



**QC Development**

PO Box 916

Storrs, CT 06268

860-670-9068

Mark.Roberts@QCDevelopment.net

July 7, 2016

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

**Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T)**  
**85 Miner Lane, Waterford, CT 06385**  
**N 41-19-44.85**  
**W 72-07-28.75**

Dear Ms. Bachman:

AT&T currently maintains twelve (12) antennas at the 153-foot level of the existing 180-foot Monopole at 85 Miner Lane (aka 15 Miner Lane), Waterford, CT. The tower is owned by American Tower and the property is owned by the Town of Waterford. AT&T now intends to remove three (3) Powerwave 7770 antennas and replace them with three (3) Andrew SBNHH-1D65A antennas. These antennas would be installed at the 153-foot level of the tower. AT&T also intends to install three (3) Ericsson RRUS-32 B3, behind the antennas at the 153-foot level. Also, six (6) Powerwave Diplexers would be removed and replaced with six (6) CCI Triplexers immediately below, at the 152-foot level.

This facility was approved by the Connecticut Siting Council, Petition No. 886 on April 7, 2009. There were no conditions that could feasibly be violated by this modification, including total facility height or mounting restrictions. This modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Daniel M.

Steward, First Selectman for the Town of Waterford, as well as the property owner and the tower owner.

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

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

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

Please feel free to call me at (860) 670-9068 with any questions regarding this matter. Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read 'MR', with a large, stylized flourish extending to the right.

Mark Roberts  
QC Development  
Consultant for AT&T

Attachments

cc: Daniel M. Steward - as elected official and property owner  
American Tower - as tower owner (via e-mail)

## Power Density

### Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm <sup>2</sup> )	Freq. Band (MHz <sup>**</sup> )	Limit S (mW/cm <sup>2</sup> )	%MPE
Other Carriers*							5.18%
AT&T GSM	2	500	153	0.0166	880	0.5867	0.28%
AT&T UMTS	1	296	153	0.0049	880	0.5867	0.08%
AT&T UMTS	1	500	153	0.0083	1900	1.0000	0.08%
AT&T LTE	1	500	153	0.0083	700	0.4667	0.18%
AT&T LTE	1	500	153	0.0083	1900	1.0000	0.08%
AT&T LTE	1	500	153	0.0183	2100	1.0000	0.08%
Site Total							5.97%

\*Per CSC Records (available upon request, includes calculation formulas)

\*\* If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

### Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm <sup>2</sup> )	Freq. Band (MHz <sup>**</sup> )	Limit S (mW/cm <sup>2</sup> )	%MPE
Other Carriers*							5.18%
AT&T GSM	1	146	153	0.0024	880	0.5867	0.04%
AT&T UMTS	2	285	153	0.0095	880	0.5867	0.16%
AT&T UMTS	2	311	153	0.0104	1900	1.2667	0.08%
AT&T LTE	1	793	153	0.0132	700	0.4667	0.28%
AT&T LTE	1	1734	153	0.0289	1900	1.2667	0.23%
AT&T LTE	1	1991	153	0.0331	2100	1.4000	0.24%
AT&T LTE	1	1096	153	0.0182	2300	1.5333	0.12%
Site Total							6.33%

\*Per CSC Records (available upon request, includes calculation formulas)

\*\* If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Note: Proposed Loading may also include corrections to certain Existing Loading values



**PROJECT INFORMATION**

SCOPE OF WORK: TELECOMMUNICATIONS FACILITY UPGRADE (LTE 4C 2016 UPGRADE):

SITE ADDRESS: 15 MINER LANE  
WATERFORD, CT 06385

LATITUDE: 41.329103° N 41° 19' 44.77" N

LONGITUDE: 72.124610° W 72° 7' 28.59" W

TYPE OF SITE: MONOPOLE TOWER / INDOOR EQUIPMENT

TOWER HEIGHT: 181' ±

RAD CENTER: 153' ±

JURISDICTION: NATIONAL, STATE & LOCAL CODES OR ORDINANCES

CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY

NOC# 800-638-2822



**SITE NUMBER: CT2023**

**SITE NAME: WATERFORD**

**PROJECT: LTE 4C 2016 UPGRADE**

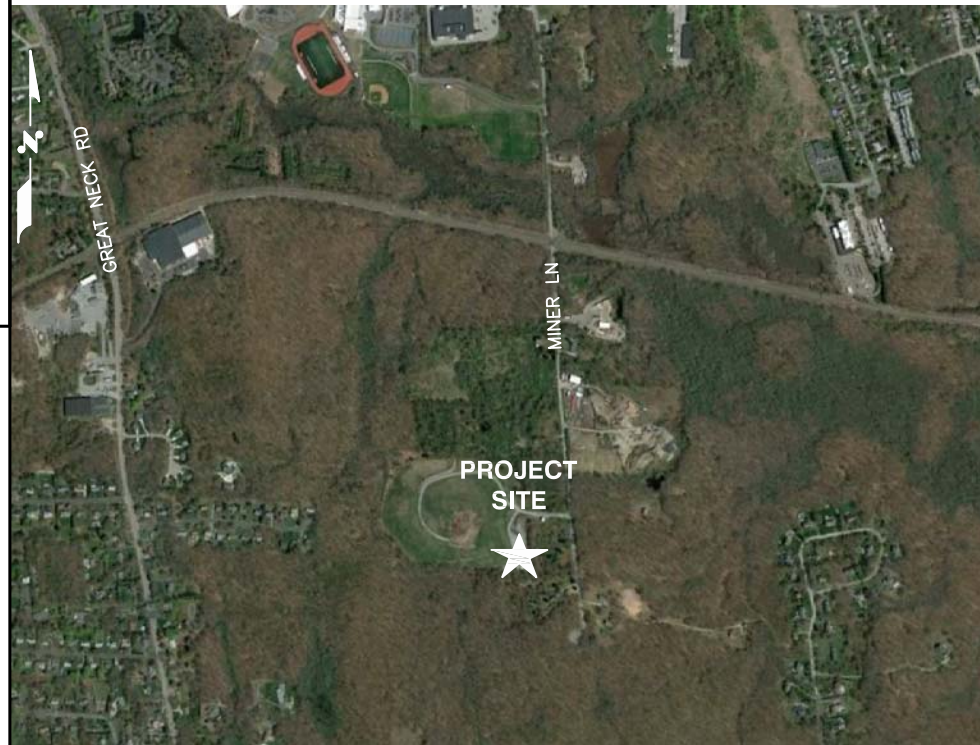
**DRAWING INDEX**

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

**VICINITY MAP**

**DIRECTIONS TO SITE:**

START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. 0.4 MI. TURN LEFT ONTO CAPITOL BLVD. 0.3 MI. TURN LEFT ONTO WEST ST. 0.3 MI. MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. 1.4 MI. MERGE ONTO CT-9 S VIA EXIT 22S ON THE LEFT TOWARD MIDDLETOWN / OLD SAYBROOK. 29.3 MI. MERGE ONTO I-95 N / GOVERNOR JOHN DAVIS LODGE TURNPIKE VIA THE EXIT ON THE LEFT TOWARD NEW LONDON / PROVIDENCE. 10.2 MI. TAKE THE US-1 EXIT, EXIT 75, TOWARD WATERFORD. 0.2 MI. TURN SLIGHT RIGHT ONTO BOSTON POST RD / US-1. 4.5 MI. TURN RIGHT ONTO MINER LN. 0.2 MI. 15 MINER LN IS ON THE RIGHT.



**GENERAL NOTES**

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

**ATC SITE NUMBER: 310972**  
**ATC SITE NAME: WATERFORD REBUILD CT**

**72 HOURS**



CALL TOLL FREE 1-888-DIG-SAFE  
OR CALL 811

**UNDERGROUND SERVICE ALERT**



1600 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 3090  
N. ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586



27 NORTHWESTERN DR.  
SALEM, NH 03079

**SITE NUMBER: CT2023**  
**SITE NAME: WATERFORD**  
**ATC SITE NUMBER: 310972**  
**15 MINER LANE**  
**WATERFORD, CT 06385**  
**NEW LONDON COUNTY**



500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

1		06/30/16	ISSUED FOR CONSTRUCTION	RB	AT	DPH		AT&T
A		06/10/16	ISSUED FOR REVIEW	EB	AT	DPH		TITLE SHEET (LTE 4C)
NO.	DATE	REVISIONS		BY	CHK	APP'D		
SCALE:		AS SHOWN		DESIGNED BY:		AT	DRAWN BY: EB	
SITE NUMBER		2023.00		DRAWING NUMBER		T-1		REV
								1

**GROUNDING NOTES**

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

**GENERAL NOTES**

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
 CONTRACTOR – SAI  
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)  
 OWNER – AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:  
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.  
 BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT, + 2009 & 2013 CT AMENDMENTS  
 ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS  
 LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

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

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

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

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

EQUIPMENT AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

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

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



1600 OSGOOD STREET  
 BUILDING 20 NORTH, SUITE 3090  
 N. ANDOVER, MA 01845  
 TEL: (978) 557-5553  
 FAX: (978) 336-5586



27 NORTHWESTERN DR.  
 SALEM, NH 03079

**SITE NUMBER: CT2023**  
**SITE NAME: WATERFORD**  
**ATC SITE NUMBER: 310972**  
**15 MINER LANE**  
**WATERFORD, CT 06385**  
**NEW LONDON COUNTY**



500 ENTERPRISE DRIVE, SUITE 3A  
 ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/30/16	ISSUED FOR CONSTRUCTION	RB	AT	DPH
A	06/10/16	ISSUED FOR REVIEW	EB	AT	DPH
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: EB		



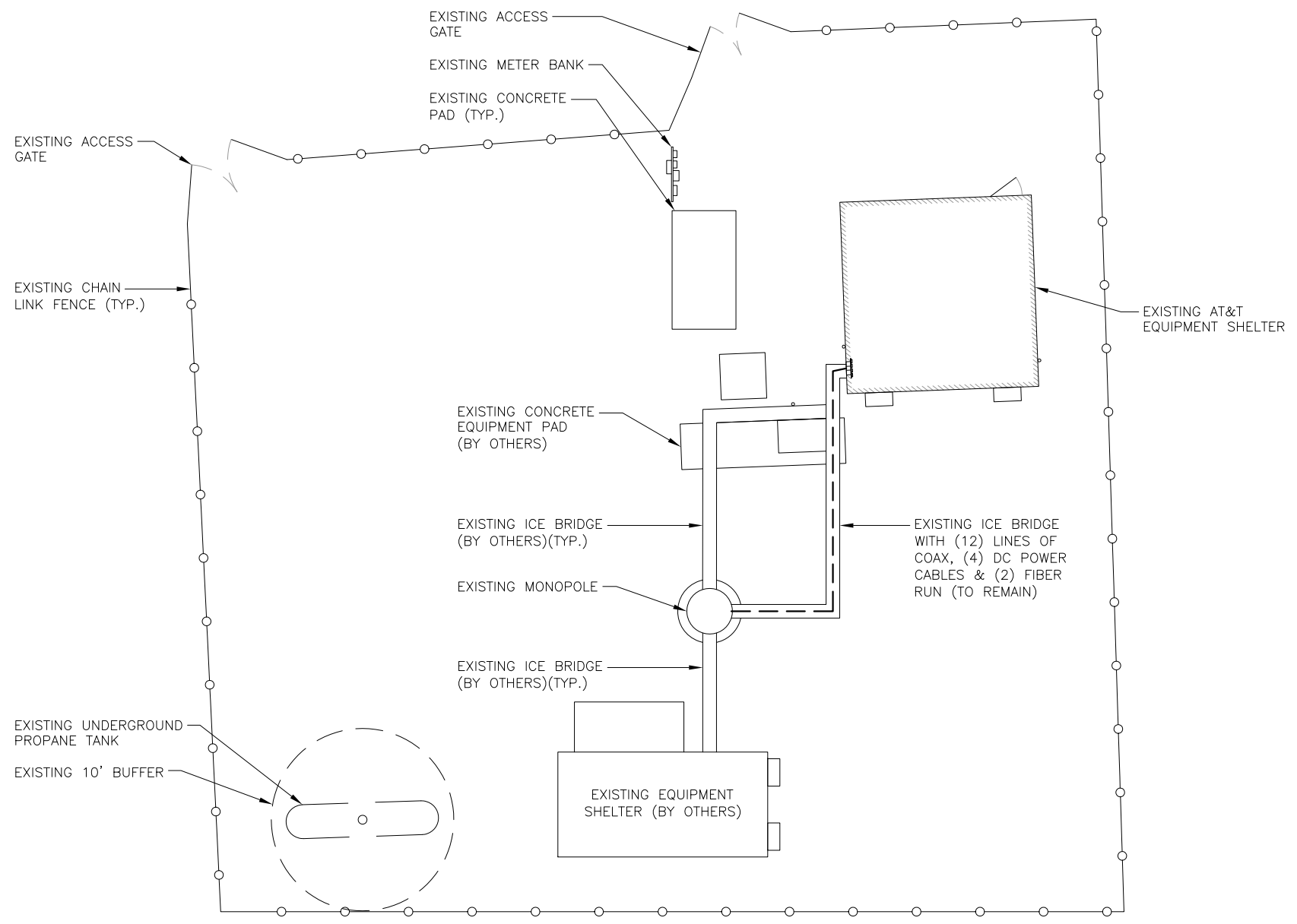
AT&T  
 GENERAL NOTES  
 (LTE 4C)

SITE NUMBER	DRAWING NUMBER	REV
2023.00	GN-1	1

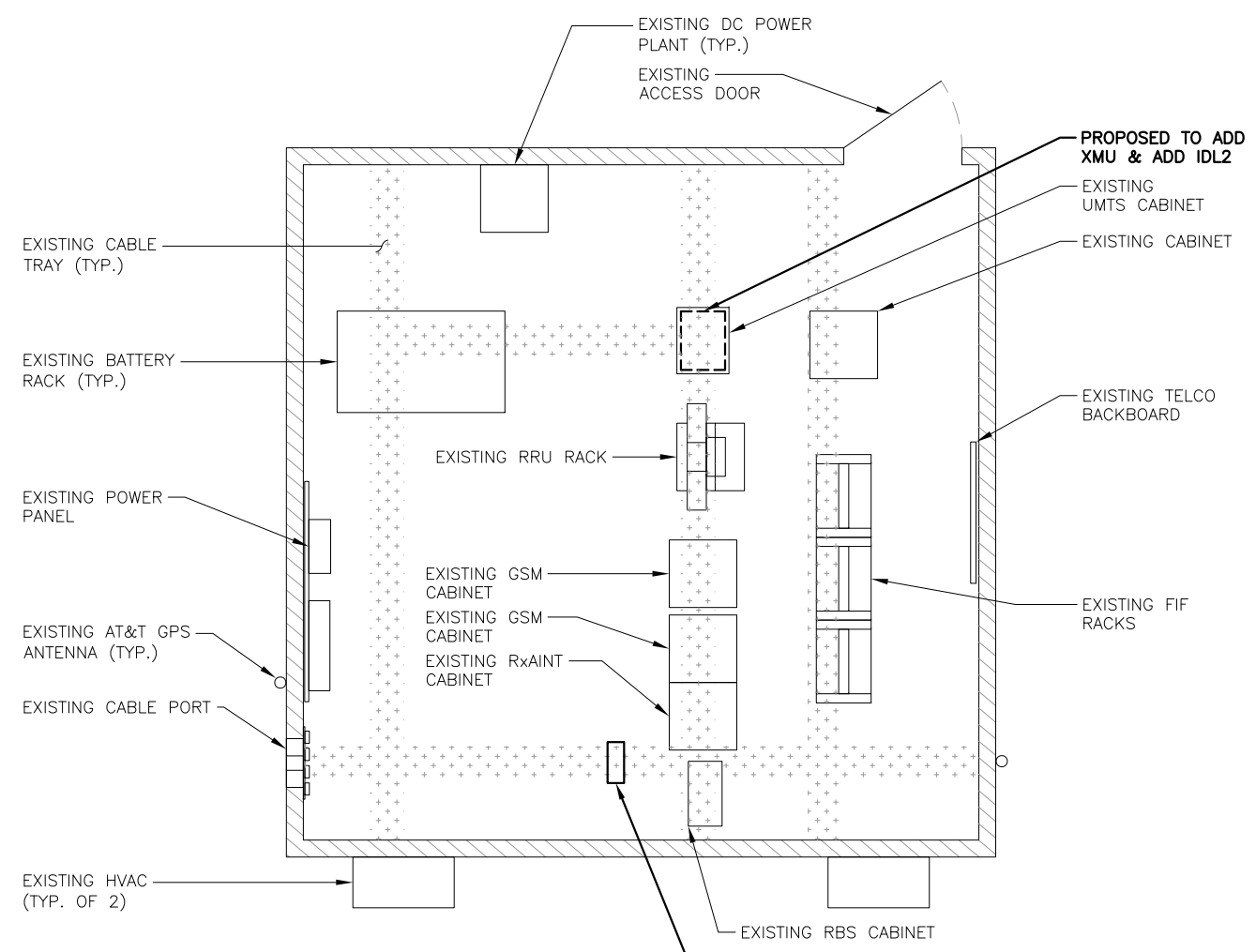
**NOTE:**  
 AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: JUNE 20, 2016

**NOTE:**  
 ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER AND FINAL AT&T RF DATA SHEET.

**NOTE:**  
 REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA CONFIGURATION.



**COMPOUND PLAN**  
 22x34 SCALE: 1/8"=1'-0"  
 11x17 SCALE: 1/16"=1'-0"  
 1 A-1



**EQUIPMENT PLAN**  
 22x34 SCALE: 3/8"=1'-0"  
 11x17 SCALE: 3/16"=1'-0"  
 2 A-1

**Hudson Design Group LLC**  
 1600 OSGOOD STREET  
 BUILDING 20 NORTH, SUITE 3090  
 N. ANDOVER, MA 01845  
 TEL: (978) 557-5553  
 FAX: (978) 336-5586

**SAI**  
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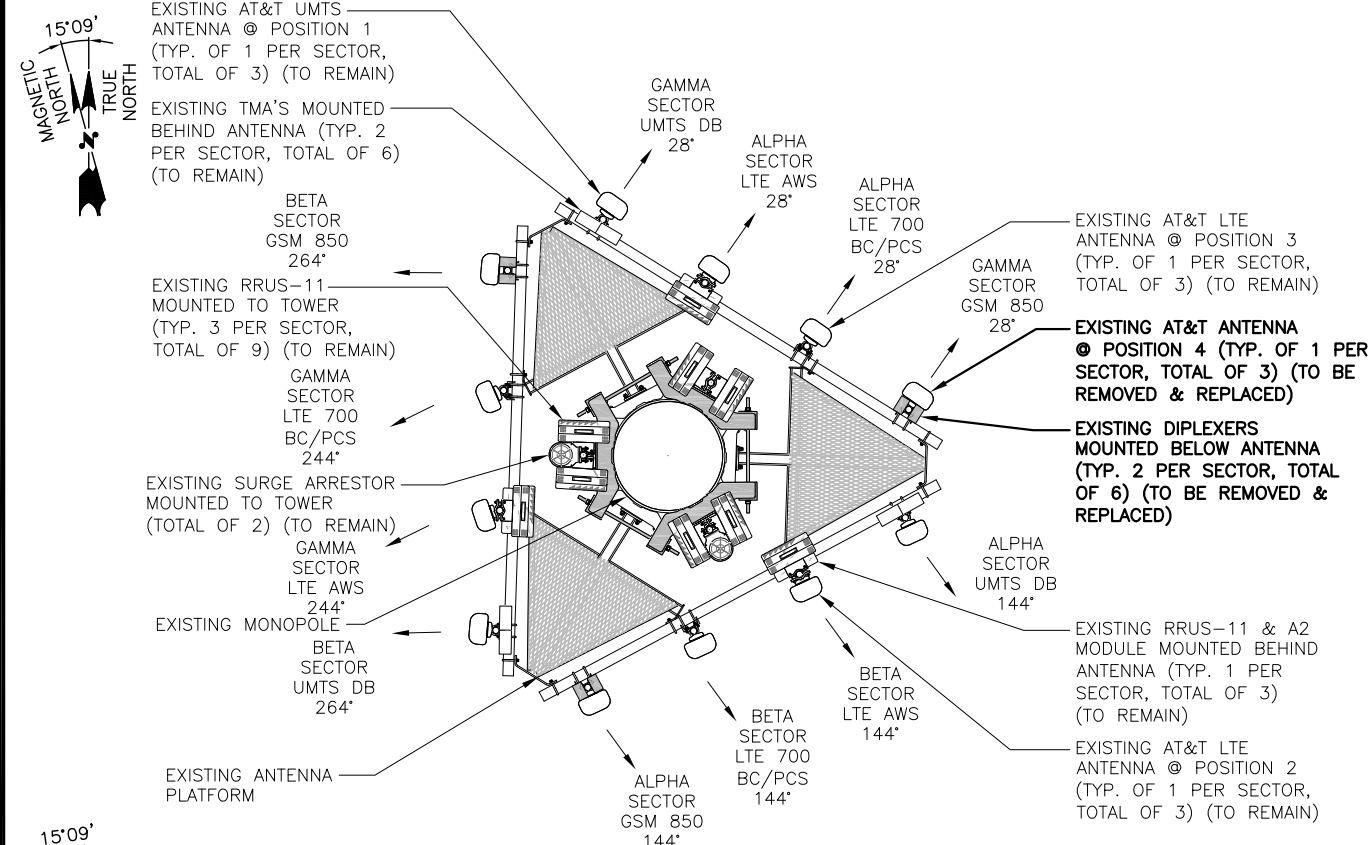
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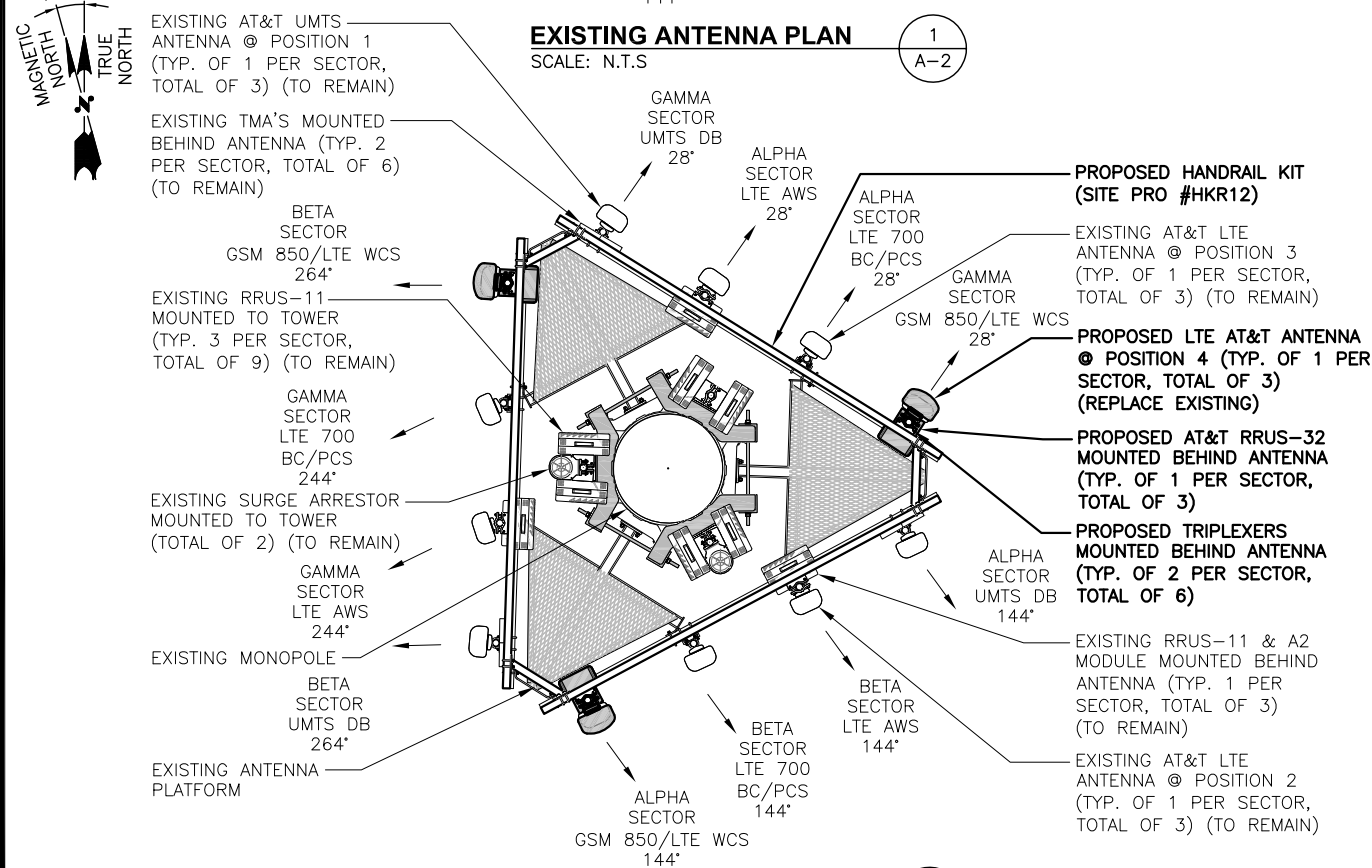


