14 22.4.2.1
P_u / fP_n :	1%	Pass	
Pier Compression Reinforcement Ratio:	0.008		OK - TIA-222-H 9.4.1
Minimum Depth to Develop Vertical Rebar:	54	in	ACI 318-14 25.4.2.3
Minimum Hook Development Length:	27	in	ACI 318-14 25.4.3.1
Minimum Mat Thickness / Edge Distance from Pier:	30.0	in	
Minimum Foundation Depth:	7.27	ft	
$M_u / f_B M_n + T_u / f_T T_n$:	61%	Pass	



AMERICAN TOWER®
CORPORATION

Mount Analysis Report

ATC Site Name : Colchester CT 6, CT
ATC Site Number : 302465
Engineering Number : 13711921_C8_07
Mount Elevation : 180 ft
Carrier : Sprint Nextel
Carrier Site Name : CTHA359A
Carrier Site Number : CTHA359A
Site Location : 355 Route 85
Colchester, CT 06415-1825
41.54481944 , -72.30489167
County : New London
Date : October 25, 2021
Max Usage : 52%
Result : Pass

Prepared By:
Jayon Woodard
Structural Engineer

Jayon Woodard

Reviewed By:



COA: PEC.0001553



Table of Contents

Introduction	1
Supporting Documents	1
Analysis	1
Conclusion	1
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Structure Usages.....	2
Mount Layout	3
Equipment Layout	4
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Calculations	Attached



Introduction

The purpose of this report is to summarize results of the mount analysis performed for Sprint Nextel at 180 ft.

Supporting Documents

Specifications Sheet	Perfect Vision PV-LPPGS-12M-HR2, dated November 8, 2019
Radio Frequency Data Sheet	RFDS ID #CTHA359A, dated October 6, 2021
Reference Photos	Site photos from 1

Analysis

This mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

Basic Wind Speed:	122 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Codes:	ANSI/TIA-222-H
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	$S_s = 0.205$, $S_1 = 0.055$
Site Class:	D - Stiff Soil
Live Loads:	$L_m = 500$ lbs

* Based on experience, it has been determined that the L_v load cases will not control over L_m load cases in platform mount analyses. Therefore, these load cases have been excluded from this analysis.

Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report.

- Analysis based on new Perfect Vision PV-LPPGS-12M-HR2 platform with handrails.

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.



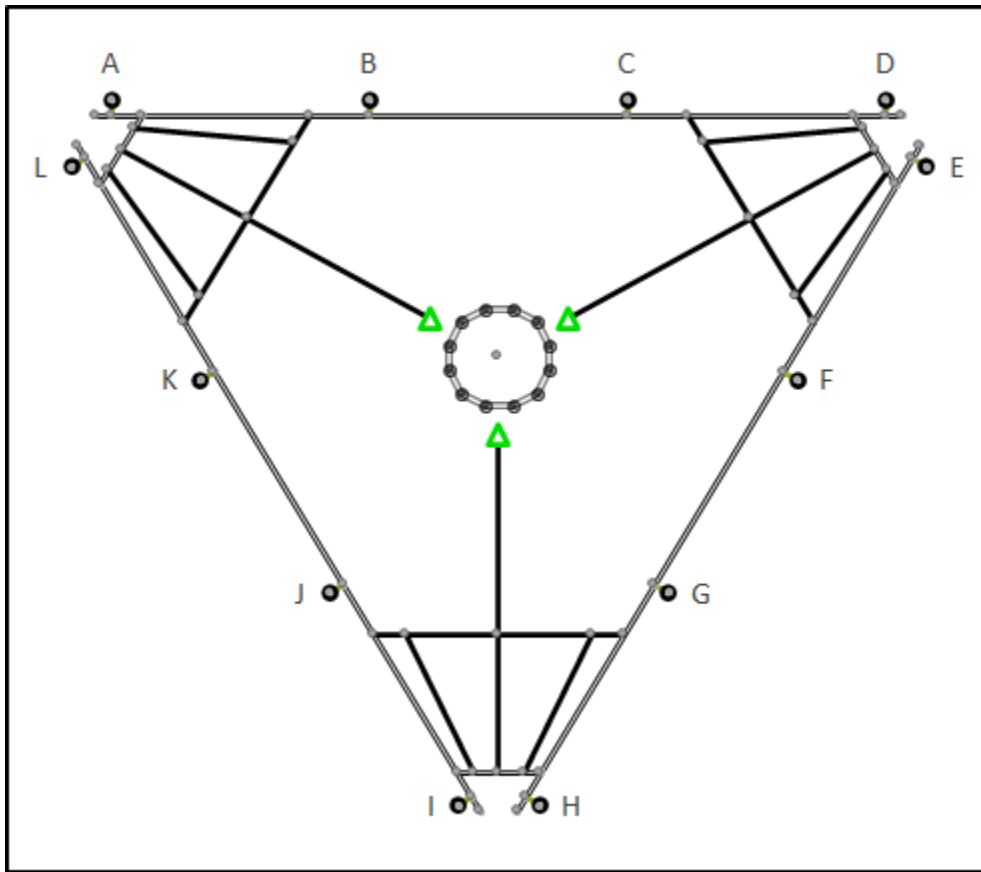
Application Loading

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
180.0	180.0	3	Commscope VV-65A-R1
		3	Ericsson Air6449 B41
		3	RFS APXVAALL24 43-U-NA20
		3	Ericsson Radio 4480 B71+B85A
		3	Ericsson Radio 4460 B25+B66

Structure Usages

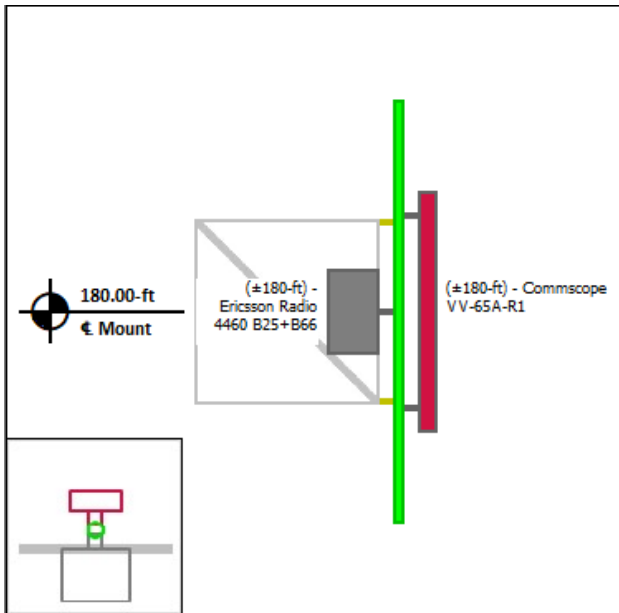
Structural Component	Controlling Usage	Pass/Fail
Horizontals	32%	Pass
Mount Pipes	52%	Pass

