October 31, 2016

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

Re:	**Notice of Exempt Modification – Antenna Swap**
Property Address:	**45 Spaulding Rd Plainfield, CT 06374**
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 154-feet on an existing 150 –self-support tower, owned by American Tower Corporation at 111 Shiloh St Pittsburg, PA 15211. AT&T now intends to Add LTE 1900 RRUS-12 for the existing LTE Antenna // DUL to DUS upgrade.

The Town of Plainfield could not provide an original zoning approval.

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. § 16-5I0j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to Paul E. Sweet First Selectman for the Town of Plainfield 8 Community Ave, Plainfield, CT 06374, tower owner American Tower Corporation at 111 Shiloh St Pittsburg, PA 15211 and the land owner Beatrice L. Theroux - C/O Spectrasite Com Tax Dept. -CT0034 PO box 723597 Atlanta, GA 31139.

The following is a list of subsequent decisions by the Connecticut Siting Council:

EM-CING-109-090114 - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 45 Spaulding Hill Road, **Plainfield**, Connecticut.

EM-VER-109-120626- Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 45 Spaulding Road, **Plainfield**, Connecticut.

EM-CING-109-121031C - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 45 Spaulding Road, **Plainfield**, Connecticut.

EM-VER-109-150410 - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 45 Spaulding Road, **Plainfield**, Connecticut.

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 154-foot level of the 150-foot monopole.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and 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:

Paul E. Sweet First Selectman -Town of Plainfield
American Tower Corporation- Tower owner
Beatrice L. Theroux – Land Owner


smartlink

45 SPAULDING RD

Location	45 SPAULDING RD	**Mblu**	025/ 0036/ 027A/ /
Acct#	00325300	**Owner**	THEROUX BEATRICE L - C/O SPECTRASITE COM
Assessment	$119,170	**Appraisal**	$170,240
PID	3562	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$130,150	$40,090	$170,240
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$91,110	$28,060	$119,170

Owner of Record

Owner	THEROUX BEATRICE L - C/O SPECTRASITE COM	**Sale Price**	$0
Co-Owner	ATTN: TAX DEPT-CT0034	**Certificate**	
Address	PO BOX 723597 ATLANTA, GA 31139	**Book & Page**	0253/0587
		Sale Date	09/01/1998

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
THEROUX BEATRICE L - C/O SPECTRASITE COM	$0		0253/0587	09/01/1998
CREDIE MARGARET M + FLORINDA L	$0		0161/0916	03/04/1986

Building Information

Building 1 : Section 1

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

Building Attributes

Field	Description
Style	Outbuildings
Model	
Grade:	
Stories:	
Occupancy:	
Exterior Wall 1:	
Exterior Wall 2:	
Roof Structure:	
Roof Cover:	
Interior Wall 1:	
Interior Wall 2:	
Interior Flr 1:	
Interior Flr 2:	
Heat Fuel:	
Heat Type:	
AC Type:	
Total Bedrooms:	
Full Baths:	
Half Baths:	
Extra Fixtures:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fireplaces:	
Xtra Openings:	
Gas Fireplaces:	
Woodstove/Pellet	
SF Fin Bsmt:	
Fin Bsmt Qual:	
Bsmt Gar:	
Unfin Area:	
Unhtd Area:	
Basement:	

Building Photo

(http://images.vgsi.com/photos/PlainfieldCTPhotos//default.jpg)

Building Layout

Building Layout

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	5040
Description	PUB UTIL
Zone	RA60
Neighborhood	1000
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	2.79
Frontage	
Depth	
Assessed Value	$28,060
Appraised Value	$40,090

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAT1	PATIO-AVG			2200 S.F.	$5,500	1
RS5	CELL TOWER BLDG			312 UNITS	$23,400	1
TT4	Cell Tower			150 HEIGHT	$101,250	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$130,150	$40,090	$170,240
2013	$130,150	$40,090	$170,240
2012	$130,150	$40,090	$170,240

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$91,110	$28,060	$119,170
2013	$91,110	$28,060	$119,170
2012	$91,110	$28,060	$119,170

SITESAFE
RF COMPLIANCE EXPERTS
A BUSINESS OF FDH VELOCITEL

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 – 10035013
Site ID – CT2051 (2C)
USID – 71309
Site Name – Plainfield-Spaulding Rd
Site Compliance Report

45 Spaulding Road
Plainfield, CT 06374

Latitude: N41-40-29.27
Longitude: W71-52-44.80
Structure Type: Monopole

Report generated date: October 5, 2016
Report by: Mohamed Frej
Customer Contact: Kristen Smith

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

Table of Contents

1 General Site Summary

1.1 Report Summary

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

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

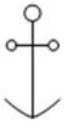
RFDS: NEW-ENGLAND_CONNECTICUT_CTV2051_2016-LTE-Next-Carrier_LTE-2C_om636a_PTN_10035013_71309_03-09-2016_Preliminary-Approved_v2.00

CD's: 10035013_AE201_160822_CTL02051_REV1

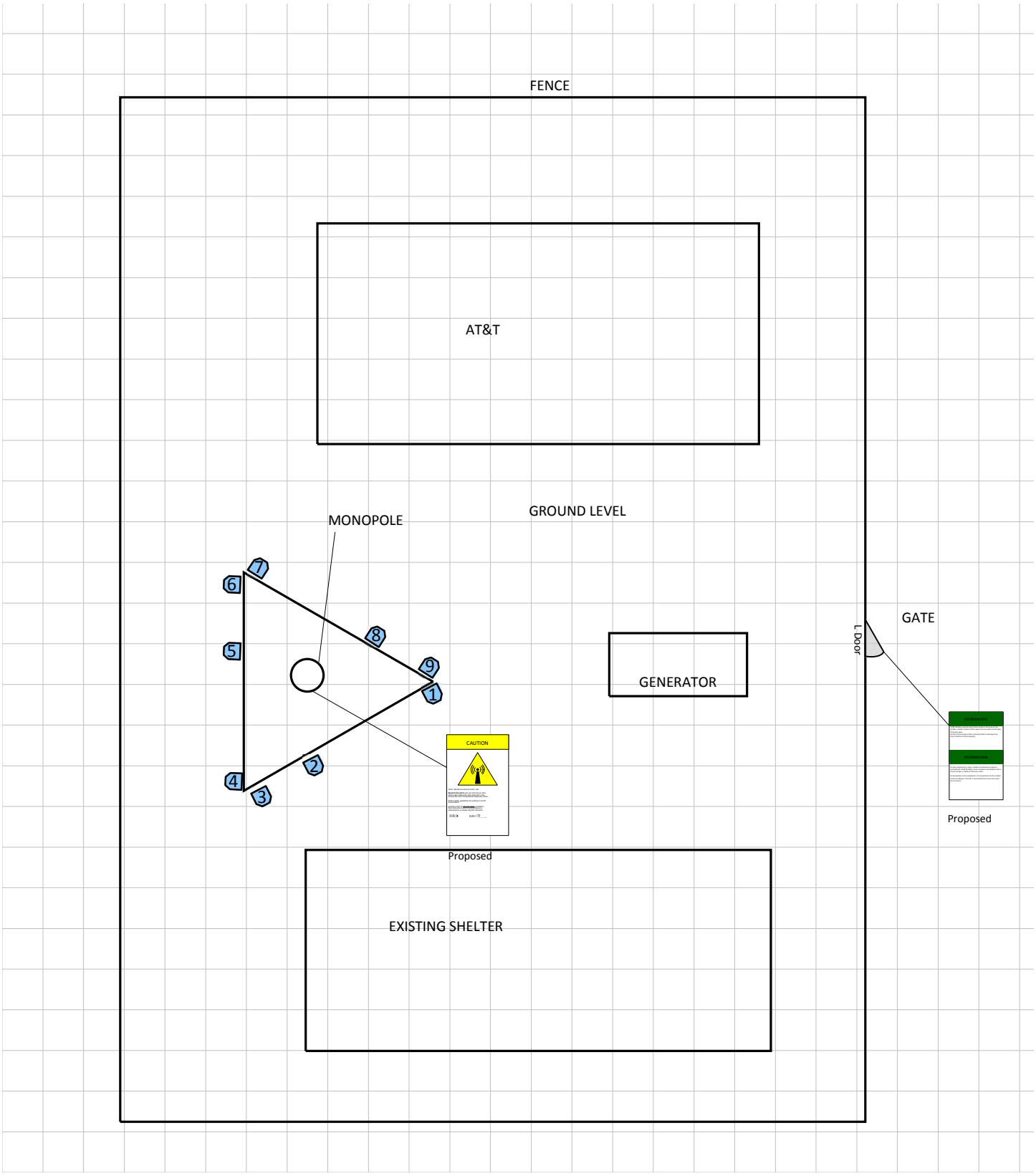
2 Scale Maps of Site

The following diagrams are included:

- Site Scale Map
- RF Exposure Diagram
- Elevation View

Scale Map Key		
 Existing Sign	Proposed Barrier	GPS Reading
 PROPOSED Proposed Sign	Existing Barrier	 Anchor Point

Site Scale Map For: Plainfield-Spaulding Rd



(Feet)

0 4.2 8.5

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	143	82	4.6	11.51	0	1	0	146.9	25'	39.8'	151.7'
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	143	86	4.6	13.41	0	1	0	368.1	25'	39.8'	151.7'
2	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	143	82	4.6	11.51	1	0	0	113	17.7'	35.4'	151.7'
3	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	737	143	71	8	13.733	0	0	1	1475.7	14.5'	33.5'	150'
3	AT&T MOBILITY LLC (PROPOSED)	Andrew SBNH-1D6565C	Panel	1900	143	57	8	15.504	0	0	1	2421	14.5'	33.5'	150'
4	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	263	82	4.6	11.51	0	1	0	232.8	12.8'	34.5'	151.7'
4	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	263	86	4.6	13.41	0	1	0	368.1	12.8'	34.5'	151.7'
5	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	263	82	4.6	11.51	1	0	0	114.3	12.7'	42.5'	151.7'
6	AT&T MOBILITY LLC	KMW AM-X-CD-17-65-00T	Panel	737	263	68	8	14.66	0	0	1	1475.7	12.7'	46.6'	150'
6	AT&T MOBILITY LLC (PROPOSED)	KMW AM-X-CD-17-65-00T	Panel	1900	263	68	8	15.16	0	0	1	2421	12.7'	46.6'	150'
7	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	23	82	4.6	11.51	0	1	0	293.1	14.3'	47.6'	151.7'
7	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	23	86	4.6	13.41	0	1	0	368.1	14.3'	47.6'	151.7'
8	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	23	82	4.6	11.51	1	0	0	114.3	21.5'	43.4'	151.7'
9	AT&T MOBILITY LLC	KMW AM-X-CD-17-65-00T	Panel	737	23	68	8	14.66	0	0	1	1475.7	24.8'	41.5'	150'
9	AT&T MOBILITY LLC (PROPOSED)	KMW AM-X-CD-17-65-00T	Panel	1900	23	68	8	15.16	0	0	1	2421	24.8'	41.5'	150'

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. For other operators at this site the use of "Generic" as an antenna model or "Unknown" for a wireless operator means the information with regard to operator, their FCC license and/or antenna information was not available nor could it be secured while on site. Other operator's equipment, antenna models and powers used for modeling are based on obtained information or Sitesafe experience.

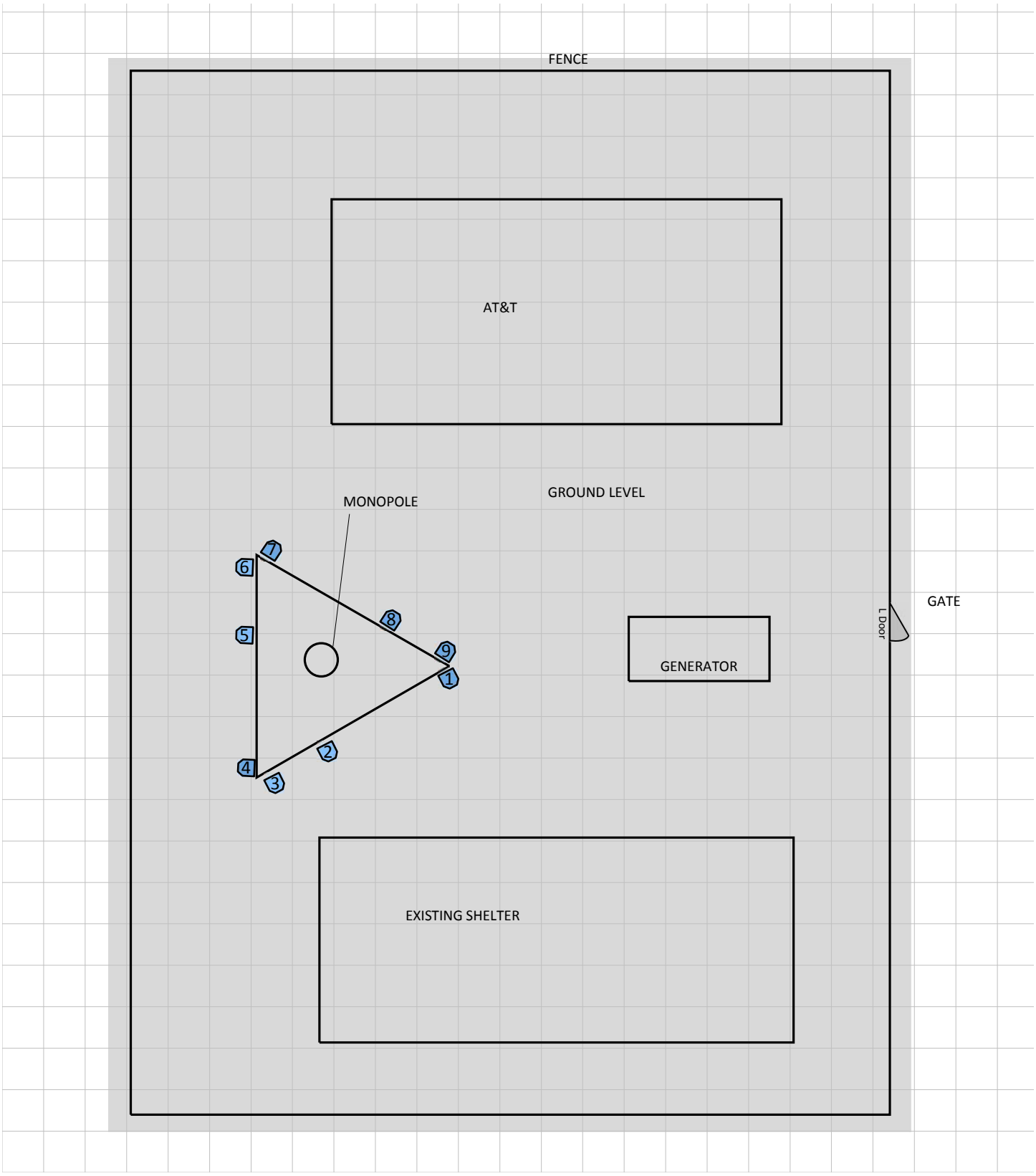
Note: The 1900 MHz LTE technology is being added to an existing antenna.