**AT&T**  
**COMPOUND & EQUIPMENT PLANS**  
**(LTE 4C)**  
 SITE NUMBER: 2023.00  
 DRAWING NUMBER: A-1  
 REV: 1

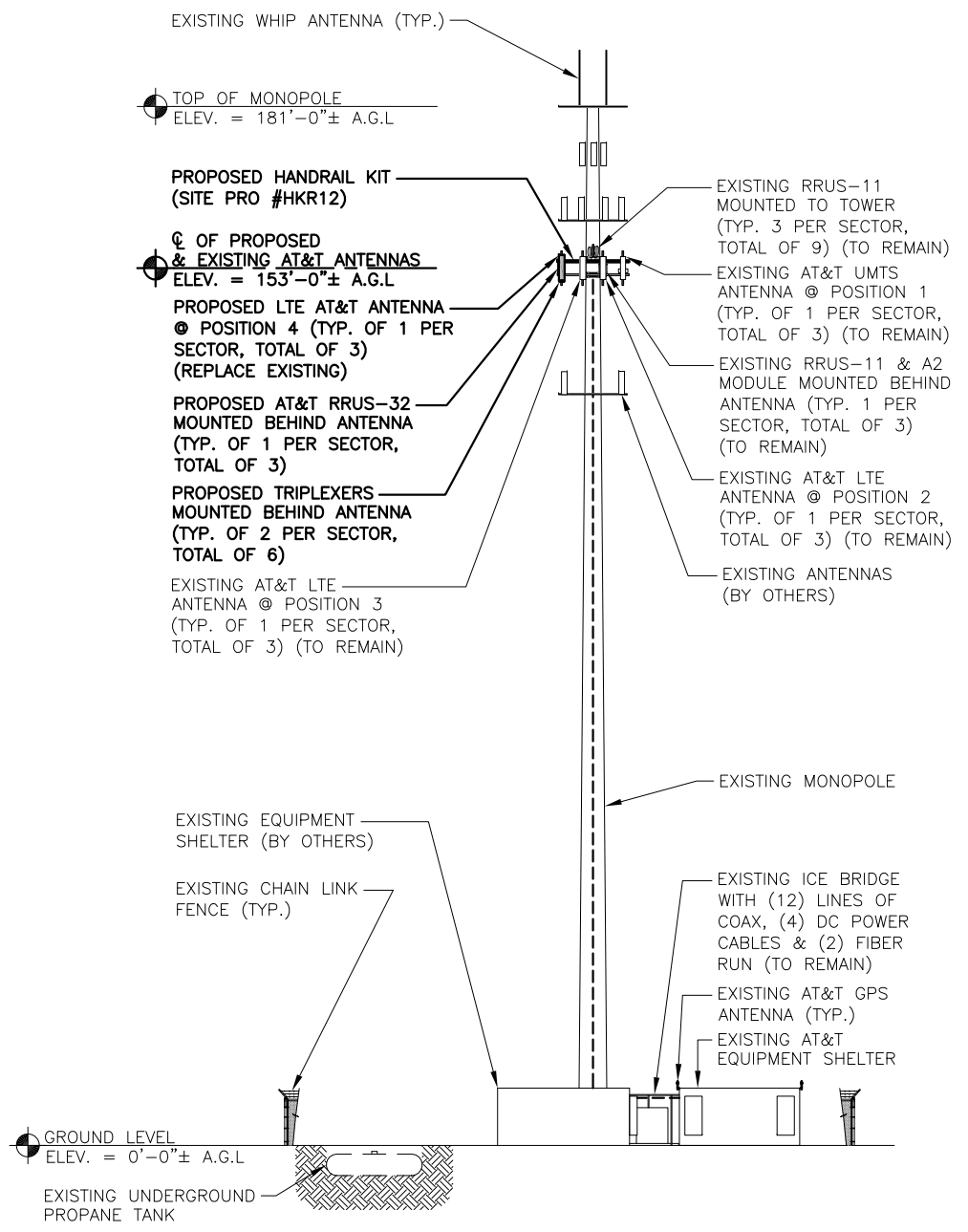




**EXISTING ANTENNA PLAN**  
SCALE: N.T.S



**PROPOSED ANTENNA PLAN**  
SCALE: N.T.S



**SOUTH ELEVATION**  
22x34 SCALE: 1/16"=1'-0"  
11x17 SCALE: 1/32"=1'-0"

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**AT&T**  
**ANTENNA LAYOUTS & ELEVATION**  
(LTE 4C)  
SITE NUMBER: 2023.00  
DRAWING NUMBER: A-2  
REV: 1

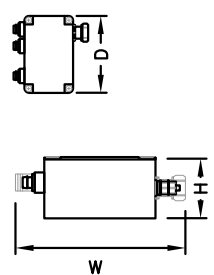
EXISTING ANTENNA SCHEDULE				PROPOSED ANTENNA SCHEDULE			
SECTOR	MAKE	MODEL#	SIZE (INCHES)	SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	POWERWAVE	7770	55X11X5	ALPHA:	POWERWAVE	7770	55X11X5
	ANDREW	SBNHH-1D65A	55X11.9X7.1		ANDREW	SBNHH-1D65A	55X11.9X7.1
	KMW	AM-X-CD-14-65-00T-RET	48X11.8X5.9		KMW	AM-X-CD-14-65-00T-RET	48X11.8X5.9
	POWERWAVE	7770	55X11X5		ANDREW	SBNHH-1D65A	55X11.9X7.1
BETA:	POWERWAVE	7770	55X11X5	BETA:	POWERWAVE	7770	55X11X5
	ANDREW	SBNHH-1D65A	55X11.9X7.1		ANDREW	SBNHH-1D65A	55X11.9X7.1
	KMW	AM-X-CD-14-65-00T-RET	48X11.8X5.9		KMW	AM-X-CD-14-65-00T-RET	48X11.8X5.9
	POWERWAVE	7770	55X11X5		ANDREW	SBNHH-1D65A	55X11.9X7.1
GAMMA:	POWERWAVE	7770	55X11X5	GAMMA:	POWERWAVE	7770	55X11X5
	ANDREW	SBNHH-1D65A	55X11.9X7.1		ANDREW	SBNHH-1D65A	55X11.9X7.1
	KMW	AM-X-CD-14-65-00T-RET	48X11.8X5.9		KMW	AM-X-CD-14-65-00T-RET	48X11.8X5.9
	POWERWAVE	7770	55X11X5		ANDREW	SBNHH-1D65A	55X11.9X7.1

**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: JUNE 20, 2016

**NOTE:**  
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER AND FINAL AT&T RF DATA SHEET.

**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA CONFIGURATION.

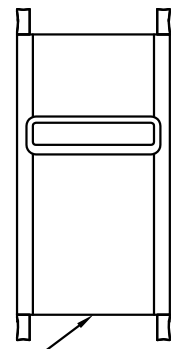
TRIPLEXERS DIMENSIONS	
MODEL #	TPX-070821
MANUF.	CCI
HEIGHT	5.83"
WIDTH	9.65"
DEPTH	2.05"
WEIGHT	7.5 LBS



**PROPOSED TRIPLEXERS**  
SCALE: N.T.S

RRU CHART				
QUANTITY	MODEL	L	W	D
9 (E)	RRUS-11	19.7"	17.0"	7.2"
-	RRUS-12	20.4"	18.5"	7.5"
3 (P)	RRUS-32	27.2"	12.1"	7.0"
-	RRUS-E2	20.4"	18.5"	7.5"
3 (E)	LTE-A2	16.4"	15.2"	3.4"

**NOTE:**  
MOUNT PER MANUFACTURER'S SPECIFICATIONS

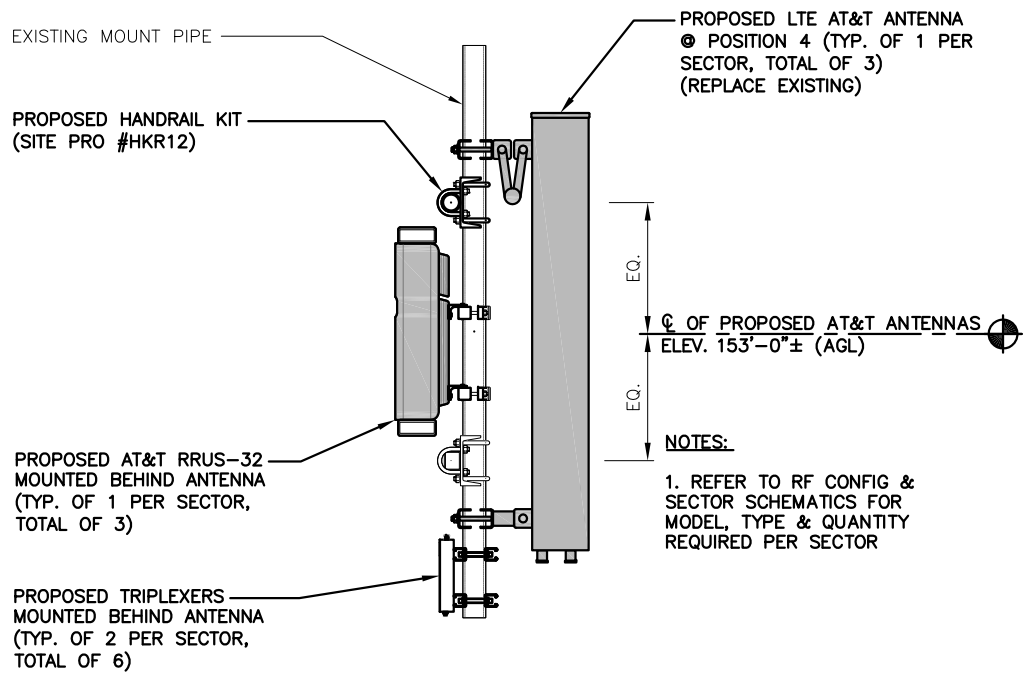


**NOTE:**  
SEE RFDS FOR RRU FREQUENCY AND MODEL NUMBER

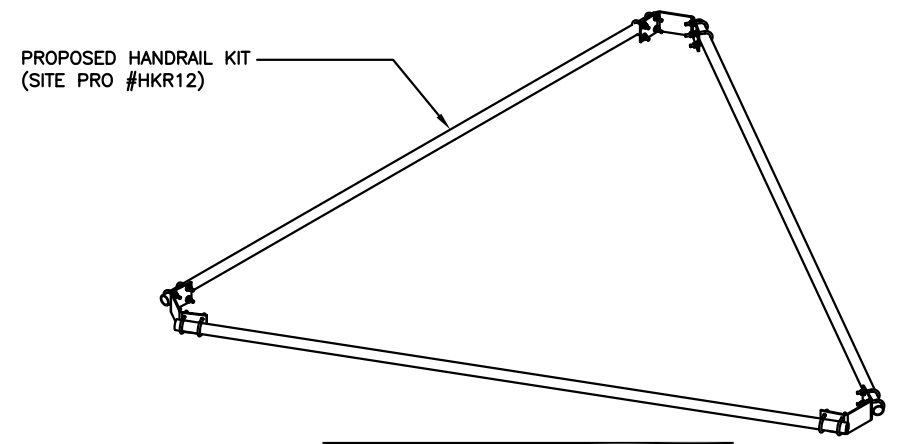
PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

**NOTE:**  
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

**RRU DETAIL**  
SCALE: N.T.S



**PROPOSED ANTENNA & RRU MOUNTING DETAIL**  
SCALE: N.T.S



**NOTE:**  
CONTRACTOR TO VERIFY FACE FRAME WIDTH PRIOR TO ORDERING HANDRAIL KIT

**PROPOSED HANDRAIL KIT**  
SCALE: N.T.S

**Hudson Design Group LLC**  
1600 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 3090  
N. ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

**SAI**  
27 NORTHWESTERN DR.  
SALEM, NH 03079

**SITE NUMBER: CT2023**  
**SITE NAME: WATERFORD**  
ATC SITE NUMBER: 310972  
15 MINER LANE  
WATERFORD, CT 06385  
NEW LONDON COUNTY

**at&t**  
500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/30/16	ISSUED FOR CONSTRUCTION	RB	AT	DPH
A	06/10/16	ISSUED FOR REVIEW	EB	AT	DPH

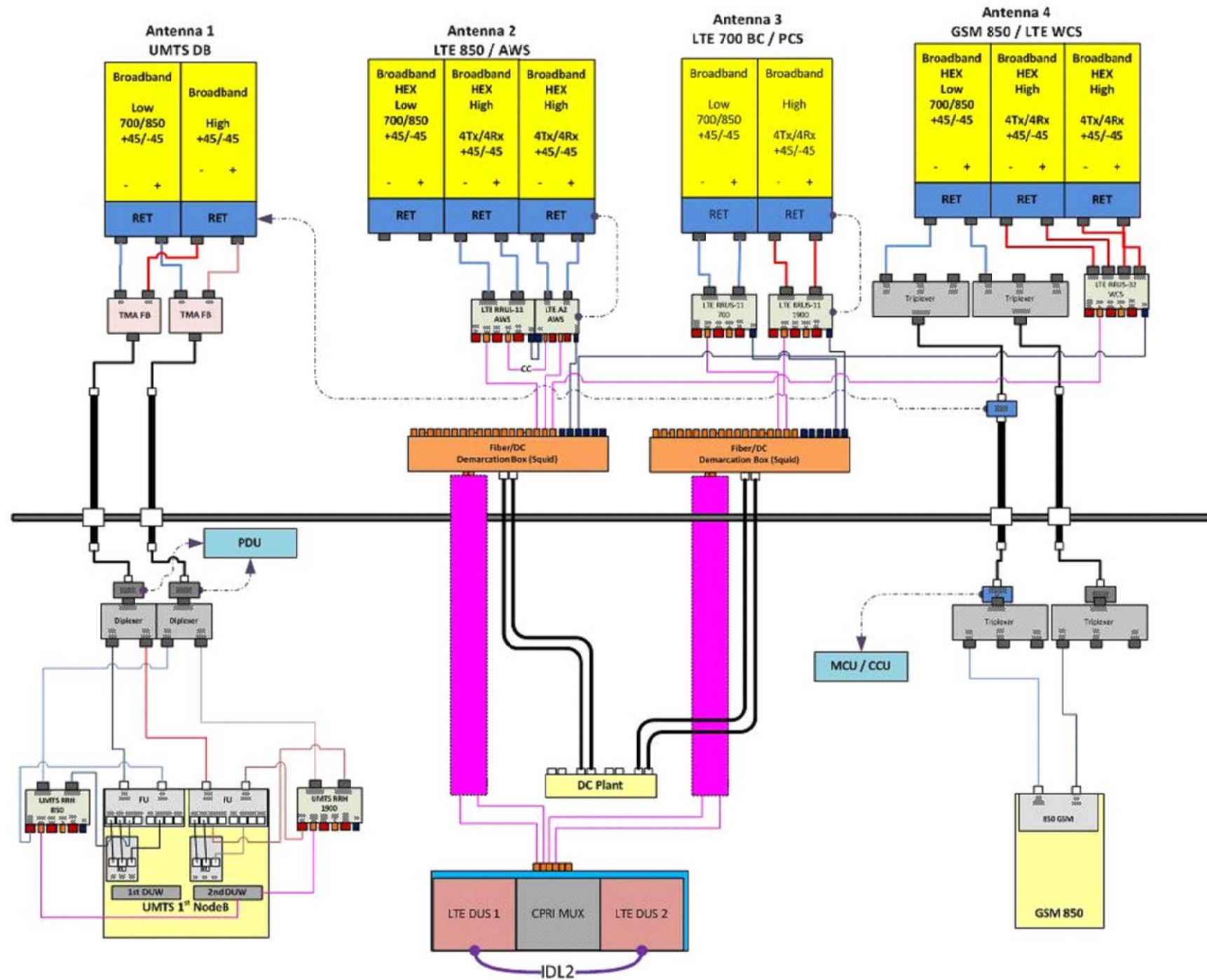
SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: EB

**AT&T**  
DETAILS  
(LTE 4C)

**Professional Engineer**  
DEREK J. CREASER  
16,295  
STATE OF CONNECTICUT  
LICENSED PROFESSIONAL ENGINEER

SITE NUMBER	DRAWING NUMBER	REV
2023.00	A-3	1



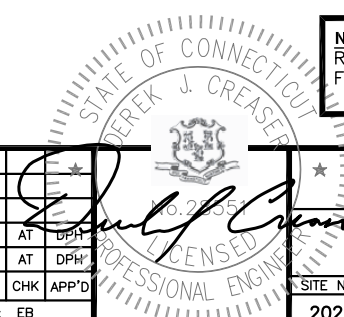


**RF PLUMBING DIAGRAM**  
SCALE: N.T.S.

1  
RF-1

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

**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



**Hudson Design Group LLC**  
1600 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 3090  
N. ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

**SAI**  
27 NORTHWESTERN DR.  
SALEM, NH 03079

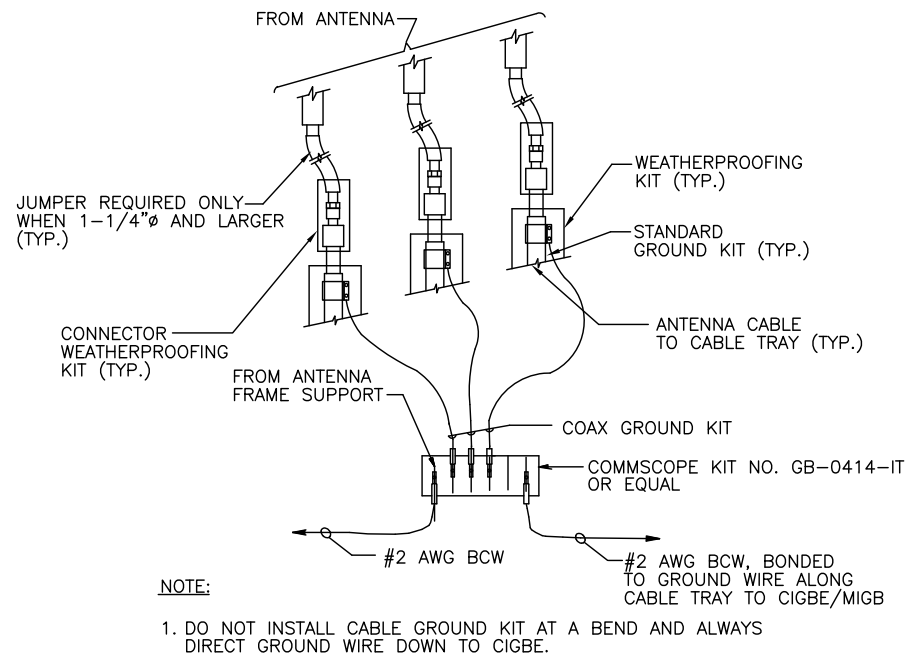
**SITE NUMBER: CT2023**  
**SITE NAME: WATERFORD**  
ATC SITE NUMBER: 310972  
15 MINER LANE  
WATERFORD, CT 06385  
NEW LONDON COUNTY

**at&t**  
500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

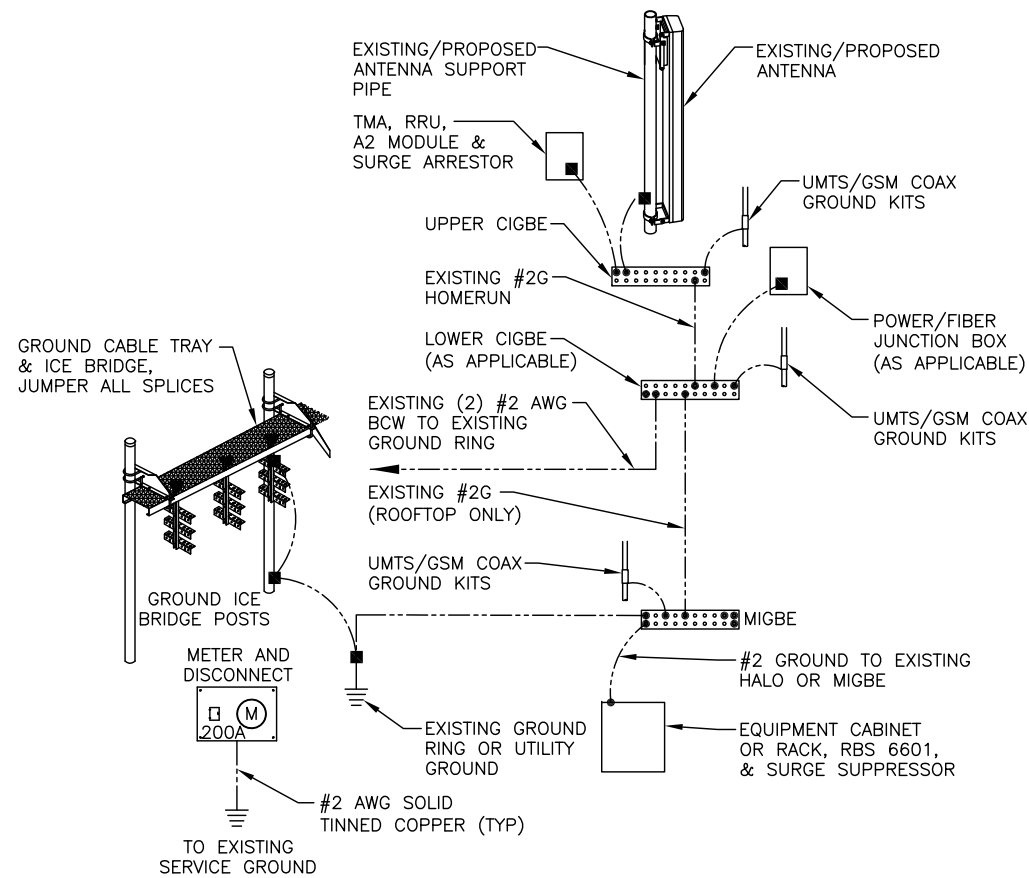
NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/30/16	ISSUED FOR CONSTRUCTION	RB	AT	DPH
A	06/10/16	ISSUED FOR REVIEW	EB	AT	DPH

SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: EB

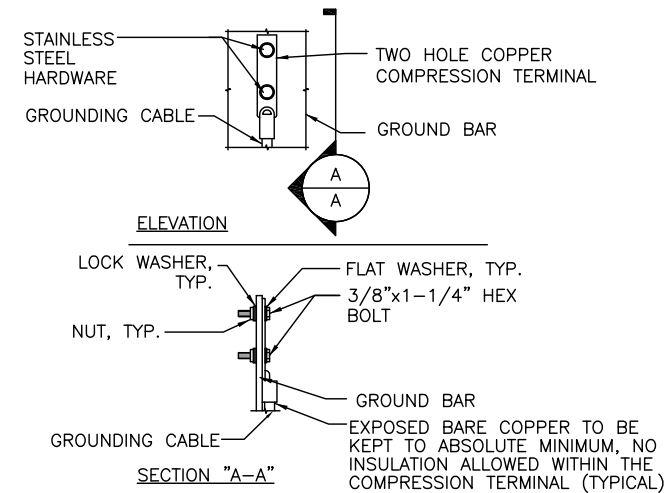
<b>AT&amp;T</b>		
RF PLUMBING DIAGRAM (LTE 4C)		
SITE NUMBER	DRAWING NUMBER	REV
2023.00	RF-1	1



**GROUND WIRE TO GROUND BAR CONNECTION DETAIL** 1  
SCALE: N.T.S. G-1



**GROUNDING RISER DIAGRAM** 2  
SCALE: N.T.S. G-1



- NOTE:
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
  - OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
  - CADWELDED DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

**TYPICAL GROUND BAR CONNECTION DETAIL** 3  
SCALE: N.T.S. G-1

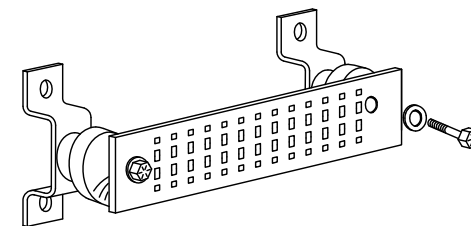
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

**SECTION "P" - SURGE PRODUCERS**

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

**SECTION "A" - SURGE ABSORBERS**

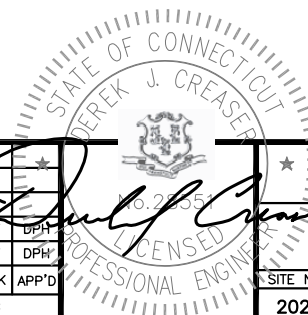
- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)



**GROUND BAR - DETAIL** 4  
SCALE: N.T.S. G-1

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/30/16	ISSUED FOR CONSTRUCTION	RB	AT	DPH
A	06/10/16	ISSUED FOR REVIEW	EB	AT	DPH

SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: EB



AT&T	
GROUNDING DETAILS (LTE 4C)	
SITE NUMBER	DRAWING NUMBER
2023.00	G-1
REV	1



**AMERICAN TOWER®**  
CORPORATION

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## Structural Analysis Report

**Structure** : 180 ft Monopole  
**ATC Site Name** : Waterford Rebuild CT, CT  
**ATC Site Number** : 310972  
**Engineering Number** : OAA671285\_C3\_01  
**Proposed Carrier** : AT&T Mobility  
**Carrier Site Name** : Waterford  
**Carrier Site Number** : CT2023/FA#10034987  
**Site Location** : 15 Miner Lane  
Waterford, CT 06385-3016  
41.329069,-72.124592  
**County** : New London  
**Date** : June 22, 2016  
**Max Usage** : 81%  
**Result** : Pass

Reviewed by:  
William Garrett, PE  
Chief Engineer



Prepared By:  
Christopher Clark Poe, E.I.  
Structural Engineer II

Jun 23 2016 2:40 PM

cosign

COA: PEC.0001553





**Table of Contents**

Introduction .....	1
Supporting Documents .....	1
Analysis .....	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
Equipment to be Removed.....	2
Proposed Equipment .....	2
Structure Usages .....	3
Foundations .....	3
Deflection, Twist, and Sway.....	3
Standard Conditions .....	4
Calculations .....	Attached



## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 180 ft monopole to reflect the change in loading by AT&T Mobility.

