November 3, 2016

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

Regarding: Notice of Exempt Modification – Antennas & RRU Swap

Property Address: 36 Ritch Avenue Greenwich, CT 06830

AT&T Site: CT5004 - Greenwich SW

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 77-foot monopine at the above-referenced address, latitude 41.005064 longitude -73.648311. Said monopine is owned by American Tower Corporation. The existing equipment shelter is 354.90 square feet.

AT&T desires to modify its existing telecommunications facility by swapping (3) antennas and swapping (3) RRUs. The centerline height of said antennas is and will remain at 67 feet. Antennas are mounted utilizing a sector frame.

Please accept this application 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, First Selectman of the Town of Greenwich, as well as the tower owner, American Tower Corporation and the ground owner, 36 Ritch Avenue, LLC.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72 (b)(2). Specifically:

1. The planned modification will not result in an increase in the height of the existing structure. The antennas to be swapped will be installed at the existing height of 67' feet on the 77-foot monopine.

2. The proposed modifications will not involve any changes to ground-mounted equipment, and therefore will not require an extension of the site boundary.

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

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above Federal Communications Commission (FCC) safety standard. An RF emissions calculation (attached) for AT&T's modified facility is herein provided.

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

6. The self-supported tower and its foundation can support AT&T's proposed modifications (please see attached structural analysis completed by American Tower dated October 5, 2016).

For the foregoing reasons, AT&T respectfully requests that the proposed antenna swap and remote radio swap be allowed within the exempt modifications under R.C.S.A.
§16-50j-72 (b)(2).

Sincerely,

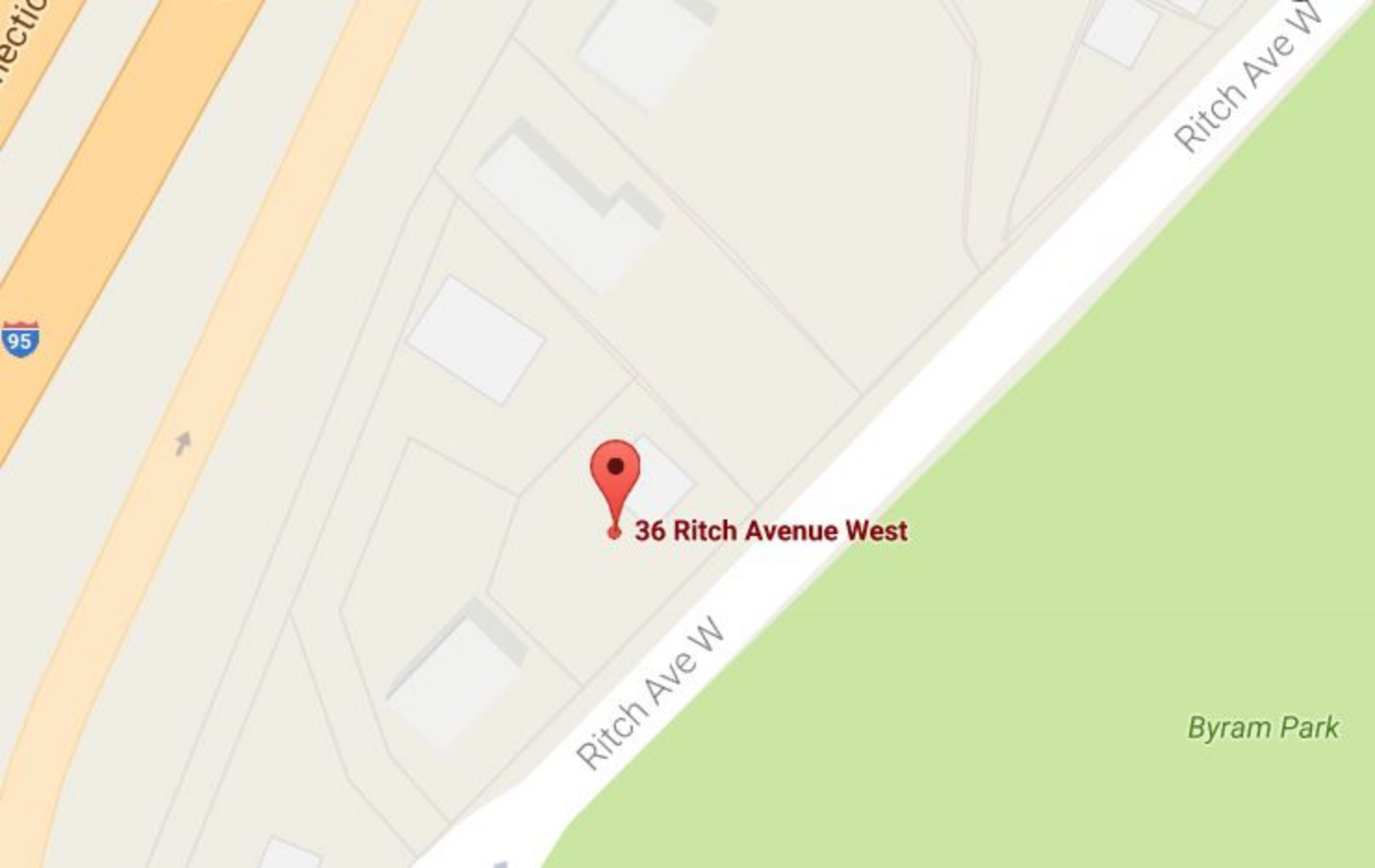
Sarah Snell

Sarah Snell
Site Acquisition Specialist

cc: Peter Tesei, First Selectman in the Town of Greenwich
American Tower Corp. (Tower Owner)
36 Ritch Avenue, LLC -(Property Owner)

Property Details

Property address	36 Ritch Ave W, Greenwich, CT 06830
Parcel ID	04-2334/S
Acreage	0.27
Property class	Telephone Exchange(430)
Zoning	R-7
Square footage	644
Year built	2012
Stories	1


95
36 Ritch Avenue West
Ritch Ave W
Ritch Ave W
Byram Park

PROJECT INFORMATION

SCOPE OF WORK:
- AT&T ANTENNAS: (1) NEW ANTENNA PER SECTOR, FOR A TOTAL (3) NEW ANTENNAS. (2) EXISTING ANTENNAS PER SECTOR FOR 3 SECTORS, FOR A TOTAL OF (6) EXISTING ANTENNAS TO REMAIN. (1) EXISTING ANTENNA PER SECTOR FOR (3) SECTORS, FOR A TOTAL OF (3) EXISTING ANTENNAS TO BE REMOVED.
- AT&T RRUs: (1) NEW RRUs PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW RRUs; (1) EXISTING RRU PER SECTOR TO BE REUSED, FOR A TOTAL OF (3) EXISTING RRUs; (1) EXISTING RRU PER SECTOR TO BE REMOVED, FOR A TOTAL OF (3) RRUs.

SITE ADDRESS:	36 RITCH AVENUE WEST GREENWICH, CT 06830
LATITUDE:	41.0050639 41° 0' 18.23004"N
LONGITUDE:	−73.6483111 −73° 38' 53.91996"W
USID:	24473
TOWER OWNER:	
TYPE OF SITE:	MONOPINE/INDOOR EQUIPMENT
MONOPINE HEIGHT:	76'−8"±
RAD CENTER:	67'−0"±
CURRENT USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY
PROPOSED USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

DRAWING INDEX

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APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN, ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AMD MAY IMPOSE CHANGES OR SITE MODIFICATIONS.

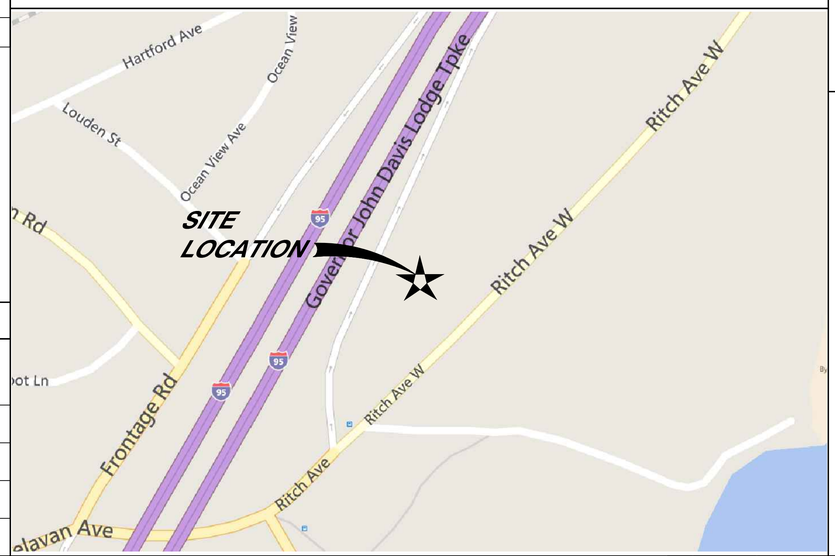
DISCIPLINE:	NAME:	
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

at&t MOBILITY

FA CODE: 10071045
SITE NUMBER: CT5004
SITE NAME: GREENWICH SW

VICINITY MAP

1. 128I−84 WEST TO EXIT 48 AND BEAR LEFT, IT IS A ROTARY YOU GO HALF WAY AROUND IT AND FOLLOW CAPITAL AVENUE. AT THE NEXT LIGHT TAKE A RIGHT ONTO WASHINGTON AVENUE. FOLLOW UNTIL IT INTERSECTS WITH RETREAT AVENUE. TURN LEFT ON RETREAT AVENUE AND SITE WILL BE DOWN ON YOUR RIGHT MEDICAL ARTS BUILDING.



PROJECT TEAM

CLIENT REPRESENTATIVE
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617−639−4908
EMAIL: dcooper@empiretelecomm.com

SITE ACQUISITION:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
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ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
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PHONE: 617−639−4908
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ENGINEERING:
COMPANY: COM−EX CONSULTANTS, LLC
ADDRESS: 115 ROUTE 46, SUITE E39, MOUNTAIN LAKES, NJ 07046
CONTACT: NICHOLAS D. BARILE, P.E.
PHONE: 862−209−4300
EMAIL: nbarile@comexconsultants.com

RF ENGINEER:
COMPANY: AT&T MOBILITY − NEW ENGLAND
ADDRESS: 550 COCHITUATE ROAD, SUITE 550 13 & 14, FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
PHONE: 508−596−7146
EMAIL: cs6970@att.com

CONSTRUCTION MANAGEMENT:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: GRZEGORZ "GREG" DORMAN
PHONE: 484−683−1750
EMAIL: gdorman@empiretelecomm.com

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 REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CONNECTICUT ONE CALL SYSTEM, INC. 1-800-922-4455 STOP - CALL BEFORE YOU DIG!

CONNECTICUT LAW REQUIRES TWO WORKING DAYS NOTICE PRIOR TO ANY EARTH MOVING ACTIVITIES BY CALLING 800−922−4455 OR DIAL 811

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FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	10/04/16	ISSUED AS FINAL	NJM	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL: STATE OF CONNECTICUT, DOUGLAS D. BAKER, No. 28643, REGISTERED PROFESSIONAL ENGINEER, PROFESSIONAL ENGINEER, CT LICENSE NO. 28643

AT&T

DRAWING TITLE: TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
16058−EMP	T−1	0

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. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471-000-3PS-EG00-0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.

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 WITH STAINLESS STEEL HARDWARE TO THE BRIDGE AND THE TOWER 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 AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

13. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV-G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').

14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE ½" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – EMPIRE TELECOM
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

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 (EMPIRE TELECOM).

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

7. 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.

8. 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. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR

9. 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.

10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OFF 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.

11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

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

13. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

14. 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). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

15. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741-000-3APS-A00Z-00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

16. 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.

17. 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 MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. SINCE THE CELL SITE MAY BE 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 REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

19. 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.
   - INTERNATIONAL BUILDING CODE: IBC 2009 WITH LOCAL & COUNTY AMENDMENTS
   - NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS
   - FIRE/LIFE SAFETY CODE: NFPA-101 2009 WITH LOCAL & COUNTY AMENDMENTS

20. 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, THIRTEENTH EDITION
   - AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM
   - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA-222-G-1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
   - TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
   - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA
   - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVELY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT
   - TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

21. 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.

22. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

23. INFORMATION SHOWN ON THIS SET OF PLANS TAKEN FROM DRAWINGS PREPARED BY CENTEK ENGINEERING FOR A RECENT UPGRADE DATED 01/25/2012. CONTRACTOR TO NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

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PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5004
SITE NAME: GREENWICH SW

36 RITCH AVENUE WEST
GREENWICH, CT 06830
FAIRFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

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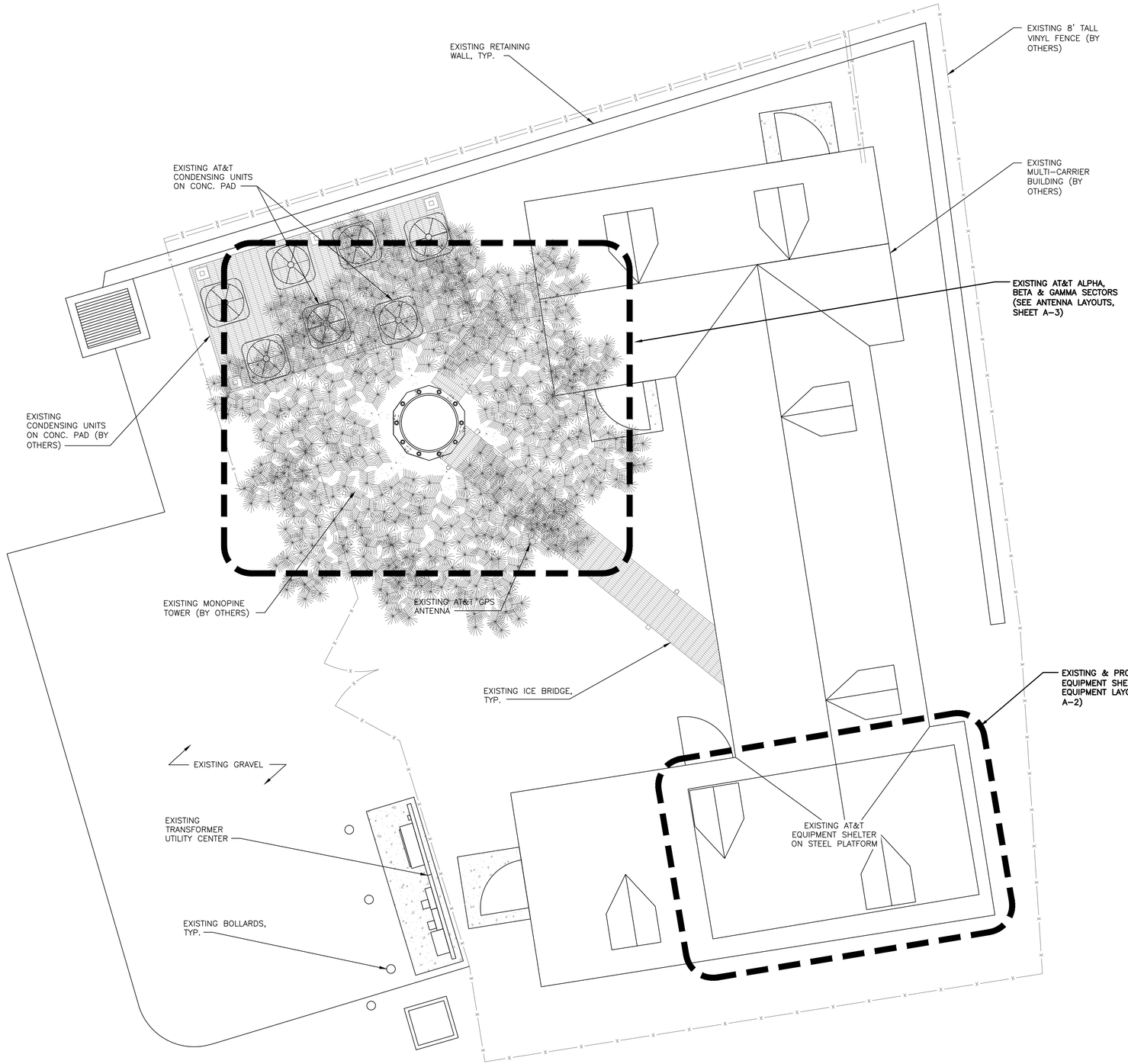
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:
STATE OF CONNECTICUT
NICHOLAS D. BARTLETT
No. 28643
REGISTERED
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
GROUNDING & GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
16058-EMP	GN-1	0



COMPOUND LAYOUT

SCALE: 1" = 4'-0"

4 0 2 4 8 16

(IN FEET)