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: Plainfield-Spaulding Rd



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

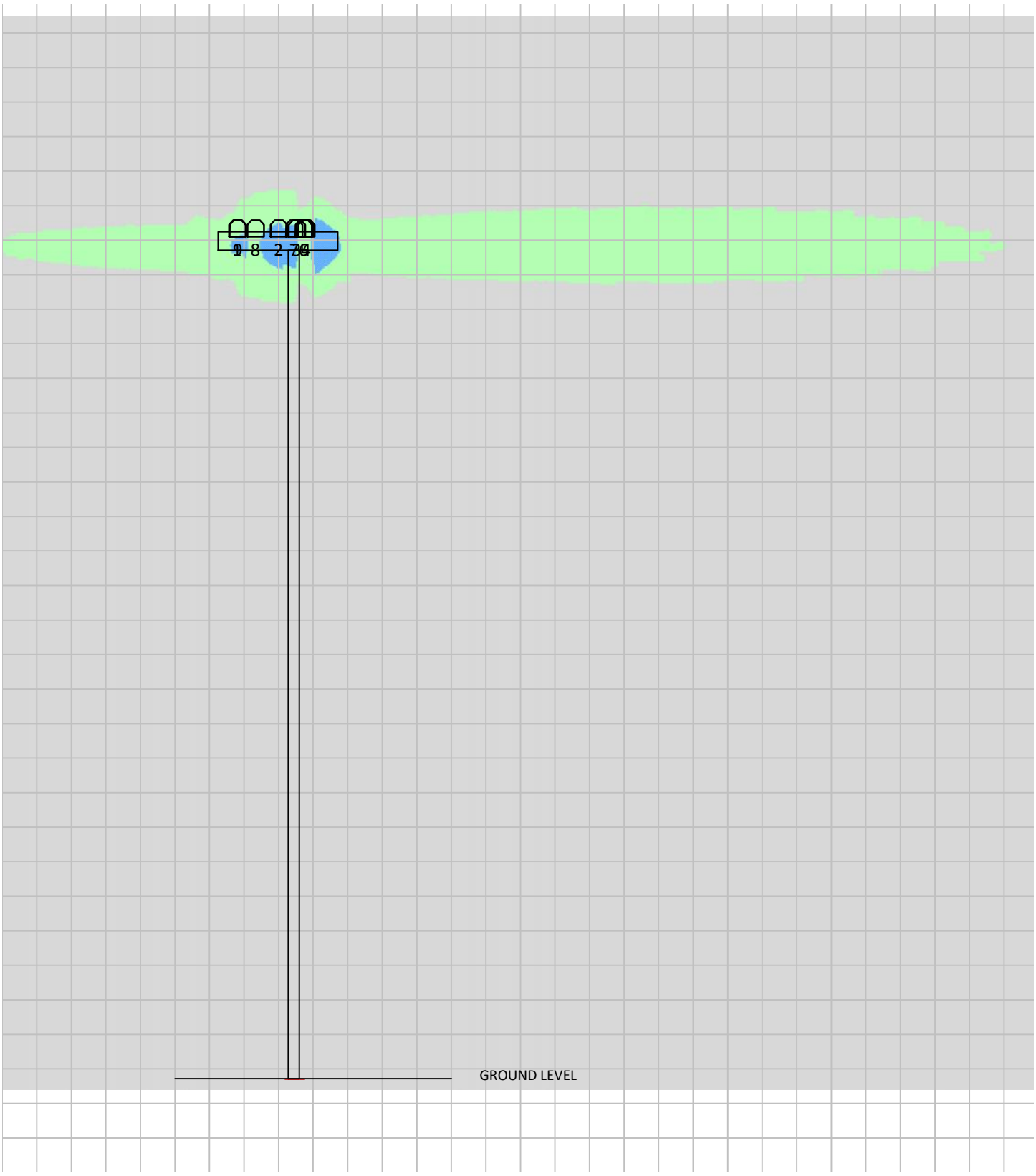
(Feet)

0 4.1 8.3

>= 5000	>= 500	>= 100	>= 5	< 5

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

RF Exposure Simulation For: Plainfield-Spaulding Rd
Elevation View



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

(Feet)
0 12.4 24.9

>= 5000 >= 500 >= 100 >= 5 < 5

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

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

Information Sign 1 required at the gate.
Yellow caution 2 sign required at the base of the monopole.

Note: Information on the existing wireless providers at this site is unavailable.

6 Engineer Certification

The professional engineer whose seal appears on the cover of this document hereby certifies and affirms that:

I am registered as a Professional Engineer in the jurisdiction indicated in the professional engineering stamp on the cover of this document; and

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 Mohamed Frej.

October 5, 2016

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.

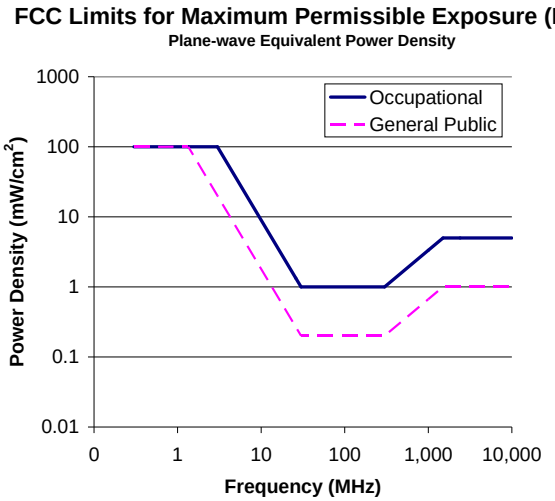
FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* 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:



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?siteareа=PED
European Commission Scientific Committee on Emerging and Newly Identified Health Risks
http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_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

PROJECT:	LTE 2C
SITE NUMBER:	CTL02051
FA NUMBER:	10035013
PTN NUMBER:	2051A0679C
PACE NUMBER:	MRCTB018264
ATC#:	302498
SITE NAME:	PLAINFIELD- SPAULDING RD
SITE ADDRESS:	45 SPAULDING ROAD PLAINFIELD, CT 06374

PROJECT INFORMATION

SITE NAME:	PLAINFIELD– SPAULDING RD
SITE NUMBER:	CTL02051
SITE ADDRESS:	45 SPAULDING ROAD PLAINFIELD, CT 06374
FA NUMBER:	10035013
PTN NUMBER:	2051A0679C
PACE NUMBER:	MRCTB018264
USID NUMBER:	71309
ATC NUMBER:	302498
APPLICANT:	AT&T WIRELESS 550 COCHITUATE ROAD SUITE 550 13 AND 14 FRAMINGHAM, MA 01701
TOWER OWNER:	AMERICAN TOWER CORPORATION 111 SHILOH ST PITTSBURGH, PA 15211
JURISDICTION:	STATE OF CONNECTICUT
COUNTY:	WINDHAM
SITE COORDINATES FROM	(RFDS)
LATITUDE:	41.674798°
LONGITUDE:	–71.879111°
GROUND ELEV.:	556'
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
AT&T RF MANAGER:	CAMERON SYME
PHONE:	(508) 596–7146
EMAIL:	cs6970@att.com

PROJECT CONSULTANTS

PROJECT MANAGER:	SMARTLINK
ADDRESS:	85 RANGEWAY ROAD, SUITE 102 NORTH BILLERICA, MA 01862
CONTACT:	RYAN BURGDORFER (508) 665–8005
EMAIL:	Ryan.Burgdorfer@Smartlinkllc.com
SITE AQUISITION:	SMARTLINK
ADDRESS:	85 RANGEWAY ROAD, SUITE 102 NORTH BILLERICA, MA 01862
CONTACT:	SHARON KEEFE (978) 930–3918
EMAIL:	Sharon.Keefe@Smartlinkllc.com
ENGINEER/ARCHITECT:	FULLERTON ENGINEERING
ADDRESS:	1100 E. WOODFIELD ROAD, SUITE 500 SCHAUMBURG, IL 60173
CONTACT:	MILEN DIMITROV (847) 908–8439
EMAIL:	MDimitrov@fullertonengineering.com
CONSTRUCTION:	SMARTLINK
ADDRESS:	85 RANGEWAY ROAD, SUITE 102 NORTH BILLERICA, MA 01862
CONTACT:	MARK DONNELLY (617) 515–2080
EMAIL:	mark.donnelly@smartlinkllc.com

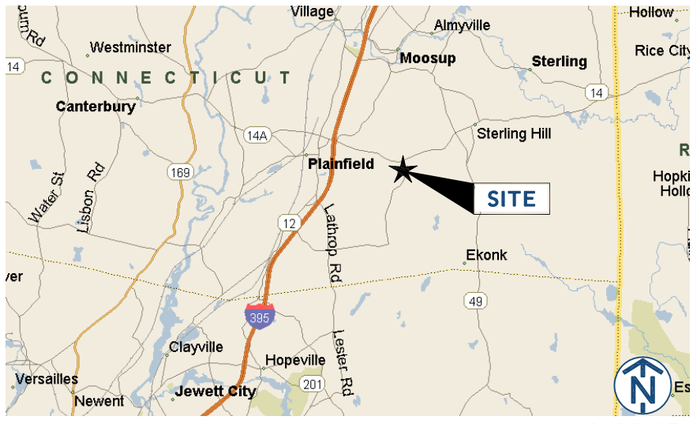
SCOPE OF WORK

LTE 1900 WILL BE 2C AT THE SITE, Q&D.
PROPOSED 2C PROJECT SCOPE HEREIN BASED ON RFDS ID # 1111510, VERSION 2.00 LAST UPDATED 05/18/16.

- (3) NEW RRUS–12 UNITS
- (3) NEW 25A BREAKERS
- (1) NEW LTE DUS

- CONTRACTOR SHALL FURNISH ALL MATERIAL WITH THE EXCEPTION OF AT&T SUPPLIED MATERIAL.
- ALL MATERIAL SHALL BE INSTALLED BY THE CONTRACTOR, UNLESS STATED OTHERWISE.

SITE LOCATION MAP



NO SCALE

DIRECTIONS

SCAN QR CODE FOR LINK TO SITE LOCATION MAP

APPLICABLE BUILDING CODES AND STANDARDS

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.

BUILDING CODE:	2003 INTERNATIONAL BUILDING CODE
ELECTRICAL CODE:	2011 NATIONAL ELECTRIC CODE

- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.
- ADA ACCESS REQUIREMENTS ARE NOT REQUIRED.
- THIS FACILITY DOES NOT REQUIRE POTABLE WATER AND WILL NOT PRODUCE ANY SEWAGE

DRAWING INDEX

T1	TITLE SHEET
SP1	NOTES AND SPECIFICATIONS
SP2	NOTES AND SPECIFICATIONS
A1	COMPOUND PLAN
A2	EQUIPMENT PLAN
A3	ELEVATIONS
A4	ANTENNA PLANS
A5	EQUIPMENT DETAILS
A6	ANTENNA & CABLE CONFIGURATION
A7	CABLE NOTES AND COLOR CODING
A8	GROUNDING DETAILS

NOTE: DRAWING SCALES ARE FOR 11"x17" SHEETS UNLESS OTHERWISE NOTED

550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON ENGINEERING·DESIGN
1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	06/10/16	90% REVIEW	KC
1	08/22/16	FOR PERMIT	KC

I HEREBY CERTIFY THAT THESE DRAWING WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

SITE NAME
PLAINFIELD-SPAULDING RD

SITE NUMBER:
CTL02051

SITE ADDRESS
45 SPAULDING ROAD
PLAINFIELD, CT 06374

SHEET NAME
TITLE SHEET

SHEET NUMBER
T1

GENERAL CONSTRUCTION

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR/CM – SMARTLINK
   OWNER – AT&T WIRELESS
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.
3. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFIRM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
12. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
13. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
14. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
15. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
16. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
17. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
21. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2–A OT 2–A:10–B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED 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.
24. 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.
25. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE–APPROVED BY THE LOCAL JURISDICTION.
28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS–BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
31. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
32. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
33. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
34. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
35. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION AT&T MOBILITY GROUNDING STANDARD "TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM/GPRS WIRELESS SITES" AND "TECHNICAL SPECIFICATION FOR FACILITY GROUNDING". IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
36. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
37. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
38. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
39. NO WHITE STROBE LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.

ANTENNA MOUNTING

40. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA–222 OR APPLICABLE LOCAL CODES.
41. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT–DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
42. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC–COATING (HOT–DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
43. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
44. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
45. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
46. ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50–OHM LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.
47. PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/– 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/– 0.5% AS DEFINED BY THE RFDS. REFER TO ND–00246.
48. JUMPERS FROM THE TMA'S MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.
49. CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO AT&T.
50. TMA'S SHALL BE MOUNTED ON PIPE DIRECTLY BEHIND ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE IN A VERTICAL POSITION.

TORQUE REQUIREMENTS

51. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
52. ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
    A. RF CONNECTION BOTH SIDES OF THE CONNECTOR.
    B. GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.

FIBER & POWER CABLE MOUNTING

53. THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY. WHEN INSTALLING FIBER OPTIC TRUNK CABLES INTO A CABLE TRAY SYSTEM, THEY SHALL BE INSTALLED INTO AN INTER DUCT AND A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE INTER DUCT IN ORDER TO SEGREGATE CABLE TYPES. OPTIC FIBER TRUNK CABLES SHALL HAVE APPROVED CABLE RESTRAINTS EVERY (60) SIXTY FEET AND SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ARTICLE 770 RULES SHALL APPLY.
54. THE TYPE TC–ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) SIX FEET. AN EXCEPTION; WHERE TYPE TC–ER CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE, CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY WHICH ARE SERVING UTILIZATION EQUIPMENT OR DEVICES, A DISTANCE (6) SIX FEET SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 392 RULES SHALL APPLY.
55. WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC–ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

COAXIAL CABLE NOTES

62. TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO

    ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
63. CONTRACTOR SHALL VERIFY THE DOWN–TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
64. CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION.
65. ALL JUMPERS TO THE ANTENNAS FROM THE MAIN TRANSMISSION LINE SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'–0".
66. ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'–0" OC.
67. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
68. CONTRACTOR SHALL GROUND ALL EQUIPMENT. INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES, AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATION AND RECOMMENDATION.
69. CONTRACTOR SHALL PROVIDE STRAIN–RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND RET CONTROL CABLES. CABLE STRAIN–RELIEFS AND CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
70. CONTRACTOR TO VERIFY THAT EXISTING COAX HANGERS ARE STACKABLE SNAP IN HANGERS. IF EXISTING HANGERS ARE NOT STACKABLE SNAP IN HANGERS THE CONTRACTOR SHALL REPLACE EXISTING HANGERS WITH NEW SNAP IN HANGERS IF APPLICABLE.