Mount Layout

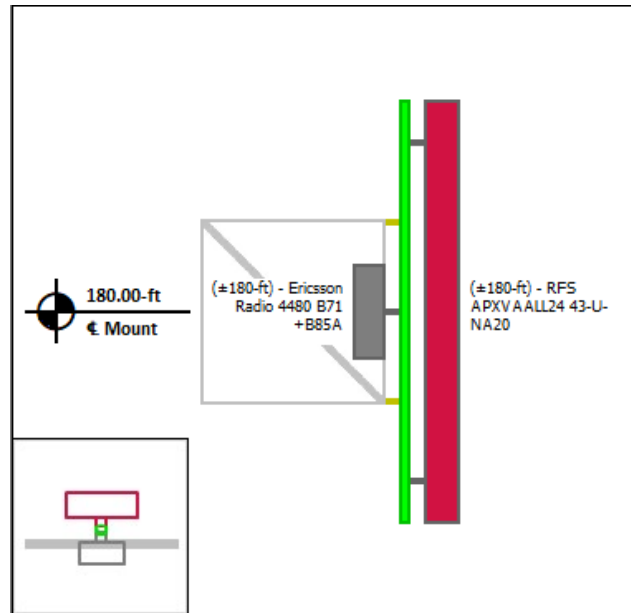


Equipment Layout

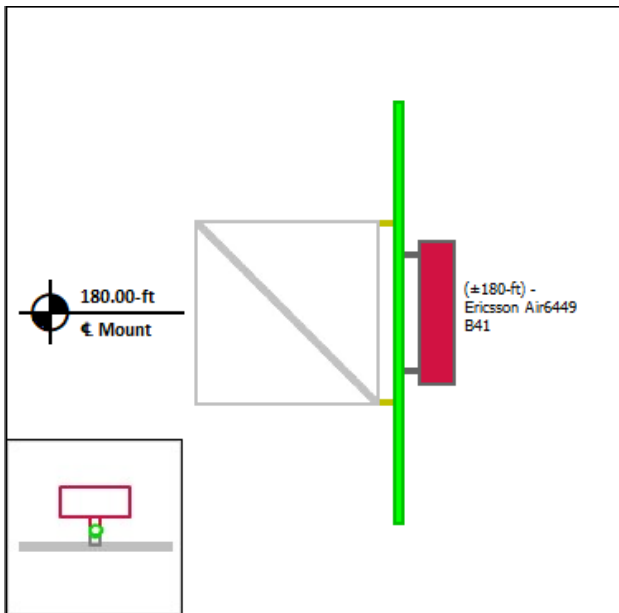
Mount Pipe A



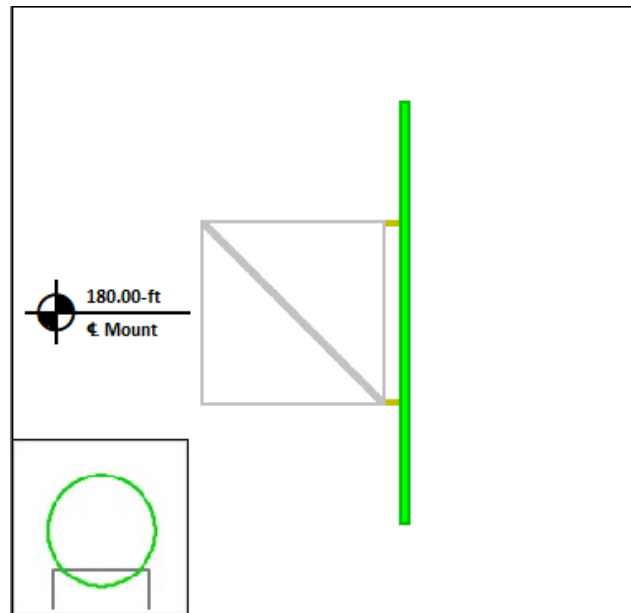
Mount Pipe B



Mount Pipe C

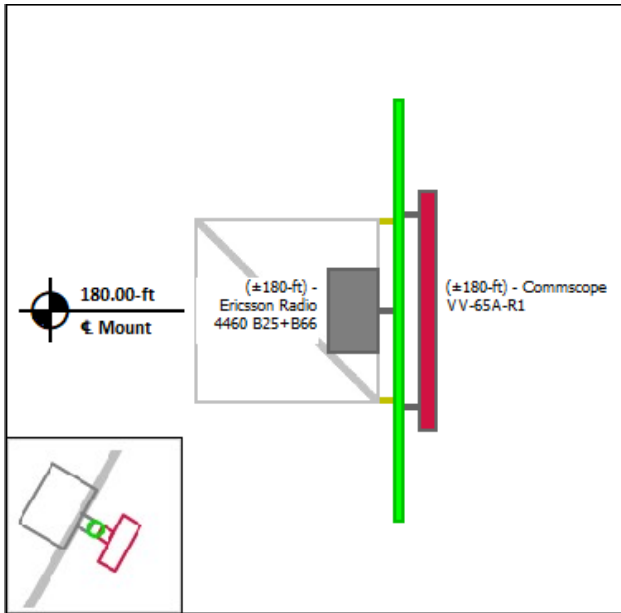


Mount Pipe D

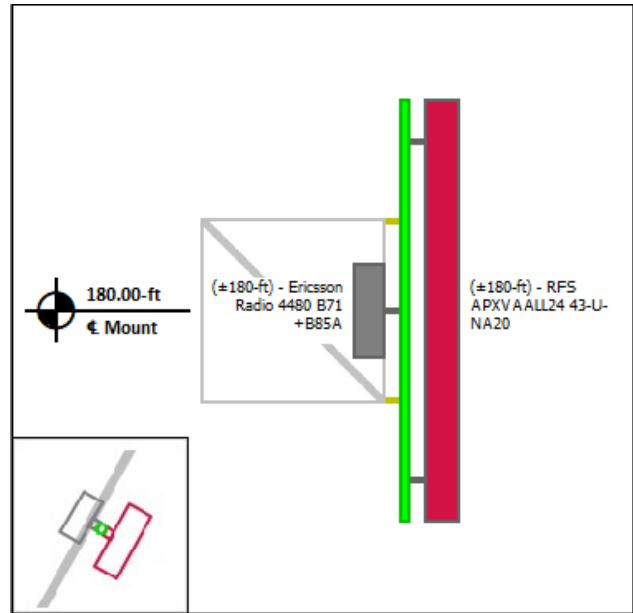


Equipment Layout Cont'd.