1/4 Inch = 1 Foot

NORTH

NOTE:
CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

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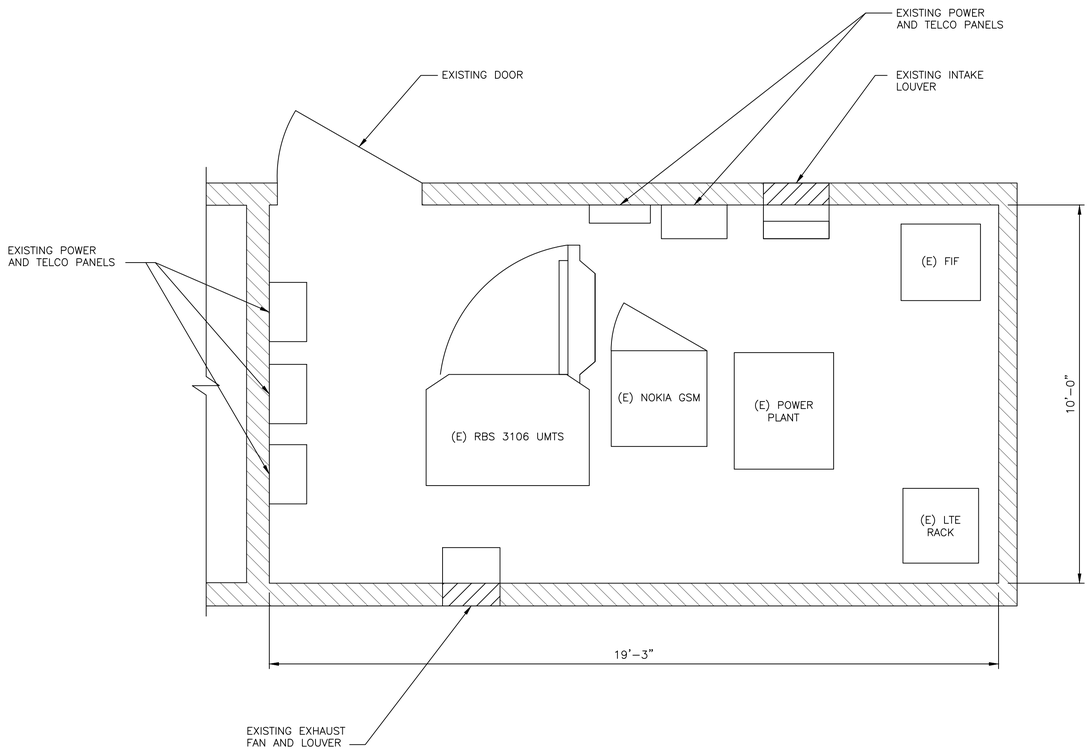
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:
STATE OF CONNECTICUT
NICHOLAS D. BARTELT
No. 28643
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
COMPOUND LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
16058-EMP	A-1	0



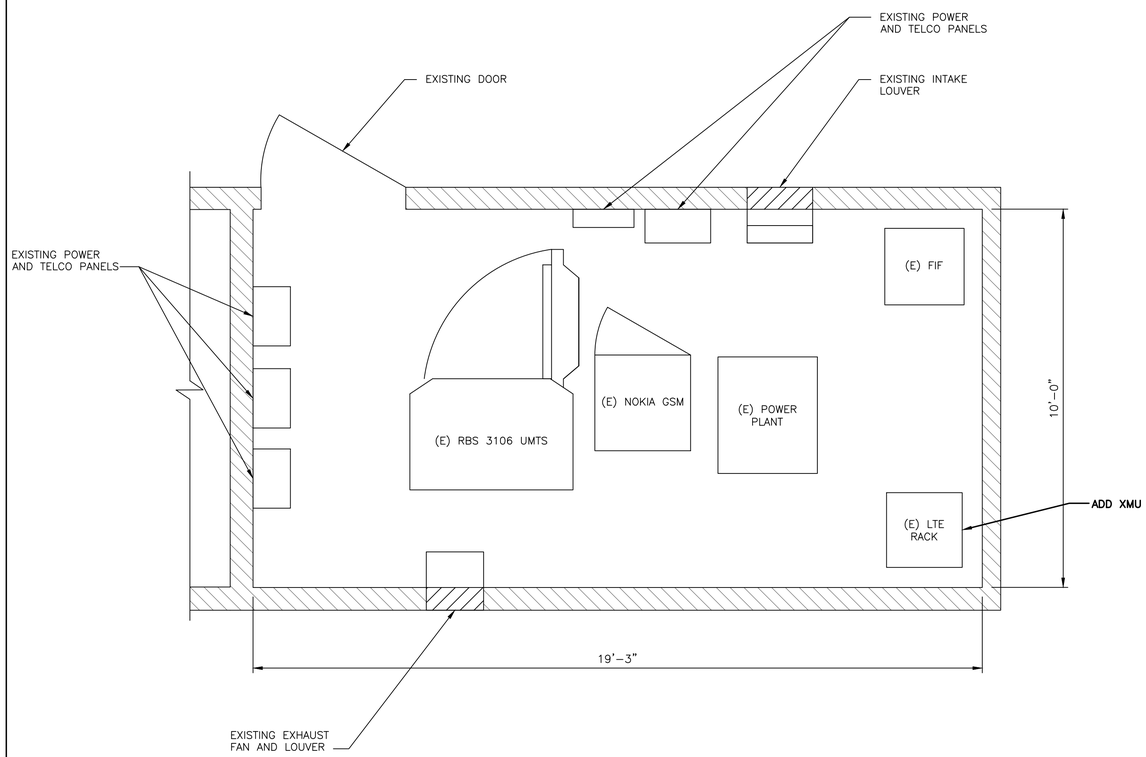
NORTH

EXISTING EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot



NORTH

PROPOSED EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot

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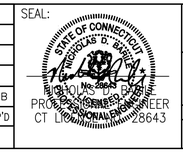
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:

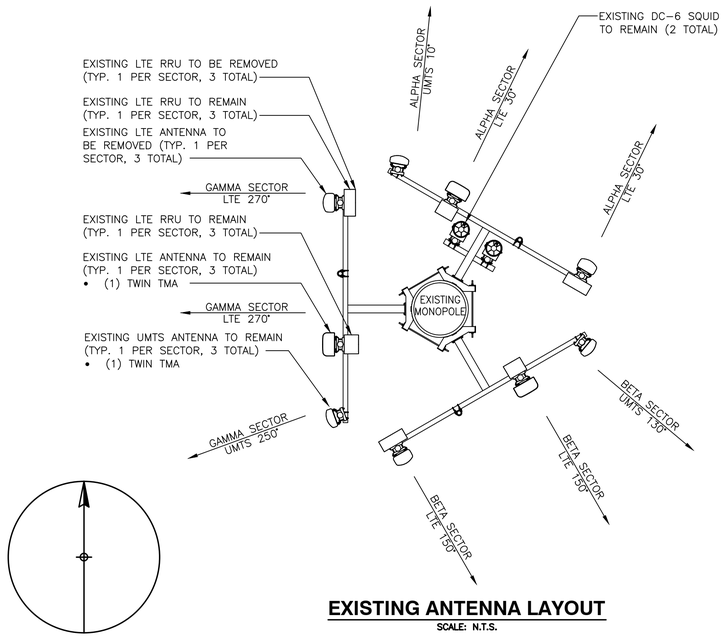


CT LICENSE No. 28643

AT&T

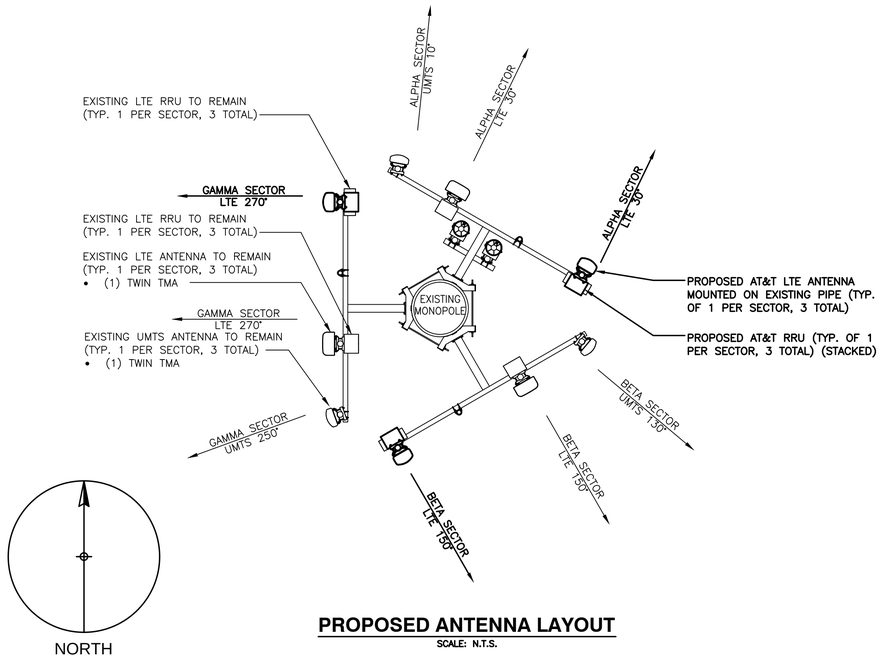
DRAWING TITLE:
EQUIPMENT LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
16058-EMP	A-2	0



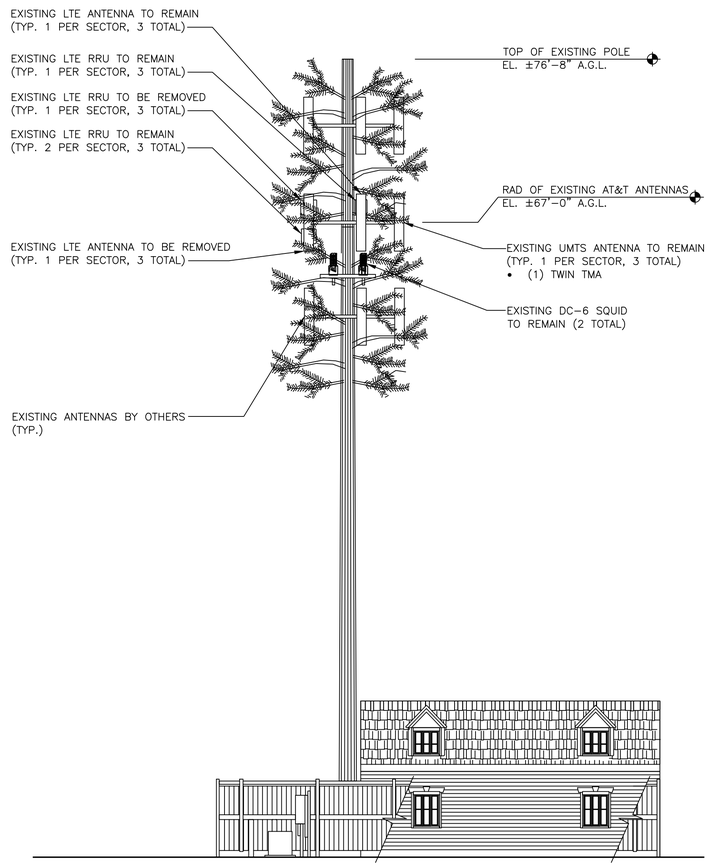
EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT

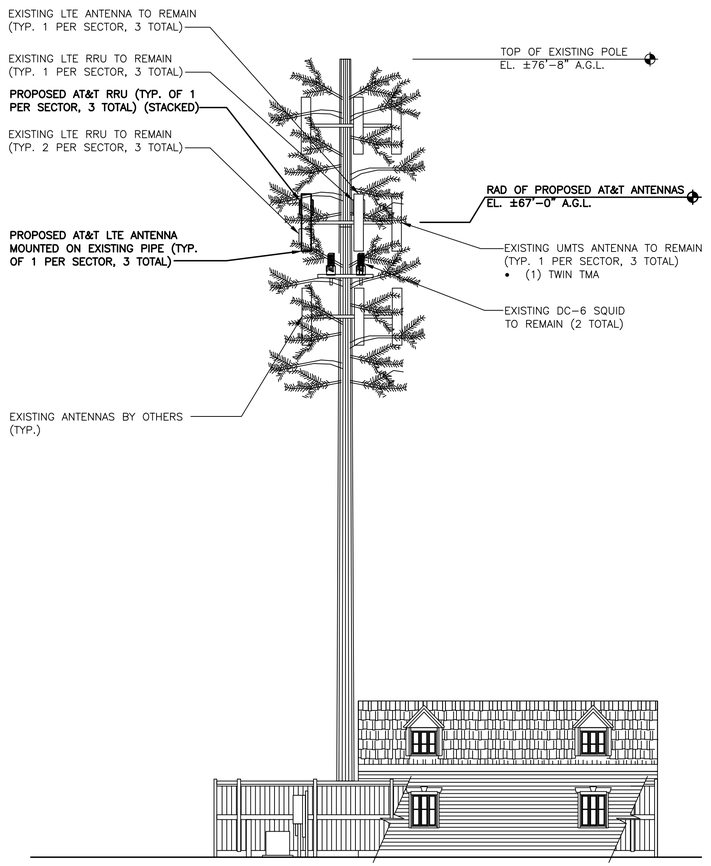
SCALE: N.T.S.



EXISTING TOWER ELEVATION

SCALE: NTS

TOWER HEIGHT DETERMINED VIA STRUCTURAL ANALYSIS FROM AMERICAN TOWER CORPORATION DATED 1/21/16



PROPOSED TOWER ELEVATION

SCALE: NTS

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

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16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5004
SITE NAME: GREENWICH SW

36 RITCH AVENUE WEST
GREENWICH, CT 06830
FAIRFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	10/04/16	ISSUED AS FINAL	NJM	NDB	NDB

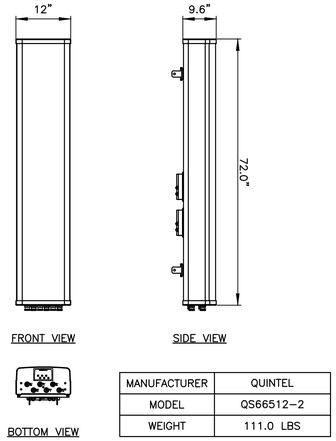
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:
STATE OF CONNECTICUT
NICHOLAS D. BARTH
No. 28643
REGISTERED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE No. 28643

AT&T

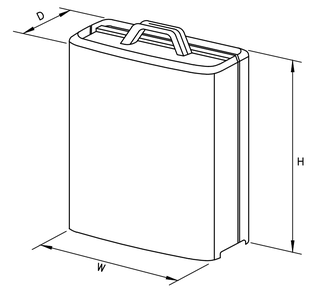
DRAWING TITLE:
ANTENNA LAYOUTS & ELEVATIONS

JOB NUMBER	DRAWING NUMBER	REV
16058-EMP	A-3	0



MANUFACTURER	QUINTEL
MODEL	QS66512–2
WEIGHT	111.0 LBS

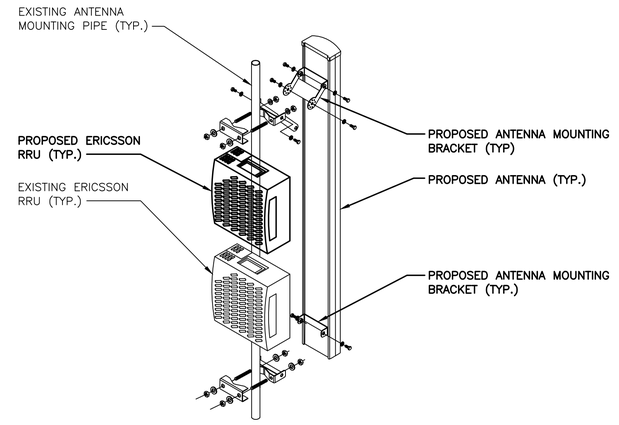
LTE ANTENNA DETAIL
SCALE: N.T.S.



MODEL	L x W x H	WEIGHT
*RRUS–11	19.69" x 16.97" x 7.17"	50.7 LBS
*RRUS–32	29.9"x13.3"x9.5"	77 LBS
RRUS–32 B2	29.9"x13.3"x9.5"	77 LBS

*DENOTES EXISTING.

RRUS DETAIL
SCALE: N.T.S.