GENERAL CABLE AND EQUIPMENT NOTES

71. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TMAS, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
72. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.
73. CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.
74. ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE–HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
75. IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:
    A. TEMPERATURE SHALL BE ABOVE 50° F.
    B. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.
    C. FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED.
    D. DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS
76. ALL CABLES SHALL BE GROUNDED WITH COAXIAL CABLE GROUND KITS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS.
    A. GROUNDING AT THE ANTENNA LEVEL.
    B. GROUNDING AT MID LEVEL, TOWERS WHICH ARE OVER 200'–0", ADDITIONAL CABLE GROUNDING REQUIRED.
    C. GROUNDING AT BASE OF TOWER PRIOR TO TURNING HORIZONTAL.
    D. GROUNDING OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
    E. GROUNDING INSIDE THE EQUIPMENT SHELTER AT THE ENTRY PORT.
77. ALL PROPOSED GROUND BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUND BAR DOWNLEADS A MINIMUM DISTANCE OF 4'–0" BELOW GROUND BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.

at&t
550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON ENGINEERING · DESIGN
1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	06/10/16	90% REVIEW	KC
1	08/22/16	FOR PERMIT	KC

I HEREBY CERTIFY THAT THESE DRAWING WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

STATE OF CONNECTICUT · HENRY M. BELLAGAMBA · 25358 · LICENSED PROFESSIONAL ENGINEER

SITE NAME
PLAINFIELD-SPAULDING RD

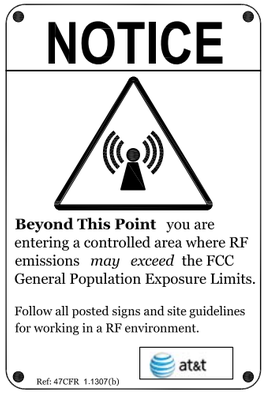
SITE NUMBER:
CTL02051

SITE ADDRESS
45 SPAULDING ROAD
PLAINFIELD, CT 06374

SHEET NAME
NOTES AND SPECIFICATIONS

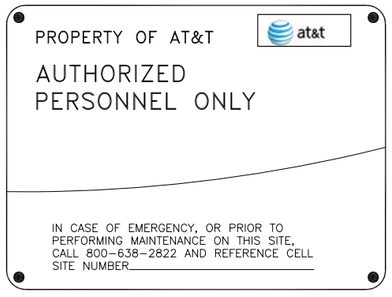
SHEET NUMBER
SP1

FEC# 2016.0200.0200

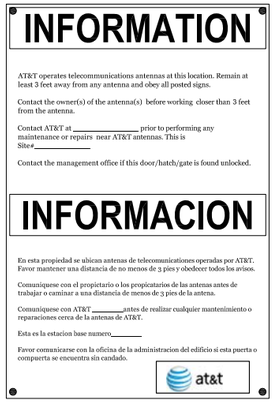


ALERTING SIGNS

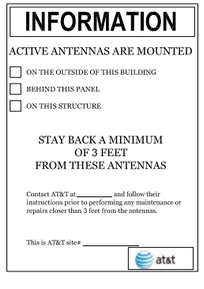
ALERTING SIGN



INFO SIGN #4



INFO SIGN #1



INFO SIGN #2

INFO SIGN #3

ALERTING SIGN
(FOR CELL SITE BATTERIES)

ALERTING SIGN
(FOR DIESEL FUEL)

ALERTING SIGN
(FOR PROPANE)

GENERAL SIGNAGE GUIDELINES

STRUCURE TYPLE	INFO SIGN #1	INFO SIGN #2	INFO SIGN #3	INFO SIGN #4	STRIPING	NOTICE SIGN	CAUTION SIGN
TOWERS							
MONOPOLE/MONOPINE/MONOPALM	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	CLIMBING SIDE OF THE TOWER	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			AT THE HEIGHT OF THE FIRST CLIMBING STEP, MIN 9 FT ABOVE GROUND
SEC TOWERS/TOWERS WITH HIGH VOLTAGE	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	CLIMBING SIDE OF THE TOWER	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			
LIGHT POLES/FLAG POLES	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			
UTILITY WOOD POLES (JPA)	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS		IF GP MAX VALUE OF MPE AT ANTENNA LEVEL IS: 0-99%; NOTICE SIGN; OVER 99%: CAUTION SIGN AT NO LESS THAN 3FT BELOW ANTENNA AND 9FT ABOVE GROUND	
MICROCELLS MOUNTED ON NON-JPA POLES	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS		NOTICE OR CAUTION SIGN AT NO LESS THAN 9FT ABOVE GROUND: ONLY IF THE EXPOSURE EXCEEDS 90% OF THE GENERAL PUBLIC EXPOSURE AT EXPOSURE AT 6FT ABOVE GROUND OR AT OUTSIDE OF SURFACE OF ADJACENT BUILDING	
TOWERS							
AT ALL ACCESS POINTS TO THE ROOF	X			X			
ON ANTENNAS	X		X	X			
CONCEALED ANTENNAS	X	X		X			
ANTENNAS MOUNTED FACING OUTSIDE THE BUILDING	X	X		X			
ANTENNAS ON SUPPORT STRUCTURE	X	X		X			
ROOFVIEW GRAPH							
RADIATION AREA IS WITHIN 3FT FROM ANTENNA	X	ADJACENT TO EACH ANTENNA		X		EITHER NOTICE OR CAUTION SIGN (BASED ON ROOFVIEW RESULTS) AT ANTENNA /BARRIER	
RADIATION AREA IS BEYOND 3FT FROM ANTENNA	X	ADJACENT TO EACH ANTENNA		X	DIAGONAL, YELLOW STRIPING AS TO ROOFVIEW GRAPH		
CHURCH STEEPLES	ACCESS TO STEEPLE	ADJACENT TO ANTENNAS IF ANTENNAS ARE CONCEALED	ON BACKSIDE OF ANTENNAS	ACCESS TO STEEPLE			CAUTION SIGN AT THE ANTENNAS
WATER STATIONS	ACCESS TO LADDER	ADJACENT TO ANTENNAS IF ANTENNAS ARE CONCEALED	ON BACKSIDE OF ANTENNAS	ACCESS TO LADDER			CAUTION SIGN BESIDE INFO SIGN #1, MIN. 9FT ABOVE GROUND

NOTES FOR ROOFTOP SITES:

1. EITHER NOTICE OR CAUTION SIGNS NEED TO BE POSTED AT EACH SECTOR AS CLOSE AS POSSIBLE TO: THE OUTER EDGE OF THE STRIPED OFF AREA OR THE OUTER ANTENNAS OF THE SECTOR
2. IF ROOFVIEWS SHOWS: ONLY BLUE = NOTICE SIGN, BLUE AND YELLOW = CAUTION SIGN, ONLY YELLOW = CAUTION SIGN TO BE INSTALLED
3. SHOULD THE REQUIRED STRIPING AREAS INTERFERE WITH ANY STRUCTURE OR EQUIPMENT (A/C, VENTS, ROOF HATCH, DOORS, OTHER ANTENNAS, DISHES, ETC.). PLEASE NOTIFY AT&T TO MODIFY THE STRIPING AREA, PRIOR TO STARTING THE WORK.

SIGNAGE GUIDELINES CHART

at&t
550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON ENGINEERING · DESIGN
1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	06/10/16	90% REVIEW	KC
1	08/22/16	FOR PERMIT	KC

I HEREBY CERTIFY THAT THESE DRAWING WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

STATE OF CONNECTICUT · HENRY M. BELLAGAMBA · 25358 · LICENSED PROFESSIONAL ENGINEER

SITE NAME
PLAINFIELD-SPAULDING RD

SITE NUMBER:
CTL02051

SITE ADDRESS
45 SPAULDING ROAD
PLAINFIELD, CT 06374

SHEET NAME
NOTES AND SPECIFICATIONS

SHEET NUMBER
SP2

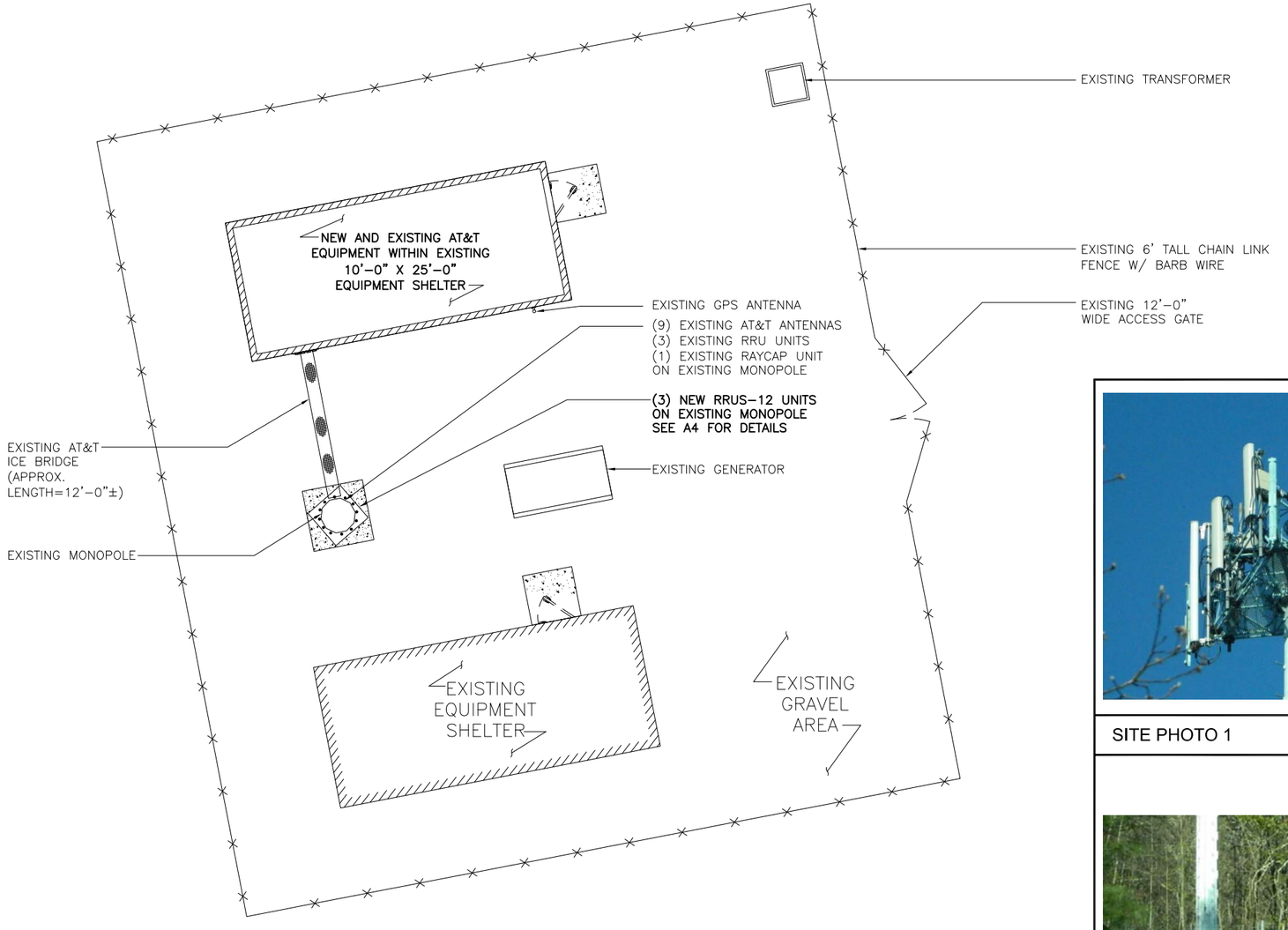
FEC# 2016.0200.0200

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AGL	ABOVE GRADE LEVEL
AMSL	ABOVE MEAN SEA LEVEL
APPROX	APPROXIMATE
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
BTS	BASE TRANSMISSION STATION
℄	CENTERLINE
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CND	CONDUIT
DWG	DRAWING
FT	FOOT(FEET)
EGB	EQUIPMENT GROUND BAR
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ELEV	ELEVATION
EQUIP	EQUIPMENT
(E)	EXISTING
EXT	EXTERIOR
FND	FOUNDATION
F	FIBER
FIF	FACILITY INTERFACE FRAME
GA	GAUGE
GALV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE COMMUNICATION
LTE	LONG TERM EVOLUTION
MAX	MAXIMUM
MCPA	MULTI-CARRIER POWER AMPLIFIER
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MTS	MANUAL TRANSFER SWITCH
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
OE/OT	OVERHEAD ELECTRIC/TELCO
PPC	POWER PROTECTION CABINET
PL	PROPERY LINE
RBS	RADIO BASED STATION
RET	REMOTE ELECTRIC TILT
RRU	REMOTE RADIO UNIT
RGS	RIGID GALVANIZED STEEL
IN	INCH(ES)
INT	INTERIOR
LB(S), #	POUND(S)
SF	SQUARE FOOT
STL	STEEL
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UE/UT	UNDERGROUND ELECTRIC/TELCO
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELE-COMMUNICATION SYSTEM
VIF	VERIFY IN FIELD
W/	WITH
XFMR	TRANSFORMER

SYMBOLS

- REVISION
- WORK POINT
- UTILITY POLE
- COMPRESSED STONE
- BRICK
- CONCRETE
- EARTH
- GRAVEL
- MASONRY
- STEEL
- CENTERLINE
- PROPERTY LINE
- LEASE LINE
- EASEMENT LINE
- CHAIN LINK FENCE
- WOOD FENCE
- UE — BELOW GRADE ELECTRIC
- UT — BELOW GRADE TELEPHONE
- OE/OT — OVERHEAD ELECTRIC/TELEPHONE
- SECTION REFERENCE (A / S-1, A)



COMPOUND PLAN — SCALE: 3/32" = 1'-0" | 1

SITE PHOTO 1 — SCALE: N.T.S. | 2

SITE PHOTO 2 — SCALE: N.T.S. | 3

at&t
550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON ENGINEERING · DESIGN
1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	06/10/16	90% REVIEW	KC
1	08/22/16	FOR PERMIT	KC

I HEREBY CERTIFY THAT THESE DRAWING WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

STATE OF CONNECTICUT · HENRY M. BELLAGAMBA · 25358 · LICENSED PROFESSIONAL ENGINEER

SITE NAME
PLAINFIELD-SPAULDING RD

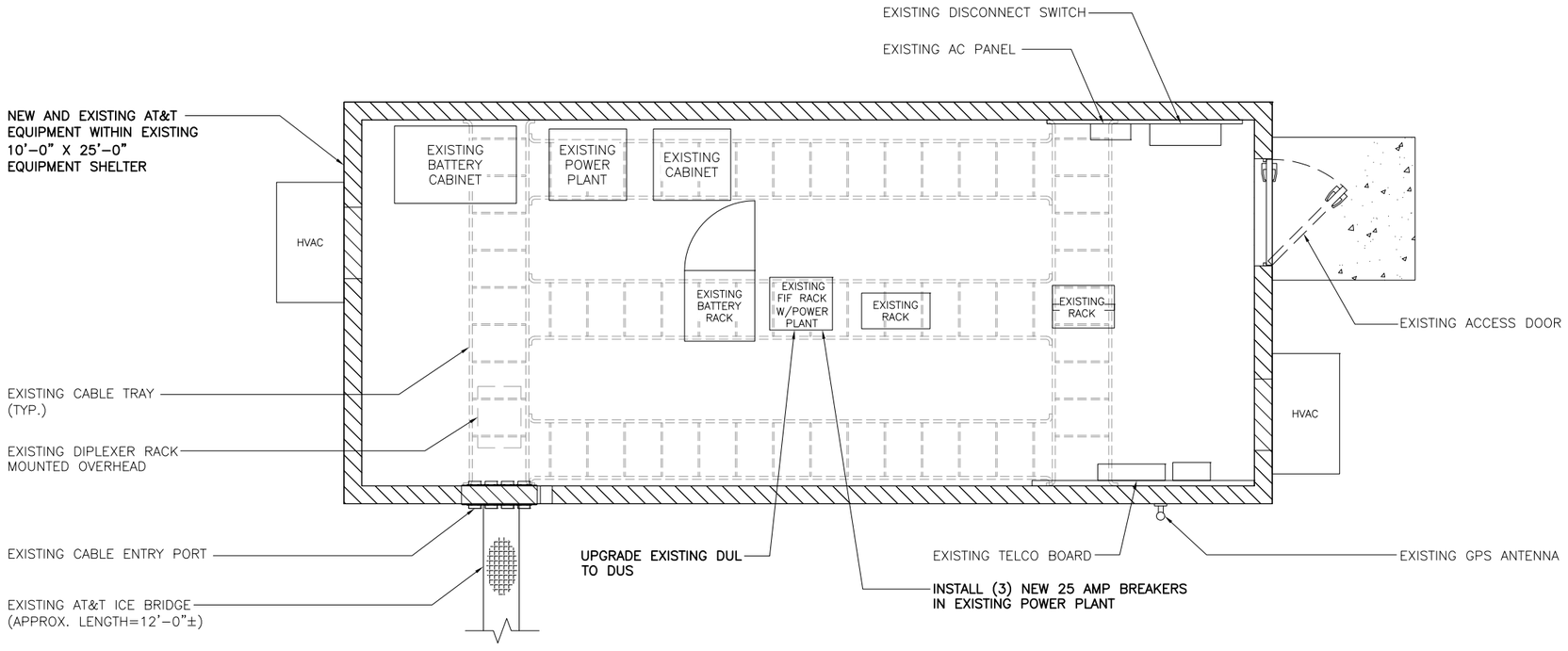
SITE NUMBER:
CTL02051

SITE ADDRESS
45 SPAULDING ROAD
PLAINFIELD, CT 06374

SHEET NAME
COMPOUND PLAN

SHEET NUMBER
A1

FEC# 2016.0200.0200



EQUIPMENT PLAN

SCALE: 1/4" = 1'-0"

