



January 11, 2017

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

Re: Notice of Exempt Modification – Antenna Swap
Property Address: 438 Bridgeport Ave., Milford, CT 06460
Applicant: AT&T Mobility, LLC

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72(b) (2).

AT&T currently maintains a wireless telecommunications facility consisting of nine (9) wireless telecommunication antennas at an antenna center line height of 103-feet on an existing 103 -foot monopole tower, owned by American Tower, and located at 438 Bridgeport Ave., Milford, CT 06460. AT&T now intends to ADD (2) WCS FILTERS (TYP. OF ALPHA AND BETA SECTORS).

Pursuant to the foregoing opinion, the Connecticut Siting Council hereby directs that a certificate of environmental compatibility and public need as required by section 1650k of the General Statutes of Connecticut, revisions of 1958, revised to 1983, as amended, be issued to the Southern New England Telephone Company for the construction, operation, and maintenance of a telecommunications tower and associated equipment to provide cellular service at the site listed above. SEE ATTACHED decision and order subject to the Council's record on this matter.

Subsequent decisions are as follows:

Springwich Cellular Ltd. Partnership notice of intent to modify existing telecommunications facilities located on Farmdale Dr., Waterbury; 77 Pease Rd., Woodbridge; 438 Bridgeport Ave., **Milford**; 405 Brushy Plain Rd, Branford; 8 Dwight St., North Haven; and 310 Orange St., New Haven.

Springwich Cellular Ltd. Partnership notice of intent to modify an existing telecommunications facility located at 438 Bridgeport Avenue in **Milford**.

[85 Range way Rd Bldg. #3 Suite 102 North Billerica | MA 01862-2105](#)



EM-CING-084-060728 - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 438 Bridgeport Avenue, **Milford**, Connecticut.

EM-CING-084-080917 - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 438 Bridgeport Avenue, **Milford**, Connecticut.

EM-CING-084-110225 - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 438 Bridgeport Avenue, **Milford**, Connecticut.

EM-AT&T-084-160311 – AT&T Mobility, LLC notice of intent to modify an existing telecommunications facility located at 438 Bridgeport Avenue, Milford, Connecticut. Decision.

EM-CING-084-160926 – New Cingular Wireless PCS, LLC (AT&T) notice of intent to modify an existing telecommunications facility located at 438 Bridgeport Avenue, Milford, Connecticut. Decision.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-510j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to Benjamin G Blake, Mayor, City of Milford, 110 River St Milford, CT 06460. A copy of this letter is also being sent to American Tower Corporation-Tower Owner- at 116 Huntington Ave., 11th floor, Boston, MA 02116 and Charchenko, Henry & Genevieve & Co-Owner C/O Spectrasite Communications P O Box 723597 Prop Tax Dept. Atlanta, GA 31139.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 103-foot level of the 103-foot monopole.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require an extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in [Tab 2](#).
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in [Tab 3](#)).



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

Sincerely,

David Barbagallo

Enclosures

CC w/enclosures:

| Benjamin G Blake, Mayor, City of Milford

American Tower Corporation-Tower Owner

Charchenko, Henry & Genevieve & Co-Owner C/O Spectrasite Communications - Property Owner

33 Boston Post Road West, Marlborough, MA 01752

3

StartAntennaData

It is advisable to provide an ID (ant 1) for all antennas

ID	Name	(MHz) Freq	Trans Power	Trans Count	Coax Len	Coax Type	Other Losses	Input Power
1	AT&T MOB	850	20.46414		2	0		40.92828
1	AT&T MOB	1900	19.83236		2	0		39.66472
2	AT&T MOB	850	21.18329		1	0		21.18329
2	AT&T MOB	2300	39.17418		1	0		39.17418
3	AT&T MOB	737	54.07534		1	0		54.07534
3	AT&T MOB	1900	71.28514		1	0		71.28514
4	AT&T MOB	850	20.46414		2	0		40.92828
4	AT&T MOB	1900	19.83236		2	0		39.66472
5	AT&T MOB	850	21.18329		1	0		21.18329
5	AT&T MOB	2300	39.17418		1	0		39.17418
6	AT&T MOB	737	54.07534		1	0		54.07534
6	AT&T MOB	1900	71.28514		1	0		71.28514
7	AT&T MOB	850	20.46414		2	0		40.92828
7	AT&T MOB	1900	19.83236		2	0		39.66472
8	AT&T MOB	850	21.18329		1	0		21.18329
8	AT&T MOB	2300	39.17418		1	0		39.17418
9	AT&T MOB	737	54.07534		1	0		54.07534
9	AT&T MOB	1900	71.28514		1	0		71.28514

StartSymbolData

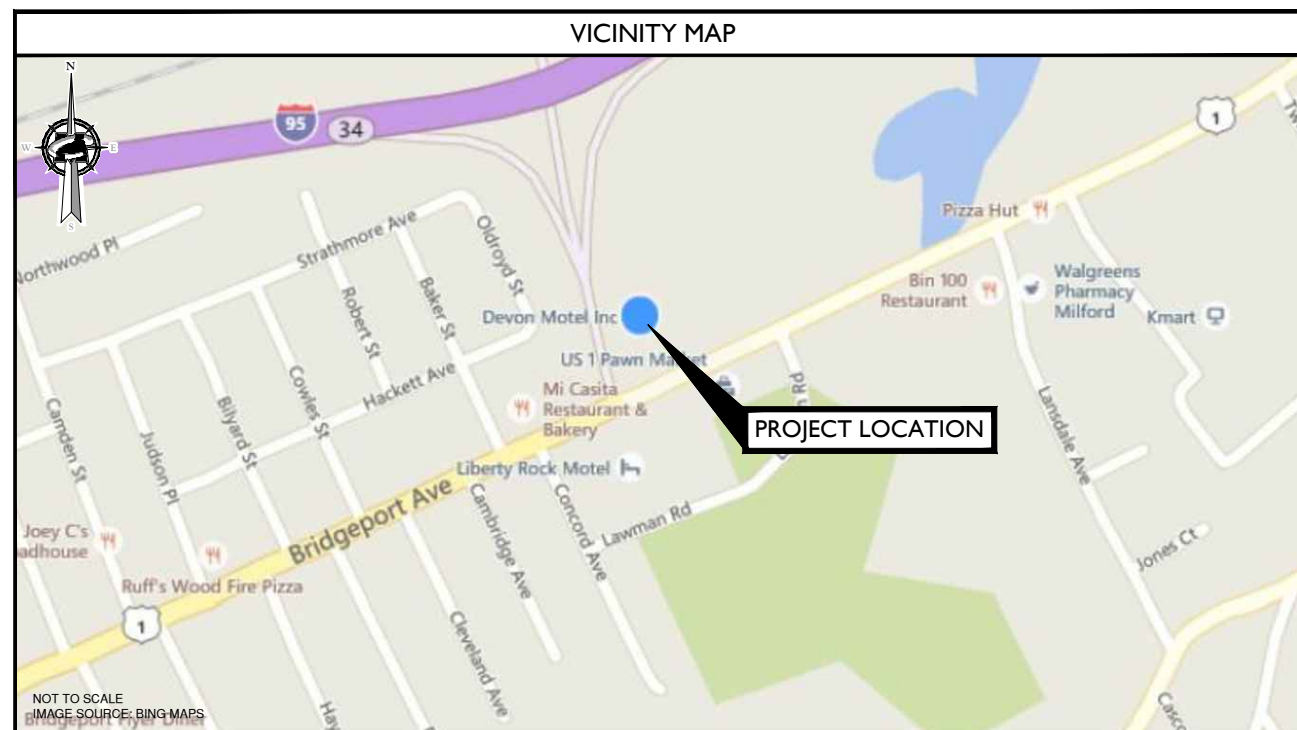
Calc			(ft)	(ft)	(ft)		(ft)	dBd
Power	Mfg	Model	X	Y	Z	Type	Aper	Gain
	Powerwave	7770	47.19	61.67	100.7085	Panel	4.583	11.51
	Powerwave	7770	47.19	61.67	100.7085	Panel	4.583	13.41
	CCI Antenn	OPA-65R-L	50.05	60.62	101	Panel	4	11.36
	CCI Antenn	OPA-65R-L	50.05	60.62	101	Panel	4	14.26
	KMW	AM-X-CD-1	52.92	59.56	101	Panel	4	11.66
	KMW	AM-X-CD-1	52.92	59.56	101	Panel	4	13.86
	Powerwave	7770	55.88	57.89	100.7085	Panel	4.583	11.51
	Powerwave	7770	55.88	57.89	100.7085	Panel	4.583	13.41
	CCI Antenn	OPA-65R-L	53.55	55.94	101	Panel	4	11.36
	CCI Antenn	OPA-65R-L	53.55	55.94	101	Panel	4	14.26
	KMW	AM-X-CD-1	51.23	53.99	101	Panel	4	11.66
	KMW	AM-X-CD-1	51.23	53.99	101	Panel	4	13.86
	Powerwave	7770	48.35	52.3	100.7085	Panel	4.583	11.51
	Powerwave	7770	48.35	52.3	100.7085	Panel	4.583	13.41
	CCI Antenn	OPA-65R-L	47.82	55.28	101	Panel	4	11.36
	CCI Antenn	OPA-65R-L	47.82	55.28	101	Panel	4	14.26
	KMW	AM-X-CD-1	47.28	58.25	101	Panel	4	11.66
	KMW	AM-X-CD-1	47.28	58.25	101	Panel	4	13.86

BWdth	Uptime	ON
Pt Dir	Profile	flag
82;19	100%	ON•
86;19	100%	ON•
60;19	100%	ON•
61.1;19	100%	ON•
67;19	100%	ON•
65;19	100%	ON•
82;140	100%	ON•
86;140	100%	ON•
60;140	100%	ON•
61.1;140	100%	ON•
67;140	100%	ON•
65;140	100%	ON•
82;262	100%	ON•
86;262	100%	ON•
60;262	100%	ON•
61.1;262	100%	ON•
67;262	100%	ON•
65;262	100%	ON•



**SITE NAME: MILFORD-BRIDGEPORT AVE
 FA NUMBER: 10034978
 SITE NUMBER: CTL02111
 RETROFIT-MRCTB019165
 438 BRIDGEPORT AVENUE
 MILFORD, CT 06460
 NEW HAVEN COUNTY**

**AMERICAN TOWER SITE NAME: MLFD - MILFORD, CT
 AMERICAN TOWER SITE NUMBER: 302516**



PROJECT TEAM	
CLIENT REPRESENTATIVE	
COMPANY:	SMARTLINK, LLC
ADDRESS:	85 RANGEWAY ROAD, BUILDING 3, SUITE 102
CITY, STATE, ZIP:	NORTH BILLERICA, MA 01862-2105
CONTACT:	TODD OLIVER
PHONE:	(774) 369-3618
E-MAIL:	TODD.OLIVER@SMARTLINKLLC.COM
SITE ACQUISITION	
COMPANY:	SMARTLINK, LLC
ADDRESS:	85 RANGEWAY ROAD, BUILDING 3, SUITE 102
CITY, STATE, ZIP:	NORTH BILLERICA, MA 01862-2105
CONTACT:	TODD OLIVER
PHONE:	(774) 369-3618
E-MAIL:	TODD.OLIVER@SMARTLINKLLC.COM
ENGINEER	
COMPANY:	MASER CONSULTING CONNECTICUT
ADDRESS:	331 NEWMAN SPRINGS ROAD
CITY, STATE, ZIP:	RED BANK, NJ 07701-5699
CONTACT:	FRANK PAZDEN
PHONE:	(732) 383-1950
E-MAIL:	FPAZDEN@MASERCONSULTING.COM
RF ENGINEER	
COMPANY:	NEW CINGULAR WIRELESS PCS, LLC
ADDRESS:	550 COCHITUATE ROAD
CITY, STATE, ZIP:	FRAMINGHAM, MA 01701
CONTACT:	SAJJAD SALAHUDDIN
E-MAIL:	SS315Y@ATT.COM
CONSTRUCTION MANAGER	
COMPANY:	SMARTLINK, LLC
ADDRESS:	85 RANGEWAY ROAD, BUILDING 3, SUITE 102
CITY, STATE, ZIP:	NORTH BILLERICA, MA 01862-2105
CONTACT:	MARK DONNELLY
PHONE:	(617) 515-2080
E-MAIL:	MARK.DONNELLY@SMARTLINKLLC.COM

SITE INFORMATION	
APPLICANT/LESSEE	
NEW CINGULAR WIRELESS PCS, LLC 550 COCHITUATE ROAD FRAMINGHAM, MA 01701	
PROPERTY/TOWER OWNER:	
NAME:	AMERICAN TOWER
ADDRESS:	116 HUNTINGTON AVE., 11TH FLOOR
CITY, STATE, ZIP:	BOSTON, MA 02116
SITE #:	302516
LATITUDE:	41.2066031° N
LONGITUDE:	73.0933881° W
LAT./LONG. TYPE:	NAD 83
AREA OF CONSTRUCTION:	EXISTING EQUIPMENT SHELTER AND MONOPOLE
ZONING/JURISDICTION:	CITY OF MILFORD
CURRENT USE/PROPOSED USE:	UNMANNED TELECOMMUNICATIONS FACILITY
HANDICAP REQUIREMENTS:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.
CONSTRUCTION TYPE:	IIB
USE GROUP:	U

CODE COMPLIANCE	
ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.	
1. 2016 CONNECTICUT STATE BUILDING CODE INCORPORATING THE 2012 IBC	7. EIA/TIA-222 REVISION G
2. NATIONAL ELECTRIC CODE 2014	8. TIA 607 FOR GROUNDING
3. NATIONAL FIRE PROTECTION ASSOCIATION 70 - 2015	9. INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS 81
4. LIGHTNING PROTECTION CODE 2011	10. IEEE C2 LATEST EDITION
5. AMERICAN CONCRETE INSTITUTE 318	11. TELCORDIA GR-1275 12, ANSI T1.311
6. AMERICAN INSTITUTE OF STEEL CONSTRUCTION 360-10.	

GENERAL CONTRACTOR NOTES	
DO NOT SCALE DRAWINGS	
CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.	

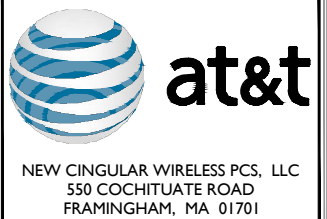
GENERAL NOTES	
THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE, NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.	

SHEET	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
A-1	COMPOUND AND EQUIPMENT PLAN
A-2	ELEVATION VIEW AND ANTENNA SCHEDULE
A-3	ANTENNA LAYOUTS
A-4	DETAILS
A-5	RF PLUMBING DIAGRAMS
G-1	GROUNDING DETAILS

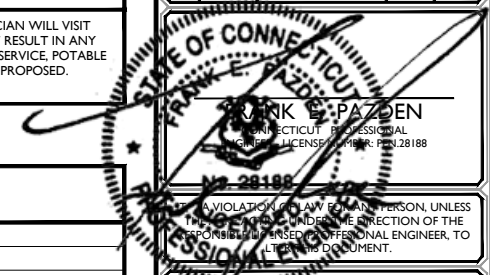
PROJECT DESCRIPTION/SCOPE OF WORK	
THIS PROJECT WILL BE COMPRISED OF	
<ul style="list-style-type: none"> ADD (2) WCS FILTERS (TYP. OF ALPHA AND BETA SECTORS) 	
PROPOSED PROJECT SCOPE BASED ON RFDS ID# 751620, VERSION 3.0, LAST UPDATED 05/20/16	



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SCALE:	JOB NUMBER:			
AS SHOWN	16946017A			
1	12/19/16			
0	12/09/16			
REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
		FOR CONSTRUCTION	AJC	FEP
		ISSUED FOR REVIEW	AJC	FEP



SITE NAME:
 MILFORD-BRIDGEPORT AVE
 FA# 10034978
 SITE # CTL02111
 438 BRIDGEPORT AVENUE
 MILFORD, CT 06460
 NEW HAVEN COUNTY



SHEET TITLE:	TITLE SHEET
SHEET NUMBER:	T-1

20160419 MILFORD-BRIDGEPORT_MRCTB019165.ctb By: ACOA

- THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING 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.
- 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.
- THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 50 HMS OR LESS.
- THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
- METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
- 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.
- EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
- CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
- ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
- EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELDED CONNECTIONS.
- COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
- ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
- APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
- BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
- GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
- ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" 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.

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
- CONTRACTOR - SMARTLINK
SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
OWNER - AT&T (NEW CINGULAR WIRELESS PCS, LLC)
- ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
 - DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
 - 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.
 - UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
 - THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
 - 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.
 - 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.
 - THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
 - ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
 - ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
 - THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION.
 - SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
 - NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
 - THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
 - THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
 - IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
 - THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
 - SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
 - PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.

- 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.
- ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
- ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
- 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.
- CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
- 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.
- 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.
- 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 ALERT OF DANGEROUS EXPOSURE LEVELS.



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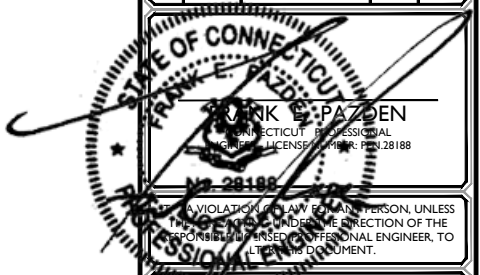
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SITE NAME:
MILFORD-BRIDGEPORT
AVE
FA# 10034978
SITE # CTL02111
438 BRIDGEPORT AVENUE
MILFORD, CT 06460
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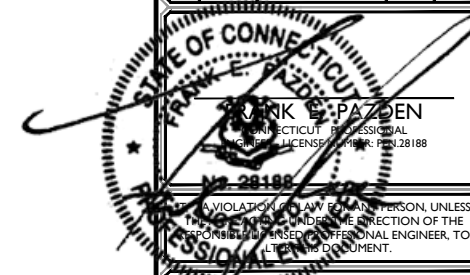
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331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
Fax: 732.383.1984
email: solutions@maserconsulting.com

SHEET TITLE:
GENERAL NOTES

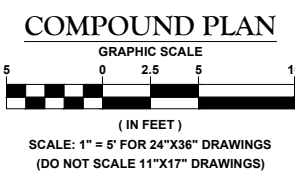
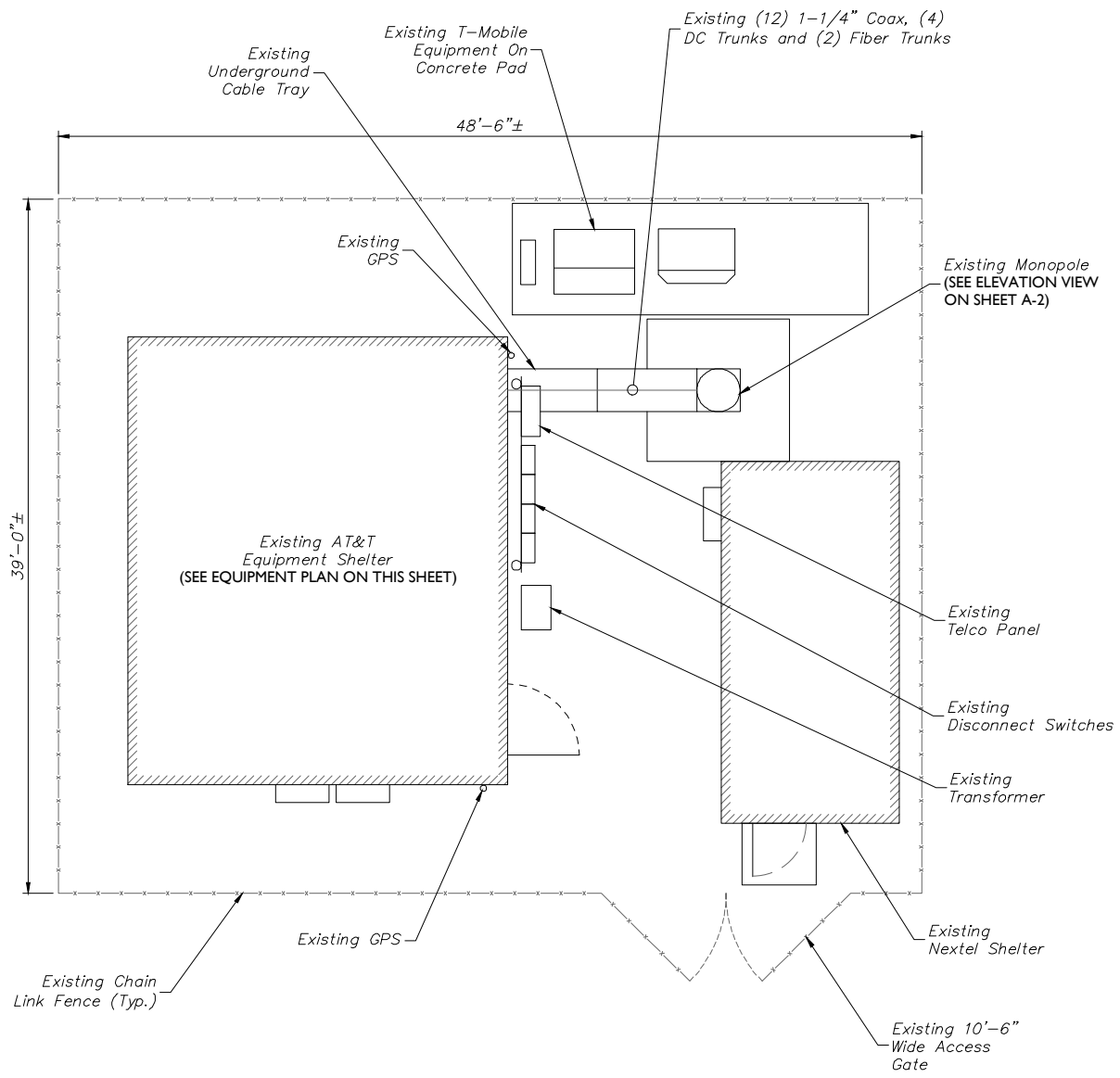
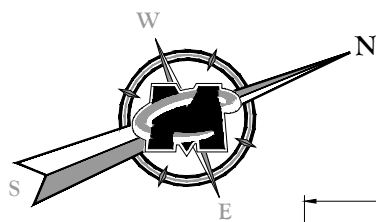
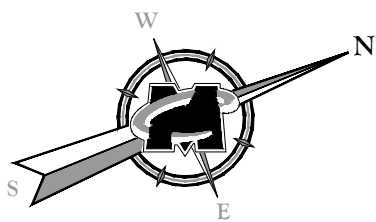
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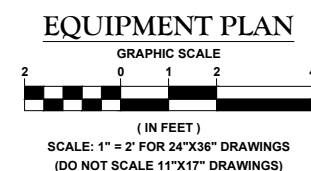
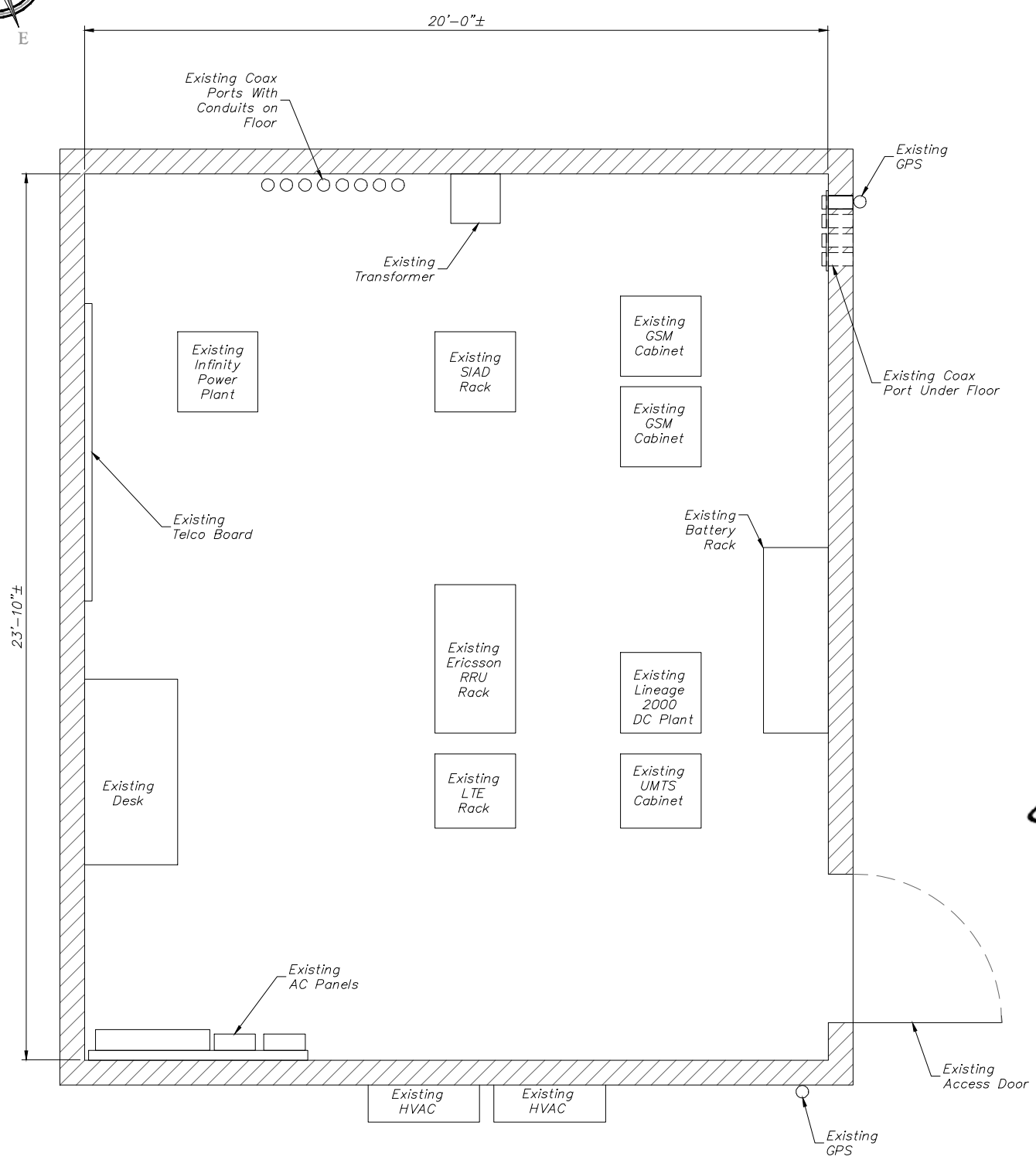
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FRANK E. PAZDEN
REGISTERED PROFESSIONAL ENGINEER
LICENSE NUMBER: 28188
VIOLATION OF LAW FOR ANY PERSON UNLESS THE ENGINEER HAS THE DIRECTION OF THE LICENSED PROFESSIONAL ENGINEER, TO LISTEN TO DOCUMENT.