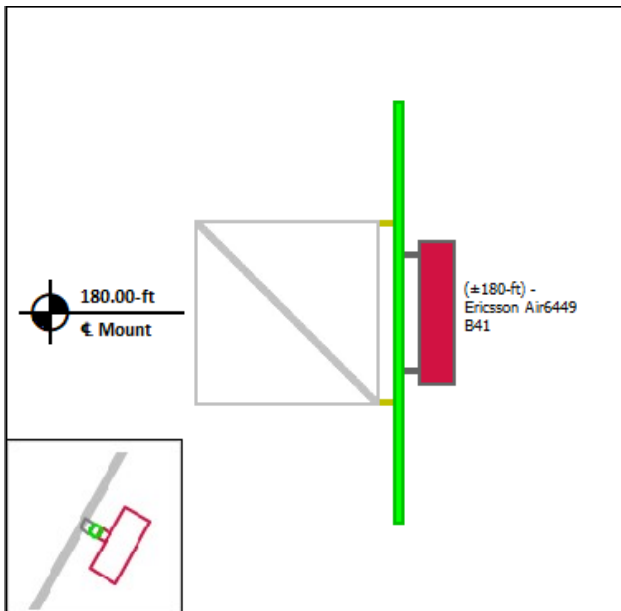
Mount Pipe E



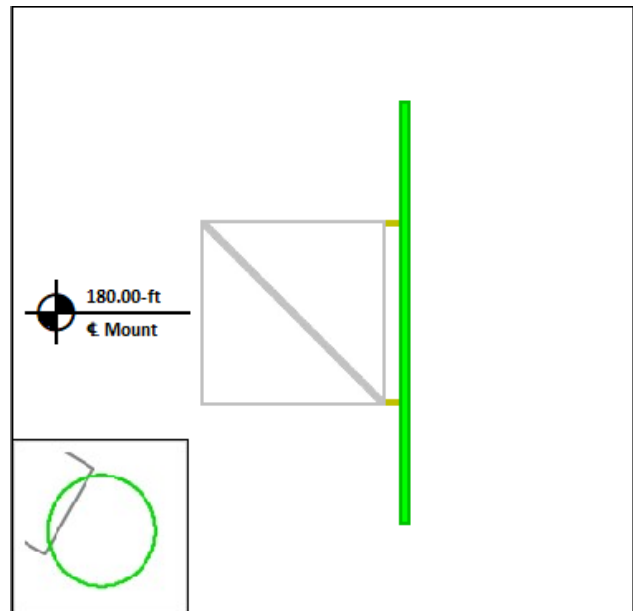
Mount Pipe F



Mount Pipe G

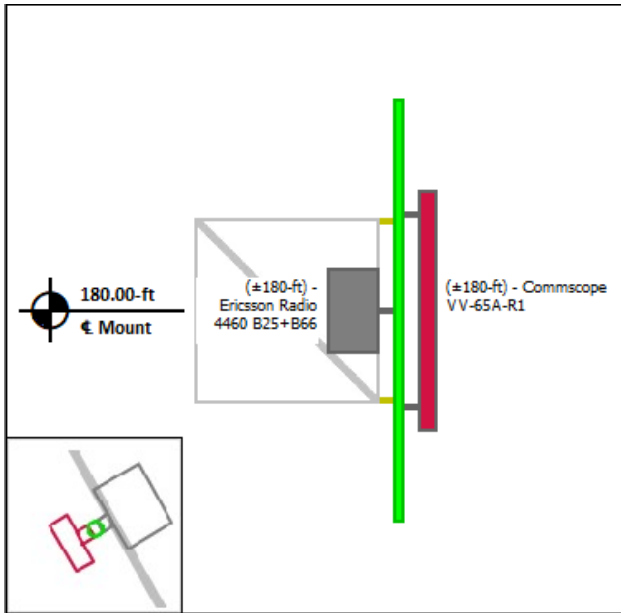


Mount Pipe H

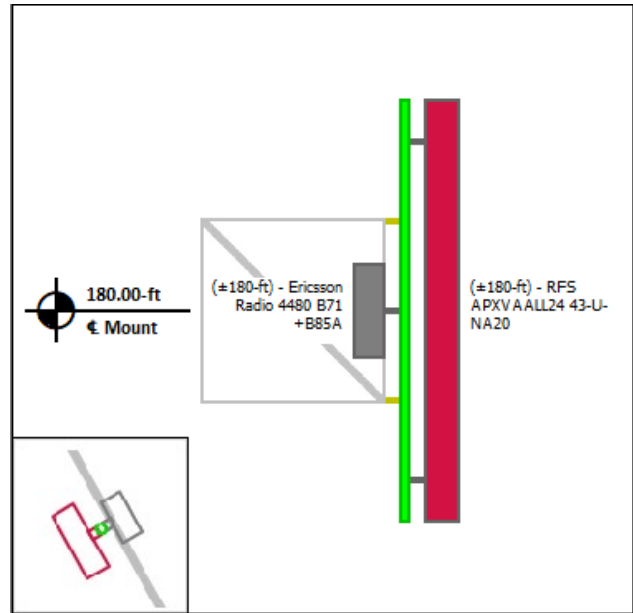


Equipment Layout Cont'd.

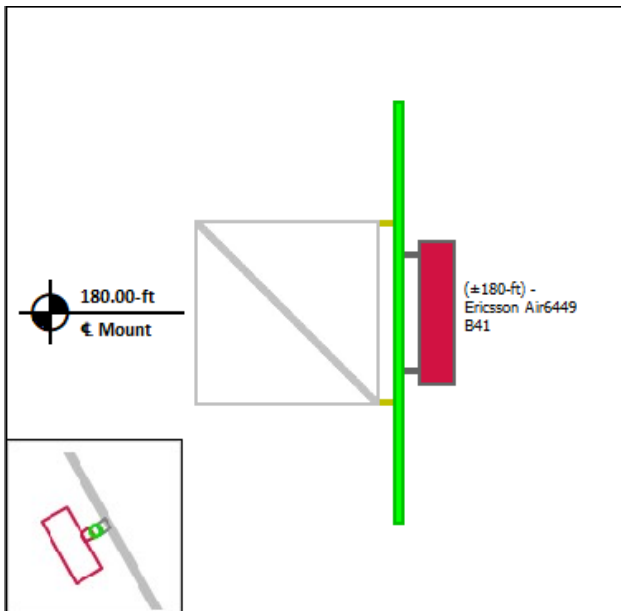
Mount Pipe I



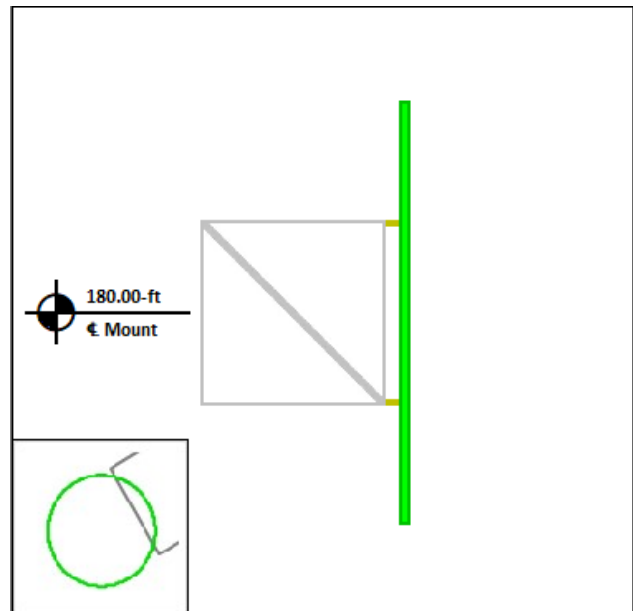
Mount Pipe J



Mount Pipe K



Mount Pipe L





Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC 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 equipment, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

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

Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

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



Site Number: 302465
 Project Number: 13711921_C8_07
 Carrier: Sprint Nextel
 Mount Elevation: 180 ft
 Date: 10/25/2021

Mount Analysis Force Calculations

Wind & Ice Load Calculations			
Velocity Pressure Coefficient	K_z	1.17	
Topographic Factor	K_{zt}	1.00	
Rooftop Wind Speed-up Factor	K_s	1.00	
Shielding Factor	K_a	0.90	
Ground Elevation Factor	K_e	0.97	
Wind Direction Probability Factor	K_d	0.95	
Basic Wind Speed	V	122	mph
Velocity Pressure	q_z	41.2	psf
Height Escalation Factor	K_{iz}	1.18	
Thickness of Radial Glaze Ice	T_{iz}	1.18	in

Seismic Load Calculations			
Short Period DSRAP	S_{D5}	0.219	
1 Second DSRAP	S_{D1}	0.088	
Importance Factor	I	1.0	
Response Modification Coefficient	R	2.0	
Seismic Response Coefficient	C_s	0.109	
Amplification Factor	A	1.0	
Total Weight	W	2655.8	lbs
Total Shear Force	V_s	290.4	lbs
Horizontal Seismic Load	E_h	290.4	lbs
Vertical Seismic Load	E_v	116.1	lbs