## Supporting Documents

<b>Tower Drawings</b>	FWT Job #23766000, dated July 18, 2001
<b>Foundation Drawing</b>	ATC Job #42693971, dated December 8, 2008
<b>Geotechnical Report</b>	Tower Engineering Professionals Project #082973.01, dated November 7, 2008
<b>Modifications</b>	ATC Job #442108F2, dated November 9, 2009

## Analysis

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

<b>Basic Wind Speed:</b>	120 mph (3-Second Gust)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	B
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Spectral Response:</b>	$S_s = 0.16$ , $S_1 = 0.06$
<b>Site Class:</b>	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](mailto: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 <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
180.0	180.0	1	Andrew DB806D-Y	Low Profile Platform	(2) 1 5/8" Coax (1) 7/8" Coax	Spok Holdings
	185.0	2	10' Omni			Town Of Waterford
	180.0	1	TTA			
170.0	170.0	3	KMW HB-X-WM-17-65-00T-TTLNA	Side Arms	(6) 1 5/8" Coax	Clearwire
		3	KMW HB-X-WM-17-65-00T			
164.0	164.0	2	RFS DB-T1-6Z-8AB-0Z	Low Profile Platform	-	Verizon
162.0	162.0	3	Alcatel-Lucent RRH 2X60-1900		-	
		3	Alcatel-Lucent RRH2X60-AWS		-	
		3	Alcatel-Lucent RRH2x60 700		-	
160.0	160.0	3	Antel BXA-70063/6CF_	(12) 1 5/8" Coax (2) 1 5/8" Fiber		
		3	Commscope LNX-6514DS-A1M			
		6	Commscope HBXX-6517DS-A2M			
158.0	158.0	1	12' Omni	Flush	(1) 1 1/4" Coax	USA Mobility
153.0	153.0	6	Powerwave 7020.00 Dual Band RET	Low Profile Platform	(12) 1 1/4" Coax (2) 0.74" 8 AWG 7	AT&T Mobility
		3	Ericsson RRUS 11 B4			
		3	KMW AM-X-CD-14-65-00T-RET			
		3	Powerwave 7770.00			
		3	Ericsson RRUS A2 B4			
		3	Commscope SBNHH-1D65A			
152.0	152.0	6	Powerwave LGP17201	-		
150.0	150.0	1	Raycap DC6-48-60-18-8F			
		1	Raycap DC6-48-60-18-8F ("Squid")			
		6	Ericsson RRUS 11 (Band 12)			
131.0	-	-	-	-	(1) 1 1/4" Hybriflex	
130.0	130.0	3	Ericsson KRY 112 144/1	T-Arms	(12) 1 5/8" Coax	T-Mobile
		3	Ericsson RRUS 11 B12			
		3	Ericsson AIR 21, 1.3 M, B2A B4P			
		3	Ericsson AIR 21, 1.3M, B4A B2P			
		3	Andrew LNX-6515DS-VTM			

**Equipment to be Removed**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
153.0	153.0	3	Powerwave 7770.00	-	(1) 0.28" RG-6	AT&T Mobility
		6	Powerwave LGP21901			

**Proposed Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
153.0	153.0	3	Ericsson RRUS 32 B30	Low Profile Platform	(2) 0.39" Fiber Trunk	AT&T Mobility
		3	Commscope SBNHH-1D65A			
152.0	152.0	6	CCI TPX-070821	-		
150.0	-	-	-	-	(2) 0.78" 8 AWG 6	

<sup>1</sup>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).

Install proposed coax inside the pole shaft.





**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	76%	Pass
Shaft	77%	Pass
Base Plate	33%	Pass
Flanges	28%	Pass

**Foundations**

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	5,588.0	75%
Shear (Kips)	45.2	81%

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

**Deflection and Sway\***

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
153.0	Ericsson RRUS 32 B30	AT&T Mobility	1.217	0.862
	Commscope SBNHH-1D65A			
152.0	CCI TPX-070821		1.202	0.858

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



## **Standard Conditions**

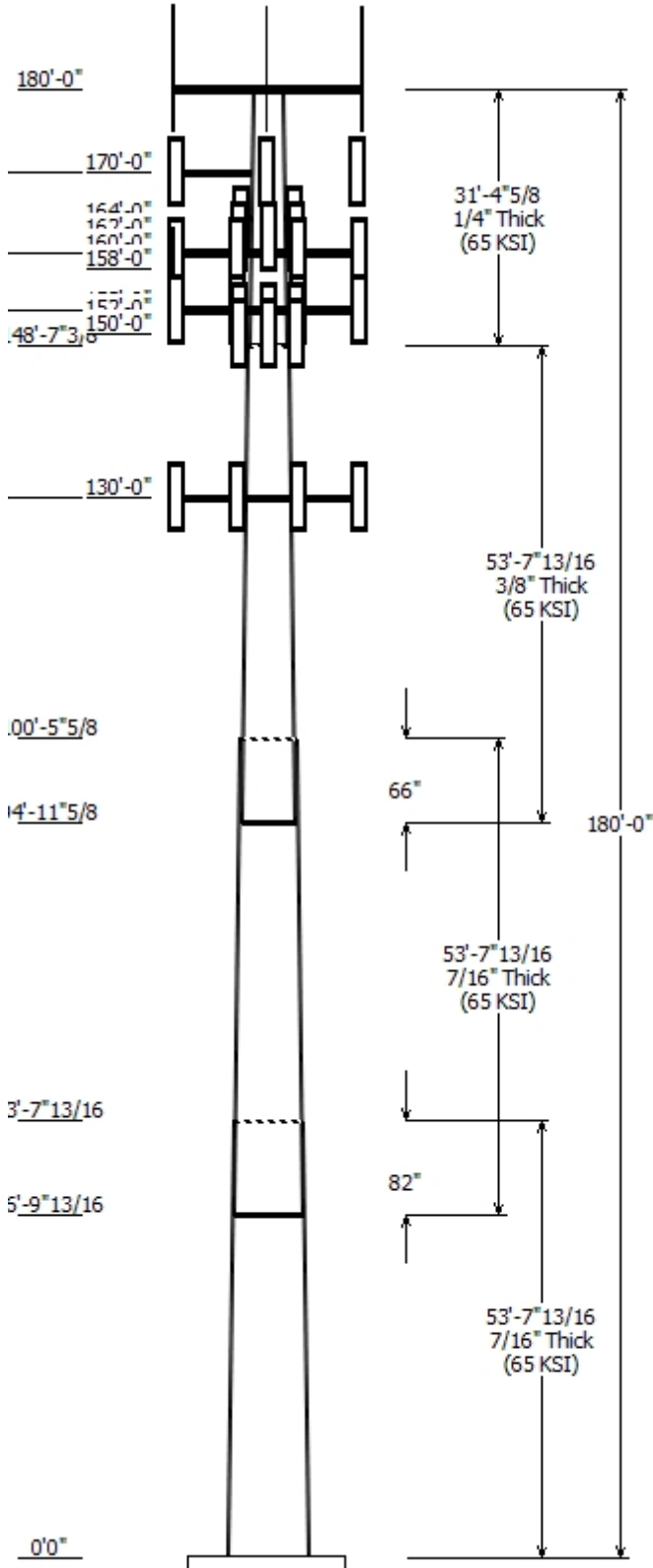
All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

- 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.



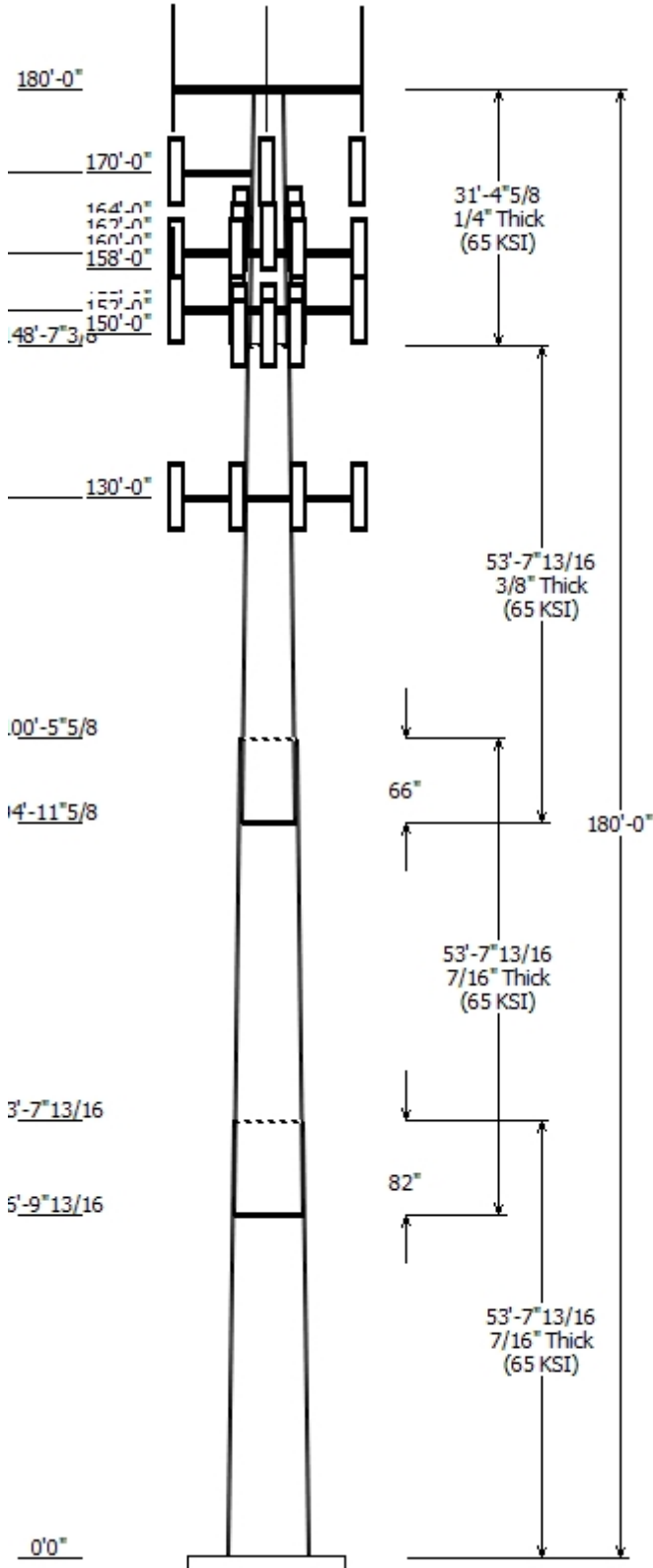
Job Information	
Pole :	310972
Code :	ANSI/TIA-222-G
Description :	180' FWT monopole
Client :	AT&T Mobility
Struct Class :	II
Location :	Waterford Rebuild CT, CT
Shape :	18 Sides
Exposure :	B
Height :	180.00 (ft)
Topo :	1
Base Elev (ft):	0.00
Taper:	0.22873(in/ft)

Sections Properties								
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap		Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom			Length (in)	Taper (in/ft)	
1	53.650	50.67	62.95	0.438		0.000	0.228700	65
2	53.650	40.84	53.11	0.438	Slip Joint	82.000	0.228700	65
3	53.650	30.58	42.85	0.375	Slip Joint	66.000	0.228700	65
4	31.383	23.40	30.58	0.250	Butt Joint	0.000	0.228700	65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.000	180.000	1	TTA
180.000	185.000	2	10' Omni
180.000	180.000	1	Andrew DB806D-Y
180.000	180.000	1	Round Low Profile Platform
170.000	170.000	1	Side Arms
170.000	170.000	3	KMW HB-X-WM-17-65-00T-
170.000	170.000	3	KMW HB-X-WM-17-65-00T
164.000	164.000	2	RFS DB-T1-6Z-8AB-0Z
162.000	162.000	3	Alcatel-Lucent RRH2x60 700
162.000	162.000	3	Alcatel-Lucent RRH2X60-AWS
162.000	162.000	3	Alcatel-Lucent RRH 2X60-1900
160.000	160.000	6	Commscope HBXX-6517DS-
160.000	160.000	3	Commscope LNX-6514DS-A1M
160.000	160.000	1	Round Low Profile Platform
160.000	160.000	3	Antel BXA-70063/6CF_
158.000	158.000	1	12' Omni
153.000	153.000	3	Ericsson RRUS 11 B4
153.000	153.000	3	Ericsson RRUS 32 B30
153.000	153.000	3	Commscope SBNHH-1D65A
153.000	153.000	1	Flat Low Profile Platform
153.000	153.000	3	Commscope SBNHH-1D65A
153.000	153.000	3	Powerwave Allgon 7770.00
153.000	153.000	3	KMW AM-X-CD-14-65-00T-RET
153.000	153.000	3	Ericsson RRUS A2 B4
153.000	153.000	6	Powerwave Allgon 7020.00
152.000	152.000	6	CCI TPX-070821
152.000	152.000	6	Powerwave Allgon LGP17201
150.000	150.000	1	Raycap DC6-48-60-18-8F
150.000	150.000	1	Raycap DC6-48-60-18-8F
150.000	150.000	6	Ericsson RRUS 11 (Band 12)
130.000	130.000	3	Flat T-Arm
130.000	130.000	3	Andrew LNX-6515DS-VTM
130.000	130.000	3	Ericsson AIR 21, 1.3M, B4A B2P
130.000	130.000	3	Ericsson AIR 21, 1.3 M, B2A B4
130.000	130.000	3	Ericsson RRUS 11 B12
130.000	130.000	3	Ericsson KRY 112 144/1

Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
0.000	130.0	1 5/8" Coax	No
0.000	131.0	1 1/4" Hybriflex	No



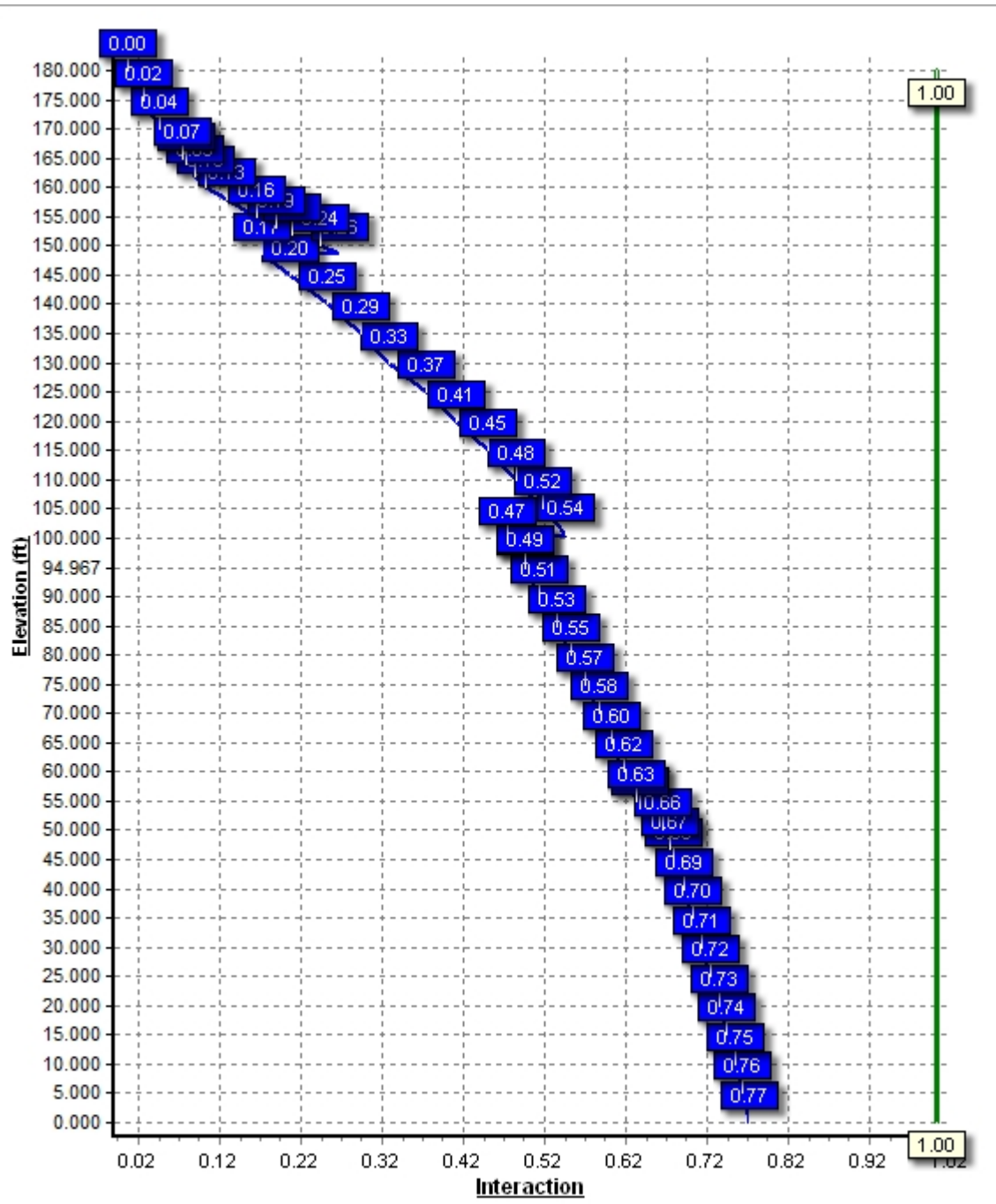


0.000	150.0	0.78" 8 AWG 6	No
0.000	153.0	0.39" Fiber Trunk	No
0.000	153.0	0.74" 8 AWG 7	No
0.000	153.0	1 1/4" Coax	No
0.000	158.0	1 1/4" Coax	No
0.000	160.0	1 5/8" Coax	No
0.000	160.0	1 5/8" Fiber	No
0.000	170.0	1 5/8" Coax	No
0.000	180.0	1 5/8" Coax	No
0.000	180.0	7/8" Coax	No

Load Cases	
1.2D + 1.6W	120 mph with No Ice
0.9D + 1.6W	120 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	5587.97	45.24	62.06
0.9D + 1.6W	5531.29	45.22	46.53
1.2D + 1.0Di + 1.0Wi	1054.50	8.56	90.48
(1.2 + 0.2Sds) * DL + E ELFM	280.66	2.02	61.84
(1.2 + 0.2Sds) * DL + E EMAM	263.13	2.09	61.84
(0.9 - 0.2Sds) * DL + E ELFM	277.27	2.02	43.39
(0.9 - 0.2Sds) * DL + E EMAM	259.79	2.09	43.39
1.0D + 1.0W	868.30	7.07	51.78

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



Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:33 AM

Customer: AT&T Mobility

**Analysis Parameters**

Location:	New London County, CT		
Code:	ANSI/TIA-222-G	Height (ft):	180
Shape:	18 Sides	Base Diameter (in):	62.95
Pole Type:	Taper	Top Diameter (in):	23.40
Pole Manufacturer:	FWT Inc	Taper (in/ft) :	0.229

**Ice & Wind Parameters**

Structure Class:	II	Design Wind Speed Without Ice:	120 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	0.75 in

**Seismic Parameters**

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	2.34		
T <sub>L</sub> (sec):	6	p:	1.3
S <sub>s</sub> :	0.160	S <sub>1</sub> :	0.058
F <sub>a</sub> :	1.600	F <sub>v</sub> :	2.400
S <sub>ds</sub> :	0.171	S <sub>d1</sub> :	0.093
		C <sub>s</sub> :	0.030
		C <sub>s</sub> Max:	0.030
		C <sub>s</sub> Min:	0.030

**Load Cases**

1.2D + 1.6W	120 mph with No Ice
0.9D + 1.6W	120 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



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**Shaft Section Properties**

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	53.650	0.4375	65		0.00	14,291	62.95	0.00	86.80	42857.1	23.96	143.89	50.67	53.65	69.76	22247.9	19.01	115.84	0.228739
2-18	53.650	0.4375	65	Slip	82.00	11,798	53.11	46.82	73.15	25646.5	20.00	121.41	40.84	100.47	56.11	11574.1	15.05	93.36	0.228739
3-18	53.650	0.3750	65	Slip	66.00	7,896	42.85	94.97	50.56	11525.2	18.74	114.27	30.58	148.62	35.95	4144.2	12.97	81.55	0.228739
4-18	31.383	0.2500	65	Butt	0.00	2,266	30.58	148.62	24.07	2797.2	20.16	122.32	23.40	180.00	18.37	1244.1	15.10	93.61	0.228739
Shaft Weight						36,252													

**Discrete Appurtenance Properties**

Attach Elev (ft)	Description	Qty	No Ice			Ice			Distance From Face (ft)	Vert Ecc (ft)
			Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor		
180.00	10' Omni	2	25.00	3.000	1.00	161.76	5.977	1.00	0.000	5.000
180.00	Andrew DB806D-Y	1	27.00	3.380	1.00	180.24	7.023	1.00	0.000	0.000
180.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,160.24	41.265	1.00	0.000	0.000
180.00	TTA	1	10.00	1.200	0.50	56.83	1.675	0.50	0.000	0.000
170.00	KMW HB-X-WM-17-65-00T	3	30.00	1.920	1.00	142.94	4.246	1.00	0.000	0.000
170.00	KMW HB-X-WM-17-65-00T-Side Arms	3	15.90	0.970	0.50	51.27	1.426	0.50	0.000	0.000
170.00	RFS DB-T1-6Z-8AB-0Z	2	44.00	4.800	0.67	183.27	5.681	0.67	0.000	0.000
162.00	Alcatel-Lucent RRH 2X60-	3	39.60	1.880	0.50	107.20	2.464	0.50	0.000	0.000
162.00	Alcatel-Lucent RRH2x60 700	3	56.70	2.150	0.67	141.41	2.809	0.67	0.000	0.000
162.00	Alcatel-Lucent RRH2X60-	3	44.00	1.880	0.50	111.60	2.464	0.50	0.000	0.000
160.00	Antel BXA-70063/6CF	3	17.00	7.570	0.75	185.42	8.827	0.75	0.000	0.000
160.00	Commscope HBXX-6517DS-	6	40.80	8.530	0.81	218.10	10.944	0.81	0.000	0.000
160.00	Commscope LNX-6514DS-	3	38.80	8.170	0.83	243.66	9.486	0.83	0.000	0.000
160.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,153.01	41.051	1.00	0.000	0.000
158.00	12' Omni	1	40.00	3.600	1.00	200.29	7.652	1.00	0.000	0.000
153.00	Commscope SBNHH-1D65A	3	33.50	5.880	0.83	297.64	8.622	0.83	0.000	0.000
153.00	Commscope SBNHH-1D65A	3	33.50	5.880	0.83	297.64	8.622	0.83	0.000	0.000
153.00	Ericsson RRUS 11 B4	3	50.70	2.790	0.67	137.30	3.471	0.67	0.000	0.000
153.00	Ericsson RRUS 32 B30	3	60.00	2.690	0.67	145.62	3.418	0.67	0.000	0.000
153.00	Ericsson RRUS A2 B4	3	22.00	2.060	0.67	77.50	2.664	0.67	0.000	0.000
153.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,150.29	45.263	1.00	0.000	0.000
153.00	KMW AM-X-CD-14-65-00T-	3	36.40	4.990	0.78	167.96	5.977	0.78	0.000	0.000
153.00	Powerwave Allgon 7020.00	6	2.20	0.400	0.50	17.99	0.624	0.50	0.000	0.000
153.00	Powerwave Allgon 7770.00	3	35.00	5.510	0.77	170.36	6.562	0.77	0.000	0.000
152.00	CCI TPX-070821	6	7.50	0.550	0.50	30.40	0.906	0.50	0.000	0.000
152.00	Powerwave Allgon LGP17201	6	31.00	1.670	0.50	79.59	2.211	0.50	0.000	0.000
150.00	Ericsson RRUS 11 (Band 12)	6	50.00	2.570	0.67	131.45	3.221	0.67	0.000	0.000
150.00	Raycap DC6-48-60-18-8F	1	20.00	1.110	1.00	100.47	2.521	1.00	0.000	0.000
150.00	Raycap DC6-48-60-18-8F	1	31.80	1.280	1.00	124.70	2.853	1.00	0.000	0.000
130.00	Andrew LNX-6515DS-VTM	3	51.30	11.430	0.84	309.71	13.066	0.84	0.000	0.000
130.00	Ericsson AIR 21, 1.3 M, B2A	3	83.00	6.050	0.86	248.80	7.129	0.86	0.000	0.000
130.00	Ericsson AIR 21, 1.3M, B4A	3	81.50	6.090	0.85	247.25	7.174	0.85	0.000	0.000
130.00	Ericsson KRY 112 144/1	3	11.00	0.410	0.50	26.99	0.629	0.50	0.000	0.000
130.00	Ericsson RRUS 11 B12	3	50.70	2.790	0.67	135.41	3.458	0.67	0.000	0.000
130.00	Flat T-Arm	3	250.00	12.900	0.67	456.05	20.963	0.67	0.000	0.000
Totals		103	9237.60			22,820.81			Number of Loadings :	36

**Linear Appurtenance Properties**

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	180.00	2	1 5/8" Coax	1.98	0.82	N	0.00	N	Town of Waterford

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0.00	180.00	1 7/8" Coax	1.09	0.33	N	0.00	N	Spok Holdings
0.00	170.00	6 1 5/8" Coax	1.98	0.82	N	0.00	N	Clearwire Corporation
0.00	160.00	12 1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon Wireless
0.00	160.00	2 1 5/8" Fiber	1.63	1.61	N	0.00	N	Verizon Wireless
0.00	158.00	1 1 1/4" Coax	1.55	0.63	N	0.00	N	USA Mobility
0.00	153.00	2 0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility
0.00	153.00	2 0.74" 8 AWG7	0.74	0.49	N	0.00	N	AT&T Mobility
0.00	153.00	12 1 1/4" Coax	1.55	0.63	N	0.00	N	AT&T Mobility
0.00	150.00	2 0.78" 8 AWG6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	131.00	1 1 1/4" Hybriflex	1.54	1.00	N	0.00	N	T-Mobile
0.00	130.00	12 1 5/8" Coax	1.98	0.82	N	0.00	N	T-Mobile