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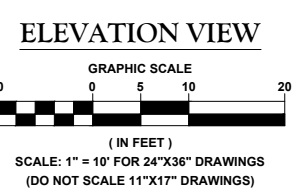
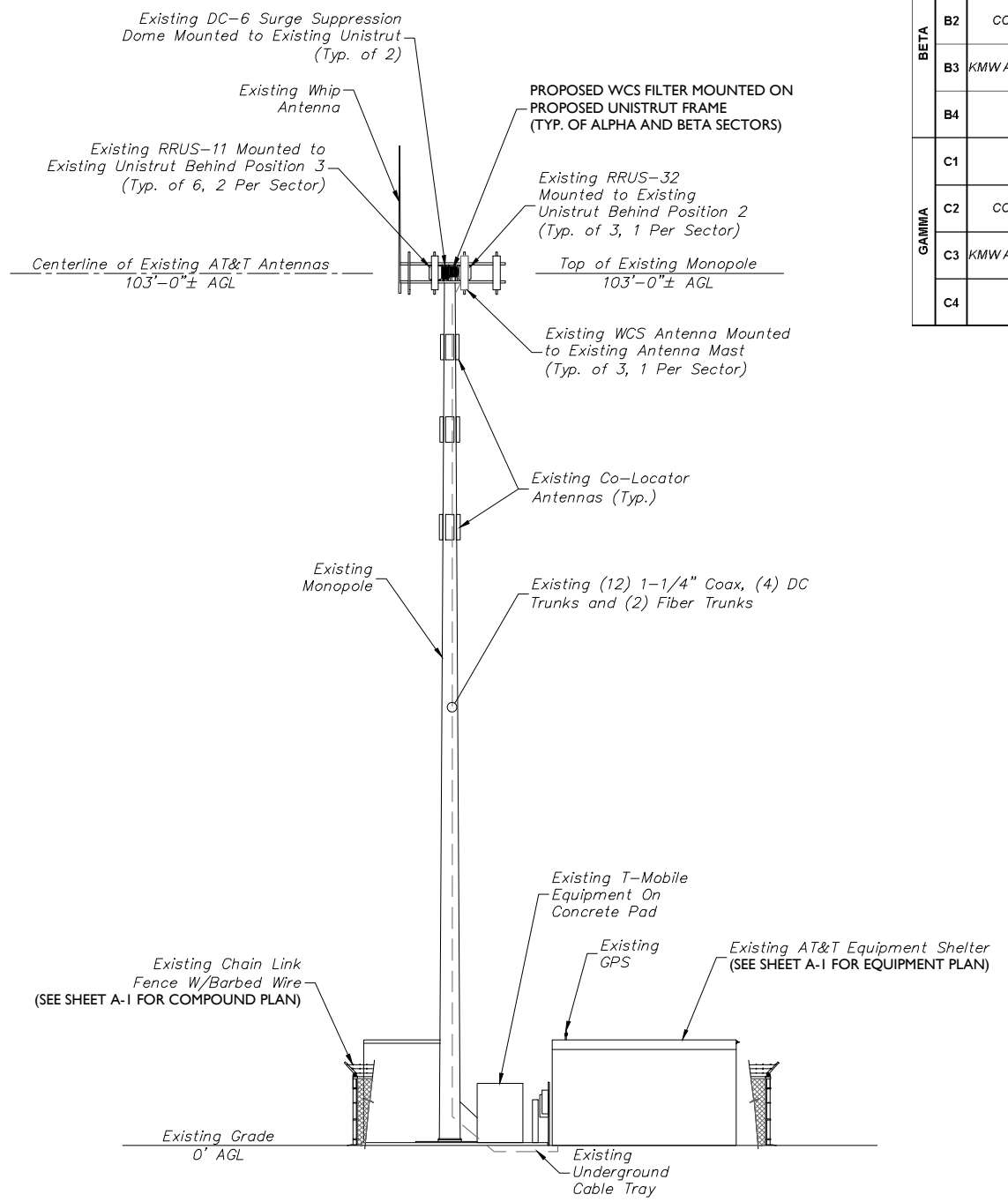
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Fax: 732.383.1984
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SHEET TITLE:
ELEVATION VIEW AND ANTENNA SCHEDULE

SHEET NUMBER:
A-2

PROPOSED ANTENNA AND RRUS CONFIGURATION												
SECTOR	EXISTING ANTENNA CONFIGURATION	PROPOSED ANTENNA CONFIGURATION	TECHNOLOGY	ANTENNA STATUS	HEIGHT (in)	WIDTH (in)	DEPTH (in)	WEIGHT (lbs)	ANTENNA AZIMUTH	ANT. CL. ELEV (ft.)	RRUS CONFIGURATION	STATUS
ALPHA	A1	Poverwave 7770	Poverwave 7770	UMTS 850/1900	REMAIN	55.00	11.00	5.00	35.00	140°	103'	-
	A2	CCI OPA-65R-LCUU-H4	CCI OPA-65R-LCUU-H4	GSM 850	REMAIN	48.00	14.40	7.30	57.00	19°	103'	(1) RRUS 32 (1) WCS FILTER REMAIN NEW
	A3	KMW AM-X-CD-14-65-OOT-RET	KMW AM-X-CD-14-65-OOT-RET	LTE 700/1900	REMAIN	48.00	11.80	5.90	36.40	19°	103'	(2) RRUS 11 REMAIN
	A4	VACANT MAST	VACANT MAST	-	-	-	-	-	-	-	-	-
BETA	B1	Poverwave 7770	Poverwave 7770	UMTS 850/1900	REMAIN	55.00	11.00	5.00	35.00	262°	103'	-
	B2	CCI OPA-65R-LCUU-H4	CCI OPA-65R-LCUU-H4	GSM 850	REMAIN	48.00	14.40	7.30	57.00	140°	103'	(1) RRUS 32 (1) WCS FILTER REMAIN NEW
	B3	KMW AM-X-CD-14-65-OOT-RET	KMW AM-X-CD-14-65-OOT-RET	LTE 700/1900	REMAIN	48.00	11.80	5.90	36.40	140°	103'	(2) RRUS 11 REMAIN
	B4	VACANT MAST	VACANT MAST	-	-	-	-	-	-	-	-	-
GAMMA	C1	Poverwave 7770	Poverwave 7770	UMTS 850/1900	REMAIN	55.00	11.00	5.00	35.00	19°	103'	-
	C2	CCI OPA-65R-LCUU-H4	CCI OPA-65R-LCUU-H4	GSM 850	REMAIN	48.00	14.40	7.30	57.00	262°	103'	(1) RRUS 32 REMAIN
	C3	KMW AM-X-CD-14-65-OOT-RET	KMW AM-X-CD-14-65-OOT-RET	LTE 700/1900	REMAIN	48.00	11.80	5.90	36.40	262°	103'	(2) RRUS 11 REMAIN
	C4	VACANT MAST	VACANT MAST	-	-	-	-	-	-	-	-	-

ANTENNA SCHEDULE

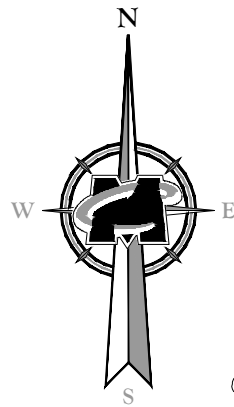


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STRUCTURAL NOTES:

1. A STRUCTURAL ANALYSIS TO DETERMINE IF THE EXISTING STRUCTURE AND FOUNDATION CAN ADEQUATELY SUPPORT THE PROPOSED LOADING HAS NOT BEEN PREPARED/ANALYZED BY MASER AND IS TO BE PERFORMED BY OTHERS.
2. NO CONSTRUCTION OF THE PROPOSED LOADING SHOWN SHALL PROCEED UNTIL ADEQUACY OF EXISTING STRUCTURE AND FOUNDATION, INCLUDING THE PROPOSED AT&T ANTENNA MOUNTING CONFIGURATION SHOWN HEREIN, HAS BEEN CONFIRMED BY SMARTLINK.
3. THE STRUCTURE ELEVATION IS SHOWN FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT REFLECT AS-BUILT FIELD CONDITIONS FOR ALL EXISTING INVENTORY LOADING/ANTENNAS/APURTANENCES ON STRUCTURE. REFER TO THE LATEST STRUCTURAL ANALYSIS FOR EXISTING STRUCTURE LOADING AND THE PROPOSED METHOD OF ATTACHMENT OF THE PROPOSED ANTENNAS/CABLES.
4. THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY IMPROVEMENTS AND REINFORCEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, CABLES, SUPPORTS AND APPURTANENCES PROPOSED ON THESE DRAWINGS OR OTHERWISE NOTED IN THE STRUCTURAL ANALYSIS.

20004978.MILFORD-BRIDGEPORT_AE.CAD.dwg 14/03/16.jmk-3 B7.ACOA



Existing AT&T Panel Antennas
(Typ. of 9, 3 Per Sector)

UMTS Gamma Sector
AZ = 19°

LTE WCS/GSM 850 Alpha Sector
AZ = 19°

LTE 700/1900 Alpha Sector
AZ = 19°

Existing Unistrut Frame Spanning
Between Existing Pipe Masts at
Position 2 and Position 3.
(Typ. 3, 1 Per Sector)

Vacant Antenna Mast
(Typ. of 3, 1 Per Sector)

Existing RRUS-11 Mounted
on Existing Unistrut
(Typ. 6, 2 Per Sector)

LTE 700/1900 Gamma Sector C3
AZ = 262°

Existing Co-Locator
Whip Antenna

LTE WCS / GSM 850 Gamma Sector C2
AZ = 262°

Existing RRUS-32 Mounted
to Existing Unistrut
(Typ. of 3, 1 Per Sector)

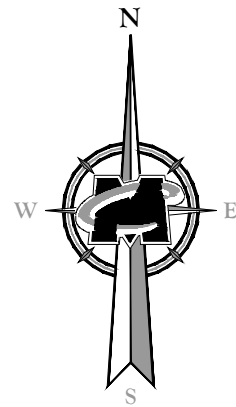
UMTS Beta Sector B1
AZ = 262°

LTE WCS / GSM 850 Beta Sector
AZ = 140°

LTE 700/1900 Beta Sector
AZ = 140°

Existing DC6 Surge
Suppression Dome Mounted
on Existing Unistrut
(Typ. of 2)

EXISTING - ANTENNA LAYOUT
NOT TO SCALE



PROPOSED WCS FILTER MOUNTED ON
PROPOSED UNISTRUT FRAME
(TYP. OF ALPHA AND BETA SECTORS)

Vacant Antenna Mast
(Typ. of 3, 1 Per Sector)

Existing RRUS-11 Mounted
on Existing Unistrut
(Typ. 6, 2 Per Sector)

LTE 700/1900 Gamma Sector C3
AZ = 262°

Existing Co-Locator
Whip Antenna

Existing AT&T Panel Antennas
(Typ. of 9, 3 Per Sector)

LTE WCS / GSM 850 Gamma Sector C2
AZ = 262°

Existing RRUS-32 Mounted
to Existing Unistrut
(Typ. of 3, 1 Per Sector)

UMTS Beta Sector B1
AZ = 262°

LTE WCS / GSM 850 Beta Sector
AZ = 140°

LTE 700/1900 Beta Sector
AZ = 140°

Existing Pipe Masts Behind
Positions 2 and Position 3
(Typ. of 6, 2 Per Sector)

Existing DC6 Surge Suppression
Dome Mounted on Existing Unistrut
(Typ. of 2)
(FIELD ADJUST AS NEEDED TO ALLOW
FOR FILTER INSTALLATION)

PROPOSED - ANTENNA LAYOUT
NOT TO SCALE

NOTE:
BIRDS NEST ON
MONOPOLE PLATFORM.
OSPREY NEST
(PROTECTED SPECIES).

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Electrical

WCS PATH (BTS0 - ANT0 & BTS1 - ANT1)

Passband frequency range, MHz	2305 - 2359.14
Insertion Loss for 2305.0 - 2315.0 MHz, dB	0.3 max, 0.2 typ.
Insertion Loss for 2350.0 - 2357.0 MHz, dB	0.9 max, 0.5 typ.
Insertion Loss for 2357.0 - 2358.6 MHz, dB	1.6 max, 1.0 typ.
Insertion Loss for 2358.6 - 2358.96 MHz, dB	2.2 max, 1.5 typ.
Insertion Loss for 2358.96 - 2359.14 MHz, dB	2.0 typical
Group Delay for 2305.0 - 2315.0 MHz	10 ns max
Group Delay for 2350.0 - 2358.6 MHz	250 ns max
Group Delay for 2358.6 - 2359.0 MHz	400 ns max
Return loss, dB	18 min, 20dB typ.
Rejection 2360-2395 MHz	30dB min, 35 typ.
IMD (two +43 dBm carriers)	-110 dBm max
Input power rating per port - RMS	100 W
Input power rating per port - PEP	1000 W

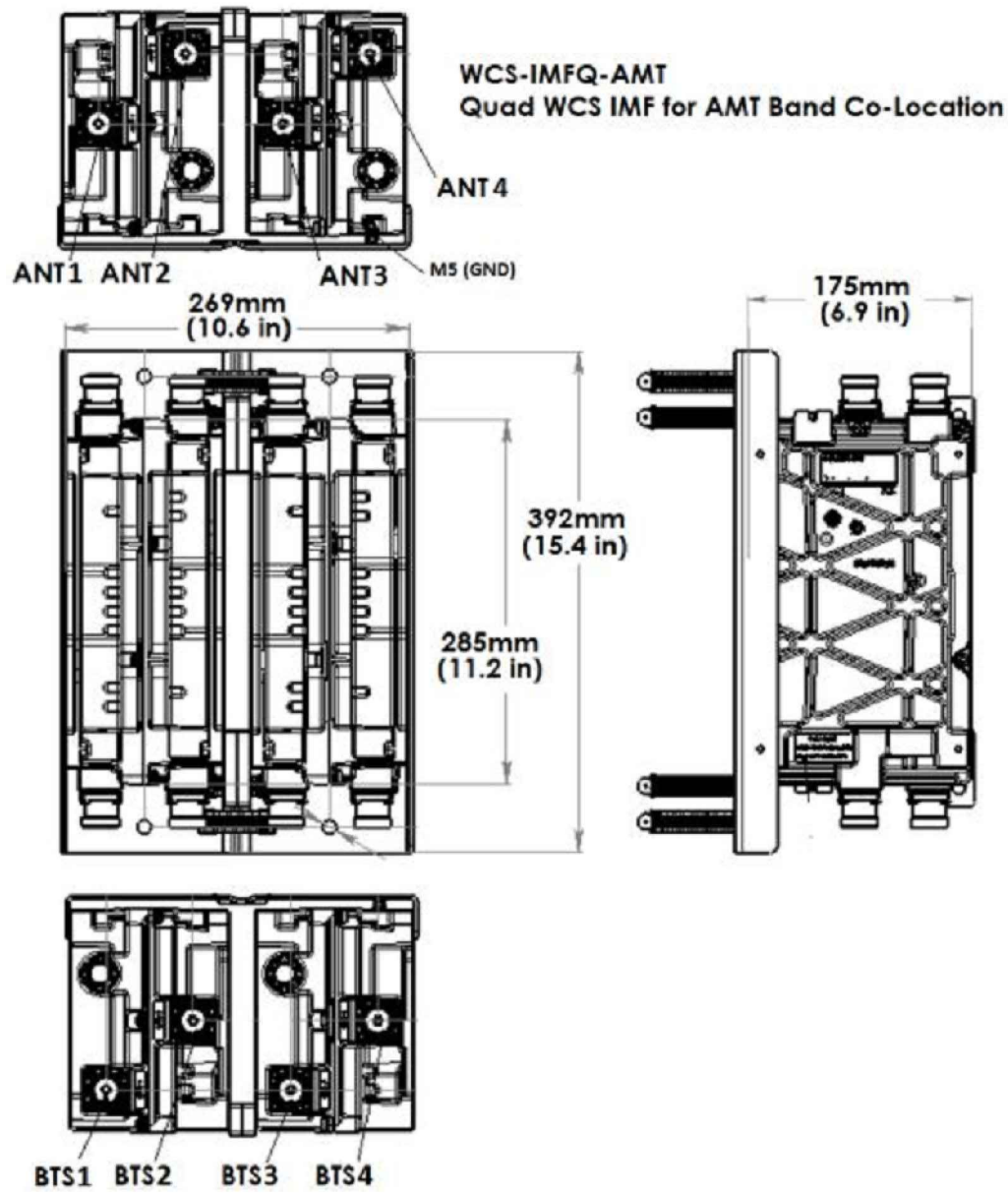
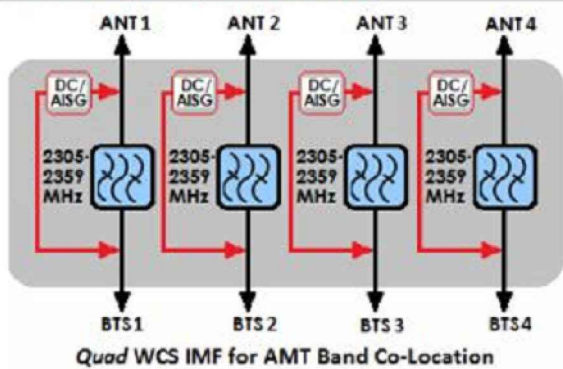
DC/AISG TRANSPARENCY

AISG Frequency	2.176 MHz
Insertion Loss (@2.176 MHz)	0.2dB max
DC Bypass Path 1 (twin & quad)	BTS1 to ANT1
DC Bypass Path 2 (twin & quad)	BTS2 to ANT2
DC Bypass Path 3 (quad)	BTS3 to ANT3
DC Bypass Path 4 (quad)	BTS4 to ANT4
DC Voltage Bypass	7 - 30 V
DC Current Single Path	3 A max

Mechanical (Quad Version)

Dimensions, mm	285x269x175 mm
Dimensions, in	11.2x 10.6 x 6.9 in
Weight, (without mounting brackets) Kg (lb)	13.4kg (29.5 lbs)
Weight, (with mounting brackets) Kg (lb)	15.7kg (34.5 lbs)
Finish	Gray paint
Connectors, RF	7-16 DIN female
Ground terminal diameter, mm (in)	5 (0.20)