Antenna Calculations (Elevations per Application/RFDS)*								
Equipment	Height	Width	Depth	Weight	EPA_N	EPA_T	EPA_{Ni}	EPA_{Ti}
Model #	in	in	in	lbs	sqft	sqft	sqft	sqft
Commscope VV-65A-R1	54.7	12.1	4.6	23.8	5.93	1.36	7.40	2.16
Ericsson Air6449 B41	33.1	20.6	8.6	104.0	5.68	1.56	6.79	2.13
RFS APXVAALL24 43-U-NA20	95.9	24.0	8.5	122.8	20.24	3.40	22.79	4.45
Ericsson Radio 4480 B71+B85A	21.8	15.7	7.5	84.0	2.85	1.38	3.64	2.02
Ericsson Radio 4460 B25+B66	19.6	15.7	12.1	109.0	2.56	1.98	3.31	2.65

* Equipment with EPA values N/A were not considered in the mount analysis

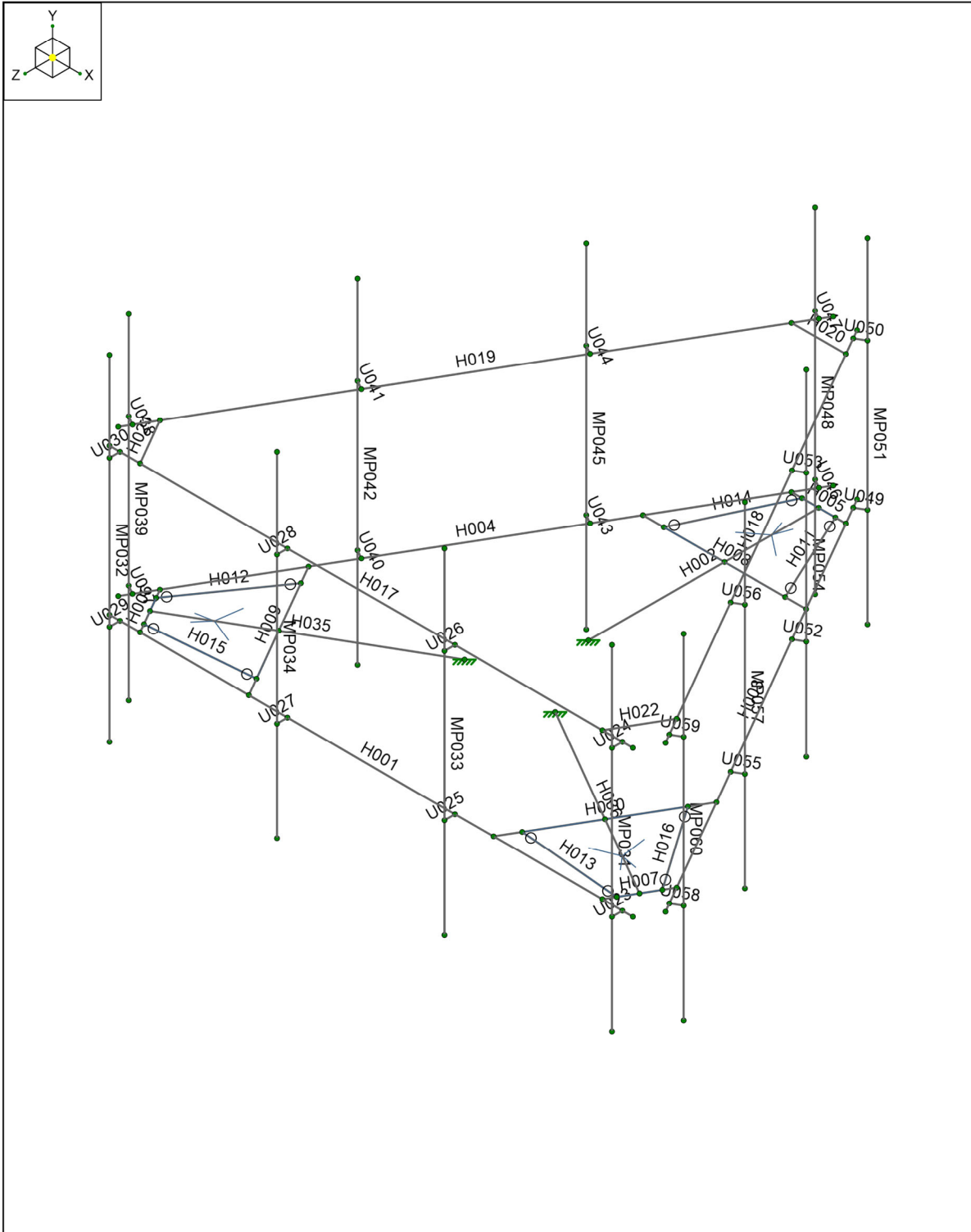


Company : American Tower Corp.
Designer : Jayon.Woodard
Job Number : 13711921_C8_07
Model Name : 302465, Colchester CT 6

