UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

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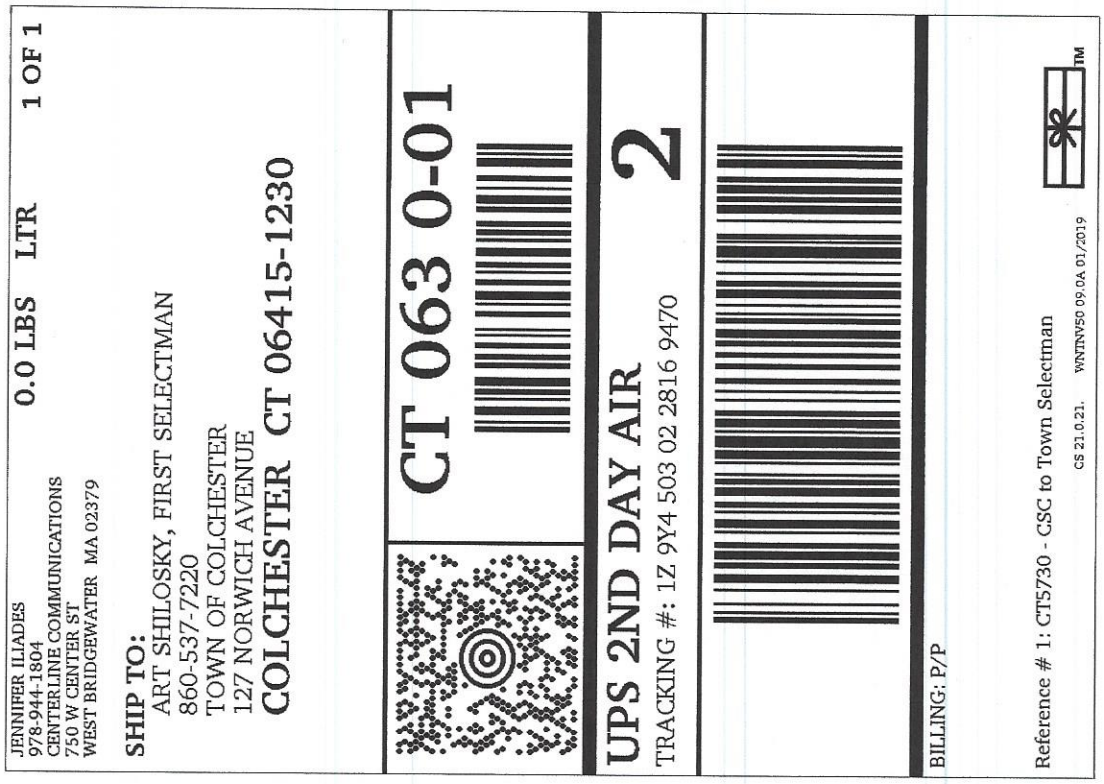
TOWN LINE GENERAL STORE
450 E CENTER ST
WEST BRIDGEWATER ,MA 02379

UPS Access Point™
M&M SEAFOOD
1124 MAIN ST
BROCKTON ,MA 02301

UPS Access Point™
BOOST MOBILE 649
649 WARREN AVE
BROCKTON ,MA 02301

FOLD HERE



Jennifer Iliades

From: UPS Quantum View <pkginfo@ups.com>
Sent: Tuesday, March 12, 2019 2:13 PM
To: Jennifer Iliades
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030228169470

Your package has been delivered.

Delivery Date: Tuesday, 03/12/2019
Delivery Time: 02:08 PM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z9Y45030228169470
Ship To:	Art Shilosky, First Selectman Town of Colchester 127 NORWICH AVE COLCHESTER, CT 06415 US
UPS Service:	UPS 2ND DAY AIR
Number of Packages:	1
Shipment Type:	Letter
Delivery Location:	OFFICE MILLER
Reference Number 1:	CT5730 - CSC to Town Selectman

Download the UPS mobile app

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

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   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

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1124 MAIN ST
BROCKTON ,MA 02301

UPS Access Point™
BOOST MOBILE 649
649 WARREN AVE
BROCKTON ,MA 02301

FOLD HERE

Jennifer Iliades

From: UPS Quantum View <pkginfo@ups.com>
Sent: Tuesday, March 12, 2019 2:13 PM
To: Jennifer Iliades
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030228500084

Your package has been delivered.

Delivery Date: Tuesday, 03/12/2019
Delivery Time: 02:08 PM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z9Y45030228500084
Ship To:	Randall Benson, Town Planner Town of Colchester 127 NORWICH AVE COLCHESTER, CT 06415 US
UPS Service:	UPS 2ND DAY AIR
Number of Packages:	1
Shipment Type:	Letter
Delivery Location:	OFFICE MILLER
Reference Number 1:	CT5730 - CSC to Town Planner

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UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

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   Hand the package to any UPS driver in your area.

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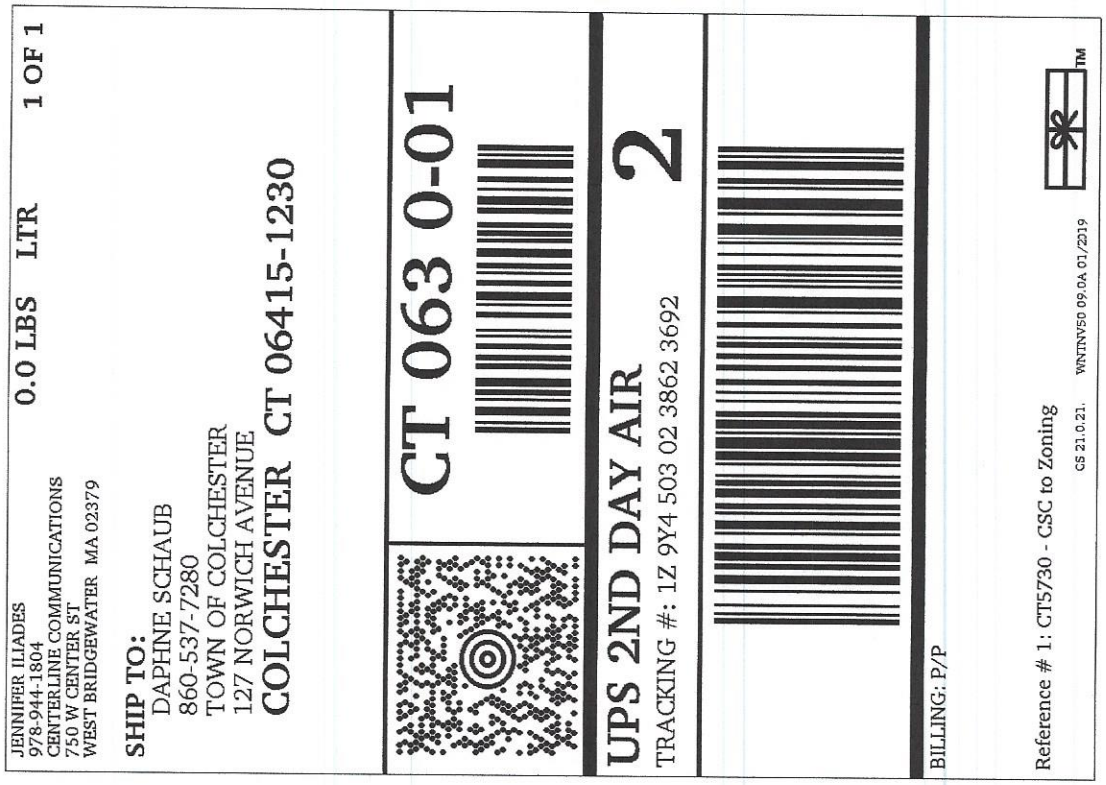


Jennifer Iliades

From: UPS Quantum View <pkginfo@ups.com>
Sent: Tuesday, March 12, 2019 2:13 PM
To: Jennifer Iliades
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030238623692

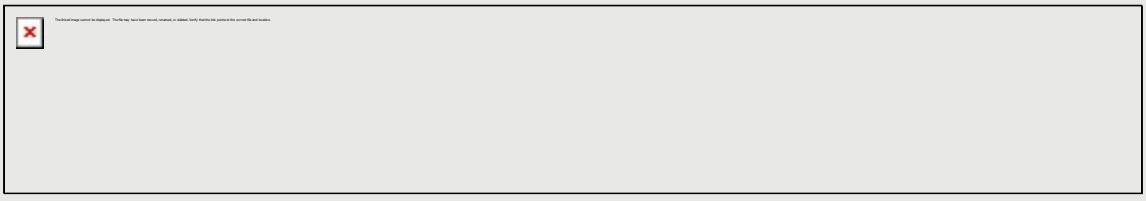
Your package has been delivered.

Delivery Date: Tuesday, 03/12/2019
Delivery Time: 02:08 PM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z9Y45030238623692
Ship To:	Daphne Schaub Town of Colchester 127 NORWICH AVE COLCHESTER, CT 06415 US
UPS Service:	UPS 2ND DAY AIR
Number of Packages:	1
Shipment Type:	Letter
Delivery Location:	OFFICE MILLER
Reference Number 1:	CT5730 - CSC to Zoning



Download the UPS mobile app

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

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   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
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   Hand the package to any UPS driver in your area.

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BROCKTON ,MA 02301

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JENNIFER ILIADES
978-944-1804
CENTERLINE COMMUNICATIONS
750 W CENTER ST
WEST BRIDGEWATER MA 02379

0.0 LBS LTR 1 OF 1

SHIP TO:
RYAN TIERNEY
781-428-7250
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN MA 01801-1053

MA 018 9-04

UPS 2ND DAY AIR 2

TRACKING #: 1Z 9Y4 503 02 2184 9917

BILLING: P/P

Reference # 1: CT5730 - GSC to ATC

CS 21.0.21. WNTNV50 09.0A 01/2019

Jennifer Iliades

From: UPS Quantum View <pkginfo@ups.com>
Sent: Tuesday, March 12, 2019 11:28 AM
To: Jennifer Iliades
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030221849917

Your package has been delivered.

Delivery Date: Tuesday, 03/12/2019
Delivery Time: 11:23 AM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z9Y45030221849917
Ship To:	Ryan Tierney American Tower Corporation 10 PRESIDENTIAL WAY WOBURN, MA 01801 US
UPS Service:	UPS 2ND DAY AIR
Number of Packages:	1
Shipment Type:	Letter
Delivery Location:	RECEIVER ANCRI
Reference Number 1:	CT5730 - CSC to ATC

Download the UPS mobile app

March 11, 2019

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

Regarding: Notice of Exempt Modification – AT&T Site CT5730
Address: 355 Route 85 (a/k/a 355 New London Road), Colchester, CT 06415

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains a wireless telecommunications facility on an existing 180-foot monopole at the above-referenced address, latitude 41.544800, longitude -72.304900. Said monopole is operated by American Tower Corporation.

AT&T desires to modify its existing telecommunications facility by swapping (6) antennas, adding (1) surge arrestor and accompanying feedlines, swapping (3) remote radio heads (RRU) and adding (3) RRU. The centerline height of the existing antennas is and will remain at 150 feet.

Please accept this letter as notification pursuant to R.C.S.A §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 Art Shilosky, First Selectman of the Town of Colchester, Randall Benson, Town Planner of the Town of Colchester, Daphne Schaub, Zoning Enforcement Officer of the Town of Colchester and American Tower Corporation as tower operator/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). Specifically:

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

2. The proposed modifications will not require an 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 modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. *Please see the RF emissions calculation for AT&T's modified facility enclosed herewith.*

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

6. The existing structure and its foundation can support the proposed loading. *Please see the structural analysis dated January 30, 2019 by Hudson Design Group LLC enclosed herewith.*

For the foregoing reasons, AT&T 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,

Jennifer Iliades
Site Acquisition Consultant
Centerline Communications, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379
jiliades@clinellc.com

Enclosures: Exhibit 1 – Field Card and GIS Map
Exhibit 2 – Construction Drawings
Exhibit 3 – Structural Analysis
Exhibit 4 – RF Emissions Analysis Report Evaluation

cc: Art Shilosky, First Selectman, Town of Colchester
Randall Benson, Town Planner, Town of Colchester
Daphne Schaub, Zoning Enforcement Officer, Town of Colchester
American Tower Corporation, Tower Operator/Owner

EXHIBIT 1

355 NEW LONDON RD

Location	355 NEW LONDON RD	**Mblu**	02-08/ / 003-000/ TWR/
Acct#	11AT0007	**Owner**	SPECTRASITE COMMUNICATIONS INC
Assessment	$467,800	**Appraisal**	$668,300
PID	105117	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$668,300	$0	$668,300
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$467,800	$0	$467,800

Owner of Record

Owner	SPECTRASITE COMMUNICATIONS INC	**Sale Price**	$0
Co-Owner	ATTN TAX MANAGER	**Certificate**	
Address	PO BOX 723597 ATLANTA, GA 31139	**Book & Page**	000/ 000
		Sale Date	10/01/2011

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
SPECTRASITE COMMUNICATIONS INC	$0		000/ 000	10/01/2011

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes	
Field	**Description**

Style	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	

Building Photo

(http://images.vgsi.com/photos2/colchesterCTPhotos//default.jpg

Building Layout

Building Layout

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	4310
Description	Tel Rel Tw
Zone	R60
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0
Frontage	
Depth	
Assessed Value	$0
Appraised Value	$0

Outbuildings

Outbuildings	Legend

Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
TWR2	Cell Tower			3 SITES	$630,000	1
SHD9	Cell Shed			240 S.F.	$36,000	1
FN4	Fence 8' Chain			260 L.F.	$2,300	1

Valuation History

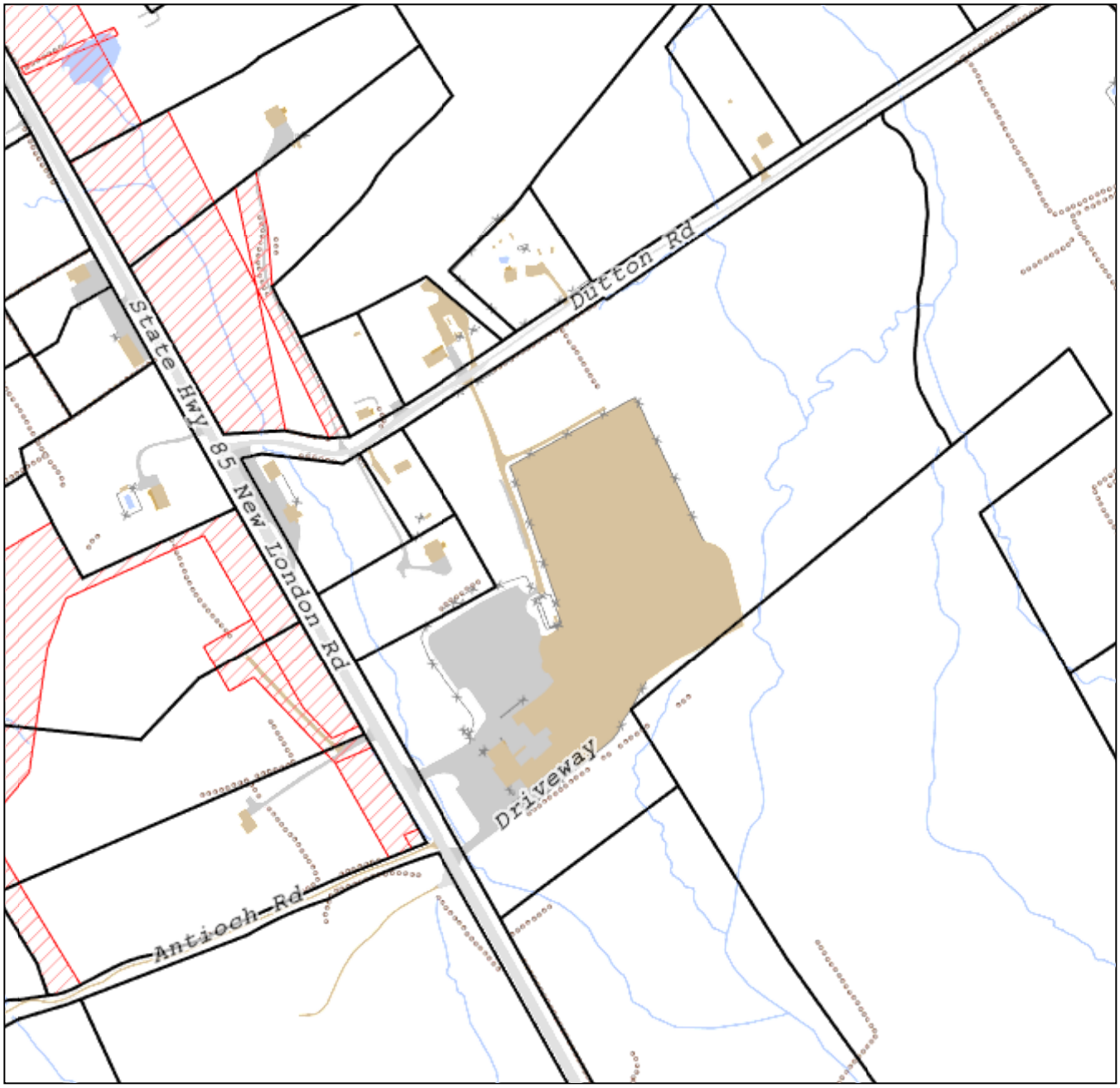
Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$374,300	$0	$374,300

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$262,000	$0	$262,000

Town of Colchester

Geographic Information System (GIS)

Date Printed: 3/11/2019



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. 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.

Approximate Scale: 1 inch = 400 feet

0 400 Feet

N W E S

EXHIBIT 2

PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE:
- NEW AT&T LTE ANTENNA (800-10965) @ POS. 1
(TOTAL OF 1 FOR ALPHA SECTOR).
- NEW AT&T LTE ANTENNA (HPA-65R-BU6AA) @ POS. 2
(TOTAL OF 1 FOR ALPHA SECTOR).
- NEW AT&T LTE ANTENNA (800-10966) @ POS. 1
(TYP OF 1 PER BETA & GAMMA SECTOR, TOTAL OF 2)
- NEW AT&T LTE ANTENNA (HPA-65R-BU8AA) @ POS. 2
(TYP OF 1 PER BETA & GAMMA SECTOR, TOTAL OF 2)
- NEW AT&T RRUS 4449 B5/B12 (850/700) (TYP OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS 8843 B2/B66A (AWS/PCS) (TYP OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T SURGE ARRESTOR DC6-48-60-18-8C (TOTAL OF 1)
WITH (2) DC POWER, & (1) FIBER.

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- SWAP BB WITH (2) 6630.
- ADD (1) XMU.
- INSTALL NEW AT&T LOW BAND COMBINERS (DBCT108F1V92-1) (TOTAL OF 3).
- INSTALL NEW AT&T RRUS 4478 B14 (700)
(TYP. OF 1 FOR ALPHA, & 1 SHARED BETWEEN BETA & GAMMA, TOTAL OF 2)
- INSTALL NEW SURGE ARRESTORS (TSXDC-4310FM) (TYP. OF 4 PER RRU, TOTAL OF 8)

ITEMS TO REMAIN:
- (3) ANTENNAS, (6) TMA'S, (1) SURGE ARRESTOR, (12) COAX CABLES,
(2) DC POWER & (1) FIBER.

SQUID ALARMING (NOT TO BE DAISY CHAINED).
- THE 1ST SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED RRH/RRU ON THE ALPHA SECTOR, IN THE EVENT THE ALARM CABLE CANNOT BE CONNECTED TO ALPHA IT WILL BE ACCEPTABLE TO ALARM TO THE CLOSEST PHYSICAL SECTOR ON AN EXCEPTION BASIS.
- 2ND SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED) RRH/RRU ON THE BETA SECTOR.
- 3RD SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED) RRH/RRU ON THE GAMMA SECTOR.

SITE ADDRESS:	285 WEST ROAD COLCHESTER, CT 06415
LATITUDE:	41.545000 N, 41° 32' 42.00" N
LONGITUDE:	72.304200 W, 72° 18' 15.12" W
TYPE OF SITE:	MONOPOLE/ OUTDOOR EQUIPMENT
STRUCTURE HEIGHT:	180'±
RAD CENTER:	150'±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	A
GN-1	GENERAL NOTES	A
A-1	COMPOUND & EQUIPMENT PLANS	A
A-2	ANTENNA LAYOUTS & ELEVATION	A
A-3	DETAILS	A
A-4	DETAILS	A
RF-1	RF PLUMBING DIAGRAM	A
G-1	GROUNDING DETAILS	A

ATC SITE NAME: COLCHESTER CT 6
ATC SITE #: 302465

at&t

SITE NUMBER: CT5730

SITE NAME: COLCHESTER SOUTH

FA CODE: 10070974

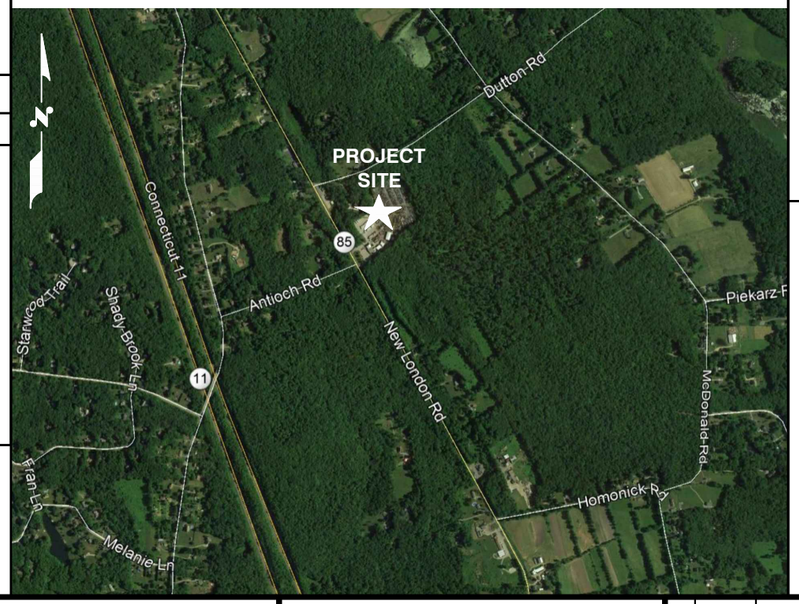
PACE ID: MRCTB035138, MRCTB035154, MRCTB035199, MRCTB035222, MRCTB035354

PROJECT: LTE 2C/3C/4C/5C/4TX4RX 2019 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. TURN LEFT ONTO CAPITOL BLVD. TURN LEFT ONTO WEST ST. MERGE ONTO I-91 N VIA THE RAMP IN THE LEFT TOWARD HARTFORD 4.5 MILES. MERGE ONTO CT-3 N VIA EXIT 25 TOWARD GLASTONBURY. MERGE ONTO CT-2 E TOWARD NORWICH 20.0 MILES. MERGE ONTO CT-11 S VIA EXIT 19 TOWARD NEW LONDON. TAKE THE LAKE HAYWARD RD EXIT, EXIT 6, TOWARD CT-85/CT-354. TURN LEFT ONTO LAKE HAYWARD RD. TURN RIGHT ONTO NEW LONDON RD/CT-85. TURN SLIGHT RIGHT ONTO WEST RD. 285 WEST RD IS ON THE LEFT.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET., SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT5730
SITE NAME: COLCHESTER SOUTH
ATC SITE #: 302465

285 WEST ROAD
COLCHESTER, CT 06415
NEW LONDON COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
A	01/30/19	ISSUED FOR REVIEW	ET	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: ET

AT&T

TITLE SHEET
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT5730	T-1	A

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – CENTERLINE
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES:
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

    BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

    SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

    AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

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CENTERLINE COMMUNICATIONS
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WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT5730
SITE NAME: COLCHESTER SOUTH
ATC SITE #: 302465

285 WEST ROAD
COLCHESTER, CT 06415
NEW LONDON COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: ET

AT&T

GENERAL NOTES
(LTE 2C/3C/4C/5C/4TX4RX)

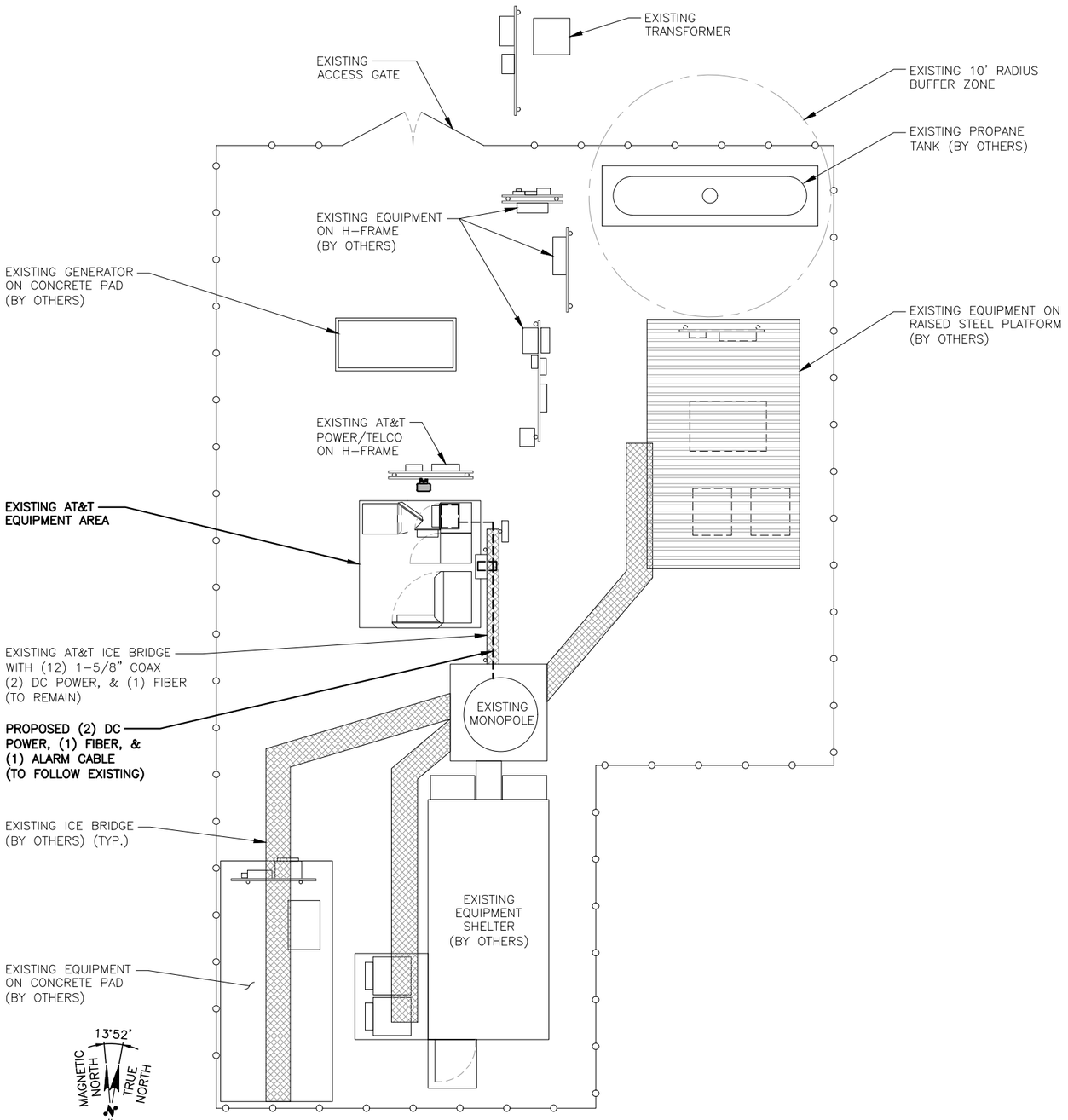
SITE NUMBER	DRAWING NUMBER	REV
CT5730	GN-1	A