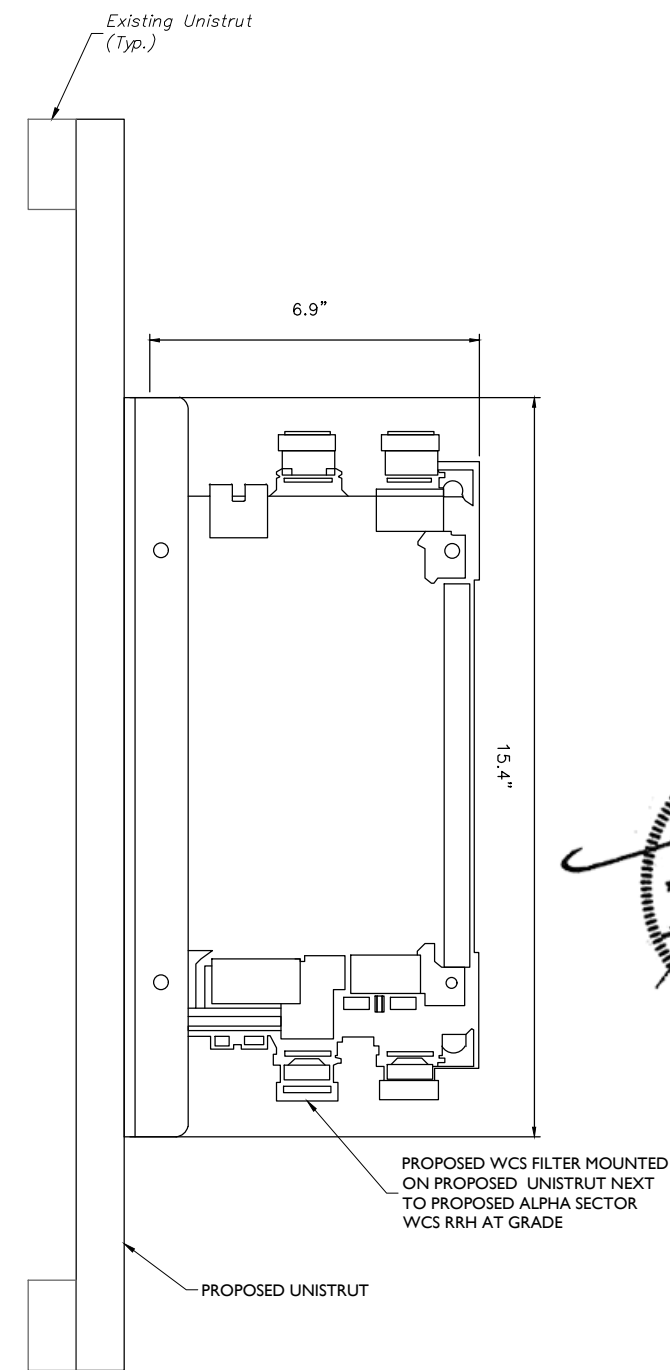
Block Diagram (Quad Version)



WCS - IMFQ - AMT FILTER DETAILS
NOT TO SCALE

NOTES:

1. ALL UNISTRUT CHANNELS SHALL BE P1000 UNLESS OTHERWISE NOTED.
2. ALL FIELD CUT ENDS SHALL BE FIELD GALVANIZED ACCORDING TO ATSM-A780.
3. ALL FASTENERS BETWEEN UNISTRUT CONNECTIONS ARE 1/2" Ø. ALL DRILLED HOLES SHALL BE 9/16" Ø.
4. MOUNT WCS FILTER TO UNISTRUT WITH 3/8" Ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR (4) PER DEVICE, THROUGH MANUFACTURER'S MOUNTING HOLES, SUBCONTRACTOR SHALL SUPPLY. REFER TO THE MANUFACTURER'S WRITTEN SPECIFICATIONS FOR STEP-BY-STEP INSTRUCTIONS FOR SECURING FILTER TO UNISTRUT FRAMES.
5. PART NUMBERS SHOWN ARE UNISTRUT MANUFACTURER OR APPROVED EQUAL.



WCS - IMFQ - AMT FILTER MOUNTING DETAIL
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STATE OF CONNECTICUT
FRANK E. PAZDEN
REGISTERED PROFESSIONAL ENGINEER
LICENSE NUMBER: PE-28188
No. 28188
A VIOLATION OF ANY LAW OR ANY PERSON, UNLESS THE ENGINEER HAS THE DIRECTION OF THE REGISTERED PROFESSIONAL ENGINEER, TO LISTEN TO DOCUMENT.

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SHEET TITLE:	DETAILS
SHEET NUMBER:	A-4



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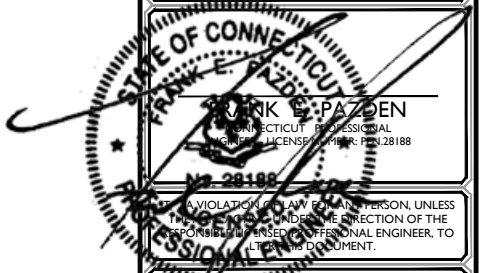
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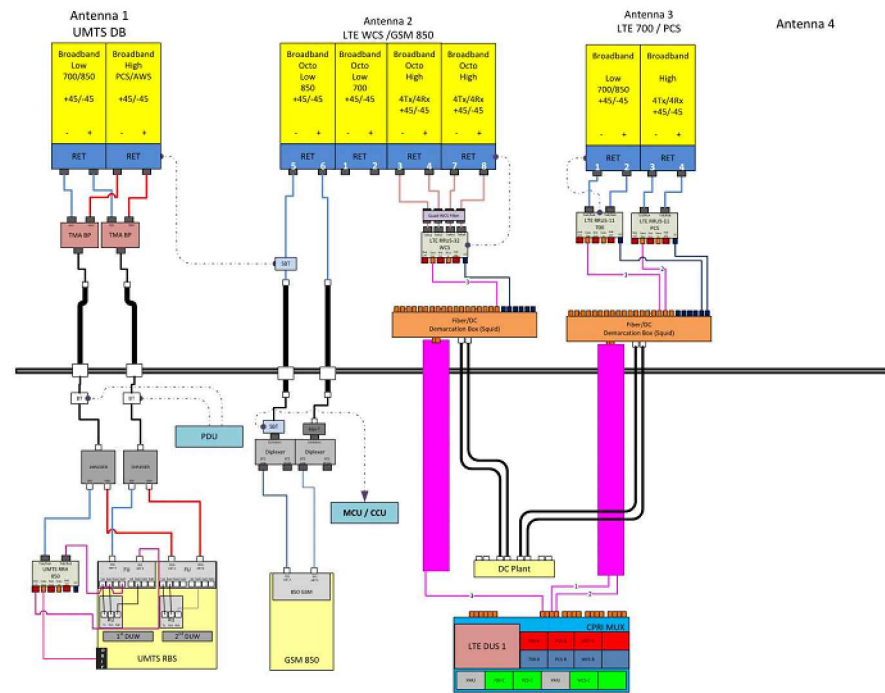
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RF PLUMBING DIAGRAM

SHEET NUMBER:
A-5

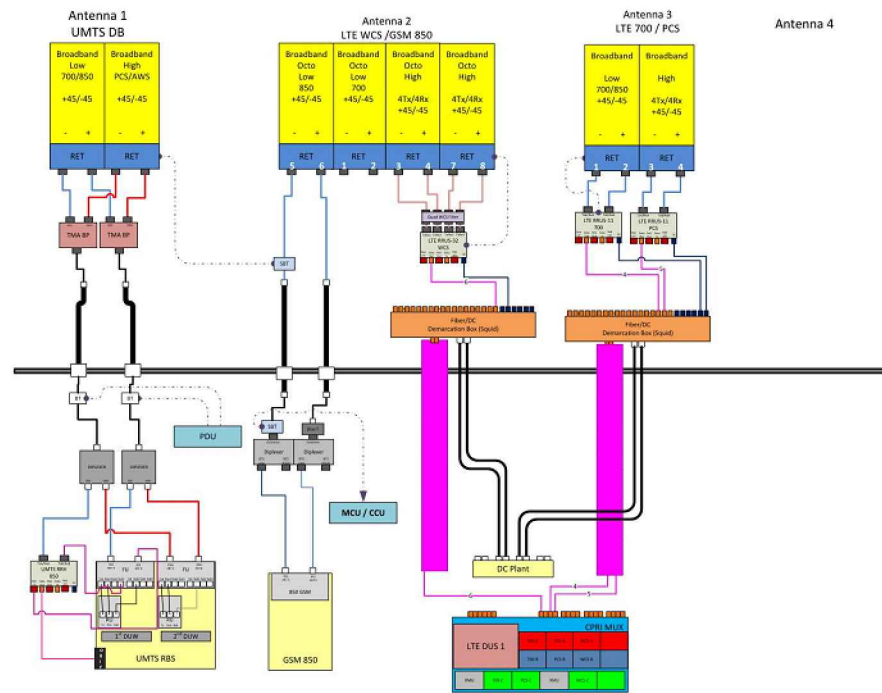
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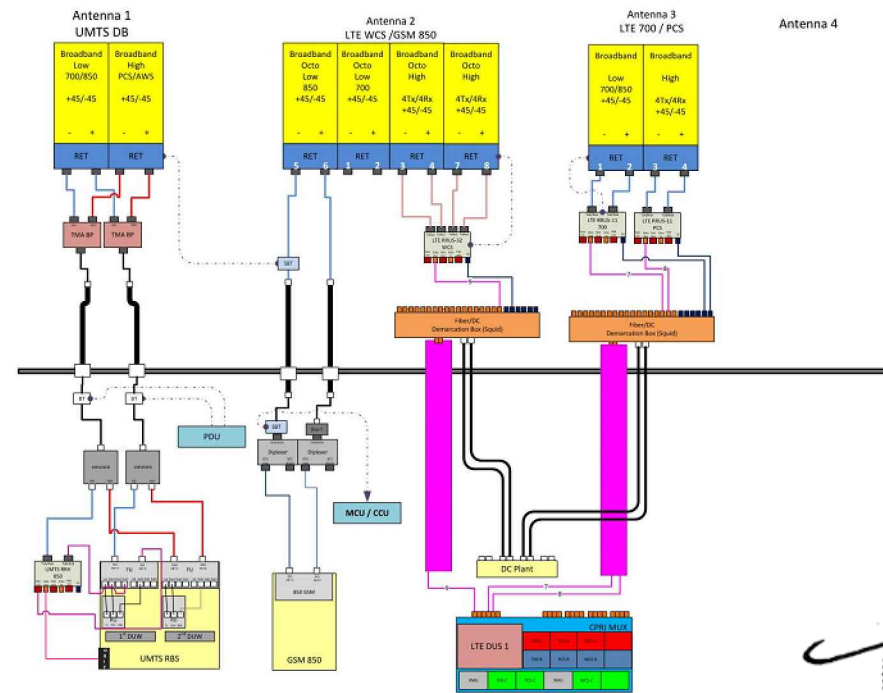
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Aolr Site Name: CTU2111 Location Name: MILFORD-BRIDGEPORT AVE Market: CONNECTICUT Market Cluster: NEW ENGLAND



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR

BASED ON RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CTU2111_2016-LTE-Next-Carrier_LTE-3C_mm093q_2051A02ITE_10034978_61179_06-29-2015_Final-Approved_v3.00"

RF PLUMBING DIAGRAMS

210004978\MILFORD-BRIDGEPORT_AVE\CD\Rev: 140311.dwg:k45 By: ACOA



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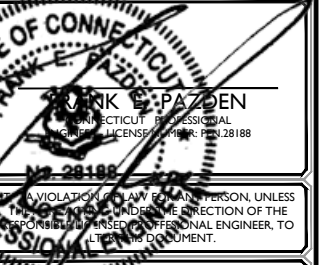


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SCALE: AS SHOWN	JOB NUMBER: 16946017A
-----------------	-----------------------

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
1	12/19/16	FOR CONSTRUCTION	AJC	FEP
0	12/09/16	ISSUED FOR REVIEW	AJC	FEP

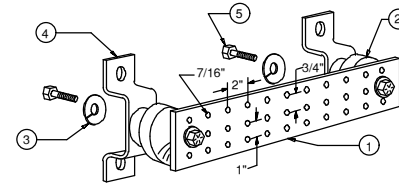


SITE NAME:
MILFORD-BRIDGEPORT
AVE
FA# 10034978
SITE # CTL02111
438 BRIDGEPORT AVENUE
MILFORD, CT 06460
NEW HAVEN COUNTY

RED BANK OFFICE
331 Newnan Springs Road
Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
Fax: 732.383.1984
email: solutions@maserconsulting.com

SHEET TITLE:
GROUNDING DETAILS

SHEET NUMBER:
G-1



LEGEND

- 1- TINNED COPPER GROUND BAR, 1/4"x4"x20", NEWTON INSTRUMENT CO. CAT. NO. B-6142 OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
- 2- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4
- 3- 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8
- 4- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-5056
- 5- 5/8-11 X 1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1
- 6- EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

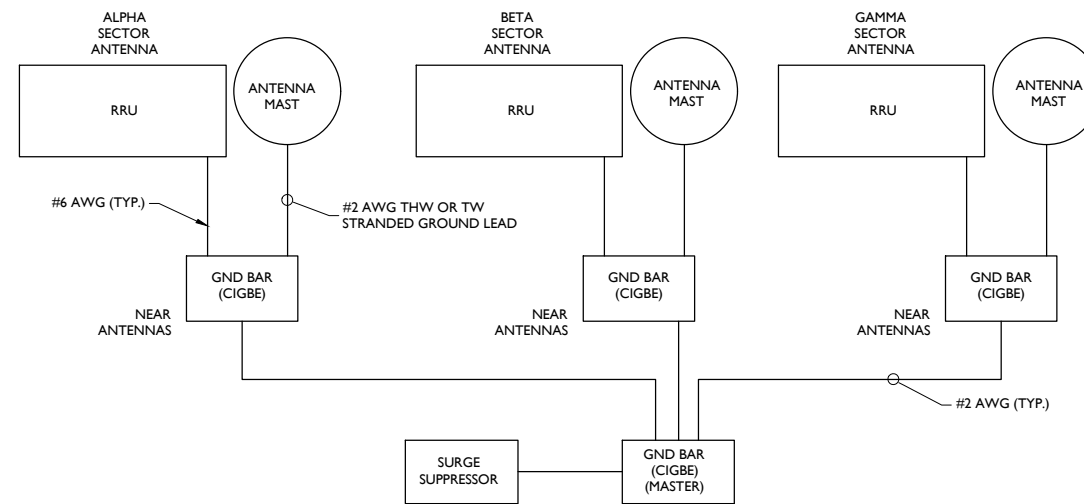
- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- 48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES.

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)

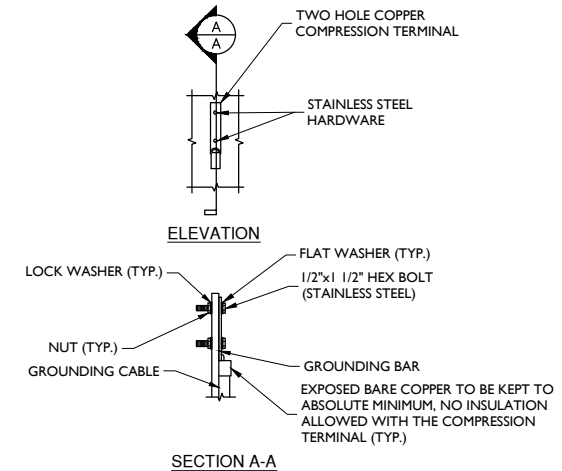
MASTER GROUND BAR

NOT TO SCALE



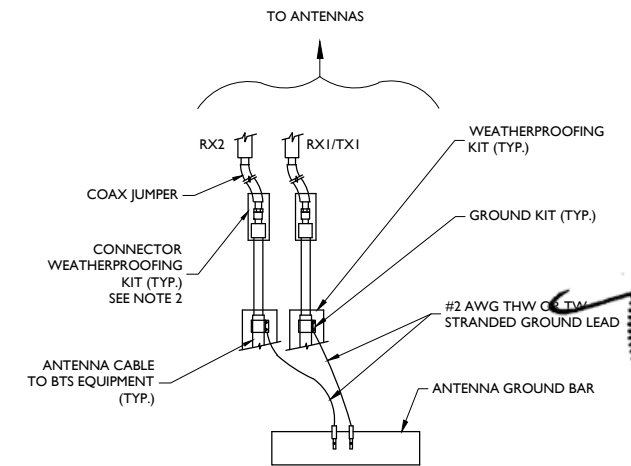
SCHEMATIC DIAGRAM GROUNDING SYSTEM

NOT TO SCALE



TYPICAL GROUND BAR CONNECTION DETAIL

NOT TO SCALE



NOTES:

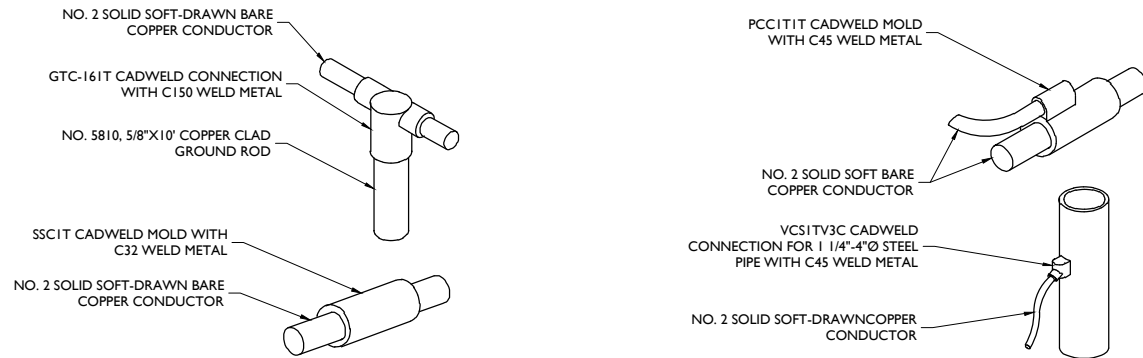
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

TYPICAL GROUND WIRE TO GROUNDING BAR

NOT TO SCALE

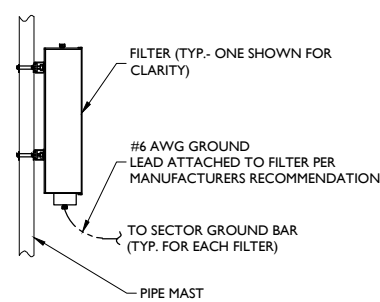
CADWELD DETAILS

NOT TO SCALE



FILTER GROUNDING

NOT TO SCALE



200804911 MILFORD-BRIDGEPORT_AVE_CTL02111.dwg:G-1



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200 North Glebe Road, Suite 1000, Arlington, VA 22203-3728
703.276.1100 • 703.276.1169 fax
info@sitesafe.com • www.sitesafe.com



**Smartlink LLC on behalf of
AT&T Mobility, LLC
Site FA – 10034978
Site ID – CTU2111 (Retro)
USID – 61179
Site Name – Milford-Bridgeport
Ave
Site Compliance Report**

**438 Bridgeport Avenue
Milford, CT 06460**

Latitude: N41-12-23.77
Longitude: W73-5-36.20
Structure Type: Monopole

Report generated date: January 18, 2017
Report by: Kevin Bernstetter II, EI
Customer Contact: David Barbagallo

**AT&T Mobility, LLC will be compliant when the
remediation recommended in Section 5.2 or
other appropriate remediation is implemented.**

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Table of Contents

1	GENERAL SITE SUMMARY	2
1.1	REPORT SUMMARY	2
2	SCALE MAPS OF SITE	3
3	ANTENNA INVENTORY	5
4	EMISSION PREDICTIONS	6
5	SITE COMPLIANCE	9
5.1	SITE COMPLIANCE STATEMENT	9
5.2	ACTIONS FOR SITE COMPLIANCE	9
6	REVIEWER CERTIFICATION	10
	APPENDIX A – STATEMENT OF LIMITING CONDITIONS	11
	APPENDIX B – REGULATORY BACKGROUND INFORMATION	12
	FCC RULES AND REGULATIONS	12
	OSHA STATEMENT.....	13
	APPENDIX C – SAFETY PLAN AND PROCEDURES	14
	APPENDIX D – RF EMISSIONS	15
	APPENDIX E – ASSUMPTIONS AND DEFINITIONS	16
	GENERAL MODEL ASSUMPTIONS	16
	USE OF GENERIC ANTENNAS.....	16
	DEFINITIONS	17
	APPENDIX F – REFERENCES	19

1 General Site Summary

1.1 Report Summary

AT&T Mobility, LLC	Summary
Access to Antennas Locked?	Unknown
RF Sign(s) @ access point(s)	Unknown
RF Sign(s) @ antennas	None
Barrier(s) @ sectors	None
Max cumulative simulated RFE level on the Ground	<1% General Public Limit at Ground Level
FCC & AT&T Compliant?	Will be compliant

The following documents were provided by the client and were utilized to create this report:







RFDS: NEW-ENGLAND_CONNECTICUT_CTU2111_2016-LTE-Next-Carrier_LTE-3C_mm093q_2051A02ITE_10034978_61179_06-29-2015_Final-Approved_v3.00