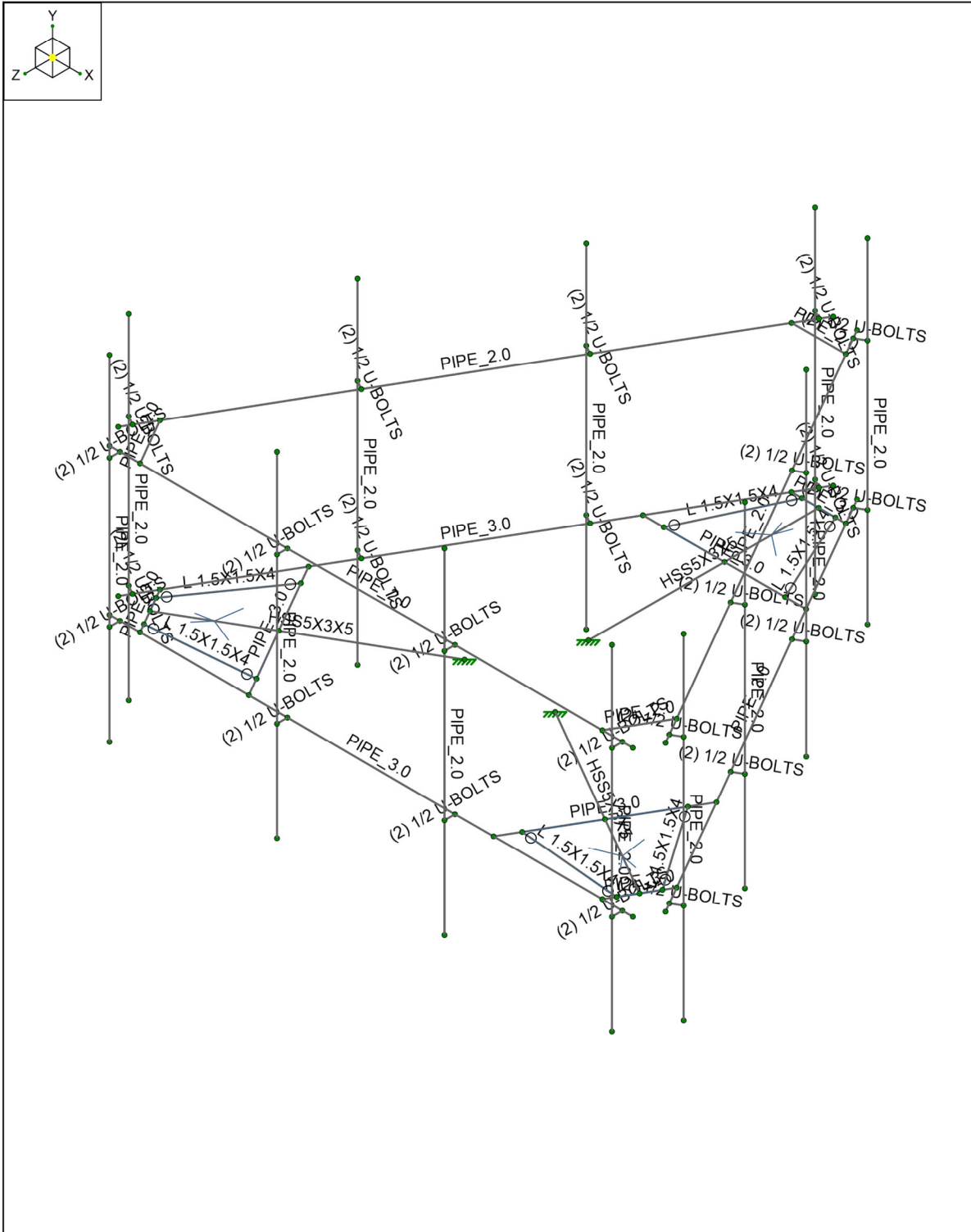
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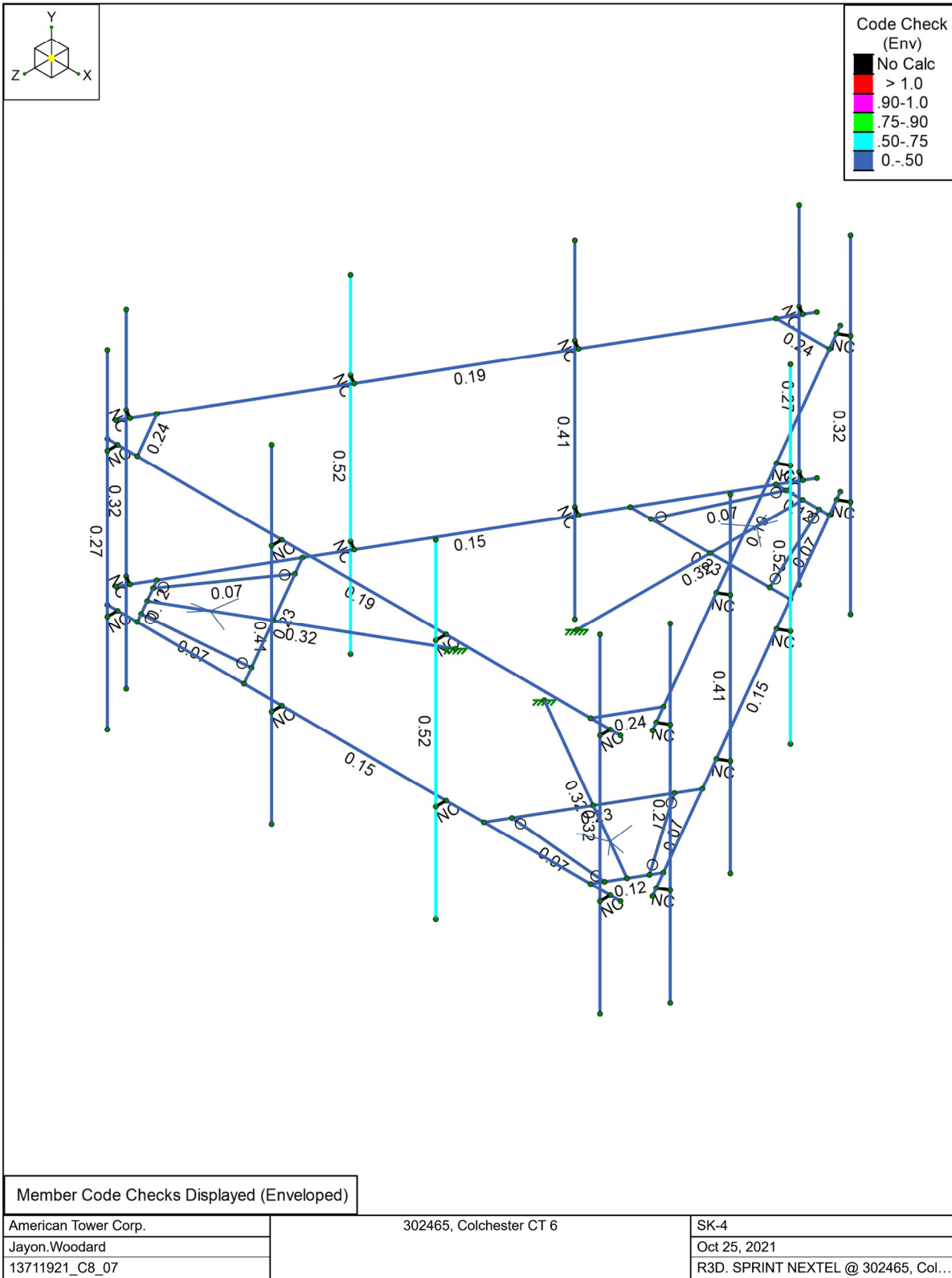
American Tower Corp.	302465, Colchester CT 6	SK-1
Jayon.Woodard		Oct 25, 2021
13711921_C8_07		R3D. SPRINT NEXTEL @ 302465, Col...