ANTENNA AND RRU MOUNTING DETAIL
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	P65–16–XLH–RR	72"x12"x6"
	A2	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"
	A3	–	–	–
	A4	POWERWAVE	P65–16–XLH–RR	72"x12"x6"
BETA	B1	POWERWAVE	P65–16–XLH–RR	72"x12"x6"
	B2	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"
	B3	–	–	–
	B4	POWERWAVE	P65–16–XLH–RR	72"x12"x6"
GAMMA	G1	POWERWAVE	P65–16–XLH–RR	72"x12"x6"
	G2	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"
	G3	–	–	–
	G4	POWERWAVE	P65–16–XLH–RR	72"x12"x6"

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	P65–16–XLH–RR	72"x12"x6"
	A2	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"
	A3	–	–	–
	A4	**QUINTEL**	**QS66512–2**	**72"X12"x9.6"**
BETA	B1	POWERWAVE	P65–16–XLH–RR	72"x12"x6"
	B2	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"
	B3	–	–	–
	B4	**QUINTEL**	**QS66512–2**	**72"X12"x9.6"**
GAMMA	G1	POWERWAVE	P65–16–XLH–RR	72"x12"x6"
	G2	CCI	OPA–65R–LCUU–H6	72"x14.8"x7.4"
	G3	–	–	–
	G4	**QUINTEL**	**QS66512–2**	**72"X12"x9.6"**

PROPOSED RRU SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	**ERICSSON**	**RRUS–32 B2**	**29.9"x13.3"x9.5"**	–	–
	ERICSSON	RRUS–32 (EXISTING)	29.9"x13.3"x9.5"	–	–
	ERICSSON	RRUS–11 (EXISTING)	19.7"x16.9"x7.2"		
BETA	**ERICSSON**	**RRUS–32 B2**	**29.9"x13.3"x9.5"**	–	–
	ERICSSON	RRUS–32 (EXISTING)	29.9"x13.3"x9.5"	–	–
	ERICSSON	RRUS–11 (EXISTING)	19.7"x16.9"x7.2"		
GAMMA	**ERICSSON**	**RRUS–32 B2**	**29.9"x13.3"x9.5"**	–	–
	ERICSSON	RRUS–32 (EXISTING)	29.9"x13.3"x9.5"	–	–
	ERICSSON	RRUS–11 (EXISTING)	19.7"x16.9"x7.2"		

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FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	10/04/16	ISSUED AS FINAL	NJM	NDB	NDB

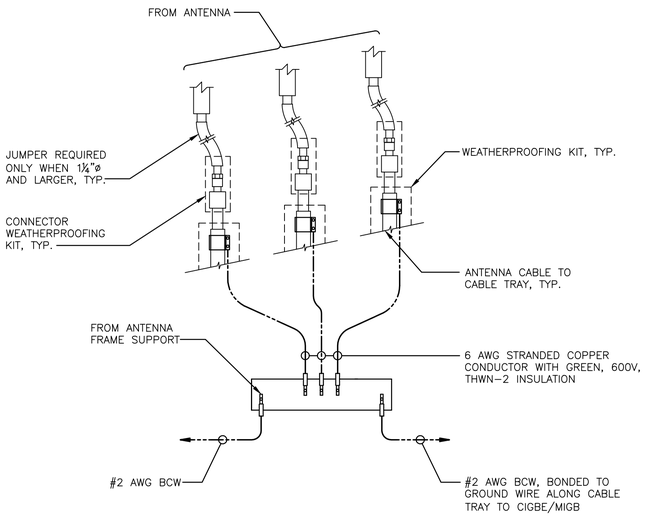
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:
STATE OF CONNECTICUT
NICHOLAS D. BOWLES
No. 28643
REGISTERED PROFESSIONAL ENGINEER
NICHOLAS D. BOWLES
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

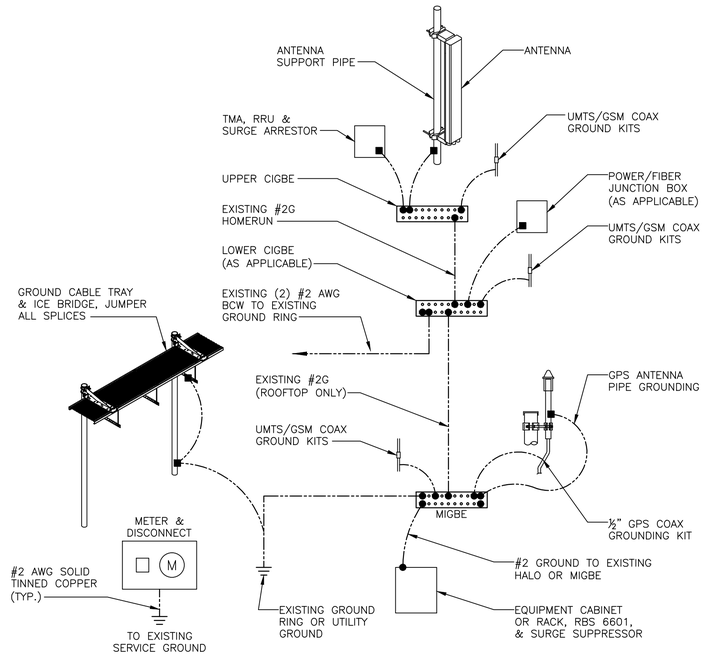
DRAWING TITLE:
DETAILS

JOB NUMBER	DRAWING NUMBER	REV
16058–EMP	A–4	0



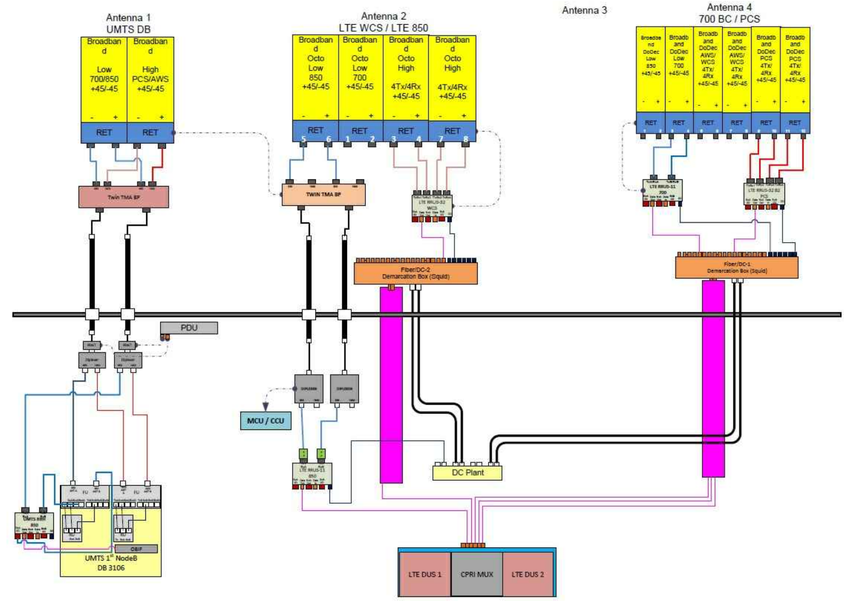
GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



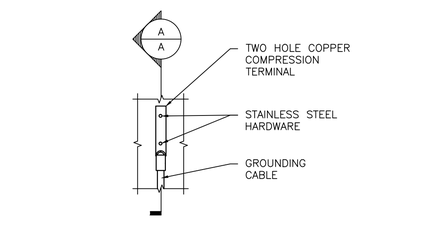
GROUNDING RISER DIAGRAM

SCALE: N.T.S.

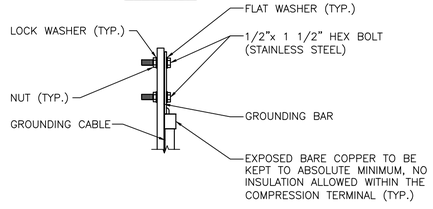


TYPICAL PLUMBING DIAGRAM (PER SECTOR)

SCALE: N.T.S.



ELEVATION



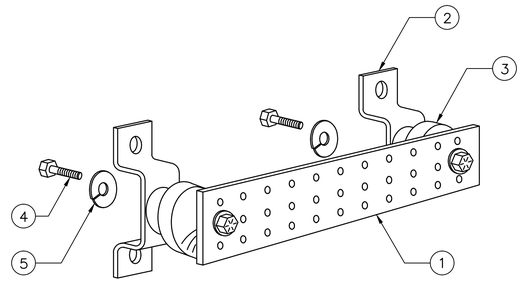
SECTION "A–A"

NOTE:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x ¼")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	⅝"–11x1" H.H.C.S.
5	4	⅝" LOCK WASHER

NOTES:

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.

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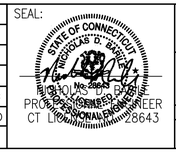
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:



PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
GROUNDING, ONE–LINE DIAGRAM & DETAILS

JOB NUMBER	DRAWING NUMBER	REV
16058–EMP	G–1	0

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

CLS Group

Structural Analysis Report

Structure	:	**77 ft Monopine**
ATC Site Name	:	**Byram Park CT, CT**
ATC Site Number	:	**414240**
Engineering Number	:	**OAA686840_C3_01**
Proposed Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**N/A**
Carrier Site Number	:	**FA#10071045**
Site Location	:	**48 Ritch Avenue West** **Greenwich, CT 06830-9992** **41.005064,-73.648311**
County	:	**Fairfield**
Date	:	**October 5, 2016**
Max Usage	:	**40%**
Result	:	**Pass**

Prepared By:
Zachary A. Medoff

Zachary A. Medoff

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 76.7 ft monopine to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	EEI Project #16733 Rev. 3, dated December 9, 2011
Foundation Drawing	Centek Engineering Job #09129 Rev. 0, dated February 14, 2012
Geotechnical Report	DET Job #2010.14, dated October 4, 2010

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:	93 mph (3-Second Gust, V_{asd}) / 120 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.26, S_1 = 0.07
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

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
77.0	77.0	3	Ericsson RRUS 32 w/ Solar Shield	T-Arms	(2) 1 5/8" Fiber	T-Mobile
		3	Ericsson RRUS 11 B12			
		3	Commscope LNX-6512DS-A1M			
		3	Ericsson AIR-32 B2A/B66Aa			
		3	RFS APX16DWV-16DWVS-E-A20			
67.0	67.0	6	Powerwave TT19-08BP111-001	Sector Frames	(12) 1 5/8" Coax (4) 0.63" Cable (2) 5/8" Hybriflex	AT&T Mobility
		2	Raycap DC6-48-60-18-8F			
		3	Ericsson RRUS-32			
		6	Ericsson RRUS-11			
		3	Powerwave P65-16-XLH-RR			
		3	CCI OPA-65R-LCUU-H6			
57.0	57.0	3	Alcatel-Lucent RRH 2X60-1900	T-Arms	(16) 1 5/8" Coax (1) 1 5/8" Fiber (1) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent RRH2X60-AWS			
		3	Alcatel-Lucent RRH2x60 700			
		2	Commscope RC2DC-4750-PF-48			
		3	Antel BXA-171063-12CF			
		2	Commscope SBNHH-1D65A			
		4	Commscope SBNHH-1D45A			
		6	Antel LPA-80063-6CF-EDIN-X			
		1	VZW Unused Reserve: 14,392 sq in			

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
67.0	67.0	3	Powerwave P65-16-XLH-RR	-	-	AT&T Mobility

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
67.0	67.0	3	Ericsson RRUS 32 B2	Sector Frames	-	AT&T Mobility
		3	Quintel QS66512-2			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	39%	Pass
Shaft	37%	Pass
Base Plate	40%	Pass

Foundations

Reaction Component	Original Design Reactions	Analysis Reactions	% of Design
Moment (Kips-Ft)	4,555.2	2,326.1	51%
Shear (Kips)	74.4	44.8	60%

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) (°)
67.0	Ericsson RRUS 32 B2	AT&T Mobility	0.211	0.308
	Quintel QS66512-2			

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

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CORPORATION

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

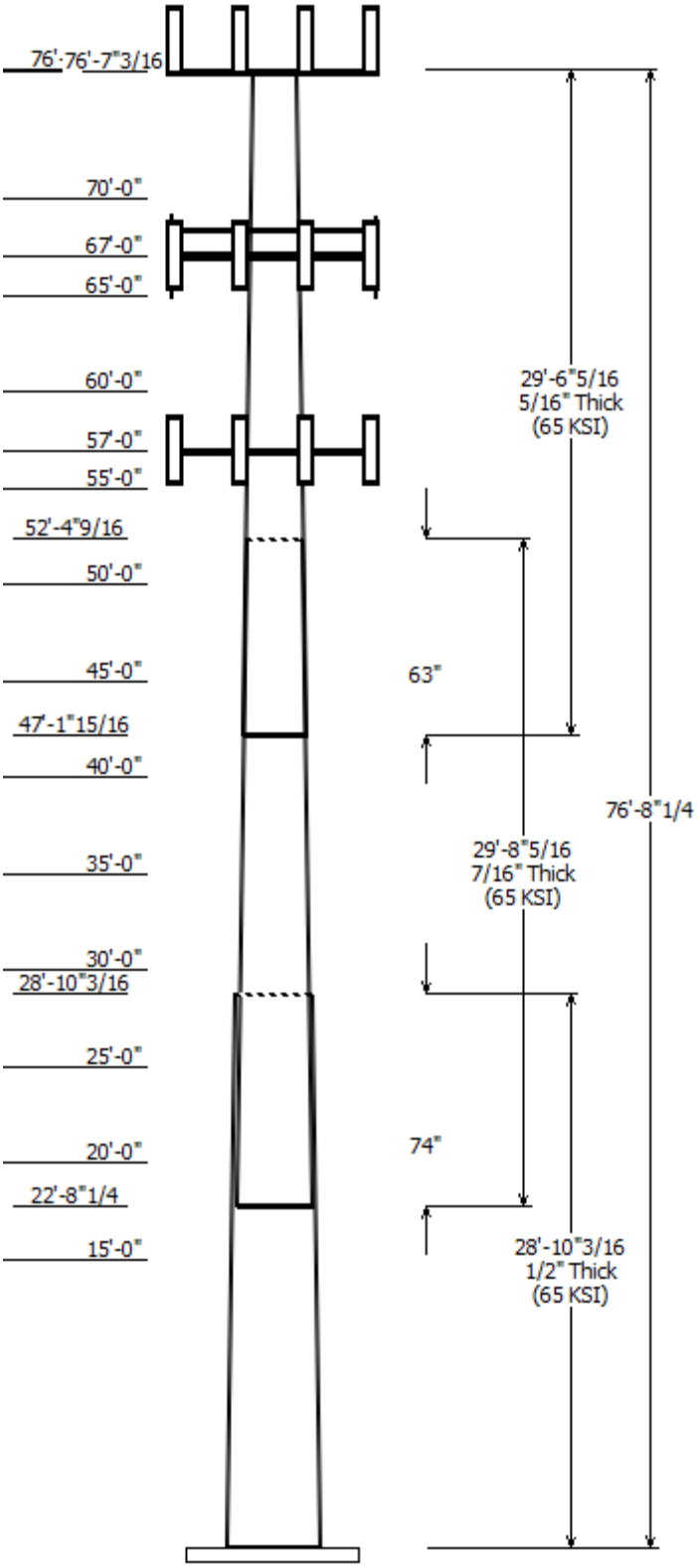
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

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. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

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 we supply.



Job Information

Pole :	414240	Code:	ANSI/TIA-222-G
Description :			
Client :	AT&T Mobility	Struct Class :	II
Location :	Byram Park CT, CT		
Shape :	18 Sides	Exposure :	C
Height :	76.69 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.335790 (in/ft)		