NOTE:

ALL ANTENNAS AND RRHS TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER AND FINAL RF DATA SHEET

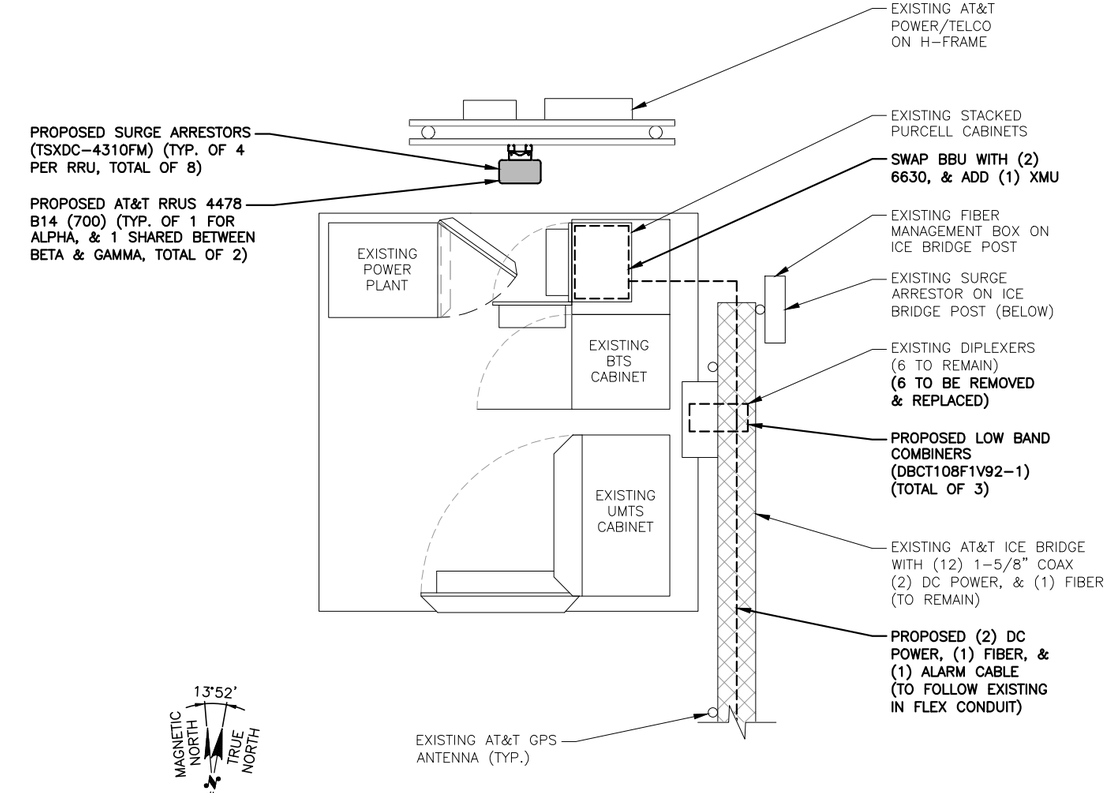
NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



COMPOUND PLAN 1 A-1
22x34 SCALE: 1/4"=1'-0"
11x17 SCALE: 1/8"=1'-0"

0 2'-0" 4'-0" 8'-0" 12'-0"



COMPOUND PLAN 1 A-1
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11x17 SCALE: 1/8"=1'-0"

0 2'-0" 4'-0" 8'-0" 12'-0"

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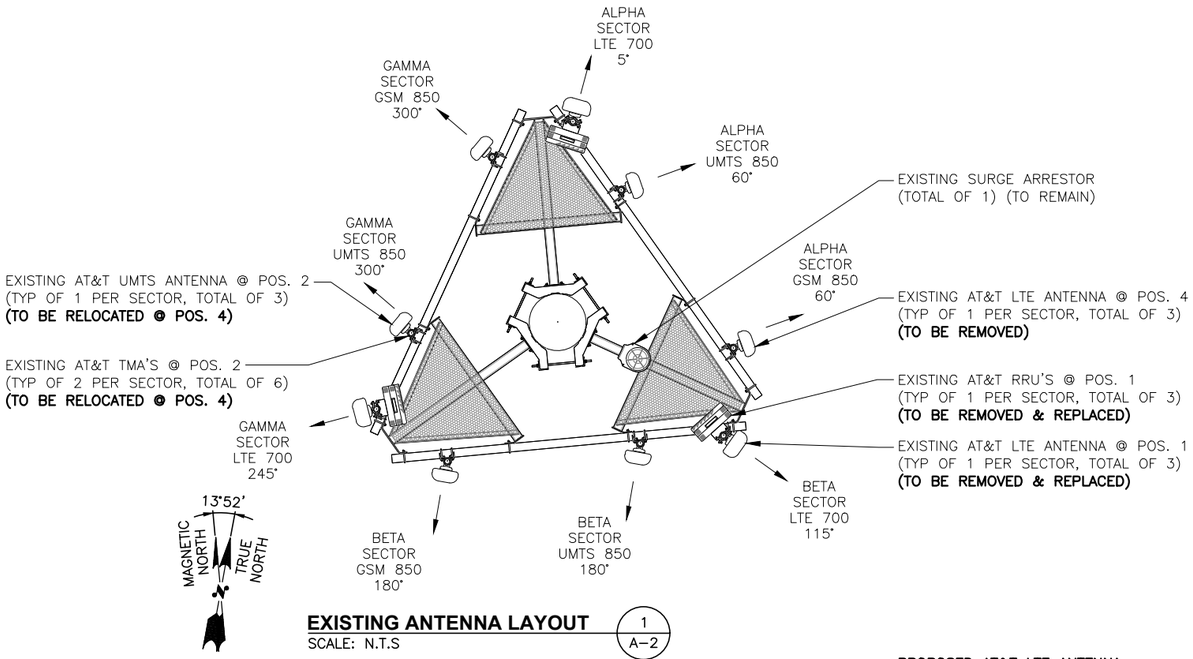
COMPOUND & EQUIPMENT PLANS
(LTE 2C/3C/4C/5C/4TX4RX)

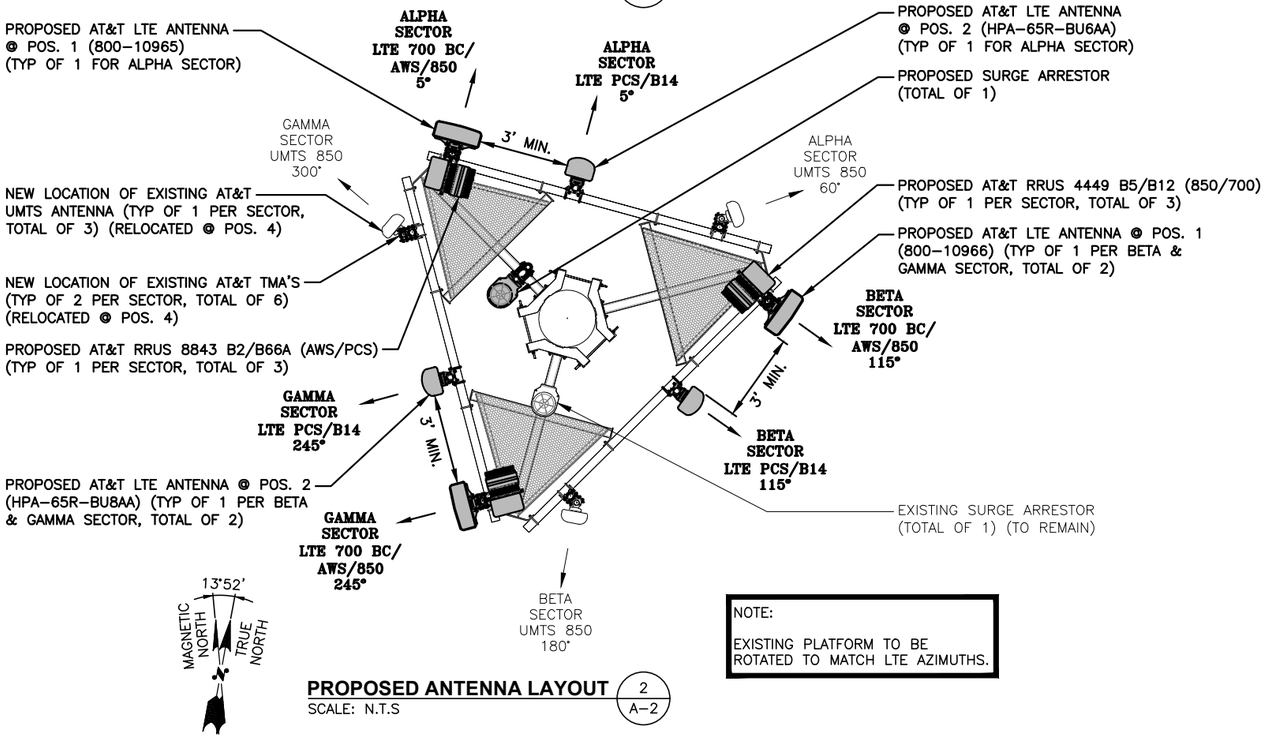
SITE NUMBER	DRAWING NUMBER	REV
CT5730	A-1	A



EXISTING ANTENNA LAYOUT

1 / A-2

SCALE: N.T.S



PROPOSED ANTENNA LAYOUT

2 / A-2

SCALE: N.T.S

NOTE:

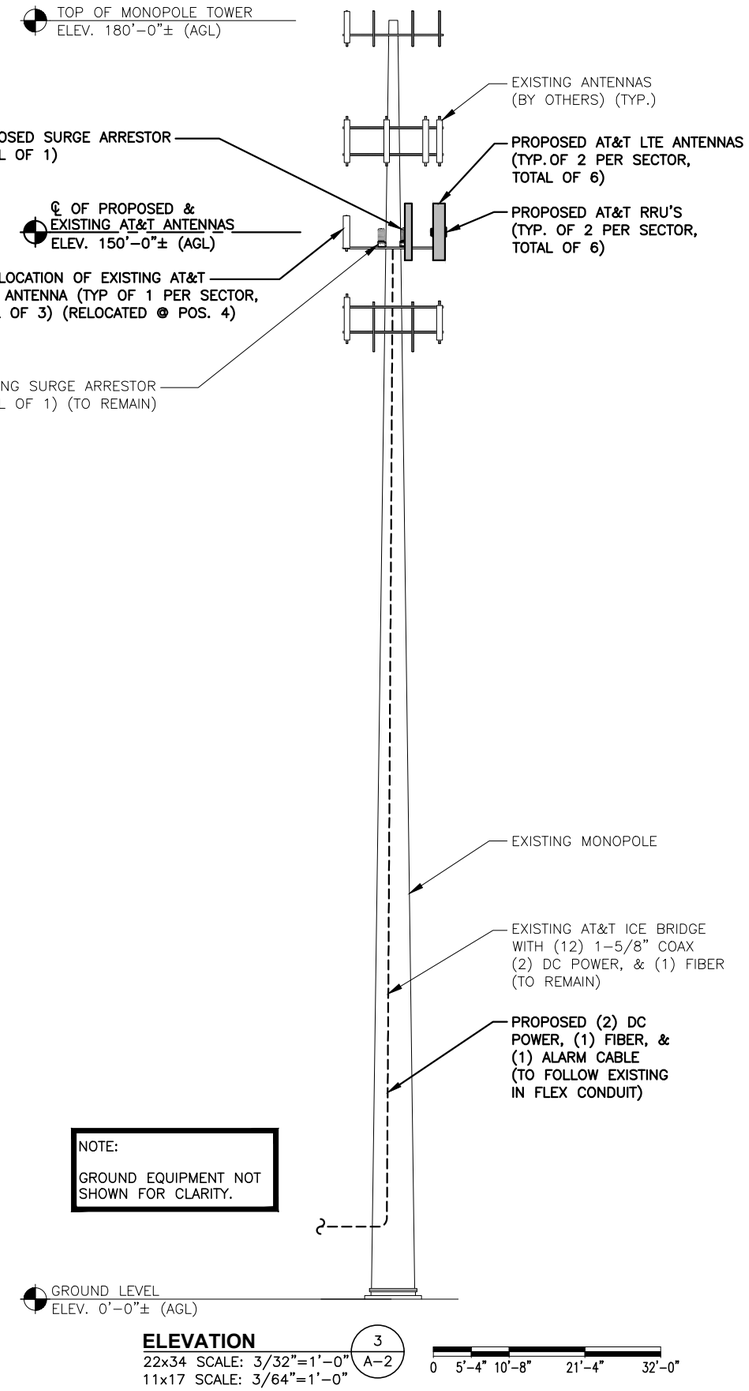
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

ALL ANTENNAS AND RRHS TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER AND FINAL RF DATA SHEET

NOTE:

EXISTING PLATFORM TO BE ROTATED TO MATCH LTE AZIMUTHS.



NOTE:

GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

ELEVATION

3 / A-2

22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

0 5'-4" 10'-8" 21'-4" 32'-0"

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ANTENNA LAYOUTS & ELEVATION
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT5730	A-2	A

NOTE:

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NOTE:

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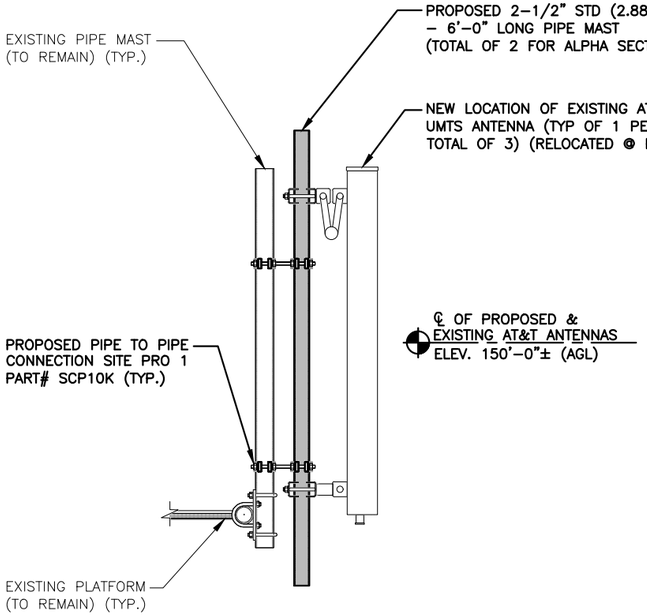
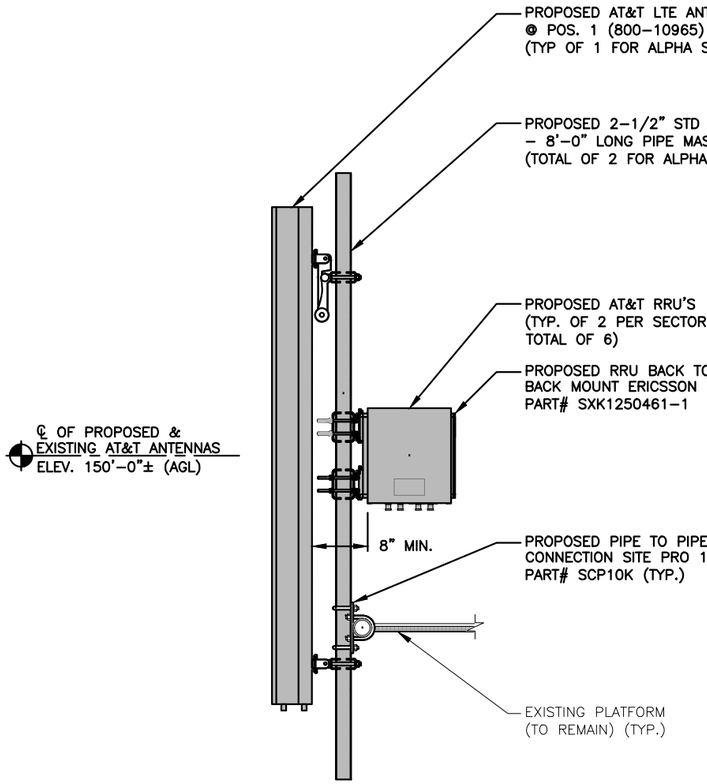


EXISTING UMTS ANTENNA MOUNTING DETAIL 1 A-3

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

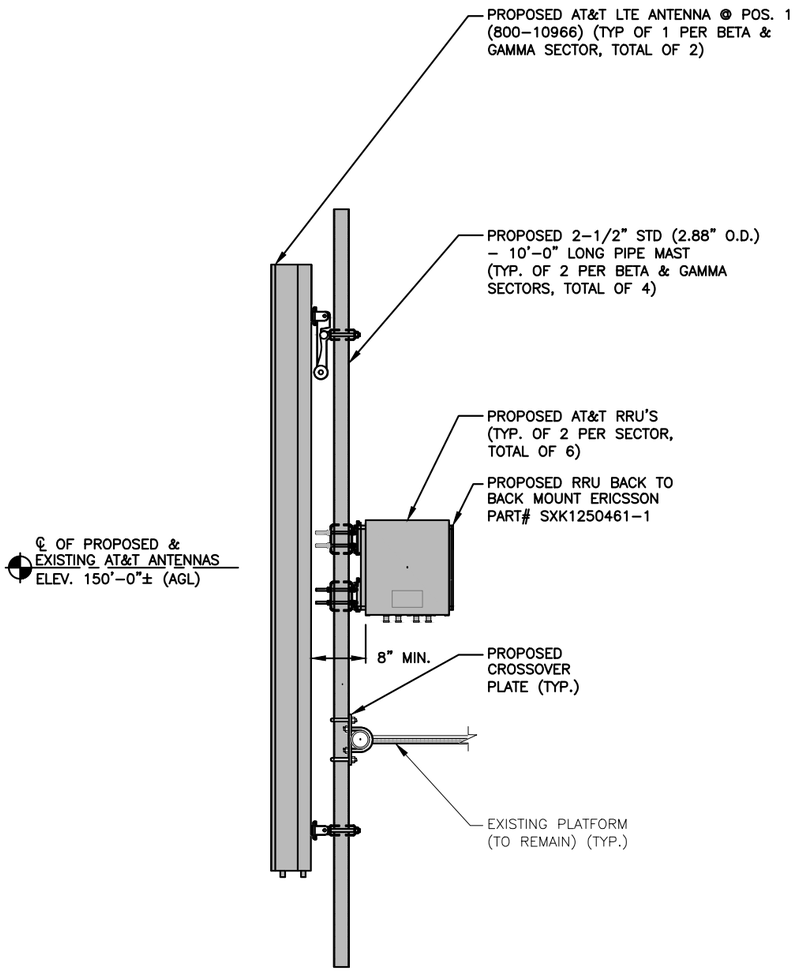
0 0'-6" 1'-0" 2'-0" 3'-0"



PROPOSED LTE ANTENNA & RRH MOUNTING DETAIL (ALPHA SECTOR) 2 A-3

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"



PROPOSED LTE ANTENNA & RRH MOUNTING DETAIL (BETA & GAMMA SECTORS) 3 A-3

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

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ATC SITE #: 302465

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NEW LONDON COUNTY

at&t
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FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
A	01/30/19	ISSUED FOR REVIEW	ET	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: ET

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DETAILS
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT5730	A-3	A

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

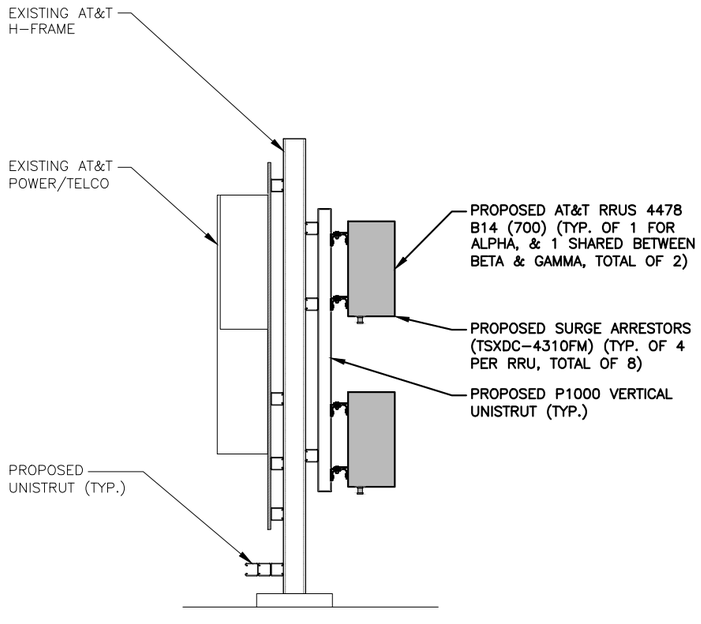
NOTE:

ALL ANTENNAS AND RRHS TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER AND FINAL RF DATA SHEET

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	**PROPOSED**	**LTE 700 BC /AWS/850**	**800-10965**	**78.7X20X6.9**	**±150'**	**5°**	–	**(1)(P) 4449 B5/B12 (700BC/850)**	**17.9X13.2X9.4**	–	(E) (1) RAYCAP DC6-48-60-18-8C
A2	**PROPOSED**	**LTE PCS/B14**	**HPA-65R-BU6AA**	**71.2X11.7X8.4**	**±150'**	**5°**	**(1)(P)(G) KAELUS DBCT108F1V92-1**	**(1)(P)(G) 4478 B14 (700) (1)(P) 8843 B2/B66A (AWS/PCS)**	**18.1X13.4X8.3 14.9X13.2X10.9**	(2) 1-5/8 COAX (LENGTH 210' ±)	
A3	–	–	–	–	–	–	–	–	–	–	
A4	EXISTING	UMTS 850	7770	55X11X5	±150'	60°	(2)(E)(G) POWERWAVE LGP21901 (2)(E) POWERWAVE LGP21401	–	–	(2) 1-5/8 COAX (TO BE CAPPED)	
B1	**PROPOSED**	**LTE 700 BC /AWS/850**	**800-10966**	**96X20X6.9**	**±150'**	**115°**	–	**(1)(P) 4449 B5/B12 (700BC/850)**	**17.9X13.2X9.4**	–	**(P)(1) RAYCAP DC6-48-60-18-8C**
B2	**PROPOSED**	**LTE PCS/B14**	**HPA-65R-BU8AA**	**96X11.7X7.6**	**±150'**	**115°**	**(1)(P)(G) KAELUS DBCT108F1V92-1**	**(1)(P)(G) 4478 B14 (700) (1)(P) 8843 B2/B66A (AWS/PCS)**	**18.1X13.4X8.3 14.9X13.2X10.9**	(2) 1-5/8 COAX (LENGTH 210' ±)	
B3	–	–	–	–	–	–	–	–	–	–	
B4	EXISTING	UMTS 850	7770	55X11X5	±150'	180°	(2)(E)(G) POWERWAVE LGP21901 (2)(E) POWERWAVE LGP21401	–	–	(2) 1-5/8 COAX (TO BE CAPPED)	
C1	**PROPOSED**	**LTE 700 BC /AWS/850**	**800-10966**	**96X20X6.9**	**±150'**	**245°**	–	**(1)(P) 4449 B5/B12 (700BC/850)**	**17.9X13.2X9.4**	–	SHARED
C2	**PROPOSED**	**LTE PCS/B14**	**HPA-65R-BU8AA**	**96X11.7X7.6**	**±150'**	**245°**	**(1)(P)(G) KAELUS DBCT108F1V92-1**	**4478 B14 (SHARED) (1)(P) 8843 B2/B66A (AWS/PCS)**	**– 14.9X13.2X10.9**	(2) 1-5/8 COAX (LENGTH 210' ±)	
C3	–	–	–	–	–	–	–	–	–	–	
C4	EXISTING	UMTS 850	7770	55X11X5	±150'	300°	(2)(E)(G) POWERWAVE LGP21901 (2)(E) POWERWAVE LGP21401	–	–	(2) 1-5/8 COAX (TO BE CAPPED)	

FINAL ANTENNA SCHEDULE (1 / A-4)
SCALE: N.T.S



PROPOSED RRH MOUNTING DETAIL (2 / A-4)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

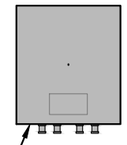
RRU CHART

QUANTITY	MODEL	L	W	D
2(P)(G)	4478 B14	18.1"	13.4"	8.3"
3(P)	4449	17.9"	13.2"	9.4"
3(P)	8843	14.9"	13.2"	10.9"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