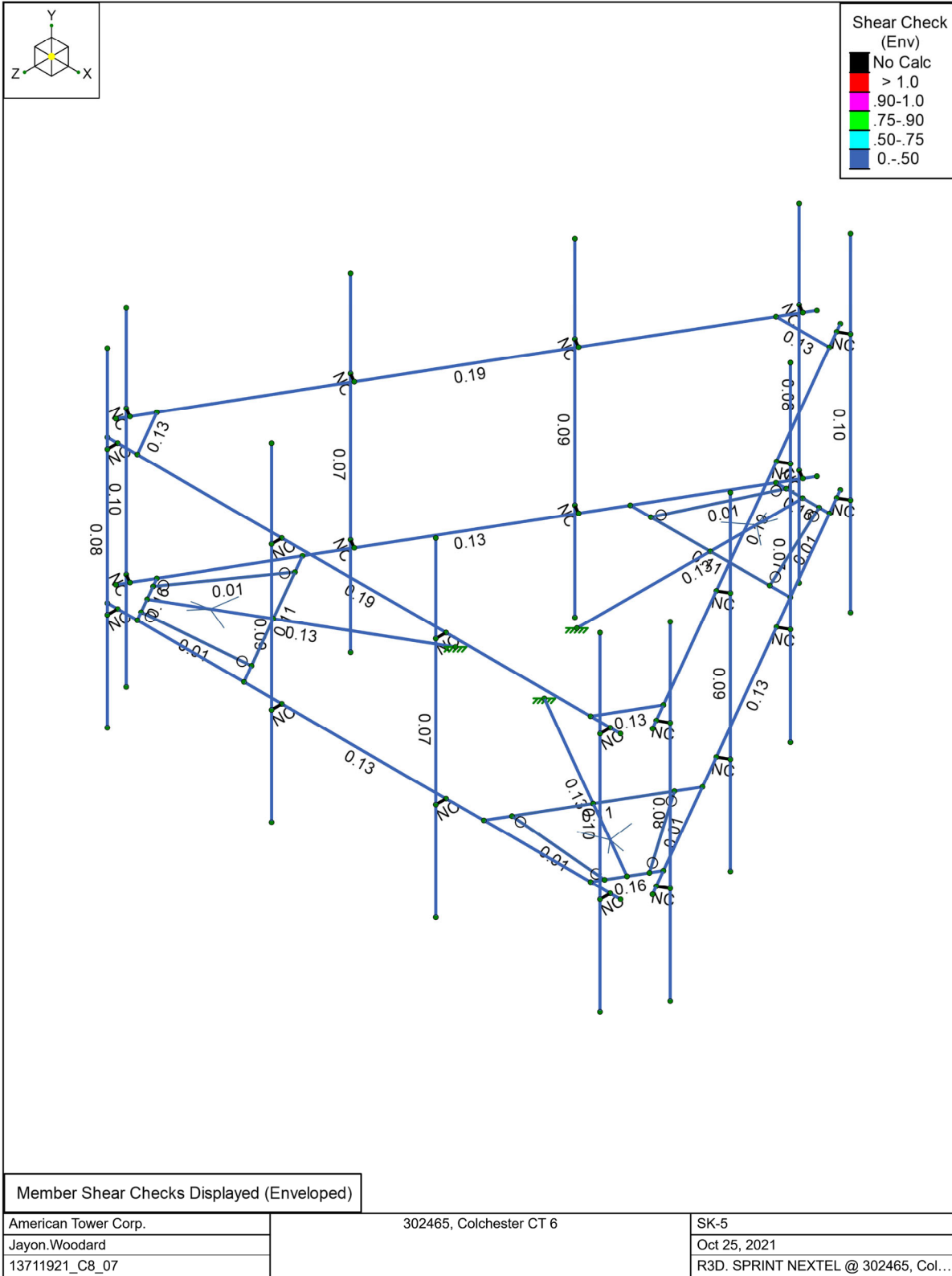


American Tower Corp.	302465, Colchester CT 6	SK-2
Jayon.Woodard		Oct 25, 2021
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American Tower Corp.	302465, Colchester CT 6	SK-3
Jayon.Woodard		Oct 25, 2021
13711921_C8_07		R3D. SPRINT NEXTEL @ 302465, Col...







Node Boundary Conditions

Node Label	X [lb/in]	Y [lb/in]	Z [lb/in]	X Rot [k-in/rad]	Y Rot [k-in/rad]	Z Rot [k-in/rad]
1 N002	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2 N075	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3 N076	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	H001	N007	N008		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
2	H002	N002	N013		HSS5X3X5	Beam	None	A500 Gr. B [SQR]	Typical
3	H003	N009	N011		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
4	H004	N010	N012		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
5	H005	N017	N015		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
6	H006	N019	N021		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
7	H007	N020	N022		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
8	H008	N016	N018		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
9	H009	N023	N025		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
10	H010	N024	N026		PIPE 3.0	Beam	None	A500 Gr. B [RND]	Typical
11	H011	N035	N027	270	L 1.5X1.5X4	Beam	None	A36	Typical
12	H012	N036	N028	270	L 1.5X1.5X4	Beam	None	A36	Typical
13	H013	N037	N038	270	L 1.5X1.5X4	Beam	None	A36	Typical
14	H014	N032	N029		L 1.5X1.5X4	Beam	None	A36	Typical
15	H015	N033	N030		L 1.5X1.5X4	Beam	None	A36	Typical
16	H016	N034	N031		L 1.5X1.5X4	Beam	None	A36	Typical
17	H017	N039	N040		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
18	H018	N041	N043		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
19	H019	N042	N044		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
20	H020	N046	N045		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
21	H021	N047	N049		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
22	H022	N048	N050		PIPE 2.0	Beam	None	A500 Gr. B [RND]	Typical
23	U023	N051	N055		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
24	U024	N056	N057		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
25	U025	N053	N058		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
26	U026	N059	N060		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
27	U027	N054	N061		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
28	U028	N062	N063		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
29	U029	N052	N064		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
30	U030	N065	N066		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
31	MP031	N067	N068		PIPE 2.0	Column	None	A53 Gr. B	Typical
32	MP032	N069	N070		PIPE 2.0	Column	None	A53 Gr. B	Typical
33	MP033	N071	N072		PIPE 2.0	Column	None	A53 Gr. B	Typical
34	MP034	N073	N074		PIPE 2.0	Column	None	A53 Gr. B	Typical
35	H035	N075	N003		HSS5X3X5	Beam	None	A500 Gr. B [SQR]	Typical
36	H036	N076	N004		HSS5X3X5	Beam	None	A500 Gr. B [SQR]	Typical
37	U037	N078	N085		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
38	U038	N086	N087		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
39	MP039	N088	N089		PIPE 2.0	Column	None	A53 Gr. B	Typical
40	U040	N080	N090		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
41	U041	N091	N092		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
42	MP042	N093	N094		PIPE 2.0	Column	None	A53 Gr. B	Typical
43	U043	N082	N095		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
44	U044	N096	N097		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
45	MP045	N098	N099		PIPE 2.0	Column	None	A53 Gr. B	Typical
46	U046	N084	N100		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
47	U047	N101	N102		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
48	MP048	N103	N104		PIPE 2.0	Column	None	A53 Gr. B	Typical
49	U049	N077	N105		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
50	U050	N106	N107		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
51	MP051	N108	N109		PIPE 2.0	Column	None	A53 Gr. B	Typical
52	U052	N079	N110		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
53	U053	N111	N112		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
54	MP054	N113	N114		PIPE 2.0	Column	None	A53 Gr. B	Typical
55	U055	N081	N115		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
56	U056	N116	N117		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
57	MP057	N118	N119		PIPE 2.0	Column	None	A53 Gr. B	Typical
58	U058	N083	N120		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
59	U059	N121	N122		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
60	MP060	N123	N124		PIPE 2.0	Column	None	A53 Gr. B	Typical



Company : American Tower Corp.
 Designer : Jayon.Woodard
 Job Number : 13711921_C8_07
 Model Name : 302465, Colchester CT 6

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Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Activation	Seismic DR
1	H001			Yes	N/A		None
2	H002			Yes	N/A		None
3	H003			Yes	N/A		None
4	H004			Yes	N/A		None
5	H005			Yes	N/A		None
6	H006			Yes	N/A		None
7	H007			Yes	N/A		None
8	H008			Yes	N/A		None
9	H009			Yes	N/A		None
10	H010			Yes	N/A		None
11	H011	BenPIN	BenPIN	Yes	N/A		None
12	H012	BenPIN	BenPIN	Yes	N/A		None
13	H013	BenPIN	BenPIN	Yes	N/A		None
14	H014	BenPIN	BenPIN	Yes	N/A		None
15	H015	BenPIN	BenPIN	Yes	N/A		None
16	H016	BenPIN	BenPIN	Yes	N/A		None
17	H017			Yes	N/A		None
18	H018			Yes	N/A		None
19	H019			Yes	N/A		None
20	H020			Yes	N/A		None
21	H021			Yes	N/A		None
22	H022			Yes	N/A		None
23	U023			Yes	N/A	Exclude	None
24	U024			Yes	N/A	Exclude	None
25	U025			Yes	N/A	Exclude	None
26	U026			Yes	N/A	Exclude	None
27	U027			Yes	N/A	Exclude	None
28	U028			Yes	N/A	Exclude	None
29	U029			Yes	N/A	Exclude	None
30	U030			Yes	N/A	Exclude	None
31	MP031			Yes	** NA **		None
32	MP032			Yes	** NA **		None
33	MP033			Yes	** NA **		None
34	MP034			Yes	** NA **		None
35	H035			Yes	N/A		None
36	H036			Yes	N/A		None
37	U037			Yes	N/A	Exclude	None
38	U038			Yes	N/A	Exclude	None
39	MP039			Yes	** NA **		None
40	U040			Yes	N/A	Exclude	None
41	U041			Yes	N/A	Exclude	None
42	MP042			Yes	** NA **		None
43	U043			Yes	N/A	Exclude	None
44	U044			Yes	N/A	Exclude	None
45	MP045			Yes	** NA **		None
46	U046			Yes	N/A	Exclude	None
47	U047			Yes	N/A	Exclude	None
48	MP048			Yes	** NA **		None
49	U049			Yes	N/A	Exclude	None
50	U050			Yes	N/A	Exclude	None
51	MP051			Yes	** NA **		None
52	U052			Yes	N/A	Exclude	None
53	U053			Yes	N/A	Exclude	None
54	MP054			Yes	** NA **		None
55	U055			Yes	N/A	Exclude	None
56	U056			Yes	N/A	Exclude	None
57	MP057			Yes	** NA **		None
58	U058			Yes	N/A	Exclude	None
59	U059			Yes	N/A	Exclude	None
60	MP060			Yes	** NA **		None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp top [in]	L-Torque [in]	K y-y	K z-z	Function
1	H001	PIPE 3.0	150			Lbyy		1	1	Lateral
2	H002	HSS5X3X5	66			Lbyy		1	1	Lateral
3	H003	PIPE 3.0	150			Lbyy		1	1	Lateral
4	H004	PIPE 3.0	150			Lbyy		1	1	Lateral