CD's: 10034978_AE201_161209_CTL02111_Rev0_Retrofit MJP 12-13-16

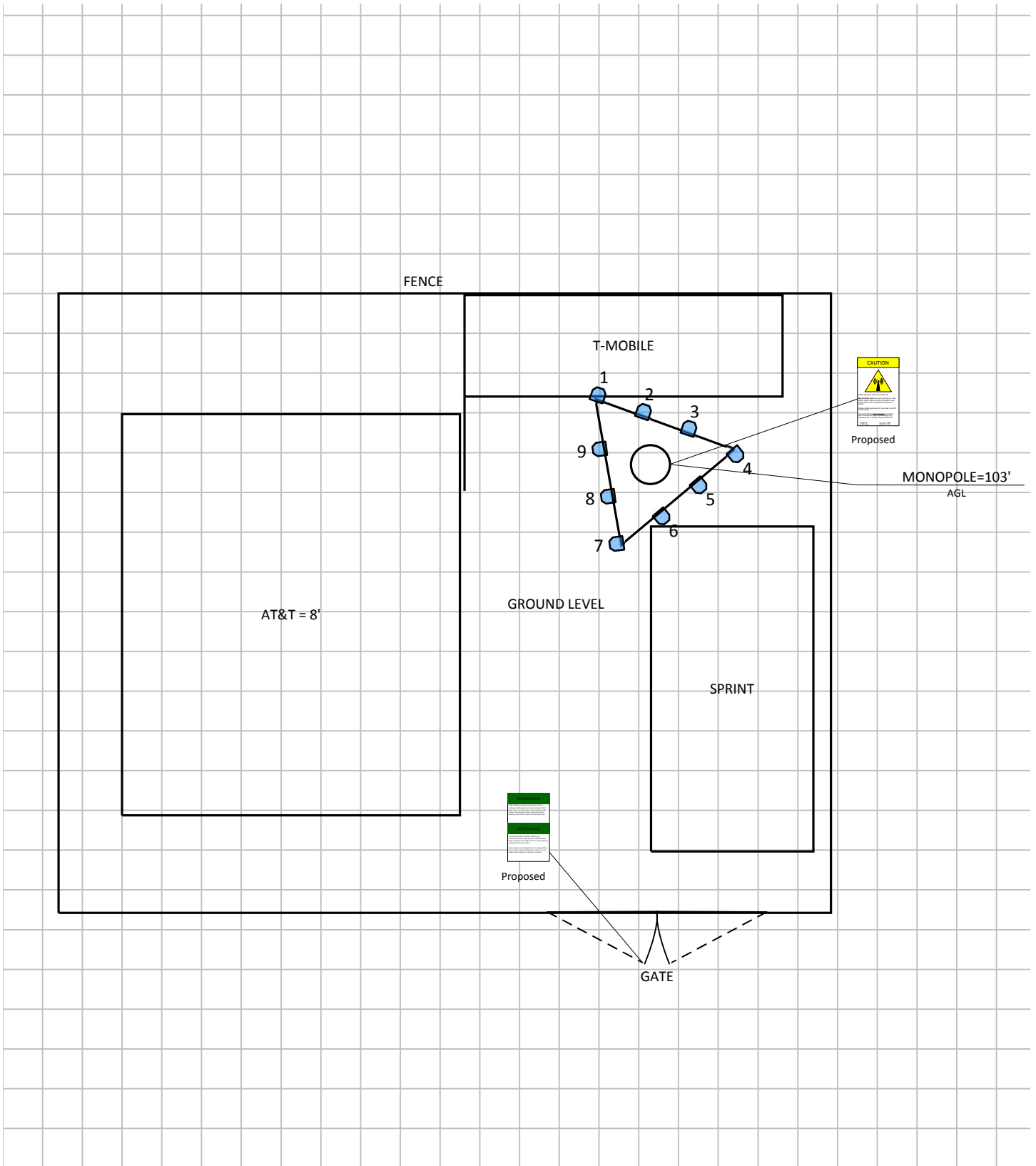
2 Scale Maps of Site

The following diagrams are included:

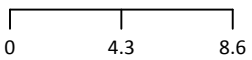
- Site Scale Map
- RF Exposure Diagram
- Elevation View

Scale Map Key		
 <p>Existing Sign</p>	 <p>Proposed Barrier</p>	 <p>GPS Reading</p>
 <p>Proposed Sign</p>	 <p>Existing Barrier</p>	 <p>Anchor Point</p>

Site Scale Map For: Milford-Bridgeport Ave



(Feet)



www.sitesafe.com
 Site Name: Milford-Bridgeport Ave
 1/18/2017 8:12:27 AM

AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT

3 Antenna Inventory

The following antenna inventory on this and the following page, were obtained by the customer and were utilized to create the site model diagrams:

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Ant Gain (dBd)	2G GSM Radio(s)	3G UMTS Radio(s)	4G Radio(s)	Total ERP (Watts)	X	Y	Z
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	19	82	4.6	11.51	0	2	0	579.5	47.2'	61.7'	100.7'
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	19	86	4.6	13.41	0	2	0	869.8	47.2'	61.7'	100.7'
2	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	850	19	60	4	11.36	1	0	0	289.7	50.1'	60.6'	101'
2	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	2300	19	61.1	4	14.26	0	0	1	1044.7	50.1'	60.6'	101'
3	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	737	19	67	4	11.66	0	0	1	792.5	52.9'	59.6'	101'
3	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	1900	19	65	4	13.86	0	0	1	1733.8	52.9'	59.6'	101'
4	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	140	82	4.6	11.51	0	2	0	579.5	55.9'	57.9'	100.7'
4	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	140	86	4.6	13.41	0	2	0	869.8	55.9'	57.9'	100.7'
5	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	850	140	60	4	11.36	1	0	0	289.7	53.6'	55.9'	101'
5	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	2300	140	61.1	4	14.26	0	0	1	1044.7	53.6'	55.9'	101'
6	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	737	140	67	4	11.66	0	0	1	792.5	51.2'	54'	101'
6	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	1900	140	65	4	13.86	0	0	1	1733.8	51.2'	54'	101'
7	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	262	82	4.6	11.51	0	2	0	579.5	48.4'	52.3'	100.7'
7	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	262	86	4.6	13.41	0	2	0	869.8	48.4'	52.3'	100.7'
8	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	850	262	60	4	11.36	1	0	0	289.7	47.8'	55.3'	101'
8	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA-65R-LCUU-H4	Panel	2300	262	61.1	4	14.26	0	0	1	1044.7	47.8'	55.3'	101'
9	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	737	262	67	4	11.66	0	0	1	792.5	47.3'	58.3'	101'
9	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	1900	262	65	4	13.86	0	0	1	1733.8	47.3'	58.3'	101'

NOTE: X, Y and Z indicate relative position of the bottom of the antenna to the origin location on the site, displayed in the model results diagram. Specifically, the Z reference indicates the bottom of the antenna height above the main site level unless otherwise indicated. The distance to the bottom of the antenna is calculated by subtracting half of the length of the antenna from the antenna centerline. Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed.

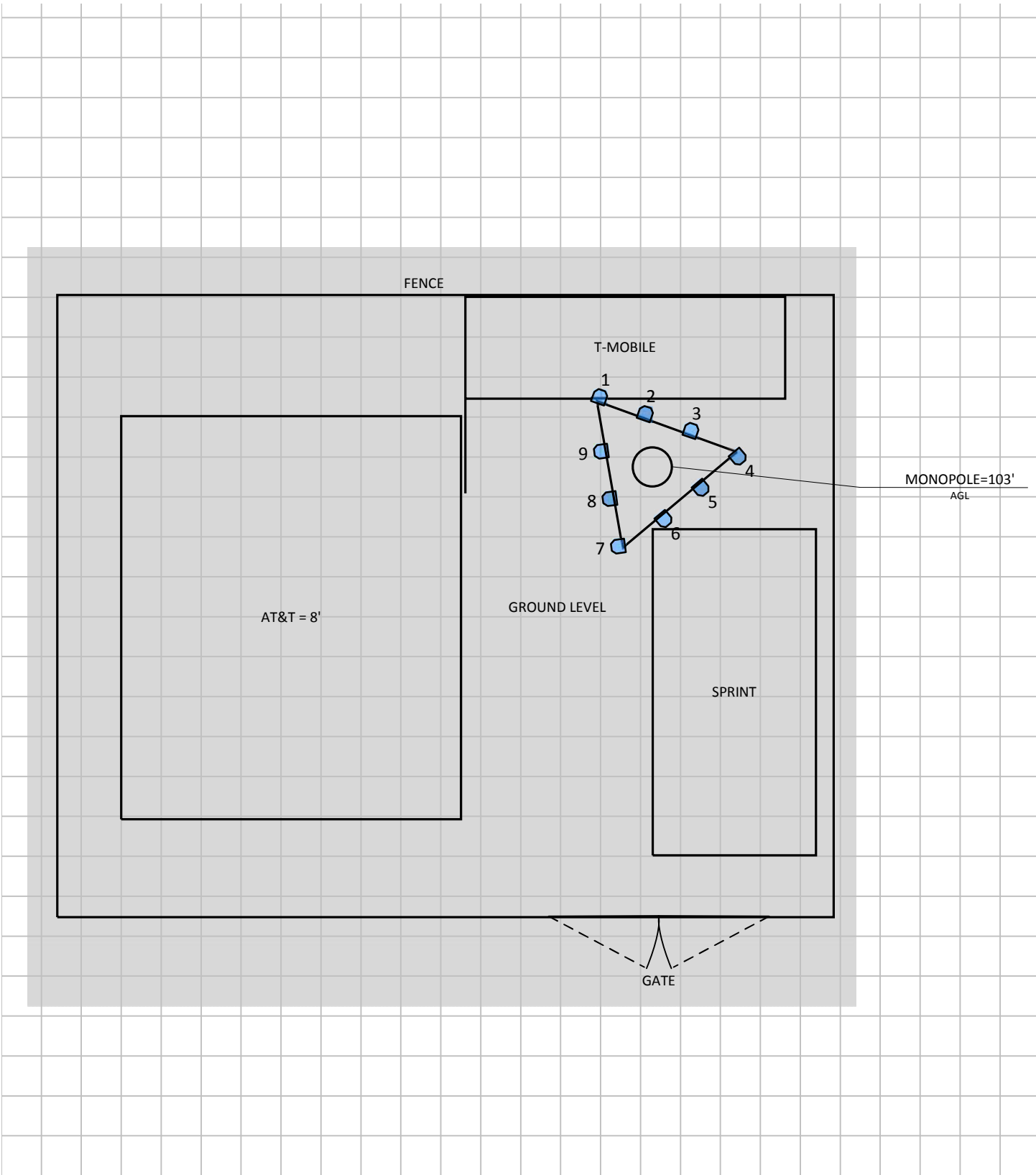
Note: Other operators exist on site but were not considered for this modeling as Sitesafe had no information on them.

4 Emission Predictions

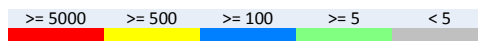
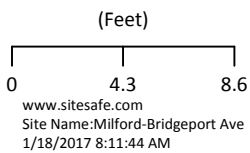
In the RF Exposure Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas.

The Antenna Inventory heights are referenced to the same level.

RF Exposure Simulation For: Milford-Bridgeport Ave



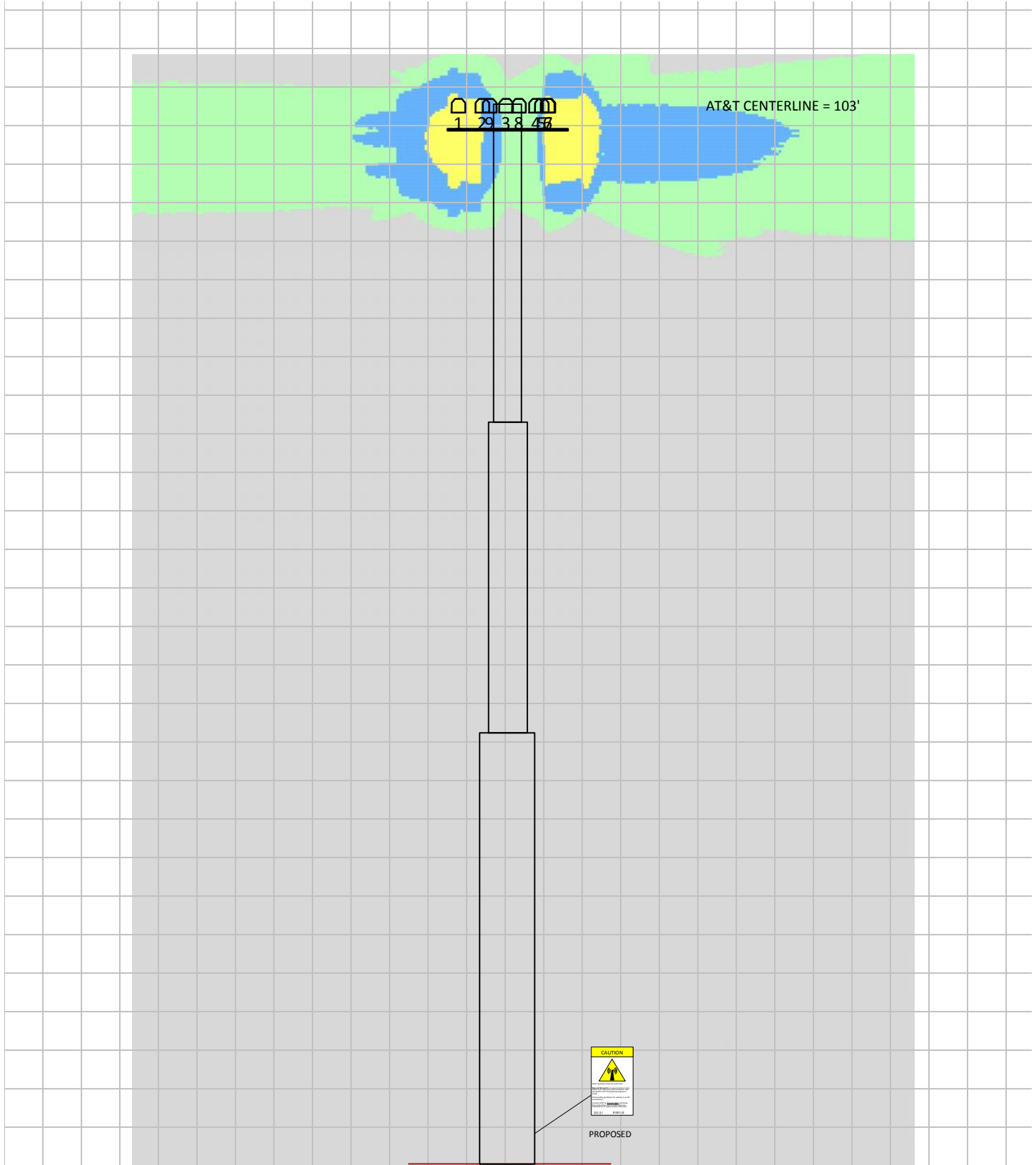
% of FCC Public Exposure Limit
Spatial average 0' - 6'



AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPICS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT
-------------------	------------------	----------	-----------	------------------------	-----------	--------

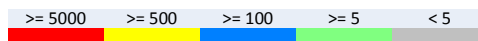
SitesafeTC Version: 1.0.0.0 - 0.0.0.249
 Sitesafe OET-65 Model
 Near Field Boundary: 1.5 * Aperture
 Reflection Factor: 1
 Spatially Averaged

RF Exposure Simulation For: Milford-Bridgeport Ave Elevation View



% of FCC Public Exposure Limit
Spatial average 0' - 6'

(Feet)
 0 6.7 13.3
 www.sitesafe.com
 Site Name: Milford-Bridgeport Ave
 1/18/2017 8:15:22 AM



AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT

SitesafeTC Version: 1.0.0.0 - 0.0.0.249
 Sitesafe OET-65 Model
 Near Field Boundary: 1.5 * Aperture
 Reflection Factor: 1
 Spatially Averaged

5 Site Compliance

5.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, RF hazard signage and antenna locations, Sitesafe has determined that:

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, proposed antenna inventory and the level of restricted access to the antennas at the site. Any deviation from the AT&T Mobility, LLC's proposed deployment plan could result in the site being rendered non-compliant.

Modeling is used for determining compliance and the percentage of MPE contribution.

5.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC RF Safety Policy requirements, this section provides a statement of recommendations for site compliance. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

AT&T Mobility, LLC will be made compliant if the following changes are implemented:

Site Access Location

Yellow caution 2 sign required.

Gate Location

Information 1 sign required.

Notes:

- Signage may already exist on site. Sitesafe is recommending as a worst case scenario.

6 Reviewer Certification

The Reviewer whose signature appears below hereby certifies and affirms:

That I am an employee of Sitesafe, Inc., in Arlington, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio-frequency Radiation; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Kevin Bernstetter.

January 18, 2017

Appendix A – Statement of Limiting Conditions

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, that Sitesafe became aware of during the normal research involved in creating this report. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.

Appendix B – Regulatory Background Information

FCC Rules and Regulations

In 1996, the Federal Communication Commission (FCC) adopted regulations for the evaluating of the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 (“OET Bulletin 65”), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

FCC regulations define two separate tiers of exposure limits: Occupational or “Controlled environment” and General Public or “Uncontrolled environment”. The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

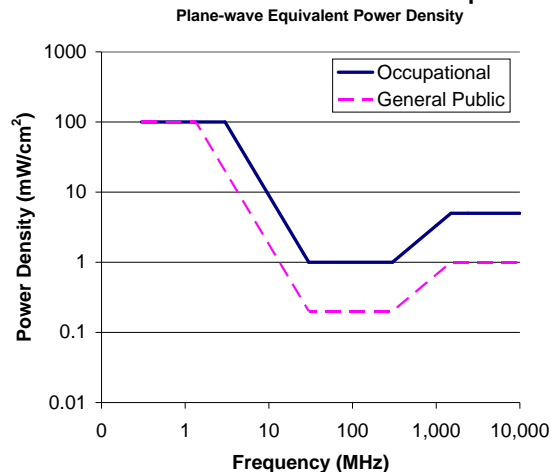
Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:

FCC Limits for Maximum Permissible Exposure (MPE)



Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

- (a) Each employer –
 - (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
 - (2) shall comply with occupational safety and health standards promulgated under this Act.
- (b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lock Out Tag Out procedure aimed to control the unexpected energization or start up of machines when maintenance or service is being performed.

Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3 foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram: Section 4 of this report contains an RF Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

Appendix D – RF Emissions

The RF Emissions Simulation(s) in this report display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each RF Emissions Simulation indicates percentages displayed referenced to FCC General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- Areas indicated as Gray are predicted to be below 5% of the MPE limits. **Gray represents areas more than 20 times below the most conservative exposure limit.**
- Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone.**
- Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers.**
- Yellow represents areas predicted to exceed Occupational MPE limits. **Yellow areas should be accessible only to RF trained workers able to assess current exposure levels.**
- Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.

Appendix E – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The modeling is based on recommendations from the FCC's OET-65 bulletin with the following variances per AT&T guidance. Reflection has not been considered in the modeling, i.e. the reflection factor is 1.0. The near / far field boundary has been set to 1.5 times the aperture height of the antenna and modeling beyond that point is the lesser of the near field cylindrical model and the far field model taking into account the gain of the antenna.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur, but are shown as a prediction that could be realized. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.

Gain (of an antenna) – The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antennas as compared to an omni directional antenna.

General Population/Uncontrolled Environment – Defined by the FCC, as an area where exposure to RF energy may occur to persons who are **unaware** of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The maximum levels of RF exposure a person may be exposed to without harmful effect and with acceptable safety factor.

Occupational/Controlled Environment – Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are **aware** of the

potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC’s Office of Engineering and Technology to determine the impact of Radio Frequency radiation on Humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA’s role is to promote the safety and health of America’s working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency (RF) – The frequencies of electromagnetic waves which are used for radio communications. Approximately 3 kHz to 300 GHz.

Radio Frequency Exposure (RFE) – The amount of RF power density that a person is or might be exposed to.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average power density an average sized human will be exposed to at a location.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter’s final radio frequency stage as measured at the output terminal while connected to a load.

Appendix F – References

The following references can be followed for further information about RF Health and Safety.

Sitesafe, Inc.

<http://www.sitesafe.com>

FCC Radio Frequency Safety

<http://www.fcc.gov/encyclopedia/radio-frequency-safety>

National Council on Radiation Protection and Measurements (NCRP)

<http://www.ncrponline.org>

Institute of Electrical and Electronics Engineers, Inc., (IEEE)

<http://www.ieee.org>

American National Standards Institute (ANSI)

<http://www.ansi.org>

Environmental Protection Agency (EPA)

<http://www.epa.gov/radtown/wireless-tech.html>

National Institutes of Health (NIH)

<http://www.niehs.nih.gov/health/topics/agents/emf/>

Occupational Safety and Health Agency (OSHA)

<http://www.osha.gov/SLTC/radiofrequencyradiation/>

International Commission on Non-Ionizing Radiation Protection (ICNIRP)

<http://www.icnirp.org>

World Health Organization (WHO)

<http://www.who.int/peh-emf/en/>

National Cancer Institute

<http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones>

American Cancer Society (ACS)

http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?sitearea=PED

European Commission Scientific Committee on Emerging and Newly Identified Health Risks

http://ec.europa.eu/health/ph_risk/committees/04_scenihp/docs/scenihp_o_022.pdf

Fairfax County, Virginia Public School Survey

<http://www.fcps.edu/fts/safety-security/RFEESurvey/>

UK Health Protection Agency Advisory Group on Non-ionising Radiation

http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368

Norwegian Institute of Public Health

<http://www.fhi.no/dokumenter/545eea7147.pdf>



AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by



Structural Analysis Report

Structure : 100.5 ft Monopole
ATC Site Name : Mlfd - Milford, CT
ATC Site Number : 302516
Engineering Number : OAA681725_C3_01
Proposed Carrier : AT&T Mobility
Carrier Site Name : Milford-Bridgeport Ave
Carrier Site Number : CTL02111 / 10034978
Site Location : 438 Bridgeport Ave
Milford, CT 06460-4105
41.206611,-73.093400
County : New Haven
Date : August 3, 2016
Max Usage : 75%
Result : Pass

Prepared By:
Jeff Sparks
CLS

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 100.5 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	Spectra Site #CT-0052, dated May 31, 2002
Foundation Drawing	Spectra Site #CT-0052, dated January, 2003
Geotechnical Report	AET Job #002GT03, dated January 7, 2003
Modifications	Spectra Site #CT-0052, dated January 14, 2003

Analysis

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

Basic Wind Speed:	110 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.20$, $S_1 = 0.06$
Site Class:	D - Stiff Soil

Conclusion

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

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



Existing and Reserved Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
100.0	108.0	1	15' Omni	Platform w/ Handrails	(1) 1 5/8" Coax	Unknown
	102.0	6	Powerwave LGP21401		(12) 1 5/8" Coax (4) 0.78" 8 AWG 6 (2) 0.39" Fiber Trunk (2) 3" Conduit	AT&T Mobility
		2	Raycap DC6-48-60-18-8F			
		6	Ericsson RRUS 11 (Band 12)			
		3	Ericsson RRUS 32			
		3	KMW AM-X-CD-14-65-00T-RET			
		3	Powerwave 7770.00			
	3	CCI OPA-65R-LCUU-H4				
93.0	93.0	3	Decibel 932LG65T2A-M	Flush	(6) 7/8" Coax	Sprint Nextel
80.0	80.0	6	RFS APX86-909014L-CT0-00	Flush	(9) 7/8" Coax	
73.0	73.0	3	Kathrein Smart Bias Tee	T-Arms	(18) 7/8" Coax	T-Mobile
		3	Ericsson KRY 112 489/2			
		3	RFS ATMAA1412D-1A20			
		3	RFS APX16PV-16PVL-A			
		3	Commscope LNX-6515DS-VTM			

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
No loading considered as to be removed						

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
100.0	102.0	2	Commscope WCS-IMFQ-AMT	Platform w/ Handrails	-	AT&T Mobility

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



Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	40%	Pass
Shaft	69%	Pass
Base Plate	43%	Pass
Reinforcement	75%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	1,498.4	64%
Axial (Kips)	39.7	
Shear (Kips)	22.2	

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) (°)
100.0	Commscope WCS-IMFQ-AMT	AT&T Mobility	0.773	0.751

*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.