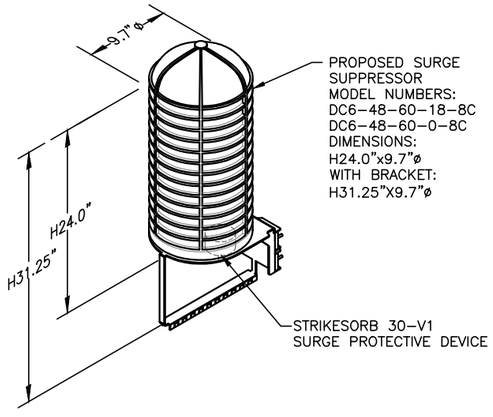
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

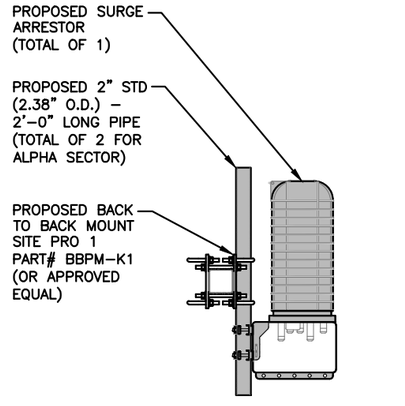
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (3 / A-4)
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL (4 / A-4)
SCALE: N.T.S



PROPOSED SURGE ARRESTOR MOUNTING DETAIL (5 / A-4)
SCALE: N.T.S

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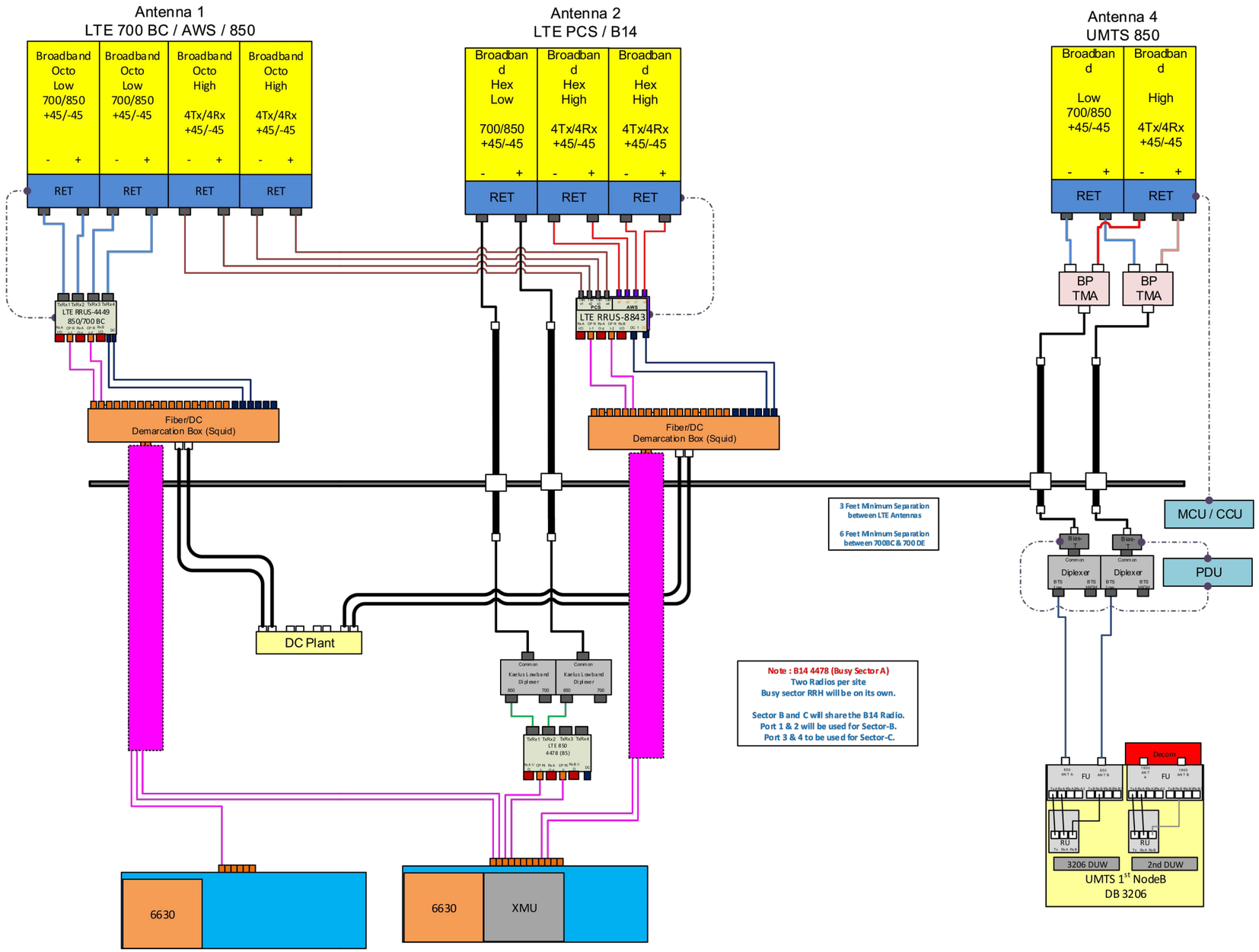
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: ET

AT&T

DETAILS
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT5730	A-4	A



RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

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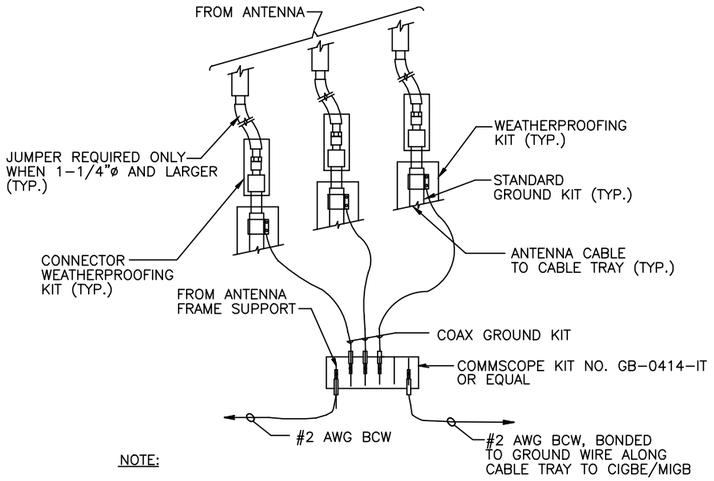
NO.	DATE	REVISIONS	BY	CHK	APP'D
A	01/30/19	ISSUED FOR REVIEW	ET	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: ET

AT&T

RF PLUMBING DIAGRAM
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT5730	RF–1	A



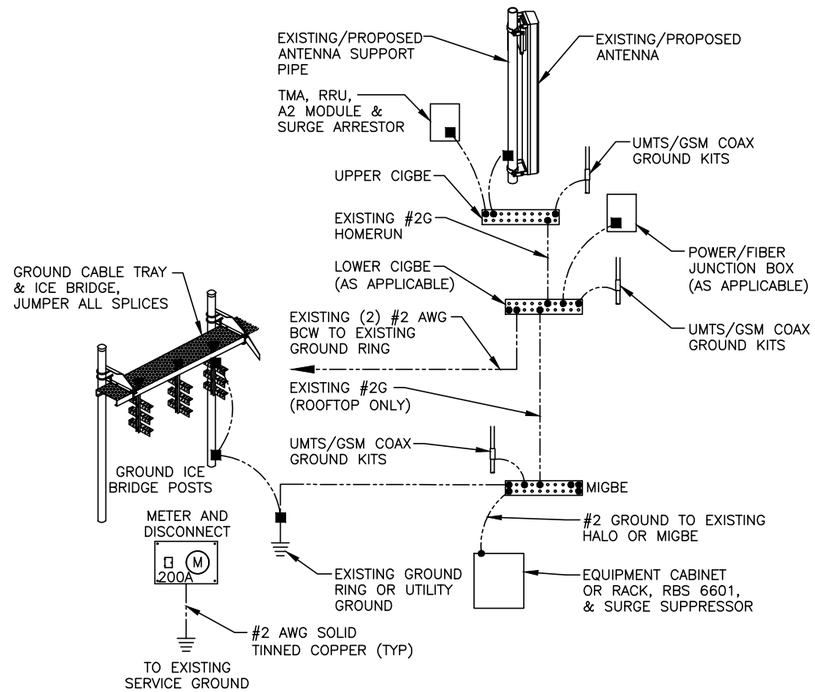
NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

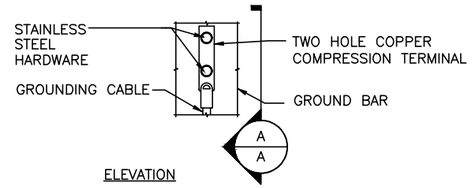
1 / G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1



NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G-1

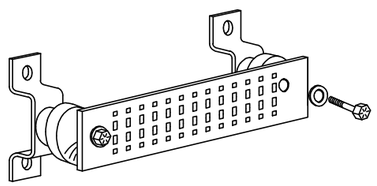
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
+24V POWER SUPPLY RETURN BAR (#2)
-48V POWER SUPPLY RETURN BAR (#2)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

INTERIOR GROUND RING (#2)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
BUILDING STEEL (IF AVAILABLE) (#2)



GROUND BAR - DETAIL

SCALE: N.T.S

4 / G-1

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET., SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT5730
SITE NAME: COLCHESTER SOUTH
ATC SITE #: 302465

285 WEST ROAD
COLCHESTER, CT 06415
NEW LONDON COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
A	01/30/19	ISSUED FOR REVIEW	ET	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: ET

AT&T

GROUNDING DETAILS
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT5730	G-1	A

EXHIBIT 3

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**180 ft Monopole**
ATC Site Name	:	**Colchester CT 6, CT**
ATC Site Number	:	**302465**
Engineering Number	:	**OAA745777_C3_01**
Proposed Carrier	:	**AT&T MOBILITY**
Carrier Site Name	:	**Colchester South**
Carrier Site Number	:	**CT5730**
Site Location	:	**355 Route 85** **Colchester, CT 06415-1825** **41.544800,-72.304900**
County	:	**NEW LONDON**
Date	:	**February 14, 2019**
Max Usage	:	**70%**
Result	:	**Pass**

Prepared By:
Zackaryah Hughes
Structural Engineer I

Zackaryah Hughes

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32598
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
Feb 15 2019 4:47 PM cosign

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

Table of Contents

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 AT&T MOBILITY.

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 #W.O.1170.C877, dated June 5, 1998

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:	101 mph (3-Second Gust, Vasd) / 130 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.17, S_1 = 0.06
Site Class:	D - Stiff Soil

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	Antenna	Mount Type	Lines	Carrier
180.0	6	Alcatel-Lucent RRH2x50-08	T-Arms	(4) 1 1/4" Hybriflex Cable (6) 1 5/8" Coax	SPRINT NEXTEL
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
	3	RFS APXVTM14-ALU-I20			
	3	Commscope NNVV-65B-R4			
172.0	2	Generic 6' Omni	Standoff Mounts	(2) 0.405" (10.3mm) Coax	OTHER
163.0	3	Samsung B2/B66A RRH-BR049	Platform with Handrails	(2) 1 5/8" Hybriflex	VERIZON WIRELESS
	3	Samsung B5/B13 RRH-BR04C			
	2	RFS DB-B1-6C-12AB-0Z			
	6	Commscope JAHH-65B-R3B			
150.0	6	LGP Allgon LGP21903	Low Profile Platform	(1) 0.39" (10mm) Fiber Trunk (2) 0.65" (16.4mm) 8 AWG 2C (12) 1 1/4" Coax (1) 3" Conduit	AT&T MOBILITY
	6	Powerwave Allgon LGP21401			
	1	Raycap DC6-48-60-18-8F (23.5" Height)			
	3	Powerwave Allgon 7770.00			
138.0	3	Ericsson RRUS 11 B4	Platform with Handrails	(1) 1 5/8" (1.63"-41.3mm) Fiber (1) 1" (25.4mm) Hybrid	T-MOBILE
	3	Ericsson RRUS 11 B2			
	3	Ericsson RRUS 11 B12			
	3	RFS APX16DWV-16DWVS-E-A20			
	3	Commscope LNX-6515DS-A1M (96.6" Height)			

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
150.0	3	Ericsson RRUS-11 800 MHz	-	-	AT&T MOBILITY
	3	Powerwave Allgon 7770.00			
	1	KMW AM-X-CD-16-65-00T-RET (54")			
	2	Powerwave Allgon P65-17-XLH-RR			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
150.0	1	Raycap DC6-48-60-18-8F (23.5" Height)	Low Profile Platform	(1) 0.39" (10mm) Fiber Trunk (2) 0.78" (19.7mm) 8 AWG 6	AT&T MOBILITY
	3	Ericsson Radio 8843 - B2 + B66A			
	3	Ericsson RRUS 4449 B5, B12			
	1	CCI HPA65R-BU6A			
	2	CCI HPA65R-BU8A			
	1	Kathrein Scala 80010965			
	2	Kathrein Scala 80010966			

[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	59%	Pass
Shaft	69%	Pass
Base Plate	31%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	4,932.4	6,658.7	4,501.1	68%
Shear (Kips)	41.5	56.0	39.0	70%

*** The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1**

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
150.0	Raycap DC6-48-60-18-8F (23.5" Height)	AT&T MOBILITY	1.442	1.187
	Ericsson Radio 8843 - B2 + B66A			
	Ericsson RRUS 4449 B5, B12			
	CCI HPA65R-BU6A			
	CCI HPA65R-BU8A			
	Kathrein Scala 80010965			
	Kathrein Scala 80010966			

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

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:

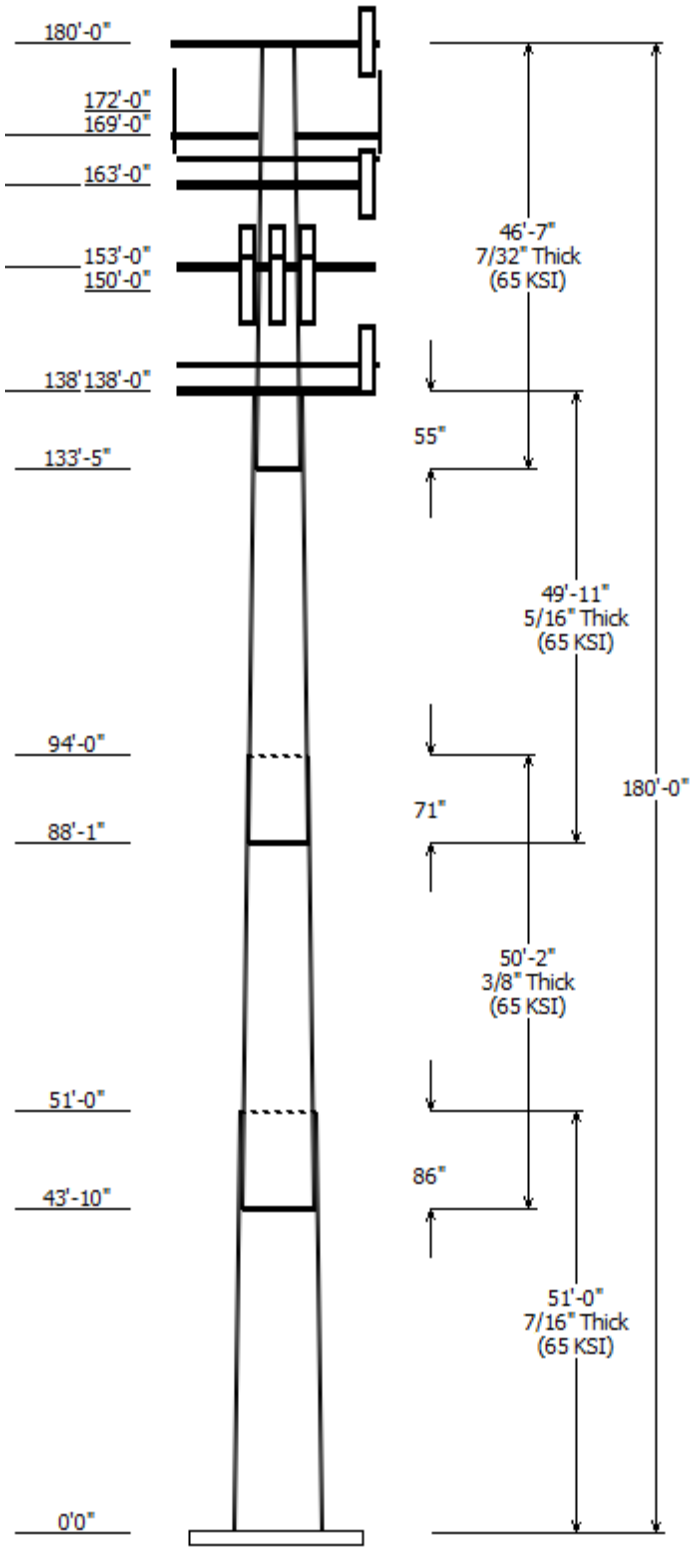
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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.



Job Information

Pole :	302465	Code:	ANSI/TIA-222-G
Location :	Colchester CT 6, CT		
Description :	180 ft Valmont Monopole		
Client :	AT&T MOBILITY	Struct Class :	II
Shape :	12 Sides	Exposure :	B
Height :	180.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.260792 (in/ft)		

Sections Properties

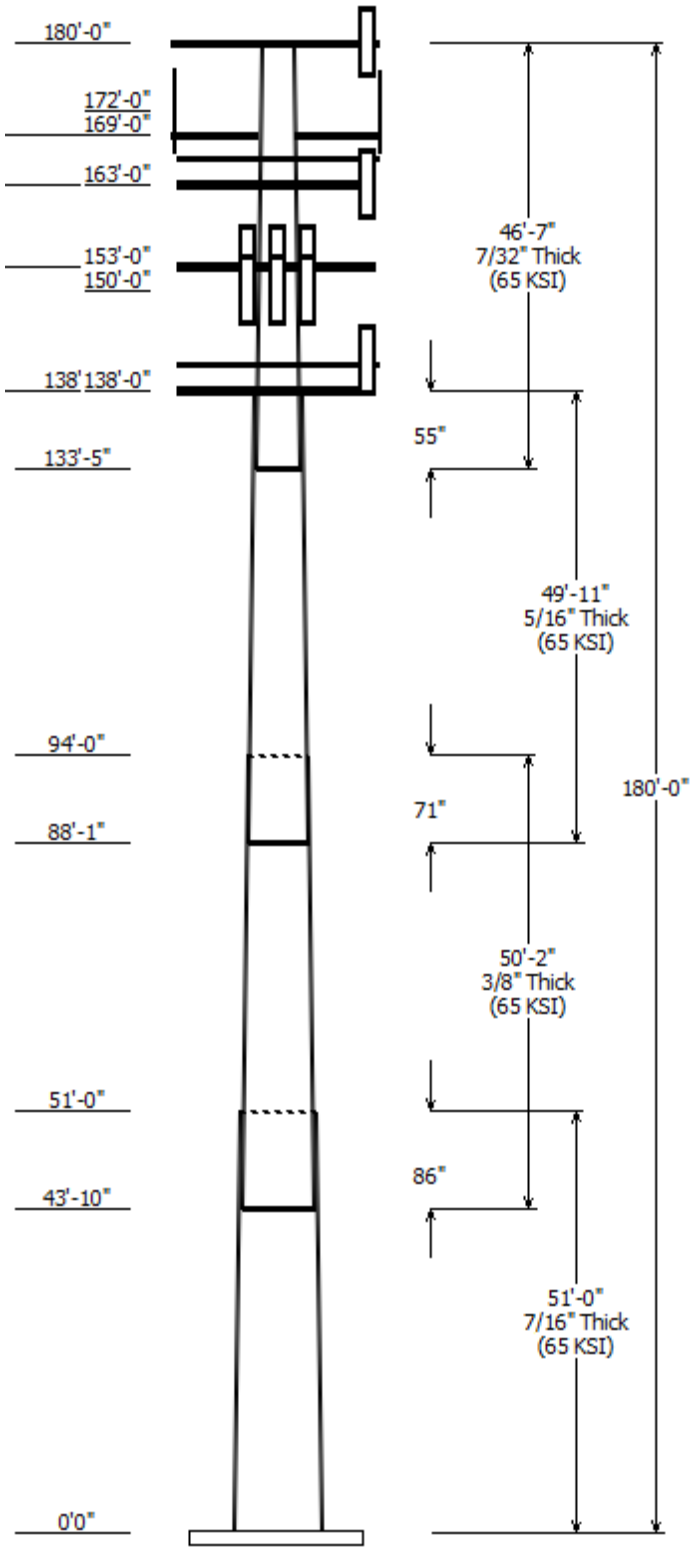
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	51.000	50.70	64.00	0.438		0.000	12 Sides	65
2	50.167	40.23	53.31	0.375	Slip Joint	86.000	12 Sides	65
3	49.917	29.38	42.40	0.313	Slip Joint	71.000	12 Sides	65
4	46.583	18.87	31.01	0.219	Slip Joint	55.000	12 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.000	180.000	3	Commscope NNVV-65B-R4
180.000	180.000	3	RFS APXVTM14-ALU-I20
180.000	180.000	3	Alcatel-Lucent TD-RRH8x20-25
180.000	180.000	3	Alcatel-Lucent 1900 MHz 4X45
180.000	180.000	6	Alcatel-Lucent RRH2x50-08
180.000	180.000	3	Round T-Arm
172.000	172.000	2	Generic 6' Omni
169.000	169.000	2	Standoff Mounts
163.000	163.000	6	Commscope JAHH-65B-R3B
163.000	163.000	2	RFS DB-B1-6C-12AB-0Z
163.000	163.000	3	Samsung B5/B13 RRH-BR04C
163.000	163.000	3	Samsung B2/B66A RRH-BR049
163.000	163.000	1	Round Platform w/ Handrails
153.000	153.000	1	Round Low Profile Platform
150.000	150.000	2	Kathrein Scala 80010966
150.000	150.000	1	Kathrein Scala 80010965
150.000	150.000	2	CCI HPA65R-BU8A
150.000	150.000	1	CCI HPA65R-BU6A
150.000	153.000	3	Powerwave Allgon 7770.00
150.000	150.000	3	Ericsson RRUS 4449 B5, B12
150.000	150.000	3	Ericsson Radio 8843 - B2 + B66
150.000	153.000	1	Raycap DC6-48-60-18-8F (23.5"
150.000	153.000	1	Raycap DC6-48-60-18-8F (23.5"
150.000	153.000	6	Powerwave Allgon LGP21401
150.000	152.000	6	LGP Allgon LGP21903
138.000	138.000	1	Round Platform w/ Handrails
138.000	139.000	3	Commscope LNX-6515DS-A1M
138.000	139.000	3	RFS APX16DWV-16DWVS-E-A20
138.000	139.000	3	Ericsson RRUS 11 B12
138.000	139.000	3	Ericsson RRUS 11 B2
138.000	139.000	3	Ericsson RRUS 11 B4

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	138.0	1 5/8" (1.63"-	No
0.000	139.0	1" (25.4mm)	No
0.000	150.0	0.39" (10mm)	No
0.000	150.0	0.39" (10mm)	No
0.000	150.0	0.65" (16.4mm) 8	No
0.000	150.0	0.78" (19.7mm) 8	No



0.000	150.0	1 1/4" Coax	No
0.000	153.0	3" conduit	No
0.000	163.0	1 5/8" Hybriflex	No
0.000	172.0	0.405" (10.3mm)	No
0.000	180.0	1 1/4" Hybriflex	No
0.000	180.0	1 5/8" Coax	No

Load Cases

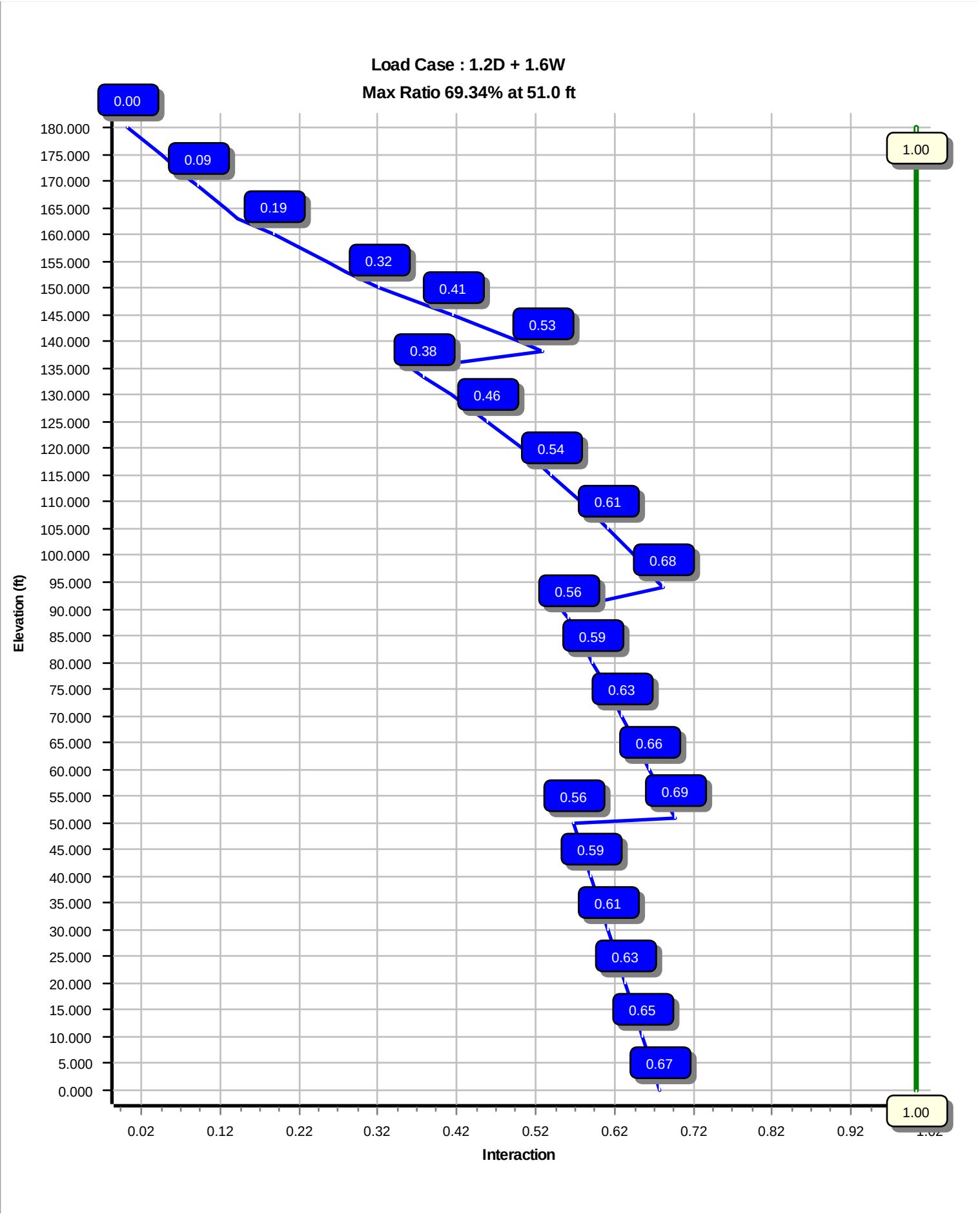
1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	4501.14	39.03	57.24
0.9D + 1.6W	4455.32	39.01	42.92
1.2D + 1.0Di + 1.0Wi	1031.30	8.23	95.57
(1.2 + 0.2Sds) * DL + E ELFM	205.07	1.43	56.98
(1.2 + 0.2Sds) * DL + E EMAM	219.62	1.72	56.98
(0.9 - 0.2Sds) * DL + E ELFM	202.41	1.43	39.78
(0.9 - 0.2Sds) * DL + E EMAM	216.57	1.72	39.78
1.0D + 1.0W	987.08	8.61	47.74