1

at&t
550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON ENGINEERING·DESIGN
1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	06/10/16	90% REVIEW	KC
1	08/22/16	FOR PERMIT	KC

I HEREBY CERTIFY THAT THESE DRAWING WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

STATE OF CONNECTICUT · HENRY M. BELLAGAMBA · 25358 · LICENSED PROFESSIONAL ENGINEER

SITE NAME
PLAINFIELD-SPAULDING RD

SITE NUMBER:
CTL02051

SITE ADDRESS
45 SPAULDING ROAD
PLAINFIELD, CT 06374

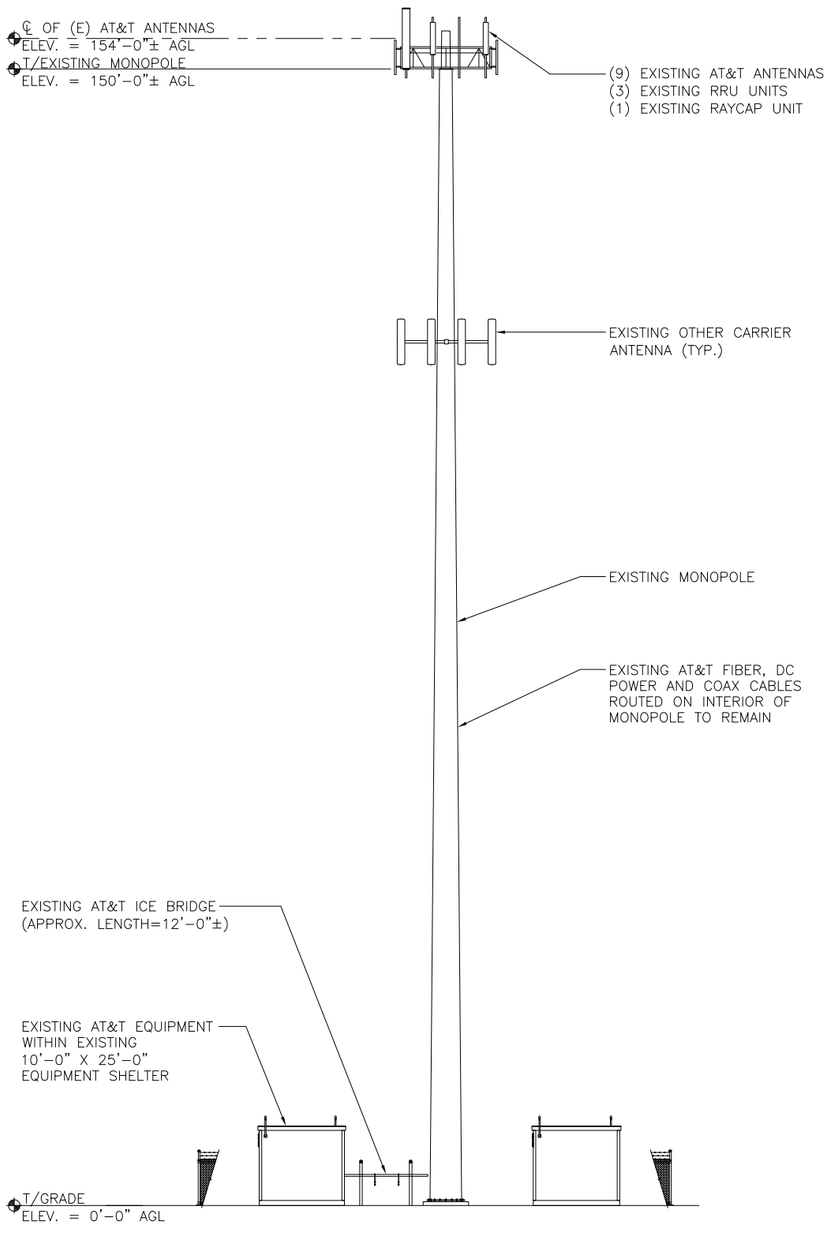
SHEET NAME
EQUIPMENT PLAN

SHEET NUMBER
A2

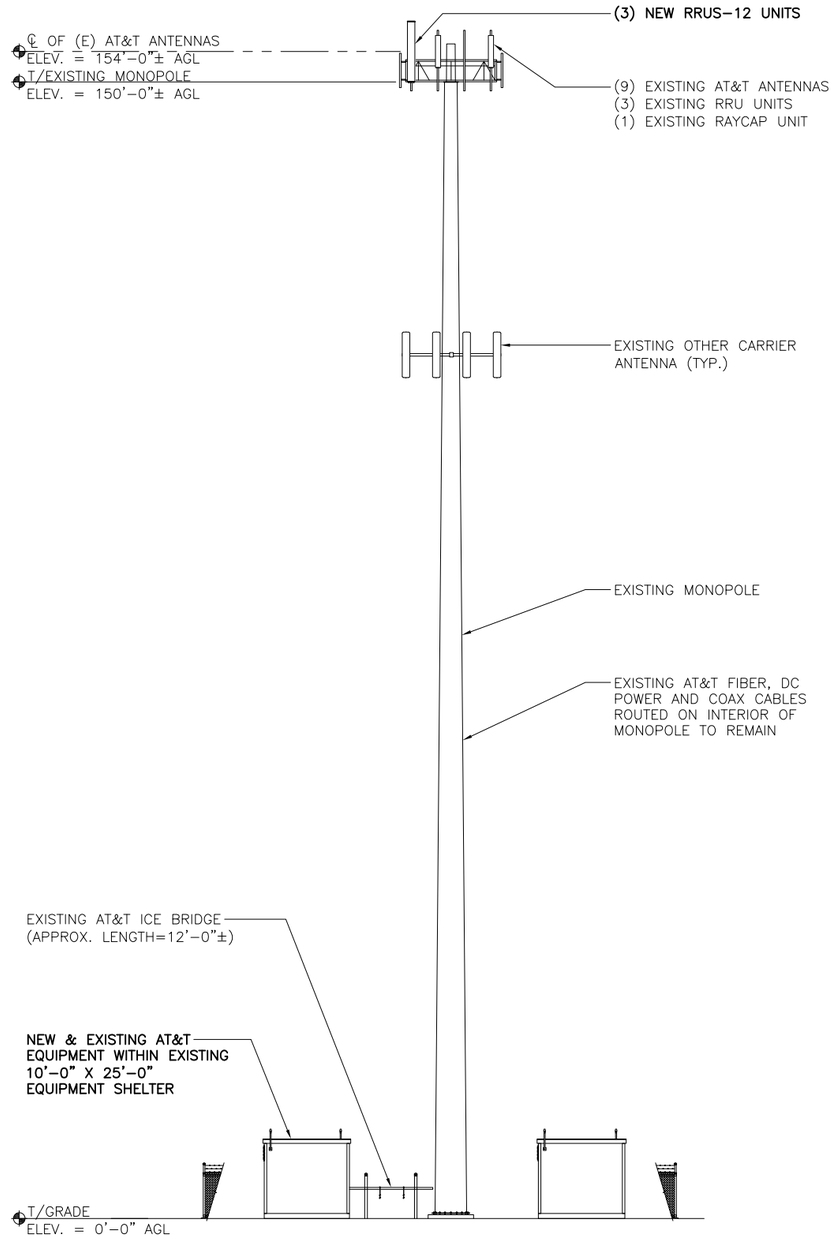
FEC# 2016.0200.0200

NOTES:

1. CALCULATIONS FOR THE STRUCTURE WERE PREPARED BY OTHERS AND THOSE CALCULATIONS CERTIFY THE CAPACITY OF THE STRUCTURE TO SUPPORT THE NEW EQUIPMENT
2. CALCULATIONS FOR THE ANTENNA MOUNTS WERE PREPARED BY FULLERTON AND THOSE CALCULATIONS CERTIFY THE CAPACITY OF THE STRUCTURE TO SUPPORT THE NEW EQUIPMENT
3. CABLES NOT SHOWN FOR CLARITY



EXISTING ELEVATION — SCALE: 1" = 20'-0" — 1



NEW ELEVATION — SCALE: 1" = 20'-0" — 2

at&t
550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON ENGINEERING · DESIGN
1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	06/10/16	90% REVIEW	KC
1	08/22/16	FOR PERMIT	KC

I HEREBY CERTIFY THAT THESE DRAWING WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

STATE OF CONNECTICUT · HENRY M. BELLAGAMBA · 25358 · LICENSED PROFESSIONAL ENGINEER

SITE NAME
PLAINFIELD-SPAULDING RD

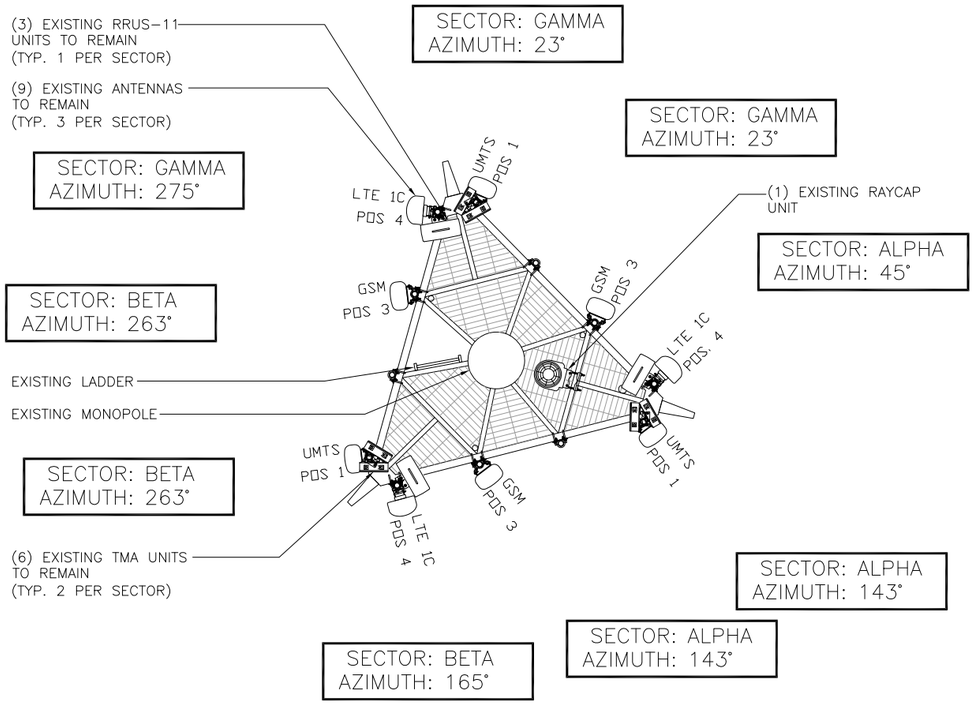
SITE NUMBER:
CTL02051

SITE ADDRESS
45 SPAULDING ROAD
PLAINFIELD, CT 06374

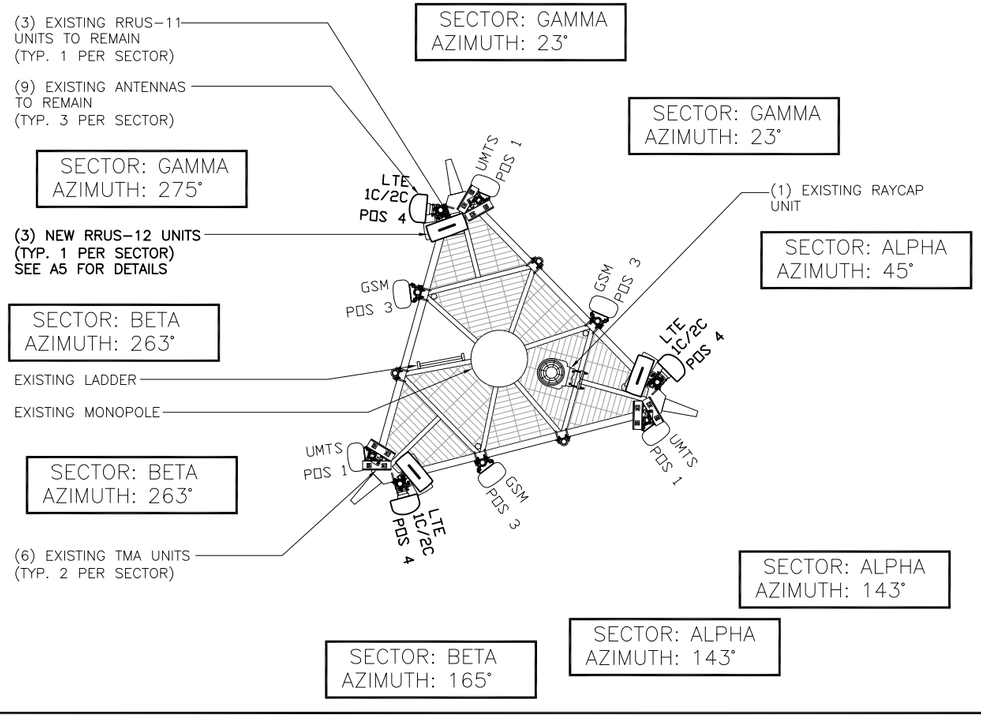
SHEET NAME
ELEVATIONS

SHEET NUMBER
A3

FEC# 2016.0200.0200



EXISTING ANTENNA PLAN — SCALE: 3/16" = 1'-0" — 1



FINAL ANTENNA PLAN — SCALE: 3/16" = 1'-0" — 2

at&t
550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON ENGINEERING · DESIGN
1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	06/10/16	90% REVIEW	KC
1	08/22/16	FOR PERMIT	KC

I HEREBY CERTIFY THAT THESE DRAWING WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