Company : American Tower Corp.
 Designer : Jayon.Woodard
 Job Number : 13711921_C8_07
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Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp top [in]	L-Torque [in]	K y-y	K z-z	Function	
5	H005	PIPE 3.0	15.588			Lbyy	0.65	0.65	Lateral	
6	H006	PIPE 3.0	15.588			Lbyy	0.65	0.65	Lateral	
7	H007	PIPE 3.0	15.588			Lbyy	0.65	0.65	Lateral	
8	H008	PIPE 3.0	46.765			Lbyy	0.65	0.65	Lateral	
9	H009	PIPE 3.0	46.765			Lbyy	0.65	0.65	Lateral	
10	H010	PIPE 3.0	46.765			Lbyy	0.65	0.65	Lateral	
11	H011	L 1.5X1.5X4	29.79			Lbyy	1	1	Lateral	
12	H012	L 1.5X1.5X4	29.79			Lbyy	1	1	Lateral	
13	H013	L 1.5X1.5X4	29.79			Lbyy	1	1	Lateral	
14	H014	L 1.5X1.5X4	29.79			Lbyy	1	1	Lateral	
15	H015	L 1.5X1.5X4	29.79			Lbyy	1	1	Lateral	
16	H016	L 1.5X1.5X4	29.79			Lbyy	1	1	Lateral	
17	H017	PIPE 2.0	150			Lbyy	1	1	Lateral	
18	H018	PIPE 2.0	150			Lbyy	1	1	Lateral	
19	H019	PIPE 2.0	150			Lbyy	1	1	Lateral	
20	H020	PIPE 2.0	15.588			Lbyy	0.65	0.65	Lateral	
21	H021	PIPE 2.0	15.588			Lbyy	0.65	0.65	Lateral	
22	H022	PIPE 2.0	15.588			Lbyy	0.65	0.65	Lateral	
23	U023	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
24	U024	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
25	U025	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
26	U026	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
27	U027	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
28	U028	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
29	U029	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
30	U030	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
31	MP031	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
32	MP032	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
33	MP033	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
34	MP034	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
35	H035	HSS5X3X5	66			Lbyy	1	1	Lateral	
36	H036	HSS5X3X5	66			Lbyy	1	1	Lateral	
37	U037	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
38	U038	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
39	MP039	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
40	U040	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
41	U041	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
42	MP042	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
43	U043	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
44	U044	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
45	MP045	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
46	U046	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
47	U047	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
48	MP048	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
49	U049	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
50	U050	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
51	MP051	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
52	U052	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
53	U053	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
54	MP054	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
55	U055	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
56	U056	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
57	MP057	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
58	U058	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
59	U059	(2) 1/2 U-BOLTS	3			Lbyy	0.5	0.5	Lateral	
60	MP060	PIPE 2.0	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral

Hot Rolled Steel Properties

Label	E [psi]	G [psi]	Nu	Therm. Coeff. [1e ⁻⁶ F ⁻¹]	Density [lb/ft ³]	Yield [psi]	Ry	Fu [psi]	Rt	
1	A500 Gr. B [RND]	2.9e+07	1.115e+07	0.3	0.65	527	42000	1.4	58000	1.3
2	A500 Gr. B [SQR]	2.9e+07	1.115e+07	0.3	0.65	527	46000	1.4	58000	1.3
3	A36	2.9e+07	1.115e+07	0.3	0.65	490	36000	1.5	58000	1.2
4	A53 Gr. B	2.9e+07	1.115e+07	0.3	0.65	490	35000	1.6	60000	1.2



Company : American Tower Corp.
 Designer : Jayon.Woodard
 Job Number : 13711921_C8_07
 Model Name : 302465, Colchester CT 6

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Envelope Node Reactions

Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
1	N002	max	1466.565	17	2211.404	26	2507.958	14	6881.343	158	2786.431	23	1310.846	11
2		min	-1467.29	23	39.313	20	-2603.437	8	-890.71	20	-2783.201	17	-1209.766	17
3	N075	max	2208.684	18	2211.401	30	1237.728	12	597.483	14	2786.39	15	764.842	24
4		min	-2291.532	12	39.327	24	-1190.269	18	-3528.141	80	-2783.16	21	-6064.897	114
5	N076	max	2217.666	4	2211.401	34	1599.069	2	587.922	15	2786.374	19	6005.09	202
6		min	-2135.141	22	39.327	16	-1551.321	20	-3632.313	68	-2783.144	25	-777.791	16
7	Totals:	max	5002.44	17	6133.192	30	5331.317	14						
8		min	-5002.44	11	2296.045	24	-5331.317	8						