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000


Load Case : 1.2D + 1.6W
Max Ratio 69.34% at 51.0 ft
0.00
0.09
0.19
0.32
0.41
0.53
0.38
0.46
0.54
0.61
0.68
0.56
0.59
0.63
0.66
0.56
0.69
0.59
0.61
0.63
0.65
0.67
1.00
1.00
180.000
175.000
170.000
165.000
160.000
155.000
150.000
145.000
140.000
135.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number:	**302465**	**Code: ANSI/TIA-222-G**	
Site Name:	**Colchester CT 6, CT**	**Engineering Number:OAA745777_C3_01**	**2/14/2019 4:58:15 PM**
Customer:	**AT&T MOBILITY**		

Analysis Parameters

Location :	**NEW LONDON County, CT**	**Height (ft) :**	**180**
Code :	**ANSI/TIA-222-G**	**Base Diameter (in) :**	**64.00**
Shape :	**12 Sides**	**Top Diameter (in) :**	**18.87**
Pole Type :	**Taper**	**Taper (in/ft) :**	**0.261**
Pole Manfacturer :	**Valmont**	**Rotation (deg) :**	**0.00**

Ice & Wind Parameters

Structure Class:	**II**	**Design Wind Speed Without Ice:**	**101 mph**
Exposure Category:	**B**	**Design Wind Speed With Ice:**	**50 mph**
Topographic Category:	**1**	**Operational Wind Speed:**	**60 mph**
Crest Height:	**0 ft**	**Design Ice Thickness:**	**0.75 in**

Seismic Parameters

Analysis Method:	**Equivalent Modal Analysis & Equivalent Lateral Force Methods**				
Site Class:	**D - Stiff Soil**				
Period Based on Rayleigh Method (sec):	**2.44**				
T_L (sec):	**6**	**p:**	**1**	**C_s:**	**0.030**
S_s:	**0.172**	**S_1:**	**0.061**	**C_s Max:**	**0.030**
F_a:	**1.600**	**F_v:**	**2.400**	**C_s Min:**	**0.030**
S_{ds}:	**0.183**	**S_{d1}:**	**0.098**		

Load Cases

1.2D + 1.6W	**101 mph with No Ice**
0.9D + 1.6W	**101 mph with No Ice (Reduced DL)**
1.2D + 1.0Di + 1.0Wi	**50 mph with 0.75 in Radial Ice**
(1.2 + 0.2Sds) * DL + E ELFM	**Seismic Equivalent Lateral Forces Method**
(1.2 + 0.2Sds) * DL + E EMAM	**Seismic Equivalent Modal Analysis Method**
(0.9 - 0.2Sds) * DL + E ELFM	**Seismic (Reduced DL) Equivalent Lateral Forces Method**
(0.9 - 0.2Sds) * DL + E EMAM	**Seismic (Reduced DL) Equivalent Modal Analysis Method**
1.0D + 1.0W	**Serviceability 60 mph**

Site Number: 302465 Code: ANSI/TIA-222-G

Site Name: Colchester CT 6, CT Engineering Number:OAA745777_C3_01 2/14/2019 4:58:15 PM

Customer: AT&T MOBILITY

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-12	51.000	0.4375	65		0.00	13,914	64.00	0.00	89.54	46176.7	36.52	146.29	50.70	51.00	70.81	22831.9	28.37	115.88	0.260792
2-12	50.167	0.3750	65	Slip	86.00	9,565	53.31	43.83	63.93	22872.5	35.42	142.18	40.23	94.00	48.13	9761.2	26.07	107.29	0.260792
3-12	49.917	0.3125	65	Slip	71.00	6,082	42.40	88.08	42.35	9577.7	33.68	135.69	29.38	138.00	29.25	3156.3	22.52	94.03	0.260792
4-12	46.583	0.2188	65	Slip	55.00	2,761	31.01	133.42	21.69	2626.8	35.32	141.80	18.87	180.00	13.14	583.3	20.43	86.26	0.260792
				Shaft Weight		32,321													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
138.00	Commscope LNX-6515DS-A1M	3	0.75	1.000	43.70	11.470	0.70	271.89	14.690	0.70
138.00	Ericsson RRUS 11 B12	3	0.75	1.000	50.70	2.790	0.67	122.57	3.878	0.67
138.00	Ericsson RRUS 11 B2	3	0.75	1.000	50.70	2.790	0.67	122.57	3.878	0.67
138.00	Ericsson RRUS 11 B4	3	0.75	1.000	50.70	2.790	0.67	122.57	3.878	0.67
138.00	RFS APX16DWV-16DWVS-E-A20	3	0.75	1.000	40.70	6.590	0.60	156.66	8.741	0.60
138.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,286.25	51.465	1.00
150.00	CCI HPA65R-BU6A	1	0.80	0.000	41.90	7.860	1.00	217.22	10.621	1.00
150.00	CCI HPA65R-BU8A	2	0.80	0.000	54.00	11.230	0.78	286.39	14.454	0.78
150.00	Ericsson Radio 8843 - B2 + B66A	3	0.80	0.000	71.90	1.650	0.50	133.53	2.497	0.50
150.00	Ericsson RRUS 4449 B5, B12	3	0.80	0.000	71.00	1.970	0.50	135.47	2.904	0.50
150.00	Kathrein Scala 80010965	1	0.80	0.000	97.60	13.810	1.00	364.30	16.861	1.00
150.00	Kathrein Scala 80010966	2	0.80	0.000	114.60	17.360	0.72	435.82	21.050	0.72
150.00	LGP Allgon LGP21903	6	0.80	2.000	5.50	0.230	0.50	13.91	0.568	0.50
150.00	Powerwave Allgon 7770.00	3	0.80	3.000	35.00	5.510	0.65	169.89	6.563	0.65
150.00	Powerwave Allgon LGP21401	6	0.80	3.000	14.10	1.100	0.50	39.06	1.811	0.50
150.00	Raycap DC6-48-60-18-8F (23.5"	1	0.80	3.000	20.00	1.260	1.00	72.67	1.919	1.00
150.00	Raycap DC6-48-60-18-8F (23.5"	1	0.80	3.000	20.00	1.260	1.00	72.67	1.919	1.00
153.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	2,149.87	40.958	1.00
163.00	Commscope JAHH-65B-R3B	6	0.80	0.000	60.60	9.110	0.69	264.82	11.910	0.69
163.00	RFS DB-B1-6C-12AB-0Z	2	0.80	0.000	21.40	2.510	0.67	101.98	3.560	0.67
163.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,308.07	51.876	1.00
163.00	Samsung B2/B66A RRH-BR049	3	0.80	0.000	84.40	1.880	0.50	148.80	2.794	0.50
163.00	Samsung B5/B13 RRH-BR04C	3	0.80	0.000	70.30	1.880	0.50	128.05	2.794	0.50
169.00	Standoff Mounts	2	1.00	0.000	150.00	5.200	1.00	224.09	7.952	1.00
172.00	Generic 6' Omni	2	1.00	0.000	25.00	1.760	1.00	71.81	3.037	1.00
180.00	Alcatel-Lucent 1900 MHz 4X45	3	0.80	0.000	60.00	2.320	0.67	142.13	3.420	0.67
180.00	Alcatel-Lucent RRH2x50-08	6	0.80	0.000	52.90	1.700	0.50	113.29	2.579	0.50
180.00	Alcatel-Lucent TD-RRH8x20-25	3	0.80	0.000	70.00	4.050	0.61	166.31	5.404	0.61
180.00	Commscope NNVV-65B-R4	3	0.80	0.000	77.40	12.270	0.64	333.46	15.127	0.64
180.00	RFS APXVTM14-ALU-I20	3	0.80	0.000	56.20	6.340	0.66	196.52	8.559	0.66
180.00	Round T-Arm	3	0.75	0.000	250.00	9.700	0.67	462.98	18.101	0.67
Totals	Num Loadings:31	86			10,456.20			22,738.00		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	180.00	4	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	SPRINT NEXTEL
0.00	180.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	SPRINT NEXTEL
0.00	172.00	2	0.405" (10.3mm) Coax	0.41	0.11	N	0.00	N	OTHER
0.00	163.00	2	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	VERIZON WIRELESS
0.00	153.00	1	3" conduit	3.50	7.58	N	0.00	N	AT&T MOBILITY

0.00	150.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0.00	N	AT&T MOBILITY
0.00	150.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0.00	N	AT&T MOBILITY
0.00	150.00	2	0.65" (16.4mm) 8 AWG	0.65	0.31	N	0.00	N	AT&T MOBILITY
0.00	150.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0.00	N	AT&T MOBILITY
0.00	150.00	12	1 1/4" Coax	1.55	0.63	N	0.00	N	AT&T MOBILITY
0.00	139.00	1	1" (25.4mm) Hybrid	1.00	0.65	N	0.00	N	T-MOBILE
0.00	138.00	1	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0.00	N	T-MOBILE

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.4375	64.000	89.544	46,176.7	36.52	146.29	64.9	1393.	0.0	0.0
5.00		0.4375	62.696	87.707	43,392.7	35.72	143.31	65.8	1337.	0.0	1,507.9
10.00		0.4375	61.392	85.870	40,722.9	34.92	140.32	66.6	1281.	0.0	1,476.6
15.00		0.4375	60.088	84.033	38,165.0	34.12	137.34	67.5	1227.	0.0	1,445.4
20.00		0.4375	58.784	82.196	35,716.4	33.32	134.36	68.4	1173.	0.0	1,414.1
25.00		0.4375	57.480	80.359	33,374.9	32.52	131.38	69.2	1121.	0.0	1,382.8
30.00		0.4375	56.176	78.522	31,138.1	31.73	128.40	70.1	1070.	0.0	1,351.6
35.00		0.4375	54.872	76.685	29,003.4	30.93	125.42	71.0	1021.	0.0	1,320.3
40.00		0.4375	53.568	74.848	26,968.7	30.13	122.44	71.9	972.6	0.0	1,289.1
43.83	Bot - Section 2	0.4375	52.569	73.440	25,474.8	29.52	120.16	72.5	936.2	0.0	967.1
45.00		0.4375	52.264	73.011	25,031.4	29.33	119.46	72.7	925.2	0.0	543.8
50.00		0.4375	50.960	71.174	23,189.2	28.53	116.48	73.6	879.1	0.0	2,294.6
51.00	Top - Section 1	0.3750	51.450	61.673	20,534.7	34.08	137.20	67.5	771.0	0.0	452.0
55.00		0.3750	50.406	60.413	19,302.0	33.34	134.42	68.4	739.8	0.0	830.9
60.00		0.3750	49.103	58.838	17,831.8	32.41	130.94	69.4	701.6	0.0	1,014.5
65.00		0.3750	47.799	57.264	16,438.2	31.47	127.46	70.4	664.4	0.0	987.7
70.00		0.3750	46.495	55.689	15,119.2	30.54	123.99	71.4	628.2	0.0	960.9
75.00		0.3750	45.191	54.115	13,872.7	29.61	120.51	72.4	593.0	0.0	934.1
80.00		0.3750	43.887	52.540	12,696.7	28.68	117.03	73.4	558.9	0.0	907.3
85.00		0.3750	42.583	50.966	11,589.1	27.75	113.55	74.5	525.8	0.0	880.5
88.08	Bot - Section 3	0.3750	41.779	49.995	10,939.2	27.17	111.41	75.1	505.8	0.0	529.6
90.00		0.3750	41.279	49.391	10,547.8	26.82	110.08	75.5	493.6	0.0	598.7
94.00	Top - Section 2	0.3125	40.861	40.802	8,562.5	32.36	130.75	69.4	404.8	0.0	1,226.2
95.00		0.3125	40.600	40.539	8,398.4	32.13	129.92	69.7	399.6	0.0	138.4
100.0		0.3125	39.296	39.227	7,609.0	31.01	125.75	70.9	374.1	0.0	678.6
105.0		0.3125	37.992	37.915	6,870.7	29.90	121.57	72.1	349.4	0.0	656.2
110.0		0.3125	36.688	36.603	6,181.8	28.78	117.40	73.3	325.5	0.0	633.9
115.0		0.3125	35.384	35.291	5,540.6	27.66	113.23	74.5	302.5	0.0	611.6
120.0		0.3125	34.080	33.979	4,945.3	26.54	109.06	75.8	280.3	0.0	589.3
125.0		0.3125	32.776	32.666	4,394.2	25.42	104.88	77.0	259.0	0.0	566.9
130.0		0.3125	31.472	31.354	3,885.7	24.31	100.71	78.2	238.5	0.0	544.6
133.4	Bot - Section 4	0.3125	30.581	30.458	3,561.8	23.54	97.86	79.0	225.0	0.0	359.3
135.0		0.3125	30.168	30.042	3,418.0	23.19	96.54	79.4	218.9	0.0	279.1
138.0	Top - Section 3	0.2188	29.823	20.853	2,332.7	33.85	136.33	67.8	151.1	0.0	518.3
140.0		0.2188	29.302	20.485	2,211.6	33.21	133.95	68.5	145.8	0.0	140.7
145.0		0.2188	27.998	19.567	1,927.3	31.62	127.99	70.2	133.0	0.0	340.7
150.0		0.2188	26.694	18.648	1,668.4	30.02	122.03	72.0	120.7	0.0	325.1
153.0		0.2188	25.911	18.097	1,524.8	29.06	118.45	73.0	113.7	0.0	187.6
155.0		0.2188	25.390	17.730	1,433.8	28.42	116.07	73.7	109.1	0.0	121.9
160.0		0.2188	24.086	16.811	1,222.3	26.82	110.11	75.5	98.0	0.0	293.8
163.0		0.2188	23.303	16.260	1,106.0	25.87	106.53	76.5	91.7	0.0	168.8
165.0		0.2188	22.782	15.893	1,032.7	25.23	104.15	77.2	87.6	0.0	109.4
169.0		0.2188	21.739	15.158	896.0	23.95	99.38	78.6	79.6	0.0	211.3
170.0		0.2188	21.478	14.974	863.8	23.63	98.18	78.9	77.7	0.0	51.3
172.0		0.2188	20.956	14.607	801.8	22.99	95.80	79.6	73.9	0.0	100.7
175.0		0.2188	20.174	14.056	714.4	22.03	92.22	80.7	68.4	0.0	146.3
180.0		0.2188	18.870	13.137	583.3	20.43	86.26	81.9	59.7	0.0	231.3
											32,320.8

Site Number: 302465 Code: ANSI/TIA-222-G

Site Name: Colchester CT 6, CT Engineering Number:OAA745777_C3_01 2/14/2019 4:58:15 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W 101 mph with No Ice 25 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		417.6	0.0					0.0	0.0	417.6	0.0	0.0	0.0
5.00		826.6	1,809.4					0.0	186.4	826.6	1,995.8	0.0	0.0
10.00		809.4	1,771.9					0.0	186.4	809.4	1,958.3	0.0	0.0
15.00		792.2	1,734.4					0.0	186.4	792.2	1,920.8	0.0	0.0
20.00		775.0	1,696.9					0.0	186.4	775.0	1,883.3	0.0	0.0
25.00		757.8	1,659.4					0.0	186.4	757.8	1,845.8	0.0	0.0
30.00		749.4	1,621.9					0.0	186.4	749.4	1,808.3	0.0	0.0
35.00		756.1	1,584.4					0.0	186.4	756.1	1,770.8	0.0	0.0
40.00		676.6	1,546.9					0.0	186.4	676.6	1,733.3	0.0	0.0
43.83	Bot - Section 2	386.9	1,160.6					0.0	142.9	386.9	1,303.4	0.0	0.0
45.00		485.5	652.5					0.0	43.5	485.5	696.0	0.0	0.0
50.00		472.9	2,753.5					0.0	186.4	472.9	2,939.9	0.0	0.0
51.00	Top - Section 1	395.3	542.4					0.0	37.3	395.3	579.6	0.0	0.0
55.00		711.6	997.0					0.0	149.1	711.6	1,146.1	0.0	0.0
60.00		789.6	1,217.4					0.0	186.4	789.6	1,403.7	0.0	0.0
65.00		786.4	1,185.2					0.0	186.4	786.4	1,371.6	0.0	0.0
70.00		781.4	1,153.1					0.0	186.4	781.4	1,339.4	0.0	0.0
75.00		774.6	1,120.9					0.0	186.4	774.6	1,307.3	0.0	0.0
80.00		766.2	1,088.8					0.0	186.4	766.2	1,275.1	0.0	0.0
85.00		613.1	1,056.6					0.0	186.4	613.1	1,243.0	0.0	0.0
88.08	Bot - Section 3	377.8	635.6					0.0	114.9	377.8	750.5	0.0	0.0
90.00		446.3	718.4					0.0	71.4	446.3	789.9	0.0	0.0
94.00	Top - Section 2	375.4	1,471.4					0.0	149.1	375.4	1,620.5	0.0	0.0
95.00		443.7	166.1					0.0	37.3	443.7	203.3	0.0	0.0
100.00		731.3	814.3					0.0	186.4	731.3	1,000.6	0.0	0.0
105.00		717.0	787.5					0.0	186.4	717.0	973.8	0.0	0.0
110.00		701.6	760.7					0.0	186.4	701.6	947.1	0.0	0.0
115.00		685.3	733.9					0.0	186.4	685.3	920.3	0.0	0.0
120.00		668.2	707.1					0.0	186.4	668.2	893.5	0.0	0.0
125.00		650.1	680.3					0.0	186.4	650.1	866.7	0.0	0.0
130.00		533.9	653.5					0.0	186.4	533.9	839.9	0.0	0.0
133.42	Bot - Section 4	312.2	431.2					0.0	127.3	312.2	558.5	0.0	0.0
135.00		283.2	334.9					0.0	59.0	283.2	393.9	0.0	0.0
138.00	Top - Section 3	305.3	622.0					0.0	111.8	305.3	733.8	0.0	0.0
140.00		415.9	168.8					0.0	69.9	415.9	238.7	0.0	0.0
145.00		579.4	408.9					0.0	172.8	579.4	581.7	0.0	0.0
150.00	Appurtenance(s)	449.8	390.1	3,370.9	0.0	1,990.7	1,401.6	0.0	172.8	3,820.6	1,964.5	0.0	0.0
153.00	Appurtenance(s)	273.4	225.1	1,057.3	0.0	0.0	1,800.0	0.0	69.6	1,330.7	2,094.6	0.0	0.0
155.00		370.2	146.3					0.0	28.2	370.2	174.5	0.0	0.0
160.00		413.9	352.6					0.0	70.4	413.9	423.0	0.0	0.0
163.00	Appurtenance(s)	250.5	202.6	3,203.8	0.0	0.0	3,444.6	0.0	42.3	3,454.3	3,689.4	0.0	0.0
165.00		290.7	131.3					0.0	21.9	290.7	153.2	0.0	0.0
169.00	Appurtenance(s)	238.7	253.6	521.3	0.0	0.0	360.0	0.0	43.9	760.0	657.5	0.0	0.0
170.00		138.8	61.5					0.0	11.0	138.8	72.5	0.0	0.0
172.00	Appurtenance(s)	226.5	120.8	177.3	0.0	0.0	60.0	0.0	21.9	403.8	202.7	0.0	0.0
175.00		348.5	175.6					0.0	32.1	348.5	207.7	0.0	0.0
180.00	Appurtenance(s)	214.1	277.6	2,922.1	0.0	0.0	2,229.8	0.0	53.5	3,136.2	2,561.0	0.0	0.0

Load Case: 1.2D + 1.6W 101 mph with No Ice 25 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.20
Wind Load Factor :1.60

Totals:	36,218.8	54,034.7	0.00	0.00

Site Number: 302465 Code: ANSI/TIA-222-G

Site Name: Colchester CT 6, CT Engineering Number:OAA745777_C3_01 2/14/2019 4:58:19 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W 101 mph with No Ice 25 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

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	-57.24	-39.03	0.00	-4,501.14	0.00	4,501.14	5,229.17	2,614.59	13,734.9	6,783.18	0.00	0.00	0.675
5.00	-55.15	-38.34	0.00	-4,305.98	0.00	4,305.98	5,190.65	2,595.33	13,352.1	6,594.14	0.07	-0.14	0.664
10.00	-53.11	-37.65	0.00	-4,114.31	0.00	4,114.31	5,149.25	2,574.63	12,966.3	6,403.58	0.29	-0.27	0.653
15.00	-51.10	-36.97	0.00	-3,926.07	0.00	3,926.07	5,104.97	2,552.49	12,577.8	6,211.74	0.65	-0.41	0.642
20.00	-49.13	-36.30	0.00	-3,741.22	0.00	3,741.22	5,057.81	2,528.91	12,187.2	6,018.84	1.16	-0.56	0.632
25.00	-47.20	-35.65	0.00	-3,559.70	0.00	3,559.70	5,007.77	2,503.89	11,795.0	5,825.12	1.83	-0.70	0.621
30.00	-45.31	-34.99	0.00	-3,381.48	0.00	3,381.48	4,954.85	2,477.43	11,401.5	5,630.81	2.64	-0.85	0.610
35.00	-43.46	-34.32	0.00	-3,206.53	0.00	3,206.53	4,899.05	2,449.53	11,007.4	5,436.14	3.61	-1.00	0.599
40.00	-41.66	-33.71	0.00	-3,034.92	0.00	3,034.92	4,840.37	2,420.19	10,612.9	5,241.34	4.74	-1.15	0.588
43.83	-40.32	-33.35	0.00	-2,905.70	0.00	2,905.70	4,793.44	2,396.72	10,310.6	5,092.05	5.72	-1.27	0.579
45.00	-39.58	-32.92	0.00	-2,866.79	0.00	2,866.79	4,778.81	2,389.41	10,218.7	5,046.65	6.04	-1.31	0.577
50.00	-36.60	-32.44	0.00	-2,702.20	0.00	2,702.20	4,714.38	2,357.19	9,825.18	4,852.29	7.49	-1.47	0.565
51.00	-35.99	-32.08	0.00	-2,669.76	0.00	2,669.76	3,748.95	1,874.48	7,908.80	3,905.86	7.81	-1.50	0.693
55.00	-34.77	-31.43	0.00	-2,541.46	0.00	2,541.46	3,716.58	1,858.29	7,679.21	3,792.47	9.12	-1.63	0.680
60.00	-33.30	-30.70	0.00	-2,384.32	0.00	2,384.32	3,673.53	1,836.77	7,390.96	3,650.12	10.93	-1.81	0.663
65.00	-31.86	-29.98	0.00	-2,230.80	0.00	2,230.80	3,627.60	1,813.80	7,101.75	3,507.29	12.93	-2.00	0.645
70.00	-30.45	-29.25	0.00	-2,080.92	0.00	2,080.92	3,578.79	1,789.39	6,812.03	3,364.21	15.12	-2.18	0.627
75.00	-29.08	-28.52	0.00	-1,934.70	0.00	1,934.70	3,527.09	1,763.55	6,522.29	3,221.11	17.51	-2.37	0.609
80.00	-27.75	-27.79	0.00	-1,792.12	0.00	1,792.12	3,472.52	1,736.26	6,232.99	3,078.24	20.10	-2.56	0.590
85.00	-26.46	-27.19	0.00	-1,653.17	0.00	1,653.17	3,415.07	1,707.53	5,944.59	2,935.81	22.89	-2.76	0.571
88.08	-25.68	-26.82	0.00	-1,569.34	0.00	1,569.34	3,378.20	1,689.10	5,767.41	2,848.31	24.71	-2.88	0.559
90.00	-24.86	-26.39	0.00	-1,517.93	0.00	1,517.93	3,354.74	1,677.37	5,657.58	2,794.06	25.88	-2.96	0.551
94.00	-23.22	-25.97	0.00	-1,412.38	0.00	1,412.38	2,549.41	1,274.70	4,268.23	2,107.92	28.43	-3.11	0.680
95.00	-22.98	-25.57	0.00	-1,386.42	0.00	1,386.42	2,541.91	1,270.95	4,228.10	2,088.10	29.08	-3.16	0.673
100.00	-21.92	-24.86	0.00	-1,258.59	0.00	1,258.59	2,502.69	1,251.34	4,027.08	1,988.82	32.51	-3.38	0.642
105.00	-20.90	-24.17	0.00	-1,134.27	0.00	1,134.27	2,460.58	1,230.29	3,825.85	1,889.44	36.17	-3.60	0.609
110.00	-19.91	-23.49	0.00	-1,013.41	0.00	1,013.41	2,415.60	1,207.80	3,624.86	1,790.18	40.06	-3.83	0.575
115.00	-18.95	-22.81	0.00	-895.98	0.00	895.98	2,367.74	1,183.87	3,424.59	1,691.27	44.18	-4.05	0.538
120.00	-18.03	-22.15	0.00	-781.92	0.00	781.92	2,317.00	1,158.50	3,225.50	1,592.95	48.53	-4.26	0.499
125.00	-17.14	-21.50	0.00	-671.19	0.00	671.19	2,263.38	1,131.69	3,028.06	1,495.45	53.10	-4.47	0.457
130.00	-16.28	-20.94	0.00	-563.71	0.00	563.71	2,206.88	1,103.44	2,832.75	1,398.99	57.89	-4.67	0.411
133.42	-15.72	-20.61	0.00	-492.16	0.00	492.16	2,166.61	1,083.30	2,700.75	1,333.80	61.28	-4.80	0.377
135.00	-15.32	-20.32	0.00	-459.52	0.00	459.52	2,147.49	1,073.75	2,640.03	1,303.81	62.88	-4.86	0.360
138.00	-11.62	-16.54	0.00	-396.69	0.00	396.69	1,272.33	636.17	1,555.73	768.31	65.96	-4.97	0.526
140.00	-11.38	-16.13	0.00	-363.61	0.00	363.61	1,262.76	631.38	1,516.62	749.00	68.06	-5.04	0.495
145.00	-10.80	-15.54	0.00	-282.95	0.00	282.95	1,236.82	618.41	1,418.37	700.48	73.44	-5.25	0.413
150.00	-9.17	-11.57	0.00	-203.26	0.00	203.26	1,208.00	604.00	1,319.78	651.79	79.03	-5.43	0.320
153.00	-7.20	-10.06	0.00	-168.54	0.00	168.54	1,189.33	594.66	1,260.67	622.60	82.47	-5.52	0.277
155.00	-7.05	-9.69	0.00	-148.42	0.00	148.42	1,176.30	588.15	1,221.34	603.17	84.79	-5.58	0.252
160.00	-6.65	-9.24	0.00	-99.99	0.00	99.99	1,141.72	570.86	1,123.49	554.85	90.69	-5.70	0.186
163.00	-3.32	-5.44	0.00	-72.26	0.00	72.26	1,119.59	559.80	1,065.27	526.10	94.29	-5.76	0.140
165.00	-3.20	-5.14	0.00	-61.38	0.00	61.38	1,104.26	552.13	1,026.73	507.06	96.71	-5.80	0.124
169.00	-2.62	-4.32	0.00	-40.83	0.00	40.83	1,072.22	536.11	950.40	469.37	101.58	-5.85	0.089
170.00	-2.56	-4.17	0.00	-36.51	0.00	36.51	1,063.92	531.96	931.50	460.03	102.81	-5.87	0.082
172.00	-2.40	-3.75	0.00	-28.17	0.00	28.17	1,046.98	523.49	893.95	441.49	105.27	-5.89	0.066
175.00	-2.22	-3.38	0.00	-16.92	0.00	16.92	1,020.70	510.35	838.29	414.00	108.97	-5.91	0.043
180.00	0.00	-3.14	0.00	0.00	0.00	0.00	968.36	484.18	742.77	366.83	115.16	-5.93	0.000