Sections Properties

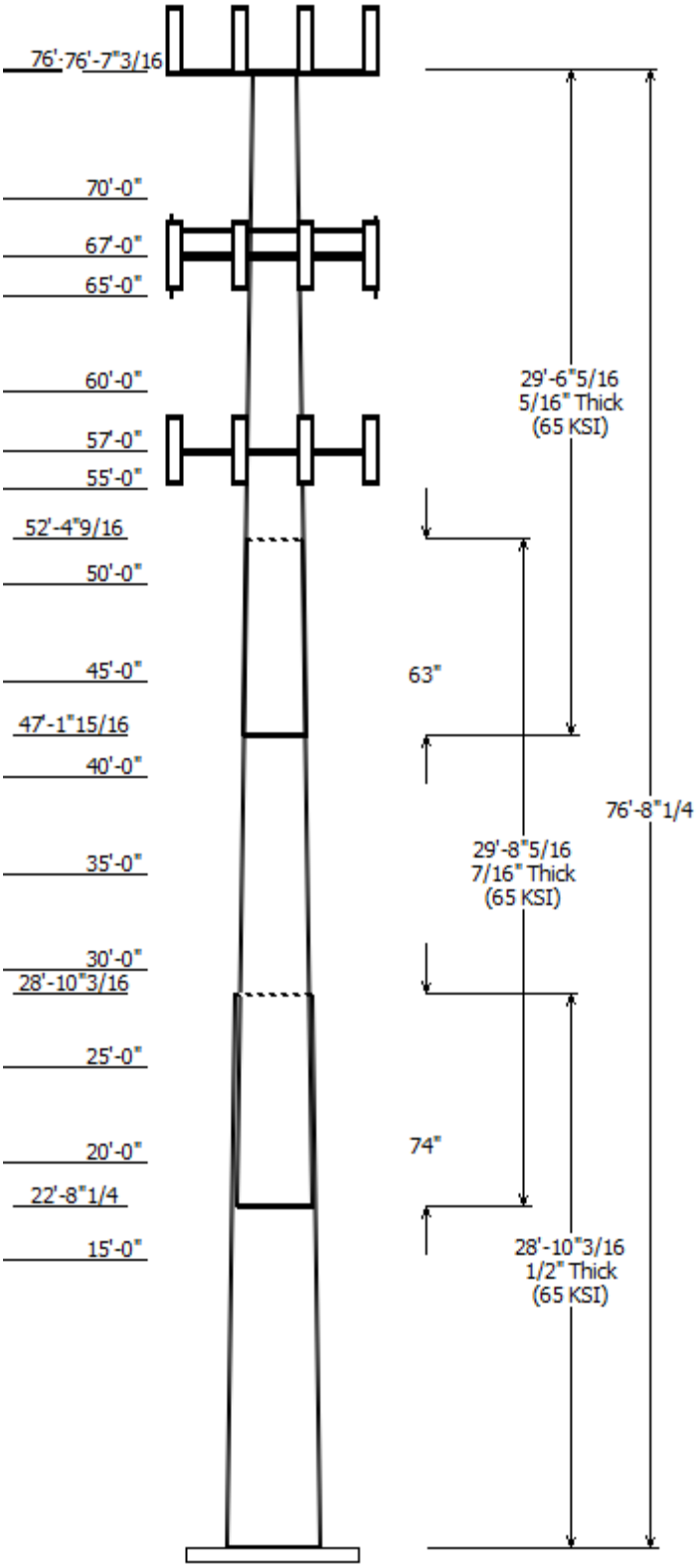
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	28.852	42.31	52.00	0.500		0.000	0.335800	65
2	29.693	35.28	45.25	0.438	Slip Joint	73.969	0.335800	65
3	29.529	27.75	37.66	0.313	Slip Joint	62.656	0.335800	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
76.690	77.090	1	Pine Branches
76.600	76.600	3	Flat T-Arms
76.600	77.000	3	RFS APX16DWV-16DWVS-E-A20
76.600	77.000	3	Ericsson AIR-32 B2A/B66Aa
76.600	77.000	3	Commscope LNX-6512DS-A1M
76.600	77.000	3	Ericsson RRUS 11 B12
76.600	77.000	3	Ericsson RRUS 32 w/ Solar Shi
70.000	70.000	1	Pine Branches
67.000	67.000	3	Quintel QS66512-2
67.000	67.000	3	Ericsson RRUS-32
67.000	67.000	3	Round Sector Frames
67.000	67.000	3	Powerwave Allgon P65-16-
67.000	67.000	6	Ericsson RRUS-11
67.000	67.000	2	Raycap DC6-48-60-18-8F
67.000	67.000	6	Powerwave Allgon TT19-
67.000	67.000	3	CCI OPA-65R-LCUU-H6
67.000	67.000	3	Ericsson RRUS 32 B2
65.000	65.000	1	Pine Branches
60.000	60.000	1	Pine Branches
57.000	57.000	4	Commscope SBNHH-1D45A
57.000	57.000	2	Commscope SBNHH-1D65A
57.000	57.000	2	Commscope RC2DC-4750-PF-
57.000	57.000	3	Alcatel-Lucent RRH2x60 700
57.000	57.000	3	Alcatel-Lucent RRH 2X60-1900
57.000	57.000	3	Alcatel-Lucent RRH2X60-AWS
57.000	57.000	6	Amphenol Antel LPA-80063-
57.000	57.000	3	Amphenol Antel BXA-171063-
57.000	57.000	1	VZW Unused Reserve: 14,392
57.000	57.000	3	Flat T-Arms
55.000	55.000	1	Pine Branches
50.000	50.000	1	Pine Branches
45.000	45.000	1	Pine Branches
40.000	40.000	1	Pine Branches
35.000	35.000	1	Pine Branches
30.000	30.000	1	Pine Branches
25.000	25.000	1	Pine Branches
20.000	20.000	1	Pine Branches
15.000	15.000	1	Pine Branches

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	57.000	1 5/8" Coax	No



0.000	57.000	1 5/8" Fiber	No
0.000	57.000	1 5/8" Hybriflex	No
0.000	67.000	0.63" Cable	No
0.000	67.000	1 5/8" Coax	No
0.000	67.000	5/8" Hybriflex	No
0.000	76.600	1 5/8" Fiber	No

Load Cases

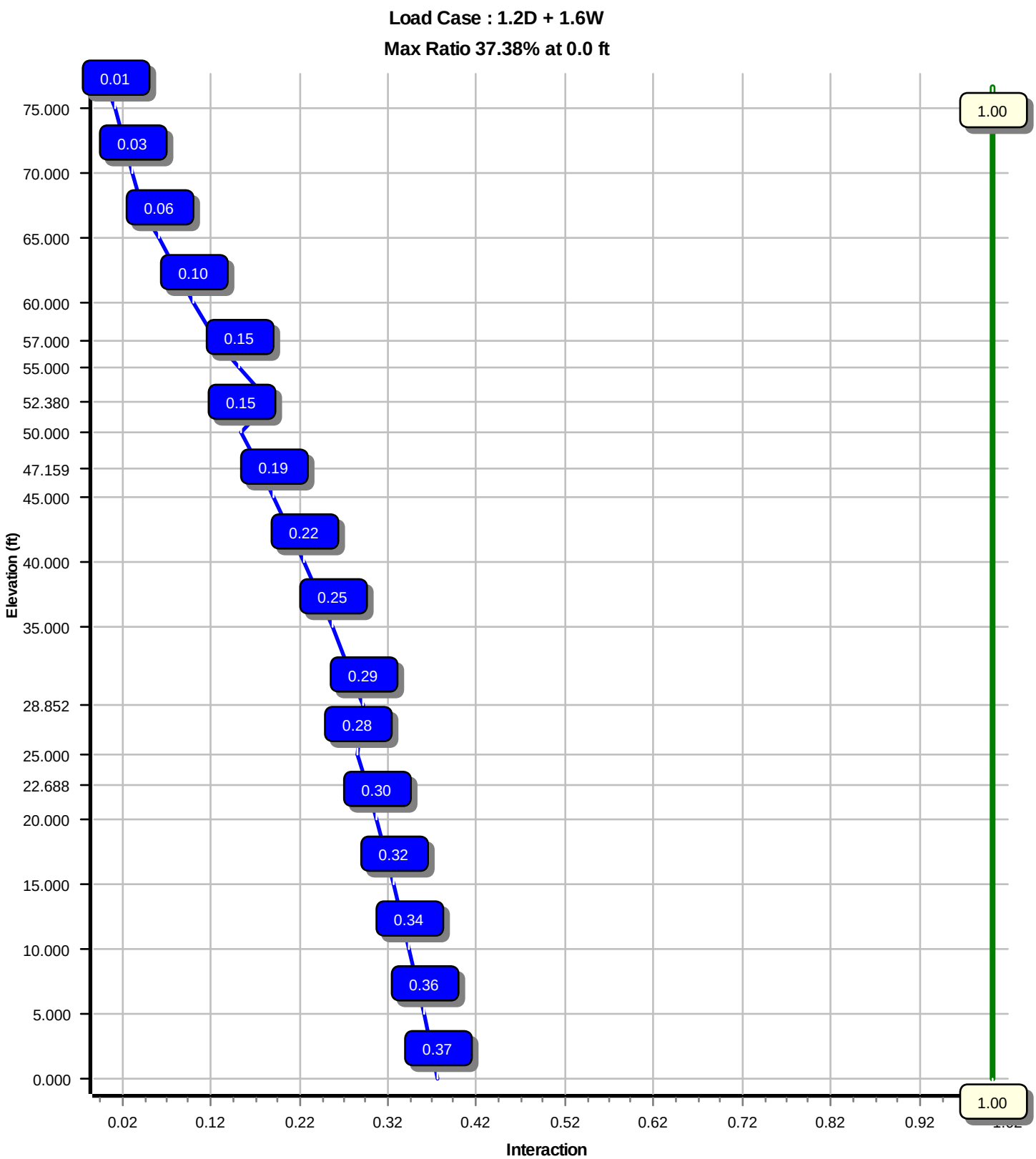
1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) 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	2326.06	44.76	39.91
0.9D + 1.6W	2321.76	44.75	29.92
1.2D + 1.0Di + 1.0Wi	668.13	12.96	66.59
(1.2 + 0.2Sds) * DL + E ELFM	258.81	4.78	39.89
(1.2 + 0.2Sds) * DL + E EMAM	245.01	4.06	39.89
(0.9 - 0.2Sds) * DL + E ELFM	258.18	4.78	26.82
(0.9 - 0.2Sds) * DL + E EMAM	244.36	4.06	26.82
1.0D + 1.0W	604.37	11.64	33.29

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 37.38% at 0.0 ft
0.01
0.03
0.06
0.10
0.15
0.15
0.19
0.22
0.25
0.29
0.28
0.30
0.32
0.34
0.36
0.37
1.00
1.00
75.000
70.000
65.000
60.000
57.000
55.000
52.380
50.000
47.159
45.000
40.000
35.000
28.852
25.000
22.688
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: 414240 Code: ANSI/TIA-222-G

Site Name: Byram Park CT, CT Engineering Number:OAA686840_C3_01 10/5/2016 10:45:09 PM

Customer: AT&T Mobility

Analysis Parameters

Location:	Fairfield County, CT		
Code:	ANSI/TIA-222-G	Height (ft):	76.6
Shape:	18 Sides	Base Diameter (in):	52.00
Pole Type:	Taper	Top Diameter (in):	27.75
Pole Manfacturer:	EEI	Taper (in/ft) :	0.336

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	93 mph
Exposure Catagory:	C	Design Wind Speed With Ice:	50 mph
Topographic Catagory:	1	Operational Wind Speed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	1.00 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	0.68				
T_L (sec):	6	p:	1.3	C_s:	0.111
S_s:	0.263	S_1:	0.071	C_s Max:	0.111
F_a:	1.590	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.279	S_{d1}:	0.114		

Load Cases

1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 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

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip 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)
1-18	28.852	0.5000	65		0.00	7,269	52.00	0.00	81.73	27387.9	16.93	104.00	42.31	28.85	66.35	14656.9	13.51	84.63	0.335790
2-18	29.693	0.4375	65	Slip	73.97	5,589	45.25	22.69	62.24	15795.8	16.83	103.45	35.28	52.38	48.39	7425.4	12.81	80.66	0.335790
3-18	29.529	0.3125	65	Slip	62.66	3,228	37.66	47.16	37.05	6530.8	19.84	120.53	27.75	76.69	27.21	2588.4	14.25	88.80	0.335790
				Shaft Weight		16,086													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
76.69	Pine Branches	1	600.00	45.000	1.00	991.65	74.374	1.00	0.000	0.400
76.60	Ericsson RRUS 32 w/ Solar	3	52.90	2.740	0.67	133.90	3.422	0.67	0.000	0.400
76.60	Commscope LNX-6512DS-	3	28.70	5.090	0.83	159.31	6.008	0.83	0.000	0.400
76.60	Ericsson AIR-32 B2A/B66Aa	3	132.20	6.510	0.86	301.70	7.576	0.86	0.000	0.400
76.60	Ericsson RRUS 11 B12	3	50.70	2.790	0.67	130.19	3.421	0.67	0.000	0.400
76.60	Flat T-Arms	3	250.00	12.900	0.67	445.61	20.554	0.67	0.000	0.000
76.60	RFS APX16DWV-16DWVS-E-	3	41.90	7.010	0.67	154.02	9.177	0.67	0.000	0.400
70.00	Pine Branches	1	600.00	45.000	1.00	987.28	74.046	1.00	0.000	0.000
67.00	CCI OPA-65R-LCUU-H6	3	73.00	9.660	0.79	260.87	12.219	0.79	0.000	0.000
67.00	Ericsson RRUS 32 B2	3	53.00	2.740	0.67	132.64	3.412	0.67	0.000	0.000
67.00	Ericsson RRUS-11	6	55.00	3.790	0.67	137.87	4.975	0.67	0.000	0.000
67.00	Ericsson RRUS-32	3	77.00	3.310	0.67	166.77	4.494	0.67	0.000	0.000
67.00	Powerwave Allgon P65-16-	3	53.00	8.130	0.79	205.04	10.702	0.79	0.000	0.000
67.00	Powerwave Allgon TT19-	6	16.00	0.640	0.50	34.64	1.186	0.50	0.000	0.000
67.00	Quintel QS66512-2	3	111.00	8.130	0.92	317.49	9.321	0.92	0.000	0.000
67.00	Raycap DC6-48-60-18-8F	2	32.80	1.280	1.00	89.75	1.841	1.00	0.000	0.000
67.00	Round Sector Frames	3	300.00	14.400	0.75	639.54	29.679	0.75	0.000	0.000
65.00	Pine Branches	1	600.00	45.000	1.00	983.74	73.781	1.00	0.000	0.000
60.00	Pine Branches	1	600.00	45.000	1.00	981.21	73.591	1.00	0.000	0.000
57.00	Alcatel-Lucent RRH 2X60-	3	39.60	1.880	0.50	99.06	2.412	0.50	0.000	0.000
57.00	Alcatel-Lucent RRH2x60 700	3	56.70	2.150	0.67	128.80	2.711	0.67	0.000	0.000
57.00	Alcatel-Lucent RRH2X60-	3	44.00	1.880	0.50	105.23	2.412	0.50	0.000	0.000
57.00	Amphenol Antel BXA-171063-	3	12.80	4.800	0.88	99.75	6.947	0.88	0.000	0.000
57.00	Amphenol Antel LPA-80063-	6	27.00	9.730	0.94	263.95	12.217	0.94	0.000	0.000
57.00	Commscope RC2DC-4750-PF-	2	26.00	3.780	0.67	138.48	4.518	0.67	0.000	0.000
57.00	Commscope SBNHH-1D45A	4	50.50	7.240	0.72	211.11	8.263	0.72	0.000	0.000
57.00	Commscope SBNHH-1D65A	2	33.50	5.880	0.83	174.20	6.847	0.83	0.000	0.000
57.00	Flat T-Arms	3	250.00	12.900	0.67	439.78	20.326	0.67	0.000	0.000
57.00	VZW Unused Reserve:	1	1557.70	100.03	1.00	2,543.08	163.307	1.00	0.000	0.000
55.00	Pine Branches	1	600.00	45.000	1.00	977.96	73.347	1.00	0.000	0.000
50.00	Pine Branches	1	600.00	45.000	1.00	974.19	73.064	1.00	0.000	0.000
45.00	Pine Branches	1	600.00	45.000	1.00	969.22	72.692	1.00	0.000	0.000
40.00	Pine Branches	1	600.00	45.000	1.00	964.63	72.347	1.00	0.000	0.000
35.00	Pine Branches	1	600.00	45.000	1.00	959.45	71.959	1.00	0.000	0.000
30.00	Pine Branches	1	600.00	45.000	1.00	955.90	71.692	1.00	0.000	0.000
25.00	Pine Branches	1	600.00	45.000	1.00	948.49	71.137	1.00	0.000	0.000
20.00	Pine Branches	1	600.00	45.000	1.00	937.87	70.341	1.00	0.000	0.000
15.00	Pine Branches	1	600.00	45.000	1.00	926.69	69.502	1.00	0.000	0.000
	Totals	93	15211.80			31,128.55			Number of Loadings :	38

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	76.60	2	1 5/8" Fiber	1.63	1.61	N	0.00	N	T-Mobile

0.00	67.00	4	0.63" Cable	0.63	0.31	N	0.00	N	AT&T Mobility
0.00	67.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
0.00	67.00	2	5/8" Hybriflex	0.84	0.70	N	0.00	N	AT&T Mobility
0.00	57.00	16	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon
0.00	57.00	1	1 5/8" Fiber	1.63	1.61	N	0.00	N	Verizon
0.00	57.00	1	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	Verizon

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.5000	52.001	81.729	27,387.9	16.93	104.00	81.5	1037.	0.0	0.0
5.00		0.5000	50.322	79.065	24,795.7	16.34	100.64	82.2	970.5	0.0	1,367.9
10.00		0.5000	48.643	76.400	22,372.4	15.74	97.29	82.6	905.9	0.0	1,322.5
15.00		0.5000	46.964	73.736	20,112.5	15.15	93.93	82.6	843.5	0.0	1,277.2
20.00		0.5000	45.285	71.071	18,010.0	14.56	90.57	82.6	783.3	0.0	1,231.9
22.69	Bot - Section 2	0.5000	44.383	69.639	16,943.1	14.24	88.77	82.6	751.9	0.0	643.4
25.00		0.5000	43.606	68.407	16,059.5	13.97	87.21	82.6	725.4	0.0	1,028.6
28.85	Top - Section 1	0.4375	43.188	59.362	13,706.9	16.00	98.72	82.6	625.1	0.0	1,672.9
30.00		0.4375	42.802	58.827	13,339.3	15.84	97.83	82.6	613.8	0.0	230.9
35.00		0.4375	41.123	56.495	11,815.4	15.16	94.00	82.6	565.9	0.0	981.0
40.00		0.4375	39.444	54.164	10,412.2	14.49	90.16	82.6	519.9	0.0	941.4
45.00		0.4375	37.765	51.833	9,124.8	13.81	86.32	82.6	475.9	0.0	901.7
47.16	Bot - Section 3	0.4375	37.040	50.826	8,603.4	13.52	84.66	82.6	457.5	0.0	377.1
50.00		0.4375	36.086	49.501	7,948.0	13.13	82.48	82.6	433.8	0.0	838.6
52.38	Top - Section 2	0.3125	35.912	35.309	5,653.7	18.85	114.92	79.2	310.1	0.0	685.6
55.00		0.3125	35.032	34.437	5,244.8	18.36	112.10	79.8	294.9	0.0	310.9
57.00		0.3125	34.361	33.771	4,946.3	17.98	109.95	80.3	283.5	0.0	232.1
60.00		0.3125	33.353	32.771	4,520.2	17.41	106.73	80.9	266.9	0.0	339.6
65.00		0.3125	31.675	31.106	3,865.5	16.46	101.36	82.0	240.4	0.0	543.4
67.00		0.3125	31.003	30.440	3,622.5	16.08	99.21	82.5	230.1	0.0	209.4
70.00		0.3125	29.996	29.441	3,277.3	15.51	95.99	82.6	215.2	0.0	305.6
75.00		0.3125	28.317	27.776	2,752.1	14.57	90.61	82.6	191.4	0.0	486.7
76.60		0.3125	27.779	27.243	2,596.7	14.26	88.89	82.6	184.1	0.0	149.8
76.69		0.3125	27.750	27.214	2,588.4	14.25	88.80	82.6	183.7	0.0	8.1
											16,086.3