STATE OF CONNECTICUT · HENRY M. BELLAGAMBA · 25358 · LICENSED PROFESSIONAL ENGINEER

SITE NAME
PLAINFIELD-SPAULDING RD

SITE NUMBER:
CTL02051

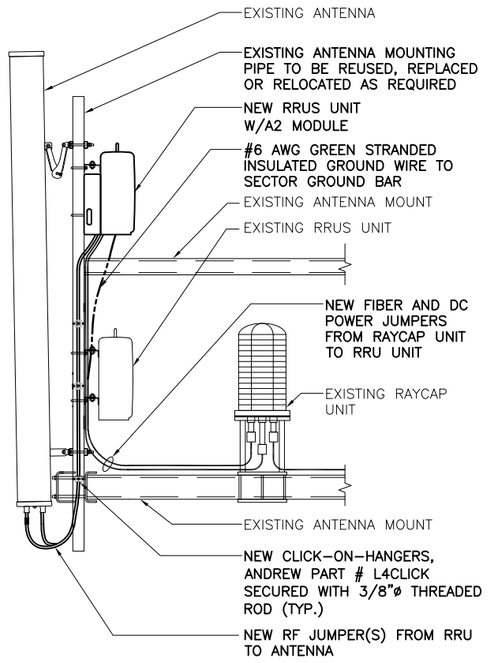
SITE ADDRESS
45 SPAULDING ROAD
PLAINFIELD, CT 06374

SHEET NAME
ANTENNA PLANS

SHEET NUMBER
A4

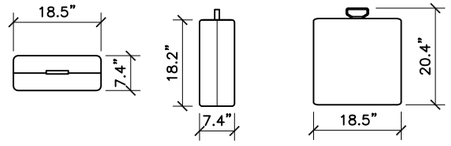
NOT USED SCALE: N.T.S. 1

NOT USED SCALE: N.T.S. 2



ANTENNA SCHEMATIC SCALE: N.T.S. 3

NOT USED SCALE: N.T.S. 4



ERICSSON – RRUS 12
WITH SOLAR SHIELD

UNIT WEIGHT 52.2 Lbs

RRU SPEC SCALE: N.T.S. 5

NOT USED SCALE: N.T.S. 6

NOT USED SCALE: N.T.S. 7

NOT USED SCALE: N.T.S. 8

at&t
550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON ENGINEERING · DESIGN
1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	06/10/16	90% REVIEW	KC
1	08/22/16	FOR PERMIT	KC

I HEREBY CERTIFY THAT THESE DRAWING WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

STATE OF CONNECTICUT
HENRY M. BELLAGAMBA
25358
LICENSED PROFESSIONAL ENGINEER

SITE NAME
PLAINFIELD-SPAULDING RD

SITE NUMBER:
CTL02051

SITE ADDRESS
45 SPAULDING ROAD
PLAINFIELD, CT 06374

SHEET NAME
EQUIPMENT DETAILS

SHEET NUMBER
A5

FEC# 2016.0200.0200

FINAL ANTENNA CONFIGURATION AND CABLE SCHEDULE
SUPPLIED BY AT&T WIRELESS, FROM RF CONFIG. DATED (05/18/16)

SECTOR	ANTENNA NUMBER	ANTENNA STATUS & TYPE	ANTENNA MODEL NUMBER	ANTENNA VENDOR	TMA/RRU UNIT	AZIMUTH	ANTENNA CL FROM GROUND	CABLE FEEDER TYPE	CABLE FEEDER LENGTH	RAYCAP UNIT
ALPHA	A-1	(E) UMTS ANTENNA	7770	POWERWAVE	(2) EXISTING TMA UNIT(S)	143°	154'-0"	1-5/8"ø LDF7-50A	180'-0"	(1) (E) DC6-48-60-18-8F UNIT
								1-5/8"ø LDF7-50A	180'-0"	
	A-2	(E) GSM ANTENNA	7770	POWERWAVE	-	143°	154'-0"	1-5/8"ø LDF7-50A	180'-0"	
	A-3	-	-	-	-	-	-	-		
	A-4	**(E) LTE1C/2C ANTENNA**	SBNH-1D6565C	COMMSCOPE	(1) EXISTING RRUS-11 UNIT **AND (1) NEW RRUS-12 UNIT**	45°	154'-0"	(1) EXISTING FIBER CABLE	180'-0"	
								(2) EXISTING DC POWER CABLES	180'-0"	
BETA	B-1	(E) UMTS ANTENNA	7770	POWERWAVE	(2) EXISTING TMA UNIT(S)	263°	154'-0"	1-5/8"ø LDF7-50A	180'-0"	
								1-5/8"ø LDF7-50A	180'-0"	
	B-2	(E) GSM ANTENNA	7770	POWERWAVE	-	263°	154'-0"	1-5/8"ø LDF7-50A	180'-0"	
	B-3	-	-	-	-	-	-	-		
	B-4	**(E) LTE1C/2C ANTENNA**	AM-X-CD-17-65 -00T-RET	KMW	(1) EXISTING RRUS-11 UNIT **AND (1) NEW RRUS-12 UNIT**	165°	154'-0"	SEE ANTENNA A-2 FOR CABLE TYPE AND LENGTH		
GAMMA	C-1	(E) UMTS ANTENNA	7770	POWERWAVE	(2) EXISTING TMA UNIT(S)	23°	154'-0"	1-5/8"ø LDF7-50A	180'-0"	
								1-5/8"ø LDF7-50A	180'-0"	
	C-2	(E) GSM ANTENNA	7770	POWERWAVE	-	23°	154'-0"	1-5/8"ø LDF7-50A	180'-0"	
	C-3	-	-	-	-	-	-	-		
	C-4	**(E) LTE1C/2C ANTENNA**	AM-X-CD-17-65 -00T-RET	KMW	(1) EXISTING RRUS-11 UNIT **AND (1) NEW RRUS-12 UNIT**	275°	154'-0"	SEE ANTENNA A-2 FOR CABLE TYPE AND LENGTH		

ANTENNA & CABLE CONFIGURATION

SCALE: N.T.S.

1

at&t

550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

smartlink

1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON ENGINEERING · DESIGN

1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	06/10/16	90% REVIEW	KC
1	08/22/16	FOR PERMIT	KC

I HEREBY CERTIFY THAT THESE DRAWING WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

STATE OF CONNECTICUT · HENRY M. BELLAGAMBA · 25358 · LICENSED PROFESSIONAL ENGINEER

SITE NAME
PLAINFIELD-SPAULDING RD

SITE NUMBER:
CTL02051

SITE ADDRESS
45 SPAULDING ROAD
PLAINFIELD, CT 06374

SHEET NAME
ANTENNA & CABLE CONFIGURATION

SHEET NUMBER
A6

FEC# 2016.0200.0200

1. CONTRACTOR IS TO REFER TO AT&T'S MOST CURRENT RADIO FREQUENCY DATA SHEET (RFDS) PRIOR TO CONSTRUCTION.
2. THE SIZE, HEIGHT, AND DIRECTION OF THE ANTENNAS SHALL BE ADJUSTED TO ACHIEVE THE AZIMUTHS SPECIFIED AND LIMIT SHADOWING AND TO MEET THE SYSTEM REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY THE HEIGHT OF THE ANTENNA WITH THE AT&T WIRELESS PROJECT MANAGER.
4. VERIFY TYPE AND SIZE OF TOWER LEG PRIOR TO ORDERING ANY ANTENNA MOUNT.
5. UNLESS NOTED OTHERWISE THE CONTRACTOR MUST PROVIDE ALL MATERIAL NECESSARY.
6. ANTENNA AZIMUTHS ARE DEGREES OFF OF TRUE NORTH, BEARING CLOCKWISE, IN WHICH ANTENNA FACE IS DIRECTED. ALL ANTENNAS (AND SUPPORTING STRUCTURES AS PRACTICAL) SHALL BE ACCURATELY ORIENTED IN THE SPECIFIED DIRECTION.
7. CONTRACTOR SHALL VERIFY ALL RF INFORMATION PRIOR TO CONSTRUCTION.
8. SWEEP TEST SHALL BE PERFORMED BY GENERAL CONTRACTOR AND SUBMITTED TO AT&T WIRELESS CONSTRUCTION SPECIALIST. TEST SHALL BE PERFORMED PER AT&T WIRELESS STANDARDS.
9. CABLE LENGTHS WERE DETERMINED BASED ON THE DESIGN DRAWING. CONTRACTOR TO VERIFY ACTUAL LENGTH DURING PRE-CONSTRUCTION WALK.
10. CONTRACTOR TO USE ROSENBERGER FIBER LINE HANGER COMPONENTS (OR ENGINEER APPROVED EQUAL).

ANTENNA AND CABLING NOTES

SCALE: N.T.S. | 1

RF, DC, & COAX CABLE MARKING LOCATIONS TABLE	
NO	LOCATIONS
1	EACH TOP-JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
2	EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS NEAR THE TOP-JUMPER CONNECTION AND WITH (1) SET OF 3/4" WIDE COLOR BANDS JUST PRIOR TO ENTERING THE BTS OR TRANSMITTER BUILDING.
3	CABLE ENTRY PORT ON THE INTERIOR OF THE SHELTER.
4	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.
5	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.

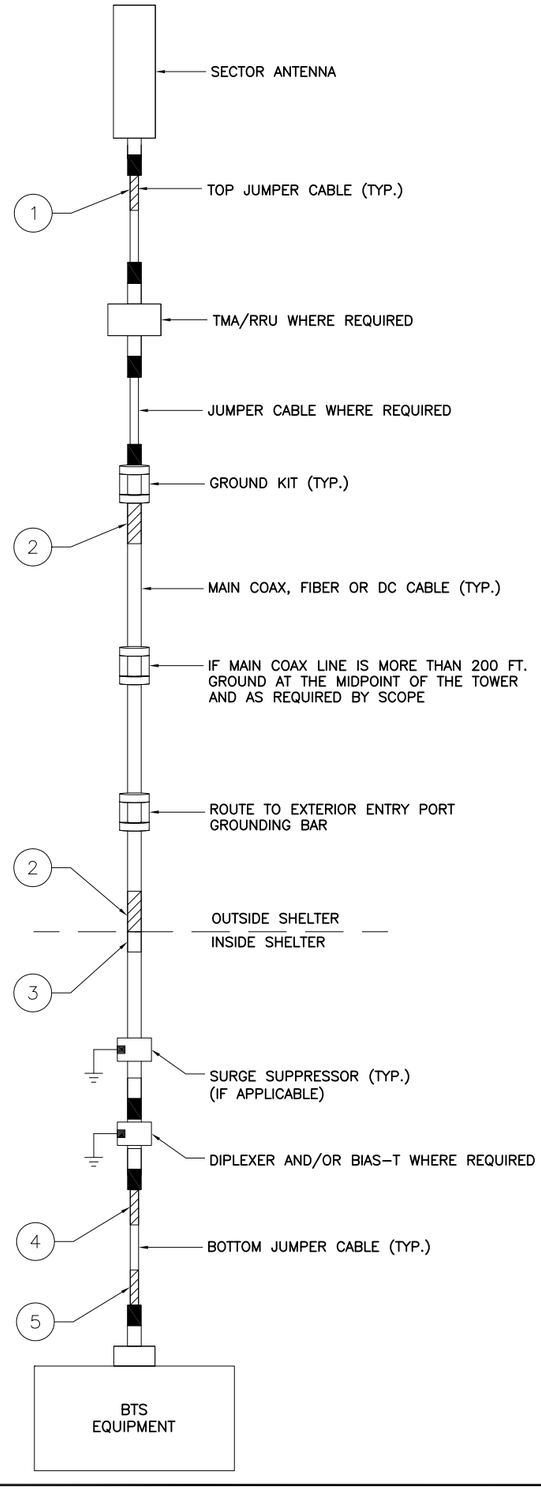
CABLE MARKING DIAGRAM

SCALE: N.T.S. | 2

1. THE ANTENNA SYSTEM COAX SHALL BE LABELED WITH VINYL TAPE.
2. THE STANDARD IS BASED ON EIGHT COLORED TAPES-RED, BLUE, GREEN, YELLOW, ORANGE, BROWN, WHITE, AND VIOLET. THESE TAPES MUST BE 3/4" WIDE & UV RESISTANT SUCH AS SCOTCH 35 VINYL ELECTRICAL COLOR CODING TAPE AND SHOULD BE READILY AVAILABLE TO THE ELECTRICIAN OR CONTRACTOR ON SITE.
3. USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLE BY SECTOR AND CABLE NUMBER AS SHOWN ON "CABLE COLOR CHART".
4. WHEN AN EXISTING COAXIAL LINE THAT IS INTENDED TO BE A SHARED LINE BETWEEN TECHNOLOGIES IS ENCOUNTERED, THE CONTRACTOR SHALL REMOVE THE EXISTING COLOR CODING SCHEME AND REPLACE IT WITH THE COLOR CODING STANDARD. IN THE ABSENCE OF AN EXISTING COLOR CODING AND TAGGING SCHEME, OR WHEN INSTALLING PROPOSED COAXIAL CABLES, THIS GUIDELINE SHALL BE IMPLEMENTED AT THAT SITE REGARDLESS OF TECHNOLOGY.
5. ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE INSTALLED USING A MINIMUM OF (3) THREE WRAPS OF TAPE AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT SO AS TO AVOID UNRAVELING.
6. ALL COLOR BANDS INSTALLED AT THE TOP OF THE TOWER SHALL BE A MINIMUM OF 3" WIDE, AND SHALL HAVE A MINIMUM OF 3/4" OF SPACE BETWEEN EACH COLOR.
7. ALL COLOR CODES SHALL BE INSTALLED SO AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE-TO-SIDE.
8. IF EXISTING CABLES AT THE SITE ALREADY HAVE A COLOR CODING SCHEME AND THEY ARE NOT INTENDED TO BE REUSED OR SHARED WITH THE NEW TECHNOLOGY, THE EXISTING COLOR CODING SCHEME SHALL REMAIN UNTOUCHED.