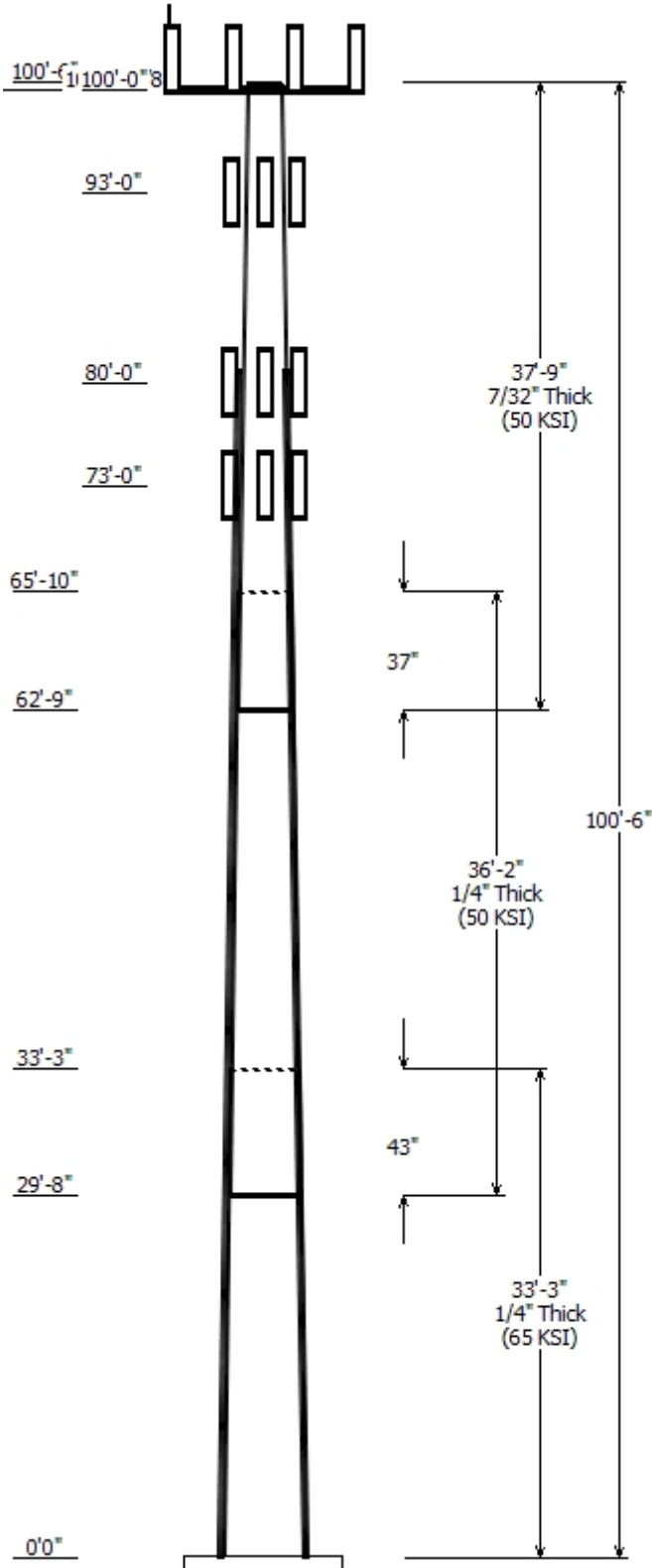
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

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.

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Job Information	
Pole :	302516
Code :	ANSI/TIA-222-G
Description :	100 ft ITT Meyer Type "D" Monopole
Client :	AT&T Mobility
Struct Class :	II
Location :	Mlfld - Milford, CT
Shape :	12 Sides
Exposure :	B
Height :	100.50 (ft)
Topo :	1
Base Elev (ft):	0.00
Taper:	0.17848(in/ft)

Sections Properties							
Shaft Section	Length (ft)	Diameter (in)		Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
		Across Flats Top	Bottom				
1	33.250	26.06	32.00	0.250	0.000	0.178500	65
2	36.167	20.75	27.20	0.250 Slip Joint	43.000	0.178500	50
3	37.750	15.00	21.73	0.219 Slip Joint	37.000	0.178500	50

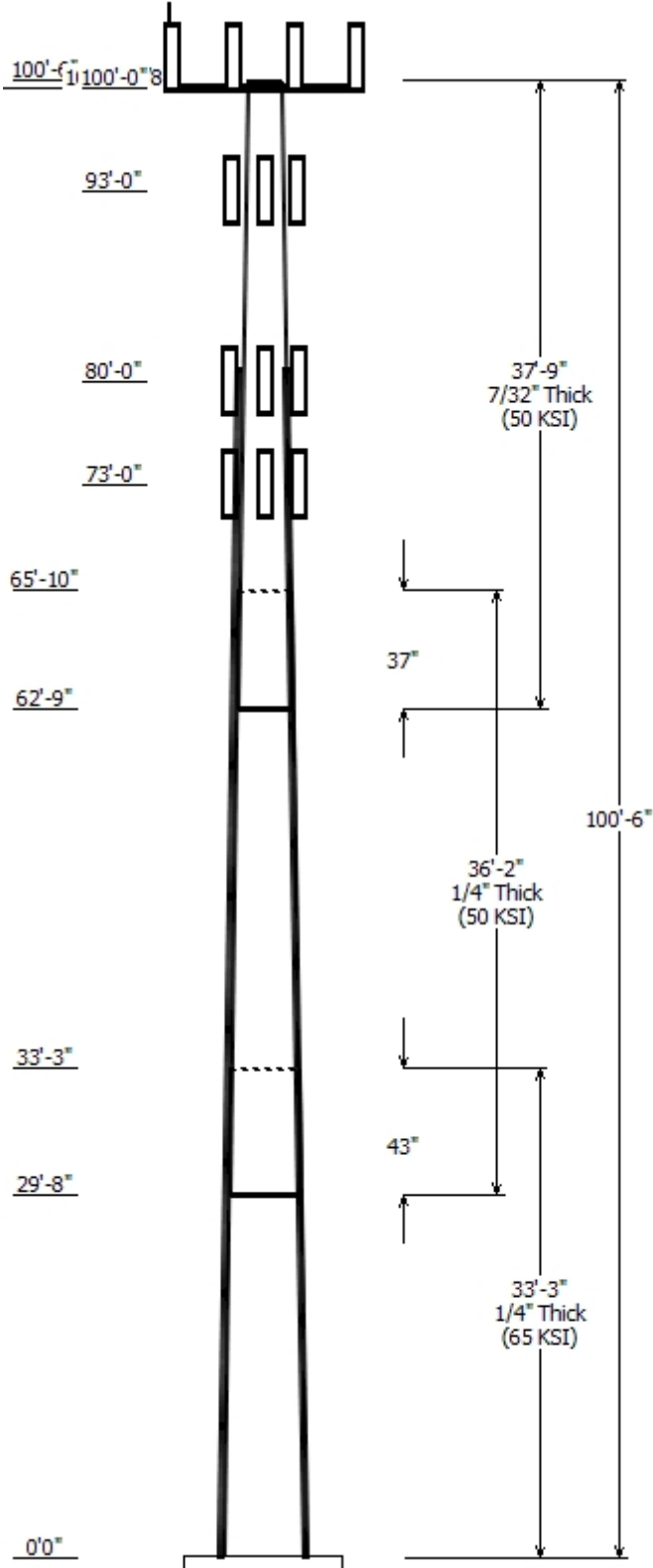
Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
100.010	108.010	1	15' Omni
100.000	102.000	2	Commscope WCS-IMFQ-AMT
100.000	102.000	3	CCI OPA-65R-LCUU-H4
100.000	102.000	3	Ericsson RRUS 32
100.000	102.000	3	Powerwave 7770.00
100.000	102.000	3	KMW AM-X-CD-14-65-00T-RET
100.000	102.000	6	Powerwave LGP21401
100.000	102.000	2	Raycap DC6-48-60-18-8F
100.000	102.000	6	Ericsson RRUS 11 (Band 12)
100.000	100.000	1	Flat Platform w/ Handrails
93.000	93.000	3	Decibel 932LG65T2A-M
80.000	80.000	6	RFS APX86-909014L-CT0-00
73.000	73.000	3	Commscope LNX-6515DS-VTM
73.000	73.000	3	RFS ATMAA1412D-1A20
73.000	73.000	3	Ericsson KRY 112 489/2
73.000	73.000	3	Kathrein Scala Smart Bias Tee
73.000	73.000	3	RFS APX16PV-16PVL-A

Linear Appurtenance			
Elev (ft) From	To	Description	Exposed To Wind
0.000	73.000	7/8" Coax	Yes
0.000	80.000	7/8" Coax	Yes
0.000	85.000	#20 DYWIDAG	Yes
0.000	93.000	7/8" Coax	Yes
0.000	100.0	0.39" Fiber Trunk	No
0.000	100.0	0.78" 8 AWG 6	No
0.000	100.0	1 5/8" Coax	No
0.000	100.0	3" Conduit	No
0.000	100.0	1 5/8" Coax	No

Load Cases	
1.2D + 1.6W	110 mph with No Ice
0.9D + 1.6W	110 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

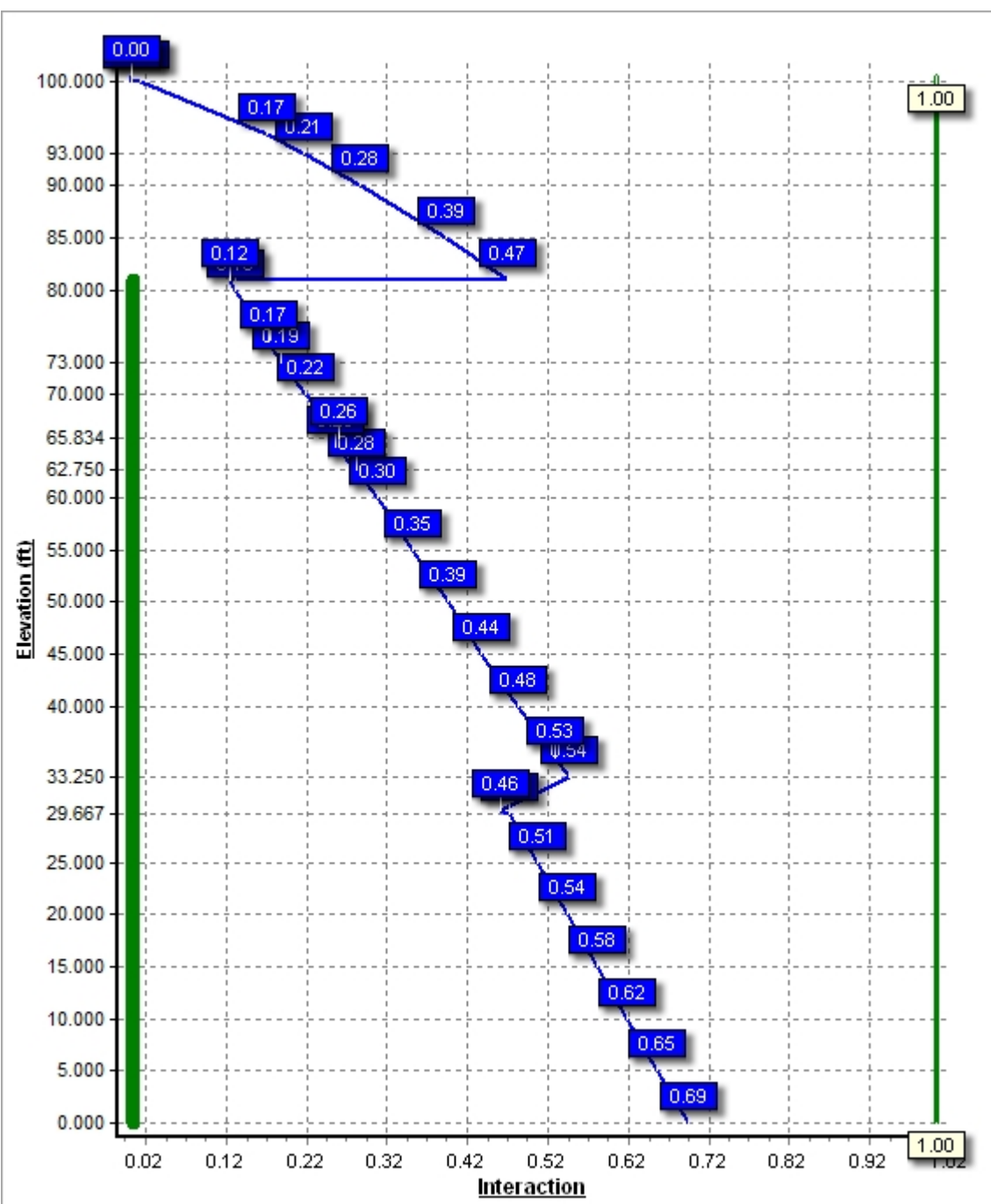
1.0D + 1.0W

Serviceability 60 mph



Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	1498.37	22.23	23.13
0.9D + 1.6W	1474.38	22.06	17.33
1.2D + 1.0Di + 1.0Wi	266.01	3.83	39.75
(1.2 + 0.2Sds) * DL + E ELFM	86.44	1.10	22.81
(1.2 + 0.2Sds) * DL + E EMAM	139.49	1.62	22.81
(0.9 - 0.2Sds) * DL + E ELFM	85.69	1.10	15.75
(0.9 - 0.2Sds) * DL + E EMAM	138.19	1.61	15.75
1.0D + 1.0W	277.81	4.16	19.32

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



Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

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Customer: AT&T Mobility

Analysis Parameters

Location:	New Haven County, CT		
Code:	ANSI/TIA-222-G	Height (ft):	100.
Shape:	12 Sides	Base Diameter (in):	32.00
Pole Type:	Taper	Top Diameter (in):	15.00
Pole Manufacturer:	ITT Meyer	Taper (in/ft) :	0.178

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	110 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):	1.54		
T _L (sec):	6	p:	1.3
S _s :	0.198	S ₁ :	0.063
F _a :	1.600	F _v :	2.400
S _{ds} :	0.211	S _{d1} :	0.101
		C _s :	0.044
		C _s Max:	0.044
		C _s Min:	0.030

Load Cases

1.2D + 1.6W	110 mph with No Ice
0.9D + 1.6W	110 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

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Customer: AT&T Mobility

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-12	33.250	0.2500	65		0.00	2,622	32.00	0.00	25.56	3288.6	32.15	128.00	26.06	33.25	20.78	1767.8	25.79	104.26	0.178483
2-12	36.167	0.2500	50	Slip	43.00	2,351	27.20	29.67	21.70	2012.3	27.01	108.82	20.75	65.83	16.50	885.2	20.10	83.00	0.178483
3-12	37.750	0.2188	50	Slip	37.00	1,642	21.73	62.75	15.16	895.9	24.48	99.37	15.00	100.50	10.41	290.4	16.23	68.57	0.178483
Shaft Weight						6,614													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Weight (lb)	No Ice EPAa (sf)	Orientation Factor	Weight (lb)	Ice EPAa (sf)	Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
100.01	15' Omni	1	40.00	4.500	1.00	227.23	9.705	1.00	0.000	8.000
100.00	CCI OPA-65R-LCUU-H4	3	57.00	6.080	0.78	210.96	7.078	0.78	0.000	2.000
100.00	Commscope WCS-IMFQ-AMT	2	29.50	0.990	0.50	70.18	1.394	0.50	0.000	2.000
100.00	Ericsson RRUS 11 (Band 12)	6	50.00	2.570	0.67	127.28	3.191	0.67	0.000	2.000
100.00	Ericsson RRUS 32	3	50.80	2.690	0.67	131.81	3.384	0.67	0.000	2.000
100.00	Flat Platform w/ Handrails	1	2000.00	42.400	1.00	3,364.04	62.529	1.00	0.000	0.000
100.00	KMW AM-X-CD-14-65-00T-	3	36.40	4.990	0.78	161.00	5.931	0.78	0.000	2.000
100.00	Powerwave 7770.00	3	35.00	5.510	0.77	163.23	6.517	0.77	0.000	2.000
100.00	Powerwave LGP21401	6	14.10	1.100	0.50	45.80	1.542	0.50	0.000	2.000
100.00	Raycap DC6-48-60-18-8F	2	20.00	1.110	1.00	96.39	2.495	1.00	0.000	2.000
93.00	Decibel 932LG65T2A-M	3	13.00	4.080	0.90	126.10	4.975	0.90	0.000	0.000
80.00	RFS APX86-909014L-CT0-00	6	24.20	8.470	0.81	203.31	9.790	0.81	0.000	0.000
73.00	Commscope LNX-6515DS-	3	50.30	11.440	0.84	291.86	12.983	0.84	0.000	0.000
73.00	Ericsson KRY 112 489/2	3	15.40	0.650	0.50	37.70	0.880	0.50	0.000	0.000
73.00	Kathrein Scala Smart Bias	3	3.30	0.090	0.50	9.21	0.229	0.50	0.000	0.000
73.00	RFS APX16PV-16PVL-A	3	39.60	6.040	0.66	157.47	7.029	0.66	0.000	0.000
73.00	RFS ATMAA1412D-1A20	3	13.00	1.000	0.50	44.80	1.398	0.50	0.000	0.000
Totals		54	3610.20			10,185.20			Number of Loadings :	17

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	100.01	1	1 5/8" Coax	1.98	0.82	N	0.00	N	Abandoned
0.00	100.00	2	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility
0.00	100.00	4	0.78" 8 AWG6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	100.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
0.00	100.00	2	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	93.00	6	7/8" Coax	1.09	0.33	N	3.27	Y	Sprint Nextel
0.00	85.00	4	#20 DYWIDAG	2.50	0.00	N	4.73	Y	--
0.00	80.00	9	7/8" Coax	1.09	0.33	N	1.94	Y	Sprint Nextel
0.00	73.00	18	7/8" Coax	1.09	0.33	N	0.00	Y	T-Mobile

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	— Intermediate Connections —		Connectors	Continuation?	
			Description			Spacing (in)	Len (in)			
0.00	81.00	4	SOL #20 All Thread	80	2.08	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	Yes

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

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Customer: AT&T Mobility

Segment Properties (Max Len : 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fy (ksi)	S (in ³)	Z (in ³)	Weight (lb)	Additional Reinforcing		
												Area (in ²)	Ix (in ⁴)	Weight (lb)
0.00		0.2500	32.000	25.559	3,288.6	32.15	128.00	69.6	198.5	0.0	0.0	19.64	3,676	0.0
5.00		0.2500	31.108	24.840	3,019.0	31.20	124.43	70.7	187.5	0.0	428.7	19.64	3,509	334.0
10.00		0.2500	30.215	24.122	2,764.6	30.24	120.86	71.7	176.8	0.0	416.5	19.64	3,345	334.0
15.00		0.2500	29.323	23.404	2,524.9	29.28	117.29	72.8	166.3	0.0	404.3	19.64	3,186	334.0
20.00		0.2500	28.430	22.685	2,299.4	28.33	113.72	73.8	156.2	0.0	392.1	19.64	3,030	334.0
25.00		0.2500	27.538	21.967	2,087.8	27.37	110.15	74.9	146.5	0.0	379.9	19.64	2,878	334.0
29.67	Bot - Section 2	0.2500	26.705	21.296	1,902.4	26.48	106.82	75.8	137.6	0.0	343.5	19.64	2,740	311.7
30.00		0.2500	26.646	21.248	1,889.6	26.41	106.58	75.9	137.0	0.0	48.7	19.64	2,813	22.3
33.25	Top - Section 1	0.2500	26.565	21.184	1,872.5	26.33	106.26	61.2	136.2	0.0	469.3	19.64	2,717	217.1
35.00		0.2500	26.253	20.933	1,806.6	25.99	105.01	61.4	132.9	0.0	125.4	19.64	2,667	116.9
40.00		0.2500	25.361	20.214	1,626.9	25.04	101.44	62.1	123.9	0.0	350.0	19.64	2,524	334.0
45.00		0.2500	24.468	19.496	1,459.5	24.08	97.87	62.8	115.2	0.0	337.8	19.64	2,386	334.0
50.00		0.2500	23.576	18.777	1,304.1	23.12	94.30	63.0	106.9	0.0	325.6	19.64	2,252	334.0
55.00		0.2500	22.683	18.059	1,160.0	22.17	90.73	63.0	98.8	0.0	313.4	19.64	2,121	334.0
60.00		0.2500	21.791	17.341	1,027.0	21.21	87.16	63.0	91.0	0.0	301.1	19.64	1,994	334.0
62.75	Bot - Section 3	0.2500	21.300	16.945	958.4	20.69	85.20	63.0	86.9	0.0	160.4	19.64	1,926	183.7
65.00		0.2500	20.899	16.622	904.6	20.26	83.59	63.0	83.6	0.0	243.4	19.64	1,931	150.3
65.83	Top - Section 2	0.2188	21.187	14.770	828.9	23.81	96.86	63.0	75.6	0.0	89.0	19.64	1,911	55.7
70.00		0.2188	20.444	14.246	743.8	22.90	93.46	63.0	70.3	0.0	205.7	19.64	1,811	278.3
73.00		0.2188	19.908	13.869	686.3	22.24	91.01	63.0	66.6	0.0	143.5	19.64	1,740	200.4
75.00		0.2188	19.551	13.617	649.6	21.81	89.38	63.0	64.2	0.0	93.5	19.64	1,694	133.6
80.00		0.2188	18.659	12.989	563.7	20.71	85.30	63.0	58.4	0.0	226.3	19.64	1,581	334.0
81.00	Reinf. Top	0.2188	18.480	12.863	547.5	20.49	84.48	63.0	57.2	0.0	44.0	19.64	1,559	66.8
85.00		0.2188	17.766	12.360	485.8	19.62	81.22	63.0	52.8	0.0	171.7			
90.00		0.2188	16.874	11.732	415.4	18.53	77.14	63.0	47.6	0.0	204.9			
93.00		0.2188	16.339	11.354	376.6	17.87	74.69	63.0	44.5	0.0	117.8			
95.00		0.2188	15.982	11.103	352.1	17.43	73.06	63.0	42.6	0.0	76.4			
100.0		0.2188	15.089	10.474	295.6	16.34	68.98	63.0	37.9	0.0	183.6			
100.0		0.2188	15.087	10.473	295.5	16.34	68.97	63.0	37.8	0.0	0.4			
100.5		0.2188	15.000	10.412	290.4	16.23	68.57	63.0	37.4	0.0	17.4			
											6,614.4			5,410.8