Site Number: 302465 Code: ANSI/TIA-222-G

Site Name: Colchester CT 6, CT Engineering Number:OAA745777_C3_01 2/14/2019 4:58:20 PM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W — 101 mph with No Ice (Reduced DL) — 25 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		417.6	0.0					0.0	0.0	417.6	0.0	0.0	0.0
5.00		826.6	1,357.1					0.0	139.8	826.6	1,496.8	0.0	0.0
10.00		809.4	1,328.9					0.0	139.8	809.4	1,468.7	0.0	0.0
15.00		792.2	1,300.8					0.0	139.8	792.2	1,440.6	0.0	0.0
20.00		775.0	1,272.7					0.0	139.8	775.0	1,412.5	0.0	0.0
25.00		757.8	1,244.6					0.0	139.8	757.8	1,384.3	0.0	0.0
30.00		749.4	1,216.4					0.0	139.8	749.4	1,356.2	0.0	0.0
35.00		756.1	1,188.3					0.0	139.8	756.1	1,328.1	0.0	0.0
40.00		676.6	1,160.2					0.0	139.8	676.6	1,299.9	0.0	0.0
43.83	Bot - Section 2	386.9	870.4					0.0	107.2	386.9	977.6	0.0	0.0
45.00		485.5	489.4					0.0	32.6	485.5	522.0	0.0	0.0
50.00		472.9	2,065.2					0.0	139.8	472.9	2,204.9	0.0	0.0
51.00	Top - Section 1	395.3	406.8					0.0	28.0	395.3	434.7	0.0	0.0
55.00		711.6	747.8					0.0	111.8	711.6	859.6	0.0	0.0
60.00		789.6	913.0					0.0	139.8	789.6	1,052.8	0.0	0.0
65.00		786.4	888.9					0.0	139.8	786.4	1,028.7	0.0	0.0
70.00		781.4	864.8					0.0	139.8	781.4	1,004.6	0.0	0.0
75.00		774.6	840.7					0.0	139.8	774.6	980.5	0.0	0.0
80.00		766.2	816.6					0.0	139.8	766.2	956.3	0.0	0.0
85.00		613.1	792.5					0.0	139.8	613.1	932.2	0.0	0.0
88.08	Bot - Section 3	377.8	476.7					0.0	86.2	377.8	562.9	0.0	0.0
90.00		446.3	538.8					0.0	53.6	446.3	592.4	0.0	0.0
94.00	Top - Section 2	375.4	1,103.6					0.0	111.8	375.4	1,215.4	0.0	0.0
95.00		443.7	124.6					0.0	28.0	443.7	152.5	0.0	0.0
100.00		731.3	610.7					0.0	139.8	731.3	750.5	0.0	0.0
105.00		717.0	590.6					0.0	139.8	717.0	730.4	0.0	0.0
110.00		701.6	570.5					0.0	139.8	701.6	710.3	0.0	0.0
115.00		685.3	550.4					0.0	139.8	685.3	690.2	0.0	0.0
120.00		668.2	530.3					0.0	139.8	668.2	670.1	0.0	0.0
125.00		650.1	510.3					0.0	139.8	650.1	650.0	0.0	0.0
130.00		533.9	490.2					0.0	139.8	533.9	629.9	0.0	0.0
133.42	Bot - Section 4	312.2	323.4					0.0	95.5	312.2	418.9	0.0	0.0
135.00		283.2	251.2					0.0	44.3	283.2	295.4	0.0	0.0
138.00	Top - Section 3	305.3	466.5					0.0	83.9	305.3	550.4	0.0	0.0
140.00		415.9	126.6					0.0	52.4	415.9	179.0	0.0	0.0
145.00		579.4	306.6					0.0	129.6	579.4	436.2	0.0	0.0
150.00	Appurtenance(s)	449.8	292.6	3,370.9	0.0	1,990.7	1,051.2	0.0	129.6	3,820.6	1,473.4	0.0	0.0
153.00	Appurtenance(s)	273.4	168.8	1,057.3	0.0	0.0	1,350.0	0.0	52.2	1,330.7	1,571.0	0.0	0.0
155.00		370.2	109.7					0.0	21.1	370.2	130.9	0.0	0.0
160.00		413.9	264.5					0.0	52.8	413.9	317.3	0.0	0.0
163.00	Appurtenance(s)	250.5	151.9	3,203.8	0.0	0.0	2,583.4	0.0	31.7	3,454.3	2,767.1	0.0	0.0
165.00		290.7	98.5					0.0	16.5	290.7	114.9	0.0	0.0
169.00	Appurtenance(s)	238.7	190.2	521.3	0.0	0.0	270.0	0.0	32.9	760.0	493.1	0.0	0.0
170.00		138.8	46.1					0.0	8.2	138.8	54.4	0.0	0.0
172.00	Appurtenance(s)	226.5	90.6	177.3	0.0	0.0	45.0	0.0	16.5	403.8	152.0	0.0	0.0
175.00		348.5	131.7					0.0	24.1	348.5	155.8	0.0	0.0
180.00	Appurtenance(s)	214.1	208.2	2,922.1	0.0	0.0	1,672.4	0.0	40.1	3,136.2	1,920.7	0.0	0.0

Load Case: 0.9D + 1.6W 101 mph with No Ice (Reduced DL) 25 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :0.90
Wind Load Factor :1.60

Totals:	36,218.8	40,526.0	0.00	0.00

Load Case: 0.9D + 1.6W — 101 mph with No Ice (Reduced DL) — 25 Iterations

Gust Response Factor :1.10 — Wind Importance Factor 1.00
Dead Load Factor :0.90
Wind Load Factor :1.60

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	-42.92	-39.01	0.00	-4,455.32	0.00	4,455.32	5,229.17	2,614.59	13,734.9	6,783.18	0.00	0.00	0.665
5.00	-41.33	-38.28	0.00	-4,260.25	0.00	4,260.25	5,190.65	2,595.33	13,352.1	6,594.14	0.07	-0.13	0.654
10.00	-39.78	-37.57	0.00	-4,068.83	0.00	4,068.83	5,149.25	2,574.63	12,966.3	6,403.58	0.29	-0.27	0.643
15.00	-38.25	-36.86	0.00	-3,881.01	0.00	3,881.01	5,104.97	2,552.49	12,577.8	6,211.74	0.65	-0.41	0.632
20.00	-36.75	-36.16	0.00	-3,696.72	0.00	3,696.72	5,057.81	2,528.91	12,187.2	6,018.84	1.15	-0.55	0.622
25.00	-35.29	-35.48	0.00	-3,515.91	0.00	3,515.91	5,007.77	2,503.89	11,795.0	5,825.12	1.81	-0.69	0.611
30.00	-33.85	-34.80	0.00	-3,338.52	0.00	3,338.52	4,954.85	2,477.43	11,401.5	5,630.81	2.61	-0.84	0.600
35.00	-32.45	-34.11	0.00	-3,164.53	0.00	3,164.53	4,899.05	2,449.53	11,007.4	5,436.14	3.57	-0.99	0.589
40.00	-31.08	-33.48	0.00	-2,994.00	0.00	2,994.00	4,840.37	2,420.19	10,612.9	5,241.34	4.69	-1.14	0.578
43.83	-30.07	-33.11	0.00	-2,865.67	0.00	2,865.67	4,793.44	2,396.72	10,310.6	5,092.05	5.65	-1.26	0.569
45.00	-29.50	-32.67	0.00	-2,827.04	0.00	2,827.04	4,778.81	2,389.41	10,218.7	5,046.65	5.97	-1.30	0.567
50.00	-27.26	-32.18	0.00	-2,663.71	0.00	2,663.71	4,714.38	2,357.19	9,825.18	4,852.29	7.41	-1.45	0.555
51.00	-26.79	-31.82	0.00	-2,631.53	0.00	2,631.53	3,748.95	1,874.48	7,908.80	3,905.86	7.72	-1.48	0.681
55.00	-25.86	-31.15	0.00	-2,504.27	0.00	2,504.27	3,716.58	1,858.29	7,679.21	3,792.47	9.01	-1.61	0.668
60.00	-24.74	-30.41	0.00	-2,348.52	0.00	2,348.52	3,673.53	1,836.77	7,390.96	3,650.12	10.80	-1.79	0.650
65.00	-23.64	-29.66	0.00	-2,196.48	0.00	2,196.48	3,627.60	1,813.80	7,101.75	3,507.29	12.77	-1.97	0.633
70.00	-22.57	-28.92	0.00	-2,048.17	0.00	2,048.17	3,578.79	1,789.39	6,812.03	3,364.21	14.94	-2.16	0.615
75.00	-21.53	-28.18	0.00	-1,903.57	0.00	1,903.57	3,527.09	1,763.55	6,522.29	3,221.11	17.29	-2.34	0.597
80.00	-20.52	-27.44	0.00	-1,762.69	0.00	1,762.69	3,472.52	1,736.26	6,232.99	3,078.24	19.85	-2.53	0.579
85.00	-19.54	-26.84	0.00	-1,625.49	0.00	1,625.49	3,415.07	1,707.53	5,944.59	2,935.81	22.60	-2.72	0.560
88.08	-18.96	-26.46	0.00	-1,542.75	0.00	1,542.75	3,378.20	1,689.10	5,767.41	2,848.31	24.39	-2.84	0.547
90.00	-18.33	-26.03	0.00	-1,492.03	0.00	1,492.03	3,354.74	1,677.37	5,657.58	2,794.06	25.55	-2.92	0.540
94.00	-17.10	-25.62	0.00	-1,387.92	0.00	1,387.92	2,549.41	1,274.70	4,268.23	2,107.92	28.06	-3.07	0.666
95.00	-16.91	-25.20	0.00	-1,362.31	0.00	1,362.31	2,541.91	1,270.95	4,228.10	2,088.10	28.71	-3.11	0.659
100.00	-16.11	-24.49	0.00	-1,236.29	0.00	1,236.29	2,502.69	1,251.34	4,027.08	1,988.82	32.08	-3.33	0.628
105.00	-15.33	-23.79	0.00	-1,113.82	0.00	1,113.82	2,460.58	1,230.29	3,825.85	1,889.44	35.69	-3.55	0.596
110.00	-14.58	-23.10	0.00	-994.86	0.00	994.86	2,415.60	1,207.80	3,624.86	1,790.18	39.52	-3.77	0.562
115.00	-13.85	-22.42	0.00	-879.34	0.00	879.34	2,367.74	1,183.87	3,424.59	1,691.27	43.58	-3.98	0.526
120.00	-13.15	-21.76	0.00	-767.22	0.00	767.22	2,317.00	1,158.50	3,225.50	1,592.95	47.87	-4.20	0.488
125.00	-12.48	-21.10	0.00	-658.43	0.00	658.43	2,263.38	1,131.69	3,028.06	1,495.45	52.37	-4.40	0.446
130.00	-11.84	-20.56	0.00	-552.91	0.00	552.91	2,206.88	1,103.44	2,832.75	1,398.99	57.08	-4.60	0.401
133.42	-11.41	-20.23	0.00	-482.68	0.00	482.68	2,166.61	1,083.30	2,700.75	1,333.80	60.42	-4.73	0.367
135.00	-11.11	-19.94	0.00	-450.65	0.00	450.65	2,147.49	1,073.75	2,640.03	1,303.81	61.99	-4.79	0.351
138.00	-8.40	-16.24	0.00	-388.95	0.00	388.95	1,272.33	636.17	1,555.73	768.31	65.03	-4.89	0.513
140.00	-8.22	-15.83	0.00	-356.47	0.00	356.47	1,262.76	631.38	1,516.62	749.00	67.09	-4.96	0.483
145.00	-7.79	-15.24	0.00	-277.30	0.00	277.30	1,236.82	618.41	1,418.37	700.48	72.39	-5.16	0.403
150.00	-6.64	-11.32	0.00	-199.08	0.00	199.08	1,208.00	604.00	1,319.78	651.79	77.89	-5.34	0.311
153.00	-5.19	-9.85	0.00	-165.12	0.00	165.12	1,189.33	594.66	1,260.67	622.60	81.27	-5.43	0.270
155.00	-5.08	-9.48	0.00	-145.41	0.00	145.41	1,176.30	588.15	1,221.34	603.17	83.55	-5.49	0.246
160.00	-4.79	-9.05	0.00	-98.00	0.00	98.00	1,141.72	570.86	1,123.49	554.85	89.36	-5.61	0.181
163.00	-2.37	-5.34	0.00	-70.86	0.00	70.86	1,119.59	559.80	1,065.27	526.10	92.90	-5.67	0.137
165.00	-2.28	-5.04	0.00	-60.19	0.00	60.19	1,104.26	552.13	1,026.73	507.06	95.28	-5.70	0.121
169.00	-1.87	-4.24	0.00	-40.03	0.00	40.03	1,072.22	536.11	950.40	469.37	100.08	-5.76	0.087
170.00	-1.83	-4.09	0.00	-35.79	0.00	35.79	1,063.92	531.96	931.50	460.03	101.28	-5.77	0.080
172.00	-1.71	-3.68	0.00	-27.60	0.00	27.60	1,046.98	523.49	893.95	441.49	103.70	-5.79	0.064
175.00	-1.59	-3.31	0.00	-16.57	0.00	16.57	1,020.70	510.35	838.29	414.00	107.34	-5.81	0.042
180.00	0.00	-3.14	0.00	0.00	0.00	0.00	968.36	484.18	742.77	366.83	113.43	-5.83	0.000

Site Number: 302465 Code: ANSI/TIA-222-G

Site Name: Colchester CT 6, CT Engineering Number:OAA745777_C3_01 2/14/2019 4:58:25 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 25 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00 Wind Importance Factor :1.00

Dead Load Factor :1.20 Ice Importance Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		79.5	0.0					0.0	0.0	79.5	0.0	0.0	0.0
5.00		157.7	2,288.8					0.0	186.4	157.7	2,475.2	0.0	0.0
10.00		155.0	2,297.1					0.0	186.4	155.0	2,483.5	0.0	0.0
15.00		152.1	2,276.2					0.0	186.4	152.1	2,462.6	0.0	0.0
20.00		149.1	2,245.8					0.0	186.4	149.1	2,432.1	0.0	0.0
25.00		146.1	2,210.3					0.0	186.4	146.1	2,396.7	0.0	0.0
30.00		144.8	2,171.8					0.0	186.4	144.8	2,358.2	0.0	0.0
35.00		146.4	2,131.2					0.0	186.4	146.4	2,317.5	0.0	0.0
40.00		131.2	2,088.9					0.0	186.4	131.2	2,275.3	0.0	0.0
43.83	Bot - Section 2	75.1	1,573.2					0.0	142.9	75.1	1,716.1	0.0	0.0
45.00		94.3	779.9					0.0	43.5	94.3	823.4	0.0	0.0
50.00		91.9	3,290.1					0.0	186.4	91.9	3,476.5	0.0	0.0
51.00	Top - Section 1	77.0	649.8					0.0	37.3	77.0	687.1	0.0	0.0
55.00		138.7	1,420.5					0.0	149.1	138.7	1,569.6	0.0	0.0
60.00		154.2	1,737.8					0.0	186.4	154.2	1,924.1	0.0	0.0
65.00		153.9	1,696.6					0.0	186.4	153.9	1,883.0	0.0	0.0
70.00		153.3	1,654.9					0.0	186.4	153.3	1,841.3	0.0	0.0
75.00		152.3	1,612.8					0.0	186.4	152.3	1,799.1	0.0	0.0
80.00		151.0	1,570.2					0.0	186.4	151.0	1,756.6	0.0	0.0
85.00		121.1	1,527.3					0.0	186.4	121.1	1,713.7	0.0	0.0
88.08	Bot - Section 3	74.7	922.0					0.0	114.9	74.7	1,036.9	0.0	0.0
90.00		88.4	897.5					0.0	71.4	88.4	968.9	0.0	0.0
94.00	Top - Section 2	74.4	1,837.4					0.0	149.1	74.4	1,986.5	0.0	0.0
95.00		88.1	257.3					0.0	37.3	88.1	294.5	0.0	0.0
100.00		145.5	1,257.6					0.0	186.4	145.5	1,443.9	0.0	0.0
105.00		143.1	1,218.9					0.0	186.4	143.1	1,405.2	0.0	0.0
110.00		140.5	1,180.0					0.0	186.4	140.5	1,366.3	0.0	0.0
115.00		137.7	1,140.8					0.0	186.4	137.7	1,327.2	0.0	0.0
120.00		134.7	1,101.5					0.0	186.4	134.7	1,287.9	0.0	0.0
125.00		131.6	1,062.0					0.0	186.4	131.6	1,248.4	0.0	0.0
130.00		108.4	1,022.3					0.0	186.4	108.4	1,208.7	0.0	0.0
133.42	Bot - Section 4	63.6	677.2					0.0	127.3	63.6	804.6	0.0	0.0
135.00		57.8	449.2					0.0	59.0	57.8	508.2	0.0	0.0
138.00	Top - Section 3	62.4	833.8					0.0	111.8	62.4	945.6	0.0	0.0
140.00		85.3	307.9					0.0	69.9	85.3	377.8	0.0	0.0
145.00		119.3	742.8					0.0	172.8	119.3	915.6	0.0	0.0
150.00	Appurtenance(s)	93.0	710.6	667.0	0.0	415.6	5,102.4	0.0	172.8	760.0	5,985.8	0.0	0.0
153.00	Appurtenance(s)	56.8	412.6	305.7	0.0	0.0	3,949.9	0.0	69.6	362.4	4,432.0	0.0	0.0
155.00		77.3	269.2					0.0	28.2	77.3	297.3	0.0	0.0
160.00		86.7	645.7					0.0	70.4	86.7	716.1	0.0	0.0
163.00	Appurtenance(s)	52.7	373.5	773.9	0.0	0.0	9,376.1	0.0	42.3	826.7	9,791.9	0.0	0.0
165.00		61.5	243.1					0.0	21.9	61.5	265.0	0.0	0.0
169.00	Appurtenance(s)	50.6	468.0	122.1	0.0	0.0	808.2	0.0	43.9	172.7	1,320.1	0.0	0.0
170.00		29.6	114.6					0.0	11.0	29.6	125.6	0.0	0.0
172.00	Appurtenance(s)	48.5	224.7	46.9	0.0	0.0	203.6	0.0	21.9	95.3	450.2	0.0	0.0
175.00		75.1	326.3					0.0	32.1	75.1	358.4	0.0	0.0
180.00	Appurtenance(s)	46.3	514.4	654.2	0.0	0.0	6,813.8	0.0	53.5	700.5	7,381.7	0.0	0.0

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 25 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00 Wind Importance Factor :1.00
Dead Load Factor :1.20 Ice Importance Factor :1.00
Wind Load Factor :1.00