Site Number: 414240 Code: ANSI/TIA-222-G

Site Name: Byram Park CT, CT Engineering Number:OAA686840_C3_01 10/5/2016 10:45:09 PM

Customer: AT&T Mobility

Load Case: 1.2D + 1.6W 93 mph with No Ice 14 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		221.4	0.0					0.0	0.0	221.4	0.0	0.0	0.0
5.00		435.5	1,641.4					0.0	190.4	435.5	1,831.8	0.0	0.0
10.00		421.0	1,587.0					0.0	190.4	421.0	1,777.4	0.0	0.0
15.00	Appertunance(s)	412.7	1,532.6	1,416.0	0.0	0.0	720.0	0.0	190.4	1,828.8	2,443.0	0.0	0.0
20.00	Appertunance(s)	318.1	1,478.2	1,502.5	0.0	0.0	720.0	0.0	190.4	1,820.5	2,388.6	0.0	0.0
22.69	Bot - Section 2	211.0	772.1					0.0	102.3	211.0	874.4	0.0	0.0
25.00	Appertunance(s)	263.9	1,234.4	1,574.7	0.0	0.0	720.0	0.0	88.1	1,838.6	2,042.4	0.0	0.0
28.85	Top - Section 1	214.2	2,007.4					0.0	146.7	214.2	2,154.1	0.0	0.0
30.00	Appertunance(s)	262.6	277.1	1,636.4	0.0	0.0	720.0	0.0	43.7	1,898.9	1,040.8	0.0	0.0
35.00	Appertunance(s)	424.5	1,177.2	1,690.3	0.0	0.0	720.0	0.0	190.4	2,114.8	2,087.6	0.0	0.0
40.00	Appertunance(s)	418.8	1,129.6	1,738.5	0.0	0.0	720.0	0.0	190.4	2,157.4	2,040.0	0.0	0.0
45.00	Appertunance(s)	296.1	1,082.0	1,782.2	0.0	0.0	720.0	0.0	190.4	2,078.3	1,992.4	0.0	0.0
47.16	Bot - Section 3	205.3	452.5					0.0	82.2	205.3	534.7	0.0	0.0
50.00	Appertunance(s)	213.7	1,006.3	1,822.1	0.0	0.0	720.0	0.0	108.2	2,035.8	1,834.5	0.0	0.0
52.38	Top - Section 2	201.8	822.7					0.0	90.6	201.8	913.4	0.0	0.0
55.00	Appertunance(s)	184.2	373.1	1,859.1	0.0	0.0	720.0	0.0	99.8	2,043.3	1,192.8	0.0	0.0
57.00	Appertunance(s)	196.0	278.5	8,742.3	0.0	0.0	3,900.0	0.0	76.2	8,938.3	4,254.7	0.0	0.0
60.00	Appertunance(s)	306.7	407.6	1,893.4	0.0	0.0	720.0	0.0	56.5	2,200.1	1,184.1	0.0	0.0
65.00	Appertunance(s)	263.7	652.1	1,925.6	0.0	0.0	720.0	0.0	94.2	2,189.4	1,466.3	0.0	0.0
67.00	Appertunance(s)	182.9	251.3	4,370.4	0.0	0.0	2,991.1	0.0	37.7	4,553.2	3,280.1	0.0	0.0
70.00	Appertunance(s)	284.4	366.8	1,955.9	0.0	0.0	720.0	0.0	11.6	2,240.3	1,098.4	0.0	0.0
75.00		230.1	584.1					0.0	19.3	230.1	603.4	0.0	0.0
76.60		57.5	179.7					0.0	6.2	57.5	185.9	0.0	0.0
76.69		3.0	9.7					0.0	0.0	3.0	9.7	0.0	0.0
								Totals:		40,138.4	37,230.5	0.00	0.00

Site Number: 414240 Code: ANSI/TIA-222-G

Site Name: Byram Park CT, CT Engineering Number:OAA686840_C3_01 10/5/2016 10:45:10 PM

Customer: AT&T Mobility

Load Case: 1.2D + 1.6W 93 mph with No Ice 14 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	-39.91	-44.76	0.00	-2,326.06	0.00	2,326.06	5,994.12	2,997.06	12,661.4	6,340.12	0.00	0.00	0.374
5.00	-37.99	-44.39	0.00	-2,102.28	0.00	2,102.28	5,848.26	2,924.13	11,946.7	5,982.24	0.06	-0.12	0.358
10.00	-36.12	-44.04	0.00	-1,880.31	0.00	1,880.31	5,676.15	2,838.07	11,200.5	5,608.58	0.25	-0.23	0.342
15.00	-33.61	-42.26	0.00	-1,660.12	0.00	1,660.12	5,478.20	2,739.10	10,429.0	5,222.27	0.55	-0.34	0.324
20.00	-31.17	-40.47	0.00	-1,448.80	0.00	1,448.80	5,280.25	2,640.12	9,685.10	4,849.75	0.97	-0.45	0.305
22.69	-30.26	-40.28	0.00	-1,340.03	0.00	1,340.03	5,173.85	2,586.92	9,296.61	4,655.21	1.24	-0.51	0.294
25.00	-28.19	-38.46	0.00	-1,246.87	0.00	1,246.87	5,082.30	2,541.15	8,968.69	4,491.01	1.50	-0.56	0.283
28.85	-26.01	-38.24	0.00	-1,098.75	0.00	1,098.75	4,410.30	2,205.15	7,729.01	3,870.25	1.99	-0.64	0.290
30.00	-24.95	-36.36	0.00	-1,054.83	0.00	1,054.83	4,370.52	2,185.26	7,589.50	3,800.39	2.15	-0.67	0.284
35.00	-22.83	-34.26	0.00	-873.02	0.00	873.02	4,197.31	2,098.66	6,996.91	3,503.66	2.90	-0.77	0.255
40.00	-20.77	-32.11	0.00	-701.72	0.00	701.72	4,024.10	2,012.05	6,428.41	3,218.98	3.76	-0.86	0.223
45.00	-18.78	-30.02	0.00	-541.19	0.00	541.19	3,850.90	1,925.45	5,884.00	2,946.37	4.71	-0.95	0.189
47.16	-18.23	-29.81	0.00	-476.39	0.00	476.39	3,776.11	1,888.05	5,656.38	2,832.39	5.15	-0.98	0.173
50.00	-16.41	-27.76	0.00	-391.69	0.00	391.69	3,677.69	1,838.84	5,363.67	2,685.82	5.75	-1.02	0.151
52.38	-15.49	-27.55	0.00	-325.62	0.00	325.62	2,517.68	1,258.84	3,679.49	1,842.48	6.27	-1.05	0.183
55.00	-14.32	-25.49	0.00	-253.46	0.00	253.46	2,473.56	1,236.78	3,524.91	1,765.07	6.85	-1.08	0.150
57.00	-10.23	-16.47	0.00	-202.48	0.00	202.48	2,439.26	1,219.63	3,408.19	1,706.63	7.31	-1.11	0.123
60.00	-9.08	-14.26	0.00	-153.06	0.00	153.06	2,386.80	1,193.40	3,235.34	1,620.07	8.02	-1.14	0.098
65.00	-7.65	-12.04	0.00	-81.78	0.00	81.78	2,296.71	1,148.36	2,953.54	1,478.97	9.24	-1.17	0.059
67.00	-4.47	-7.42	0.00	-57.69	0.00	57.69	2,259.74	1,129.87	2,843.16	1,423.69	9.73	-1.18	0.043
70.00	-3.41	-5.16	0.00	-35.43	0.00	35.43	2,187.31	1,093.65	2,660.78	1,332.37	10.48	-1.20	0.028
75.00	-2.82	-4.92	0.00	-9.62	0.00	9.62	2,063.59	1,031.79	2,366.81	1,185.17	11.74	-1.21	0.010
76.60	-0.69	-2.01	0.00	-0.98	0.00	0.98	2,024.00	1,012.00	2,276.38	1,139.88	12.14	-1.21	0.001
76.69	0.00	-2.00	0.00	-0.80	0.00	0.80	2,021.83	1,010.92	2,271.48	1,137.43	12.16	-1.21	0.001

Site Number: 414240 Code: ANSI/TIA-222-G

Site Name: Byram Park CT, CT Engineering Number:OAA686840_C3_01 10/5/2016 10:45:10 PM

Customer: AT&T Mobility

Load Case: 0.9D + 1.6W — 93 mph with No Ice (Reduced DL) — 14 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

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		221.4	0.0					0.0	0.0	221.4	0.0	0.0	0.0
5.00		435.5	1,231.1					0.0	142.8	435.5	1,373.9	0.0	0.0
10.00		421.0	1,190.3					0.0	142.8	421.0	1,333.1	0.0	0.0
15.00	Appertunance(s)	412.7	1,149.5	1,416.0	0.0	0.0	540.0	0.0	142.8	1,828.8	1,832.3	0.0	0.0
20.00	Appertunance(s)	318.1	1,108.7	1,502.5	0.0	0.0	540.0	0.0	142.8	1,820.5	1,791.5	0.0	0.0
22.69	Bot - Section 2	211.0	579.1					0.0	76.7	211.0	655.8	0.0	0.0
25.00	Appertunance(s)	263.9	925.8	1,574.7	0.0	0.0	540.0	0.0	66.0	1,838.6	1,531.8	0.0	0.0
28.85	Top - Section 1	214.2	1,505.6					0.0	110.0	214.2	1,615.6	0.0	0.0
30.00	Appertunance(s)	262.6	207.8	1,636.4	0.0	0.0	540.0	0.0	32.8	1,898.9	780.6	0.0	0.0
35.00	Appertunance(s)	424.5	882.9	1,690.3	0.0	0.0	540.0	0.0	142.8	2,114.8	1,565.7	0.0	0.0
40.00	Appertunance(s)	418.8	847.2	1,738.5	0.0	0.0	540.0	0.0	142.8	2,157.4	1,530.0	0.0	0.0
45.00	Appertunance(s)	296.1	811.5	1,782.2	0.0	0.0	540.0	0.0	142.8	2,078.3	1,494.3	0.0	0.0
47.16	Bot - Section 3	205.3	339.4					0.0	61.7	205.3	401.0	0.0	0.0
50.00	Appertunance(s)	213.7	754.7	1,822.1	0.0	0.0	540.0	0.0	81.1	2,035.8	1,375.8	0.0	0.0
52.38	Top - Section 2	201.8	617.1					0.0	68.0	201.8	685.0	0.0	0.0
55.00	Appertunance(s)	184.2	279.8	1,859.1	0.0	0.0	540.0	0.0	74.8	2,043.3	894.6	0.0	0.0
57.00	Appertunance(s)	196.0	208.9	8,742.3	0.0	0.0	2,925.0	0.0	57.1	8,938.3	3,191.0	0.0	0.0
60.00	Appertunance(s)	306.7	305.7	1,893.4	0.0	0.0	540.0	0.0	42.4	2,200.1	888.1	0.0	0.0
65.00	Appertunance(s)	263.7	489.1	1,925.6	0.0	0.0	540.0	0.0	70.6	2,189.4	1,099.7	0.0	0.0
67.00	Appertunance(s)	182.9	188.5	4,370.4	0.0	0.0	2,243.3	0.0	28.3	4,553.2	2,460.1	0.0	0.0
70.00	Appertunance(s)	284.4	275.1	1,955.9	0.0	0.0	540.0	0.0	8.7	2,240.3	823.8	0.0	0.0
75.00		230.1	438.1					0.0	14.5	230.1	452.6	0.0	0.0
76.60		57.5	134.8					0.0	4.6	57.5	139.4	0.0	0.0
76.69		3.0	7.3					0.0	0.0	3.0	7.3	0.0	0.0
								Totals:		40,138.4	27,922.9	0.00	0.00

Site Number: 414240 Code: ANSI/TIA-222-G

Site Name: Byram Park CT, CT Engineering Number:OAA686840_C3_01 10/5/2016 10:45:11 PM

Customer: AT&T Mobility

Load Case: 0.9D + 1.6W 93 mph with No Ice (Reduced DL) 14 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	-29.92	-44.75	0.00	-2,321.76	0.00	2,321.76	5,994.12	2,997.06	12,661.4	6,340.12	0.00	0.00	0.371
5.00	-28.46	-44.37	0.00	-2,098.04	0.00	2,098.04	5,848.26	2,924.13	11,946.7	5,982.24	0.06	-0.11	0.356
10.00	-27.04	-43.99	0.00	-1,876.21	0.00	1,876.21	5,676.15	2,838.07	11,200.5	5,608.58	0.25	-0.23	0.340
15.00	-25.13	-42.20	0.00	-1,656.24	0.00	1,656.24	5,478.20	2,739.10	10,429.0	5,222.27	0.55	-0.34	0.322
20.00	-23.29	-40.41	0.00	-1,445.22	0.00	1,445.22	5,280.25	2,640.12	9,685.10	4,849.75	0.97	-0.45	0.303
22.69	-22.60	-40.21	0.00	-1,336.63	0.00	1,336.63	5,173.85	2,586.92	9,296.61	4,655.21	1.24	-0.51	0.292
25.00	-21.04	-38.38	0.00	-1,243.65	0.00	1,243.65	5,082.30	2,541.15	8,968.69	4,491.01	1.50	-0.56	0.281
28.85	-19.40	-38.17	0.00	-1,095.82	0.00	1,095.82	4,410.30	2,205.15	7,729.01	3,870.25	1.99	-0.64	0.288
30.00	-18.60	-36.28	0.00	-1,051.98	0.00	1,051.98	4,370.52	2,185.26	7,589.50	3,800.39	2.14	-0.66	0.281
35.00	-17.00	-34.18	0.00	-870.58	0.00	870.58	4,197.31	2,098.66	6,996.91	3,503.66	2.90	-0.77	0.253
40.00	-15.45	-32.02	0.00	-699.70	0.00	699.70	4,024.10	2,012.05	6,428.41	3,218.98	3.75	-0.86	0.221
45.00	-13.96	-29.93	0.00	-539.59	0.00	539.59	3,850.90	1,925.45	5,884.00	2,946.37	4.70	-0.95	0.187
47.16	-13.54	-29.73	0.00	-474.97	0.00	474.97	3,776.11	1,888.05	5,656.38	2,832.39	5.14	-0.98	0.172
50.00	-12.18	-27.68	0.00	-390.50	0.00	390.50	3,677.69	1,838.84	5,363.67	2,685.82	5.73	-1.02	0.149
52.38	-11.49	-27.47	0.00	-324.62	0.00	324.62	2,517.68	1,258.84	3,679.49	1,842.48	6.25	-1.05	0.181
55.00	-10.62	-25.42	0.00	-252.65	0.00	252.65	2,473.56	1,236.78	3,524.91	1,765.07	6.84	-1.08	0.148
57.00	-7.59	-16.42	0.00	-201.82	0.00	201.82	2,439.26	1,219.63	3,408.19	1,706.63	7.30	-1.10	0.122
60.00	-6.74	-14.21	0.00	-152.55	0.00	152.55	2,386.80	1,193.40	3,235.34	1,620.07	8.00	-1.13	0.097
65.00	-5.68	-12.00	0.00	-81.50	0.00	81.50	2,296.71	1,148.36	2,953.54	1,478.97	9.21	-1.17	0.058
67.00	-3.31	-7.40	0.00	-57.50	0.00	57.50	2,259.74	1,129.87	2,843.16	1,423.69	9.71	-1.18	0.042
70.00	-2.53	-5.14	0.00	-35.31	0.00	35.31	2,187.31	1,093.65	2,660.78	1,332.37	10.45	-1.19	0.028
75.00	-2.09	-4.90	0.00	-9.60	0.00	9.60	2,063.59	1,031.79	2,366.81	1,185.17	11.71	-1.20	0.009
76.60	-0.51	-2.01	0.00	-0.98	0.00	0.98	2,024.00	1,012.00	2,276.38	1,139.88	12.11	-1.20	0.001
76.69	0.00	-2.00	0.00	-0.80	0.00	0.80	2,021.83	1,010.92	2,271.48	1,137.43	12.13	-1.20	0.001