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**Segment Properties** (Max Len : 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Fy (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)
0.00		0.4375	62.950	86.803	42,857.1	23.96	143.89	73.2	1340.	0.0	0.0
5.00		0.4375	61.806	85.215	40,547.6	23.50	141.27	73.8	1292.	0.0	1,463.4
10.00		0.4375	60.663	83.627	38,322.6	23.04	138.66	74.3	1244.	0.0	1,436.3
15.00		0.4375	59.519	82.039	36,180.5	22.58	136.04	74.8	1197.	0.0	1,409.3
20.00		0.4375	58.375	80.451	34,119.8	22.12	133.43	75.4	1151.	0.0	1,382.3
25.00		0.4375	57.232	78.863	32,138.8	21.66	130.81	75.9	1106.	0.0	1,355.3
30.00		0.4375	56.088	77.275	30,236.1	21.19	128.20	76.5	1061.	0.0	1,328.3
35.00		0.4375	54.944	75.687	28,409.9	20.73	125.59	77.0	1018.	0.0	1,301.2
40.00		0.4375	53.800	74.098	26,658.9	20.27	122.97	77.6	976.0	0.0	1,274.2
45.00		0.4375	52.657	72.510	24,981.2	19.81	120.36	78.1	934.4	0.0	1,247.2
46.82	Bot - Section 2	0.4375	52.241	71.933	24,389.6	19.64	119.41	78.3	919.5	0.0	446.5
50.00		0.4375	51.513	70.922	23,375.5	19.35	117.74	78.6	893.8	0.0	1,560.6
53.65	Top - Section 1	0.4375	51.553	70.978	23,430.6	19.37	117.84	78.6	895.2	0.0	1,762.4
55.00		0.4375	51.244	70.549	23,008.6	19.24	117.13	78.8	884.4	0.0	325.1
60.00		0.4375	50.101	68.961	21,489.5	18.78	114.52	79.3	844.8	0.0	1,186.8
65.00		0.4375	48.957	67.373	20,038.7	18.32	111.90	79.9	806.2	0.0	1,159.8
70.00		0.4375	47.813	65.785	18,654.8	17.86	109.29	80.4	768.5	0.0	1,132.8
75.00		0.4375	46.670	64.197	17,336.2	17.40	106.67	80.9	731.6	0.0	1,105.7
80.00		0.4375	45.526	62.609	16,081.1	16.94	104.06	81.5	695.7	0.0	1,078.7
85.00		0.4375	44.382	61.020	14,888.2	16.48	101.45	82.0	660.7	0.0	1,051.7
90.00		0.4375	43.238	59.432	13,755.7	16.02	98.83	82.6	626.6	0.0	1,024.7
94.97	Bot - Section 3	0.4375	42.102	57.855	12,689.2	15.56	96.23	82.6	593.6	0.0	991.1
95.00		0.4375	42.095	57.844	12,682.2	15.55	96.22	82.6	593.4	0.0	12.3
100.0		0.4375	40.951	56.256	11,666.1	15.09	93.60	82.6	561.1	0.0	1,819.1
100.4	Top - Section 2	0.3750	41.594	49.060	10,531.2	18.15	110.92	80.1	498.7	0.0	167.2
105.0		0.3750	40.557	47.825	9,756.3	17.66	108.15	80.6	473.8	0.0	747.3
110.0		0.3750	39.414	46.464	8,946.7	17.12	105.10	81.3	447.1	0.0	802.1
115.0		0.3750	38.270	45.103	8,183.2	16.58	102.05	81.9	421.2	0.0	779.0
120.0		0.3750	37.126	43.742	7,464.4	16.05	99.00	82.5	396.0	0.0	755.8
125.0		0.3750	35.983	42.380	6,789.0	15.51	95.95	82.6	371.6	0.0	732.6
130.0		0.3750	34.839	41.019	6,155.6	14.97	92.90	82.6	348.0	0.0	709.5
135.0		0.3750	33.695	39.658	5,562.9	14.43	89.85	82.6	325.2	0.0	686.3
140.0		0.3750	32.552	38.297	5,009.5	13.90	86.80	82.6	303.1	0.0	663.2
145.0		0.3750	31.408	36.936	4,494.1	13.36	83.75	82.6	281.8	0.0	640.0
148.6	Top - Section 3	0.3750	30.581	35.951	4,144.2	12.97	81.55	82.6	266.9	0.0	448.5
148.6	Bot - Section 4	0.2500	30.581	24.066	2,797.2	20.16	122.32	77.7	180.2	0.0	
150.0		0.2500	30.264	23.815	2,710.6	19.93	121.06	78.0	176.4	0.0	112.7
152.0		0.2500	29.807	23.452	2,588.5	19.61	119.23	78.3	171.0	0.0	160.8
153.0		0.2500	29.578	23.271	2,528.9	19.45	118.31	78.5	168.4	0.0	79.5
155.0		0.2500	29.120	22.908	2,412.4	19.13	116.48	78.9	163.2	0.0	157.1
158.0		0.2500	28.434	22.363	2,244.4	18.64	113.74	79.5	155.5	0.0	231.1
160.0		0.2500	27.977	22.000	2,136.9	18.32	111.91	79.9	150.4	0.0	151.0
162.0		0.2500	27.519	21.637	2,032.9	18.00	110.08	80.2	145.5	0.0	148.5
164.0		0.2500	27.062	21.274	1,932.3	17.68	108.25	80.6	140.6	0.0	146.0
165.0		0.2500	26.833	21.093	1,883.2	17.51	107.33	80.8	138.2	0.0	72.1
170.0		0.2500	25.689	20.185	1,650.5	16.71	102.76	81.7	126.5	0.0	351.2
175.0		0.2500	24.546	19.278	1,437.7	15.90	98.18	82.6	115.4	0.0	335.7
180.0		0.2500	23.402	18.370	1,244.1	15.10	93.61	82.6	104.7	0.0	320.3
											36,252.1

**Load Case:** 1.2D + 1.6W

120 mph with No Ice

25 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		370.1	0.0					0.0	0.0	370.1	0.0	0.0	0.0
5.00		733.4	1,756.0					0.0	247.5	733.4	2,003.6	0.0	0.0
10.00		719.8	1,723.6					0.0	247.5	719.8	1,971.1	0.0	0.0
15.00		706.2	1,691.2					0.0	247.5	706.2	1,938.7	0.0	0.0
20.00		692.7	1,658.8					0.0	247.5	692.7	1,906.3	0.0	0.0
25.00		679.1	1,626.3					0.0	247.5	679.1	1,873.9	0.0	0.0
30.00		673.4	1,593.9					0.0	247.5	673.4	1,841.4	0.0	0.0
35.00		681.4	1,561.5					0.0	247.5	681.4	1,809.0	0.0	0.0
40.00		693.2	1,529.1					0.0	247.5	693.2	1,776.6	0.0	0.0
45.00		476.9	1,496.6					0.0	247.5	476.9	1,744.2	0.0	0.0
46.82	Bot - Section 2	356.4	535.7					0.0	89.9	356.4	625.7	0.0	0.0
50.00		492.0	1,872.7					0.0	157.6	492.0	2,030.3	0.0	0.0
53.65	Top - Section 1	361.0	2,114.9					0.0	180.7	361.0	2,295.6	0.0	0.0
55.00		460.0	390.1					0.0	66.8	460.0	456.9	0.0	0.0
60.00		725.1	1,424.2					0.0	247.5	725.1	1,671.7	0.0	0.0
65.00		724.9	1,391.7					0.0	247.5	724.9	1,639.3	0.0	0.0
70.00		723.2	1,359.3					0.0	247.5	723.2	1,606.9	0.0	0.0
75.00		719.9	1,326.9					0.0	247.5	719.9	1,574.4	0.0	0.0
80.00		715.4	1,294.5					0.0	247.5	715.4	1,542.0	0.0	0.0
85.00		709.6	1,262.0					0.0	247.5	709.6	1,509.6	0.0	0.0
90.00		700.4	1,229.6					0.0	247.5	700.4	1,477.2	0.0	0.0
94.97	Bot - Section 3	349.5	1,189.3					0.0	245.9	349.5	1,435.2	0.0	0.0
95.00		353.9	14.8					0.0	1.7	353.9	16.4	0.0	0.0
100.00		384.1	2,182.9					0.0	247.5	384.1	2,430.4	0.0	0.0
100.47	Top - Section 2	346.9	200.7					0.0	23.1	346.9	223.8	0.0	0.0
105.00		656.2	896.7					0.0	224.4	656.2	1,121.2	0.0	0.0
110.00		678.4	962.5					0.0	247.5	678.4	1,210.1	0.0	0.0
115.00		667.1	934.7					0.0	247.5	667.1	1,182.3	0.0	0.0
120.00		655.1	907.0					0.0	247.5	655.1	1,154.5	0.0	0.0
125.00		642.4	879.2					0.0	247.5	642.4	1,126.7	0.0	0.0
130.00	Appertunance(s)	628.9	851.4	4,751.9	0.0	0.0	1,899.0	0.0	247.5	5,380.8	2,997.9	0.0	0.0
135.00		614.9	823.6					0.0	183.7	614.9	1,007.3	0.0	0.0
140.00		600.2	795.8					0.0	182.5	600.2	978.3	0.0	0.0
145.00		505.9	768.0					0.0	182.5	505.9	950.5	0.0	0.0
148.62	Top - Section 3	288.6	538.2					0.0	132.0	288.6	670.2	0.0	0.0
150.00	Appertunance(s)	192.3	135.2	696.0	0.0	0.0	422.2	0.0	50.5	888.3	607.9	0.0	0.0
152.00	Appertunance(s)	169.3	193.0	365.8	0.0	0.0	277.2	0.0	70.2	535.1	540.4	0.0	0.0
153.00	Appertunance(s)	167.3	95.4	5,665.7	0.0	0.0	2,791.8	0.0	35.1	5,833.1	2,922.3	0.0	0.0
155.00		275.6	188.6					0.0	49.4	275.6	238.0	0.0	0.0
158.00	Appertunance(s)	272.2	277.3	249.9	0.0	0.0	48.0	0.0	74.1	522.1	399.4	0.0	0.0
160.00	Appertunance(s)	214.4	181.2	5,905.2	0.0	0.0	2,294.6	0.0	47.9	6,119.6	2,523.7	0.0	0.0
162.00	Appertunance(s)	211.6	178.2	557.2	0.0	0.0	505.1	0.0	16.5	768.8	699.8	0.0	0.0
164.00	Appertunance(s)	157.2	175.2	361.0	0.0	0.0	105.6	0.0	16.5	518.2	297.4	0.0	0.0
165.00		306.9	86.5					0.0	8.3	306.9	94.8	0.0	0.0
170.00	Appertunance(s)	500.7	421.4	1,011.6	0.0	0.0	837.2	0.0	41.3	1,512.4	1,300.0	0.0	0.0
175.00		482.4	402.9					0.0	11.8	482.4	414.7	0.0	0.0
180.00	Appertunance(s)	236.6	384.3	2,277.3	0.0	2,178.5	1,904.4	0.0	11.8	2,513.8	2,300.5	0.0	0.0



Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:36 AM

Customer: AT&T Mobility

**Load Case:** 1.2D + 1.6W

120 mph with No Ice

25 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Totals: 45,514.1 62,137.5 0.00 0.00

Site Number: 310972

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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	-62.06	-45.24	0.00	-5,587.97	0.00	5,587.97	5,720.10	2,860.05	14,705.4	7,363.67	0.00	0.00	0.770
5.00	-59.92	-44.70	0.00	-5,361.75	0.00	5,361.75	5,657.02	2,828.51	14,275.4	7,148.32	0.10	-0.18	0.761
10.00	-57.81	-44.16	0.00	-5,138.26	0.00	5,138.26	5,592.40	2,796.20	13,847.4	6,934.03	0.39	-0.37	0.752
15.00	-55.73	-43.62	0.00	-4,917.48	0.00	4,917.48	5,526.23	2,763.11	13,421.8	6,720.92	0.87	-0.55	0.742
20.00	-53.69	-43.08	0.00	-4,699.39	0.00	4,699.39	5,458.50	2,729.25	12,998.8	6,509.10	1.55	-0.74	0.732
25.00	-51.69	-42.55	0.00	-4,483.98	0.00	4,483.98	5,389.23	2,694.62	12,578.6	6,298.69	2.43	-0.93	0.722
30.00	-49.71	-42.01	0.00	-4,271.23	0.00	4,271.23	5,318.41	2,659.21	12,161.4	6,089.79	3.51	-1.13	0.711
35.00	-47.78	-41.46	0.00	-4,061.17	0.00	4,061.17	5,246.04	2,623.02	11,747.5	5,882.50	4.80	-1.32	0.700
40.00	-45.88	-40.88	0.00	-3,853.88	0.00	3,853.88	5,172.12	2,586.06	11,337.0	5,676.95	6.29	-1.52	0.688
45.00	-44.05	-40.46	0.00	-3,649.48	0.00	3,649.48	5,096.65	2,548.32	10,930.2	5,473.25	7.99	-1.72	0.676
46.82	-43.36	-40.16	0.00	-3,575.98	0.00	3,575.98	5,068.84	2,534.42	10,783.3	5,399.71	8.66	-1.80	0.671
50.00	-41.25	-39.71	0.00	-3,448.14	0.00	3,448.14	5,019.63	2,509.81	10,527.3	5,271.49	9.90	-1.93	0.663
53.65	-38.90	-39.33	0.00	-3,303.21	0.00	3,303.21	5,022.35	2,511.18	10,541.4	5,278.53	11.43	-2.08	0.634
55.00	-38.38	-38.94	0.00	-3,250.11	0.00	3,250.11	5,001.31	2,500.65	10,433.2	5,224.39	12.03	-2.13	0.630
60.00	-36.60	-38.28	0.00	-3,055.40	0.00	3,055.40	4,922.37	2,461.19	10,035.4	5,025.20	14.37	-2.33	0.616
65.00	-34.87	-37.60	0.00	-2,864.01	0.00	2,864.01	4,841.89	2,420.94	9,642.07	4,828.20	16.91	-2.52	0.601
70.00	-33.17	-36.92	0.00	-2,676.00	0.00	2,676.00	4,759.85	2,379.93	9,253.29	4,633.52	19.66	-2.72	0.585
75.00	-31.51	-36.23	0.00	-2,491.39	0.00	2,491.39	4,676.27	2,338.14	8,869.33	4,441.26	22.61	-2.92	0.568
80.00	-29.88	-35.54	0.00	-2,310.22	0.00	2,310.22	4,591.14	2,295.57	8,490.42	4,251.52	25.77	-3.11	0.550
85.00	-28.30	-34.85	0.00	-2,132.51	0.00	2,132.51	4,504.45	2,252.23	8,116.79	4,064.43	29.14	-3.31	0.531
90.00	-26.75	-34.15	0.00	-1,958.29	0.00	1,958.29	4,415.53	2,207.76	7,747.44	3,879.48	32.71	-3.51	0.511
94.97	-25.28	-33.75	0.00	-1,788.68	0.00	1,788.68	4,298.33	2,149.16	7,339.59	3,675.25	36.46	-3.70	0.493
95.00	-25.23	-33.44	0.00	-1,787.56	0.00	1,787.56	4,297.54	2,148.77	7,336.89	3,673.90	36.49	-3.70	0.493
100.00	-22.77	-32.94	0.00	-1,620.35	0.00	1,620.35	4,179.55	2,089.78	6,937.52	3,473.92	40.46	-3.89	0.472
100.47	-22.52	-32.61	0.00	-1,604.98	0.00	1,604.98	3,534.77	1,767.38	5,979.53	2,994.21	40.84	-3.91	0.543
105.00	-21.34	-31.95	0.00	-1,457.13	0.00	1,457.13	3,470.53	1,735.26	5,721.84	2,865.17	44.64	-4.08	0.515
110.00	-20.08	-31.26	0.00	-1,297.37	0.00	1,297.37	3,398.20	1,699.10	5,441.65	2,724.87	49.01	-4.28	0.482
115.00	-18.85	-30.56	0.00	-1,141.10	0.00	1,141.10	3,324.32	1,662.16	5,165.90	2,586.79	53.60	-4.47	0.447
120.00	-17.66	-29.87	0.00	-988.28	0.00	988.28	3,248.89	1,624.44	4,894.82	2,451.05	58.38	-4.66	0.409
125.00	-16.50	-29.19	0.00	-838.92	0.00	838.92	3,148.66	1,574.33	4,594.70	2,300.76	63.35	-4.83	0.370
130.00	-13.91	-23.61	0.00	-692.98	0.00	692.98	3,047.52	1,523.76	4,302.79	2,154.59	68.50	-4.99	0.326
135.00	-12.91	-22.94	0.00	-574.94	0.00	574.94	2,946.39	1,473.20	4,020.47	2,013.22	73.80	-5.14	0.290
140.00	-11.94	-22.28	0.00	-460.25	0.00	460.25	2,845.26	1,422.63	3,747.72	1,876.65	79.25	-5.27	0.250
145.00	-11.01	-21.70	0.00	-348.87	0.00	348.87	2,744.13	1,372.06	3,484.56	1,744.87	84.83	-5.39	0.204
148.62	-10.35	-21.36	0.00	-270.38	0.00	270.38	2,670.97	1,335.49	3,300.17	1,652.54	88.94	-5.46	0.168
148.62	-10.35	-21.36	0.00	-270.38	0.00	270.38	1,682.77	841.39	2,096.43	1,049.77	88.94	-5.46	0.264
150.00	-9.81	-20.42	0.00	-240.83	0.00	240.83	1,670.84	835.42	2,059.67	1,031.37	90.52	-5.48	0.240
152.00	-9.32	-19.85	0.00	-199.98	0.00	199.98	1,653.39	826.69	2,006.83	1,004.91	92.83	-5.53	0.205
153.00	-6.96	-13.76	0.00	-180.14	0.00	180.14	1,644.57	822.28	1,980.55	991.75	93.99	-5.55	0.186
155.00	-6.74	-13.47	0.00	-152.61	0.00	152.61	1,626.74	813.37	1,928.26	965.56	96.32	-5.59	0.162
158.00	-6.39	-12.91	0.00	-112.21	0.00	112.21	1,599.53	799.76	1,850.55	926.65	99.84	-5.63	0.125
160.00	-4.48	-6.58	0.00	-86.38	0.00	86.38	1,581.08	790.54	1,799.26	900.97	102.20	-5.66	0.099
162.00	-3.86	-5.74	0.00	-73.23	0.00	73.23	1,562.38	781.19	1,748.38	875.49	104.57	-5.68	0.086
164.00	-3.61	-5.20	0.00	-61.74	0.00	61.74	1,543.44	771.72	1,697.94	850.23	106.95	-5.70	0.075
165.00	-3.55	-4.89	0.00	-56.54	0.00	56.54	1,533.87	766.94	1,672.89	837.69	108.15	-5.71	0.070
170.00	-2.40	-3.25	0.00	-32.11	0.00	32.11	1,485.12	742.56	1,549.38	775.84	114.13	-5.74	0.043
175.00	-2.04	-2.73	0.00	-15.84	0.00	15.84	1,432.25	716.13	1,426.40	714.26	120.15	-5.76	0.024
180.00	0.00	-2.51	0.00	-2.18	0.00	2.18	1,364.83	682.42	1,294.62	648.27	126.18	-5.77	0.003

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:36 AM

Customer: AT&T Mobility

**Load Case:** 0.9D + 1.6W

120 mph with No Ice (Reduced DL)

25 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		370.1	0.0					0.0	0.0	370.1	0.0	0.0	0.0
5.00		733.4	1,317.0					0.0	185.7	733.4	1,502.7	0.0	0.0
10.00		719.8	1,292.7					0.0	185.7	719.8	1,478.3	0.0	0.0
15.00		706.2	1,268.4					0.0	185.7	706.2	1,454.0	0.0	0.0
20.00		692.7	1,244.1					0.0	185.7	692.7	1,429.7	0.0	0.0
25.00		679.1	1,219.7					0.0	185.7	679.1	1,405.4	0.0	0.0
30.00		673.4	1,195.4					0.0	185.7	673.4	1,381.1	0.0	0.0
35.00		681.4	1,171.1					0.0	185.7	681.4	1,356.8	0.0	0.0
40.00		693.2	1,146.8					0.0	185.7	693.2	1,332.4	0.0	0.0
45.00		476.9	1,122.5					0.0	185.7	476.9	1,308.1	0.0	0.0
46.82	Bot - Section 2	356.4	401.8					0.0	67.5	356.4	469.3	0.0	0.0
50.00		492.0	1,404.5					0.0	118.2	492.0	1,522.7	0.0	0.0
53.65	Top - Section 1	361.0	1,586.2					0.0	135.5	361.0	1,721.7	0.0	0.0
55.00		460.0	292.6					0.0	50.1	460.0	342.7	0.0	0.0
60.00		725.1	1,068.1					0.0	185.7	725.1	1,253.8	0.0	0.0
65.00		724.9	1,043.8					0.0	185.7	724.9	1,229.5	0.0	0.0
70.00		723.2	1,019.5					0.0	185.7	723.2	1,205.1	0.0	0.0
75.00		719.9	995.2					0.0	185.7	719.9	1,180.8	0.0	0.0
80.00		715.4	970.9					0.0	185.7	715.4	1,156.5	0.0	0.0
85.00		709.6	946.5					0.0	185.7	709.6	1,132.2	0.0	0.0
90.00		700.4	922.2					0.0	185.7	700.4	1,107.9	0.0	0.0
94.97	Bot - Section 3	349.5	892.0					0.0	184.4	349.5	1,076.4	0.0	0.0
95.00		353.9	11.1					0.0	1.2	353.9	12.3	0.0	0.0
100.00		384.1	1,637.2					0.0	185.7	384.1	1,822.8	0.0	0.0
100.47	Top - Section 2	346.9	150.5					0.0	17.3	346.9	167.8	0.0	0.0
105.00		656.2	672.5					0.0	168.3	656.2	840.9	0.0	0.0
110.00		678.4	721.9					0.0	185.7	678.4	907.6	0.0	0.0
115.00		667.1	701.1					0.0	185.7	667.1	886.7	0.0	0.0
120.00		655.1	680.2					0.0	185.7	655.1	865.9	0.0	0.0
125.00		642.4	659.4					0.0	185.7	642.4	845.0	0.0	0.0
130.00	Appertunance(s)	628.9	638.5	4,751.9	0.0	0.0	1,424.2	0.0	185.7	5,380.8	2,248.4	0.0	0.0
135.00		614.9	617.7					0.0	137.8	614.9	755.5	0.0	0.0
140.00		600.2	596.8					0.0	136.9	600.2	733.7	0.0	0.0
145.00		505.9	576.0					0.0	136.9	505.9	712.9	0.0	0.0
148.62	Top - Section 3	288.6	403.6					0.0	99.0	288.6	502.7	0.0	0.0
150.00	Appertunance(s)	192.3	101.4	696.0	0.0	0.0	316.6	0.0	37.9	888.3	455.9	0.0	0.0
152.00	Appertunance(s)	169.3	144.8	365.8	0.0	0.0	207.9	0.0	52.6	535.1	405.3	0.0	0.0
153.00	Appertunance(s)	167.3	71.5	5,665.7	0.0	0.0	2,093.8	0.0	26.3	5,833.1	2,191.7	0.0	0.0
155.00		275.6	141.4					0.0	37.0	275.6	178.5	0.0	0.0
158.00	Appertunance(s)	272.2	208.0	249.9	0.0	0.0	36.0	0.0	55.6	522.1	299.5	0.0	0.0
160.00	Appertunance(s)	214.4	135.9	5,905.2	0.0	0.0	1,721.0	0.0	35.9	6,119.6	1,892.8	0.0	0.0
162.00	Appertunance(s)	211.6	133.6	557.2	0.0	0.0	378.8	0.0	12.4	768.8	524.9	0.0	0.0
164.00	Appertunance(s)	157.2	131.4	361.0	0.0	0.0	79.2	0.0	12.4	518.2	223.0	0.0	0.0
165.00		306.9	64.9					0.0	6.2	306.9	71.1	0.0	0.0
170.00	Appertunance(s)	500.7	316.0	1,011.6	0.0	0.0	627.9	0.0	31.0	1,512.4	975.0	0.0	0.0
175.00		482.4	302.1					0.0	8.9	482.4	311.0	0.0	0.0
180.00	Appertunance(s)	236.6	288.2	2,277.3	0.0	2,178.5	1,428.3	0.0	8.9	2,513.8	1,725.4	0.0	0.0

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

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120 mph with No Ice (Reduced DL)