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

8/3/2016 8:44:38 PM

Customer: AT&T Mobility

Load Case: 1.2D + 1.6W

110 mph with No Ice

22 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		296.1	0.0					0.0	0.0	296.1	0.0	0.0	0.0	
5.00		583.8	514.5					170.1	635.9	753.9	1,150.4	0.0	0.0	
10.00		567.0	499.8					170.1	635.9	737.1	1,135.8	0.0	0.0	
15.00		550.3	485.2					170.1	635.9	720.4	1,121.1	0.0	0.0	
20.00		533.5	470.5					170.1	635.9	703.6	1,106.4	0.0	0.0	
25.00		500.1	455.8					170.1	635.9	670.2	1,091.8	0.0	0.0	
29.67	Bot - Section 2	254.5	412.2					158.7	593.5	413.3	1,005.7	0.0	0.0	
30.00		183.4	58.5					11.3	42.4	194.8	100.9	0.0	0.0	
33.25	Top - Section 1	256.5	563.1					111.9	413.4	368.4	976.5	0.0	0.0	
35.00		348.4	150.5					61.3	222.6	409.7	373.1	0.0	0.0	
40.00		516.8	420.0					178.9	635.9	695.6	1,056.0	0.0	0.0	
45.00		515.7	405.4					183.9	635.9	699.6	1,041.3	0.0	0.0	
50.00		512.1	390.7					188.6	635.9	700.7	1,026.6	0.0	0.0	
55.00		506.4	376.0					192.9	635.9	699.2	1,012.0	0.0	0.0	
60.00		388.1	361.4					196.9	635.9	584.9	997.3	0.0	0.0	
62.75	Bot - Section 3	249.5	192.5					109.9	349.8	359.4	542.3	0.0	0.0	
65.00		154.5	292.1					90.7	286.1	245.2	578.2	0.0	0.0	
65.83	Top - Section 2	247.3	106.8					33.8	106.0	281.1	212.9	0.0	0.0	
70.00		351.4	246.8					170.3	529.9	521.8	776.7	0.0	0.0	
73.00	Appertunance(s)	241.6	172.2	2,030.2	0.0	0.0	437.8	124.1	381.6	2,395.9	991.5	0.0	0.0	
75.00		331.2	112.2					83.4	240.1	414.6	352.4	0.0	0.0	
80.00	Appertunance(s)	281.6	271.6	1,976.7	0.0	0.0	174.2	210.6	600.3	2,468.9	1,046.1	0.0	0.0	
81.00	Reinf. Top	228.3	52.8					33.2	116.5	261.5	169.3	0.0	0.0	
85.00		411.6	206.0					133.5	145.3	545.1	351.3	0.0	0.0	
90.00		365.8	245.9					0.0	181.7	365.8	427.6	0.0	0.0	
93.00	Appertunance(s)	206.4	141.4	552.3	0.0	0.0	46.8	0.0	109.0	758.6	297.2	0.0	0.0	
95.00		240.4	91.7					0.0	67.9	240.4	159.6	0.0	0.0	
100.00	Appertunance(s)	170.6	220.3	4,520.4	0.0	4,700.5	3,625.4	0.0	169.8	4,691.0	4,015.5	0.0	0.0	
100.01		16.6	0.4					0.0	0.0	16.6	0.4	0.0	0.0	
100.50		16.3	20.9					0.0	0.0	16.3	20.9	0.0	0.0	
Totals:											22,229.6	23,136.8	0.00	0.00

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

8/3/2016 8:44:39 PM

Customer: AT&T Mobility

Load Case: 1.2D + 1.6W

110 mph with No Ice

22 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-23.13	-22.23	0.00	-1,498.37	0.00	1,498.37	1,602.06	801.03	2,099.85	1,037.04	0.00	0.00	0.691
5.00	-21.87	-21.59	0.00	-1,387.22	0.00	1,387.22	1,580.35	790.18	2,012.72	994.01	0.16	-0.29	0.654
10.00	-20.63	-20.94	0.00	-1,279.30	0.00	1,279.30	1,557.29	778.65	1,925.54	950.95	0.63	-0.59	0.617
15.00	-19.42	-20.30	0.00	-1,174.58	0.00	1,174.58	1,532.89	766.44	1,838.45	907.94	1.39	-0.87	0.580
20.00	-18.23	-19.67	0.00	-1,073.06	0.00	1,073.06	1,507.13	753.57	1,751.60	865.05	2.46	-1.15	0.542
25.00	-17.07	-19.05	0.00	-974.71	0.00	974.71	1,480.03	740.02	1,665.15	822.35	3.81	-1.42	0.505
29.67	-16.03	-18.65	0.00	-885.80	0.00	885.80	1,453.52	726.76	1,584.95	782.75	5.33	-1.67	0.470
30.00	-15.91	-18.48	0.00	-879.58	0.00	879.58	1,451.58	725.79	1,579.24	779.93	5.45	-1.69	0.459
33.25	-14.90	-18.11	0.00	-819.53	0.00	819.53	1,166.36	583.18	1,265.06	624.76	6.66	-1.86	0.543
35.00	-14.49	-17.73	0.00	-787.83	0.00	787.83	1,157.16	578.58	1,240.04	612.41	7.36	-1.95	0.527
40.00	-13.39	-17.05	0.00	-699.17	0.00	699.17	1,130.25	565.12	1,169.24	577.44	9.53	-2.18	0.481
45.00	-12.32	-16.36	0.00	-613.91	0.00	613.91	1,102.43	551.21	1,099.53	543.02	11.93	-2.41	0.435
50.00	-11.27	-15.65	0.00	-532.11	0.00	532.11	1,064.67	532.34	1,022.34	504.90	14.57	-2.62	0.393
55.00	-10.24	-14.94	0.00	-453.84	0.00	453.84	1,023.94	511.97	945.22	466.81	17.43	-2.82	0.349
60.00	-9.24	-14.33	0.00	-379.13	0.00	379.13	983.21	491.60	871.11	430.21	20.47	-3.00	0.305
62.75	-8.70	-13.95	0.00	-339.72	0.00	339.72	960.80	480.40	831.64	410.72	22.23	-3.09	0.280
65.00	-8.12	-13.68	0.00	-308.33	0.00	308.33	942.48	471.24	800.03	395.11	23.70	-3.16	0.254
65.83	-7.91	-13.40	0.00	-296.93	0.00	296.93	837.44	418.72	723.09	357.11	24.26	-3.19	0.257
70.00	-7.14	-12.85	0.00	-241.09	0.00	241.09	807.75	403.87	672.45	332.10	27.09	-3.30	0.216
73.00	-6.28	-10.40	0.00	-202.55	0.00	202.55	786.36	393.18	637.13	314.66	29.19	-3.38	0.186
75.00	-5.94	-9.98	0.00	-181.74	0.00	181.74	772.10	386.05	614.12	303.29	30.62	-3.42	0.170
80.00	-5.04	-7.45	0.00	-131.85	0.00	131.85	736.46	368.23	558.43	275.79	34.25	-3.52	0.129
81.00	-4.88	-7.19	0.00	-124.40	0.00	124.40	729.34	364.67	547.61	270.44	34.99	-3.53	0.123
81.00	-4.88	-7.19	0.00	-124.40	0.00	124.40	729.34	364.67	547.61	270.44	34.99	-3.53	0.467
85.00	-4.55	-6.63	0.00	-95.65	0.00	95.65	700.82	350.41	505.38	249.59	37.98	-3.59	0.390
90.00	-4.13	-6.25	0.00	-62.49	0.00	62.49	665.18	332.59	454.99	224.70	41.87	-3.82	0.285
93.00	-3.87	-5.48	0.00	-43.73	0.00	43.73	643.80	321.90	426.02	210.39	44.31	-3.93	0.214
95.00	-3.73	-5.23	0.00	-32.77	0.00	32.77	629.54	314.77	407.24	201.12	45.97	-3.99	0.169
100.00	-0.05	-0.27	0.00	-1.89	0.00	1.89	593.90	296.95	362.13	178.84	50.20	-4.07	0.011
100.01	-0.02	-0.02	0.00	-0.01	0.00	0.01	593.83	296.91	362.05	178.80	50.21	-4.07	0.000
100.50	0.00	-0.02	0.00	0.00	0.00	0.00	590.33	295.17	357.77	176.69	50.62	-4.07	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

8/3/2016 8:44:39 PM

Customer: AT&T Mobility

Load Case: 0.9D + 1.6W

110 mph with No Ice (Reduced DL)

22 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		296.1	0.0					0.0	0.0	296.1	0.0	0.0	0.0
5.00		583.8	385.9					170.1	477.0	753.9	862.8	0.0	0.0
10.00		567.0	374.9					170.1	477.0	737.1	851.8	0.0	0.0
15.00		550.3	363.9					170.1	477.0	720.4	840.8	0.0	0.0
20.00		533.5	352.9					170.1	477.0	703.6	829.8	0.0	0.0
25.00		500.1	341.9					170.1	477.0	670.2	818.8	0.0	0.0
29.67	Bot - Section 2	254.5	309.2					158.7	445.2	413.3	754.3	0.0	0.0
30.00		183.4	43.8					11.3	31.8	194.8	75.6	0.0	0.0
33.25	Top - Section 1	256.5	422.3					111.9	310.0	368.4	732.4	0.0	0.0
35.00		348.4	112.9					61.3	166.9	409.7	279.8	0.0	0.0
40.00		516.8	315.0					178.9	477.0	695.6	792.0	0.0	0.0
45.00		515.7	304.0					183.9	477.0	699.6	781.0	0.0	0.0
50.00		512.1	293.0					188.6	477.0	700.7	770.0	0.0	0.0
55.00		506.4	282.0					192.9	477.0	699.2	759.0	0.0	0.0
60.00		388.1	271.0					196.9	477.0	584.9	748.0	0.0	0.0
62.75	Bot - Section 3	249.5	144.4					109.9	262.4	359.4	406.7	0.0	0.0
65.00		154.5	219.1					90.7	214.6	245.2	433.7	0.0	0.0
65.83	Top - Section 2	247.3	80.1					33.8	79.5	281.1	159.7	0.0	0.0
70.00		351.4	185.1					170.3	397.4	521.8	582.5	0.0	0.0
73.00	Appertunance(s)	241.6	129.2	2,030.2	0.0	0.0	328.3	124.1	286.2	2,395.9	743.6	0.0	0.0
75.00		331.2	84.2					83.4	180.1	414.6	264.3	0.0	0.0
80.00	Appertunance(s)	281.6	203.7	1,976.7	0.0	0.0	130.7	210.6	450.2	2,468.9	784.6	0.0	0.0
81.00	Reinf. Top	228.3	39.6					33.2	87.4	261.5	127.0	0.0	0.0
85.00		366.2	154.5					133.5	109.0	499.6	263.5	0.0	0.0
90.00		291.3	184.5					0.0	136.3	291.3	320.7	0.0	0.0
93.00	Appertunance(s)	177.3	106.1	552.3	0.0	0.0	35.1	0.0	81.8	729.6	222.9	0.0	0.0
95.00		240.4	68.8					0.0	50.9	240.4	119.7	0.0	0.0
100.00	Appertunance(s)	170.6	165.2	4,520.4	0.0	4,700.5	2,719.1	0.0	127.3	4,691.0	3,011.6	0.0	0.0
100.01		16.6	0.3					0.0	0.0	16.6	0.3	0.0	0.0
100.50		16.3	15.7					0.0	0.0	16.3	15.7	0.0	0.0
Totals:										22,080.6	17,352.6	0.00	0.00

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

8/3/2016 8:44:40 PM

Customer: AT&T Mobility

Load Case: 0.9D + 1.6W

110 mph with No Ice (Reduced DL)

22 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-17.33	-22.06	0.00	-1,474.38	0.00	1,474.38	1,602.06	801.03	2,099.85	1,037.04	0.00	0.00	0.678
5.00	-16.36	-21.39	0.00	-1,364.06	0.00	1,364.06	1,580.35	790.18	2,012.72	994.01	0.16	-0.29	0.641
10.00	-15.41	-20.72	0.00	-1,257.10	0.00	1,257.10	1,557.29	778.65	1,925.54	950.95	0.62	-0.58	0.604
15.00	-14.49	-20.06	0.00	-1,153.48	0.00	1,153.48	1,532.89	766.44	1,838.45	907.94	1.37	-0.86	0.567
20.00	-13.58	-19.41	0.00	-1,053.16	0.00	1,053.16	1,507.13	753.57	1,751.60	865.05	2.42	-1.13	0.531
25.00	-12.69	-18.78	0.00	-956.11	0.00	956.11	1,480.03	740.02	1,665.15	822.35	3.75	-1.40	0.494
29.67	-11.90	-18.37	0.00	-868.48	0.00	868.48	1,453.52	726.76	1,584.95	782.75	5.24	-1.64	0.460
30.00	-11.81	-18.19	0.00	-862.36	0.00	862.36	1,451.58	725.79	1,579.24	779.93	5.35	-1.66	0.449
33.25	-11.05	-17.83	0.00	-803.23	0.00	803.23	1,166.36	583.18	1,265.06	624.76	6.54	-1.82	0.530
35.00	-10.73	-17.44	0.00	-772.03	0.00	772.03	1,157.16	578.58	1,240.04	612.41	7.23	-1.91	0.515
40.00	-9.90	-16.76	0.00	-684.83	0.00	684.83	1,130.25	565.12	1,169.24	577.44	9.36	-2.14	0.470
45.00	-9.09	-16.06	0.00	-601.05	0.00	601.05	1,102.43	551.21	1,099.53	543.02	11.72	-2.36	0.425
50.00	-8.29	-15.36	0.00	-520.75	0.00	520.75	1,064.67	532.34	1,022.34	504.90	14.31	-2.57	0.383
55.00	-7.52	-14.65	0.00	-443.97	0.00	443.97	1,023.94	511.97	945.22	466.81	17.11	-2.76	0.341
60.00	-6.77	-14.04	0.00	-370.74	0.00	370.74	983.21	491.60	871.11	430.21	20.10	-2.94	0.297
62.75	-6.36	-13.67	0.00	-332.13	0.00	332.13	960.80	480.40	831.64	410.72	21.82	-3.03	0.272
65.00	-5.93	-13.41	0.00	-301.38	0.00	301.38	942.48	471.24	800.03	395.11	23.27	-3.10	0.247
65.83	-5.77	-13.12	0.00	-290.20	0.00	290.20	837.44	418.72	723.09	357.11	23.81	-3.13	0.250
70.00	-5.20	-12.58	0.00	-235.52	0.00	235.52	807.75	403.87	672.45	332.10	26.59	-3.24	0.210
73.00	-4.58	-10.15	0.00	-197.79	0.00	197.79	786.36	393.18	637.13	314.66	28.65	-3.31	0.181
75.00	-4.33	-9.72	0.00	-177.49	0.00	177.49	772.10	386.05	614.12	303.29	30.05	-3.35	0.165
80.00	-3.69	-7.22	0.00	-128.87	0.00	128.87	736.46	368.23	558.43	275.79	33.61	-3.45	0.125
81.00	-3.57	-6.95	0.00	-121.65	0.00	121.65	729.34	364.67	547.61	270.44	34.34	-3.46	0.119
81.00	-3.57	-6.95	0.00	-121.65	0.00	121.65	729.34	364.67	547.61	270.44	34.34	-3.46	0.455
85.00	-3.32	-6.44	0.00	-93.85	0.00	93.85	700.82	350.41	505.38	249.59	37.26	-3.52	0.381
90.00	-3.00	-6.14	0.00	-61.62	0.00	61.62	665.18	332.59	454.99	224.70	41.08	-3.75	0.279
93.00	-2.82	-5.40	0.00	-43.20	0.00	43.20	643.80	321.90	426.02	210.39	43.47	-3.86	0.210
95.00	-2.71	-5.16	0.00	-32.39	0.00	32.39	629.54	314.77	407.24	201.12	45.10	-3.91	0.166
100.00	-0.03	-0.27	0.00	-1.89	0.00	1.89	593.90	296.95	362.13	178.84	49.25	-3.99	0.011
100.01	-0.01	-0.02	0.00	-0.01	0.00	0.01	593.83	296.91	362.05	178.80	49.26	-3.99	0.000
100.50	0.00	-0.02	0.00	0.00	0.00	0.00	590.33	295.17	357.77	176.69	49.66	-3.99	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

8/3/2016 8:44:40 PM

Customer: AT&T Mobility

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

21 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		40.9	0.0					0.0	0.0	40.9	0.0	0.0	0.0
5.00		81.1	756.6					39.5	902.7	120.7	1,659.3	0.0	0.0
10.00		79.4	763.6					41.4	934.8	120.9	1,698.5	0.0	0.0
15.00		77.5	755.5					42.4	951.4	119.9	1,706.8	0.0	0.0
20.00		75.6	742.3					43.0	962.8	118.6	1,705.2	0.0	0.0
25.00		71.2	726.6					43.5	971.7	114.7	1,698.3	0.0	0.0
29.67	Bot - Section 2	36.3	662.7					41.0	913.6	77.3	1,576.3	0.0	0.0
30.00		26.2	76.8					2.9	65.5	29.2	142.3	0.0	0.0
33.25	Top - Section 1	36.7	739.4					29.2	639.8	65.9	1,379.1	0.0	0.0
35.00		50.1	245.1					16.1	345.5	66.2	590.6	0.0	0.0
40.00		74.5	684.2					47.6	990.7	122.1	1,675.0	0.0	0.0
45.00		74.7	664.2					49.6	995.6	124.3	1,659.8	0.0	0.0
50.00		74.6	643.6					51.5	1,000.0	126.1	1,643.6	0.0	0.0
55.00		74.2	622.5					53.2	1,004.0	127.4	1,626.5	0.0	0.0
60.00		57.1	601.1					54.9	1,007.6	112.0	1,608.7	0.0	0.0
62.75	Bot - Section 3	36.8	322.5					30.9	555.7	67.7	878.2	0.0	0.0
65.00		22.8	399.1					25.6	455.3	48.4	854.4	0.0	0.0
65.83	Top - Section 2	36.7	146.3					9.6	168.9	46.3	315.2	0.0	0.0
70.00		52.3	438.4					48.4	845.3	100.6	1,283.7	0.0	0.0
73.00	Appertunance(s)	36.1	307.5	304.4	0.0	0.0	1,696.1	35.4	610.0	375.9	2,613.6	0.0	0.0
75.00		49.8	201.3					23.9	333.3	73.7	534.6	0.0	0.0
80.00	Appertunance(s)	42.4	485.9	295.1	0.0	0.0	1,248.9	60.7	834.5	398.1	2,569.3	0.0	0.0
81.00	Reinf. Top	34.6	95.4					9.0	146.8	43.7	242.3	0.0	0.0
85.00		61.4	371.1					36.5	267.2	98.0	638.2	0.0	0.0
90.00		53.6	443.9					0.0	243.4	53.6	687.3	0.0	0.0
93.00	Appertunance(s)	32.9	257.3	87.0	0.0	0.0	386.1	0.0	146.3	119.8	789.7	0.0	0.0
95.00		44.9	167.7					0.0	67.9	44.9	235.6	0.0	0.0
100.00	Appertunance(s)	31.9	401.3	792.8	0.0	759.1	6,890.9	0.0	169.8	824.8	7,462.0	0.0	0.0
100.01		3.1	0.8					0.0	0.0	3.1	0.8	0.0	0.0
100.50		3.1	38.6					0.0	0.0	3.1	38.6	0.0	0.0
Totals:										3,787.92	39,513.3	0.00	0.00

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

8/3/2016 8:44:41 PM

Customer: AT&T Mobility

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

21 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	-39.75	-3.83	0.00	-266.01	0.00	266.01	1,602.06	801.03	2,099.85	1,037.04	0.00	0.00	0.135
5.00	-38.08	-3.74	0.00	-246.86	0.00	246.86	1,580.35	790.18	2,012.72	994.01	0.03	-0.05	0.128
10.00	-36.38	-3.65	0.00	-228.14	0.00	228.14	1,557.29	778.65	1,925.54	950.95	0.11	-0.10	0.121
15.00	-34.67	-3.56	0.00	-209.87	0.00	209.87	1,532.89	766.44	1,838.45	907.94	0.25	-0.16	0.115
20.00	-32.97	-3.46	0.00	-192.07	0.00	192.07	1,507.13	753.57	1,751.60	865.05	0.44	-0.21	0.108
25.00	-31.26	-3.37	0.00	-174.75	0.00	174.75	1,480.03	740.02	1,665.15	822.35	0.68	-0.25	0.101
29.67	-29.69	-3.30	0.00	-159.03	0.00	159.03	1,453.52	726.76	1,584.95	782.75	0.95	-0.30	0.094
30.00	-29.54	-3.27	0.00	-157.93	0.00	157.93	1,451.58	725.79	1,579.24	779.93	0.97	-0.30	0.092
33.25	-28.16	-3.21	0.00	-147.29	0.00	147.29	1,166.36	583.18	1,265.06	624.76	1.19	-0.33	0.109
35.00	-27.57	-3.16	0.00	-141.67	0.00	141.67	1,157.16	578.58	1,240.04	612.41	1.31	-0.35	0.106
40.00	-25.90	-3.04	0.00	-125.89	0.00	125.89	1,130.25	565.12	1,169.24	577.44	1.70	-0.39	0.097
45.00	-24.24	-2.92	0.00	-110.67	0.00	110.67	1,102.43	551.21	1,099.53	543.02	2.13	-0.43	0.088
50.00	-22.59	-2.80	0.00	-96.06	0.00	96.06	1,064.67	532.34	1,022.34	504.90	2.60	-0.47	0.080
55.00	-20.96	-2.67	0.00	-82.07	0.00	82.07	1,023.94	511.97	945.22	466.81	3.12	-0.50	0.072
60.00	-19.36	-2.55	0.00	-68.72	0.00	68.72	983.21	491.60	871.11	430.21	3.66	-0.54	0.064
62.75	-18.48	-2.48	0.00	-61.70	0.00	61.70	960.80	480.40	831.64	410.72	3.98	-0.55	0.059
65.00	-17.62	-2.43	0.00	-56.12	0.00	56.12	942.48	471.24	800.03	395.11	4.24	-0.57	0.054
65.83	-17.31	-2.38	0.00	-54.10	0.00	54.10	837.44	418.72	723.09	357.11	4.34	-0.57	0.055
70.00	-16.02	-2.27	0.00	-44.18	0.00	44.18	807.75	403.87	672.45	332.10	4.85	-0.59	0.047
73.00	-13.41	-1.87	0.00	-37.36	0.00	37.36	786.36	393.18	637.13	314.66	5.23	-0.61	0.041
75.00	-12.88	-1.79	0.00	-33.62	0.00	33.62	772.10	386.05	614.12	303.29	5.48	-0.61	0.038
80.00	-10.32	-1.37	0.00	-24.65	0.00	24.65	736.46	368.23	558.43	275.79	6.14	-0.63	0.029
81.00	-10.07	-1.33	0.00	-23.28	0.00	23.28	729.34	364.67	547.61	270.44	6.27	-0.64	0.028
81.00	-10.07	-1.33	0.00	-23.28	0.00	23.28	729.34	364.67	547.61	270.44	6.27	-0.64	0.100
85.00	-9.44	-1.23	0.00	-17.97	0.00	17.97	700.82	350.41	505.38	249.59	6.81	-0.65	0.085
90.00	-8.75	-1.17	0.00	-11.85	0.00	11.85	665.18	332.59	454.99	224.70	7.51	-0.69	0.066
93.00	-7.96	-1.04	0.00	-8.34	0.00	8.34	643.80	321.90	426.02	210.39	7.95	-0.71	0.052
95.00	-7.72	-1.00	0.00	-6.26	0.00	6.26	629.54	314.77	407.24	201.12	8.25	-0.72	0.043
100.00	-0.27	-0.08	0.00	-0.53	0.00	0.53	593.90	296.95	362.13	178.84	9.02	-0.74	0.003
100.01	-0.04	0.00	0.00	0.00	0.00	0.00	593.83	296.91	362.05	178.80	9.02	-0.74	0.000
100.50	0.00	0.00	0.00	0.00	0.00	0.00	590.33	295.17	357.77	176.69	9.10	-0.74	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