Totals:	7,527.67	86,641.8	0.00	0.00

Site Number: 302465 Code: ANSI/TIA-222-G

Site Name: Colchester CT 6, CT Engineering Number:OAA745777_C3_01 2/14/2019 4:58:29 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 25 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00 Wind Importance 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	-95.57	-8.23	0.00	-1,031.30	0.00	1,031.30	5,229.17	2,614.59	13,734.9	6,783.18	0.00	0.00	0.170
5.00	-93.09	-8.12	0.00	-990.16	0.00	990.16	5,190.65	2,595.33	13,352.1	6,594.14	0.02	-0.03	0.168
10.00	-90.60	-8.01	0.00	-949.55	0.00	949.55	5,149.25	2,574.63	12,966.3	6,403.58	0.07	-0.06	0.166
15.00	-88.13	-7.91	0.00	-909.48	0.00	909.48	5,104.97	2,552.49	12,577.8	6,211.74	0.15	-0.10	0.164
20.00	-85.70	-7.81	0.00	-869.93	0.00	869.93	5,057.81	2,528.91	12,187.2	6,018.84	0.27	-0.13	0.161
25.00	-83.29	-7.70	0.00	-830.90	0.00	830.90	5,007.77	2,503.89	11,795.0	5,825.12	0.42	-0.16	0.159
30.00	-80.93	-7.60	0.00	-792.39	0.00	792.39	4,954.85	2,477.43	11,401.5	5,630.81	0.61	-0.20	0.157
35.00	-78.61	-7.49	0.00	-754.38	0.00	754.38	4,899.05	2,449.53	11,007.4	5,436.14	0.83	-0.23	0.155
40.00	-76.33	-7.40	0.00	-716.91	0.00	716.91	4,840.37	2,420.19	10,612.9	5,241.34	1.10	-0.27	0.153
43.83	-74.61	-7.34	0.00	-688.56	0.00	688.56	4,793.44	2,396.72	10,310.6	5,092.05	1.32	-0.30	0.151
45.00	-73.79	-7.27	0.00	-680.00	0.00	680.00	4,778.81	2,389.41	10,218.7	5,046.65	1.40	-0.31	0.150
50.00	-70.31	-7.18	0.00	-643.66	0.00	643.66	4,714.38	2,357.19	9,825.18	4,852.29	1.74	-0.34	0.148
51.00	-69.62	-7.13	0.00	-636.47	0.00	636.47	3,748.95	1,874.48	7,908.80	3,905.86	1.81	-0.35	0.182
55.00	-68.05	-7.02	0.00	-607.96	0.00	607.96	3,716.58	1,858.29	7,679.21	3,792.47	2.12	-0.38	0.179
60.00	-66.12	-6.91	0.00	-572.85	0.00	572.85	3,673.53	1,836.77	7,390.96	3,650.12	2.54	-0.43	0.175
65.00	-64.23	-6.79	0.00	-538.32	0.00	538.32	3,627.60	1,813.80	7,101.75	3,507.29	3.01	-0.47	0.171
70.00	-62.39	-6.67	0.00	-504.39	0.00	504.39	3,578.79	1,789.39	6,812.03	3,364.21	3.53	-0.52	0.167
75.00	-60.58	-6.55	0.00	-471.05	0.00	471.05	3,527.09	1,763.55	6,522.29	3,221.11	4.09	-0.56	0.163
80.00	-58.82	-6.43	0.00	-438.31	0.00	438.31	3,472.52	1,736.26	6,232.99	3,078.24	4.71	-0.61	0.159
85.00	-57.11	-6.33	0.00	-406.18	0.00	406.18	3,415.07	1,707.53	5,944.59	2,935.81	5.37	-0.66	0.155
88.08	-56.07	-6.26	0.00	-386.68	0.00	386.68	3,378.20	1,689.10	5,767.41	2,848.31	5.80	-0.69	0.152
90.00	-55.10	-6.19	0.00	-374.68	0.00	374.68	3,354.74	1,677.37	5,657.58	2,794.06	6.08	-0.70	0.151
94.00	-53.11	-6.11	0.00	-349.92	0.00	349.92	2,549.41	1,274.70	4,268.23	2,107.92	6.69	-0.74	0.187
95.00	-52.81	-6.05	0.00	-343.80	0.00	343.80	2,541.91	1,270.95	4,228.10	2,088.10	6.84	-0.75	0.185
100.00	-51.36	-5.94	0.00	-313.54	0.00	313.54	2,502.69	1,251.34	4,027.08	1,988.82	7.66	-0.81	0.178
105.00	-49.96	-5.82	0.00	-283.86	0.00	283.86	2,460.58	1,230.29	3,825.85	1,889.44	8.54	-0.86	0.171
110.00	-48.59	-5.71	0.00	-254.75	0.00	254.75	2,415.60	1,207.80	3,624.86	1,790.18	9.48	-0.92	0.162
115.00	-47.26	-5.59	0.00	-226.21	0.00	226.21	2,367.74	1,183.87	3,424.59	1,691.27	10.47	-0.98	0.154
120.00	-45.97	-5.48	0.00	-198.25	0.00	198.25	2,317.00	1,158.50	3,225.50	1,592.95	11.52	-1.03	0.144
125.00	-44.72	-5.37	0.00	-170.85	0.00	170.85	2,263.38	1,131.69	3,028.06	1,495.45	12.63	-1.08	0.134
130.00	-43.51	-5.27	0.00	-144.03	0.00	144.03	2,206.88	1,103.44	2,832.75	1,398.99	13.79	-1.13	0.123
133.42	-42.70	-5.20	0.00	-126.04	0.00	126.04	2,166.61	1,083.30	2,700.75	1,333.80	14.62	-1.17	0.114
135.00	-42.19	-5.15	0.00	-117.80	0.00	117.80	2,147.49	1,073.75	2,640.03	1,303.81	15.01	-1.18	0.110
138.00	-32.34	-4.14	0.00	-101.96	0.00	101.96	1,272.33	636.17	1,555.73	768.31	15.76	-1.21	0.158
140.00	-31.96	-4.07	0.00	-93.68	0.00	93.68	1,262.76	631.38	1,516.62	749.00	16.27	-1.23	0.150
145.00	-31.04	-3.96	0.00	-73.33	0.00	73.33	1,236.82	618.41	1,418.37	700.48	17.59	-1.28	0.130
150.00	-25.07	-3.08	0.00	-53.14	0.00	53.14	1,208.00	604.00	1,319.78	651.79	18.96	-1.33	0.102
153.00	-20.65	-2.62	0.00	-43.91	0.00	43.91	1,189.33	594.66	1,260.67	622.60	19.80	-1.35	0.088
155.00	-20.35	-2.54	0.00	-38.67	0.00	38.67	1,176.30	588.15	1,221.34	603.17	20.37	-1.37	0.081
160.00	-19.64	-2.45	0.00	-25.97	0.00	25.97	1,141.72	570.86	1,123.49	554.85	21.82	-1.40	0.064
163.00	-9.87	-1.38	0.00	-18.63	0.00	18.63	1,119.59	559.80	1,065.27	526.10	22.71	-1.42	0.044
165.00	-9.61	-1.31	0.00	-15.87	0.00	15.87	1,104.26	552.13	1,026.73	507.06	23.30	-1.43	0.040
169.00	-8.29	-1.11	0.00	-10.62	0.00	10.62	1,072.22	536.11	950.40	469.37	24.51	-1.44	0.030
170.00	-8.17	-1.08	0.00	-9.51	0.00	9.51	1,063.92	531.96	931.50	460.03	24.81	-1.44	0.028
172.00	-7.72	-0.97	0.00	-7.35	0.00	7.35	1,046.98	523.49	893.95	441.49	25.41	-1.45	0.024
175.00	-7.36	-0.89	0.00	-4.44	0.00	4.44	1,020.70	510.35	838.29	414.00	26.33	-1.46	0.018
180.00	0.00	-0.70	0.00	0.00	0.00	0.00	968.36	484.18	742.77	366.83	27.85	-1.46	0.000

Load Case: 1.0D + 1.0W Serviceability 60 mph 24 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		92.1	0.0					0.0	0.0	92.1	0.0	0.0	0.0
5.00		182.3	1,507.9					0.0	155.3	182.3	1,663.2	0.0	0.0
10.00		178.5	1,476.6					0.0	155.3	178.5	1,631.9	0.0	0.0
15.00		174.7	1,445.4					0.0	155.3	174.7	1,600.7	0.0	0.0
20.00		170.9	1,414.1					0.0	155.3	170.9	1,569.4	0.0	0.0
25.00		167.2	1,382.8					0.0	155.3	167.2	1,538.1	0.0	0.0
30.00		165.3	1,351.6					0.0	155.3	165.3	1,506.9	0.0	0.0
35.00		166.8	1,320.3					0.0	155.3	166.8	1,475.6	0.0	0.0
40.00		149.2	1,289.1					0.0	155.3	149.2	1,444.4	0.0	0.0
43.83	Bot - Section 2	85.3	967.1					0.0	119.1	85.3	1,086.2	0.0	0.0
45.00		107.1	543.8					0.0	36.2	107.1	580.0	0.0	0.0
50.00		104.3	2,294.6					0.0	155.3	104.3	2,449.9	0.0	0.0
51.00	Top - Section 1	87.2	452.0					0.0	31.1	87.2	483.0	0.0	0.0
55.00		157.0	830.9					0.0	124.2	157.0	955.1	0.0	0.0
60.00		174.2	1,014.5					0.0	155.3	174.2	1,169.8	0.0	0.0
65.00		173.5	987.7					0.0	155.3	173.5	1,143.0	0.0	0.0
70.00		172.3	960.9					0.0	155.3	172.3	1,116.2	0.0	0.0
75.00		170.8	934.1					0.0	155.3	170.8	1,089.4	0.0	0.0
80.00		169.0	907.3					0.0	155.3	169.0	1,062.6	0.0	0.0
85.00		135.2	880.5					0.0	155.3	135.2	1,035.8	0.0	0.0
88.08	Bot - Section 3	83.3	529.6					0.0	95.8	83.3	625.4	0.0	0.0
90.00		98.4	598.7					0.0	59.5	98.4	658.2	0.0	0.0
94.00	Top - Section 2	82.8	1,226.2					0.0	124.2	82.8	1,350.4	0.0	0.0
95.00		97.9	138.4					0.0	31.1	97.9	169.5	0.0	0.0
100.00		161.3	678.6					0.0	155.3	161.3	833.9	0.0	0.0
105.00		158.1	656.2					0.0	155.3	158.1	811.5	0.0	0.0
110.00		154.8	633.9					0.0	155.3	154.8	789.2	0.0	0.0
115.00		151.2	611.6					0.0	155.3	151.2	766.9	0.0	0.0
120.00		147.4	589.3					0.0	155.3	147.4	744.6	0.0	0.0
125.00		143.4	566.9					0.0	155.3	143.4	722.2	0.0	0.0
130.00		117.8	544.6					0.0	155.3	117.8	699.9	0.0	0.0
133.42	Bot - Section 4	68.9	359.3					0.0	106.1	68.9	465.4	0.0	0.0
135.00		62.5	279.1					0.0	49.2	62.5	328.3	0.0	0.0
138.00	Top - Section 3	67.3	518.3					0.0	93.2	67.3	611.5	0.0	0.0
140.00		91.7	140.7					0.0	58.2	91.7	198.9	0.0	0.0
145.00		127.8	340.7					0.0	144.0	127.8	484.7	0.0	0.0
150.00	Appurtenance(s)	99.2	325.1	743.5	0.0	439.1	1,168.0	0.0	144.0	842.7	1,637.1	0.0	0.0
153.00	Appurtenance(s)	60.3	187.6	233.2	0.0	0.0	1,500.0	0.0	58.0	293.5	1,745.5	0.0	0.0
155.00		81.6	121.9					0.0	23.5	81.6	145.4	0.0	0.0
160.00		91.3	293.8					0.0	58.7	91.3	352.5	0.0	0.0
163.00	Appurtenance(s)	55.3	168.8	706.7	0.0	0.0	2,870.5	0.0	35.2	761.9	3,074.5	0.0	0.0
165.00		64.1	109.4					0.0	18.3	64.1	127.7	0.0	0.0
169.00	Appurtenance(s)	52.6	211.3	115.0	0.0	0.0	300.0	0.0	36.6	167.6	547.9	0.0	0.0
170.00		30.6	51.3					0.0	9.1	30.6	60.4	0.0	0.0
172.00	Appurtenance(s)	50.0	100.7	39.1	0.0	0.0	50.0	0.0	18.3	89.1	168.9	0.0	0.0
175.00		76.9	146.3					0.0	26.8	76.9	173.1	0.0	0.0
180.00	Appurtenance(s)	47.2	231.3	644.5	0.0	0.0	1,858.2	0.0	44.6	691.7	2,134.1	0.0	0.0

Load Case: 1.0D + 1.0W Serviceability 60 mph 24 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

Totals:	7,988.67	45,028.9	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 24 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
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	-47.74	-8.61	0.00	-987.08	0.00	987.08	5,229.17	2,614.59	13,734.9	6,783.18	0.00	0.00	0.155
5.00	-46.07	-8.45	0.00	-944.05	0.00	944.05	5,190.65	2,595.33	13,352.1	6,594.14	0.02	-0.03	0.152
10.00	-44.43	-8.29	0.00	-901.82	0.00	901.82	5,149.25	2,574.63	12,966.3	6,403.58	0.06	-0.06	0.149
15.00	-42.83	-8.14	0.00	-860.36	0.00	860.36	5,104.97	2,552.49	12,577.8	6,211.74	0.14	-0.09	0.147
20.00	-41.25	-7.99	0.00	-819.67	0.00	819.67	5,057.81	2,528.91	12,187.2	6,018.84	0.26	-0.12	0.144
25.00	-39.71	-7.84	0.00	-779.74	0.00	779.74	5,007.77	2,503.89	11,795.0	5,825.12	0.40	-0.15	0.142
30.00	-38.20	-7.69	0.00	-740.56	0.00	740.56	4,954.85	2,477.43	11,401.5	5,630.81	0.58	-0.19	0.139
35.00	-36.72	-7.54	0.00	-702.11	0.00	702.11	4,899.05	2,449.53	11,007.4	5,436.14	0.79	-0.22	0.137
40.00	-35.27	-7.40	0.00	-664.41	0.00	664.41	4,840.37	2,420.19	10,612.9	5,241.34	1.04	-0.25	0.134
43.83	-34.19	-7.32	0.00	-636.04	0.00	636.04	4,793.44	2,396.72	10,310.6	5,092.05	1.25	-0.28	0.132
45.00	-33.60	-7.22	0.00	-627.49	0.00	627.49	4,778.81	2,389.41	10,218.7	5,046.65	1.32	-0.29	0.131
50.00	-31.15	-7.12	0.00	-591.37	0.00	591.37	4,714.38	2,357.19	9,825.18	4,852.29	1.64	-0.32	0.128
51.00	-30.67	-7.04	0.00	-584.25	0.00	584.25	3,748.95	1,874.48	7,908.80	3,905.86	1.71	-0.33	0.158
55.00	-29.71	-6.89	0.00	-556.10	0.00	556.10	3,716.58	1,858.29	7,679.21	3,792.47	2.00	-0.36	0.155
60.00	-28.54	-6.73	0.00	-521.63	0.00	521.63	3,673.53	1,836.77	7,390.96	3,650.12	2.39	-0.40	0.151
65.00	-27.39	-6.57	0.00	-487.98	0.00	487.98	3,627.60	1,813.80	7,101.75	3,507.29	2.83	-0.44	0.147
70.00	-26.27	-6.41	0.00	-455.13	0.00	455.13	3,578.79	1,789.39	6,812.03	3,364.21	3.31	-0.48	0.143
75.00	-25.18	-6.24	0.00	-423.10	0.00	423.10	3,527.09	1,763.55	6,522.29	3,221.11	3.84	-0.52	0.139
80.00	-24.11	-6.08	0.00	-391.87	0.00	391.87	3,472.52	1,736.26	6,232.99	3,078.24	4.40	-0.56	0.134
85.00	-23.07	-5.95	0.00	-361.46	0.00	361.46	3,415.07	1,707.53	5,944.59	2,935.81	5.01	-0.60	0.130
88.08	-22.45	-5.87	0.00	-343.11	0.00	343.11	3,378.20	1,689.10	5,767.41	2,848.31	5.41	-0.63	0.127
90.00	-21.79	-5.77	0.00	-331.86	0.00	331.86	3,354.74	1,677.37	5,657.58	2,794.06	5.67	-0.65	0.125
94.00	-20.44	-5.68	0.00	-308.76	0.00	308.76	2,549.41	1,274.70	4,268.23	2,107.92	6.23	-0.68	0.155
95.00	-20.27	-5.59	0.00	-303.08	0.00	303.08	2,541.91	1,270.95	4,228.10	2,088.10	6.37	-0.69	0.153
100.00	-19.43	-5.44	0.00	-275.11	0.00	275.11	2,502.69	1,251.34	4,027.08	1,988.82	7.12	-0.74	0.146
105.00	-18.62	-5.29	0.00	-247.92	0.00	247.92	2,460.58	1,230.29	3,825.85	1,889.44	7.92	-0.79	0.139
110.00	-17.82	-5.13	0.00	-221.49	0.00	221.49	2,415.60	1,207.80	3,624.86	1,790.18	8.77	-0.84	0.131
115.00	-17.06	-4.99	0.00	-195.82	0.00	195.82	2,367.74	1,183.87	3,424.59	1,691.27	9.68	-0.89	0.123
120.00	-16.31	-4.84	0.00	-170.89	0.00	170.89	2,317.00	1,158.50	3,225.50	1,592.95	10.63	-0.93	0.114
125.00	-15.59	-4.70	0.00	-146.69	0.00	146.69	2,263.38	1,131.69	3,028.06	1,495.45	11.63	-0.98	0.105
130.00	-14.89	-4.58	0.00	-123.21	0.00	123.21	2,206.88	1,103.44	2,832.75	1,398.99	12.68	-1.02	0.095
133.42	-14.42	-4.50	0.00	-107.57	0.00	107.57	2,166.61	1,083.30	2,700.75	1,333.80	13.42	-1.05	0.087
135.00	-14.09	-4.44	0.00	-100.44	0.00	100.44	2,147.49	1,073.75	2,640.03	1,303.81	13.77	-1.06	0.084
138.00	-10.78	-3.62	0.00	-86.70	0.00	86.70	1,272.33	636.17	1,555.73	768.31	14.45	-1.09	0.121
140.00	-10.58	-3.53	0.00	-79.47	0.00	79.47	1,262.76	631.38	1,516.62	749.00	14.91	-1.10	0.115
145.00	-10.10	-3.40	0.00	-61.84	0.00	61.84	1,236.82	618.41	1,418.37	700.48	16.08	-1.15	0.096
150.00	-8.48	-2.53	0.00	-44.41	0.00	44.41	1,208.00	604.00	1,319.78	651.79	17.31	-1.19	0.075
153.00	-6.74	-2.20	0.00	-36.83	0.00	36.83	1,189.33	594.66	1,260.67	622.60	18.06	-1.21	0.065
155.00	-6.60	-2.12	0.00	-32.44	0.00	32.44	1,176.30	588.15	1,221.34	603.17	18.57	-1.22	0.059
160.00	-6.24	-2.02	0.00	-21.86	0.00	21.86	1,141.72	570.86	1,123.49	554.85	19.86	-1.25	0.045
163.00	-3.19	-1.19	0.00	-15.81	0.00	15.81	1,119.59	559.80	1,065.27	526.10	20.65	-1.26	0.033
165.00	-3.06	-1.12	0.00	-13.43	0.00	13.43	1,104.26	552.13	1,026.73	507.06	21.18	-1.27	0.029
169.00	-2.52	-0.94	0.00	-8.93	0.00	8.93	1,072.22	536.11	950.40	469.37	22.25	-1.28	0.021
170.00	-2.46	-0.91	0.00	-7.99	0.00	7.99	1,063.92	531.96	931.50	460.03	22.52	-1.28	0.020
172.00	-2.29	-0.82	0.00	-6.16	0.00	6.16	1,046.98	523.49	893.95	441.49	23.06	-1.29	0.016
175.00	-2.12	-0.74	0.00	-3.70	0.00	3.70	1,020.70	510.35	838.29	414.00	23.87	-1.29	0.011
180.00	0.00	-0.69	0.00	0.00	0.00	0.00	968.36	484.18	742.77	366.83	25.22	-1.30	0.000

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.17	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.18	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.03	
Upper Limit C_s	0.03	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	2.44	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	1.97	
Total Unfactored Dead Load:	47.74	k
Seismic Base Shear (E):	1.43	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
46	177.50	276	7,428	0.017	25	341
45	173.50	173	4,454	0.010	15	214
44	171.00	119	2,975	0.007	10	147
43	169.50	60	1,485	0.003	5	75
42	167.00	248	5,918	0.014	20	307
41	164.00	128	2,942	0.007	10	158
40	161.50	204	4,560	0.011	15	252
39	157.50	353	7,500	0.017	25	436
38	154.00	145	2,959	0.007	10	180
37	151.50	246	4,838	0.011	16	304
36	147.50	469	8,770	0.020	29	580
35	142.50	485	8,467	0.020	28	599
34	139.00	199	3,308	0.008	11	246
33	136.50	612	9,814	0.023	32	756
32	134.21	328	5,095	0.012	17	406
31	131.71	465	6,962	0.016	23	576
30	127.50	700	9,820	0.023	32	866
29	122.50	722	9,366	0.022	31	893
28	117.50	745	8,894	0.020	29	921
27	112.50	767	8,409	0.019	28	948
26	107.50	789	7,913	0.018	26	976
25	102.50	812	7,408	0.017	24	1,004
24	97.50	834	6,898	0.016	23	1,031

23	94.50	169	1,318	0.003	4	210
22	92.00	1,350	9,964	0.023	33	1,670
21	89.04	658	4,554	0.010	15	814
20	86.54	625	4,091	0.009	13	773
19	82.50	1,036	6,166	0.014	20	1,281
18	77.50	1,063	5,592	0.013	18	1,314
17	72.50	1,089	5,028	0.012	17	1,347
16	67.50	1,116	4,475	0.010	15	1,380
15	62.50	1,143	3,938	0.009	13	1,414
14	57.50	1,170	3,420	0.008	11	1,447
13	53.00	955	2,378	0.005	8	1,181
12	50.50	483	1,094	0.003	4	597
11	47.50	2,450	4,916	0.011	16	3,030
10	44.42	580	1,020	0.002	3	717
9	41.92	1,086	1,704	0.004	6	1,343
8	37.50	1,444	1,819	0.004	6	1,786
7	32.50	1,476	1,402	0.003	5	1,825
6	27.50	1,507	1,030	0.002	3	1,864
5	22.50	1,538	708	0.002	2	1,902
4	17.50	1,569	441	0.001	1	1,941
3	12.50	1,601	232	0.001	1	1,980
2	7.50	1,632	86	0.000	0	2,018
1	2.50	1,663	10	0.000	0	2,057
Alcatel-Lucent RRH2x	180.00	317	8,783	0.020	29	393
Alcatel-Lucent 1900	180.00	180	4,981	0.011	16	223
Alcatel-Lucent TD-RR	180.00	210	5,811	0.013	19	260
RFS APXVTM14-ALU-I20	180.00	169	4,666	0.011	15	209
Round T-Arm	180.00	750	20,755	0.048	68	928
Commscope NNVV-65B-R	180.00	232	6,426	0.015	21	287
Generic 6' Omni	172.00	50	1,265	0.003	4	62
Standoff Mounts	169.00	300	7,332	0.017	24	371
Samsung B2/B66A RRH-	163.00	253	5,763	0.013	19	313
Samsung B5/B13 RRH-B	163.00	211	4,800	0.011	16	261
RFS DB-B1-6C-12AB-0Z	163.00	43	974	0.002	3	53
Commscope JAHH-65B-R	163.00	364	8,276	0.019	27	450
Round Platform w/ Ha	163.00	2,000	45,523	0.105	150	2,473
Round Low Profile Pl	153.00	1,500	30,139	0.069	99	1,855
LGP Allgon LGP21903	150.00	33	638	0.001	2	41
Powerwave Allgon LGP	150.00	85	1,635	0.004	5	105
Raycap DC6-48-60-18-	150.00	20	386	0.001	1	25
Raycap DC6-48-60-18-	150.00	20	386	0.001	1	25
Ericsson Radio 8843	150.00	216	4,168	0.010	14	267
Ericsson RRUS 4449 B	150.00	213	4,116	0.009	14	263
Powerwave Allgon 777	150.00	105	2,029	0.005	7	130
CCI HPA65R-BU6A	150.00	42	810	0.002	3	52
CCI HPA65R-BU8A	150.00	108	2,087	0.005	7	134
Kathrein Scala 80010	150.00	98	1,886	0.004	6	121
Kathrein Scala 80010	150.00	229	4,429	0.010	15	283
Ericsson RRUS 11 B4	138.00	152	2,494	0.006	8	188
Ericsson RRUS 11 B2	138.00	152	2,494	0.006	8	188
Ericsson RRUS 11 B12	138.00	152	2,494	0.006	8	188
RFS APX16DWV-16DWVS-	138.00	122	2,002	0.005	7	151
Commscope LNX-6515DS	138.00	131	2,150	0.005	7	162
Round Platform w/ Ha	138.00	2,000	32,795	0.076	108	2,473
		47,738	434,064	1.000	1,432	59,038

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)

46	177.50	276	7,428	0.017	25	238
45	173.50	173	4,454	0.010	15	149
44	171.00	119	2,975	0.007	10	103
43	169.50	60	1,485	0.003	5	52
42	167.00	248	5,918	0.014	20	214
41	164.00	128	2,942	0.007	10	110
40	161.50	204	4,560	0.011	15	176
39	157.50	353	7,500	0.017	25	304
38	154.00	145	2,959	0.007	10	126
37	151.50	246	4,838	0.011	16	212
36	147.50	469	8,770	0.020	29	405
35	142.50	485	8,467	0.020	28	418
34	139.00	199	3,308	0.008	11	172
33	136.50	612	9,814	0.023	32	528
32	134.21	328	5,095	0.012	17	283
31	131.71	465	6,962	0.016	23	402
30	127.50	700	9,820	0.023	32	604
29	122.50	722	9,366	0.022	31	624
28	117.50	745	8,894	0.020	29	643
27	112.50	767	8,409	0.019	28	662
26	107.50	789	7,913	0.018	26	681
25	102.50	812	7,408	0.017	24	701
24	97.50	834	6,898	0.016	23	720
23	94.50	169	1,318	0.003	4	146
22	92.00	1,350	9,964	0.023	33	1,166
21	89.04	658	4,554	0.010	15	568
20	86.54	625	4,091	0.009	13	540
19	82.50	1,036	6,166	0.014	20	894
18	77.50	1,063	5,592	0.013	18	917
17	72.50	1,089	5,028	0.012	17	940
16	67.50	1,116	4,475	0.010	15	964
15	62.50	1,143	3,938	0.009	13	987
14	57.50	1,170	3,420	0.008	11	1,010
13	53.00	955	2,378	0.005	8	825
12	50.50	483	1,094	0.003	4	417
11	47.50	2,450	4,916	0.011	16	2,115
10	44.42	580	1,020	0.002	3	501
9	41.92	1,086	1,704	0.004	6	938
8	37.50	1,444	1,819	0.004	6	1,247
7	32.50	1,476	1,402	0.003	5	1,274
6	27.50	1,507	1,030	0.002	3	1,301
5	22.50	1,538	708	0.002	2	1,328
4	17.50	1,569	441	0.001	1	1,355
3	12.50	1,601	232	0.001	1	1,382
2	7.50	1,632	86	0.000	0	1,409
1	2.50	1,663	10	0.000	0	1,436
Alcatel-Lucent RRH2x	180.00	317	8,783	0.020	29	274
Alcatel-Lucent 1900	180.00	180	4,981	0.011	16	155
Alcatel-Lucent TD-RR	180.00	210	5,811	0.013	19	181
RFS APXVTM14-ALU-I20	180.00	169	4,666	0.011	15	146
Round T-Arm	180.00	750	20,755	0.048	68	647
Commscope NNVV-65B-R	180.00	232	6,426	0.015	21	200
Generic 6' Omni	172.00	50	1,265	0.003	4	43
Standoff Mounts	169.00	300	7,332	0.017	24	259
Samsung B2/B66A RRH-	163.00	253	5,763	0.013	19	219
Samsung B5/B13 RRH-B	163.00	211	4,800	0.011	16	182
RFS DB-B1-6C-12AB-0Z	163.00	43	974	0.002	3	37
Commscope JAHH-65B-R	163.00	364	8,276	0.019	27	314
Round Platform w/ Ha	163.00	2,000	45,523	0.105	150	1,727
Round Low Profile Pl	153.00	1,500	30,139	0.069	99	1,295
LGP Allgon LGP21903	150.00	33	638	0.001	2	28
Powerwave Allgon LGP	150.00	85	1,635	0.004	5	73
Raycap DC6-48-60-18-	150.00	20	386	0.001	1	17
Raycap DC6-48-60-18-	150.00	20	386	0.001	1	17

Ericsson Radio 8843	150.00	216	4,168	0.010	14	186
Ericsson RRUS 4449 B	150.00	213	4,116	0.009	14	184
Powerwave Allgon 777	150.00	105	2,029	0.005	7	91
CCI HPA65R-BU6A	150.00	42	810	0.002	3	36
CCI HPA65R-BU8A	150.00	108	2,087	0.005	7	93
Kathrein Scala 80010	150.00	98	1,886	0.004	6	84
Kathrein Scala 80010	150.00	229	4,429	0.010	15	198
Ericsson RRUS 11 B4	138.00	152	2,494	0.006	8	131
Ericsson RRUS 11 B2	138.00	152	2,494	0.006	8	131
Ericsson RRUS 11 B12	138.00	152	2,494	0.006	8	131
RFS APX16DWV-16DWVS-	138.00	122	2,002	0.005	7	105
Commscope LNX-6515DS	138.00	131	2,150	0.005	7	113
Round Platform w/ Ha	138.00	2,000	32,795	0.076	108	1,727
		47,738	434,064	1.000	1,432	41,213