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Dead Load Factor : 0.90

Wind Load Factor : 1.60

Totals: 45,514.1 46,603.1 0.00 0.00



Site Number: 310972

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**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.53	-45.22	0.00	-5,531.29	0.00	5,531.29	5,720.10	2,860.05	14,705.4	7,363.67	0.00	0.00	0.760
5.00	-44.89	-44.62	0.00	-5,305.20	0.00	5,305.20	5,657.02	2,828.51	14,275.4	7,148.32	0.10	-0.18	0.750
10.00	-43.27	-44.04	0.00	-5,082.08	0.00	5,082.08	5,592.40	2,796.20	13,847.4	6,934.03	0.38	-0.36	0.741
15.00	-41.68	-43.45	0.00	-4,861.90	0.00	4,861.90	5,526.23	2,763.11	13,421.8	6,720.92	0.86	-0.55	0.731
20.00	-40.12	-42.88	0.00	-4,644.64	0.00	4,644.64	5,458.50	2,729.25	12,998.8	6,509.10	1.54	-0.73	0.721
25.00	-38.59	-42.31	0.00	-4,430.25	0.00	4,430.25	5,389.23	2,694.62	12,578.6	6,298.69	2.41	-0.92	0.711
30.00	-37.08	-41.73	0.00	-4,218.72	0.00	4,218.72	5,318.41	2,659.21	12,161.4	6,089.79	3.47	-1.11	0.700
35.00	-35.59	-41.14	0.00	-4,010.06	0.00	4,010.06	5,246.04	2,623.02	11,747.5	5,882.50	4.75	-1.31	0.689
40.00	-34.14	-40.54	0.00	-3,804.34	0.00	3,804.34	5,172.12	2,586.06	11,337.0	5,676.95	6.22	-1.50	0.677
45.00	-32.75	-40.10	0.00	-3,601.66	0.00	3,601.66	5,096.65	2,548.32	10,930.2	5,473.25	7.90	-1.70	0.665
46.82	-32.22	-39.79	0.00	-3,528.81	0.00	3,528.81	5,068.84	2,534.42	10,783.3	5,399.71	8.56	-1.77	0.660
50.00	-30.62	-39.32	0.00	-3,402.16	0.00	3,402.16	5,019.63	2,509.81	10,527.3	5,271.49	9.79	-1.90	0.652
53.65	-28.85	-38.95	0.00	-3,258.64	0.00	3,258.64	5,022.35	2,511.18	10,541.4	5,278.53	11.30	-2.05	0.623
55.00	-28.44	-38.54	0.00	-3,206.06	0.00	3,206.06	5,001.31	2,500.65	10,433.2	5,224.39	11.89	-2.11	0.620
60.00	-27.08	-37.86	0.00	-3,013.36	0.00	3,013.36	4,922.37	2,461.19	10,035.4	5,025.20	14.20	-2.30	0.605
65.00	-25.76	-37.17	0.00	-2,824.06	0.00	2,824.06	4,841.89	2,420.94	9,642.07	4,828.20	16.71	-2.49	0.590
70.00	-24.47	-36.48	0.00	-2,638.21	0.00	2,638.21	4,759.85	2,379.93	9,253.29	4,633.52	19.43	-2.69	0.575
75.00	-23.20	-35.78	0.00	-2,455.83	0.00	2,455.83	4,676.27	2,338.14	8,869.33	4,441.26	22.35	-2.88	0.558
80.00	-21.96	-35.08	0.00	-2,276.93	0.00	2,276.93	4,591.14	2,295.57	8,490.42	4,251.52	25.47	-3.07	0.541
85.00	-20.76	-34.38	0.00	-2,101.53	0.00	2,101.53	4,504.45	2,252.23	8,116.79	4,064.43	28.79	-3.27	0.522
90.00	-19.58	-33.68	0.00	-1,929.64	0.00	1,929.64	4,415.53	2,207.76	7,747.44	3,879.48	32.31	-3.46	0.502
94.97	-18.47	-33.29	0.00	-1,762.37	0.00	1,762.37	4,298.33	2,149.16	7,339.59	3,675.25	36.01	-3.65	0.484
95.00	-18.43	-32.97	0.00	-1,761.26	0.00	1,761.26	4,297.54	2,148.77	7,336.89	3,673.90	36.04	-3.65	0.484
100.00	-16.58	-32.50	0.00	-1,596.40	0.00	1,596.40	4,179.55	2,089.78	6,937.52	3,473.92	39.96	-3.84	0.464
100.47	-16.38	-32.17	0.00	-1,581.23	0.00	1,581.23	3,534.77	1,767.38	5,979.53	2,994.21	40.34	-3.86	0.533
105.00	-15.48	-31.51	0.00	-1,435.40	0.00	1,435.40	3,470.53	1,735.26	5,721.84	2,865.17	44.08	-4.03	0.506
110.00	-14.52	-30.81	0.00	-1,277.88	0.00	1,277.88	3,398.20	1,699.10	5,441.65	2,724.87	48.40	-4.22	0.474
115.00	-13.59	-30.13	0.00	-1,123.81	0.00	1,123.81	3,324.32	1,662.16	5,165.90	2,586.79	52.93	-4.42	0.439
120.00	-12.69	-29.44	0.00	-973.18	0.00	973.18	3,248.89	1,624.44	4,894.82	2,451.05	57.65	-4.60	0.401
125.00	-11.82	-28.77	0.00	-825.97	0.00	825.97	3,148.66	1,574.33	4,594.70	2,300.76	62.55	-4.77	0.363
130.00	-9.97	-23.24	0.00	-682.12	0.00	682.12	3,047.52	1,523.76	4,302.79	2,154.59	67.63	-4.93	0.320
135.00	-9.22	-22.59	0.00	-565.91	0.00	565.91	2,946.39	1,473.20	4,020.47	2,013.22	72.86	-5.07	0.284
140.00	-8.49	-21.94	0.00	-452.97	0.00	452.97	2,845.26	1,422.63	3,747.72	1,876.65	78.24	-5.20	0.245
145.00	-7.80	-21.38	0.00	-343.26	0.00	343.26	2,744.13	1,372.06	3,484.56	1,744.87	83.74	-5.31	0.200
148.62	-7.31	-21.06	0.00	-265.92	0.00	265.92	2,670.97	1,335.49	3,300.17	1,652.54	87.79	-5.38	0.164
148.62	-7.31	-21.06	0.00	-265.92	0.00	265.92	1,682.77	841.39	2,096.43	1,049.77	87.79	-5.38	0.258
150.00	-6.92	-20.13	0.00	-236.79	0.00	236.79	1,670.84	835.42	2,059.67	1,031.37	89.35	-5.41	0.234
152.00	-6.56	-19.57	0.00	-196.53	0.00	196.53	1,653.39	826.69	2,006.83	1,004.91	91.62	-5.45	0.200
153.00	-4.93	-13.55	0.00	-176.96	0.00	176.96	1,644.57	822.28	1,980.55	991.75	92.77	-5.47	0.182
155.00	-4.76	-13.27	0.00	-149.85	0.00	149.85	1,626.74	813.37	1,928.26	965.56	95.07	-5.51	0.158
158.00	-4.51	-12.72	0.00	-110.06	0.00	110.06	1,599.53	799.76	1,850.55	926.65	98.54	-5.56	0.122
160.00	-3.22	-6.45	0.00	-84.62	0.00	84.62	1,581.08	790.54	1,799.26	900.97	100.87	-5.58	0.096
162.00	-2.77	-5.63	0.00	-71.73	0.00	71.73	1,562.38	781.19	1,748.38	875.49	103.21	-5.60	0.084
164.00	-2.60	-5.09	0.00	-60.46	0.00	60.46	1,543.44	771.72	1,697.94	850.23	105.56	-5.62	0.073
165.00	-2.55	-4.78	0.00	-55.37	0.00	55.37	1,533.87	766.94	1,672.89	837.69	106.73	-5.63	0.068
170.00	-1.73	-3.18	0.00	-31.45	0.00	31.45	1,485.12	742.56	1,549.38	775.84	112.64	-5.66	0.042
175.00	-1.47	-2.67	0.00	-15.54	0.00	15.54	1,432.25	716.13	1,426.40	714.26	118.57	-5.68	0.023
180.00	0.00	-2.51	0.00	-2.18	0.00	2.18	1,364.83	682.42	1,294.62	648.27	124.52	-5.69	0.003

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:39 AM

Customer: AT&T Mobility

<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice	24 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**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		76.8	0.0					0.0	0.0	76.8	0.0	0.0	0.0
5.00		152.6	2,213.2					0.0	247.5	152.6	2,460.7	0.0	0.0
10.00		150.4	2,225.6					0.0	247.5	150.4	2,473.2	0.0	0.0
15.00		148.0	2,210.3					0.0	247.5	148.0	2,457.9	0.0	0.0
20.00		145.4	2,186.0					0.0	247.5	145.4	2,433.5	0.0	0.0
25.00		142.9	2,156.9					0.0	247.5	142.9	2,404.5	0.0	0.0
30.00		141.9	2,125.0					0.0	247.5	141.9	2,372.5	0.0	0.0
35.00		143.9	2,091.0					0.0	247.5	143.9	2,338.5	0.0	0.0
40.00		146.6	2,055.5					0.0	247.5	146.6	2,303.1	0.0	0.0
45.00		101.0	2,018.9					0.0	247.5	101.0	2,266.4	0.0	0.0
46.82	Bot - Section 2	75.6	725.5					0.0	89.9	75.6	815.5	0.0	0.0
50.00		104.4	2,208.0					0.0	157.6	104.4	2,365.6	0.0	0.0
53.65	Top - Section 1	76.6	2,496.1					0.0	180.7	76.6	2,676.8	0.0	0.0
55.00		97.8	530.9					0.0	66.8	97.8	597.8	0.0	0.0
60.00		154.3	1,937.5					0.0	247.5	154.3	2,185.1	0.0	0.0
65.00		154.6	1,898.1					0.0	247.5	154.6	2,145.6	0.0	0.0
70.00		154.5	1,858.1					0.0	247.5	154.5	2,105.7	0.0	0.0
75.00		154.1	1,817.8					0.0	247.5	154.1	2,065.3	0.0	0.0
80.00		153.5	1,777.0					0.0	247.5	153.5	2,024.6	0.0	0.0
85.00		152.5	1,735.9					0.0	247.5	152.5	1,983.5	0.0	0.0
90.00		150.9	1,694.6					0.0	247.5	150.9	1,942.1	0.0	0.0
94.97	Bot - Section 3	75.4	1,642.1					0.0	245.9	75.4	1,888.0	0.0	0.0
95.00		76.4	17.9					0.0	1.7	76.4	19.5	0.0	0.0
100.00		82.9	2,637.0					0.0	247.5	82.9	2,884.5	0.0	0.0
100.47	Top - Section 2	75.1	243.1					0.0	23.1	75.1	266.2	0.0	0.0
105.00		142.2	1,299.8					0.0	224.4	142.2	1,524.2	0.0	0.0
110.00		147.4	1,397.1					0.0	247.5	147.4	1,644.6	0.0	0.0
115.00		145.3	1,359.2					0.0	247.5	145.3	1,606.7	0.0	0.0
120.00		143.1	1,321.1					0.0	247.5	143.1	1,568.6	0.0	0.0
125.00		140.7	1,282.9					0.0	247.5	140.7	1,530.4	0.0	0.0
130.00	Appertunance(s)	138.2	1,244.4	666.8	0.0	0.0	4,397.1	0.0	247.5	805.1	5,889.1	0.0	0.0
135.00		135.6	1,205.9					0.0	183.7	135.6	1,389.6	0.0	0.0
140.00		132.8	1,167.2					0.0	182.5	132.8	1,349.7	0.0	0.0
145.00		112.3	1,128.3					0.0	182.5	112.3	1,310.8	0.0	0.0
148.62	Top - Section 3	64.2	793.1					0.0	132.0	64.2	925.1	0.0	0.0
150.00	Appertunance(s)	42.9	232.0	108.8	0.0	0.0	1,084.2	0.0	50.5	151.7	1,366.7	0.0	0.0
152.00	Appertunance(s)	37.8	331.0	55.7	0.0	0.0	706.1	0.0	70.2	93.5	1,107.3	0.0	0.0
153.00	Appertunance(s)	37.4	164.0	896.8	0.0	0.0	6,488.1	0.0	35.1	934.2	6,687.1	0.0	0.0
155.00		61.8	323.8					0.0	49.4	61.8	373.2	0.0	0.0
158.00	Appertunance(s)	61.1	476.0	57.6	0.0	0.0	208.3	0.0	74.1	118.8	758.4	0.0	0.0
160.00	Appertunance(s)	48.3	311.9	894.9	0.0	0.0	4,643.3	0.0	47.9	943.1	5,003.1	0.0	0.0
162.00	Appertunance(s)	47.7	307.1	79.1	0.0	0.0	1,164.8	0.0	16.5	126.9	1,488.4	0.0	0.0
164.00	Appertunance(s)	35.5	302.2	46.4	0.0	0.0	384.1	0.0	16.5	81.9	702.9	0.0	0.0
165.00		69.6	149.6					0.0	8.3	69.6	157.8	0.0	0.0
170.00	Appertunance(s)	113.9	724.7	212.3	0.0	0.0	1,636.5	0.0	41.3	326.2	2,402.5	0.0	0.0
175.00		110.4	694.4					0.0	11.8	110.4	706.2	0.0	0.0
180.00	Appertunance(s)	54.3	664.1	476.9	0.0	471.0	2,838.2	0.0	11.8	531.2	3,514.1	0.0	0.0

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:42 AM

Customer: AT&T Mobility

**Load Case:** 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

24 Iterations

Gust Response Factor : 1.10

Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Totals: 8,606.43 90,482.4 0.00 0.00

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:42 AM

Customer: AT&T Mobility

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

24 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	-90.48	-8.56	0.00	-1,054.50	0.00	1,054.50	5,720.10	2,860.05	14,705.4	7,363.67	0.00	0.00	0.159
5.00	-88.01	-8.46	0.00	-1,011.72	0.00	1,011.72	5,657.02	2,828.51	14,275.4	7,148.32	0.02	-0.03	0.157
10.00	-85.54	-8.36	0.00	-969.44	0.00	969.44	5,592.40	2,796.20	13,847.4	6,934.03	0.07	-0.07	0.155
15.00	-83.07	-8.26	0.00	-927.66	0.00	927.66	5,526.23	2,763.11	13,421.8	6,720.92	0.16	-0.10	0.153
20.00	-80.63	-8.16	0.00	-886.39	0.00	886.39	5,458.50	2,729.25	12,998.8	6,509.10	0.29	-0.14	0.151
25.00	-78.23	-8.06	0.00	-845.61	0.00	845.61	5,389.23	2,694.62	12,578.6	6,298.69	0.46	-0.18	0.149
30.00	-75.85	-7.95	0.00	-805.33	0.00	805.33	5,318.41	2,659.21	12,161.4	6,089.79	0.66	-0.21	0.147
35.00	-73.51	-7.85	0.00	-765.56	0.00	765.56	5,246.04	2,623.02	11,747.5	5,882.50	0.91	-0.25	0.144
40.00	-71.20	-7.74	0.00	-726.32	0.00	726.32	5,172.12	2,586.06	11,337.0	5,676.95	1.19	-0.29	0.142
45.00	-68.93	-7.66	0.00	-687.64	0.00	687.64	5,096.65	2,548.32	10,930.2	5,473.25	1.51	-0.32	0.139
46.82	-68.11	-7.60	0.00	-673.73	0.00	673.73	5,068.84	2,534.42	10,783.3	5,399.71	1.63	-0.34	0.138
50.00	-65.74	-7.51	0.00	-649.54	0.00	649.54	5,019.63	2,509.81	10,527.3	5,271.49	1.87	-0.36	0.136
53.65	-63.06	-7.44	0.00	-622.13	0.00	622.13	5,022.35	2,511.18	10,541.4	5,278.53	2.16	-0.39	0.130
55.00	-62.46	-7.36	0.00	-612.09	0.00	612.09	5,001.31	2,500.65	10,433.2	5,224.39	2.27	-0.40	0.130
60.00	-60.28	-7.23	0.00	-575.29	0.00	575.29	4,922.37	2,461.19	10,035.4	5,025.20	2.71	-0.44	0.127
65.00	-58.13	-7.10	0.00	-539.14	0.00	539.14	4,841.89	2,420.94	9,642.07	4,828.20	3.19	-0.48	0.124
70.00	-56.02	-6.96	0.00	-503.67	0.00	503.67	4,759.85	2,379.93	9,253.29	4,633.52	3.71	-0.51	0.120
75.00	-53.95	-6.82	0.00	-468.87	0.00	468.87	4,676.27	2,338.14	8,869.33	4,441.26	4.26	-0.55	0.117
80.00	-51.92	-6.68	0.00	-434.77	0.00	434.77	4,591.14	2,295.57	8,490.42	4,251.52	4.86	-0.59	0.114
85.00	-49.94	-6.54	0.00	-401.37	0.00	401.37	4,504.45	2,252.23	8,116.79	4,064.43	5.50	-0.62	0.110
90.00	-47.99	-6.40	0.00	-368.68	0.00	368.68	4,415.53	2,207.76	7,747.44	3,879.48	6.17	-0.66	0.106
94.97	-46.10	-6.31	0.00	-336.91	0.00	336.91	4,298.33	2,149.16	7,339.59	3,675.25	6.88	-0.70	0.102
95.00	-46.08	-6.25	0.00	-336.70	0.00	336.70	4,297.54	2,148.77	7,336.89	3,673.90	6.88	-0.70	0.102
100.00	-43.20	-6.15	0.00	-305.44	0.00	305.44	4,179.55	2,089.78	6,937.52	3,473.92	7.63	-0.73	0.098
100.47	-42.93	-6.08	0.00	-302.57	0.00	302.57	3,534.77	1,767.38	5,979.53	2,994.21	7.70	-0.74	0.113
105.00	-41.40	-5.95	0.00	-275.00	0.00	275.00	3,470.53	1,735.26	5,721.84	2,865.17	8.42	-0.77	0.108
110.00	-39.76	-5.80	0.00	-245.27	0.00	245.27	3,398.20	1,699.10	5,441.65	2,724.87	9.24	-0.81	0.102
115.00	-38.15	-5.66	0.00	-216.26	0.00	216.26	3,324.32	1,662.16	5,165.90	2,586.79	10.11	-0.84	0.095
120.00	-36.58	-5.51	0.00	-187.98	0.00	187.98	3,248.89	1,624.44	4,894.82	2,451.05	11.01	-0.88	0.088
125.00	-35.05	-5.37	0.00	-160.42	0.00	160.42	3,148.66	1,574.33	4,594.70	2,300.76	11.95	-0.91	0.081
130.00	-29.17	-4.48	0.00	-133.58	0.00	133.58	3,047.52	1,523.76	4,302.79	2,154.59	12.92	-0.94	0.072
135.00	-27.78	-4.34	0.00	-111.17	0.00	111.17	2,946.39	1,473.20	4,020.47	2,013.22	13.92	-0.97	0.065
140.00	-26.43	-4.19	0.00	-89.49	0.00	89.49	2,845.26	1,422.63	3,747.72	1,876.65	14.95	-1.00	0.057
145.00	-25.12	-4.06	0.00	-68.53	0.00	68.53	2,744.13	1,372.06	3,484.56	1,744.87	16.01	-1.02	0.048
148.62	-24.20	-3.99	0.00	-53.84	0.00	53.84	2,670.97	1,335.49	3,300.17	1,652.54	16.79	-1.03	0.042
148.62	-24.20	-3.99	0.00	-53.84	0.00	53.84	1,682.77	841.39	2,096.43	1,049.77	16.79	-1.03	0.066
150.00	-22.84	-3.81	0.00	-48.32	0.00	48.32	1,670.84	835.42	2,059.67	1,031.37	17.09	-1.04	0.061
152.00	-21.73	-3.70	0.00	-40.70	0.00	40.70	1,653.39	826.69	2,006.83	1,004.91	17.53	-1.05	0.054
153.00	-15.06	-2.65	0.00	-36.99	0.00	36.99	1,644.57	822.28	1,980.55	991.75	17.74	-1.05	0.046
155.00	-14.69	-2.58	0.00	-31.70	0.00	31.70	1,626.74	813.37	1,928.26	965.56	18.19	-1.06	0.042
158.00	-13.93	-2.45	0.00	-23.96	0.00	23.96	1,599.53	799.76	1,850.55	926.65	18.86	-1.07	0.035
160.00	-8.95	-1.41	0.00	-19.06	0.00	19.06	1,581.08	790.54	1,799.26	900.97	19.31	-1.07	0.027
162.00	-7.46	-1.26	0.00	-16.23	0.00	16.23	1,562.38	781.19	1,748.38	875.49	19.76	-1.08	0.023
164.00	-6.76	-1.17	0.00	-13.71	0.00	13.71	1,543.44	771.72	1,697.94	850.23	20.21	-1.08	0.021
165.00	-6.60	-1.09	0.00	-12.54	0.00	12.54	1,533.87	766.94	1,672.89	837.69	20.44	-1.09	0.019
170.00	-4.21	-0.72	0.00	-7.07	0.00	7.07	1,485.12	742.56	1,549.38	775.84	21.58	-1.09	0.012
175.00	-3.50	-0.60	0.00	-3.46	0.00	3.46	1,432.25	716.13	1,426.40	714.26	22.72	-1.10	0.007
180.00	0.00	-0.53	0.00	-0.47	0.00	0.47	1,364.83	682.42	1,294.62	648.27	23.87	-1.10	0.001

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:42 AM

Customer: AT&T Mobility

**Load Case:** 1.0D + 1.0W

Serviceability 60 mph

23 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**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		57.8	0.0					0.0	0.0	57.8	0.0	0.0	0.0
5.00		114.6	1,463.4					0.0	206.3	114.6	1,669.6	0.0	0.0
10.00		112.5	1,436.3					0.0	206.3	112.5	1,642.6	0.0	0.0
15.00		110.3	1,409.3					0.0	206.3	110.3	1,615.6	0.0	0.0
20.00		108.2	1,382.3					0.0	206.3	108.2	1,588.6	0.0	0.0
25.00		106.1	1,355.3					0.0	206.3	106.1	1,561.6	0.0	0.0
30.00		105.2	1,328.3					0.0	206.3	105.2	1,534.5	0.0	0.0
35.00		106.5	1,301.2					0.0	206.3	106.5	1,507.5	0.0	0.0
40.00		108.3	1,274.2					0.0	206.3	108.3	1,480.5	0.0	0.0
45.00		74.5	1,247.2					0.0	206.3	74.5	1,453.5	0.0	0.0
46.82	Bot - Section 2	55.7	446.5					0.0	74.9	55.7	521.4	0.0	0.0
50.00		76.9	1,560.6					0.0	131.3	76.9	1,691.9	0.0	0.0
53.65	Top - Section 1	56.4	1,762.4					0.0	150.6	56.4	1,913.0	0.0	0.0
55.00		71.9	325.1					0.0	55.7	71.9	380.8	0.0	0.0
60.00		113.3	1,186.8					0.0	206.3	113.3	1,393.1	0.0	0.0
65.00		113.3	1,159.8					0.0	206.3	113.3	1,366.1	0.0	0.0
70.00		113.0	1,132.8					0.0	206.3	113.0	1,339.0	0.0	0.0
75.00		112.5	1,105.7					0.0	206.3	112.5	1,312.0	0.0	0.0
80.00		111.8	1,078.7					0.0	206.3	111.8	1,285.0	0.0	0.0
85.00		110.9	1,051.7					0.0	206.3	110.9	1,258.0	0.0	0.0
90.00		109.4	1,024.7					0.0	206.3	109.4	1,231.0	0.0	0.0
94.97	Bot - Section 3	54.6	991.1					0.0	204.9	54.6	1,196.0	0.0	0.0
95.00		55.3	12.3					0.0	1.4	55.3	13.7	0.0	0.0
100.00		60.0	1,819.1					0.0	206.3	60.0	2,025.4	0.0	0.0
100.47	Top - Section 2	54.2	167.2					0.0	19.3	54.2	186.5	0.0	0.0
105.00		102.5	747.3					0.0	187.0	102.5	934.3	0.0	0.0
110.00		106.0	802.1					0.0	206.3	106.0	1,008.4	0.0	0.0
115.00		104.2	779.0					0.0	206.3	104.2	985.2	0.0	0.0
120.00		102.4	755.8					0.0	206.3	102.4	962.1	0.0	0.0
125.00		100.4	732.6					0.0	206.3	100.4	938.9	0.0	0.0
130.00	Appertunance(s)	98.3	709.5	742.5	0.0	0.0	1,582.5	0.0	206.3	840.8	2,498.3	0.0	0.0
135.00		96.1	686.3					0.0	153.1	96.1	839.4	0.0	0.0
140.00		93.8	663.2					0.0	152.1	93.8	815.2	0.0	0.0
145.00		79.1	640.0					0.0	152.1	79.1	792.1	0.0	0.0
148.62	Top - Section 3	45.1	448.5					0.0	110.0	45.1	558.5	0.0	0.0
150.00	Appertunance(s)	30.0	112.7	108.8	0.0	0.0	351.8	0.0	42.1	138.8	506.6	0.0	0.0
152.00	Appertunance(s)	26.5	160.8	57.2	0.0	0.0	231.0	0.0	58.5	83.6	450.3	0.0	0.0
153.00	Appertunance(s)	26.1	79.5	885.3	0.0	0.0	2,326.5	0.0	29.2	911.4	2,435.2	0.0	0.0
155.00		43.1	157.1					0.0	41.2	43.1	198.3	0.0	0.0
158.00	Appertunance(s)	42.5	231.1	39.0	0.0	0.0	40.0	0.0	61.7	81.6	332.8	0.0	0.0
160.00	Appertunance(s)	33.5	151.0	922.7	0.0	0.0	1,912.2	0.0	39.9	956.2	2,103.1	0.0	0.0
162.00	Appertunance(s)	33.1	148.5	87.1	0.0	0.0	420.9	0.0	13.8	120.1	583.2	0.0	0.0
164.00	Appertunance(s)	24.6	146.0	56.4	0.0	0.0	88.0	0.0	13.8	81.0	247.8	0.0	0.0
165.00		48.0	72.1					0.0	6.9	48.0	79.0	0.0	0.0
170.00	Appertunance(s)	78.2	351.2	158.1	0.0	0.0	697.7	0.0	34.4	236.3	1,083.3	0.0	0.0
175.00		75.4	335.7					0.0	9.8	75.4	345.6	0.0	0.0
180.00	Appertunance(s)	37.0	320.3	355.8	0.0	340.4	1,587.0	0.0	9.8	392.8	1,917.1	0.0	0.0



Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:44 AM

Customer: AT&T Mobility

**Load Case:** 1.0D + 1.0W

Serviceability 60 mph

23 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Totals: 7,111.58 51,781.3 0.00 0.00