CABLE MARKING NOTES

SCALE: N.T.S. | 3



CABLE COLOR CODING DIAGRAM

SCALE: N.T.S. | 4

at&t
550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON ENGINEERING · DESIGN
1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	06/10/16	90% REVIEW	KC
1	08/22/16	FOR PERMIT	KC

I HEREBY CERTIFY THAT THESE DRAWING WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

STATE OF CONNECTICUT · HENRY M. BELLAGAMBA · 25358 · LICENSED PROFESSIONAL ENGINEER

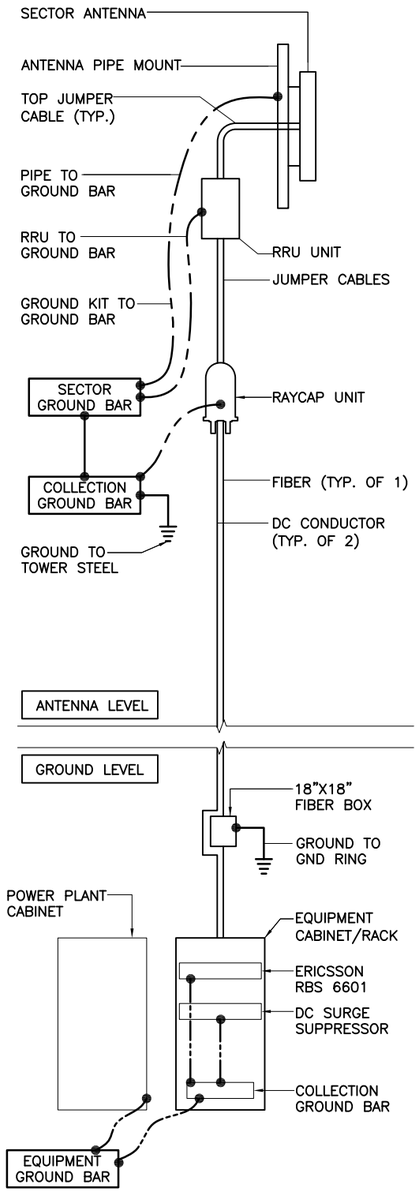
SITE NAME
PLAINFIELD-SPAULDING RD

SITE NUMBER:
CTL02051

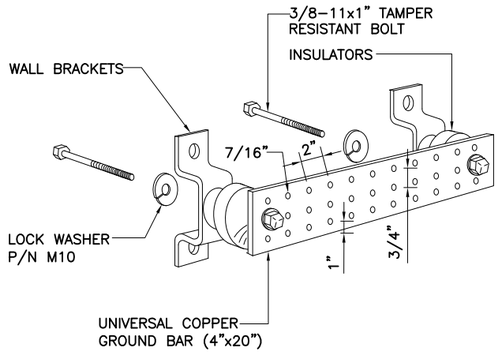
SITE ADDRESS
45 SPAULDING ROAD
PLAINFIELD, CT 06374

SHEET NAME
CABLE NOTES AND COLOR CODING

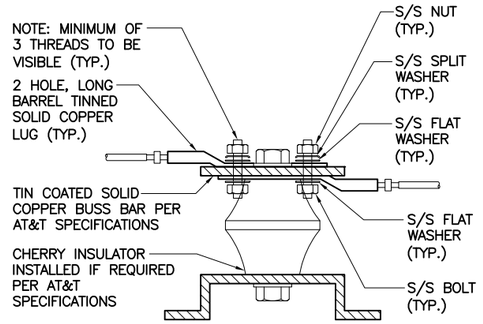
SHEET NUMBER
A7



GROUNDING SCHEMATIC SCALE: N.T.S. 1



GROUND BAR DETAIL SCALE: N.T.S. 2

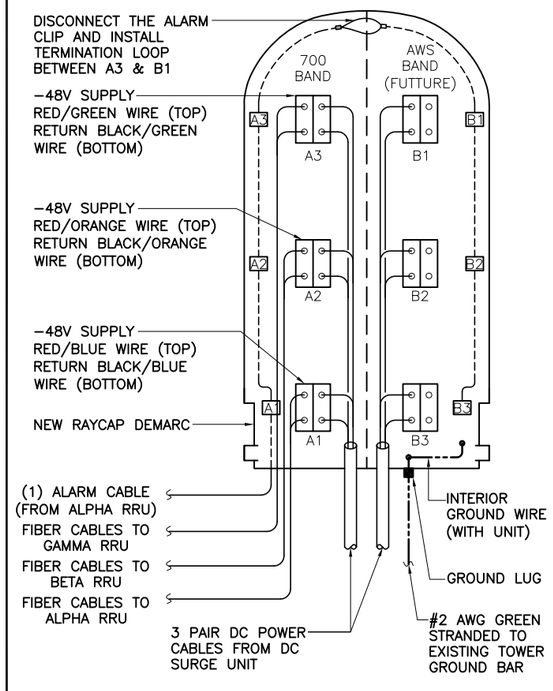


NOTES:

1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING SPLIT WASHERS.
2. COAT WIRE END WITH ANTI-OXIDATION COMPOUND PRIOR TO INSERTION INTO LUG BARREL AND CRIMPING.
3. APPLY ANTI-OXIDATION COMPOUND BETWEEN ALL LUGS AND BUSS BARS PRIOR TO MATING AND BOLTING.

LUG DETAIL SCALE: N.T.S. 3

EXOTHERMIC WELD DETAILS SCALE: N.T.S. 4



RAYCAP DC POWER AND ALARM DET. SCALE: N.T.S. 5

NOT USED SCALE: N.T.S. 6

at&t
550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON ENGINEERING · DESIGN
1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	06/10/16	90% REVIEW	KC
1	08/22/16	FOR PERMIT	KC

I HEREBY CERTIFY THAT THESE DRAWING WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

SITE NAME
PLAINFIELD-SPAULDING RD

SITE NUMBER:
CTL02051

SITE ADDRESS
45 SPAULDING ROAD
PLAINFIELD, CT 06374

SHEET NAME
GROUNDING DETAILS

SHEET NUMBER
A8

FEC# 2016.0200.0200

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**150 ft Monopole**
ATC Site Name	:	**Plainfield CT 6, CT**
ATC Site Number	:	**302498**
Engineering Number	:	**OAA681936_C3_01**
Proposed Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**Plainfield-Spaulding Rd**
Carrier Site Number	:	**CTL02051 / 10035013**
Site Location	:	**Spaulding Road** **Plainfield, CT 06374-1824** **41.674806, -71.879100**
County	:	**Windham**
Date	:	**July 27, 2016**
Max Usage	:	**100%**
Result	:	**Pass**

Prepared By:
Isaac P. Dodson
Structural Engineer II

Isaac P. Dodson

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	ITT Meyer 'Type B' Specification, ATT Spec AT-8935, dated April 13, 1984
Foundation Drawing	SNET Job #3C234, dated April 24, 1990
Geotechnical Report	GEOServices Project #21-07254, dated April 20, 2009
Modifications	ATC Project #48651233, dated May 8, 2012

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:	105 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" 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:	Ss = 0.24, 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					
149.0	154.0	6	Powerwave LGP21401	Platform w/ Handrails	(12) 1 5/8" Coax (2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk (1) 3" Conduit	AT&T Mobility
		1	Raycap DC6-48-60-18-8F (23.5" Height)			
		3	Ericsson RRUS-11			
		6	Powerwave 7770.00			
		2	KMW AM-X-CD-17-65-00T-RET (96" Height)			
		1	Andrew SBNH-1D6565C (60.8 lbs)			
114.0	114.0	6	RFS FD9R6004/2C-3L	T-Arms	(12) 1 5/8" Coax (1) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent RRH2X60-1900			
		3	Alcatel-Lucent RRH2X60-AWS Band 4			
		3	Antel BXA-70080-4CF-EDIN-X			
		1	RFS DB-T1-6Z-8AB-0Z			
		3	Antel BXA-70063/6CF-EDIN-X			
		6	Commscope HBXX-6517DS-A2M			

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
154.0	154.0	6	Powerwave LGP 21902	-	-	AT&T Mobility

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
149.0	154.0	6	Powerwave LGP21901	Platform w/ Handrails	-	AT&T Mobility
		3	Ericsson RRUS 12			

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

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	71%	Pass
Shaft	100%	Pass
Base Plate	45%	Pass
Flanges	85%	Pass
Reinforcement	69%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2,203.5	86%
Axial (Kips)	52.5	41%
Shear (Kips)	23.1	20%

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) (°)
149.0	Powerwave Allgon LGP21901	AT&T Mobility	2.709	2.220
	Ericsson RRUS 12			

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

AMERICAN TOWER®
CORPORATION

Standard Conditions

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

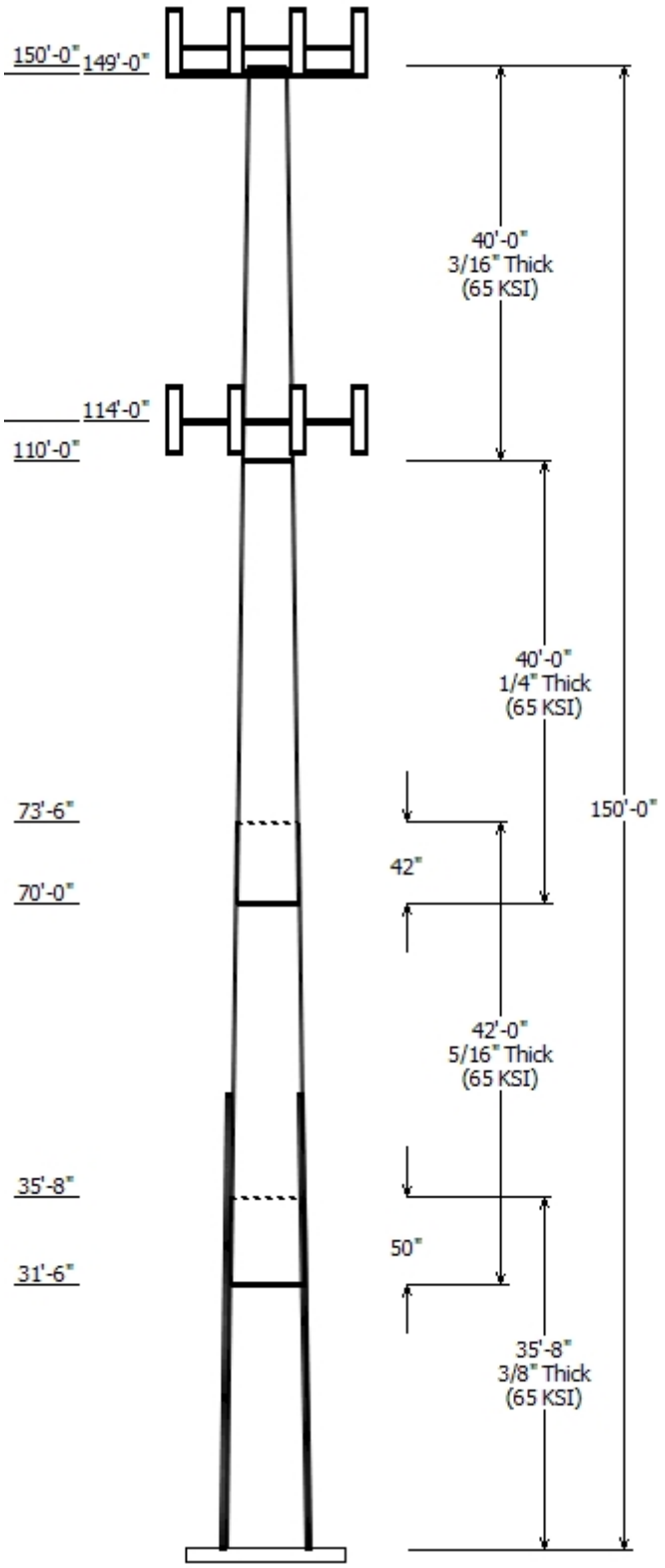
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

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

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

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

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



Job Information

Pole :	302498	Code:	ANSI/TIA-222-G
Description :	150' ITT Meyer Type "B" Monopole		
Client :	AT&T Mobility	Struct Class :	II
Location :	Plainfield CT 6, CT		
Shape :	12 Sides	Exposure :	B
Height :	150.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.15670(in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	35.667	31.79	37.38	0.375		0.000	0.156700	65
2	42.000	26.48	33.07	0.313	Slip Joint	50.000	0.156700	65
3	40.000	21.26	27.53	0.250	Slip Joint	42.000	0.156700	65
4	40.000	15.00	21.26	0.188	Butt Joint	0.000	0.156700	65

Discrete Appurtenance

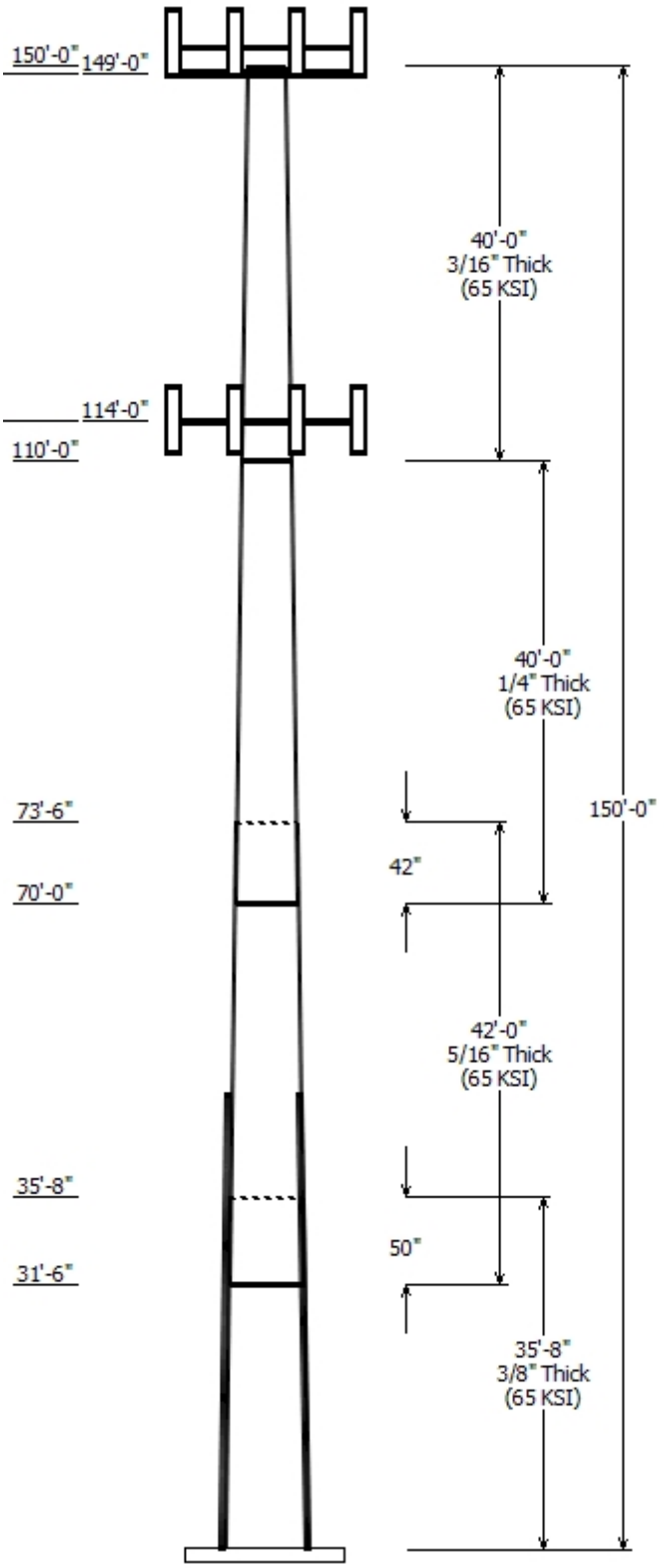
Attach Elev (ft)	Force Elev (ft)	Qty	Description
149.000	154.000	3	Ericsson RRUS 12
149.000	149.000	3	Flat Side Arm
149.000	154.000	6	Powerwave Allgon LGP21901
149.000	154.000	6	Powerwave Allgon LGP21401
149.000	154.000	1	Raycap DC6-48-60-18-8F (23.5"
149.000	154.000	3	Ericsson RRUS-11
149.000	154.000	6	Powerwave Allgon 7770.00
149.000	154.000	1	Andrew SBNH-1D6565C (60.8
149.000	154.000	2	KMW AM-X-CD-17-65-00T-RET
149.000	149.000	1	Round Platform w/ Handrails
114.000	114.000	6	Commscope HBXX-6517DS-
114.000	114.000	3	Alcatel-Lucent RRH2X60-AWS
114.000	114.000	3	Alcatel-Lucent RRH2X60-1900
114.000	114.000	1	RFS DB-T1-6Z-8AB-0Z
114.000	114.000	6	RFS FD9R6004/2C-3L
114.000	114.000	3	Amphenol Antel BXA-70080-
114.000	114.000	3	Round T-Arms
114.000	114.000	3	Antel BXA-70063/6CF-EDIN-X