8/3/2016 8:44:42 PM

Customer: AT&T Mobility

Load Case: 1.0D + 1.0W

Serviceability 60 mph

21 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		55.1	0.0					0.0	0.0	55.1	0.0	0.0	0.0
5.00		108.6	428.7					33.5	529.9	142.1	958.7	0.0	0.0
10.00		105.4	416.5					33.5	529.9	138.9	946.5	0.0	0.0
15.00		102.3	404.3					33.5	529.9	135.8	934.2	0.0	0.0
20.00		99.2	392.1					33.5	529.9	132.7	922.0	0.0	0.0
25.00		93.0	379.9					33.5	529.9	126.5	909.8	0.0	0.0
29.67	Bot - Section 2	47.3	343.5					31.3	494.6	78.6	838.1	0.0	0.0
30.00		34.1	48.7					2.2	35.3	36.3	84.0	0.0	0.0
33.25	Top - Section 1	47.7	469.3					22.1	344.5	69.8	813.7	0.0	0.0
35.00		64.8	125.4					12.2	185.5	77.0	310.9	0.0	0.0
40.00		96.1	350.0					35.7	529.9	131.8	880.0	0.0	0.0
45.00		95.9	337.8					37.0	529.9	132.9	867.8	0.0	0.0
50.00		95.2	325.6					38.2	529.9	133.5	855.5	0.0	0.0
55.00		94.2	313.4					39.3	529.9	133.5	843.3	0.0	0.0
60.00		72.2	301.1					40.4	529.9	112.5	831.1	0.0	0.0
62.75	Bot - Section 3	46.4	160.4					22.6	291.5	69.0	451.9	0.0	0.0
65.00		28.7	243.4					18.7	238.4	47.5	481.9	0.0	0.0
65.83	Top - Section 2	46.0	89.0					7.0	88.4	53.0	177.4	0.0	0.0
70.00		65.3	205.7					35.3	441.6	100.6	647.3	0.0	0.0
73.00	Appertunance(s)	44.9	143.5	377.5	0.0	0.0	364.8	25.8	318.0	448.2	826.3	0.0	0.0
75.00		61.6	93.5					17.4	200.1	79.0	293.6	0.0	0.0
80.00	Appertunance(s)	52.4	226.3	367.6	0.0	0.0	145.2	44.0	500.2	463.9	871.8	0.0	0.0
81.00	Reinf. Top	42.5	44.0					7.2	97.1	49.6	141.1	0.0	0.0
85.00		68.1	171.7					28.9	121.1	97.0	292.8	0.0	0.0
90.00		54.2	204.9					0.0	151.4	54.2	356.3	0.0	0.0
93.00	Appertunance(s)	33.0	117.8	102.7	0.0	0.0	39.0	0.0	90.8	135.7	247.7	0.0	0.0
95.00		44.7	76.4					0.0	56.6	44.7	133.0	0.0	0.0
100.00	Appertunance(s)	31.7	183.6	840.6	0.0	874.1	3,021.2	0.0	141.5	872.3	3,346.3	0.0	0.0
100.01		3.1	0.4					0.0	0.0	3.1	0.4	0.0	0.0
100.50		3.0	17.4					0.0	0.0	3.0	17.4	0.0	0.0
Totals:										4,157.84	19,280.7	0.00	0.00

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

8/3/2016 8:44:43 PM

Customer: AT&T Mobility

Load Case: 1.0D + 1.0W

Serviceability 60 mph

21 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	-19.32	-4.16	0.00	-277.81	0.00	277.81	1,602.06	801.03	2,099.85	1,037.04	0.00	0.00	0.133
5.00	-18.36	-4.03	0.00	-257.03	0.00	257.03	1,580.35	790.18	2,012.72	994.01	0.03	-0.05	0.126
10.00	-17.41	-3.91	0.00	-236.88	0.00	236.88	1,557.29	778.65	1,925.54	950.95	0.12	-0.11	0.119
15.00	-16.47	-3.78	0.00	-217.35	0.00	217.35	1,532.89	766.44	1,838.45	907.94	0.26	-0.16	0.112
20.00	-15.54	-3.66	0.00	-198.43	0.00	198.43	1,507.13	753.57	1,751.60	865.05	0.46	-0.21	0.105
25.00	-14.63	-3.54	0.00	-180.13	0.00	180.13	1,480.03	740.02	1,665.15	822.35	0.71	-0.26	0.097
29.67	-13.79	-3.47	0.00	-163.59	0.00	163.59	1,453.52	726.76	1,584.95	782.75	0.99	-0.31	0.091
30.00	-13.71	-3.43	0.00	-162.43	0.00	162.43	1,451.58	725.79	1,579.24	779.93	1.01	-0.31	0.089
33.25	-12.89	-3.36	0.00	-151.27	0.00	151.27	1,166.36	583.18	1,265.06	624.76	1.23	-0.34	0.105
35.00	-12.58	-3.29	0.00	-145.39	0.00	145.39	1,157.16	578.58	1,240.04	612.41	1.36	-0.36	0.102
40.00	-11.70	-3.16	0.00	-128.92	0.00	128.92	1,130.25	565.12	1,169.24	577.44	1.76	-0.40	0.093
45.00	-10.83	-3.03	0.00	-113.11	0.00	113.11	1,102.43	551.21	1,099.53	543.02	2.21	-0.45	0.084
50.00	-9.97	-2.90	0.00	-97.95	0.00	97.95	1,064.67	532.34	1,022.34	504.90	2.70	-0.48	0.076
55.00	-9.13	-2.76	0.00	-83.46	0.00	83.46	1,023.94	511.97	945.22	466.81	3.22	-0.52	0.068
60.00	-8.30	-2.65	0.00	-69.65	0.00	69.65	983.21	491.60	871.11	430.21	3.79	-0.55	0.059
62.75	-7.85	-2.57	0.00	-62.37	0.00	62.37	960.80	480.40	831.64	410.72	4.11	-0.57	0.054
65.00	-7.37	-2.52	0.00	-56.58	0.00	56.58	942.48	471.24	800.03	395.11	4.38	-0.58	0.049
65.83	-7.19	-2.47	0.00	-54.47	0.00	54.47	837.44	418.72	723.09	357.11	4.49	-0.59	0.050
70.00	-6.54	-2.36	0.00	-44.18	0.00	44.18	807.75	403.87	672.45	332.10	5.01	-0.61	0.042
73.00	-5.72	-1.91	0.00	-37.09	0.00	37.09	786.36	393.18	637.13	314.66	5.40	-0.62	0.036
75.00	-5.43	-1.83	0.00	-33.27	0.00	33.27	772.10	386.05	614.12	303.29	5.66	-0.63	0.033
80.00	-4.56	-1.35	0.00	-24.13	0.00	24.13	736.46	368.23	558.43	275.79	6.33	-0.65	0.025
81.00	-4.42	-1.30	0.00	-22.78	0.00	22.78	729.34	364.67	547.61	270.44	6.47	-0.65	0.024
81.00	-4.42	-1.30	0.00	-22.78	0.00	22.78	729.34	364.67	547.61	270.44	6.47	-0.65	0.090
85.00	-4.13	-1.21	0.00	-17.56	0.00	17.56	700.82	350.41	505.38	249.59	7.02	-0.66	0.076
90.00	-3.77	-1.15	0.00	-11.53	0.00	11.53	665.18	332.59	454.99	224.70	7.74	-0.71	0.057
93.00	-3.52	-1.01	0.00	-8.08	0.00	8.08	643.80	321.90	426.02	210.39	8.19	-0.73	0.044
95.00	-3.39	-0.97	0.00	-6.06	0.00	6.06	629.54	314.77	407.24	201.12	8.50	-0.74	0.036
100.00	-0.06	-0.05	0.00	-0.35	0.00	0.35	593.90	296.95	362.13	178.84	9.28	-0.75	0.002
100.01	-0.02	0.00	0.00	0.00	0.00	0.00	593.83	296.91	362.05	178.80	9.28	-0.75	0.000
100.50	0.00	0.00	0.00	0.00	0.00	0.00	590.33	295.17	357.77	176.69	9.35	-0.75	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

8/3/2016 8:44:43 PM

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):	0.20
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}):	0.21
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.04
Upper Limit C_s	0.04
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	1.54
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.52
Total Unfactored Dead Load:	19.32 k
Seismic Base Shear (E):	1.10 k

Load Case (1.2 + 0.2Sds) * DL + E ELM

Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
29	100.26	17	19	0.002	2	22
28	100.01	0	0	0.000	0	0
27	97.50	325	340	0.037	41	404
26	94.00	133	132	0.014	16	165
25	91.50	209	198	0.021	24	259
24	87.50	356	316	0.034	38	443
23	83.00	293	240	0.026	29	364
22	80.50	141	110	0.012	13	175
21	77.50	727	536	0.058	64	903
20	74.00	294	202	0.022	24	365
19	71.50	461	301	0.033	36	573
18	67.92	647	391	0.042	47	804
17	65.42	177	101	0.011	12	220
16	63.88	482	265	0.029	32	599
15	61.38	452	234	0.025	28	561
14	57.50	831	390	0.042	46	1,032
13	52.50	843	344	0.037	41	1,048
12	47.50	856	300	0.033	36	1,063
11	42.50	868	257	0.028	31	1,078
10	37.50	880	216	0.023	26	1,093
9	34.13	311	66	0.007	8	386
8	31.62	814	154	0.017	18	1,011
7	29.83	84	15	0.002	2	104

Site Number: 302516

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

8/3/2016 8:44:43 PM

Customer: AT&T Mobility

6	27.33	838	127	0.014	15	1,041
5	22.50	910	103	0.011	12	1,130
4	17.50	922	71	0.008	8	1,145
3	12.50	934	43	0.005	5	1,161
2	7.50	946	20	0.002	2	1,176
1	2.50	959	4	0.000	0	1,191
15' Omni	100.01	40	43	0.005	5	50
Commscope WCS-IMFQ-A	100.00	59	64	0.007	8	73
Powerwave LGP21401	100.00	85	92	0.010	11	105
Raycap DC6-48-60-18-	100.00	40	43	0.005	5	50
Ericsson RRUS 11 (Ba	100.00	300	326	0.035	39	373
Ericsson RRUS 32	100.00	152	166	0.018	20	189
KMW AM-X-CD-14-65-00	100.00	109	119	0.013	14	136
Powerwave 7770.00	100.00	105	114	0.012	14	130
CCI OPA-65R-LCUU-H4	100.00	171	186	0.020	22	212
Flat Platform w/ Han	100.00	2,000	2,172	0.236	259	2,484
Decibel 932LG65T2A-M	93.00	39	38	0.004	5	48
RFS APX86-909014L-CT	80.00	145	112	0.012	13	180
Kathrein Scala Smart	73.00	10	7	0.001	1	12
Ericsson KRY 112 489	73.00	46	31	0.003	4	57
RFS ATMAA1412D-1A20	73.00	39	26	0.003	3	48
RFS APX16PV-16PVL-A	73.00	119	80	0.009	10	148
Commscope LNX-6515DS	73.00	151	102	0.011	12	187
		19,321	9,215	1.000	1,099	24,001

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

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
29	100.26	17	19	0.002	2	15
28	100.01	0	0	0.000	0	0
27	97.50	325	340	0.037	41	279
26	94.00	133	132	0.014	16	114
25	91.50	209	198	0.021	24	179
24	87.50	356	316	0.034	38	306
23	83.00	293	240	0.026	29	251
22	80.50	141	110	0.012	13	121
21	77.50	727	536	0.058	64	623
20	74.00	294	202	0.022	24	252
19	71.50	461	301	0.033	36	396
18	67.92	647	391	0.042	47	555
17	65.42	177	101	0.011	12	152
16	63.88	482	265	0.029	32	413
15	61.38	452	234	0.025	28	388
14	57.50	831	390	0.042	46	713
13	52.50	843	344	0.037	41	723
12	47.50	856	300	0.033	36	734
11	42.50	868	257	0.028	31	744
10	37.50	880	216	0.023	26	755
9	34.13	311	66	0.007	8	267
8	31.62	814	154	0.017	18	698
7	29.83	84	15	0.002	2	72
6	27.33	838	127	0.014	15	719
5	22.50	910	103	0.011	12	780
4	17.50	922	71	0.008	8	791
3	12.50	934	43	0.005	5	801
2	7.50	946	20	0.002	2	812
1	2.50	959	4	0.000	0	822
15' Omni	100.01	40	43	0.005	5	34
Commscope WCS-IMFQ-A	100.00	59	64	0.007	8	51

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

8/3/2016 8:44:43 PM

Customer: AT&T Mobility

Powerwave LGP21401	100.00	85	92	0.010	11	73
Raycap DC6-48-60-18-	100.00	40	43	0.005	5	34
Ericsson RRUS 11 (Ba	100.00	300	326	0.035	39	257
Ericsson RRUS 32	100.00	152	166	0.018	20	131
KMW AM-X-CD-14-65-00	100.00	109	119	0.013	14	94
Powerwave 7770.00	100.00	105	114	0.012	14	90
CCI OPA-65R-LCUU-H4	100.00	171	186	0.020	22	147
Flat Platform w/ Han	100.00	2,000	2,172	0.236	259	1,716
Decibel 932LG65T2A-M	93.00	39	38	0.004	5	33
RFS APX86-909014L-CT	80.00	145	112	0.012	13	125
Kathrein Scala Smart	73.00	10	7	0.001	1	8
Ericsson KRY 112 489	73.00	46	31	0.003	4	40
RFS ATMAA1412D-1A20	73.00	39	26	0.003	3	33
RFS APX16PV-16PVL-A	73.00	119	80	0.009	10	102
Commscope LNX-6515DS	73.00	151	102	0.011	12	129
		19,321	9,215	1.000	1,099	16,573

Site Number: 302516

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

8/3/2016 8:44:43 PM

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	-22.81	-1.10	0.00	-86.44	0.00	86.44	1,602.06	801.03	2,099.85	1,037.04	0.00	0.00	0.047
5.00	-21.63	-1.11	0.00	-80.93	0.00	80.93	1,580.35	790.18	2,012.72	994.01	0.01	-0.02	0.045
10.00	-20.47	-1.11	0.00	-75.41	0.00	75.41	1,557.29	778.65	1,925.54	950.95	0.04	-0.03	0.043
15.00	-19.33	-1.10	0.00	-69.88	0.00	69.88	1,532.89	766.44	1,838.45	907.94	0.08	-0.05	0.041
20.00	-18.20	-1.09	0.00	-64.37	0.00	64.37	1,507.13	753.57	1,751.60	865.05	0.14	-0.07	0.039
25.00	-17.16	-1.08	0.00	-58.90	0.00	58.90	1,480.03	740.02	1,665.15	822.35	0.22	-0.08	0.036
29.67	-17.05	-1.08	0.00	-53.85	0.00	53.85	1,453.52	726.76	1,584.95	782.75	0.31	-0.10	0.034
30.00	-16.04	-1.06	0.00	-53.49	0.00	53.49	1,451.58	725.79	1,579.24	779.93	0.32	-0.10	0.033
33.25	-15.65	-1.06	0.00	-50.03	0.00	50.03	1,166.36	583.18	1,265.06	624.76	0.39	-0.11	0.040
35.00	-14.56	-1.03	0.00	-48.18	0.00	48.18	1,157.16	578.58	1,240.04	612.41	0.43	-0.12	0.038
40.00	-13.48	-1.00	0.00	-43.02	0.00	43.02	1,130.25	565.12	1,169.24	577.44	0.56	-0.13	0.035
45.00	-12.42	-0.97	0.00	-38.00	0.00	38.00	1,102.43	551.21	1,099.53	543.02	0.71	-0.14	0.032
50.00	-11.37	-0.93	0.00	-33.17	0.00	33.17	1,064.67	532.34	1,022.34	504.90	0.87	-0.16	0.029
55.00	-10.34	-0.88	0.00	-28.54	0.00	28.54	1,023.94	511.97	945.22	466.81	1.04	-0.17	0.026
60.00	-9.78	-0.85	0.00	-24.15	0.00	24.15	983.21	491.60	871.11	430.21	1.22	-0.18	0.024
62.75	-9.18	-0.82	0.00	-21.81	0.00	21.81	960.80	480.40	831.64	410.72	1.33	-0.19	0.022
65.00	-8.96	-0.81	0.00	-19.97	0.00	19.97	942.48	471.24	800.03	395.11	1.42	-0.19	0.020
65.83	-8.15	-0.76	0.00	-19.30	0.00	19.30	837.44	418.72	723.09	357.11	1.45	-0.19	0.021
70.00	-7.58	-0.72	0.00	-16.14	0.00	16.14	807.75	403.87	672.45	332.10	1.62	-0.20	0.018
73.00	-6.76	-0.66	0.00	-13.98	0.00	13.98	786.36	393.18	637.13	314.66	1.75	-0.21	0.016
75.00	-5.86	-0.60	0.00	-12.65	0.00	12.65	772.10	386.05	614.12	303.29	1.84	-0.21	0.015
80.00	-5.51	-0.57	0.00	-9.67	0.00	9.67	736.46	368.23	558.43	275.79	2.06	-0.22	0.012
81.00	-5.14	-0.54	0.00	-9.10	0.00	9.10	729.34	364.67	547.61	270.44	2.11	-0.22	0.012
81.00	-5.14	-0.54	0.00	-9.10	0.00	9.10	729.34	364.67	547.61	270.44	2.11	-0.22	0.041
85.00	-4.70	-0.50	0.00	-6.94	0.00	6.94	700.82	350.41	505.38	249.59	2.29	-0.22	0.034
90.00	-4.44	-0.48	0.00	-4.43	0.00	4.43	665.18	332.59	454.99	224.70	2.53	-0.24	0.026
93.00	-4.23	-0.46	0.00	-2.99	0.00	2.99	643.80	321.90	426.02	210.39	2.69	-0.25	0.021
95.00	-3.82	-0.42	0.00	-2.08	0.00	2.08	629.54	314.77	407.24	201.12	2.79	-0.25	0.016
100.00	-0.02	0.00	0.00	0.00	0.00	0.00	593.90	296.95	362.13	178.84	3.05	-0.25	0.000
100.01	0.00	0.00	0.00	0.00	0.00	0.00	593.83	296.91	362.05	178.80	3.05	-0.25	0.000
100.50	0.00	0.00	0.00	0.00	0.00	0.00	590.33	295.17	357.77	176.69	3.08	-0.25	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

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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	-15.75	-1.10	0.00	-85.69	0.00	85.69	1,602.06	801.03	2,099.85	1,037.04	0.00	0.00	0.045
5.00	-14.94	-1.10	0.00	-80.19	0.00	80.19	1,580.35	790.18	2,012.72	994.01	0.01	-0.02	0.043
10.00	-14.14	-1.10	0.00	-74.68	0.00	74.68	1,557.29	778.65	1,925.54	950.95	0.04	-0.03	0.041
15.00	-13.35	-1.10	0.00	-69.17	0.00	69.17	1,532.89	766.44	1,838.45	907.94	0.08	-0.05	0.038
20.00	-12.56	-1.09	0.00	-63.70	0.00	63.70	1,507.13	753.57	1,751.60	865.05	0.14	-0.07	0.036
25.00	-11.85	-1.07	0.00	-58.27	0.00	58.27	1,480.03	740.02	1,665.15	822.35	0.22	-0.08	0.034
29.67	-11.77	-1.07	0.00	-53.26	0.00	53.26	1,453.52	726.76	1,584.95	782.75	0.31	-0.10	0.032
30.00	-11.07	-1.05	0.00	-52.90	0.00	52.90	1,451.58	725.79	1,579.24	779.93	0.32	-0.10	0.031
33.25	-10.81	-1.05	0.00	-49.47	0.00	49.47	1,166.36	583.18	1,265.06	624.76	0.39	-0.11	0.037
35.00	-10.05	-1.02	0.00	-47.64	0.00	47.64	1,157.16	578.58	1,240.04	612.41	0.43	-0.11	0.036
40.00	-9.31	-0.99	0.00	-42.53	0.00	42.53	1,130.25	565.12	1,169.24	577.44	0.56	-0.13	0.033
45.00	-8.57	-0.96	0.00	-37.56	0.00	37.56	1,102.43	551.21	1,099.53	543.02	0.70	-0.14	0.030
50.00	-7.85	-0.92	0.00	-32.78	0.00	32.78	1,064.67	532.34	1,022.34	504.90	0.86	-0.16	0.027
55.00	-7.14	-0.87	0.00	-28.20	0.00	28.20	1,023.94	511.97	945.22	466.81	1.03	-0.17	0.025
60.00	-6.75	-0.84	0.00	-23.86	0.00	23.86	983.21	491.60	871.11	430.21	1.21	-0.18	0.022
62.75	-6.34	-0.81	0.00	-21.55	0.00	21.55	960.80	480.40	831.64	410.72	1.31	-0.19	0.020
65.00	-6.19	-0.80	0.00	-19.73	0.00	19.73	942.48	471.24	800.03	395.11	1.40	-0.19	0.019
65.83	-5.63	-0.75	0.00	-19.07	0.00	19.07	837.44	418.72	723.09	357.11	1.44	-0.19	0.019
70.00	-5.23	-0.71	0.00	-15.95	0.00	15.95	807.75	403.87	672.45	332.10	1.61	-0.20	0.017
73.00	-4.67	-0.66	0.00	-13.81	0.00	13.81	786.36	393.18	637.13	314.66	1.73	-0.20	0.015
75.00	-4.05	-0.59	0.00	-12.50	0.00	12.50	772.10	386.05	614.12	303.29	1.82	-0.21	0.014
80.00	-3.80	-0.56	0.00	-9.55	0.00	9.55	736.46	368.23	558.43	275.79	2.04	-0.21	0.011
81.00	-3.55	-0.53	0.00	-8.99	0.00	8.99	729.34	364.67	547.61	270.44	2.09	-0.21	0.011
81.00	-3.55	-0.53	0.00	-8.99	0.00	8.99	729.34	364.67	547.61	270.44	2.09	-0.21	0.038
85.00	-3.24	-0.50	0.00	-6.85	0.00	6.85	700.82	350.41	505.38	249.59	2.27	-0.22	0.032
90.00	-3.07	-0.47	0.00	-4.37	0.00	4.37	665.18	332.59	454.99	224.70	2.51	-0.24	0.024
93.00	-2.92	-0.45	0.00	-2.95	0.00	2.95	643.80	321.90	426.02	210.39	2.66	-0.24	0.019
95.00	-2.64	-0.41	0.00	-2.05	0.00	2.05	629.54	314.77	407.24	201.12	2.76	-0.25	0.014
100.00	-0.01	0.00	0.00	0.00	0.00	0.00	593.90	296.95	362.13	178.84	3.02	-0.25	0.000
100.01	0.00	0.00	0.00	0.00	0.00	0.00	593.83	296.91	362.05	178.80	3.02	-0.25	0.000
100.50	0.00	0.00	0.00	0.00	0.00	0.00	590.33	295.17	357.77	176.69	3.05	-0.25	0.000