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

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	-56.98	-1.43	0.00	-205.07	0.00	205.07	5,229.17	2,614.59	13,734.9	6,783.18	0.00	0.00	0.041
5.00	-54.96	-1.44	0.00	-197.90	0.00	197.90	5,190.65	2,595.33	13,352.1	6,594.14	0.00	-0.01	0.041
10.00	-52.98	-1.45	0.00	-190.70	0.00	190.70	5,149.25	2,574.63	12,966.3	6,403.58	0.01	-0.01	0.040
15.00	-51.04	-1.45	0.00	-183.48	0.00	183.48	5,104.97	2,552.49	12,577.8	6,211.74	0.03	-0.02	0.040
20.00	-49.14	-1.45	0.00	-176.23	0.00	176.23	5,057.81	2,528.91	12,187.2	6,018.84	0.05	-0.03	0.039
25.00	-47.28	-1.45	0.00	-168.97	0.00	168.97	5,007.77	2,503.89	11,795.0	5,825.12	0.08	-0.03	0.038
30.00	-45.45	-1.45	0.00	-161.71	0.00	161.71	4,954.85	2,477.43	11,401.5	5,630.81	0.12	-0.04	0.038
35.00	-43.66	-1.45	0.00	-154.44	0.00	154.44	4,899.05	2,449.53	11,007.4	5,436.14	0.17	-0.05	0.037
40.00	-42.32	-1.45	0.00	-147.19	0.00	147.19	4,840.37	2,420.19	10,612.9	5,241.34	0.22	-0.05	0.037
43.83	-41.60	-1.45	0.00	-141.63	0.00	141.63	4,793.44	2,396.72	10,310.6	5,092.05	0.27	-0.06	0.036
45.00	-38.57	-1.43	0.00	-139.94	0.00	139.94	4,778.81	2,389.41	10,218.7	5,046.65	0.28	-0.06	0.036
50.00	-37.98	-1.43	0.00	-132.79	0.00	132.79	4,714.38	2,357.19	9,825.18	4,852.29	0.35	-0.07	0.035
51.00	-36.79	-1.42	0.00	-131.36	0.00	131.36	3,748.95	1,874.48	7,908.80	3,905.86	0.37	-0.07	0.043
55.00	-35.35	-1.42	0.00	-125.66	0.00	125.66	3,716.58	1,858.29	7,679.21	3,792.47	0.43	-0.08	0.043
60.00	-33.93	-1.41	0.00	-118.58	0.00	118.58	3,673.53	1,836.77	7,390.96	3,650.12	0.51	-0.09	0.042
65.00	-32.55	-1.39	0.00	-111.56	0.00	111.56	3,627.60	1,813.80	7,101.75	3,507.29	0.61	-0.10	0.041
70.00	-31.21	-1.38	0.00	-104.59	0.00	104.59	3,578.79	1,789.39	6,812.03	3,364.21	0.72	-0.11	0.040
75.00	-29.89	-1.36	0.00	-97.68	0.00	97.68	3,527.09	1,763.55	6,522.29	3,221.11	0.83	-0.11	0.039
80.00	-28.61	-1.35	0.00	-90.86	0.00	90.86	3,472.52	1,736.26	6,232.99	3,078.24	0.96	-0.12	0.038
85.00	-27.84	-1.33	0.00	-84.13	0.00	84.13	3,415.07	1,707.53	5,944.59	2,935.81	1.09	-0.13	0.037
88.08	-27.02	-1.32	0.00	-80.02	0.00	80.02	3,378.20	1,689.10	5,767.41	2,848.31	1.18	-0.14	0.036
90.00	-25.35	-1.29	0.00	-77.49	0.00	77.49	3,354.74	1,677.37	5,657.58	2,794.06	1.24	-0.14	0.035
94.00	-25.14	-1.28	0.00	-72.34	0.00	72.34	2,549.41	1,274.70	4,268.23	2,107.92	1.36	-0.15	0.044
95.00	-24.11	-1.26	0.00	-71.06	0.00	71.06	2,541.91	1,270.95	4,228.10	2,088.10	1.40	-0.15	0.044
100.00	-23.11	-1.24	0.00	-64.76	0.00	64.76	2,502.69	1,251.34	4,027.08	1,988.82	1.56	-0.17	0.042
105.00	-22.13	-1.21	0.00	-58.57	0.00	58.57	2,460.58	1,230.29	3,825.85	1,889.44	1.74	-0.18	0.040
110.00	-21.18	-1.19	0.00	-52.50	0.00	52.50	2,415.60	1,207.80	3,624.86	1,790.18	1.94	-0.19	0.038
115.00	-20.26	-1.16	0.00	-46.57	0.00	46.57	2,367.74	1,183.87	3,424.59	1,691.27	2.14	-0.20	0.036
120.00	-19.37	-1.13	0.00	-40.77	0.00	40.77	2,317.00	1,158.50	3,225.50	1,592.95	2.36	-0.21	0.034
125.00	-18.50	-1.10	0.00	-35.13	0.00	35.13	2,263.38	1,131.69	3,028.06	1,495.45	2.58	-0.22	0.032
130.00	-17.93	-1.07	0.00	-29.65	0.00	29.65	2,206.88	1,103.44	2,832.75	1,398.99	2.82	-0.23	0.029
133.42	-17.52	-1.06	0.00	-25.99	0.00	25.99	2,166.61	1,083.30	2,700.75	1,333.80	2.99	-0.24	0.028
135.00	-16.77	-1.02	0.00	-24.32	0.00	24.32	2,147.49	1,073.75	2,640.03	1,303.81	3.07	-0.24	0.026
138.00	-13.17	-0.85	0.00	-21.25	0.00	21.25	1,272.33	636.17	1,555.73	768.31	3.23	-0.25	0.038
140.00	-12.57	-0.82	0.00	-19.55	0.00	19.55	1,262.76	631.38	1,516.62	749.00	3.33	-0.25	0.036
145.00	-11.99	-0.79	0.00	-15.44	0.00	15.44	1,236.82	618.41	1,418.37	700.48	3.60	-0.26	0.032
150.00	-10.24	-0.69	0.00	-11.48	0.00	11.48	1,208.00	604.00	1,319.78	651.79	3.89	-0.27	0.026
153.00	-8.21	-0.58	0.00	-9.40	0.00	9.40	1,189.33	594.66	1,260.67	622.60	4.06	-0.28	0.022
155.00	-7.77	-0.55	0.00	-8.24	0.00	8.24	1,176.30	588.15	1,221.34	603.17	4.18	-0.28	0.020
160.00	-7.52	-0.53	0.00	-5.49	0.00	5.49	1,141.72	570.86	1,123.49	554.85	4.48	-0.29	0.016
163.00	-3.81	-0.29	0.00	-3.89	0.00	3.89	1,119.59	559.80	1,065.27	526.10	4.66	-0.29	0.011
165.00	-3.51	-0.27	0.00	-3.31	0.00	3.31	1,104.26	552.13	1,026.73	507.06	4.78	-0.29	0.010
169.00	-3.06	-0.24	0.00	-2.23	0.00	2.23	1,072.22	536.11	950.40	469.37	5.03	-0.30	0.008
170.00	-2.91	-0.23	0.00	-1.99	0.00	1.99	1,063.92	531.96	931.50	460.03	5.09	-0.30	0.007
172.00	-2.64	-0.21	0.00	-1.53	0.00	1.53	1,046.98	523.49	893.95	441.49	5.22	-0.30	0.006
175.00	-2.30	-0.18	0.00	-0.91	0.00	0.91	1,020.70	510.35	838.29	414.00	5.41	-0.30	0.004
180.00	0.00	-0.17	0.00	0.00	0.00	0.00	968.36	484.18	742.77	366.83	5.72	-0.30	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

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	-39.78	-1.43	0.00	-202.41	0.00	202.41	5,229.17	2,614.59	13,734.9	6,783.18	0.00	0.00	0.037
5.00	-38.37	-1.44	0.00	-195.24	0.00	195.24	5,190.65	2,595.33	13,352.1	6,594.14	0.00	-0.01	0.037
10.00	-36.99	-1.44	0.00	-188.05	0.00	188.05	5,149.25	2,574.63	12,966.3	6,403.58	0.01	-0.01	0.037
15.00	-35.63	-1.44	0.00	-180.85	0.00	180.85	5,104.97	2,552.49	12,577.8	6,211.74	0.03	-0.02	0.036
20.00	-34.30	-1.44	0.00	-173.64	0.00	173.64	5,057.81	2,528.91	12,187.2	6,018.84	0.05	-0.03	0.036
25.00	-33.00	-1.44	0.00	-166.42	0.00	166.42	5,007.77	2,503.89	11,795.0	5,825.12	0.08	-0.03	0.035
30.00	-31.73	-1.44	0.00	-159.20	0.00	159.20	4,954.85	2,477.43	11,401.5	5,630.81	0.12	-0.04	0.035
35.00	-30.48	-1.44	0.00	-151.99	0.00	151.99	4,899.05	2,449.53	11,007.4	5,436.14	0.17	-0.05	0.034
40.00	-29.54	-1.44	0.00	-144.79	0.00	144.79	4,840.37	2,420.19	10,612.9	5,241.34	0.22	-0.05	0.034
43.83	-29.04	-1.43	0.00	-139.29	0.00	139.29	4,793.44	2,396.72	10,310.6	5,092.05	0.26	-0.06	0.033
45.00	-26.93	-1.42	0.00	-137.62	0.00	137.62	4,778.81	2,389.41	10,218.7	5,046.65	0.28	-0.06	0.033
50.00	-26.51	-1.42	0.00	-130.53	0.00	130.53	4,714.38	2,357.19	9,825.18	4,852.29	0.35	-0.07	0.033
51.00	-25.69	-1.41	0.00	-129.11	0.00	129.11	3,748.95	1,874.48	7,908.80	3,905.86	0.36	-0.07	0.040
55.00	-24.68	-1.40	0.00	-123.47	0.00	123.47	3,716.58	1,858.29	7,679.21	3,792.47	0.42	-0.08	0.039
60.00	-23.69	-1.39	0.00	-116.48	0.00	116.48	3,673.53	1,836.77	7,390.96	3,650.12	0.51	-0.09	0.038
65.00	-22.72	-1.38	0.00	-109.53	0.00	109.53	3,627.60	1,813.80	7,101.75	3,507.29	0.60	-0.09	0.037
70.00	-21.78	-1.36	0.00	-102.65	0.00	102.65	3,578.79	1,789.39	6,812.03	3,364.21	0.71	-0.10	0.037
75.00	-20.87	-1.34	0.00	-95.84	0.00	95.84	3,527.09	1,763.55	6,522.29	3,221.11	0.82	-0.11	0.036
80.00	-19.97	-1.33	0.00	-89.12	0.00	89.12	3,472.52	1,736.26	6,232.99	3,078.24	0.94	-0.12	0.035
85.00	-19.43	-1.31	0.00	-82.49	0.00	82.49	3,415.07	1,707.53	5,944.59	2,935.81	1.08	-0.13	0.034
88.08	-18.86	-1.30	0.00	-78.44	0.00	78.44	3,378.20	1,689.10	5,767.41	2,848.31	1.16	-0.14	0.033
90.00	-17.70	-1.27	0.00	-75.95	0.00	75.95	3,354.74	1,677.37	5,657.58	2,794.06	1.22	-0.14	0.032
94.00	-17.55	-1.26	0.00	-70.89	0.00	70.89	2,549.41	1,274.70	4,268.23	2,107.92	1.34	-0.15	0.041
95.00	-16.83	-1.24	0.00	-69.63	0.00	69.63	2,541.91	1,270.95	4,228.10	2,088.10	1.37	-0.15	0.040
100.00	-16.13	-1.22	0.00	-63.43	0.00	63.43	2,502.69	1,251.34	4,027.08	1,988.82	1.54	-0.16	0.038
105.00	-15.45	-1.19	0.00	-57.35	0.00	57.35	2,460.58	1,230.29	3,825.85	1,889.44	1.72	-0.17	0.037
110.00	-14.79	-1.16	0.00	-51.39	0.00	51.39	2,415.60	1,207.80	3,624.86	1,790.18	1.90	-0.19	0.035
115.00	-14.14	-1.14	0.00	-45.57	0.00	45.57	2,367.74	1,183.87	3,424.59	1,691.27	2.11	-0.20	0.033
120.00	-13.52	-1.10	0.00	-39.89	0.00	39.89	2,317.00	1,158.50	3,225.50	1,592.95	2.32	-0.21	0.031
125.00	-12.92	-1.07	0.00	-34.37	0.00	34.37	2,263.38	1,131.69	3,028.06	1,495.45	2.54	-0.22	0.029
130.00	-12.51	-1.05	0.00	-29.01	0.00	29.01	2,206.88	1,103.44	2,832.75	1,398.99	2.78	-0.23	0.026
133.42	-12.23	-1.03	0.00	-25.42	0.00	25.42	2,166.61	1,083.30	2,700.75	1,333.80	2.94	-0.24	0.025
135.00	-11.70	-1.00	0.00	-23.78	0.00	23.78	2,147.49	1,073.75	2,640.03	1,303.81	3.02	-0.24	0.024
138.00	-9.19	-0.83	0.00	-20.78	0.00	20.78	1,272.33	636.17	1,555.73	768.31	3.17	-0.24	0.034
140.00	-8.77	-0.80	0.00	-19.12	0.00	19.12	1,262.76	631.38	1,516.62	749.00	3.28	-0.25	0.032
145.00	-8.37	-0.77	0.00	-15.10	0.00	15.10	1,236.82	618.41	1,418.37	700.48	3.54	-0.26	0.028
150.00	-7.15	-0.68	0.00	-11.23	0.00	11.23	1,208.00	604.00	1,319.78	651.79	3.82	-0.27	0.023
153.00	-5.73	-0.56	0.00	-9.19	0.00	9.19	1,189.33	594.66	1,260.67	622.60	3.99	-0.27	0.020
155.00	-5.42	-0.54	0.00	-8.06	0.00	8.06	1,176.30	588.15	1,221.34	603.17	4.10	-0.28	0.018
160.00	-5.25	-0.52	0.00	-5.37	0.00	5.37	1,141.72	570.86	1,123.49	554.85	4.40	-0.28	0.014
163.00	-2.66	-0.28	0.00	-3.81	0.00	3.81	1,119.59	559.80	1,065.27	526.10	4.58	-0.29	0.010
165.00	-2.45	-0.26	0.00	-3.24	0.00	3.24	1,104.26	552.13	1,026.73	507.06	4.70	-0.29	0.009
169.00	-2.14	-0.23	0.00	-2.18	0.00	2.18	1,072.22	536.11	950.40	469.37	4.94	-0.29	0.007
170.00	-2.03	-0.22	0.00	-1.95	0.00	1.95	1,063.92	531.96	931.50	460.03	5.00	-0.29	0.006
172.00	-1.84	-0.20	0.00	-1.50	0.00	1.50	1,046.98	523.49	893.95	441.49	5.13	-0.29	0.005
175.00	-1.60	-0.18	0.00	-0.89	0.00	0.89	1,020.70	510.35	838.29	414.00	5.31	-0.29	0.004
180.00	0.00	-0.17	0.00	0.00	0.00	0.00	968.36	484.18	742.77	366.83	5.62	-0.30	0.000

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.17
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.18
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.44
Redundancy Factor (p):	1.00

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
46	177.50	276	1.838	1.716	1.044	0.317	58	341
45	173.50	173	1.756	1.346	0.903	0.269	31	214
44	171.00	119	1.706	1.144	0.823	0.241	19	147
43	169.50	60	1.676	1.033	0.778	0.225	9	75
42	167.00	248	1.627	0.864	0.707	0.199	33	307
41	164.00	128	1.569	0.685	0.629	0.170	14	158
40	161.50	204	1.521	0.555	0.569	0.147	20	252
39	157.50	353	1.447	0.379	0.482	0.113	27	436
38	154.00	145	1.383	0.253	0.415	0.086	8	180
37	151.50	246	1.339	0.178	0.372	0.068	11	304
36	147.50	469	1.269	0.080	0.309	0.043	13	580
35	142.50	485	1.185	-0.009	0.243	0.016	5	599
34	139.00	199	1.127	-0.053	0.204	0.000	0	246
33	136.50	612	1.087	-0.077	0.179	-0.010	-4	756
32	134.21	328	1.051	-0.094	0.158	-0.018	-4	406
31	131.71	465	1.012	-0.107	0.137	-0.025	-8	576
30	127.50	700	0.948	-0.119	0.107	-0.035	-16	866
29	122.50	722	0.875	-0.121	0.078	-0.041	-20	893
28	117.50	745	0.805	-0.113	0.055	-0.043	-21	921
27	112.50	767	0.738	-0.098	0.038	-0.039	-20	948
26	107.50	789	0.674	-0.079	0.025	-0.032	-17	976
25	102.50	812	0.613	-0.058	0.016	-0.021	-11	1,004
24	97.50	834	0.555	-0.036	0.010	-0.008	-4	1,031
23	94.50	169	0.521	-0.024	0.008	0.001	0	210
22	92.00	1,350	0.494	-0.014	0.007	0.008	7	1,670
21	89.04	658	0.462	-0.003	0.006	0.015	7	814
20	86.54	625	0.437	0.006	0.006	0.021	9	773
19	82.50	1,036	0.397	0.019	0.007	0.030	21	1,281
18	77.50	1,063	0.350	0.033	0.009	0.038	27	1,314
17	72.50	1,089	0.307	0.044	0.012	0.044	32	1,347
16	67.50	1,116	0.266	0.052	0.015	0.048	35	1,380
15	62.50	1,143	0.228	0.059	0.020	0.049	38	1,414
14	57.50	1,170	0.193	0.064	0.024	0.050	39	1,447
13	53.00	955	0.164	0.067	0.028	0.050	32	1,181

12	50.50	483	0.149	0.068	0.030	0.049	16	597
11	47.50	2,450	0.132	0.069	0.033	0.049	80	3,030
10	44.42	580	0.115	0.070	0.035	0.048	19	717
9	41.92	1,086	0.102	0.071	0.037	0.048	35	1,343
8	37.50	1,444	0.082	0.072	0.039	0.047	45	1,786
7	32.50	1,476	0.062	0.072	0.041	0.046	45	1,825
6	27.50	1,507	0.044	0.071	0.042	0.045	45	1,864
5	22.50	1,538	0.030	0.068	0.040	0.043	44	1,902
4	17.50	1,569	0.018	0.063	0.037	0.040	42	1,941
3	12.50	1,601	0.009	0.054	0.031	0.035	38	1,980
2	7.50	1,632	0.003	0.039	0.022	0.027	29	2,018
1	2.50	1,663	0.000	0.015	0.008	0.012	13	2,057
Alcatel-Lucent RRH2x	180.00	317	1.890	1.980	1.140	0.348	74	393
Alcatel-Lucent 1900	180.00	180	1.890	1.980	1.140	0.348	42	223
Alcatel-Lucent TD-RR	180.00	210	1.890	1.980	1.140	0.348	49	260
RFS APXVTM14-ALU-I20	180.00	169	1.890	1.980	1.140	0.348	39	209
Round T-Arm	180.00	750	1.890	1.980	1.140	0.348	174	928
Commscope NNVV-	180.00	232	1.890	1.980	1.140	0.348	54	287
Generic 6' Omni	172.00	50	1.726	1.222	0.855	0.252	8	62
Standoff Mounts	169.00	300	1.666	0.998	0.764	0.219	44	371
Samsung B2/B66A RRH-	163.00	253	1.550	0.631	0.604	0.160	27	313
Samsung B5/B13 RRH-B	163.00	211	1.550	0.631	0.604	0.160	23	261
RFS DB-B1-6C-12AB-0Z	163.00	43	1.550	0.631	0.604	0.160	5	53
Commscope JAHH-65B-	163.00	364	1.550	0.631	0.604	0.160	39	450
Round Platform w/ Ha	163.00	2,000	1.550	0.631	0.604	0.160	214	2,473
Round Low Profile Pl	153.00	1,500	1.366	0.222	0.397	0.079	79	1,855
LGP Allgon LGP21903	150.00	33	1.312	0.138	0.347	0.059	1	41
Powerwave Allgon LGP	150.00	85	1.312	0.138	0.347	0.059	3	105
Raycap DC6-48-60-18-	150.00	20	1.312	0.138	0.347	0.059	1	25
Raycap DC6-48-60-18-	150.00	20	1.312	0.138	0.347	0.059	1	25
Ericsson Radio 8843	150.00	216	1.312	0.138	0.347	0.059	8	267
Ericsson RRUS 4449 B	150.00	213	1.312	0.138	0.347	0.059	8	263
Powerwave Allgon 777	150.00	105	1.312	0.138	0.347	0.059	4	130
CCI HPA65R-BU6A	150.00	42	1.312	0.138	0.347	0.059	2	52
CCI HPA65R-BU8A	150.00	108	1.312	0.138	0.347	0.059	4	134
Kathrein Scala 80010	150.00	98	1.312	0.138	0.347	0.059	4	121
Kathrein Scala 80010	150.00	229	1.312	0.138	0.347	0.059	9	283
Ericsson RRUS 11 B4	138.00	152	1.111	-0.064	0.194	-0.004	0	188
Ericsson RRUS 11 B2	138.00	152	1.111	-0.064	0.194	-0.004	0	188
Ericsson RRUS 11 B12	138.00	152	1.111	-0.064	0.194	-0.004	0	188
RFS APX16DWV-	138.00	122	1.111	-0.064	0.194	-0.004	0	151
Commscope LNX-	138.00	131	1.111	-0.064	0.194	-0.004	0	162
Round Platform w/ Ha	138.00	2,000	1.111	-0.064	0.194	-0.004	-5	2,473
		47,738	77.315	26.922	25.677	6.528	1,729	59,038

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
46	177.50	276	1.838	1.716	1.044	0.317	58	238
45	173.50	173	1.756	1.346	0.903	0.269	31	149
44	171.00	119	1.706	1.144	0.823	0.241	19	103
43	169.50	60	1.676	1.033	0.778	0.225	9	52
42	167.00	248	1.627	0.864	0.707	0.199	33	214
41	164.00	128	1.569	0.685	0.629	0.170	14	110
40	161.50	204	1.521	0.555	0.569	0.147	20	176
39	157.50	353	1.447	0.379	0.482	0.113	27	304
38	154.00	145	1.383	0.253	0.415	0.086	8	126
37	151.50	246	1.339	0.178	0.372	0.068	11	212

36	147.50	469	1.269	0.080	0.309	0.043	13	405
35	142.50	485	1.185	-0.009	0.243	0.016	5	418
34	139.00	199	1.127	-0.053	0.204	0.000	0	172
33	136.50	612	1.087	-0.077	0.179	-0.010	-4	528
32	134.21	328	1.051	-0.094	0.158	-0.018	-4	283
31	131.71	465	1.012	-0.107	0.137	-0.025	-8	402
30	127.50	700	0.948	-0.119	0.107	-0.035	-16	604
29	122.50	722	0.875	-0.121	0.078	-0.041	-20	624
28	117.50	745	0.805	-0.113	0.055	-0.043	-21	643
27	112.50	767	0.738	-0.098	0.038	-0.039	-20	662
26	107.50	789	0.674	-0.079	0.025	-0.032	-17	681
25	102.50	812	0.613	-0.058	0.016	-0.021	-11	701
24	97.50	834	0.555	-0.036	0.010	-0.008	-4	720
23	94.50	169	0.521	-0.024	0.008	0.001	0	146
22	92.00	1,350	0.494	-0.014	0.007	0.008	7	1,166
21	89.04	658	0.462	-0.003	0.006	0.015	7	568
20	86.54	625	0.437	0.006	0.006	0.021	9	540
19	82.50	1,036	0.397	0.019	0.007	0.030	21	894
18	77.50	1,063	0.350	0.033	0.009	0.038	27	917
17	72.50	1,089	0.307	0.044	0.012	0.044	32	940
16	67.50	1,116	0.266	0.052	0.015	0.048	35	964
15	62.50	1,143	0.228	0.059	0.020	0.049	38	987
14	57.50	1,170	0.193	0.064	0.024	0.050	39	1,010
13	53.00	955	0.164	0.067	0.028	0.050	32	825
12	50.50	483	0.149	0.068	0.030	0.049	16	417
11	47.50	2,450	0.132	0.069	0.033	0.049	80	2,115
10	44.42	580	0.115	0.070	0.035	0.048	19	501
9	41.92	1,086	0.102	0.071	0.037	0.048	35	938
8	37.50	1,444	0.082	0.072	0.039	0.047	45	1,247
7	32.50	1,476	0.062	0.072	0.041	0.046	45	1,274
6	27.50	1,507	0.044	0.071	0.042	0.045	45	1,301
5	22.50	1,538	0.030	0.068	0.040	0.043	44	1,328
4	17.50	1,569	0.018	0.063	0.037	0.040	42	1,355
3	12.50	1,601	0.009	0.054	0.031	0.035	38	1,382
2	7.50	1,632	0.003	0.039	0.022	0.027	29	1,409
1	2.50	1,663	0.000	0.015	0.008	0.012	13	1,436
Alcatel-Lucent RRH2x	180.00	317	1.890	1.980	1.140	0.348	74	274
Alcatel-Lucent 1900	180.00	180	1.890	1.980	1.140	0.348	42	155
Alcatel-Lucent TD-RR	180.00	210	1.890	1.980	1.140	0.348	49	181
RFS APXVTM14-ALU-I20	180.00	169	1.890	1.980	1.140	0.348	39	146
Round T-Arm	180.00	750	1.890	1.980	1.140	0.348	174	647
Commscope NNVV-	180.00	232	1.890	1.980	1.140	0.348	54	200
Generic 6' Omni	172.00	50	1.726	1.222	0.855	0.252	8	43
Standoff Mounts	169.00	300	1.666	0.998	0.764	0.219	44	259
Samsung B2/B66A RRH-	163.00	253	1.550	0.631	0.604	0.160	27	219
Samsung B5/B13 RRH-B	163.00	211	1.550	0.631	0.604	0.160	23	182
RFS DB-B1-6C-12AB-0Z	163.00	43	1.550	0.631	0.604	0.160	5	37
Commscope JAHH-65B-	163.00	364	1.550	0.631	0.604	0.160	39	314
Round Platform w/ Ha	163.00	2,000	1.550	0.631	0.604	0.160	214	1,727
Round Low Profile Pl	153.00	1,500	1.366	0.222	0.397	0.079	79	1,295
LGP Allgon LGP21903	150.00	33	1.312	0.138	0.347	0.059	1	28
Powerwave Allgon LGP	150.00	85	1.312	0.138	0.347	0.059	3	73
Raycap DC6-48-60-18-	150.00	20	1.312	0.138	0.347	0.059	1	17
Raycap DC6-48-60-18-	150.00	20	1.312	0.138	0.347	0.059	1	17
Ericsson Radio 8843	150.00	216	1.312	0.138	0.347	0.059	8	186
Ericsson RRUS 4449 B	150.00	213	1.312	0.138	0.347	0.059	8	184
Powerwave Allgon 777	150.00	105	1.312	0.138	0.347	0.059	4	91
CCI HPA65R-BU6A	150.00	42	1.312	0.138	0.347	0.059	2	36
CCI HPA65R-BU8A	150.00	108	1.312	0.138	0.347	0.059	4	93
Kathrein Scala 80010	150.00	98	1.312	0.138	0.347	0.059	4	84
Kathrein Scala 80010	150.00	229	1.312	0.138	0.347	0.059	9	198
Ericsson RRUS 11 B4	138.00	152	1.111	-0.064	0.194	-0.004	0	131
Ericsson RRUS 11 B2	138.00	152	1.111	-0.064	0.194	-0.004	0	131
Ericsson RRUS 11 B12	138.00	152	1.111	-0.064	0.194	-0.004	0	131