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

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Customer: AT&T Mobility

**Load Case: 1.0D + 1.0W**

Serviceability 60 mph

23 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	-51.78	-7.07	0.00	-868.30	0.00	868.30	5,720.10	2,860.05	14,705.4	7,363.67	0.00	0.00	0.127
5.00	-50.11	-6.98	0.00	-832.97	0.00	832.97	5,657.02	2,828.51	14,275.4	7,148.32	0.02	-0.03	0.125
10.00	-48.46	-6.89	0.00	-798.10	0.00	798.10	5,592.40	2,796.20	13,847.4	6,934.03	0.06	-0.06	0.124
15.00	-46.84	-6.80	0.00	-763.67	0.00	763.67	5,526.23	2,763.11	13,421.8	6,720.92	0.14	-0.09	0.122
20.00	-45.25	-6.71	0.00	-729.68	0.00	729.68	5,458.50	2,729.25	12,998.8	6,509.10	0.24	-0.12	0.120
25.00	-43.68	-6.62	0.00	-696.13	0.00	696.13	5,389.23	2,694.62	12,578.6	6,298.69	0.38	-0.14	0.119
30.00	-42.15	-6.54	0.00	-663.02	0.00	663.02	5,318.41	2,659.21	12,161.4	6,089.79	0.55	-0.17	0.117
35.00	-40.64	-6.45	0.00	-630.34	0.00	630.34	5,246.04	2,623.02	11,747.5	5,882.50	0.75	-0.21	0.115
40.00	-39.15	-6.35	0.00	-598.12	0.00	598.12	5,172.12	2,586.06	11,337.0	5,676.95	0.98	-0.24	0.113
45.00	-37.70	-6.29	0.00	-566.35	0.00	566.35	5,096.65	2,548.32	10,930.2	5,473.25	1.24	-0.27	0.111
46.82	-37.17	-6.24	0.00	-554.93	0.00	554.93	5,068.84	2,534.42	10,783.3	5,399.71	1.35	-0.28	0.110
50.00	-35.48	-6.17	0.00	-535.08	0.00	535.08	5,019.63	2,509.81	10,527.3	5,271.49	1.54	-0.30	0.109
53.65	-33.57	-6.11	0.00	-512.57	0.00	512.57	5,022.35	2,511.18	10,541.4	5,278.53	1.78	-0.32	0.104
55.00	-33.18	-6.05	0.00	-504.32	0.00	504.32	5,001.31	2,500.65	10,433.2	5,224.39	1.87	-0.33	0.103
60.00	-31.79	-5.94	0.00	-474.09	0.00	474.09	4,922.37	2,461.19	10,035.4	5,025.20	2.23	-0.36	0.101
65.00	-30.42	-5.84	0.00	-444.39	0.00	444.39	4,841.89	2,420.94	9,642.07	4,828.20	2.63	-0.39	0.098
70.00	-29.08	-5.73	0.00	-415.21	0.00	415.21	4,759.85	2,379.93	9,253.29	4,633.52	3.05	-0.42	0.096
75.00	-27.76	-5.62	0.00	-386.57	0.00	386.57	4,676.27	2,338.14	8,869.33	4,441.26	3.51	-0.45	0.093
80.00	-26.48	-5.51	0.00	-358.47	0.00	358.47	4,591.14	2,295.57	8,490.42	4,251.52	4.00	-0.48	0.090
85.00	-25.22	-5.40	0.00	-330.91	0.00	330.91	4,504.45	2,252.23	8,116.79	4,064.43	4.53	-0.51	0.087
90.00	-23.99	-5.30	0.00	-303.89	0.00	303.89	4,415.53	2,207.76	7,747.44	3,879.48	5.08	-0.54	0.084
94.97	-22.79	-5.24	0.00	-277.59	0.00	277.59	4,298.33	2,149.16	7,339.59	3,675.25	5.66	-0.57	0.081
95.00	-22.77	-5.19	0.00	-277.41	0.00	277.41	4,297.54	2,148.77	7,336.89	3,673.90	5.67	-0.57	0.081
100.00	-20.75	-5.11	0.00	-251.49	0.00	251.49	4,179.55	2,089.78	6,937.52	3,473.92	6.28	-0.60	0.077
100.47	-20.56	-5.06	0.00	-249.10	0.00	249.10	3,534.77	1,767.38	5,979.53	2,994.21	6.34	-0.61	0.089
105.00	-19.63	-4.96	0.00	-226.16	0.00	226.16	3,470.53	1,735.26	5,721.84	2,865.17	6.93	-0.63	0.085
110.00	-18.62	-4.85	0.00	-201.37	0.00	201.37	3,398.20	1,699.10	5,441.65	2,724.87	7.61	-0.66	0.079
115.00	-17.63	-4.74	0.00	-177.13	0.00	177.13	3,324.32	1,662.16	5,165.90	2,586.79	8.32	-0.69	0.074
120.00	-16.67	-4.64	0.00	-153.41	0.00	153.41	3,248.89	1,624.44	4,894.82	2,451.05	9.07	-0.72	0.068
125.00	-15.73	-4.53	0.00	-130.22	0.00	130.22	3,148.66	1,574.33	4,594.70	2,300.76	9.84	-0.75	0.062
130.00	-13.24	-3.66	0.00	-107.57	0.00	107.57	3,047.52	1,523.76	4,302.79	2,154.59	10.64	-0.78	0.054
135.00	-12.40	-3.56	0.00	-89.25	0.00	89.25	2,946.39	1,473.20	4,020.47	2,013.22	11.46	-0.80	0.049
140.00	-11.58	-3.46	0.00	-71.45	0.00	71.45	2,845.26	1,422.63	3,747.72	1,876.65	12.31	-0.82	0.042
145.00	-10.79	-3.37	0.00	-54.15	0.00	54.15	2,744.13	1,372.06	3,484.56	1,744.87	13.18	-0.84	0.035
148.62	-10.23	-3.32	0.00	-41.96	0.00	41.96	2,670.97	1,335.49	3,300.17	1,652.54	13.82	-0.85	0.029
148.62	-10.23	-3.32	0.00	-41.96	0.00	41.96	1,682.77	841.39	2,096.43	1,049.77	13.82	-0.85	0.046
150.00	-9.73	-3.17	0.00	-37.37	0.00	37.37	1,670.84	835.42	2,059.67	1,031.37	14.06	-0.85	0.042
152.00	-9.28	-3.08	0.00	-31.02	0.00	31.02	1,653.39	826.69	2,006.83	1,004.91	14.42	-0.86	0.036
153.00	-6.86	-2.14	0.00	-27.93	0.00	27.93	1,644.57	822.28	1,980.55	991.75	14.60	-0.86	0.032
155.00	-6.66	-2.09	0.00	-23.66	0.00	23.66	1,626.74	813.37	1,928.26	965.56	14.96	-0.87	0.029
158.00	-6.33	-2.01	0.00	-17.38	0.00	17.38	1,599.53	799.76	1,850.55	926.65	15.51	-0.87	0.023
160.00	-4.24	-1.02	0.00	-13.37	0.00	13.37	1,581.08	790.54	1,799.26	900.97	15.88	-0.88	0.018
162.00	-3.66	-0.89	0.00	-11.33	0.00	11.33	1,562.38	781.19	1,748.38	875.49	16.25	-0.88	0.015
164.00	-3.41	-0.80	0.00	-9.55	0.00	9.55	1,543.44	771.72	1,697.94	850.23	16.62	-0.88	0.013
165.00	-3.33	-0.76	0.00	-8.75	0.00	8.75	1,533.87	766.94	1,672.89	837.69	16.80	-0.89	0.013
170.00	-2.26	-0.50	0.00	-4.97	0.00	4.97	1,485.12	742.56	1,549.38	775.84	17.73	-0.89	0.008
175.00	-1.91	-0.42	0.00	-2.45	0.00	2.45	1,432.25	716.13	1,426.40	714.26	18.67	-0.89	0.005
180.00	0.00	-0.39	0.00	-0.34	0.00	0.34	1,364.83	682.42	1,294.62	648.27	19.61	-0.90	0.001

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:45 AM

Customer: AT&T Mobility

### Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.16
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
Long-Period Transition Period ( $T_L$ ):	6
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.17
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.09
Seismic Response Coefficient ( $C_s$ ):	0.03
Upper Limit $C_s$	0.03
Lower Limit $C_s$	0.03
Period based on Rayleigh Method (sec):	2.34
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.92
Total Unfactored Dead Load:	51.78 k
Seismic Base Shear (E):	2.02 k

**Load Case (1.2 + 0.2S<sub>ds</sub>) \* DL + E ELFM**

**Seismic Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
46	177.50	330	6,935	0.019	38	407
45	172.50	346	6,871	0.019	38	426
44	167.50	386	7,246	0.020	40	476
43	164.50	79	1,433	0.004	8	97
42	163.00	160	2,850	0.008	16	197
41	161.00	162	2,826	0.008	16	200
40	159.00	191	3,245	0.009	18	236
39	156.50	293	4,829	0.013	27	361
38	154.00	198	3,171	0.009	18	245
37	152.50	109	1,706	0.005	9	134
36	151.00	219	3,377	0.009	19	271
35	149.31	155	2,332	0.006	13	191
34	146.81	559	8,146	0.022	45	689
33	142.50	792	10,910	0.030	60	978
32	137.50	815	10,484	0.029	58	1,006
31	132.50	839	10,053	0.028	56	1,036
30	127.50	916	10,186	0.028	56	1,130
29	122.50	939	9,671	0.026	53	1,159
28	117.50	962	9,147	0.025	51	1,187
27	112.50	985	8,616	0.024	48	1,216
26	107.50	1,008	8,081	0.022	45	1,244
25	102.73	934	6,862	0.019	38	1,153
24	100.23	186	1,306	0.004	7	230

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:45 AM

Customer: AT&amp;T Mobility

23	97.50	2,025	13,454	0.037	74	2,500
22	94.98	14	86	0.000	0	17
21	92.48	1,196	7,178	0.020	40	1,476
20	87.50	1,231	6,641	0.018	37	1,519
19	82.50	1,258	6,062	0.017	34	1,553
18	77.50	1,285	5,491	0.015	30	1,586
17	72.50	1,312	4,932	0.014	27	1,619
16	67.50	1,339	4,388	0.012	24	1,653
15	62.50	1,366	3,861	0.011	21	1,686
14	57.50	1,393	3,354	0.009	19	1,719
13	54.32	381	822	0.002	5	470
12	51.82	1,913	3,772	0.010	21	2,361
11	48.41	1,692	2,926	0.008	16	2,088
10	45.91	521	814	0.002	5	643
9	42.50	1,453	1,958	0.005	11	1,794
8	37.50	1,480	1,568	0.004	9	1,827
7	32.50	1,508	1,213	0.003	7	1,860
6	27.50	1,535	895	0.002	5	1,894
5	22.50	1,562	620	0.002	3	1,927
4	17.50	1,589	389	0.001	2	1,961
3	12.50	1,616	207	0.001	1	1,994
2	7.50	1,643	79	0.000	0	2,027
1	2.50	1,670	10	0.000	0	2,061
TTA	180.00	10	216	0.001	1	12
10' Omni	180.00	50	1,079	0.003	6	62
Andrew DB806D-Y	180.00	27	583	0.002	3	33
Round Low Profile PI	180.00	1,500	32,368	0.089	179	1,851
KMW HB-X-WM-17-65-00	170.00	48	922	0.003	5	59
KMW HB-X-WM-17-65-00	170.00	90	1,740	0.005	10	111
Side Arms	170.00	560	10,827	0.030	60	691
RFS DB-T1-6Z-8AB-0Z	164.00	88	1,588	0.004	9	109
Alcatel-Lucent RRH 2	162.00	119	2,094	0.006	12	147
Alcatel-Lucent RRH2X	162.00	132	2,326	0.006	13	163
Alcatel-Lucent RRH2x	162.00	170	2,998	0.008	17	210
Antel BXA-70063/6CF_	160.00	51	878	0.002	5	63
Commscope LNX-6514DS	160.00	116	2,003	0.005	11	144
Commscope HBXX-6517D	160.00	245	4,213	0.012	23	302
Round Low Profile PI	160.00	1,500	25,812	0.071	143	1,851
12' Omni	158.00	40	672	0.002	4	49
Powerwave Allgon 702	153.00	13	208	0.001	1	16
Ericsson RRUS A2 B4	153.00	66	1,042	0.003	6	81
Ericsson RRUS 32 B30	153.00	180	2,842	0.008	16	222
Ericsson RRUS 11 B4	153.00	152	2,402	0.007	13	188
KMW AM-X-CD-14-65-00	153.00	109	1,724	0.005	10	135
Powerwave Allgon 777	153.00	105	1,658	0.005	9	130
Commscope SBNHH-1D65	153.00	101	1,587	0.004	9	124
Commscope SBNHH-1D65	153.00	101	1,587	0.004	9	124
Flat Low Profile Pla	153.00	1,500	23,686	0.065	131	1,851
CCI TPX-070821	152.00	45	702	0.002	4	56
Powerwave Allgon LGP	152.00	186	2,900	0.008	16	230
Raycap DC6-48-60-18-	150.00	20	304	0.001	2	25
Raycap DC6-48-60-18-	150.00	32	483	0.001	3	39
Ericsson RRUS 11 (Ba	150.00	300	4,560	0.012	25	370
Ericsson KRY 112 144	130.00	33	381	0.001	2	41
Ericsson RRUS 11 B12	130.00	152	1,756	0.005	10	188
Ericsson AIR 21, 1.3	130.00	249	2,875	0.008	16	307
Ericsson AIR 21, 1.3	130.00	244	2,823	0.008	16	302
Andrew LNX-6515DS-VT	130.00	154	1,777	0.005	10	190
Flat T-Arm	130.00	750	8,660	0.024	48	926
		51,781	365,276	1.000	2,019	63,905

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:45 AM

Customer: AT&T Mobility

**Load Case (0.9 - 0.2Sds) \* DL + E ELFM**

**Seismic (Reduced DL) Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
46	177.50	330	6,935	0.019	38	286
45	172.50	346	6,871	0.019	38	299
44	167.50	386	7,246	0.020	40	334
43	164.50	79	1,433	0.004	8	68
42	163.00	160	2,850	0.008	16	138
41	161.00	162	2,826	0.008	16	141
40	159.00	191	3,245	0.009	18	165
39	156.50	293	4,829	0.013	27	254
38	154.00	198	3,171	0.009	18	172
37	152.50	109	1,706	0.005	9	94
36	151.00	219	3,377	0.009	19	190
35	149.31	155	2,332	0.006	13	134
34	146.81	559	8,146	0.022	45	484
33	142.50	792	10,910	0.030	60	686
32	137.50	815	10,484	0.029	58	706
31	132.50	839	10,053	0.028	56	727
30	127.50	916	10,186	0.028	56	793
29	122.50	939	9,671	0.026	53	813
28	117.50	962	9,147	0.025	51	833
27	112.50	985	8,616	0.024	48	853
26	107.50	1,008	8,081	0.022	45	873
25	102.73	934	6,862	0.019	38	809
24	100.23	186	1,306	0.004	7	161
23	97.50	2,025	13,454	0.037	74	1,754
22	94.98	14	86	0.000	0	12
21	92.48	1,196	7,178	0.020	40	1,036
20	87.50	1,231	6,641	0.018	37	1,066
19	82.50	1,258	6,062	0.017	34	1,089
18	77.50	1,285	5,491	0.015	30	1,113
17	72.50	1,312	4,932	0.014	27	1,136
16	67.50	1,339	4,388	0.012	24	1,159
15	62.50	1,366	3,861	0.011	21	1,183
14	57.50	1,393	3,354	0.009	19	1,206
13	54.32	381	822	0.002	5	330
12	51.82	1,913	3,772	0.010	21	1,656
11	48.41	1,692	2,926	0.008	16	1,465
10	45.91	521	814	0.002	5	451
9	42.50	1,453	1,958	0.005	11	1,259
8	37.50	1,480	1,568	0.004	9	1,282
7	32.50	1,508	1,213	0.003	7	1,305
6	27.50	1,535	895	0.002	5	1,329
5	22.50	1,562	620	0.002	3	1,352
4	17.50	1,589	389	0.001	2	1,375
3	12.50	1,616	207	0.001	1	1,399
2	7.50	1,643	79	0.000	0	1,422
1	2.50	1,670	10	0.000	0	1,446
TTA	180.00	10	216	0.001	1	9
10' Omni	180.00	50	1,079	0.003	6	43
Andrew DB806D-Y	180.00	27	583	0.002	3	23
Round Low Profile PI	180.00	1,500	32,368	0.089	179	1,299
KMW HB-X-WM-17-65-00	170.00	48	922	0.003	5	41
KMW HB-X-WM-17-65-00	170.00	90	1,740	0.005	10	78
Side Arms	170.00	560	10,827	0.030	60	485
RFS DB-T1-6Z-8AB-0Z	164.00	88	1,588	0.004	9	76
Alcatel-Lucent RRH 2	162.00	119	2,094	0.006	12	103
Alcatel-Lucent RRH2X	162.00	132	2,326	0.006	13	114
Alcatel-Lucent RRH2x	162.00	170	2,998	0.008	17	147

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

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Customer: AT&T Mobility

Antel BXA-70063/6CF_	160.00	51	878	0.002	5	44
Commscope LNX-6514DS	160.00	116	2,003	0.005	11	101
Commscope HBXX-6517D	160.00	245	4,213	0.012	23	212
Round Low Profile PI	160.00	1,500	25,812	0.071	143	1,299
12' Omni	158.00	40	672	0.002	4	35
Powerwave Allgon 702	153.00	13	208	0.001	1	11
Ericsson RRUS A2 B4	153.00	66	1,042	0.003	6	57
Ericsson RRUS 32 B30	153.00	180	2,842	0.008	16	156
Ericsson RRUS 11 B4	153.00	152	2,402	0.007	13	132
KMW AM-X-CD-14-65-00	153.00	109	1,724	0.005	10	95
Powerwave Allgon 777	153.00	105	1,658	0.005	9	91
Commscope SBNHH-1D65	153.00	101	1,587	0.004	9	87
Commscope SBNHH-1D65	153.00	101	1,587	0.004	9	87
Flat Low Profile Pla	153.00	1,500	23,686	0.065	131	1,299
CCI TPX-070821	152.00	45	702	0.002	4	39
Powerwave Allgon LGP	152.00	186	2,900	0.008	16	161
Raycap DC6-48-60-18-	150.00	20	304	0.001	2	17
Raycap DC6-48-60-18-	150.00	32	483	0.001	3	28
Ericsson RRUS 11 (Ba	150.00	300	4,560	0.012	25	260
Ericsson KRY 112 144	130.00	33	381	0.001	2	29
Ericsson RRUS 11 B12	130.00	152	1,756	0.005	10	132
Ericsson AIR 21, 1.3	130.00	249	2,875	0.008	16	216
Ericsson AIR 21, 1.3	130.00	244	2,823	0.008	16	212
Andrew LNX-6515DS-VT	130.00	154	1,777	0.005	10	133
Flat T-Arm	130.00	750	8,660	0.024	48	649
		51,781	365,276	1.000	2,019	44,836



Site Number: 310972

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:45 AM

Customer: AT&T Mobility

**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	-61.84	-2.02	0.00	-280.66	0.00	280.66	5,720.10	2,860.05	14,705.4	7,363.67	0.00	0.00	0.049
5.00	-59.82	-2.03	0.00	-270.55	0.00	270.55	5,657.02	2,828.51	14,275.4	7,148.32	0.00	-0.01	0.048
10.00	-57.82	-2.04	0.00	-260.39	0.00	260.39	5,592.40	2,796.20	13,847.4	6,934.03	0.02	-0.02	0.048
15.00	-55.86	-2.05	0.00	-250.19	0.00	250.19	5,526.23	2,763.11	13,421.8	6,720.92	0.04	-0.03	0.047
20.00	-53.93	-2.05	0.00	-239.96	0.00	239.96	5,458.50	2,729.25	12,998.8	6,509.10	0.08	-0.04	0.047
25.00	-52.04	-2.05	0.00	-229.71	0.00	229.71	5,389.23	2,694.62	12,578.6	6,298.69	0.12	-0.05	0.046
30.00	-50.18	-2.05	0.00	-219.44	0.00	219.44	5,318.41	2,659.21	12,161.4	6,089.79	0.18	-0.06	0.045
35.00	-48.35	-2.05	0.00	-209.17	0.00	209.17	5,246.04	2,623.02	11,747.5	5,882.50	0.24	-0.07	0.045
40.00	-46.56	-2.05	0.00	-198.91	0.00	198.91	5,172.12	2,586.06	11,337.0	5,676.95	0.32	-0.08	0.044
45.00	-45.91	-2.05	0.00	-188.68	0.00	188.68	5,096.65	2,548.32	10,930.2	5,473.25	0.41	-0.09	0.043
46.82	-43.83	-2.03	0.00	-184.96	0.00	184.96	5,068.84	2,534.42	10,783.3	5,399.71	0.44	-0.09	0.043
50.00	-41.46	-2.01	0.00	-178.49	0.00	178.49	5,019.63	2,509.81	10,527.3	5,271.49	0.50	-0.10	0.042
53.65	-40.99	-2.01	0.00	-171.15	0.00	171.15	5,022.35	2,511.18	10,541.4	5,278.53	0.58	-0.11	0.041
55.00	-39.28	-1.99	0.00	-168.43	0.00	168.43	5,001.31	2,500.65	10,433.2	5,224.39	0.61	-0.11	0.040
60.00	-37.59	-1.98	0.00	-158.47	0.00	158.47	4,922.37	2,461.19	10,035.4	5,025.20	0.73	-0.12	0.039
65.00	-35.94	-1.95	0.00	-148.59	0.00	148.59	4,841.89	2,420.94	9,642.07	4,828.20	0.86	-0.13	0.038
70.00	-34.32	-1.93	0.00	-138.82	0.00	138.82	4,759.85	2,379.93	9,253.29	4,633.52	1.00	-0.14	0.037
75.00	-32.73	-1.90	0.00	-129.18	0.00	129.18	4,676.27	2,338.14	8,869.33	4,441.26	1.16	-0.15	0.036
80.00	-31.18	-1.87	0.00	-119.67	0.00	119.67	4,591.14	2,295.57	8,490.42	4,251.52	1.32	-0.16	0.035
85.00	-29.66	-1.83	0.00	-110.33	0.00	110.33	4,504.45	2,252.23	8,116.79	4,064.43	1.49	-0.17	0.034
90.00	-28.18	-1.79	0.00	-101.17	0.00	101.17	4,415.53	2,207.76	7,747.44	3,879.48	1.68	-0.18	0.032
94.97	-28.16	-1.80	0.00	-92.27	0.00	92.27	4,298.33	2,149.16	7,339.59	3,675.25	1.87	-0.19	0.032
95.00	-25.67	-1.71	0.00	-92.21	0.00	92.21	4,297.54	2,148.77	7,336.89	3,673.90	1.87	-0.19	0.031
100.00	-25.44	-1.71	0.00	-83.63	0.00	83.63	4,179.55	2,089.78	6,937.52	3,473.92	2.08	-0.20	0.030
100.47	-24.28	-1.67	0.00	-82.83	0.00	82.83	3,534.77	1,767.38	5,979.53	2,994.21	2.09	-0.20	0.035
105.00	-23.04	-1.62	0.00	-75.27	0.00	75.27	3,470.53	1,735.26	5,721.84	2,865.17	2.29	-0.21	0.033
110.00	-21.82	-1.58	0.00	-67.15	0.00	67.15	3,398.20	1,699.10	5,441.65	2,724.87	2.52	-0.22	0.031
115.00	-20.63	-1.52	0.00	-59.27	0.00	59.27	3,324.32	1,662.16	5,165.90	2,586.79	2.75	-0.23	0.029
120.00	-19.48	-1.47	0.00	-51.65	0.00	51.65	3,248.89	1,624.44	4,894.82	2,451.05	3.00	-0.24	0.027
125.00	-18.35	-1.41	0.00	-44.30	0.00	44.30	3,148.66	1,574.33	4,594.70	2,300.76	3.26	-0.25	0.025
130.00	-15.36	-1.24	0.00	-37.25	0.00	37.25	3,047.52	1,523.76	4,302.79	2,154.59	3.52	-0.26	0.022
135.00	-14.35	-1.18	0.00	-31.04	0.00	31.04	2,946.39	1,473.20	4,020.47	2,013.22	3.80	-0.27	0.020
140.00	-13.37	-1.12	0.00	-25.12	0.00	25.12	2,845.26	1,422.63	3,747.72	1,876.65	4.08	-0.27	0.018
145.00	-12.68	-1.07	0.00	-19.53	0.00	19.53	2,744.13	1,372.06	3,484.56	1,744.87	4.37	-0.28	0.016
148.62	-12.49	-1.06	0.00	-15.65	0.00	15.65	2,670.97	1,335.49	3,300.17	1,652.54	4.58	-0.28	0.014
148.62	-12.49	-1.06	0.00	-15.65	0.00	15.65	1,682.77	841.39	2,096.43	1,049.77	4.58	-0.28	0.022
150.00	-11.79	-1.01	0.00	-14.18	0.00	14.18	1,670.84	835.42	2,059.67	1,031.37	4.66	-0.28	0.021
152.00	-11.37	-0.98	0.00	-12.17	0.00	12.17	1,653.39	826.69	2,006.83	1,004.91	4.78	-0.29	0.019
153.00	-8.25	-0.74	0.00	-11.19	0.00	11.19	1,644.57	822.28	1,980.55	991.75	4.84	-0.29	0.016
155.00	-7.89	-0.71	0.00	-9.71	0.00	9.71	1,626.74	813.37	1,928.26	965.56	4.96	-0.29	0.015
158.00	-7.61	-0.69	0.00	-7.57	0.00	7.57	1,599.53	799.76	1,850.55	926.65	5.15	-0.29	0.013
160.00	-5.05	-0.48	0.00	-6.19	0.00	6.19	1,581.08	790.54	1,799.26	900.97	5.27	-0.30	0.010
162.00	-4.33	-0.42	0.00	-5.23	0.00	5.23	1,562.38	781.19	1,748.38	875.49	5.40	-0.30	0.009
164.00	-4.13	-0.40	0.00	-4.40	0.00	4.40	1,543.44	771.72	1,697.94	850.23	5.52	-0.30	0.008
165.00	-3.65	-0.36	0.00	-3.99	0.00	3.99	1,533.87	766.94	1,672.89	837.69	5.58	-0.30	0.007
170.00	-2.36	-0.24	0.00	-2.20	0.00	2.20	1,485.12	742.56	1,549.38	775.84	5.90	-0.30	0.004
175.00	-1.96	-0.20	0.00	-1.00	0.00	1.00	1,432.25	716.13	1,426.40	714.26	6.22	-0.30	0.003
180.00	0.00	-0.19	0.00	0.00	0.00	0.00	1,364.83	682.42	1,294.62	648.27	6.53	-0.30	0.000