Site Number: 302516

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_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):	0.20
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}):	0.21
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.54
Redundancy Factor (ρ):	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)
29	100.26	17	1.881	1.932	1.123	0.404	6	22
28	100.01	0	1.871	1.883	1.105	0.398	0	0
27	97.50	325	1.779	1.444	0.941	0.335	94	404
26	94.00	133	1.653	0.954	0.745	0.256	30	165
25	91.50	209	1.567	0.679	0.626	0.206	37	259
24	87.50	356	1.433	0.349	0.466	0.137	42	443
23	83.00	293	1.289	0.106	0.327	0.075	19	364
22	80.50	141	1.213	0.017	0.264	0.047	6	175
21	77.50	727	1.124	-0.055	0.202	0.021	13	903
20	74.00	294	1.025	-0.103	0.144	-0.002	0	365
19	71.50	461	0.957	-0.118	0.111	-0.012	-5	573
18	67.92	647	0.863	-0.120	0.074	-0.019	-11	804
17	65.42	177	0.801	-0.112	0.054	-0.019	-3	220
16	63.88	482	0.763	-0.104	0.044	-0.017	-7	599
15	61.38	452	0.705	-0.088	0.031	-0.012	-5	561
14	57.50	831	0.619	-0.060	0.017	0.000	0	1,032
13	52.50	843	0.516	-0.022	0.008	0.018	13	1,048
12	47.50	856	0.422	0.011	0.006	0.034	25	1,063
11	42.50	868	0.338	0.036	0.009	0.045	33	1,078
10	37.50	880	0.263	0.053	0.016	0.049	38	1,093
9	34.13	311	0.218	0.060	0.021	0.050	14	386
8	31.62	814	0.187	0.064	0.025	0.050	35	1,011
7	29.83	84	0.167	0.066	0.028	0.049	4	104
6	27.33	838	0.140	0.069	0.032	0.048	35	1,041
5	22.50	910	0.095	0.071	0.038	0.046	36	1,130
4	17.50	922	0.057	0.071	0.041	0.044	35	1,145
3	12.50	934	0.029	0.068	0.040	0.040	33	1,161
2	7.50	946	0.011	0.056	0.032	0.033	27	1,176
1	2.50	959	0.001	0.026	0.014	0.016	14	1,191
15' Omni	100.01	40	1.872	1.884	1.105	0.398	14	50
Commscope WCS-	100.00	59	1.871	1.883	1.105	0.398	20	73
Powerwave LGP21401	100.00	85	1.871	1.883	1.105	0.398	29	105
Raycap DC6-48-60-18-	100.00	40	1.871	1.883	1.105	0.398	14	50
Ericsson RRUS 11 (Ba	100.00	300	1.871	1.883	1.105	0.398	103	373

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

8/3/2016 8:44:43 PM

Customer: AT&T Mobility

Ericsson RRUS 32	100.00	152	1.871	1.883	1.105	0.398	53	189
KMW AM-X-CD-14-65-00	100.00	109	1.871	1.883	1.105	0.398	38	136
Powerwave 7770.00	100.00	105	1.871	1.883	1.105	0.398	36	130
CCI OPA-65R-LCUU-H4	100.00	171	1.871	1.883	1.105	0.398	59	212
Flat Platform w/ Han	100.00	2,000	1.871	1.883	1.105	0.398	689	2,484
Decibel 932LG65T2A-M	93.00	39	1.618	0.837	0.695	0.236	8	48
RFS APX86-909014L-CT	80.00	145	1.198	0.002	0.253	0.042	5	180
Kathrein Scala Smart	73.00	10	0.997	-0.111	0.130	-0.006	0	12
Ericsson KRY 112 489	73.00	46	0.997	-0.111	0.130	-0.006	0	57
RFS ATMAA1412D-1A20	73.00	39	0.997	-0.111	0.130	-0.006	0	48
RFS APX16PV-16PVL-A	73.00	119	0.997	-0.111	0.130	-0.006	-1	148
Commscope LNX-	73.00	151	0.997	-0.111	0.130	-0.006	-1	187
		19,321	48.500	26.345	19.230	6.545	1,625	24,001

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)
29	100.26	17	1.881	1.932	1.123	0.404	6	15
28	100.01	0	1.871	1.883	1.105	0.398	0	0
27	97.50	325	1.779	1.444	0.941	0.335	94	279
26	94.00	133	1.653	0.954	0.745	0.256	30	114
25	91.50	209	1.567	0.679	0.626	0.206	37	179
24	87.50	356	1.433	0.349	0.466	0.137	42	306
23	83.00	293	1.289	0.106	0.327	0.075	19	251
22	80.50	141	1.213	0.017	0.264	0.047	6	121
21	77.50	727	1.124	-0.055	0.202	0.021	13	623
20	74.00	294	1.025	-0.103	0.144	-0.002	0	252
19	71.50	461	0.957	-0.118	0.111	-0.012	-5	396
18	67.92	647	0.863	-0.120	0.074	-0.019	-11	555
17	65.42	177	0.801	-0.112	0.054	-0.019	-3	152
16	63.88	482	0.763	-0.104	0.044	-0.017	-7	413
15	61.38	452	0.705	-0.088	0.031	-0.012	-5	388
14	57.50	831	0.619	-0.060	0.017	0.000	0	713
13	52.50	843	0.516	-0.022	0.008	0.018	13	723
12	47.50	856	0.422	0.011	0.006	0.034	25	734
11	42.50	868	0.338	0.036	0.009	0.045	33	744
10	37.50	880	0.263	0.053	0.016	0.049	38	755
9	34.13	311	0.218	0.060	0.021	0.050	14	267
8	31.62	814	0.187	0.064	0.025	0.050	35	698
7	29.83	84	0.167	0.066	0.028	0.049	4	72
6	27.33	838	0.140	0.069	0.032	0.048	35	719
5	22.50	910	0.095	0.071	0.038	0.046	36	780
4	17.50	922	0.057	0.071	0.041	0.044	35	791
3	12.50	934	0.029	0.068	0.040	0.040	33	801
2	7.50	946	0.011	0.056	0.032	0.033	27	812
1	2.50	959	0.001	0.026	0.014	0.016	14	822
15' Omni	100.01	40	1.872	1.884	1.105	0.398	14	34
Commscope WCS-	100.00	59	1.871	1.883	1.105	0.398	20	51
Powerwave LGP21401	100.00	85	1.871	1.883	1.105	0.398	29	73
Raycap DC6-48-60-18-	100.00	40	1.871	1.883	1.105	0.398	14	34
Ericsson RRUS 11 (Ba	100.00	300	1.871	1.883	1.105	0.398	103	257
Ericsson RRUS 32	100.00	152	1.871	1.883	1.105	0.398	53	131
KMW AM-X-CD-14-65-00	100.00	109	1.871	1.883	1.105	0.398	38	94
Powerwave 7770.00	100.00	105	1.871	1.883	1.105	0.398	36	90
CCI OPA-65R-LCUU-H4	100.00	171	1.871	1.883	1.105	0.398	59	147
Flat Platform w/ Han	100.00	2,000	1.871	1.883	1.105	0.398	689	1,716
Decibel 932LG65T2A-M	93.00	39	1.618	0.837	0.695	0.236	8	33
RFS APX86-909014L-CT	80.00	145	1.198	0.002	0.253	0.042	5	125

Site Number: 302516

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Engineering Number: OAA681725_C3_01

8/3/2016 8:44:43 PM

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Kathrein Scala Smart	73.00	10	0.997	-0.111	0.130	-0.006	0	8
Ericsson KRY 112 489	73.00	46	0.997	-0.111	0.130	-0.006	0	40
RFS ATMAA1412D-1A20	73.00	39	0.997	-0.111	0.130	-0.006	0	33
RFS APX16PV-16PVL-A	73.00	119	0.997	-0.111	0.130	-0.006	-1	102
Commscope LNX-	73.00	151	0.997	-0.111	0.130	-0.006	-1	129
		19,321	48.500	26.345	19.230	6.545	1,625	16,573

Site Number: 302516

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Site Name: Mlfd - Milford, CT

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8/3/2016 8:44:43 PM

Customer: AT&T Mobility

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	-22.81	-1.62	0.00	-139.49	0.00	139.49	1,602.06	801.03	2,099.85	1,037.04	0.00	0.00	0.072
5.00	-21.63	-1.60	0.00	-131.41	0.00	131.41	1,580.35	790.18	2,012.72	994.01	0.01	-0.03	0.069
10.00	-20.47	-1.58	0.00	-123.41	0.00	123.41	1,557.29	778.65	1,925.54	950.95	0.06	-0.06	0.066
15.00	-19.33	-1.55	0.00	-115.54	0.00	115.54	1,532.89	766.44	1,838.45	907.94	0.13	-0.08	0.063
20.00	-18.19	-1.52	0.00	-107.79	0.00	107.79	1,507.13	753.57	1,751.60	865.05	0.23	-0.11	0.060
25.00	-17.15	-1.49	0.00	-100.20	0.00	100.20	1,480.03	740.02	1,665.15	822.35	0.37	-0.14	0.057
29.67	-17.05	-1.49	0.00	-93.25	0.00	93.25	1,453.52	726.76	1,584.95	782.75	0.51	-0.16	0.055
30.00	-16.04	-1.45	0.00	-92.75	0.00	92.75	1,451.58	725.79	1,579.24	779.93	0.53	-0.17	0.054
33.25	-15.65	-1.44	0.00	-88.02	0.00	88.02	1,166.36	583.18	1,265.06	624.76	0.65	-0.18	0.064
35.00	-14.56	-1.41	0.00	-85.50	0.00	85.50	1,157.16	578.58	1,240.04	612.41	0.71	-0.19	0.063
40.00	-13.48	-1.38	0.00	-78.46	0.00	78.46	1,130.25	565.12	1,169.24	577.44	0.93	-0.22	0.059
45.00	-12.42	-1.35	0.00	-71.59	0.00	71.59	1,102.43	551.21	1,099.53	543.02	1.18	-0.25	0.056
50.00	-11.37	-1.34	0.00	-64.83	0.00	64.83	1,064.67	532.34	1,022.34	504.90	1.45	-0.27	0.052
55.00	-10.33	-1.34	0.00	-58.14	0.00	58.14	1,023.94	511.97	945.22	466.81	1.74	-0.30	0.049
60.00	-9.77	-1.34	0.00	-51.45	0.00	51.45	983.21	491.60	871.11	430.21	2.07	-0.32	0.045
62.75	-9.17	-1.35	0.00	-47.76	0.00	47.76	960.80	480.40	831.64	410.72	2.25	-0.33	0.043
65.00	-8.95	-1.35	0.00	-44.73	0.00	44.73	942.48	471.24	800.03	395.11	2.41	-0.34	0.040
65.83	-8.15	-1.36	0.00	-43.60	0.00	43.60	837.44	418.72	723.09	357.11	2.47	-0.35	0.041
70.00	-7.58	-1.36	0.00	-37.94	0.00	37.94	807.75	403.87	672.45	332.10	2.78	-0.36	0.037
73.00	-6.76	-1.36	0.00	-33.86	0.00	33.86	786.36	393.18	637.13	314.66	3.02	-0.38	0.034
75.00	-5.85	-1.34	0.00	-31.14	0.00	31.14	772.10	386.05	614.12	303.29	3.18	-0.38	0.032
80.00	-5.50	-1.33	0.00	-24.43	0.00	24.43	736.46	368.23	558.43	275.79	3.59	-0.40	0.026
81.00	-5.13	-1.31	0.00	-23.10	0.00	23.10	729.34	364.67	547.61	270.44	3.67	-0.40	0.025
81.00	-5.13	-1.31	0.00	-23.10	0.00	23.10	729.34	364.67	547.61	270.44	3.67	-0.40	0.092
85.00	-4.69	-1.27	0.00	-17.86	0.00	17.86	700.82	350.41	505.38	249.59	4.01	-0.41	0.078
90.00	-4.43	-1.23	0.00	-11.54	0.00	11.54	665.18	332.59	454.99	224.70	4.47	-0.46	0.058
93.00	-4.22	-1.19	0.00	-7.85	0.00	7.85	643.80	321.90	426.02	210.39	4.77	-0.48	0.044
95.00	-3.82	-1.09	0.00	-5.47	0.00	5.47	629.54	314.77	407.24	201.12	4.97	-0.49	0.033
100.00	-0.02	-0.01	0.00	0.00	0.00	0.00	593.90	296.95	362.13	178.84	5.49	-0.50	0.000
100.01	0.00	0.00	0.00	0.00	0.00	0.00	593.83	296.91	362.05	178.80	5.49	-0.50	0.000
100.50	0.00	0.00	0.00	0.00	0.00	0.00	590.33	295.17	357.77	176.69	5.54	-0.50	0.000

Site Number: 302516

Code: ANSI/TIA-222-G

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

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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	-15.75	-1.61	0.00	-138.19	0.00	138.19	1,602.06	801.03	2,099.85	1,037.04	0.00	0.00	0.068
5.00	-14.94	-1.59	0.00	-130.12	0.00	130.12	1,580.35	790.18	2,012.72	994.01	0.01	-0.03	0.066
10.00	-14.14	-1.57	0.00	-122.14	0.00	122.14	1,557.29	778.65	1,925.54	950.95	0.06	-0.05	0.063
15.00	-13.34	-1.54	0.00	-114.31	0.00	114.31	1,532.89	766.44	1,838.45	907.94	0.13	-0.08	0.060
20.00	-12.56	-1.51	0.00	-106.61	0.00	106.61	1,507.13	753.57	1,751.60	865.05	0.23	-0.11	0.058
25.00	-11.84	-1.48	0.00	-99.08	0.00	99.08	1,480.03	740.02	1,665.15	822.35	0.36	-0.14	0.055
29.67	-11.77	-1.47	0.00	-92.20	0.00	92.20	1,453.52	726.76	1,584.95	782.75	0.51	-0.16	0.052
30.00	-11.07	-1.44	0.00	-91.71	0.00	91.71	1,451.58	725.79	1,579.24	779.93	0.52	-0.16	0.051
33.25	-10.81	-1.43	0.00	-87.03	0.00	87.03	1,166.36	583.18	1,265.06	624.76	0.64	-0.18	0.062
35.00	-10.05	-1.39	0.00	-84.53	0.00	84.53	1,157.16	578.58	1,240.04	612.41	0.71	-0.19	0.060
40.00	-9.31	-1.36	0.00	-77.58	0.00	77.58	1,130.25	565.12	1,169.24	577.44	0.92	-0.22	0.057
45.00	-8.57	-1.33	0.00	-70.79	0.00	70.79	1,102.43	551.21	1,099.53	543.02	1.16	-0.24	0.053
50.00	-7.85	-1.32	0.00	-64.12	0.00	64.12	1,064.67	532.34	1,022.34	504.90	1.43	-0.27	0.050
55.00	-7.13	-1.32	0.00	-57.52	0.00	57.52	1,023.94	511.97	945.22	466.81	1.73	-0.29	0.047
60.00	-6.75	-1.32	0.00	-50.92	0.00	50.92	983.21	491.60	871.11	430.21	2.05	-0.32	0.043
62.75	-6.33	-1.33	0.00	-47.28	0.00	47.28	960.80	480.40	831.64	410.72	2.23	-0.33	0.041
65.00	-6.18	-1.33	0.00	-44.28	0.00	44.28	942.48	471.24	800.03	395.11	2.39	-0.34	0.039
65.83	-5.62	-1.34	0.00	-43.17	0.00	43.17	837.44	418.72	723.09	357.11	2.45	-0.34	0.039
70.00	-5.23	-1.35	0.00	-37.58	0.00	37.58	807.75	403.87	672.45	332.10	2.75	-0.36	0.036
73.00	-4.66	-1.35	0.00	-33.54	0.00	33.54	786.36	393.18	637.13	314.66	2.98	-0.37	0.033
75.00	-4.04	-1.33	0.00	-30.85	0.00	30.85	772.10	386.05	614.12	303.29	3.14	-0.38	0.030
80.00	-3.79	-1.32	0.00	-24.20	0.00	24.20	736.46	368.23	558.43	275.79	3.55	-0.40	0.025
81.00	-3.54	-1.30	0.00	-22.89	0.00	22.89	729.34	364.67	547.61	270.44	3.63	-0.40	0.024
81.00	-3.54	-1.30	0.00	-22.89	0.00	22.89	729.34	364.67	547.61	270.44	3.63	-0.40	0.089
85.00	-3.24	-1.25	0.00	-17.70	0.00	17.70	700.82	350.41	505.38	249.59	3.97	-0.41	0.076
90.00	-3.06	-1.22	0.00	-11.43	0.00	11.43	665.18	332.59	454.99	224.70	4.42	-0.45	0.055
93.00	-2.91	-1.18	0.00	-7.78	0.00	7.78	643.80	321.90	426.02	210.39	4.72	-0.47	0.041
95.00	-2.63	-1.08	0.00	-5.42	0.00	5.42	629.54	314.77	407.24	201.12	4.92	-0.48	0.031
100.00	-0.01	-0.01	0.00	0.00	0.00	0.00	593.90	296.95	362.13	178.84	5.43	-0.49	0.000
100.01	0.00	0.00	0.00	0.00	0.00	0.00	593.83	296.91	362.05	178.80	5.43	-0.49	0.000
100.50	0.00	0.00	0.00	0.00	0.00	0.00	590.33	295.17	357.77	176.69	5.48	-0.49	0.000

Site Number: 302516

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Site Name: Mlfd - Milford, CT

Engineering Number: OAA681725_C3_01

8/3/2016 8:44:43 PM

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	22.23	0.00	23.13	0.00	0.00	1498.37	0.00	0.69
0.9D + 1.6W	22.06	0.00	17.33	0.00	0.00	1474.38	0.00	0.68
1.2D + 1.0Di + 1.0Wi	3.83	0.00	39.75	0.00	0.00	266.01	0.00	0.14
(1.2 + 0.2Sds) * DL + E ELFM	1.10	0.00	22.81	0.00	0.00	86.44	0.00	0.05
(1.2 + 0.2Sds) * DL + E EMAM	1.62	0.00	22.81	0.00	0.00	139.49	81.00	0.09
(0.9 - 0.2Sds) * DL + E ELFM	1.10	0.00	15.75	0.00	0.00	85.69	0.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	1.61	0.00	15.75	0.00	0.00	138.19	81.00	0.09
1.0D + 1.0W	4.16	0.00	19.32	0.00	0.00	277.81	0.00	0.13

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Upper Termination Connectors				Lower Termination Connectors				Max Member		
			VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Pu (kip)	phiPn (kip)	Ratio
0.00	81.0	(4) SOL-#20 All Thre	334.6	10.0	16.8	43.7	12.0	4	7	0.0	12.0	0	0	247.5	330.5	0.749

Rock Anchor Foundation Calc

Rev. G

Anchor bolt diameter	2.25 in
Pull-out capacity	60 kips
x $\phi_s = 0.75$	45
Offset from edge	0.5 ft
# Rows (along length)	5
# Cols (along width)	5
Foundation length	8 ft
Design Moment	1498.4 ft-kips

Bolt Distance	0.5	2.25	4	5.75	7.5	
Num	5	2	2	2	5	
Force Capacity	3	13.5	24	34.5	45	TOTAL
Moment Capacity	7.5	60.75	192	396.75	1687.5	2344.5

Ratio	0.64
	OK

Base/Flange Plate	Plate Type	Baseplate
	Pole Diameter	32 in
	Pole Thickness	0.25 in
	Plate Length	44 in
	Plate Thickness	2 in
	Plate Fy	60 ksi
	Weld Length	0.3125 in
	ϕ_s Resistance	2087.53 k-in
	Applied	900.39 k-in
Stiffeners	#	12 Show
	Thickness	0.5 in
	Length	5.5 in
	Height	10 in
	Chamfer	1 in
	Offset Angle	0°
	Fy	36 ksi

Code Rev. **G**

Date 8/3/2016
 Engineer J.Sparks
 Site # 302516
 Carrier AT&T Mobility

Moment 1498.4 k-ft
 Axial 39.8 k

Bolts	#	8
	Bolt Circle	44 in
	(R)adial / (S)quare	S
	Bolt Gap	6 in
	Diameter	2.25 in
	Hole Diameter	2.625 in
	Type	A615-75
	Fy	75 ksi
	Fu	100 ksi
	ϕ_s Resistance	259.82 k
Applied	102.90 k	
Reinforcement	#	4
	DYW. Circle	36.88 in
	Offset Angle	0°
	Type	#20
	Diameter	2.5 in
Fu	100 ksi	
Extra Bolts O	#	0

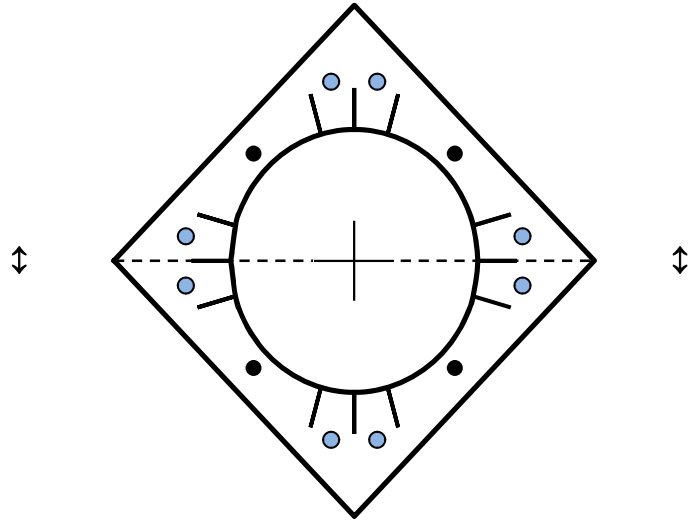


Plate Stress Ratio:
0.43 (Pass)

Bolt Stress Ratio:
0.40 (Pass)