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

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn	
1	H001	PIPE 3.0	0.148	109.375	5	0.126	7.812		2	28615.556	78246	6898.5	6898.5	2.48	H1-1b
2	H002	HSS5X3X5	0.318	0	11	0.133	0	z	11	136966.469	169740	15456	22149	2.811	H1-1b
3	H003	PIPE 3.0	0.148	109.375	9	0.126	7.812		6	28615.556	78246	6898.5	6898.5	2.48	H1-1b
4	H004	PIPE 3.0	0.148	109.375	13	0.126	7.812		10	28615.556	78246	6898.5	6898.5	2.48	H1-1b
5	H005	PIPE 3.0	0.123	7.794	13	0.156	2.923		6	77888.459	78246	6898.5	6898.5	1.232	H1-1b
6	H006	PIPE 3.0	0.123	7.794	5	0.156	2.923		10	77888.459	78246	6898.5	6898.5	1.232	H1-1b
7	H007	PIPE 3.0	0.123	7.794	9	0.156	2.923		2	77888.459	78246	6898.5	6898.5	1.232	H1-1b
8	H008	PIPE 3.0	0.229	23.383	37	0.113	23.383		11	75086.325	78246	6898.5	6898.5	1.369	H1-1b
9	H009	PIPE 3.0	0.229	23.383	29	0.113	23.383		3	75086.325	78246	6898.5	6898.5	1.369	H1-1b
10	H010	PIPE 3.0	0.229	23.383	33	0.113	23.383		7	75086.325	78246	6898.5	6898.5	1.369	H1-1b
11	H011	L 1.5X1.5X4	0.068	15.206	17	0.009	29.79	y	5	8987.293	22469.4	217.337	862.417	1.136	H2-1
12	H012	L 1.5X1.5X4	0.068	15.206	21	0.009	29.79	y	9	8987.293	22469.4	217.337	862.417	1.136	H2-1
13	H013	L 1.5X1.5X4	0.068	15.206	25	0.009	29.79	y	13	8987.293	22469.4	217.337	862.417	1.136	H2-1
14	H014	L 1.5X1.5X4	0.07	15.206	23	0.01	29.79	y	36	8987.293	22469.4	217.337	862.417	1.136	H2-1
15	H015	L 1.5X1.5X4	0.07	15.206	15	0.01	29.79	y	28	8987.293	22469.4	217.337	862.417	1.136	H2-1
16	H016	L 1.5X1.5X4	0.07	15.206	19	0.01	29.79	y	32	8987.293	22469.4	217.337	862.417	1.136	H2-1
17	H017	PIPE 2.0	0.189	50	8	0.185	9.375		2	6295.422	38556	2245.95	2245.95	2.821	H1-1b
18	H018	PIPE 2.0	0.189	50	12	0.185	9.375		6	6295.422	38556	2245.95	2245.95	2.821	H1-1b
19	H019	PIPE 2.0	0.189	50	4	0.185	9.375		10	6295.422	38556	2245.95	2245.95	2.821	H1-1b
20	H020	PIPE 2.0	0.242	0	6	0.129	0		11	38162.512	38556	2245.95	2245.95	2.083	H1-1b
21	H021	PIPE 2.0	0.242	0	10	0.129	0		3	38162.512	38556	2245.95	2245.95	2.083	H1-1b
22	H022	PIPE 2.0	0.242	0	2	0.129	0		7	38162.512	38556	2245.95	2245.95	2.083	H1-1b
23	MP031	PIPE 2.0	0.318	67	2	0.098	67		2	16811.605	32130	1871.625	1871.625	2.273	H1-1b
24	MP032	PIPE 2.0	0.268	67	2	0.077	67		9	16811.605	32130	1871.625	1871.625	3	H1-1b
25	MP033	PIPE 2.0	0.515	67	2	0.072	67		9	16811.605	32130	1871.625	1871.625	2.317	H1-1b
26	MP034	PIPE 2.0	0.41	67	3	0.095	67		7	16811.605	32130	1871.625	1871.625	2.222	H1-1b
27	H035	HSS5X3X5	0.318	0	3	0.133	0	z	3	136966.469	169740	15456	22149	2.811	H1-1b
28	H036	HSS5X3X5	0.318	0	7	0.133	0	z	7	136966.469	169740	15456	22149	2.811	H1-1b
29	MP039	PIPE 2.0	0.318	67	10	0.098	67		10	16811.605	32130	1871.625	1871.625	3	H1-1b
30	MP042	PIPE 2.0	0.515	67	10	0.072	67		5	16811.605	32130	1871.625	1871.625	1.731	H1-1b
31	MP045	PIPE 2.0	0.41	67	11	0.095	67		3	16811.605	32130	1871.625	1871.625	3	H1-1b
32	MP048	PIPE 2.0	0.268	67	10	0.077	67		5	16811.605	32130	1871.625	1871.625	3	H1-1b
33	MP051	PIPE 2.0	0.318	67	6	0.098	67		6	16811.605	32130	1871.625	1871.625	2.56	H1-1b
34	MP054	PIPE 2.0	0.515	67	6	0.072	67		13	16811.605	32130	1871.625	1871.625	1.729	H1-1b
35	MP057	PIPE 2.0	0.41	67	7	0.095	67		11	16811.605	32130	1871.625	1871.625	1.855	H1-1b
36	MP060	PIPE 2.0	0.268	67	6	0.077	67		13	16811.605	32130	1871.625	1871.625	2.3	H1-1b

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

T-Mobile Existing Facility

Site ID: CTHA359A

**355 Route 85
Colchester, Connecticut 06415**

December 2, 2021

EBI Project Number: 6221007282

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	15.79%

December 2, 2021

T-Mobile

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

Emissions Analysis for Site: CTHA359A

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **355 Route 85** in **Colchester, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 355 Route 85 in Colchester, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

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

- 6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 7) 1 LTE Traffic channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.
- 8) 1 LTE Broadcast channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.
- 9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 11) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 12) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 13) The antennas used in this modeling are the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels

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

- 14) The antenna mounting height centerline of the proposed antennas is 180 feet above ground level (AGL).
- 15) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 16) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.15 dBd / 15.15 dBd / 15.8 dBd	Gain:	15.15 dBd / 15.15 dBd / 15.8 dBd	Gain:	15.15 dBd / 15.15 dBd / 15.8 dBd
Height (AGL):	180 feet	Height (AGL):	180 feet	Height (AGL):	180 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts	Total TX Power (W):	360 Watts
ERP (W):	12,418.45	ERP (W):	12,418.45	ERP (W):	12,418.45
Antenna A1 MPE %:	1.47%	Antenna B1 MPE %:	1.47%	Antenna C1 MPE %:	1.47%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	180 feet	Height (AGL):	180 feet	Height (AGL):	180 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts
ERP (W):	4,151.83	ERP (W):	4,151.83	ERP (W):	4,151.83
Antenna A2 MPE %:	1.17%	Antenna B2 MPE %:	1.17%	Antenna C2 MPE %:	1.17%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	180 feet	Height (AGL):	180 feet	Height (AGL):	180 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A3 MPE %:	4.32%	Antenna B3 MPE %:	4.32%	Antenna C3 MPE %:	4.32%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	6.97%
T-Mobile (Existing)	1.97%
Verizon	3.35%
AT&T	3.5%
Site Total MPE % :	15.79%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	6.97%
T-Mobile Sector B Total:	6.97%
T-Mobile Sector C Total:	6.97%
Site Total MPE % :	15.79%

T-Mobile Maximum MPE Power Values (Sector A)							
T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 1900 MHz GSM	4	982.02	180.0	4.66	1900 MHz GSM	1000	0.47%
T-Mobile 1900 MHz LTE	2	1964.04	180.0	4.66	1900 MHz LTE	1000	0.47%
T-Mobile 2100 MHz LTE	2	2281.14	180.0	5.42	2100 MHz LTE	1000	0.54%
T-Mobile 600 MHz LTE	2	591.73	180.0	1.41	600 MHz LTE	400	0.35%
T-Mobile 600 MHz NR	1	1577.94	180.0	1.87	600 MHz NR	400	0.47%
T-Mobile 700 MHz LTE	2	695.22	180.0	1.65	700 MHz LTE	467	0.35%
T-Mobile 2500 MHz LTE IC & 2C Traffic	1	11044.63	180.0	13.12	2500 MHz LTE IC & 2C Traffic	1000	1.31%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	1074.06	180.0	1.28	2500 MHz LTE IC & 2C Broadcast	1000	0.13%
T-Mobile 2500 MHz NR Traffic	1	22089.26	180.0	26.23	2500 MHz NR Traffic	1000	2.62%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	180.0	2.55	2500 MHz NR Broadcast	1000	0.26%
						Total:	6.97%

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	6.97%
Sector B:	6.97%
Sector C:	6.97%
T-Mobile Maximum MPE % (Sector A):	6.97%
Site Total:	15.79%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **15.79%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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