Site Number: 414240 Code: ANSI/TIA-222-G

Site Name: Byram Park CT, CT Engineering Number:OAA686840_C3_01 10/5/2016 10:45:11 PM

Customer: AT&T Mobility

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 13 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		77.1	0.0					0.0	0.0	77.1	0.0	0.0	0.0
5.00		152.2	2,015.2					0.0	190.4	152.2	2,205.6	0.0	0.0
10.00		147.9	1,991.6					0.0	190.4	147.9	2,182.0	0.0	0.0
15.00	Appertunance(s)	145.7	1,944.7	395.1	0.0	0.0	1,646.7	0.0	190.4	540.8	3,781.8	0.0	0.0
20.00	Appertunance(s)	112.6	1,890.0	424.3	0.0	0.0	1,657.9	0.0	190.4	536.8	3,738.2	0.0	0.0
22.69	Bot - Section 2	74.8	993.6					0.0	102.3	74.8	1,095.9	0.0	0.0
25.00	Appertunance(s)	93.8	1,427.6	449.7	0.0	0.0	1,668.5	0.0	88.1	543.5	3,184.1	0.0	0.0
28.85	Top - Section 1	76.2	2,324.1					0.0	146.7	76.2	2,470.8	0.0	0.0
30.00	Appertunance(s)	93.7	371.6	471.0	0.0	0.0	1,675.9	0.0	43.7	564.7	2,091.2	0.0	0.0
35.00	Appertunance(s)	151.8	1,577.1	488.3	0.0	0.0	1,679.5	0.0	190.4	640.1	3,446.9	0.0	0.0
40.00	Appertunance(s)	150.4	1,519.4	504.9	0.0	0.0	1,684.6	0.0	190.4	655.3	3,394.4	0.0	0.0
45.00	Appertunance(s)	106.6	1,460.7	520.1	0.0	0.0	1,689.2	0.0	190.4	626.7	3,340.3	0.0	0.0
47.16	Bot - Section 3	74.1	614.3					0.0	82.2	74.1	696.5	0.0	0.0
50.00	Appertunance(s)	77.2	1,218.6	534.5	0.0	0.0	1,694.2	0.0	108.2	611.7	3,021.0	0.0	0.0
52.38	Top - Section 2	73.1	997.9					0.0	90.6	73.1	1,088.5	0.0	0.0
55.00	Appertunance(s)	66.9	562.2	547.4	0.0	0.0	1,698.0	0.0	99.8	614.3	2,359.9	0.0	0.0
57.00	Appertunance(s)	71.4	420.9	2,307.6	0.0	0.0	7,305.5	0.0	76.2	2,378.9	7,802.6	0.0	0.0
60.00	Appertunance(s)	112.0	616.1	559.4	0.0	0.0	1,701.2	0.0	56.5	671.4	2,373.8	0.0	0.0
65.00	Appertunance(s)	96.6	985.2	570.4	0.0	0.0	1,703.7	0.0	94.2	667.0	2,783.2	0.0	0.0
67.00	Appertunance(s)	67.3	382.6	1,156.3	0.0	0.0	5,910.3	0.0	37.7	1,223.6	6,330.6	0.0	0.0
70.00	Appertunance(s)	105.1	558.4	581.4	0.0	0.0	1,707.3	0.0	11.6	686.5	2,277.3	0.0	0.0
75.00		85.2	888.3					0.0	19.3	85.2	907.6	0.0	0.0
76.60		21.4	275.8					0.0	6.2	21.4	282.0	0.0	0.0
76.69		1.1	15.0					0.0	0.0	1.1	15.0	0.0	0.0
								Totals:		11,744.4	60,869.2	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 13 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	-66.59	-12.96	0.00	-668.13	0.00	668.13	5,994.12	2,997.06	12,661.4	6,340.12	0.00	0.00	0.117
5.00	-64.37	-12.84	0.00	-603.34	0.00	603.34	5,848.26	2,924.13	11,946.7	5,982.24	0.02	-0.03	0.112
10.00	-62.19	-12.73	0.00	-539.13	0.00	539.13	5,676.15	2,838.07	11,200.5	5,608.58	0.07	-0.07	0.107
15.00	-58.40	-12.21	0.00	-475.50	0.00	475.50	5,478.20	2,739.10	10,429.0	5,222.27	0.16	-0.10	0.102
20.00	-54.66	-11.69	0.00	-414.43	0.00	414.43	5,280.25	2,640.12	9,685.10	4,849.75	0.28	-0.13	0.096
22.69	-53.56	-11.63	0.00	-383.01	0.00	383.01	5,173.85	2,586.92	9,296.61	4,655.21	0.36	-0.15	0.093
25.00	-50.37	-11.09	0.00	-356.11	0.00	356.11	5,082.30	2,541.15	8,968.69	4,491.01	0.43	-0.16	0.089
28.85	-47.90	-11.02	0.00	-313.39	0.00	313.39	4,410.30	2,205.15	7,729.01	3,870.25	0.57	-0.18	0.092
30.00	-45.80	-10.47	0.00	-300.73	0.00	300.73	4,370.52	2,185.26	7,589.50	3,800.39	0.62	-0.19	0.090
35.00	-42.35	-9.83	0.00	-248.40	0.00	248.40	4,197.31	2,098.66	6,996.91	3,503.66	0.83	-0.22	0.081
40.00	-38.96	-9.18	0.00	-199.23	0.00	199.23	4,024.10	2,012.05	6,428.41	3,218.98	1.08	-0.25	0.072
45.00	-35.62	-8.55	0.00	-153.32	0.00	153.32	3,850.90	1,925.45	5,884.00	2,946.37	1.35	-0.27	0.061
47.16	-34.92	-8.48	0.00	-134.86	0.00	134.86	3,776.11	1,888.05	5,656.38	2,832.39	1.47	-0.28	0.057
50.00	-31.90	-7.86	0.00	-110.77	0.00	110.77	3,677.69	1,838.84	5,363.67	2,685.82	1.65	-0.29	0.050
52.38	-30.81	-7.78	0.00	-92.06	0.00	92.06	2,517.68	1,258.84	3,679.49	1,842.48	1.79	-0.30	0.062
55.00	-28.46	-7.16	0.00	-71.67	0.00	71.67	2,473.56	1,236.78	3,524.91	1,765.07	1.96	-0.31	0.052
57.00	-20.67	-4.74	0.00	-57.35	0.00	57.35	2,439.26	1,219.63	3,408.19	1,706.63	2.09	-0.32	0.042
60.00	-18.29	-4.06	0.00	-43.12	0.00	43.12	2,386.80	1,193.40	3,235.34	1,620.07	2.29	-0.32	0.034
65.00	-15.51	-3.38	0.00	-22.81	0.00	22.81	2,296.71	1,148.36	2,953.54	1,478.97	2.64	-0.33	0.022
67.00	-9.19	-2.12	0.00	-16.05	0.00	16.05	2,259.74	1,129.87	2,843.16	1,423.69	2.78	-0.34	0.015
70.00	-6.92	-1.42	0.00	-9.69	0.00	9.69	2,187.31	1,093.65	2,660.78	1,332.37	2.99	-0.34	0.010
75.00	-6.01	-1.33	0.00	-2.59	0.00	2.59	2,063.59	1,031.79	2,366.81	1,185.17	3.35	-0.34	0.005
76.60	-1.72	-0.61	0.00	-0.29	0.00	0.29	2,024.00	1,012.00	2,276.38	1,139.88	3.47	-0.34	0.001
76.69	0.00	-0.60	0.00	-0.24	0.00	0.24	2,021.83	1,010.92	2,271.48	1,137.43	3.48	-0.34	0.000

Site Number: 414240 Code: ANSI/TIA-222-G

Site Name: Byram Park CT, CT Engineering Number:OAA686840_C3_01 10/5/2016 10:45:12 PM

Customer: AT&T Mobility

Load Case: 1.0D + 1.0W Serviceability 60 mph 13 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		57.6	0.0					0.0	0.0	57.6	0.0	0.0	0.0
5.00		113.3	1,367.9					0.0	158.6	113.3	1,526.5	0.0	0.0
10.00		109.5	1,322.5					0.0	158.6	109.5	1,481.2	0.0	0.0
15.00	Appertunance(s)	107.4	1,277.2	368.4	0.0	0.0	600.0	0.0	158.6	475.7	2,035.8	0.0	0.0
20.00	Appertunance(s)	82.7	1,231.9	390.9	0.0	0.0	600.0	0.0	158.6	473.6	1,990.5	0.0	0.0
22.69	Bot - Section 2	54.9	643.4					0.0	85.3	54.9	728.7	0.0	0.0
25.00	Appertunance(s)	68.7	1,028.6	409.7	0.0	0.0	600.0	0.0	73.4	478.3	1,702.0	0.0	0.0
28.85	Top - Section 1	55.7	1,672.9					0.0	122.2	55.7	1,795.1	0.0	0.0
30.00	Appertunance(s)	68.3	230.9	425.7	0.0	0.0	600.0	0.0	36.4	494.0	867.4	0.0	0.0
35.00	Appertunance(s)	110.4	981.0	439.7	0.0	0.0	600.0	0.0	158.6	550.2	1,739.7	0.0	0.0
40.00	Appertunance(s)	109.0	941.4	452.3	0.0	0.0	600.0	0.0	158.6	561.2	1,700.0	0.0	0.0
45.00	Appertunance(s)	77.0	901.7	463.6	0.0	0.0	600.0	0.0	158.6	540.7	1,660.4	0.0	0.0
47.16	Bot - Section 3	53.4	377.1					0.0	68.5	53.4	445.6	0.0	0.0
50.00	Appertunance(s)	55.6	838.6	474.0	0.0	0.0	600.0	0.0	90.1	529.6	1,528.7	0.0	0.0
52.38	Top - Section 2	52.5	685.6					0.0	75.5	52.5	761.1	0.0	0.0
55.00	Appertunance(s)	47.9	310.9	483.6	0.0	0.0	600.0	0.0	83.1	531.5	994.0	0.0	0.0
57.00	Appertunance(s)	51.0	232.1	2,274.3	0.0	0.0	3,250.0	0.0	63.5	2,325.3	3,545.6	0.0	0.0
60.00	Appertunance(s)	79.8	339.6	492.6	0.0	0.0	600.0	0.0	47.1	572.3	986.7	0.0	0.0
65.00	Appertunance(s)	68.6	543.4	500.9	0.0	0.0	600.0	0.0	78.5	569.6	1,221.9	0.0	0.0
67.00	Appertunance(s)	47.6	209.4	1,136.9	0.0	0.0	2,492.6	0.0	31.4	1,184.5	2,733.4	0.0	0.0
70.00	Appertunance(s)	74.0	305.6	508.8	0.0	0.0	600.0	0.0	9.7	582.8	915.3	0.0	0.0
75.00		59.9	486.7					0.0	16.1	59.9	502.8	0.0	0.0
76.60		15.0	149.8					0.0	5.2	15.0	154.9	0.0	0.0
76.69		0.8	8.1					0.0	0.0	0.8	8.1	0.0	0.0
								Totals:		10,441.8	31,025.4	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 13 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	-33.29	-11.64	0.00	-604.37	0.00	604.37	5,994.12	2,997.06	12,661.4	6,340.12	0.00	0.00	0.101
5.00	-31.76	-11.54	0.00	-546.16	0.00	546.16	5,848.26	2,924.13	11,946.7	5,982.24	0.02	-0.03	0.097
10.00	-30.27	-11.45	0.00	-488.45	0.00	488.45	5,676.15	2,838.07	11,200.5	5,608.58	0.06	-0.06	0.092
15.00	-28.23	-10.98	0.00	-431.21	0.00	431.21	5,478.20	2,739.10	10,429.0	5,222.27	0.14	-0.09	0.088
20.00	-26.24	-10.52	0.00	-376.29	0.00	376.29	5,280.25	2,640.12	9,685.10	4,849.75	0.25	-0.12	0.083
22.69	-25.51	-10.47	0.00	-348.02	0.00	348.02	5,173.85	2,586.92	9,296.61	4,655.21	0.32	-0.13	0.080
25.00	-23.80	-9.99	0.00	-323.82	0.00	323.82	5,082.30	2,541.15	8,968.69	4,491.01	0.39	-0.15	0.077
28.85	-22.01	-9.94	0.00	-285.34	0.00	285.34	4,410.30	2,205.15	7,729.01	3,870.25	0.52	-0.17	0.079
30.00	-21.14	-9.45	0.00	-273.93	0.00	273.93	4,370.52	2,185.26	7,589.50	3,800.39	0.56	-0.17	0.077
35.00	-19.39	-8.90	0.00	-226.70	0.00	226.70	4,197.31	2,098.66	6,996.91	3,503.66	0.75	-0.20	0.069
40.00	-17.69	-8.34	0.00	-182.21	0.00	182.21	4,024.10	2,012.05	6,428.41	3,218.98	0.98	-0.22	0.061
45.00	-16.03	-7.79	0.00	-140.52	0.00	140.52	3,850.90	1,925.45	5,884.00	2,946.37	1.22	-0.25	0.052
47.16	-15.59	-7.74	0.00	-123.69	0.00	123.69	3,776.11	1,888.05	5,656.38	2,832.39	1.34	-0.26	0.048
50.00	-14.06	-7.21	0.00	-101.70	0.00	101.70	3,677.69	1,838.84	5,363.67	2,685.82	1.49	-0.27	0.042
52.38	-13.30	-7.15	0.00	-84.54	0.00	84.54	2,517.68	1,258.84	3,679.49	1,842.48	1.63	-0.27	0.051
55.00	-12.31	-6.62	0.00	-65.80	0.00	65.80	2,473.56	1,236.78	3,524.91	1,765.07	1.78	-0.28	0.042
57.00	-8.77	-4.28	0.00	-52.56	0.00	52.56	2,439.26	1,219.63	3,408.19	1,706.63	1.90	-0.29	0.034
60.00	-7.79	-3.70	0.00	-39.73	0.00	39.73	2,386.80	1,193.40	3,235.34	1,620.07	2.08	-0.30	0.028
65.00	-6.57	-3.13	0.00	-21.23	0.00	21.23	2,296.71	1,148.36	2,953.54	1,478.97	2.40	-0.31	0.017
67.00	-3.84	-1.93	0.00	-14.98	0.00	14.98	2,259.74	1,129.87	2,843.16	1,423.69	2.53	-0.31	0.012
70.00	-2.93	-1.34	0.00	-9.20	0.00	9.20	2,187.31	1,093.65	2,660.78	1,332.37	2.72	-0.31	0.008
75.00	-2.43	-1.28	0.00	-2.50	0.00	2.50	2,063.59	1,031.79	2,366.81	1,185.17	3.05	-0.31	0.003
76.60	-0.61	-0.52	0.00	-0.25	0.00	0.25	2,024.00	1,012.00	2,276.38	1,139.88	3.15	-0.31	0.001
76.69	0.00	-0.52	0.00	-0.21	0.00	0.21	2,021.83	1,010.92	2,271.48	1,137.43	3.16	-0.31	0.000

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.26	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.59	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.28	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11	
Seismic Response Coefficient (C_s):	0.11	
Upper Limit C_s	0.11	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	0.68	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	1.09	
Total Unfactored Dead Load:	33.29	k
Seismic Base Shear (E):	4.79	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)
23	76.64	8	1	0.000	2	10
22	75.80	155	17	0.009	42	195
21	72.50	503	54	0.027	129	631
20	68.50	315	32	0.016	76	396
19	66.00	241	23	0.012	56	302
18	62.50	622	57	0.028	136	781
17	58.50	387	33	0.016	79	486
16	56.00	296	24	0.012	57	371
15	53.69	394	31	0.015	73	495
14	51.19	761	56	0.028	134	956
13	48.58	929	65	0.032	154	1,166
12	46.08	446	29	0.015	70	560
11	42.50	1,060	64	0.032	152	1,332
10	37.50	1,100	58	0.029	137	1,381
9	32.50	1,140	51	0.025	122	1,431
8	29.43	267	11	0.005	26	336
7	26.93	1,795	65	0.033	156	2,254
6	23.84	1,102	35	0.018	84	1,384
5	21.34	729	21	0.010	49	915
4	17.50	1,391	32	0.016	76	1,746
3	12.50	1,436	23	0.011	54	1,803
2	7.50	1,481	13	0.007	32	1,860
1	2.50	1,527	4	0.002	10	1,917