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
5.000	114.0	1 5/8" Coax	No
5.000	114.0	1 5/8" Hybriflex	No
5.000	149.0	0.39" Fiber Trunk	No
5.000	149.0	0.78" 8 AWG 6	No
5.000	149.0	1 5/8" Coax	No
5.000	149.0	3" Conduit	No
0.000	52.500	#20 Dywidag	Yes

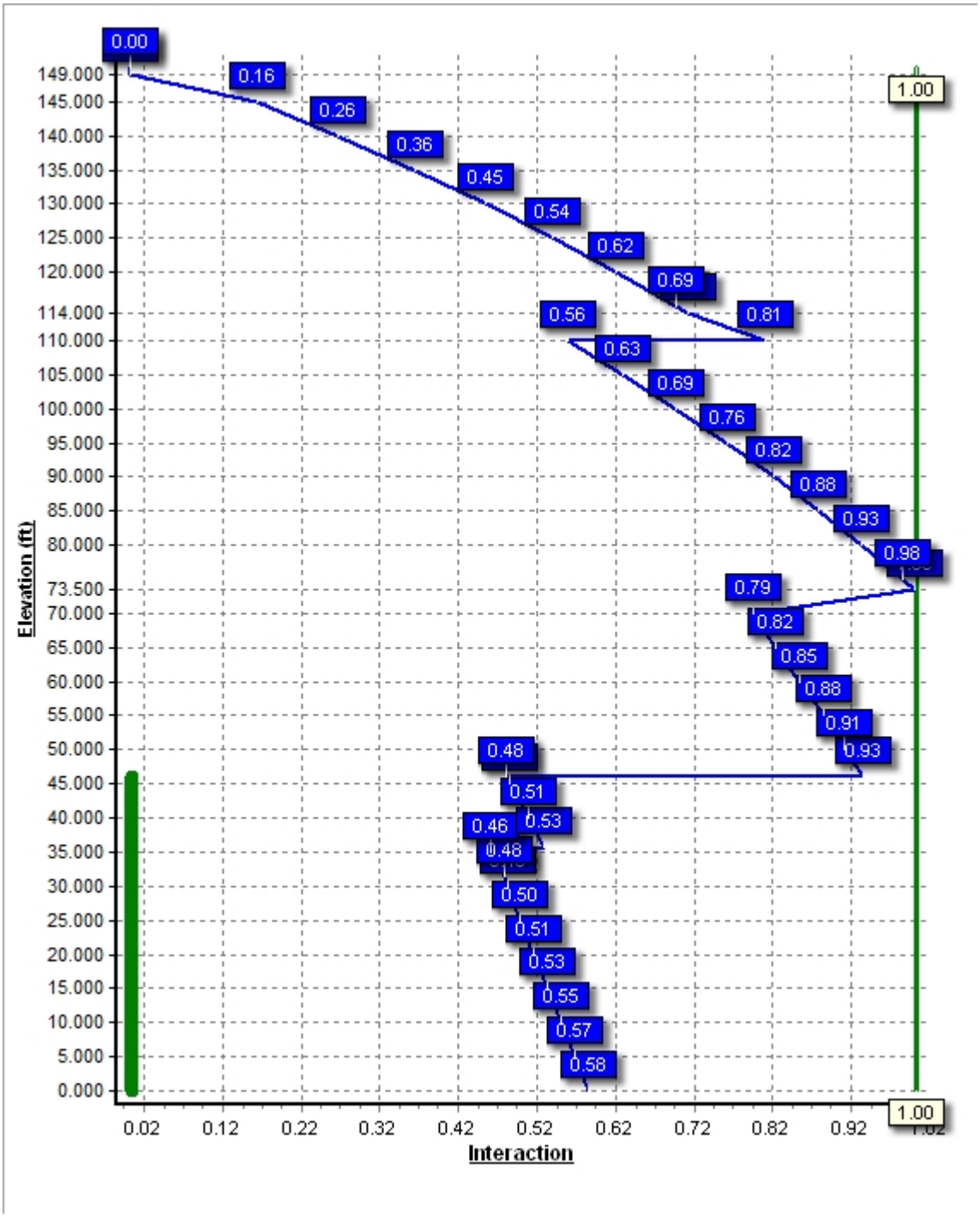
Load Cases

1.2D + 1.6W	105 mph with No Ice
0.9D + 1.6W	105 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 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	2203.48	23.14	30.06
0.9D + 1.6W	2168.29	23.08	22.53
1.2D + 1.0Di + 1.0Wi	513.45	4.76	52.52
(1.2 + 0.2Sds) * DL + E ELFM	125.14	0.98	30.05
(1.2 + 0.2Sds) * DL + E EMAM	258.26	2.21	30.05
(0.9 - 0.2Sds) * DL + E ELFM	122.38	0.98	20.36
(0.9 - 0.2Sds) * DL + E EMAM	252.15	2.21	20.36
1.0D + 1.0W	449.41	4.82	25.09

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


0.00
0.16
0.26
0.36
0.45
0.54
0.62
0.69
0.81
0.56
0.63
0.69
0.76
0.82
0.88
0.93
0.98
0.79
0.82
0.85
0.88
0.91
0.93
0.48
0.51
0.46
0.53
0.48
0.50
0.51
0.53
0.55
0.57
0.58
1.00
1.00
149.000
145.000
140.000
135.000
130.000
125.000
120.000
114.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
73.500
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number:	**302498**	**Code: ANSI/TIA-222-G**	
Site Name:	**Plainfield CT 6, CT**	**Engineering Number: OAA681936_C3_01**	**7/27/2016 4:46:38 PM**
Customer:	**AT&T Mobility**		

Analysis Parameters

Location:	**Windham County, CT**		
Code:	**ANSI/TIA-222-G**	**Height (ft):**	**150**
Shape:	**12 Sides**	**Base Diameter (in):**	**37.38**
Pole Type:	**Taper**	**Top Diameter (in):**	**15.00**
Pole Manfacturer:	**ITT Meyer**	**Taper (in/ft) :**	**0.157**

Ice & Wind Parameters

Structure Class:	**II**	**Design Wind Speed Without Ice:**	**105 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:**	**1.00 in**

Seismic Parameters

Analysis Method:	**Equivalent Modal Analysis & Equivalent Lateral Force Methods**				
Site Class:	**D - Stiff Soil**				
Period Based on Rayleigh Method (sec):	**2.81**				
T_L (sec):	**6**	**p:**	**1.3**	**C_s:**	**0.030**
S_s:	**0.243**	**S_1:**	**0.064**	**C_s Max:**	**0.030**
F_a:	**1.600**	**F_v:**	**2.400**	**C_s Min:**	**0.030**
S_{ds}:	**0.259**	**S_{d1}:**	**0.102**		

Load Cases

1.2D + 1.6W	**105 mph with No Ice**
0.9D + 1.6W	**105 mph with No Ice (Reduced DL)**
1.2D + 1.0Di + 1.0Wi	**50 mph with 1.00 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:	**302498**	**Code:**	**ANSI/TIA-222-G**	
Site Name:	**Plainfield CT 6, CT**	**Engineering Number:**	**OAA681936_C3_01**	**7/27/2016 4:46:38 PM**
Customer:	**AT&T Mobility**			

Shaft Section Properties

							Bottom						Top						
Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	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	35.667	0.3750	65		0.00	5,014	37.38	0.00	44.68	7810.1	24.03	99.68	31.79	35.67	37.93	4778.8	20.04	84.78	0.156706
2-12	42.000	0.3130	65	Slip	50.00	4,244	33.07	31.50	33.01	4521.6	25.63	105.65	26.48	73.50	26.38	2307.0	20.00	84.63	0.156706
3-12	40.000	0.2500	65	Slip	42.00	2,646	27.53	70.00	21.97	2087.5	26.83	110.15	21.26	110.00	16.92	954.1	20.12	85.07	0.156706
4-12	40.000	0.1880	65	Butt	0.00	1,479	21.26	110.00	12.76	723.8	27.63	113.13	15.00	150.00	8.97	251.1	18.70	79.79	0.156706
				Shaft Weight		13,383													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
149.00	Andrew SBNH-1D6565C (60.8	1	60.80	11.450	0.70	432.98	13.672	0.70	0.000	5.000
149.00	Ericsson RRUS 12	3	50.00	3.150	0.67	186.40	4.128	0.67	0.000	5.000
149.00	Ericsson RRUS-11	3	55.00	3.790	0.67	205.16	4.871	0.67	0.000	5.000
149.00	Flat Side Arm	3	150.00	5.000	0.67	247.53	7.601	0.67	0.000	0.000
149.00	KMW AM-X-CD-17-65-00T-	2	59.50	11.310	0.68	410.16	13.536	0.68	0.000	5.000
149.00	Powerwave Allgon 7770.00	6	35.00	5.510	0.65	228.61	6.948	0.65	0.000	5.000
149.00	Powerwave Allgon LGP21401	6	14.10	1.100	0.50	64.84	1.742	0.50	0.000	5.000
149.00	Powerwave Allgon LGP21901	6	5.50	0.230	0.50	25.88	0.528	0.50	0.000	5.000
149.00	Raycap DC6-48-60-18-8F	1	20.00	1.110	1.00	136.09	2.756	1.00	0.000	5.000
149.00	Round Platform w/ Handrails	1	2000.00	27.200	1.00	3,727.76	59.793	1.00	0.000	0.000
114.00	Alcatel-Lucent RRH2X60-	3	43.00	1.880	0.50	136.74	2.656	0.50	0.000	0.000
114.00	Alcatel-Lucent RRH2X60-	3	55.00	3.350	0.50	191.48	4.976	0.50	0.000	0.000
114.00	Amphenol Antel BXA-70080-	3	12.00	3.570	0.72	161.08	4.751	0.72	0.000	0.000
114.00	Antel BXA-70063/6CF-EDIN-X	3	17.00	7.570	0.66	247.82	9.225	0.66	0.000	0.000
114.00	Commscope HBXX-6517DS-	6	40.80	8.530	0.68	409.85	13.673	0.68	0.000	0.000
114.00	RFS DB-T1-6Z-8AB-0Z	1	44.00	4.800	0.67	240.07	5.954	0.67	0.000	0.000
114.00	RFS FD9R6004/2C-3L	6	3.10	0.360	0.50	23.45	0.683	0.50	0.000	0.000
114.00	Round T-Arms	3	250.00	8.000	0.67	521.20	16.823	0.67	0.000	0.000
	Totals	60	4730.80		15,565.24			Number of Loadings :		18

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
5.00	149.00	1	0.39" Fiber Trunk	0.39	0.07	N	0.00	N	AT&T Mobility
5.00	149.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
5.00	149.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
5.00	149.00	1	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
5.00	114.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon
5.00	114.00	1	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	Verizon
0.00	52.50	4	#20 Dywidag	2.50	0.00	N	8.00	Y	--

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections — Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	46.00	4	SOL #20 All Thread	80	2.09	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	No

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)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.3750	37.380	44.684	7,810.1	24.03	99.68	78.5	403.6	0.0	0.0	19.64	4,773	0.0
5.00		0.3750	36.596	43.737	7,324.4	23.47	97.59	79.1	386.6	0.0	752.2	19.64	4,605	334.0
10.00		0.3750	35.813	42.791	6,859.3	22.91	95.50	79.7	370.0	0.0	736.1	19.64	4,440	334.0
15.00		0.3750	35.029	41.845	6,414.3	22.35	93.41	80.3	353.7	0.0	720.0	19.64	4,278	334.0
20.00		0.3750	34.246	40.899	5,989.0	21.79	91.32	80.9	337.8	0.0	703.9	19.64	4,119	334.0
25.00		0.3750	33.462	39.953	5,582.9	21.23	89.23	81.6	322.3	0.0	687.8	19.64	3,963	334.0
30.00		0.3750	32.679	39.007	5,195.6	20.67	87.14	81.9	307.1	0.0	671.7	19.64	3,810	334.0
31.50	Bot - Section 2	0.3750	32.444	38.723	5,083.0	20.50	86.52	81.9	302.7	0.0	198.4	19.64	3,765	100.2
35.00		0.3750	31.895	38.061	4,826.6	20.11	85.05	81.9	292.3	0.0	847.1	19.64	3,780	233.8
35.67	Top - Section 1	0.3130	32.417	32.356	4,256.5	25.07	103.57	77.4	253.7	0.0	159.7	19.64	3,760	44.5
40.00		0.3130	31.738	31.672	3,992.1	24.49	101.40	78.0	243.0	0.0	472.1	19.64	3,631	289.5
45.00		0.3130	30.954	30.882	3,700.9	23.82	98.90	78.7	231.0	0.0	532.1	19.64	3,484	334.0
46.00	Reinf. Top	0.3130	30.798	30.724	3,644.4	23.69	98.39	78.9	228.6	0.0	104.8	19.64	3,455	66.8
50.00		0.3130	30.171	30.092	3,424.2	23.15	96.39	79.5	219.3	0.0	413.9			
55.00		0.3130	29.387	29.303	3,161.6	22.48	93.89	80.2	207.8	0.0	505.3			
60.00		0.3130	28.604	28.513	2,912.8	21.81	91.39	80.9	196.7	0.0	491.8			
65.00		0.3130	27.820	27.723	2,677.4	21.14	88.88	81.7	185.9	0.0	478.4			
70.00	Bot - Section 3	0.3130	27.037	26.934	2,455.1	20.47	86.38	81.9	175.4	0.0	465.0			
73.50	Top - Section 2	0.2500	26.988	21.524	1,964.1	26.25	107.95	76.1	140.6	0.0	576.5			
75.00		0.2500	26.753	21.335	1,912.8	25.99	107.01	76.4	138.1	0.0	109.4			
80.00		0.2500	25.969	20.704	1,748.1	25.15	103.88	77.3	130.0	0.0	357.6			
85.00		0.2500	25.186	20.073	1,593.2	24.31	100.74	78.2	122.2	0.0	346.9			
90.00		0.2500	24.402	19.443	1,447.7	23.47	97.61	79.1	114.6	0.0	336.2			
95.00		0.2500	23.619	18.812	1,311.3	22.64	94.48	80.0	107.3	0.0	325.4			
100.0		0.2500	22.835	18.181	1,183.8	21.80	91.34	80.9	100.1	0.0	314.7			
105.0		0.2500	22.052	17.550	1,064.8	20.96	88.21	81.9	93.3	0.0	304.0			
110.0	Top - Section 3	0.2500	21.268	16.920	954.1	20.12	85.07	81.9	86.7	0.0	293.2			
110.0	Bot - Section 4	0.1880	21.268	12.761	723.8	27.63	113.13	74.6	65.7	0.0				
114.0		0.1880	20.641	12.382	661.2	26.74	109.80	75.6	61.9	0.0	171.1			
115.0		0.1880	20.485	12.287	646.1	26.52	108.96	75.8	60.9	0.0	42.0			
120.0		0.1880	19.701	11.813	574.1	25.40	104.79	77.0	56.3	0.0	205.0			
125.0		0.1880	18.918	11.338	507.7	24.28	100.63	78.2	51.8	0.0	196.9			
130.0		0.1880	18.134	10.864	446.6	23.17	96.46	79.4	47.6	0.0	188.9			
135.0		0.1880	17.351	10.390	390.6	22.05	92.29	80.7	43.5	0.0	180.8			
140.0		0.1880	16.567	9.915	339.5	20.93	88.12	81.9	39.6	0.0	172.7			
145.0		0.1880	15.784	9.441	293.1	19.82	83.96	81.9	35.9	0.0	164.7			
149.0		0.1880	15.157	9.061	259.2	18.92	80.62	81.9	33.0	0.0	125.9			
150.0		0.1880	15.000	8.967	251.1	18.70	79.79	81.9	32.3	0.0	30.7			
											13,382.8			3,072.8