Site Number: 310972

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:45 AM

Customer: AT&T Mobility

**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	-43.39	-2.02	0.00	-277.27	0.00	277.27	5,720.10	2,860.05	14,705.4	7,363.67	0.00	0.00	0.045
5.00	-41.97	-2.03	0.00	-267.17	0.00	267.17	5,657.02	2,828.51	14,275.4	7,148.32	0.00	-0.01	0.045
10.00	-40.57	-2.03	0.00	-257.03	0.00	257.03	5,592.40	2,796.20	13,847.4	6,934.03	0.02	-0.02	0.044
15.00	-39.19	-2.04	0.00	-246.87	0.00	246.87	5,526.23	2,763.11	13,421.8	6,720.92	0.04	-0.03	0.044
20.00	-37.84	-2.04	0.00	-236.69	0.00	236.69	5,458.50	2,729.25	12,998.8	6,509.10	0.08	-0.04	0.043
25.00	-36.51	-2.04	0.00	-226.49	0.00	226.49	5,389.23	2,694.62	12,578.6	6,298.69	0.12	-0.05	0.043
30.00	-35.21	-2.04	0.00	-216.30	0.00	216.30	5,318.41	2,659.21	12,161.4	6,089.79	0.18	-0.06	0.042
35.00	-33.92	-2.03	0.00	-206.11	0.00	206.11	5,246.04	2,623.02	11,747.5	5,882.50	0.24	-0.07	0.042
40.00	-32.66	-2.03	0.00	-195.95	0.00	195.95	5,172.12	2,586.06	11,337.0	5,676.95	0.32	-0.08	0.041
45.00	-32.21	-2.03	0.00	-185.82	0.00	185.82	5,096.65	2,548.32	10,930.2	5,473.25	0.40	-0.09	0.040
46.82	-30.75	-2.01	0.00	-182.14	0.00	182.14	5,068.84	2,534.42	10,783.3	5,399.71	0.43	-0.09	0.040
50.00	-29.09	-1.99	0.00	-175.74	0.00	175.74	5,019.63	2,509.81	10,527.3	5,271.49	0.50	-0.10	0.039
53.65	-28.76	-1.99	0.00	-168.48	0.00	168.48	5,022.35	2,511.18	10,541.4	5,278.53	0.57	-0.10	0.038
55.00	-27.55	-1.97	0.00	-165.80	0.00	165.80	5,001.31	2,500.65	10,433.2	5,224.39	0.60	-0.11	0.037
60.00	-26.37	-1.95	0.00	-155.95	0.00	155.95	4,922.37	2,461.19	10,035.4	5,025.20	0.72	-0.12	0.036
65.00	-25.21	-1.93	0.00	-146.20	0.00	146.20	4,841.89	2,420.94	9,642.07	4,828.20	0.85	-0.13	0.035
70.00	-24.08	-1.90	0.00	-136.56	0.00	136.56	4,759.85	2,379.93	9,253.29	4,633.52	0.99	-0.14	0.035
75.00	-22.96	-1.87	0.00	-127.05	0.00	127.05	4,676.27	2,338.14	8,869.33	4,441.26	1.14	-0.15	0.034
80.00	-21.87	-1.84	0.00	-117.69	0.00	117.69	4,591.14	2,295.57	8,490.42	4,251.52	1.30	-0.16	0.032
85.00	-20.81	-1.80	0.00	-108.48	0.00	108.48	4,504.45	2,252.23	8,116.79	4,064.43	1.47	-0.17	0.031
90.00	-19.77	-1.77	0.00	-99.46	0.00	99.46	4,415.53	2,207.76	7,747.44	3,879.48	1.65	-0.18	0.030
94.97	-19.76	-1.77	0.00	-90.69	0.00	90.69	4,298.33	2,149.16	7,339.59	3,675.25	1.84	-0.19	0.029
95.00	-18.01	-1.69	0.00	-90.64	0.00	90.64	4,297.54	2,148.77	7,336.89	3,673.90	1.84	-0.19	0.029
100.00	-17.84	-1.68	0.00	-82.20	0.00	82.20	4,179.55	2,089.78	6,937.52	3,473.92	2.05	-0.20	0.028
100.47	-17.03	-1.64	0.00	-81.41	0.00	81.41	3,534.77	1,767.38	5,979.53	2,994.21	2.06	-0.20	0.032
105.00	-16.16	-1.60	0.00	-73.97	0.00	73.97	3,470.53	1,735.26	5,721.84	2,865.17	2.26	-0.21	0.030
110.00	-15.31	-1.55	0.00	-65.98	0.00	65.98	3,398.20	1,699.10	5,441.65	2,724.87	2.48	-0.22	0.029
115.00	-14.48	-1.50	0.00	-58.24	0.00	58.24	3,324.32	1,662.16	5,165.90	2,586.79	2.71	-0.23	0.027
120.00	-13.66	-1.44	0.00	-50.75	0.00	50.75	3,248.89	1,624.44	4,894.82	2,451.05	2.95	-0.24	0.025
125.00	-12.87	-1.39	0.00	-43.53	0.00	43.53	3,148.66	1,574.33	4,594.70	2,300.76	3.21	-0.25	0.023
130.00	-10.77	-1.22	0.00	-36.60	0.00	36.60	3,047.52	1,523.76	4,302.79	2,154.59	3.47	-0.25	0.021
135.00	-10.07	-1.16	0.00	-30.49	0.00	30.49	2,946.39	1,473.20	4,020.47	2,013.22	3.74	-0.26	0.019
140.00	-9.38	-1.10	0.00	-24.68	0.00	24.68	2,845.26	1,422.63	3,747.72	1,876.65	4.02	-0.27	0.016
145.00	-8.90	-1.05	0.00	-19.19	0.00	19.19	2,744.13	1,372.06	3,484.56	1,744.87	4.30	-0.27	0.014
148.62	-8.76	-1.04	0.00	-15.38	0.00	15.38	2,670.97	1,335.49	3,300.17	1,652.54	4.51	-0.28	0.013
148.62	-8.76	-1.04	0.00	-15.38	0.00	15.38	1,682.77	841.39	2,096.43	1,049.77	4.51	-0.28	0.020
150.00	-8.27	-0.99	0.00	-13.94	0.00	13.94	1,670.84	835.42	2,059.67	1,031.37	4.59	-0.28	0.018
152.00	-7.98	-0.96	0.00	-11.96	0.00	11.96	1,653.39	826.69	2,006.83	1,004.91	4.71	-0.28	0.017
153.00	-5.79	-0.73	0.00	-11.00	0.00	11.00	1,644.57	822.28	1,980.55	991.75	4.77	-0.28	0.015
155.00	-5.54	-0.70	0.00	-9.55	0.00	9.55	1,626.74	813.37	1,928.26	965.56	4.89	-0.29	0.013
158.00	-5.34	-0.68	0.00	-7.45	0.00	7.45	1,599.53	799.76	1,850.55	926.65	5.07	-0.29	0.011
160.00	-3.54	-0.47	0.00	-6.09	0.00	6.09	1,581.08	790.54	1,799.26	900.97	5.19	-0.29	0.009
162.00	-3.04	-0.41	0.00	-5.15	0.00	5.15	1,562.38	781.19	1,748.38	875.49	5.31	-0.29	0.008
164.00	-2.90	-0.39	0.00	-4.32	0.00	4.32	1,543.44	771.72	1,697.94	850.23	5.44	-0.29	0.007
165.00	-2.56	-0.35	0.00	-3.93	0.00	3.93	1,533.87	766.94	1,672.89	837.69	5.50	-0.29	0.006
170.00	-1.66	-0.24	0.00	-2.16	0.00	2.16	1,485.12	742.56	1,549.38	775.84	5.81	-0.30	0.004
175.00	-1.37	-0.20	0.00	-0.98	0.00	0.98	1,432.25	716.13	1,426.40	714.26	6.12	-0.30	0.002
180.00	0.00	-0.19	0.00	0.00	0.00	0.00	1,364.83	682.42	1,294.62	648.27	6.43	-0.30	0.000

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

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Customer: AT&T Mobility

### 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 ( $S_s$ ):	0.16
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.17
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.09
Period Based on Rayleigh Method (sec):	2.34
Redundancy Factor ( $\rho$ ):	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)
46	177.50	330	1.838	1.716	1.044	0.296	85	407
45	172.50	346	1.736	1.263	0.871	0.241	72	426
44	167.50	386	1.637	0.896	0.721	0.191	64	476
43	164.50	79	1.579	0.713	0.641	0.163	11	97
42	163.00	160	1.550	0.631	0.604	0.150	21	197
41	161.00	162	1.512	0.531	0.557	0.134	19	200
40	159.00	191	1.475	0.441	0.513	0.118	19	236
39	156.50	293	1.429	0.340	0.462	0.099	25	361
38	154.00	198	1.383	0.253	0.415	0.082	14	245
37	152.50	109	1.357	0.207	0.388	0.072	7	134
36	151.00	219	1.330	0.164	0.363	0.062	12	271
35	149.31	155	1.300	0.121	0.336	0.052	7	191
34	146.81	559	1.257	0.066	0.300	0.038	19	689
33	142.50	792	1.185	-0.009	0.243	0.017	12	978
32	137.50	815	1.103	-0.068	0.189	-0.003	-2	1,006
31	132.50	839	1.024	-0.103	0.144	-0.018	-13	1,036
30	127.50	916	0.948	-0.119	0.107	-0.029	-23	1,130
29	122.50	939	0.875	-0.121	0.078	-0.035	-28	1,159
28	117.50	962	0.805	-0.113	0.055	-0.036	-30	1,187
27	112.50	985	0.738	-0.098	0.038	-0.033	-28	1,216
26	107.50	1,008	0.674	-0.079	0.025	-0.026	-23	1,244
25	102.73	934	0.616	-0.059	0.016	-0.016	-13	1,153
24	100.23	186	0.586	-0.048	0.013	-0.011	-2	230
23	97.50	2,025	0.555	-0.036	0.010	-0.004	-8	2,500
22	94.98	14	0.526	-0.026	0.008	0.002	0	17
21	92.48	1,196	0.499	-0.016	0.007	0.008	8	1,476
20	87.50	1,231	0.447	0.003	0.006	0.019	20	1,519
19	82.50	1,258	0.397	0.019	0.007	0.028	31	1,553
18	77.50	1,285	0.350	0.033	0.009	0.035	39	1,586
17	72.50	1,312	0.307	0.044	0.012	0.040	46	1,619
16	67.50	1,339	0.266	0.052	0.015	0.043	50	1,653
15	62.50	1,366	0.228	0.059	0.020	0.045	53	1,686
14	57.50	1,393	0.193	0.064	0.024	0.045	55	1,719
13	54.32	381	0.172	0.066	0.027	0.045	15	470

Site Number: 310972

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

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Customer: AT&T Mobility

12	51.82	1,913	0.157	0.067	0.029	0.045	74	2,361
11	48.41	1,692	0.137	0.069	0.032	0.044	65	2,088
10	45.91	521	0.123	0.070	0.034	0.044	20	643
9	42.50	1,453	0.105	0.071	0.036	0.043	55	1,794
8	37.50	1,480	0.082	0.072	0.039	0.042	54	1,827
7	32.50	1,508	0.062	0.072	0.041	0.041	54	1,860
6	27.50	1,535	0.044	0.071	0.042	0.040	54	1,894
5	22.50	1,562	0.030	0.068	0.040	0.039	52	1,927
4	17.50	1,589	0.018	0.063	0.037	0.036	50	1,961
3	12.50	1,616	0.009	0.054	0.031	0.032	44	1,994
2	7.50	1,643	0.003	0.039	0.022	0.024	34	2,027
1	2.50	1,670	0.000	0.015	0.008	0.011	15	2,061
TTA	180.00	10	1.890	1.980	1.140	0.325	3	12
10' Omni	180.00	50	1.890	1.980	1.140	0.325	14	62
Andrew DB806D-Y	180.00	27	1.890	1.980	1.140	0.325	8	33
Round Low Profile PI	180.00	1,500	1.890	1.980	1.140	0.325	423	1,851
KMW HB-X-WM-17-65-00	170.00	48	1.686	1.069	0.793	0.215	9	59
KMW HB-X-WM-17-65-00	170.00	90	1.686	1.069	0.793	0.215	17	111
Side Arms	170.00	560	1.686	1.069	0.793	0.215	104	691
RFS DB-T1-6Z-8AB-0Z	164.00	88	1.569	0.685	0.629	0.159	12	109
Alcatel-Lucent RRH 2	162.00	119	1.531	0.580	0.580	0.142	15	147
Alcatel-Lucent RRH2X	162.00	132	1.531	0.580	0.580	0.142	16	163
Alcatel-Lucent RRH2x	162.00	170	1.531	0.580	0.580	0.142	21	210
Antel BXA-70063/6CF_	160.00	51	1.493	0.485	0.535	0.126	6	63
Commscope LNX-	160.00	116	1.493	0.485	0.535	0.126	13	144
Commscope HBXX-	160.00	245	1.493	0.485	0.535	0.126	27	302
Round Low Profile PI	160.00	1,500	1.493	0.485	0.535	0.126	163	1,851
12' Omni	158.00	40	1.456	0.399	0.492	0.110	4	49
Powerwave Allgon 702	153.00	13	1.366	0.222	0.397	0.075	1	16
Ericsson RRUS A2 B4	153.00	66	1.366	0.222	0.397	0.075	4	81
Ericsson RRUS 32 B30	153.00	180	1.366	0.222	0.397	0.075	12	222
Ericsson RRUS 11 B4	153.00	152	1.366	0.222	0.397	0.075	10	188
KMW AM-X-CD-14-65-00	153.00	109	1.366	0.222	0.397	0.075	7	135
Powerwave Allgon 777	153.00	105	1.366	0.222	0.397	0.075	7	130
Commscope SBNHH-	153.00	101	1.366	0.222	0.397	0.075	7	124
Commscope SBNHH-	153.00	101	1.366	0.222	0.397	0.075	7	124
Flat Low Profile Pla	153.00	1,500	1.366	0.222	0.397	0.075	98	1,851
CCI TPX-070821	152.00	45	1.348	0.192	0.380	0.069	3	56
Powerwave Allgon LGP	152.00	186	1.348	0.192	0.380	0.069	11	230
Raycap DC6-48-60-18-	150.00	20	1.312	0.138	0.347	0.056	1	25
Raycap DC6-48-60-18-	150.00	32	1.312	0.138	0.347	0.056	2	39
Ericsson RRUS 11 (Ba	150.00	300	1.312	0.138	0.347	0.056	15	370
Ericsson KRY 112 144	130.00	33	0.986	-0.113	0.124	-0.024	-1	41
Ericsson RRUS 11 B12	130.00	152	0.986	-0.113	0.124	-0.024	-3	188
Ericsson AIR 21, 1.3	130.00	249	0.986	-0.113	0.124	-0.024	-5	307
Ericsson AIR 21, 1.3	130.00	244	0.986	-0.113	0.124	-0.024	-5	302
Andrew LNX-6515DS-VT	130.00	154	0.986	-0.113	0.124	-0.024	-3	190
Flat T-Arm	130.00	750	0.986	-0.113	0.124	-0.024	-16	926
		51,781	83.692	25.524	26.724	6.236	2,107	63,905

**Load Case (0.9 - 0.2Sds) \* DL + E EMAM**

**Seismic (Reduced DL) Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
46	177.50	330	1.838	1.716	1.044	0.296	85	286
45	172.50	346	1.736	1.263	0.871	0.241	72	299
44	167.50	386	1.637	0.896	0.721	0.191	64	334
43	164.50	79	1.579	0.713	0.641	0.163	11	68
42	163.00	160	1.550	0.631	0.604	0.150	21	138

Site Number: 310972

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Engineering Number: OAA671285\_C3\_01

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Customer: AT&T Mobility

41	161.00	162	1.512	0.531	0.557	0.134	19	141
40	159.00	191	1.475	0.441	0.513	0.118	19	165
39	156.50	293	1.429	0.340	0.462	0.099	25	254
38	154.00	198	1.383	0.253	0.415	0.082	14	172
37	152.50	109	1.357	0.207	0.388	0.072	7	94
36	151.00	219	1.330	0.164	0.363	0.062	12	190
35	149.31	155	1.300	0.121	0.336	0.052	7	134
34	146.81	559	1.257	0.066	0.300	0.038	19	484
33	142.50	792	1.185	-0.009	0.243	0.017	12	686
32	137.50	815	1.103	-0.068	0.189	-0.003	-2	706
31	132.50	839	1.024	-0.103	0.144	-0.018	-13	727
30	127.50	916	0.948	-0.119	0.107	-0.029	-23	793
29	122.50	939	0.875	-0.121	0.078	-0.035	-28	813
28	117.50	962	0.805	-0.113	0.055	-0.036	-30	833
27	112.50	985	0.738	-0.098	0.038	-0.033	-28	853
26	107.50	1,008	0.674	-0.079	0.025	-0.026	-23	873
25	102.73	934	0.616	-0.059	0.016	-0.016	-13	809
24	100.23	186	0.586	-0.048	0.013	-0.011	-2	161
23	97.50	2,025	0.555	-0.036	0.010	-0.004	-8	1,754
22	94.98	14	0.526	-0.026	0.008	0.002	0	12
21	92.48	1,196	0.499	-0.016	0.007	0.008	8	1,036
20	87.50	1,231	0.447	0.003	0.006	0.019	20	1,066
19	82.50	1,258	0.397	0.019	0.007	0.028	31	1,089
18	77.50	1,285	0.350	0.033	0.009	0.035	39	1,113
17	72.50	1,312	0.307	0.044	0.012	0.040	46	1,136
16	67.50	1,339	0.266	0.052	0.015	0.043	50	1,159
15	62.50	1,366	0.228	0.059	0.020	0.045	53	1,183
14	57.50	1,393	0.193	0.064	0.024	0.045	55	1,206
13	54.32	381	0.172	0.066	0.027	0.045	15	330
12	51.82	1,913	0.157	0.067	0.029	0.045	74	1,656
11	48.41	1,692	0.137	0.069	0.032	0.044	65	1,465
10	45.91	521	0.123	0.070	0.034	0.044	20	451
9	42.50	1,453	0.105	0.071	0.036	0.043	55	1,259
8	37.50	1,480	0.082	0.072	0.039	0.042	54	1,282
7	32.50	1,508	0.062	0.072	0.041	0.041	54	1,305
6	27.50	1,535	0.044	0.071	0.042	0.040	54	1,329
5	22.50	1,562	0.030	0.068	0.040	0.039	52	1,352
4	17.50	1,589	0.018	0.063	0.037	0.036	50	1,375
3	12.50	1,616	0.009	0.054	0.031	0.032	44	1,399
2	7.50	1,643	0.003	0.039	0.022	0.024	34	1,422
1	2.50	1,670	0.000	0.015	0.008	0.011	15	1,446
TTA	180.00	10	1.890	1.980	1.140	0.325	3	9
10' Omni	180.00	50	1.890	1.980	1.140	0.325	14	43
Andrew DB806D-Y	180.00	27	1.890	1.980	1.140	0.325	8	23
Round Low Profile PI	180.00	1,500	1.890	1.980	1.140	0.325	423	1,299
KMW HB-X-WM-17-65-00	170.00	48	1.686	1.069	0.793	0.215	9	41
KMW HB-X-WM-17-65-00	170.00	90	1.686	1.069	0.793	0.215	17	78
Side Arms	170.00	560	1.686	1.069	0.793	0.215	104	485
RFS DB-T1-6Z-8AB-0Z	164.00	88	1.569	0.685	0.629	0.159	12	76
Alcatel-Lucent RRH 2	162.00	119	1.531	0.580	0.580	0.142	15	103
Alcatel-Lucent RRH2X	162.00	132	1.531	0.580	0.580	0.142	16	114
Alcatel-Lucent RRH2x	162.00	170	1.531	0.580	0.580	0.142	21	147
Antel BXA-70063/6CF_	160.00	51	1.493	0.485	0.535	0.126	6	44
Commscope LNX-	160.00	116	1.493	0.485	0.535	0.126	13	101
Commscope HBXX-	160.00	245	1.493	0.485	0.535	0.126	27	212
Round Low Profile PI	160.00	1,500	1.493	0.485	0.535	0.126	163	1,299
12' Omni	158.00	40	1.456	0.399	0.492	0.110	4	35
Powerwave Allgon 702	153.00	13	1.366	0.222	0.397	0.075	1	11
Ericsson RRUS A2 B4	153.00	66	1.366	0.222	0.397	0.075	4	57
Ericsson RRUS 32 B30	153.00	180	1.366	0.222	0.397	0.075	12	156
Ericsson RRUS 11 B4	153.00	152	1.366	0.222	0.397	0.075	10	132
KMW AM-X-CD-14-65-00	153.00	109	1.366	0.222	0.397	0.075	7	95
Powerwave Allgon 777	153.00	105	1.366	0.222	0.397	0.075	7	91
Commscope SBNHH-	153.00	101	1.366	0.222	0.397	0.075	7	87

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:45 AM

Customer: AT&T Mobility

Commscope SBNHH-	153.00	101	1.366	0.222	0.397	0.075	7	87
Flat Low Profile Pla	153.00	1,500	1.366	0.222	0.397	0.075	98	1,299
CCI TPX-070821	152.00	45	1.348	0.192	0.380	0.069	3	39
Powerwave Allgon LGP	152.00	186	1.348	0.192	0.380	0.069	11	161
Raycap DC6-48-60-18-	150.00	20	1.312	0.138	0.347	0.056	1	17
Raycap DC6-48-60-18-	150.00	32	1.312	0.138	0.347	0.056	2	28
Ericsson RRUS 11 (Ba	150.00	300	1.312	0.138	0.347	0.056	15	260
Ericsson KRY 112 144	130.00	33	0.986	-0.113	0.124	-0.024	-1	29
Ericsson RRUS 11 B12	130.00	152	0.986	-0.113	0.124	-0.024	-3	132
Ericsson AIR 21, 1.3	130.00	249	0.986	-0.113	0.124	-0.024	-5	216
Ericsson AIR 21, 1.3	130.00	244	0.986	-0.113	0.124	-0.024	-5	212
Andrew LNX-6515DS-VT	130.00	154	0.986	-0.113	0.124	-0.024	-3	133
Flat T-Arm	130.00	750	0.986	-0.113	0.124	-0.024	-16	649
		51,781	83.692	25.524	26.724	6.236	2,107	44,836