Pine Branches	76.69	600	69	0.034	164	753
Ericsson RRUS 32 w/	76.60	159	18	0.009	43	199
Ericsson RRUS 11 B12	76.60	152	17	0.009	41	191
Commscope LNX-6512DS	76.60	86	10	0.005	23	108
Ericsson AIR-32 B2A/	76.60	397	45	0.023	108	498
RFS APX16DWV-16DWVS-	76.60	126	14	0.007	34	158
Flat T-Arms	76.60	750	86	0.043	204	942
Pine Branches	70.00	600	62	0.031	148	753
Powerwave Allgon TT1	67.00	96	9	0.005	23	121
Raycap DC6-48-60-18-	67.00	66	6	0.003	15	82
Ericsson RRUS 32 B2	67.00	159	16	0.008	37	200
Ericsson RRUS-32	67.00	231	23	0.011	54	290
Ericsson RRUS-11	67.00	330	33	0.016	78	414
Powerwave Allgon P65	67.00	159	16	0.008	37	200
Quintel QS66512-2	67.00	333	33	0.016	78	418
CCI OPA-65R-LCUU-H6	67.00	219	22	0.011	52	275
Round Sector Frames	67.00	900	89	0.044	212	1,130
Pine Branches	65.00	600	57	0.029	137	753
Pine Branches	60.00	600	52	0.026	125	753
Alcatel-Lucent RRH2X	57.00	132	11	0.005	26	166
Alcatel-Lucent RRH 2	57.00	119	10	0.005	23	149
Alcatel-Lucent RRH2x	57.00	170	14	0.007	34	214
Commscope RC2DC-4750	57.00	52	4	0.002	10	65
Amphenol Antel BXA-1	57.00	38	3	0.002	8	48
Commscope SBNHH-1D65	57.00	67	6	0.003	13	84
Commscope SBNHH-1D45	57.00	202	17	0.008	40	254
Amphenol Antel LPA-8	57.00	162	13	0.007	32	203
Flat T-Arms	57.00	750	62	0.031	148	942
VZW Unused Reserve:	57.00	1,558	129	0.064	307	1,956
Pine Branches	55.00	600	48	0.024	114	753
Pine Branches	50.00	600	43	0.021	103	753
Pine Branches	45.00	600	38	0.019	91	753
Pine Branches	40.00	600	34	0.017	80	753
Pine Branches	35.00	600	29	0.015	70	753
Pine Branches	30.00	600	25	0.012	59	753
Pine Branches	25.00	600	20	0.010	48	753
Pine Branches	20.00	600	16	0.008	38	753
Pine Branches	15.00	600	12	0.006	28	753
		33,295	2,008	1.000	4,790	41,810

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)
23	76.64	8	1	0.000	2	7
22	75.80	155	17	0.009	42	131
21	72.50	503	54	0.027	129	425
20	68.50	315	32	0.016	76	266
19	66.00	241	23	0.012	56	203
18	62.50	622	57	0.028	136	525
17	58.50	387	33	0.016	79	327
16	56.00	296	24	0.012	57	250
15	53.69	394	31	0.015	73	333
14	51.19	761	56	0.028	134	643
13	48.58	929	65	0.032	154	784
12	46.08	446	29	0.015	70	376
11	42.50	1,060	64	0.032	152	895
10	37.50	1,100	58	0.029	137	929
9	32.50	1,140	51	0.025	122	962
8	29.43	267	11	0.005	26	226

7	26.93	1,795	65	0.033	156	1,516
6	23.84	1,102	35	0.018	84	930
5	21.34	729	21	0.010	49	615
4	17.50	1,391	32	0.016	76	1,174
3	12.50	1,436	23	0.011	54	1,212
2	7.50	1,481	13	0.007	32	1,250
1	2.50	1,527	4	0.002	10	1,289
Pine Branches	76.69	600	69	0.034	164	507
Ericsson RRUS 32 w/	76.60	159	18	0.009	43	134
Ericsson RRUS 11 B12	76.60	152	17	0.009	41	128
Commscope LNX-6512DS	76.60	86	10	0.005	23	73
Ericsson AIR-32 B2A/	76.60	397	45	0.023	108	335
RFS APX16DWV-16DWVS-	76.60	126	14	0.007	34	106
Flat T-Arms	76.60	750	86	0.043	204	633
Pine Branches	70.00	600	62	0.031	148	507
Powerwave Allgon TT1	67.00	96	9	0.005	23	81
Raycap DC6-48-60-18-	67.00	66	6	0.003	15	55
Ericsson RRUS 32 B2	67.00	159	16	0.008	37	134
Ericsson RRUS-32	67.00	231	23	0.011	54	195
Ericsson RRUS-11	67.00	330	33	0.016	78	279
Powerwave Allgon P65	67.00	159	16	0.008	37	134
Quintel QS66512-2	67.00	333	33	0.016	78	281
CCI OPA-65R-LCUU-H6	67.00	219	22	0.011	52	185
Round Sector Frames	67.00	900	89	0.044	212	760
Pine Branches	65.00	600	57	0.029	137	507
Pine Branches	60.00	600	52	0.026	125	507
Alcatel-Lucent RRH2X	57.00	132	11	0.005	26	111
Alcatel-Lucent RRH 2	57.00	119	10	0.005	23	100
Alcatel-Lucent RRH2x	57.00	170	14	0.007	34	144
Commscope RC2DC-4750	57.00	52	4	0.002	10	44
Amphenol Antel BXA-1	57.00	38	3	0.002	8	32
Commscope SBNHH-1D65	57.00	67	6	0.003	13	57
Commscope SBNHH-1D45	57.00	202	17	0.008	40	171
Amphenol Antel LPA-8	57.00	162	13	0.007	32	137
Flat T-Arms	57.00	750	62	0.031	148	633
VZW Unused Reserve:	57.00	1,558	129	0.064	307	1,315
Pine Branches	55.00	600	48	0.024	114	507
Pine Branches	50.00	600	43	0.021	103	507
Pine Branches	45.00	600	38	0.019	91	507
Pine Branches	40.00	600	34	0.017	80	507
Pine Branches	35.00	600	29	0.015	70	507
Pine Branches	30.00	600	25	0.012	59	507
Pine Branches	25.00	600	20	0.010	48	507
Pine Branches	20.00	600	16	0.008	38	507
Pine Branches	15.00	600	12	0.006	28	507
		33,295	2,008	1.000	4,790	28,109

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	-39.89	-4.78	0.00	-258.81	0.00	258.81	5,994.12	2,997.06	12,661.4	6,340.12	0.00	0.00	0.047
5.00	-38.03	-4.76	0.00	-234.89	0.00	234.89	5,848.26	2,924.13	11,946.7	5,982.24	0.01	-0.01	0.046
10.00	-36.23	-4.71	0.00	-211.08	0.00	211.08	5,676.15	2,838.07	11,200.5	5,608.58	0.03	-0.03	0.044
15.00	-33.73	-4.62	0.00	-187.51	0.00	187.51	5,478.20	2,739.10	10,429.0	5,222.27	0.06	-0.04	0.042
20.00	-32.06	-4.53	0.00	-164.42	0.00	164.42	5,280.25	2,640.12	9,685.10	4,849.75	0.11	-0.05	0.040
22.69	-30.67	-4.45	0.00	-152.24	0.00	152.24	5,173.85	2,586.92	9,296.61	4,655.21	0.14	-0.06	0.039
25.00	-27.67	-4.25	0.00	-141.94	0.00	141.94	5,082.30	2,541.15	8,968.69	4,491.01	0.17	-0.06	0.037
28.85	-27.33	-4.23	0.00	-125.58	0.00	125.58	4,410.30	2,205.15	7,729.01	3,870.25	0.22	-0.07	0.039
30.00	-25.14	-4.05	0.00	-120.72	0.00	120.72	4,370.52	2,185.26	7,589.50	3,800.39	0.24	-0.08	0.038
35.00	-23.01	-3.84	0.00	-100.50	0.00	100.50	4,197.31	2,098.66	6,996.91	3,503.66	0.33	-0.09	0.034
40.00	-20.92	-3.61	0.00	-81.30	0.00	81.30	4,024.10	2,012.05	6,428.41	3,218.98	0.42	-0.10	0.030
45.00	-19.61	-3.45	0.00	-63.26	0.00	63.26	3,850.90	1,925.45	5,884.00	2,946.37	0.53	-0.11	0.027
47.16	-18.44	-3.29	0.00	-55.81	0.00	55.81	3,776.11	1,888.05	5,656.38	2,832.39	0.58	-0.11	0.025
50.00	-16.74	-3.05	0.00	-46.46	0.00	46.46	3,677.69	1,838.84	5,363.67	2,685.82	0.65	-0.12	0.022
52.38	-16.24	-2.98	0.00	-39.19	0.00	39.19	2,517.68	1,258.84	3,679.49	1,842.48	0.71	-0.12	0.028
55.00	-15.12	-2.81	0.00	-31.38	0.00	31.38	2,473.56	1,236.78	3,524.91	1,765.07	0.78	-0.12	0.024
57.00	-10.55	-2.08	0.00	-25.76	0.00	25.76	2,439.26	1,219.63	3,408.19	1,706.63	0.83	-0.13	0.019
60.00	-9.02	-1.82	0.00	-19.53	0.00	19.53	2,386.80	1,193.40	3,235.34	1,620.07	0.91	-0.13	0.016
65.00	-7.96	-1.62	0.00	-10.45	0.00	10.45	2,296.71	1,148.36	2,953.54	1,478.97	1.05	-0.14	0.011
67.00	-4.44	-0.95	0.00	-7.20	0.00	7.20	2,259.74	1,129.87	2,843.16	1,423.69	1.11	-0.14	0.007
70.00	-3.05	-0.67	0.00	-4.35	0.00	4.35	2,187.31	1,093.65	2,660.78	1,332.37	1.19	-0.14	0.005
75.00	-2.86	-0.63	0.00	-1.00	0.00	1.00	2,063.59	1,031.79	2,366.81	1,185.17	1.34	-0.14	0.002
76.60	0.00	0.00	0.00	0.00	0.00	0.00	2,024.00	1,012.00	2,276.38	1,139.88	1.38	-0.14	0.000
76.69	0.00	0.00	0.00	0.00	0.00	0.00	2,021.83	1,010.92	2,271.48	1,137.43	1.39	-0.14	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	-26.82	-4.78	0.00	-258.18	0.00	258.18	5,994.12	2,997.06	12,661.4	6,340.12	0.00	0.00	0.045
5.00	-25.57	-4.76	0.00	-234.26	0.00	234.26	5,848.26	2,924.13	11,946.7	5,982.24	0.01	-0.01	0.044
10.00	-24.36	-4.71	0.00	-210.48	0.00	210.48	5,676.15	2,838.07	11,200.5	5,608.58	0.03	-0.03	0.042
15.00	-22.67	-4.61	0.00	-186.94	0.00	186.94	5,478.20	2,739.10	10,429.0	5,222.27	0.06	-0.04	0.040
20.00	-21.55	-4.52	0.00	-163.90	0.00	163.90	5,280.25	2,640.12	9,685.10	4,849.75	0.11	-0.05	0.038
22.69	-20.62	-4.44	0.00	-151.74	0.00	151.74	5,173.85	2,586.92	9,296.61	4,655.21	0.14	-0.06	0.037
25.00	-18.60	-4.24	0.00	-141.47	0.00	141.47	5,082.30	2,541.15	8,968.69	4,491.01	0.17	-0.06	0.035
28.85	-18.37	-4.21	0.00	-125.14	0.00	125.14	4,410.30	2,205.15	7,729.01	3,870.25	0.22	-0.07	0.037
30.00	-16.90	-4.03	0.00	-120.31	0.00	120.31	4,370.52	2,185.26	7,589.50	3,800.39	0.24	-0.07	0.036
35.00	-15.47	-3.83	0.00	-100.14	0.00	100.14	4,197.31	2,098.66	6,996.91	3,503.66	0.33	-0.09	0.032
40.00	-14.07	-3.60	0.00	-81.00	0.00	81.00	4,024.10	2,012.05	6,428.41	3,218.98	0.42	-0.10	0.029
45.00	-13.18	-3.43	0.00	-63.02	0.00	63.02	3,850.90	1,925.45	5,884.00	2,946.37	0.53	-0.11	0.025
47.16	-12.40	-3.28	0.00	-55.60	0.00	55.60	3,776.11	1,888.05	5,656.38	2,832.39	0.58	-0.11	0.023
50.00	-11.25	-3.04	0.00	-46.28	0.00	46.28	3,677.69	1,838.84	5,363.67	2,685.82	0.65	-0.12	0.020
52.38	-10.92	-2.97	0.00	-39.04	0.00	39.04	2,517.68	1,258.84	3,679.49	1,842.48	0.71	-0.12	0.026
55.00	-10.16	-2.80	0.00	-31.26	0.00	31.26	2,473.56	1,236.78	3,524.91	1,765.07	0.77	-0.12	0.022
57.00	-7.09	-2.07	0.00	-25.67	0.00	25.67	2,439.26	1,219.63	3,408.19	1,706.63	0.83	-0.13	0.018
60.00	-6.06	-1.81	0.00	-19.45	0.00	19.45	2,386.80	1,193.40	3,235.34	1,620.07	0.91	-0.13	0.015
65.00	-5.35	-1.62	0.00	-10.41	0.00	10.41	2,296.71	1,148.36	2,953.54	1,478.97	1.05	-0.13	0.009
67.00	-2.98	-0.95	0.00	-7.18	0.00	7.18	2,259.74	1,129.87	2,843.16	1,423.69	1.10	-0.14	0.006
70.00	-2.05	-0.67	0.00	-4.34	0.00	4.34	2,187.31	1,093.65	2,660.78	1,332.37	1.19	-0.14	0.004
75.00	-1.92	-0.63	0.00	-1.00	0.00	1.00	2,063.59	1,031.79	2,366.81	1,185.17	1.33	-0.14	0.002
76.60	0.00	0.00	0.00	0.00	0.00	0.00	2,024.00	1,012.00	2,276.38	1,139.88	1.38	-0.14	0.000
76.69	0.00	0.00	0.00	0.00	0.00	0.00	2,021.83	1,010.92	2,271.48	1,137.43	1.38	-0.14	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):	0.26
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.59
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.28
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11
Period Based on Rayleigh Method (sec):	0.68
Redundancy Factor (p):	1.30

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)
23	76.64	8	1.888	1.969	1.136	0.602	4	10
22	75.80	155	1.847	1.758	1.059	0.566	76	195
21	72.50	503	1.689	1.082	0.798	0.436	190	631
20	68.50	315	1.508	0.521	0.552	0.309	84	396
19	66.00	241	1.400	0.284	0.432	0.245	51	302
18	62.50	622	1.255	0.063	0.298	0.175	95	781
17	58.50	387	1.100	-0.070	0.187	0.121	41	486
16	56.00	296	1.008	-0.108	0.135	0.099	25	371
15	53.69	394	0.926	-0.121	0.098	0.086	29	495
14	51.19	761	0.842	-0.118	0.067	0.077	51	956
13	48.58	929	0.758	-0.103	0.043	0.073	59	1,166
12	46.08	446	0.682	-0.081	0.027	0.073	28	560
11	42.50	1,060	0.580	-0.046	0.013	0.074	68	1,332
10	37.50	1,100	0.452	0.001	0.006	0.075	71	1,381
9	32.50	1,140	0.339	0.036	0.009	0.072	71	1,431
8	29.43	267	0.278	0.050	0.014	0.068	16	336
7	26.93	1,795	0.233	0.058	0.019	0.064	100	2,254
6	23.84	1,102	0.183	0.065	0.026	0.059	56	1,384
5	21.34	729	0.146	0.068	0.031	0.054	34	915
4	17.50	1,391	0.098	0.071	0.037	0.047	57	1,746
3	12.50	1,436	0.050	0.071	0.042	0.039	49	1,803
2	7.50	1,481	0.018	0.063	0.037	0.031	40	1,860
1	2.50	1,527	0.002	0.032	0.018	0.015	20	1,917
Pine Branches	76.69	600	1.890	1.981	1.140	0.604	314	753
Ericsson RRUS 32 w/	76.60	159	1.886	1.957	1.132	0.600	83	199
Ericsson RRUS 11 B12	76.60	152	1.886	1.957	1.132	0.600	79	191
Commscope LNX-	76.60	86	1.886	1.957	1.132	0.600	45	108
Ericsson AIR-32 B2A/	76.60	397	1.886	1.957	1.132	0.600	206	498
RFS APX16DWV-	76.60	126	1.886	1.957	1.132	0.600	65	158
Flat T-Arms	76.60	750	1.886	1.957	1.132	0.600	390	942
Pine Branches	70.00	600	1.575	0.702	0.636	0.353	184	753
Powerwave Allgon TT1	67.00	96	1.443	0.370	0.477	0.269	22	121
Raycap DC6-48-60-18-	67.00	66	1.443	0.370	0.477	0.269	15	82
Ericsson RRUS 32 B2	67.00	159	1.443	0.370	0.477	0.269	37	200