RFS APX16DWV-	138.00	122	1.111	-0.064	0.194	-0.004	0	105
Commscope LNX-	138.00	131	1.111	-0.064	0.194	-0.004	0	113
Round Platform w/ Ha	138.00	2,000	1.111	-0.064	0.194	-0.004	-5	1,727
		47,738	77.315	26.922	25.677	6.528	1,729	41,213

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

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	-56.98	-1.72	0.00	-219.62	0.00	219.62	5,229.17	2,614.59	13,734.9	6,783.18	0.00	0.00	0.043
5.00	-54.96	-1.69	0.00	-211.03	0.00	211.03	5,190.65	2,595.33	13,352.1	6,594.14	0.00	-0.01	0.043
10.00	-52.98	-1.66	0.00	-202.56	0.00	202.56	5,149.25	2,574.63	12,966.3	6,403.58	0.01	-0.01	0.042
15.00	-51.04	-1.63	0.00	-194.24	0.00	194.24	5,104.97	2,552.49	12,577.8	6,211.74	0.03	-0.02	0.041
20.00	-49.14	-1.59	0.00	-186.11	0.00	186.11	5,057.81	2,528.91	12,187.2	6,018.84	0.06	-0.03	0.041
25.00	-47.28	-1.55	0.00	-178.17	0.00	178.17	5,007.77	2,503.89	11,795.0	5,825.12	0.09	-0.03	0.040
30.00	-45.45	-1.51	0.00	-170.43	0.00	170.43	4,954.85	2,477.43	11,401.5	5,630.81	0.13	-0.04	0.039
35.00	-43.66	-1.47	0.00	-162.89	0.00	162.89	4,899.05	2,449.53	11,007.4	5,436.14	0.18	-0.05	0.039
40.00	-42.32	-1.44	0.00	-155.55	0.00	155.55	4,840.37	2,420.19	10,612.9	5,241.34	0.23	-0.06	0.038
43.83	-41.60	-1.42	0.00	-150.05	0.00	150.05	4,793.44	2,396.72	10,310.6	5,092.05	0.28	-0.06	0.038
45.00	-38.57	-1.34	0.00	-148.39	0.00	148.39	4,778.81	2,389.41	10,218.7	5,046.65	0.30	-0.07	0.037
50.00	-37.98	-1.33	0.00	-141.69	0.00	141.69	4,714.38	2,357.19	9,825.18	4,852.29	0.37	-0.07	0.037
51.00	-36.79	-1.30	0.00	-140.36	0.00	140.36	3,748.95	1,874.48	7,908.80	3,905.86	0.39	-0.08	0.046
55.00	-35.35	-1.26	0.00	-135.18	0.00	135.18	3,716.58	1,858.29	7,679.21	3,792.47	0.45	-0.08	0.045
60.00	-33.93	-1.23	0.00	-128.87	0.00	128.87	3,673.53	1,836.77	7,390.96	3,650.12	0.55	-0.09	0.045
65.00	-32.55	-1.19	0.00	-122.74	0.00	122.74	3,627.60	1,813.80	7,101.75	3,507.29	0.65	-0.10	0.044
70.00	-31.21	-1.17	0.00	-116.76	0.00	116.76	3,578.79	1,789.39	6,812.03	3,364.21	0.76	-0.11	0.043
75.00	-29.89	-1.14	0.00	-110.93	0.00	110.93	3,527.09	1,763.55	6,522.29	3,221.11	0.88	-0.12	0.043
80.00	-28.61	-1.12	0.00	-105.22	0.00	105.22	3,472.52	1,736.26	6,232.99	3,078.24	1.02	-0.13	0.042
85.00	-27.84	-1.12	0.00	-99.60	0.00	99.60	3,415.07	1,707.53	5,944.59	2,935.81	1.17	-0.15	0.042
88.08	-27.02	-1.11	0.00	-96.16	0.00	96.16	3,378.20	1,689.10	5,767.41	2,848.31	1.26	-0.15	0.042
90.00	-25.35	-1.10	0.00	-94.03	0.00	94.03	3,354.74	1,677.37	5,657.58	2,794.06	1.33	-0.16	0.041
94.00	-25.14	-1.11	0.00	-89.61	0.00	89.61	2,549.41	1,274.70	4,268.23	2,107.92	1.46	-0.17	0.052
95.00	-24.11	-1.11	0.00	-88.50	0.00	88.50	2,541.91	1,270.95	4,228.10	2,088.10	1.50	-0.17	0.052
100.00	-23.11	-1.12	0.00	-82.95	0.00	82.95	2,502.69	1,251.34	4,027.08	1,988.82	1.68	-0.19	0.051
105.00	-22.13	-1.14	0.00	-77.33	0.00	77.33	2,460.58	1,230.29	3,825.85	1,889.44	1.89	-0.20	0.050
110.00	-21.18	-1.17	0.00	-71.61	0.00	71.61	2,415.60	1,207.80	3,624.86	1,790.18	2.10	-0.22	0.049
115.00	-20.26	-1.19	0.00	-65.77	0.00	65.77	2,367.74	1,183.87	3,424.59	1,691.27	2.34	-0.23	0.047
120.00	-19.37	-1.21	0.00	-59.82	0.00	59.82	2,317.00	1,158.50	3,225.50	1,592.95	2.59	-0.25	0.046
125.00	-18.50	-1.23	0.00	-53.77	0.00	53.77	2,263.38	1,131.69	3,028.06	1,495.45	2.86	-0.26	0.044
130.00	-17.93	-1.24	0.00	-47.62	0.00	47.62	2,206.88	1,103.44	2,832.75	1,398.99	3.14	-0.28	0.042
133.42	-17.52	-1.24	0.00	-43.39	0.00	43.39	2,166.61	1,083.30	2,700.75	1,333.80	3.35	-0.29	0.041
135.00	-16.76	-1.25	0.00	-41.42	0.00	41.42	2,147.49	1,073.75	2,640.03	1,303.81	3.44	-0.30	0.040
138.00	-13.17	-1.24	0.00	-37.69	0.00	37.69	1,272.33	636.17	1,555.73	768.31	3.63	-0.31	0.059
140.00	-12.57	-1.23	0.00	-35.22	0.00	35.22	1,262.76	631.38	1,516.62	749.00	3.76	-0.31	0.057
145.00	-11.99	-1.22	0.00	-29.07	0.00	29.07	1,236.82	618.41	1,418.37	700.48	4.10	-0.33	0.051
150.00	-10.24	-1.15	0.00	-22.98	0.00	22.98	1,208.00	604.00	1,319.78	651.79	4.46	-0.35	0.044
153.00	-8.20	-1.05	0.00	-19.52	0.00	19.52	1,189.33	594.66	1,260.67	622.60	4.69	-0.36	0.038
155.00	-7.77	-1.03	0.00	-17.41	0.00	17.41	1,176.30	588.15	1,221.34	603.17	4.84	-0.37	0.035
160.00	-7.52	-1.01	0.00	-12.28	0.00	12.28	1,141.72	570.86	1,123.49	554.85	5.24	-0.39	0.029
163.00	-3.81	-0.66	0.00	-9.26	0.00	9.26	1,119.59	559.80	1,065.27	526.10	5.49	-0.39	0.021
165.00	-3.50	-0.63	0.00	-7.94	0.00	7.94	1,104.26	552.13	1,026.73	507.06	5.65	-0.40	0.019
169.00	-3.06	-0.57	0.00	-5.44	0.00	5.44	1,072.22	536.11	950.40	469.37	5.99	-0.41	0.014
170.00	-2.91	-0.55	0.00	-4.87	0.00	4.87	1,063.92	531.96	931.50	460.03	6.07	-0.41	0.013
172.00	-2.64	-0.51	0.00	-3.77	0.00	3.77	1,046.98	523.49	893.95	441.49	6.24	-0.41	0.011
175.00	-2.29	-0.45	0.00	-2.24	0.00	2.24	1,020.70	510.35	838.29	414.00	6.50	-0.41	0.008
180.00	0.00	-0.43	0.00	0.00	0.00	0.00	968.36	484.18	742.77	366.83	6.94	-0.41	0.000

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

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	-39.78	-1.72	0.00	-216.57	0.00	216.57	5,229.17	2,614.59	13,734.9	6,783.18	0.00	0.00	0.040
5.00	-38.37	-1.69	0.00	-207.99	0.00	207.99	5,190.65	2,595.33	13,352.1	6,594.14	0.00	-0.01	0.039
10.00	-36.99	-1.66	0.00	-199.53	0.00	199.53	5,149.25	2,574.63	12,966.3	6,403.58	0.01	-0.01	0.038
15.00	-35.63	-1.62	0.00	-191.24	0.00	191.24	5,104.97	2,552.49	12,577.8	6,211.74	0.03	-0.02	0.038
20.00	-34.30	-1.58	0.00	-183.14	0.00	183.14	5,057.81	2,528.91	12,187.2	6,018.84	0.06	-0.03	0.037
25.00	-33.00	-1.54	0.00	-175.24	0.00	175.24	5,007.77	2,503.89	11,795.0	5,825.12	0.09	-0.03	0.037
30.00	-31.73	-1.50	0.00	-167.54	0.00	167.54	4,954.85	2,477.43	11,401.5	5,630.81	0.13	-0.04	0.036
35.00	-30.48	-1.45	0.00	-160.06	0.00	160.06	4,899.05	2,449.53	11,007.4	5,436.14	0.18	-0.05	0.036
40.00	-29.54	-1.42	0.00	-152.79	0.00	152.79	4,840.37	2,420.19	10,612.9	5,241.34	0.23	-0.06	0.035
43.83	-29.04	-1.41	0.00	-147.33	0.00	147.33	4,793.44	2,396.72	10,310.6	5,092.05	0.28	-0.06	0.035
45.00	-26.93	-1.33	0.00	-145.70	0.00	145.70	4,778.81	2,389.41	10,218.7	5,046.65	0.29	-0.06	0.035
50.00	-26.51	-1.31	0.00	-139.07	0.00	139.07	4,714.38	2,357.19	9,825.18	4,852.29	0.37	-0.07	0.034
51.00	-25.69	-1.28	0.00	-137.76	0.00	137.76	3,748.95	1,874.48	7,908.80	3,905.86	0.38	-0.07	0.042
55.00	-24.68	-1.24	0.00	-132.63	0.00	132.63	3,716.58	1,858.29	7,679.21	3,792.47	0.45	-0.08	0.042
60.00	-23.69	-1.21	0.00	-126.41	0.00	126.41	3,673.53	1,836.77	7,390.96	3,650.12	0.54	-0.09	0.041
65.00	-22.72	-1.18	0.00	-120.37	0.00	120.37	3,627.60	1,813.80	7,101.75	3,507.29	0.64	-0.10	0.041
70.00	-21.78	-1.15	0.00	-114.49	0.00	114.49	3,578.79	1,789.39	6,812.03	3,364.21	0.75	-0.11	0.040
75.00	-20.87	-1.12	0.00	-108.76	0.00	108.76	3,527.09	1,763.55	6,522.29	3,221.11	0.87	-0.12	0.040
80.00	-19.97	-1.10	0.00	-103.16	0.00	103.16	3,472.52	1,736.26	6,232.99	3,078.24	1.00	-0.13	0.039
85.00	-19.43	-1.10	0.00	-97.65	0.00	97.65	3,415.07	1,707.53	5,944.59	2,935.81	1.15	-0.14	0.039
88.08	-18.86	-1.09	0.00	-94.27	0.00	94.27	3,378.20	1,689.10	5,767.41	2,848.31	1.24	-0.15	0.039
90.00	-17.70	-1.08	0.00	-92.18	0.00	92.18	3,354.74	1,677.37	5,657.58	2,794.06	1.30	-0.16	0.038
94.00	-17.55	-1.08	0.00	-87.86	0.00	87.86	2,549.41	1,274.70	4,268.23	2,107.92	1.44	-0.16	0.049
95.00	-16.83	-1.09	0.00	-86.77	0.00	86.77	2,541.91	1,270.95	4,228.10	2,088.10	1.47	-0.17	0.048
100.00	-16.13	-1.10	0.00	-81.34	0.00	81.34	2,502.69	1,251.34	4,027.08	1,988.82	1.66	-0.18	0.047
105.00	-15.45	-1.12	0.00	-75.84	0.00	75.84	2,460.58	1,230.29	3,825.85	1,889.44	1.85	-0.20	0.046
110.00	-14.79	-1.14	0.00	-70.24	0.00	70.24	2,415.60	1,207.80	3,624.86	1,790.18	2.07	-0.21	0.045
115.00	-14.14	-1.16	0.00	-64.54	0.00	64.54	2,367.74	1,183.87	3,424.59	1,691.27	2.30	-0.23	0.044
120.00	-13.52	-1.18	0.00	-58.72	0.00	58.72	2,317.00	1,158.50	3,225.50	1,592.95	2.54	-0.24	0.043
125.00	-12.91	-1.20	0.00	-52.80	0.00	52.80	2,263.38	1,131.69	3,028.06	1,495.45	2.81	-0.26	0.041
130.00	-12.51	-1.21	0.00	-46.79	0.00	46.79	2,206.88	1,103.44	2,832.75	1,398.99	3.09	-0.28	0.039
133.42	-12.23	-1.21	0.00	-42.66	0.00	42.66	2,166.61	1,083.30	2,700.75	1,333.80	3.29	-0.29	0.038
135.00	-11.70	-1.22	0.00	-40.74	0.00	40.74	2,147.49	1,073.75	2,640.03	1,303.81	3.38	-0.29	0.037
138.00	-9.19	-1.21	0.00	-37.08	0.00	37.08	1,272.33	636.17	1,555.73	768.31	3.57	-0.30	0.055
140.00	-8.77	-1.21	0.00	-34.66	0.00	34.66	1,262.76	631.38	1,516.62	749.00	3.70	-0.31	0.053
145.00	-8.37	-1.19	0.00	-28.62	0.00	28.62	1,236.82	618.41	1,418.37	700.48	4.03	-0.33	0.048
150.00	-7.15	-1.13	0.00	-22.65	0.00	22.65	1,208.00	604.00	1,319.78	651.79	4.38	-0.35	0.041
153.00	-5.73	-1.04	0.00	-19.25	0.00	19.25	1,189.33	594.66	1,260.67	622.60	4.61	-0.36	0.036
155.00	-5.42	-1.01	0.00	-17.17	0.00	17.17	1,176.30	588.15	1,221.34	603.17	4.76	-0.36	0.033
160.00	-5.24	-0.99	0.00	-12.12	0.00	12.12	1,141.72	570.86	1,123.49	554.85	5.15	-0.38	0.026
163.00	-2.66	-0.65	0.00	-9.15	0.00	9.15	1,119.59	559.80	1,065.27	526.10	5.39	-0.39	0.020
165.00	-2.44	-0.62	0.00	-7.85	0.00	7.85	1,104.26	552.13	1,026.73	507.06	5.55	-0.39	0.018
169.00	-2.13	-0.56	0.00	-5.37	0.00	5.37	1,072.22	536.11	950.40	469.37	5.88	-0.40	0.013
170.00	-2.03	-0.54	0.00	-4.81	0.00	4.81	1,063.92	531.96	931.50	460.03	5.96	-0.40	0.012
172.00	-1.84	-0.50	0.00	-3.72	0.00	3.72	1,046.98	523.49	893.95	441.49	6.13	-0.40	0.010
175.00	-1.60	-0.44	0.00	-2.22	0.00	2.22	1,020.70	510.35	838.29	414.00	6.39	-0.41	0.007
180.00	0.00	-0.43	0.00	0.00	0.00	0.00	968.36	484.18	742.77	366.83	6.81	-0.41	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	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 + 1.6W	39.03	0.00	57.24	0.00	0.00	4501.14	51.00	0.69
0.9D + 1.6W	39.01	0.00	42.92	0.00	0.00	4455.32	51.00	0.68
1.2D + 1.0Di + 1.0Wi	8.23	0.00	95.57	0.00	0.00	1031.30	94.00	0.19
(1.2 + 0.2Sds) * DL + E ELFM	1.43	0.00	56.98	0.00	0.00	205.07	94.00	0.04
(1.2 + 0.2Sds) * DL + E EMAM	1.72	0.00	56.98	0.00	0.00	219.62	138.00	0.06
(0.9 - 0.2Sds) * DL + E ELFM	1.43	0.00	39.78	0.00	0.00	202.41	94.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	1.72	0.00	39.78	0.00	0.00	216.57	138.00	0.06
1.0D + 1.0W	8.61	0.00	47.74	0.00	0.00	987.08	51.00	0.16

Base Plate & Anchor Rod Analysis

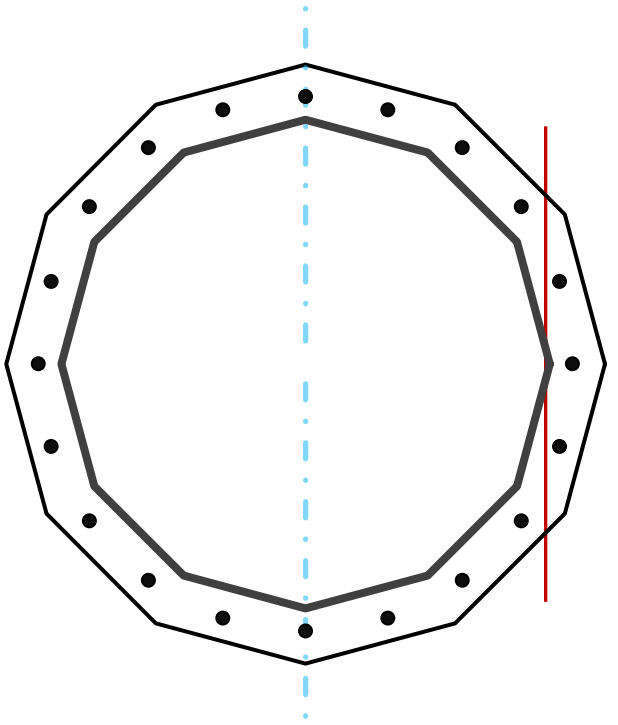
Pole Dimensions		
Number of Sides	12	-
Diameter	64	in
Thickness	0.4375	in
Orientation Offset		°

Base Reactions		
Moment, Mu	4501.1	k-ft
Axial, Pu	57.2	k
Shear, Vu	39.0	k
Neutral Axis	270	°

Report Capacities		
Component	Capacity	Result
Base Plate	31%	Pass
Anchor Rods	59%	Pass
Dwyidag	-	-

Base Plate		
Number of Sides	12	-
Diameter, ø	78.76	in
Thickness	2 1/2	in
Grade	Other	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	1356.4	k
Bending Stress, ϕMn	4398.8	k

Original Anchor Rods		
Arrangement	Radial	-
Quantity	20	-
Diameter, ø	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	151.3	k
Anchor Rods, ϕPn	259.8	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	39.0	4501.1	1.00
Anchor Rod Forces	39.0	4501.1	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	43000.10
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	80	ksi
Base Plate Chord	45.904	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

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	151.3	k
Applied Shear, Vu	1.0	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.582	OK
Interaction Capacity	0.590	OK

External Base Plate		
Chord Length AA	47.133	in
Additional AA	5.000	in
Section Modulus, Z	81.459	in^3
Applied Moment, Mu	1356.4	k-ft
Bending Capacity, ϕMn	4398.8	k-ft
Capacity, Mu/ϕMn	0.308	OK
Chord Length AB	44.867	in
Additional AB	5.000	in
Section Modulus, Z	77.917	in^3
Applied Moment, Mu	858.5	k-ft
Bending Capacity, ϕMn	4207.5	k-ft
Capacity, Mu/ϕMn	0.204	OK
Bend Line Length	38.456	in
Additional Bend Line	0.000	in
Section Modulus, Z	60.087	in^3
Applied Moment, Mu	356.3	k-ft
Bending Capacity, ϕMn	3244.7	k-ft
Capacity, Mu/ϕMn	0.110	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		

EXHIBIT 4

Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT5730

FA#: 10070974

Colchester South
285 West Road
Colchester, CT 06415

March 4, 2019

Centerline Communications Project Number: 950012-202

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**9.32 %**

March 4, 2019

AT&T Mobility – New England
Attn: John Benedetto, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT5730 – Colchester South**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed AT&T facility located at **285 West Road, Colchester, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed AT&T Wireless antenna facility located at **285 West Road, Colchester, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T 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 manufactures supplied specifications, minus 10 dB, 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

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

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	2	30
LTE	700 MHz	2	40
LTE	2100 MHz (AWS)	4	30
5G	850 MHz	2	25
LTE	700 MHz (Band 14)	2	40
LTE	1900 MHz (PCS)	4	40

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Powerwave 7770	150
A	2	Kathrein 800-10965	150
A	3	CCI HPA-65R-BU6AA	150
B	1	Powerwave 7770	150
B	2	Kathrein 800-10966	150
B	3	CCI HPA-65R-BU8AA	150
C	1	Powerwave 7770	150
C	2	Kathrein 800-10966	150
C	3	CCI HPA-65R-BU8AA	150

Table 2: Antenna Data

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

RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.25
Antenna A2	Kathrein 800-10965	700 MHz / 2100 MHz (AWS) / 850 MHz	12.65 / 15.95 / 13.45	6	190	4,940.47	1.29
Antenna A3	CCI HPA-65R-BU6AA	700 MHz (Band 14) / 1900 MHz (PCS)	12.45 / 15.95	6	240	7,703.14	1.61
						Sector A Composite MPE%	**3.16**
Antenna B1	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.25
Antenna B2	Kathrein 800-10966	700 MHz / 2100 MHz (AWS) / 850 MHz	13.55 / 16.15 / 14.25	6	190	5,614.66	1.51
Antenna B3	CCI HPA-65R-BU8AA	700 MHz (Band 14) / 1900 MHz (PCS)	13.35 / 15.95	6	240	8,026.98	1.73
						Sector B Composite MPE%	**3.50**
Antenna C1	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.25
Antenna C2	Kathrein 800-10966	700 MHz / 2100 MHz (AWS) / 850 MHz	13.55 / 16.15 / 14.25	6	190	5,614.66	1.51
Antenna C3	CCI HPA-65R-BU8AA	700 MHz (Band 14) / 1900 MHz (PCS)	13.35 / 15.95	6	240	8,026.98	1.73
						Sector C Composite MPE%	**3.50**

Table 3: AT&T Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, the sectors with the largest calculated MPE% are Sectors B & C. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max Per Sector Value (Sectors B & C)	**3.50 %**
T-Mobile	1.97 %
Verizon Wireless	2.03 %
Enertrac (Receive Only)	0.00 %
Sprint	1.82 %
Site Total MPE %:	**9.32 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	3.16 %
AT&T Sector B Total:	3.50 %
AT&T Sector C Total:	3.50 %
Site Total:	9.32 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, the sectors with the largest calculated MPE% are Sectors B & C.

AT&T _ Frequency Band / Technology Max Power Values (Sectors B & C)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS – Antenna 1	2	414.12	150	1.44	850 MHz	567	0.25%
AT&T 700 MHz LTE – Antenna 2	2	905.86	150	3.14	700 MHz	467	0.67%
AT&T 2100 MHz (AWS) LTE – Antenna 2	2	1,236.29	150	4.29	2100 MHz (AWS)	1000	0.43%
AT&T 850 MHz 5G – Antenna 2	2	665.18	150	2.31	850 MHz	567	0.41%
AT&T 700 MHz LTE – Antenna 3	2	865.09	150	3.00	700 MHz	467	0.64%
AT&T 1900 MHz (PCS) LTE – Antenna 3	4	1,574.20	150	10.92	1900 MHz (PCS)	1000	1.09%
						Total:	**3.50%**

Table 6: AT&T Maximum Sector MPE Power Values

Summary

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

The anticipated maximum composite contributions from the AT&T 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:

AT&T Sector	Power Density Value (%)
Sector A:	3.16 %
Sector B:	3.50 %
Sector C:	3.50 %
AT&T Maximum Total (per sector):	3.50 %
Site Total:	9.32 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **9.32 %** 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.

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