**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	-61.84	-2.09	0.00	-263.13	0.00	263.13	5,720.10	2,860.05	14,705.4	7,363.67	0.00	0.00	0.047
5.00	-59.82	-2.07	0.00	-252.66	0.00	252.66	5,657.02	2,828.51	14,275.4	7,148.32	0.00	-0.01	0.046
10.00	-57.82	-2.03	0.00	-242.31	0.00	242.31	5,592.40	2,796.20	13,847.4	6,934.03	0.02	-0.02	0.045
15.00	-55.86	-1.99	0.00	-232.14	0.00	232.14	5,526.23	2,763.11	13,421.8	6,720.92	0.04	-0.03	0.045
20.00	-53.93	-1.95	0.00	-222.19	0.00	222.19	5,458.50	2,729.25	12,998.8	6,509.10	0.07	-0.03	0.044
25.00	-52.04	-1.90	0.00	-212.45	0.00	212.45	5,389.23	2,694.62	12,578.6	6,298.69	0.11	-0.04	0.043
30.00	-50.18	-1.85	0.00	-202.95	0.00	202.95	5,318.41	2,659.21	12,161.4	6,089.79	0.17	-0.05	0.043
35.00	-48.35	-1.80	0.00	-193.69	0.00	193.69	5,246.04	2,623.02	11,747.5	5,882.50	0.23	-0.06	0.042
40.00	-46.56	-1.75	0.00	-184.67	0.00	184.67	5,172.12	2,586.06	11,337.0	5,676.95	0.30	-0.07	0.042
45.00	-45.91	-1.74	0.00	-175.90	0.00	175.90	5,096.65	2,548.32	10,930.2	5,473.25	0.38	-0.08	0.041
46.82	-43.83	-1.68	0.00	-172.74	0.00	172.74	5,068.84	2,534.42	10,783.3	5,399.71	0.41	-0.09	0.041
50.00	-41.47	-1.60	0.00	-167.41	0.00	167.41	5,019.63	2,509.81	10,527.3	5,271.49	0.47	-0.09	0.040
53.65	-41.00	-1.59	0.00	-161.56	0.00	161.56	5,022.35	2,511.18	10,541.4	5,278.53	0.54	-0.10	0.039
55.00	-39.28	-1.54	0.00	-159.41	0.00	159.41	5,001.31	2,500.65	10,433.2	5,224.39	0.57	-0.10	0.038
60.00	-37.59	-1.49	0.00	-151.73	0.00	151.73	4,922.37	2,461.19	10,035.4	5,025.20	0.68	-0.11	0.038
65.00	-35.94	-1.44	0.00	-144.30	0.00	144.30	4,841.89	2,420.94	9,642.07	4,828.20	0.80	-0.12	0.037
70.00	-34.32	-1.40	0.00	-137.10	0.00	137.10	4,759.85	2,379.93	9,253.29	4,633.52	0.94	-0.13	0.037
75.00	-32.73	-1.36	0.00	-130.12	0.00	130.12	4,676.27	2,338.14	8,869.33	4,441.26	1.08	-0.14	0.036
80.00	-31.18	-1.33	0.00	-123.33	0.00	123.33	4,591.14	2,295.57	8,490.42	4,251.52	1.23	-0.15	0.036
85.00	-29.66	-1.31	0.00	-116.68	0.00	116.68	4,504.45	2,252.23	8,116.79	4,064.43	1.40	-0.16	0.035
90.00	-28.18	-1.30	0.00	-110.12	0.00	110.12	4,415.53	2,207.76	7,747.44	3,879.48	1.57	-0.17	0.035
94.97	-28.17	-1.31	0.00	-103.64	0.00	103.64	4,298.33	2,149.16	7,339.59	3,675.25	1.76	-0.18	0.035
95.00	-25.67	-1.31	0.00	-103.59	0.00	103.59	4,297.54	2,148.77	7,336.89	3,673.90	1.76	-0.18	0.034
100.00	-25.44	-1.31	0.00	-97.05	0.00	97.05	4,179.55	2,089.78	6,937.52	3,473.92	1.96	-0.20	0.034
100.47	-24.28	-1.33	0.00	-96.43	0.00	96.43	3,534.77	1,767.38	5,979.53	2,994.21	1.98	-0.20	0.039
105.00	-23.04	-1.35	0.00	-90.43	0.00	90.43	3,470.53	1,735.26	5,721.84	2,865.17	2.17	-0.21	0.038
110.00	-21.82	-1.38	0.00	-83.69	0.00	83.69	3,398.20	1,699.10	5,441.65	2,724.87	2.39	-0.22	0.037
115.00	-20.63	-1.41	0.00	-76.81	0.00	76.81	3,324.32	1,662.16	5,165.90	2,586.79	2.63	-0.23	0.036
120.00	-19.48	-1.43	0.00	-69.77	0.00	69.77	3,248.89	1,624.44	4,894.82	2,451.05	2.88	-0.25	0.034
125.00	-18.34	-1.46	0.00	-62.61	0.00	62.61	3,148.66	1,574.33	4,594.70	2,300.76	3.14	-0.26	0.033
130.00	-15.36	-1.49	0.00	-55.33	0.00	55.33	3,047.52	1,523.76	4,302.79	2,154.59	3.42	-0.27	0.031
135.00	-14.35	-1.49	0.00	-47.86	0.00	47.86	2,946.39	1,473.20	4,020.47	2,013.22	3.71	-0.28	0.029
140.00	-13.37	-1.48	0.00	-40.40	0.00	40.40	2,845.26	1,422.63	3,747.72	1,876.65	4.01	-0.29	0.026
145.00	-12.68	-1.46	0.00	-33.01	0.00	33.01	2,744.13	1,372.06	3,484.56	1,744.87	4.32	-0.30	0.024
148.62	-12.49	-1.45	0.00	-27.74	0.00	27.74	2,670.97	1,335.49	3,300.17	1,652.54	4.56	-0.31	0.021
148.62	-12.49	-1.45	0.00	-27.74	0.00	27.74	1,682.77	841.39	2,096.43	1,049.77	4.56	-0.31	0.034
150.00	-11.79	-1.42	0.00	-25.73	0.00	25.73	1,670.84	835.42	2,059.67	1,031.37	4.65	-0.31	0.032
152.00	-11.37	-1.40	0.00	-22.89	0.00	22.89	1,653.39	826.69	2,006.83	1,004.91	4.78	-0.32	0.030
153.00	-8.25	-1.22	0.00	-21.49	0.00	21.49	1,644.57	822.28	1,980.55	991.75	4.85	-0.32	0.027
155.00	-7.89	-1.19	0.00	-19.06	0.00	19.06	1,626.74	813.37	1,928.26	965.56	4.98	-0.33	0.025
158.00	-7.61	-1.16	0.00	-15.49	0.00	15.49	1,599.53	799.76	1,850.55	926.65	5.19	-0.33	0.021
160.00	-5.05	-0.92	0.00	-13.17	0.00	13.17	1,581.08	790.54	1,799.26	900.97	5.33	-0.34	0.018
162.00	-4.33	-0.85	0.00	-11.32	0.00	11.32	1,562.38	781.19	1,748.38	875.49	5.47	-0.34	0.016
164.00	-4.12	-0.82	0.00	-9.63	0.00	9.63	1,543.44	771.72	1,697.94	850.23	5.61	-0.34	0.014
165.00	-3.65	-0.76	0.00	-8.80	0.00	8.80	1,533.87	766.94	1,672.89	837.69	5.68	-0.34	0.013
170.00	-2.36	-0.55	0.00	-5.03	0.00	5.03	1,485.12	742.56	1,549.38	775.84	6.04	-0.35	0.008
175.00	-1.96	-0.46	0.00	-2.30	0.00	2.30	1,432.25	716.13	1,426.40	714.26	6.41	-0.35	0.005
180.00	0.00	-0.45	0.00	0.00	0.00	0.00	1,364.83	682.42	1,294.62	648.27	6.78	-0.35	0.000

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:45 AM

Customer: AT&T Mobility

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	-43.39	-2.09	0.00	-259.79	0.00	259.79	5,720.10	2,860.05	14,705.4	7,363.67	0.00	0.00	0.043
5.00	-41.97	-2.07	0.00	-249.32	0.00	249.32	5,657.02	2,828.51	14,275.4	7,148.32	0.00	-0.01	0.042
10.00	-40.57	-2.03	0.00	-239.00	0.00	239.00	5,592.40	2,796.20	13,847.4	6,934.03	0.02	-0.02	0.042
15.00	-39.19	-1.98	0.00	-228.86	0.00	228.86	5,526.23	2,763.11	13,421.8	6,720.92	0.04	-0.03	0.041
20.00	-37.84	-1.94	0.00	-218.95	0.00	218.95	5,458.50	2,729.25	12,998.8	6,509.10	0.07	-0.03	0.041
25.00	-36.51	-1.89	0.00	-209.28	0.00	209.28	5,389.23	2,694.62	12,578.6	6,298.69	0.11	-0.04	0.040
30.00	-35.21	-1.84	0.00	-199.84	0.00	199.84	5,318.41	2,659.21	12,161.4	6,089.79	0.16	-0.05	0.039
35.00	-33.92	-1.79	0.00	-190.66	0.00	190.66	5,246.04	2,623.02	11,747.5	5,882.50	0.22	-0.06	0.039
40.00	-32.66	-1.74	0.00	-181.73	0.00	181.73	5,172.12	2,586.06	11,337.0	5,676.95	0.29	-0.07	0.038
45.00	-32.21	-1.72	0.00	-173.05	0.00	173.05	5,096.65	2,548.32	10,930.2	5,473.25	0.37	-0.08	0.038
46.82	-30.75	-1.65	0.00	-169.93	0.00	169.93	5,068.84	2,534.42	10,783.3	5,399.71	0.40	-0.08	0.038
50.00	-29.09	-1.58	0.00	-164.66	0.00	164.66	5,019.63	2,509.81	10,527.3	5,271.49	0.46	-0.09	0.037
53.65	-28.76	-1.57	0.00	-158.89	0.00	158.89	5,022.35	2,511.18	10,541.4	5,278.53	0.53	-0.10	0.036
55.00	-27.56	-1.51	0.00	-156.77	0.00	156.77	5,001.31	2,500.65	10,433.2	5,224.39	0.56	-0.10	0.036
60.00	-26.37	-1.46	0.00	-149.20	0.00	149.20	4,922.37	2,461.19	10,035.4	5,025.20	0.67	-0.11	0.035
65.00	-25.21	-1.42	0.00	-141.89	0.00	141.89	4,841.89	2,420.94	9,642.07	4,828.20	0.79	-0.12	0.035
70.00	-24.08	-1.37	0.00	-134.81	0.00	134.81	4,759.85	2,379.93	9,253.29	4,633.52	0.92	-0.13	0.034
75.00	-22.96	-1.33	0.00	-127.96	0.00	127.96	4,676.27	2,338.14	8,869.33	4,441.26	1.06	-0.14	0.034
80.00	-21.87	-1.30	0.00	-121.29	0.00	121.29	4,591.14	2,295.57	8,490.42	4,251.52	1.21	-0.15	0.033
85.00	-20.81	-1.28	0.00	-114.77	0.00	114.77	4,504.45	2,252.23	8,116.79	4,064.43	1.38	-0.16	0.033
90.00	-19.77	-1.28	0.00	-108.35	0.00	108.35	4,415.53	2,207.76	7,747.44	3,879.48	1.55	-0.17	0.032
94.97	-19.76	-1.28	0.00	-102.00	0.00	102.00	4,298.33	2,149.16	7,339.59	3,675.25	1.73	-0.18	0.032
95.00	-18.01	-1.28	0.00	-101.96	0.00	101.96	4,297.54	2,148.77	7,336.89	3,673.90	1.73	-0.18	0.032
100.00	-17.85	-1.29	0.00	-95.54	0.00	95.54	4,179.55	2,089.78	6,937.52	3,473.92	1.93	-0.19	0.032
100.47	-17.04	-1.30	0.00	-94.94	0.00	94.94	3,534.77	1,767.38	5,979.53	2,994.21	1.95	-0.19	0.037
105.00	-16.16	-1.32	0.00	-89.06	0.00	89.06	3,470.53	1,735.26	5,721.84	2,865.17	2.14	-0.20	0.036
110.00	-15.31	-1.35	0.00	-82.45	0.00	82.45	3,398.20	1,699.10	5,441.65	2,724.87	2.36	-0.22	0.035
115.00	-14.48	-1.38	0.00	-75.70	0.00	75.70	3,324.32	1,662.16	5,165.90	2,586.79	2.59	-0.23	0.034
120.00	-13.66	-1.41	0.00	-68.80	0.00	68.80	3,248.89	1,624.44	4,894.82	2,451.05	2.84	-0.24	0.032
125.00	-12.87	-1.43	0.00	-61.76	0.00	61.76	3,148.66	1,574.33	4,594.70	2,300.76	3.09	-0.25	0.031
130.00	-10.77	-1.47	0.00	-54.62	0.00	54.62	3,047.52	1,523.76	4,302.79	2,154.59	3.37	-0.27	0.029
135.00	-10.07	-1.47	0.00	-47.27	0.00	47.27	2,946.39	1,473.20	4,020.47	2,013.22	3.65	-0.28	0.027
140.00	-9.38	-1.46	0.00	-39.92	0.00	39.92	2,845.26	1,422.63	3,747.72	1,876.65	3.95	-0.29	0.025
145.00	-8.90	-1.44	0.00	-32.63	0.00	32.63	2,744.13	1,372.06	3,484.56	1,744.87	4.26	-0.30	0.022
148.62	-8.76	-1.43	0.00	-27.43	0.00	27.43	2,670.97	1,335.49	3,300.17	1,652.54	4.49	-0.31	0.020
148.62	-8.76	-1.43	0.00	-27.43	0.00	27.43	1,682.77	841.39	2,096.43	1,049.77	4.49	-0.31	0.031
150.00	-8.27	-1.40	0.00	-25.45	0.00	25.45	1,670.84	835.42	2,059.67	1,031.37	4.58	-0.31	0.030
152.00	-7.97	-1.38	0.00	-22.66	0.00	22.66	1,653.39	826.69	2,006.83	1,004.91	4.71	-0.31	0.027
153.00	-5.79	-1.20	0.00	-21.28	0.00	21.28	1,644.57	822.28	1,980.55	991.75	4.77	-0.32	0.025
155.00	-5.53	-1.17	0.00	-18.88	0.00	18.88	1,626.74	813.37	1,928.26	965.56	4.91	-0.32	0.023
158.00	-5.33	-1.15	0.00	-15.35	0.00	15.35	1,599.53	799.76	1,850.55	926.65	5.11	-0.33	0.020
160.00	-3.54	-0.91	0.00	-13.05	0.00	13.05	1,581.08	790.54	1,799.26	900.97	5.25	-0.33	0.017
162.00	-3.04	-0.84	0.00	-11.22	0.00	11.22	1,562.38	781.19	1,748.38	875.49	5.39	-0.33	0.015
164.00	-2.89	-0.81	0.00	-9.54	0.00	9.54	1,543.44	771.72	1,697.94	850.23	5.53	-0.34	0.013
165.00	-2.56	-0.75	0.00	-8.73	0.00	8.73	1,533.87	766.94	1,672.89	837.69	5.60	-0.34	0.012
170.00	-1.66	-0.54	0.00	-4.99	0.00	4.99	1,485.12	742.56	1,549.38	775.84	5.95	-0.34	0.008
175.00	-1.37	-0.46	0.00	-2.28	0.00	2.28	1,432.25	716.13	1,426.40	714.26	6.31	-0.35	0.004
180.00	0.00	-0.45	0.00	0.00	0.00	0.00	1,364.83	682.42	1,294.62	648.27	6.68	-0.35	0.000

Site Number: 310972

Code: ANSI/TIA-222-G

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Site Name: Waterford Rebuild CT, CT

Engineering Number: OAA671285\_C3\_01

6/23/2016 8:12:45 AM

Customer: AT&T Mobility

### Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	45.24	0.00	62.06	0.00	0.00	5587.97	0.00	0.77
0.9D + 1.6W	45.22	0.00	46.53	0.00	0.00	5531.29	0.00	0.76
1.2D + 1.0Di + 1.0Wi	8.56	0.00	90.48	0.00	0.00	1054.50	0.00	0.16
(1.2 + 0.2Sds) * DL + E ELFM	2.02	0.00	61.84	0.00	0.00	280.66	0.00	0.05
(1.2 + 0.2Sds) * DL + E EMAM	2.09	0.00	61.84	0.00	0.00	263.13	0.00	0.05
(0.9 - 0.2Sds) * DL + E ELFM	2.02	0.00	43.39	0.00	0.00	277.27	0.00	0.05
(0.9 - 0.2Sds) * DL + E EMAM	2.09	0.00	43.39	0.00	0.00	259.79	0.00	0.04
1.0D + 1.0W	7.07	0.00	51.78	0.00	0.00	868.30	0.00	0.13

<b>Base/Flange Plate</b>	Plate Type	<b>Baseplate</b>
	Pole Diameter	62.45 in
	Pole Thickness	0.4375 in
	Plate Diameter	75 in
	Plate Thickness	2.75 in
	Plate Fy	60 ksi
	Weld Length	0.3125 in
	$\phi_s$ Resistance	1001.50 k-in
	Applied	325.68 k-in
<b>Stiffeners</b>	#	0

Code Rev. **G**  
**1.00**  
 Moment **5588.0 k-ft**  
 Axial **62.1 k**

Date **6/22/2016**  
 Engineer **CCP**  
 Site # **310972**  
 Carrier **AT&T**

<b>Bolts</b>	#	<b>20</b>
	Bolt Circle (R)adial / (S)quare	69 in R
	Diameter	2.25 in
	Hole Diameter	2.625 in
	Type	A615-75
	Fy	75 ksi
	Fu	100 ksi
	$\phi_s$ Resistance	259.82 k
	Applied	197.38 k
<b>Reinforcement</b>	#	0
	#	0
<b>Extra Bolts O</b>	#	0

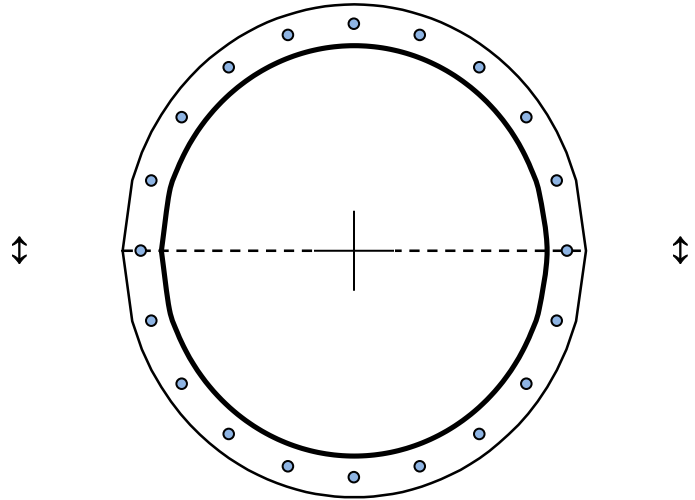


Plate Stress Ratio:  
**0.33** (Pass)

Bolt Stress Ratio:  
**0.76** (Pass)

<b>Base/Flange Plate</b>	Plate Type	<b>Flange @ 148.6 ft</b>
	Pole Diameter	30.08 in
	Pole Thickness	0.25 in
	Plate Diameter	37.5 in
	Plate Thickness	2 in
	Plate Fy	50 ksi
	Weld Length	0.3125 in
	Allowable	177.19 k-in
	Applied	20.82 k-in
	<b>Stiffeners</b>	#

Code Rev. **G**

Date **6/22/2016**  
 Engineer **CCP**  
 Site # **310972**  
 Carrier **AT&T**

Moment **270.4 k-ft**  
 Axial **10.4 k**

Required Flange Thickness:  
**0.69 in** OK

<b>Bolts</b>	#	<b>24</b>
	Bolt Circle	34.5 in
	(R)adial / (S)quare	R
	Diameter	1 in
	Hole Diameter	1.0625 in
	Type	A325
	Fy	92 ksi
	Fu	120 ksi
	Allowable	54.52 k
	Applied	15.24 k
<b>Reinforcement</b>	#	0
<b>Extra Bolts O</b>	#	0

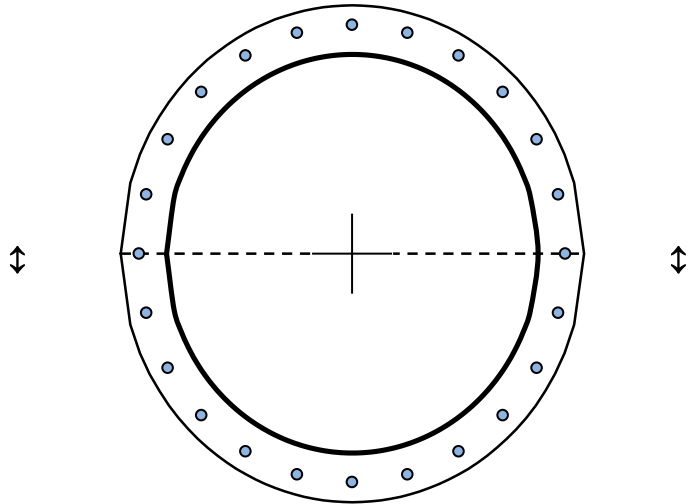


Plate Stress Ratio:  
**0.12** (Pass)

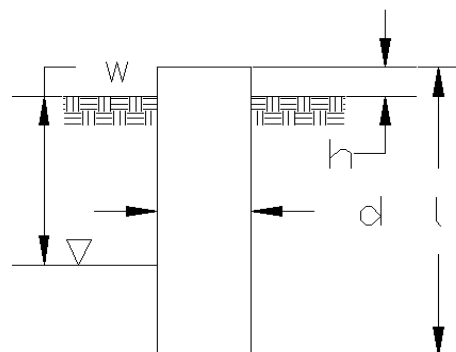
Bolt Stress Ratio:  
**0.28** (Pass)

Site Name: Waterford CT, CT  
 Site Number: 310972  
 Engineer: C. Poe  
 Engineering Number: OAA671285\_C3\_01  
 Date: 06/23/16

Program Last Updated: 5/13/2014  
 American Tower Corporation

**Design Base Loads (Factored) - Analysis per TIA-222-G Standards**

Analyze or Design a Foundation? Analyze  
 Foundation Mapped: N  
 Moment (M): 5588.0 k-ft  
 Shear/Leg (V): 45.2 k  
 Axial Load (P): 62.1 k  
 Uplift/Leg (U): 0.0 k  
 Tower Type (GT / SST / MP): MP



Diameter of Caisson (d): 8.0 ft  
 Caisson Embedment (L-h): 26.0 ft  
 Caisson Height Above Ground (h): 0.5 ft  
 Depth Below Ground Surface to Water Table (w): 99.0 ft  
 Unit Weight of Concrete: 150.0 pcf  
 Unit Weight of Water: 62.4 pcf  
 Tension Skin Friction/Compression Skin Friction: 1.00  
 Pullout Angle: 30.0 degrees

Engineer Notes

**Soil Mechanical Properties**

Depth (ft)		$\gamma_{Soil}$	Cohesion	$\phi$	Ultimate Skin	Ultimate Bearing
Top	Bottom	(pcf)	(psf)	(degree)	Friction (psf)	Pressure (psf)
0.0	4.0	110	0	0	0	0
4.0	20.0	110	0	33	1000	0
20.0	27.0	110	0	33	1400	12000

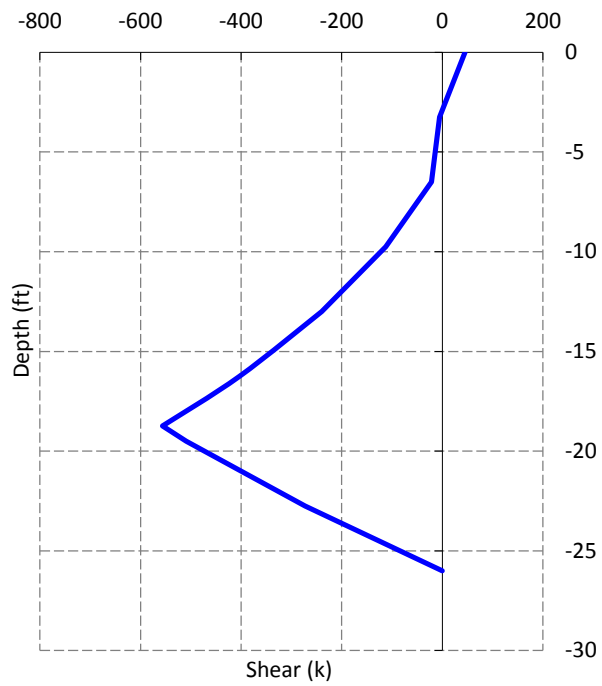
Required Embedment: 23.9 ft - OK, Caisson Embedment Satisfactory  
 Volume of Concrete: 1332.0 ft<sup>3</sup> = 49.3 yd<sup>3</sup>  
 Weight of Concrete (Buoyancy Effect Considered): 199.8 k  
 Average Soil Unit Weight: 110.0 pcf  
 Skin Friction Resistance: 613.2 k  
 Compressive Bearing Resistance: 603.2 k  
 Pullout Weight (Minus Concrete Weight): 1214.4 k  
 Nominal Uplift Capacity per Leg ( $\phi_s T_n$ ): 609.8 k  
 Nominal Compressive Capacity per Leg ( $\phi_s P_n$ ): 912.3 k  
 $P_u$ : 124.8 k  
 $T_u / \phi_s T_n$ : 0.00 Result: OK  
 $P_u / \phi_s P_n$ : 0.14 Result: OK  
 Total Lateral Resistance: 2469.0 k  
 Inflection Point (Below Ground Surface): 18.7 ft  
 Design Overturning Moment At Inflection Point ( $M_D$ ): 6458.2 k-ft  
 Nominal Moment Capacity ( $\phi_s M_n$ ): 8656.0 k-ft  
 $M_D / \phi_s M_n$ : 0.75 Result: OK  
 $\phi_s$ : 0.75



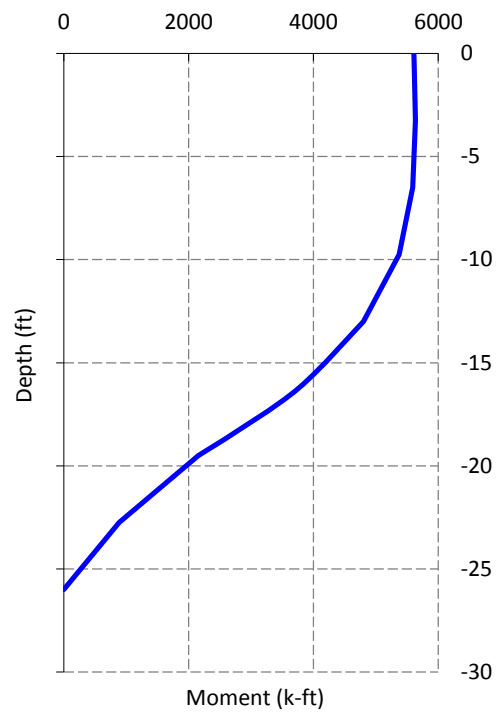
## Caisson Strength Capacity

Concrete Compressive Strength ( $f'_c$ ):	4000 psi
Vertical Steel Rebar Size #:	10
Vertical Steel Rebar Area:	1.27 in <sup>2</sup>
# of Vertical Steel Rebars:	40
Vertical Steel Rebar Yield Strength ( $F_y$ ):	60 ksi
Horizontal Tie / Stirrup Size #:	5
Horizontal Tie / Stirrup Area:	0.31 in <sup>2</sup>
Design Horizontal Tie / Stirrup Spacing:	6.0 in
Horizontal Tie / Stirrup Steel Yield Strength ( $F_y$ ):	60 ksi
Rebar Cage Diameter:	88.0 in
Strength Bending/Tension Reduction Factor ( $\phi_B$ ):	0.90 ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor ( $\phi_V$ ):	0.75 ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor ( $\phi_P$ ):	0.65 ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000 ksi
Design Moment ( $M_u$ ):	5635.0 k-ft
Nominal Moment Capacity ( $\phi_B M_n$ ):	9838.8 k-ft - ACI318-005 - 10.2
$M_u/\phi_B M_n$ :	0.57 Result: OK
Design Shear ( $V_u$ ):	556.3 k
Nominal Shear Capacity ( $\phi_V V_n$ ):	689.6 k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$ :	0.81 Result: OK
Design Tension ( $T_u$ ):	0.0 k
Nominal Tension Capacity ( $\phi_T T_n$ ):	2743.2 k - ACI318-05 - 10.2
$T_u/\phi_T T_n$ :	0.00 Result: OK
Design Compression ( $P_u$ ):	124.8 k
Nominal Compression Capacity ( $\phi_P P_n$ ):	12707.4 k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$ :	0.01 Result: OK
Bending Reinforcement Ratio:	0.007 ACI318-05 - 10.8.4 & 10.9.1
$M_u/\phi_B M_n + T_u/\phi_T T_n$ :	0.57 Result: OK

Design Factored Shear / Depth



Design Factored Moment / Depth



Nominal and Factored Moment Capacity and Factored Design Loads