Ericsson RRUS-32	67.00	231	1.443	0.370	0.477	0.269	54	290
Ericsson RRUS-11	67.00	330	1.443	0.370	0.477	0.269	77	414
Powerwave Allgon P65	67.00	159	1.443	0.370	0.477	0.269	37	200
Quintel QS66512-2	67.00	333	1.443	0.370	0.477	0.269	78	418
CCI OPA-65R-LCUU-H6	67.00	219	1.443	0.370	0.477	0.269	51	275
Round Sector Frames	67.00	900	1.443	0.370	0.477	0.269	210	1,130
Pine Branches	65.00	600	1.358	0.209	0.390	0.223	116	753
Pine Branches	60.00	600	1.157	-0.032	0.224	0.139	72	753
Alcatel-Lucent RRH2X	57.00	132	1.044	-0.096	0.154	0.107	12	166
Alcatel-Lucent RRH 2	57.00	119	1.044	-0.096	0.154	0.107	11	149
Alcatel-Lucent RRH2x	57.00	170	1.044	-0.096	0.154	0.107	16	214
Commscope RC2DC-	57.00	52	1.044	-0.096	0.154	0.107	5	65
Amphenol Antel BXA-1	57.00	38	1.044	-0.096	0.154	0.107	4	48
Commscope SBNHH-	57.00	67	1.044	-0.096	0.154	0.107	6	84
Commscope SBNHH-	57.00	202	1.044	-0.096	0.154	0.107	19	254
Amphenol Antel LPA-8	57.00	162	1.044	-0.096	0.154	0.107	15	203
Flat T-Arms	57.00	750	1.044	-0.096	0.154	0.107	70	942
VZW Unused Reserve:	57.00	1,558	1.044	-0.096	0.154	0.107	145	1,956
Pine Branches	55.00	600	0.972	-0.116	0.118	0.093	48	753
Pine Branches	50.00	600	0.803	-0.113	0.055	0.075	39	753
Pine Branches	45.00	600	0.651	-0.071	0.021	0.073	38	753
Pine Branches	40.00	600	0.514	-0.021	0.008	0.075	39	753
Pine Branches	35.00	600	0.394	0.020	0.007	0.074	39	753
Pine Branches	30.00	600	0.289	0.048	0.013	0.069	36	753
Pine Branches	25.00	600	0.201	0.063	0.023	0.061	32	753
Pine Branches	20.00	600	0.129	0.069	0.033	0.051	27	753
Pine Branches	15.00	600	0.072	0.072	0.040	0.043	22	753
		33,295	62.029	22.464	20.420	12.492	4,072	41,810

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)
23	76.64	8	1.888	1.969	1.136	0.602	4	7
22	75.80	155	1.847	1.758	1.059	0.566	76	131
21	72.50	503	1.689	1.082	0.798	0.436	190	425
20	68.50	315	1.508	0.521	0.552	0.309	84	266
19	66.00	241	1.400	0.284	0.432	0.245	51	203
18	62.50	622	1.255	0.063	0.298	0.175	95	525
17	58.50	387	1.100	-0.070	0.187	0.121	41	327
16	56.00	296	1.008	-0.108	0.135	0.099	25	250
15	53.69	394	0.926	-0.121	0.098	0.086	29	333
14	51.19	761	0.842	-0.118	0.067	0.077	51	643
13	48.58	929	0.758	-0.103	0.043	0.073	59	784
12	46.08	446	0.682	-0.081	0.027	0.073	28	376
11	42.50	1,060	0.580	-0.046	0.013	0.074	68	895
10	37.50	1,100	0.452	0.001	0.006	0.075	71	929
9	32.50	1,140	0.339	0.036	0.009	0.072	71	962
8	29.43	267	0.278	0.050	0.014	0.068	16	226
7	26.93	1,795	0.233	0.058	0.019	0.064	100	1,516
6	23.84	1,102	0.183	0.065	0.026	0.059	56	930
5	21.34	729	0.146	0.068	0.031	0.054	34	615
4	17.50	1,391	0.098	0.071	0.037	0.047	57	1,174
3	12.50	1,436	0.050	0.071	0.042	0.039	49	1,212
2	7.50	1,481	0.018	0.063	0.037	0.031	40	1,250
1	2.50	1,527	0.002	0.032	0.018	0.015	20	1,289
Pine Branches	76.69	600	1.890	1.981	1.140	0.604	314	507
Ericsson RRUS 32 w/	76.60	159	1.886	1.957	1.132	0.600	83	134
Ericsson RRUS 11 B12	76.60	152	1.886	1.957	1.132	0.600	79	128

Commscope LNX-	76.60	86	1.886	1.957	1.132	0.600	45	73
Ericsson AIR-32 B2A/	76.60	397	1.886	1.957	1.132	0.600	206	335
RFS APX16DWV-	76.60	126	1.886	1.957	1.132	0.600	65	106
Flat T-Arms	76.60	750	1.886	1.957	1.132	0.600	390	633
Pine Branches	70.00	600	1.575	0.702	0.636	0.353	184	507
Powerwave Allgon TT1	67.00	96	1.443	0.370	0.477	0.269	22	81
Raycap DC6-48-60-18-	67.00	66	1.443	0.370	0.477	0.269	15	55
Ericsson RRUS 32 B2	67.00	159	1.443	0.370	0.477	0.269	37	134
Ericsson RRUS-32	67.00	231	1.443	0.370	0.477	0.269	54	195
Ericsson RRUS-11	67.00	330	1.443	0.370	0.477	0.269	77	279
Powerwave Allgon P65	67.00	159	1.443	0.370	0.477	0.269	37	134
Quintel QS66512-2	67.00	333	1.443	0.370	0.477	0.269	78	281
CCI OPA-65R-LCUU-H6	67.00	219	1.443	0.370	0.477	0.269	51	185
Round Sector Frames	67.00	900	1.443	0.370	0.477	0.269	210	760
Pine Branches	65.00	600	1.358	0.209	0.390	0.223	116	507
Pine Branches	60.00	600	1.157	-0.032	0.224	0.139	72	507
Alcatel-Lucent RRH2X	57.00	132	1.044	-0.096	0.154	0.107	12	111
Alcatel-Lucent RRH 2	57.00	119	1.044	-0.096	0.154	0.107	11	100
Alcatel-Lucent RRH2x	57.00	170	1.044	-0.096	0.154	0.107	16	144
Commscope RC2DC-	57.00	52	1.044	-0.096	0.154	0.107	5	44
Amphenol Antel BXA-1	57.00	38	1.044	-0.096	0.154	0.107	4	32
Commscope SBNHH-	57.00	67	1.044	-0.096	0.154	0.107	6	57
Commscope SBNHH-	57.00	202	1.044	-0.096	0.154	0.107	19	171
Amphenol Antel LPA-8	57.00	162	1.044	-0.096	0.154	0.107	15	137
Flat T-Arms	57.00	750	1.044	-0.096	0.154	0.107	70	633
VZW Unused Reserve:	57.00	1,558	1.044	-0.096	0.154	0.107	145	1,315
Pine Branches	55.00	600	0.972	-0.116	0.118	0.093	48	507
Pine Branches	50.00	600	0.803	-0.113	0.055	0.075	39	507
Pine Branches	45.00	600	0.651	-0.071	0.021	0.073	38	507
Pine Branches	40.00	600	0.514	-0.021	0.008	0.075	39	507
Pine Branches	35.00	600	0.394	0.020	0.007	0.074	39	507
Pine Branches	30.00	600	0.289	0.048	0.013	0.069	36	507
Pine Branches	25.00	600	0.201	0.063	0.023	0.061	32	507
Pine Branches	20.00	600	0.129	0.069	0.033	0.051	27	507
Pine Branches	15.00	600	0.072	0.072	0.040	0.043	22	507
		33,295	62.029	22.464	20.420	12.492	4,072	28,109

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	-39.89	-4.06	0.00	-245.01	0.00	245.01	5,994.12	2,997.06	12,661.4	6,340.12	0.00	0.00	0.045
5.00	-38.03	-4.03	0.00	-224.72	0.00	224.72	5,848.26	2,924.13	11,946.7	5,982.24	0.01	-0.01	0.044
10.00	-36.23	-3.98	0.00	-204.60	0.00	204.60	5,676.15	2,838.07	11,200.5	5,608.58	0.03	-0.02	0.043
15.00	-33.73	-3.91	0.00	-184.68	0.00	184.68	5,478.20	2,739.10	10,429.0	5,222.27	0.06	-0.04	0.042
20.00	-32.06	-3.85	0.00	-165.13	0.00	165.13	5,280.25	2,640.12	9,685.10	4,849.75	0.10	-0.05	0.040
22.69	-30.67	-3.80	0.00	-154.78	0.00	154.78	5,173.85	2,586.92	9,296.61	4,655.21	0.13	-0.06	0.039
25.00	-27.67	-3.67	0.00	-145.99	0.00	145.99	5,082.30	2,541.15	8,968.69	4,491.01	0.16	-0.06	0.038
28.85	-27.33	-3.66	0.00	-131.86	0.00	131.86	4,410.30	2,205.15	7,729.01	3,870.25	0.22	-0.07	0.040
30.00	-25.14	-3.55	0.00	-127.66	0.00	127.66	4,370.52	2,185.26	7,589.50	3,800.39	0.23	-0.07	0.039
35.00	-23.01	-3.44	0.00	-109.92	0.00	109.92	4,197.31	2,098.66	6,996.91	3,503.66	0.32	-0.09	0.037
40.00	-20.92	-3.34	0.00	-92.71	0.00	92.71	4,024.10	2,012.05	6,428.41	3,218.98	0.42	-0.10	0.034
45.00	-19.61	-3.27	0.00	-76.04	0.00	76.04	3,850.90	1,925.45	5,884.00	2,946.37	0.53	-0.11	0.031
47.16	-18.44	-3.21	0.00	-68.98	0.00	68.98	3,776.11	1,888.05	5,656.38	2,832.39	0.58	-0.12	0.029
50.00	-16.73	-3.12	0.00	-59.85	0.00	59.85	3,677.69	1,838.84	5,363.67	2,685.82	0.65	-0.12	0.027
52.38	-16.24	-3.09	0.00	-52.43	0.00	52.43	2,517.68	1,258.84	3,679.49	1,842.48	0.71	-0.13	0.035
55.00	-15.12	-3.01	0.00	-44.34	0.00	44.34	2,473.56	1,236.78	3,524.91	1,765.07	0.78	-0.13	0.031
57.00	-10.55	-2.66	0.00	-38.31	0.00	38.31	2,439.26	1,219.63	3,408.19	1,706.63	0.84	-0.14	0.027
60.00	-9.01	-2.49	0.00	-30.32	0.00	30.32	2,386.80	1,193.40	3,235.34	1,620.07	0.93	-0.14	0.022
65.00	-7.96	-2.32	0.00	-17.86	0.00	17.86	2,296.71	1,148.36	2,953.54	1,478.97	1.08	-0.15	0.016
67.00	-4.43	-1.65	0.00	-13.21	0.00	13.21	2,259.74	1,129.87	2,843.16	1,423.69	1.14	-0.15	0.011
70.00	-3.05	-1.27	0.00	-8.27	0.00	8.27	2,187.31	1,093.65	2,660.78	1,332.37	1.24	-0.15	0.008
75.00	-2.86	-1.19	0.00	-1.91	0.00	1.91	2,063.59	1,031.79	2,366.81	1,185.17	1.40	-0.16	0.003
76.60	0.00	0.00	0.00	0.00	0.00	0.00	2,024.00	1,012.00	2,276.38	1,139.88	1.45	-0.16	0.000
76.69	0.00	0.00	0.00	0.00	0.00	0.00	2,021.83	1,010.92	2,271.48	1,137.43	1.46	-0.16	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	-26.82	-4.06	0.00	-244.36	0.00	244.36	5,994.12	2,997.06	12,661.4	6,340.12	0.00	0.00	0.043
5.00	-25.57	-4.02	0.00	-224.09	0.00	224.09	5,848.26	2,924.13	11,946.7	5,982.24	0.01	-0.01	0.042
10.00	-24.36	-3.98	0.00	-203.98	0.00	203.98	5,676.15	2,838.07	11,200.5	5,608.58	0.03	-0.02	0.041
15.00	-22.67	-3.90	0.00	-184.10	0.00	184.10	5,478.20	2,739.10	10,429.0	5,222.27	0.06	-0.04	0.039
20.00	-21.55	-3.84	0.00	-164.59	0.00	164.59	5,280.25	2,640.12	9,685.10	4,849.75	0.10	-0.05	0.038
22.69	-20.62	-3.79	0.00	-154.26	0.00	154.26	5,173.85	2,586.92	9,296.61	4,655.21	0.13	-0.06	0.037
25.00	-18.60	-3.66	0.00	-145.50	0.00	145.50	5,082.30	2,541.15	8,968.69	4,491.01	0.16	-0.06	0.036
28.85	-18.37	-3.64	0.00	-131.41	0.00	131.41	4,410.30	2,205.15	7,729.01	3,870.25	0.22	-0.07	0.038
30.00	-16.90	-3.54	0.00	-127.23	0.00	127.23	4,370.52	2,185.26	7,589.50	3,800.39	0.23	-0.07	0.037
35.00	-15.47	-3.43	0.00	-109.54	0.00	109.54	4,197.31	2,098.66	6,996.91	3,503.66	0.32	-0.09	0.035
40.00	-14.07	-3.32	0.00	-92.40	0.00	92.40	4,024.10	2,012.05	6,428.41	3,218.98	0.42	-0.10	0.032
45.00	-13.18	-3.26	0.00	-75.78	0.00	75.78	3,850.90	1,925.45	5,884.00	2,946.37	0.53	-0.11	0.029
47.16	-12.40	-3.20	0.00	-68.75	0.00	68.75	3,776.11	1,888.05	5,656.38	2,832.39	0.58	-0.12	0.028
50.00	-11.25	-3.11	0.00	-59.66	0.00	59.66	3,677.69	1,838.84	5,363.67	2,685.82	0.65	-0.12	0.025
52.38	-10.92	-3.08	0.00	-52.27	0.00	52.27	2,517.68	1,258.84	3,679.49	1,842.48	0.71	-0.13	0.033
55.00	-10.16	-3.00	0.00	-44.21	0.00	44.21	2,473.56	1,236.78	3,524.91	1,765.07	0.78	-0.13	0.029
57.00	-7.09	-2.65	0.00	-38.20	0.00	38.20	2,439.26	1,219.63	3,408.19	1,706.63	0.84	-0.14	0.025
60.00	-6.06	-2.49	0.00	-30.24	0.00	30.24	2,386.80	1,193.40	3,235.34	1,620.07	0.92	-0.14	0.021
65.00	-5.35	-2.32	0.00	-17.82	0.00	17.82	2,296.71	1,148.36	2,953.54	1,478.97	1.07	-0.15	0.014
67.00	-2.98	-1.64	0.00	-13.18	0.00	13.18	2,259.74	1,129.87	2,843.16	1,423.69	1.14	-0.15	0.011
70.00	-2.05	-1.27	0.00	-8.25	0.00	8.25	2,187.31	1,093.65	2,660.78	1,332.37	1.23	-0.15	0.007
75.00	-1.92	-1.19	0.00	-1.91	0.00	1.91	2,063.59	1,031.79	2,366.81	1,185.17	1.40	-0.16	0.003
76.60	0.00	0.00	0.00	0.00	0.00	0.00	2,024.00	1,012.00	2,276.38	1,139.88	1.45	-0.16	0.000
76.69	0.00	0.00	0.00	0.00	0.00	0.00	2,021.83	1,010.92	2,271.48	1,137.43	1.45	-0.16	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	44.76	0.00	39.91	0.00	0.00	2326.06	0.00	0.37
0.9D + 1.6W	44.75	0.00	29.92	0.00	0.00	2321.76	0.00	0.37
1.2D + 1.0Di + 1.0Wi	12.96	0.00	66.59	0.00	0.00	668.13	0.00	0.12
(1.2 + 0.2Sds) * DL + E ELFM	4.78	0.00	39.89	0.00	0.00	258.81	0.00	0.05
(1.2 + 0.2Sds) * DL + E EMAM	4.06	0.00	39.89	0.00	0.00	245.01	0.00	0.05
(0.9 - 0.2Sds) * DL + E ELFM	4.78	0.00	26.82	0.00	0.00	258.18	0.00	0.05
(0.9 - 0.2Sds) * DL + E EMAM	4.06	0.00	26.82	0.00	0.00	244.36	0.00	0.04
1.0D + 1.0W	11.64	0.00	33.29	0.00	0.00	604.37	0.00	0.10

Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
4,555.20	38.30	74.40	2,326.06	66.59	44.76	51.06

Base Plate

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Mu (kip-in)	Phi Mn (kip-in)	Ratio
50.0	2.750	66.000	Round	0	0.00	8.252	277.52	702.09	0.40

Anchor Bolts

								Start	Compression			Tension		
Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Angle (deg)	Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
60.00	20	2.25" 18J	2.25	75.00	100.00	Radial	0.00	0.0	96.37	260.00	0.39	89.71	260.00	0.36