Site Number:	**302498**	**Code: ANSI/TIA-222-G**	
Site Name:	**Plainfield CT 6, CT**	**Engineering Number: OAA681936_C3_01**	**7/27/2016 4:46:38 PM**
Customer:	**AT&T Mobility**		

Load Case: **1.2D + 1.6W** **105 mph with No Ice** **29 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	-30.06	-23.14	0.00	-2,203.48	0.00	2,203.48	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.582
5.00	-28.66	-22.56	0.00	-2,087.77	0.00	2,087.77	3,114.35	1,557.18	4,645.51	2,294.24	0.13	-0.24	0.565
10.00	-27.11	-21.98	0.00	-1,974.96	0.00	1,974.96	3,070.50	1,535.25	4,480.01	2,212.51	0.51	-0.48	0.548
15.00	-25.58	-21.40	0.00	-1,865.05	0.00	1,865.05	3,025.61	1,512.80	4,315.88	2,131.45	1.15	-0.73	0.531
20.00	-24.08	-20.83	0.00	-1,758.03	0.00	1,758.03	2,979.67	1,489.84	4,153.23	2,051.12	2.04	-0.97	0.513
25.00	-22.60	-20.25	0.00	-1,653.89	0.00	1,653.89	2,932.70	1,466.35	3,992.16	1,971.58	3.18	-1.21	0.496
30.00	-21.17	-19.84	0.00	-1,552.64	0.00	1,552.64	2,875.19	1,437.60	3,820.16	1,886.63	4.58	-1.45	0.480
31.50	-20.73	-19.56	0.00	-1,522.89	0.00	1,522.89	2,854.27	1,427.14	3,764.45	1,859.12	5.04	-1.52	0.476
35.00	-19.28	-19.26	0.00	-1,454.42	0.00	1,454.42	2,805.46	1,402.73	3,636.05	1,795.71	6.22	-1.69	0.459
35.67	-18.98	-18.99	0.00	-1,441.58	0.00	1,441.58	2,253.07	1,126.54	2,980.51	1,471.96	6.46	-1.72	0.526
40.00	-17.86	-18.41	0.00	-1,359.28	0.00	1,359.28	2,223.49	1,111.74	2,878.55	1,421.61	8.11	-1.92	0.506
45.00	-16.62	-17.98	0.00	-1,267.22	0.00	1,267.22	2,188.38	1,094.19	2,761.77	1,363.93	10.26	-2.17	0.483
46.00	-16.35	-17.69	0.00	-1,249.24	0.00	1,249.24	2,181.23	1,090.62	2,738.53	1,352.46	10.72	-2.22	0.479
46.00	-16.35	-17.69	0.00	-1,249.24	0.00	1,249.24	2,181.23	1,090.62	2,738.53	1,352.46	10.72	-2.22	0.931
50.00	-15.63	-17.19	0.00	-1,178.47	0.00	1,178.47	2,152.23	1,076.12	2,646.00	1,306.76	12.66	-2.41	0.909
55.00	-14.73	-16.75	0.00	-1,092.54	0.00	1,092.54	2,115.05	1,057.52	2,531.33	1,250.13	15.43	-2.88	0.881
60.00	-13.86	-16.33	0.00	-1,008.78	0.00	1,008.78	2,076.82	1,038.41	2,417.88	1,194.10	18.70	-3.35	0.852
65.00	-13.01	-15.90	0.00	-927.13	0.00	927.13	2,037.56	1,018.78	2,305.75	1,138.72	22.46	-3.83	0.821
70.00	-12.19	-15.51	0.00	-847.65	0.00	847.65	1,985.28	992.64	2,181.88	1,077.55	26.72	-4.30	0.793
73.50	-11.34	-15.24	0.00	-793.37	0.00	793.37	1,473.98	736.99	1,624.63	802.34	29.99	-4.63	0.997
75.00	-11.09	-14.98	0.00	-770.50	0.00	770.50	1,466.30	733.15	1,601.82	791.08	31.47	-4.78	0.982
80.00	-10.39	-14.53	0.00	-695.61	0.00	695.61	1,440.02	720.01	1,526.17	753.72	36.76	-5.32	0.931
85.00	-9.71	-14.09	0.00	-622.94	0.00	622.94	1,412.70	706.35	1,451.16	716.67	42.61	-5.86	0.876
90.00	-9.06	-13.63	0.00	-552.51	0.00	552.51	1,384.33	692.17	1,376.90	680.00	49.02	-6.38	0.819
95.00	-8.44	-13.18	0.00	-484.35	0.00	484.35	1,354.93	677.47	1,303.49	643.74	55.96	-6.89	0.759
100.00	-7.84	-12.72	0.00	-418.47	0.00	418.47	1,324.49	662.24	1,231.03	607.96	63.42	-7.38	0.695
105.00	-7.26	-12.26	0.00	-354.89	0.00	354.89	1,293.01	646.50	1,159.62	572.69	71.38	-7.85	0.626
110.00	-6.71	-11.83	0.00	-293.61	0.00	293.61	1,247.15	623.58	1,077.84	532.31	79.81	-8.28	0.557
110.00	-6.71	-11.83	0.00	-293.61	0.00	293.61	856.51	428.26	744.61	367.73	79.81	-8.28	0.807
114.00	-5.15	-8.09	0.00	-246.27	0.00	246.27	841.90	420.95	709.95	350.62	86.86	-8.60	0.709
115.00	-5.07	-7.85	0.00	-238.19	0.00	238.19	838.15	419.07	701.32	346.35	88.67	-8.71	0.694
120.00	-4.72	-7.42	0.00	-198.93	0.00	198.93	818.74	409.37	658.39	325.15	98.01	-9.19	0.618
125.00	-4.39	-7.00	0.00	-161.83	0.00	161.83	798.29	399.15	615.93	304.18	107.83	-9.63	0.538
130.00	-4.08	-6.58	0.00	-126.84	0.00	126.84	776.81	388.40	574.03	283.49	118.09	-10.04	0.453
135.00	-3.79	-6.17	0.00	-93.95	0.00	93.95	754.28	377.14	532.79	263.13	128.74	-10.39	0.362
140.00	-3.52	-5.76	0.00	-63.11	0.00	63.11	730.85	365.43	492.42	243.19	139.72	-10.68	0.265
145.00	-3.26	-5.40	0.00	-34.29	0.00	34.29	695.89	347.95	446.18	220.35	150.96	-10.88	0.161
149.00	-0.03	-0.04	0.00	-0.04	0.00	0.04	667.92	333.96	410.83	202.89	160.06	-10.97	0.000
150.00	0.00	-0.03	0.00	0.00	0.00	0.00	660.93	330.46	402.22	198.64	162.35	-10.97	0.000

Site Number:	**302498**	**Code:**	**ANSI/TIA-222-G**
Site Name:	**Plainfield CT 6, CT**	**Engineering Number:**	**OAA681936_C3_01**
Customer:	**AT&T Mobility**		

7/27/2016 4:46:40 PM

Load Case: **0.9D + 1.6W** — **105 mph with No Ice (Reduced DL)** — **28 Iterations**

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60
Wind Importance 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	-22.53	-23.08	0.00	-2,168.29	0.00	2,168.29	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.571
5.00	-21.46	-22.47	0.00	-2,052.90	0.00	2,052.90	3,114.35	1,557.18	4,645.51	2,294.24	0.13	-0.24	0.554
10.00	-20.28	-21.86	0.00	-1,940.55	0.00	1,940.55	3,070.50	1,535.25	4,480.01	2,212.51	0.51	-0.48	0.537
15.00	-19.11	-21.26	0.00	-1,831.24	0.00	1,831.24	3,025.61	1,512.80	4,315.88	2,131.45	1.13	-0.71	0.520
20.00	-17.97	-20.66	0.00	-1,724.95	0.00	1,724.95	2,979.67	1,489.84	4,153.23	2,051.12	2.01	-0.95	0.503
25.00	-16.85	-20.06	0.00	-1,621.66	0.00	1,621.66	2,932.70	1,466.35	3,992.16	1,971.58	3.13	-1.19	0.485
30.00	-15.77	-19.64	0.00	-1,521.33	0.00	1,521.33	2,875.19	1,437.60	3,820.16	1,886.63	4.50	-1.42	0.469
31.50	-15.43	-19.36	0.00	-1,491.87	0.00	1,491.87	2,854.27	1,427.14	3,764.45	1,859.12	4.96	-1.49	0.465
35.00	-14.33	-19.06	0.00	-1,424.11	0.00	1,424.11	2,805.46	1,402.73	3,636.05	1,795.71	6.11	-1.66	0.448
35.67	-14.10	-18.78	0.00	-1,411.40	0.00	1,411.40	2,253.07	1,126.54	2,980.51	1,471.96	6.34	-1.69	0.513
40.00	-13.25	-18.19	0.00	-1,330.01	0.00	1,330.01	2,223.49	1,111.74	2,878.55	1,421.61	7.97	-1.88	0.494
45.00	-12.31	-17.76	0.00	-1,239.05	0.00	1,239.05	2,188.38	1,094.19	2,761.77	1,363.93	10.07	-2.12	0.472
46.00	-12.10	-17.47	0.00	-1,221.29	0.00	1,221.29	2,181.23	1,090.62	2,738.53	1,352.46	10.52	-2.17	0.467
46.00	-12.10	-17.47	0.00	-1,221.29	0.00	1,221.29	2,181.23	1,090.62	2,738.53	1,352.46	10.52	-2.17	0.909
50.00	-11.55	-16.96	0.00	-1,151.42	0.00	1,151.42	2,152.23	1,076.12	2,646.00	1,306.76	12.42	-2.36	0.887
55.00	-10.85	-16.53	0.00	-1,066.60	0.00	1,066.60	2,115.05	1,057.52	2,531.33	1,250.13	15.14	-2.82	0.859
60.00	-10.17	-16.08	0.00	-983.97	0.00	983.97	2,076.82	1,038.41	2,417.88	1,194.10	18.35	-3.29	0.829
65.00	-9.51	-15.63	0.00	-903.56	0.00	903.56	2,037.56	1,018.78	2,305.75	1,138.72	22.03	-3.75	0.798
70.00	-8.89	-15.23	0.00	-825.40	0.00	825.40	1,985.28	992.64	2,181.88	1,077.55	26.20	-4.21	0.771
73.50	-8.24	-14.97	0.00	-772.08	0.00	772.08	1,473.98	736.99	1,624.63	802.34	29.40	-4.53	0.968
75.00	-8.04	-14.69	0.00	-749.63	0.00	749.63	1,466.30	733.15	1,601.82	791.08	30.84	-4.67	0.953
80.00	-7.50	-14.23	0.00	-676.18	0.00	676.18	1,440.02	720.01	1,526.17	753.72	36.01	-5.20	0.903
85.00	-6.97	-13.77	0.00	-605.03	0.00	605.03	1,412.70	706.35	1,451.16	716.67	41.73	-5.72	0.850
90.00	-6.47	-13.31	0.00	-536.18	0.00	536.18	1,384.33	692.17	1,376.90	680.00	47.99	-6.23	0.794
95.00	-5.99	-12.85	0.00	-469.64	0.00	469.64	1,354.93	677.47	1,303.49	643.74	54.77	-6.73	0.734
100.00	-5.53	-12.38	0.00	-405.41	0.00	405.41	1,324.49	662.24	1,231.03	607.96	62.05	-7.20	0.671
105.00	-5.10	-11.92	0.00	-343.49	0.00	343.49	1,293.01	646.50	1,159.62	572.69	69.81	-7.65	0.604
110.00	-4.68	-11.51	0.00	-283.86	0.00	283.86	1,247.15	623.58	1,077.84	532.31	78.03	-8.07	0.537
110.00	-4.68	-11.51	0.00	-283.86	0.00	283.86	856.51	428.26	744.61	367.73	78.03	-8.07	0.778
114.00	-3.62	-7.84	0.00	-237.83	0.00	237.83	841.90	420.95	709.95	350.62	84.90	-8.38	0.683
115.00	-3.56	-7.59	0.00	-230.00	0.00	230.00	838.15	419.07	701.32	346.35	86.66	-8.48	0.669
120.00	-3.31	-7.17	0.00	-192.03	0.00	192.03	818.74	409.37	658.39	325.15	95.76	-8.95	0.595
125.00	-3.06	-6.75	0.00	-156.20	0.00	156.20	798.29	399.15	615.93	304.18	105.32	-9.38	0.518
130.00	-2.84	-6.33	0.00	-122.47	0.00	122.47	776.81	388.40	574.03	283.49	115.31	-9.77	0.436
135.00	-2.63	-5.93	0.00	-90.79	0.00	90.79	754.28	377.14	532.79	263.13	125.67	-10.11	0.349
140.00	-2.44	-5.54	0.00	-61.13	0.00	61.13	730.85	365.43	492.42	243.19	136.36	-10.38	0.255
145.00	-2.25	-5.19	0.00	-33.44	0.00	33.44	695.89	347.95	446.18	220.35	147.28	-10.58	0.155
149.00	-0.02	-0.04	0.00	-0.04	0.00	0.04	667.92	333.96	410.83	202.89	156.14	-10.67	0.000
150.00	0.00	-0.03	0.00	0.00	0.00	0.00	660.93	330.46	402.22	198.64	158.37	-10.67	0.000

Site Number: 302498 Code: ANSI/TIA-222-G

Site Name: Plainfield CT 6, CT Engineering Number: OAA681936_C3_01 7/27/2016 4:46:41 PM

Customer: AT&T Mobility

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 28 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	-52.52	-4.76	0.00	-513.45	0.00	513.45	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.146
5.00	-50.75	-4.69	0.00	-489.65	0.00	489.65	3,114.35	1,557.18	4,645.51	2,294.24	0.03	-0.06	0.142
10.00	-48.77	-4.61	0.00	-466.22	0.00	466.22	3,070.50	1,535.25	4,480.01	2,212.51	0.12	-0.11	0.139
15.00	-46.78	-4.53	0.00	-443.17	0.00	443.17	3,025.61	1,512.80	4,315.88	2,131.45	0.27	-0.17	0.135
20.00	-44.81	-4.45	0.00	-420.52	0.00	420.52	2,979.67	1,489.84	4,153.23	2,051.12	0.48	-0.23	0.132
25.00	-42.86	-4.37	0.00	-398.27	0.00	398.27	2,932.70	1,466.35	3,992.16	1,971.58	0.75	-0.29	0.128
30.00	-40.92	-4.30	0.00	-376.44	0.00	376.44	2,875.19	1,437.60	3,820.16	1,886.63	1.08	-0.34	0.125
31.50	-40.34	-4.26	0.00	-370.00	0.00	370.00	2,854.27	1,427.14	3,764.45	1,859.12	1.19	-0.36	0.124
35.00	-38.52	-4.21	0.00	-355.09	0.00	355.09	2,805.46	1,402.73	3,636.05	1,795.71	1.47	-0.40	0.120
35.67	-38.18	-4.17	0.00	-352.28	0.00	352.28	2,253.07	1,126.54	2,980.51	1,471.96	1.53	-0.41	0.138
40.00	-36.62	-4.08	0.00	-334.21	0.00	334.21	2,223.49	1,111.74	2,878.55	1,421.61	1.92	-0.46	0.133
45.00	-34.85	-4.00	0.00	-313.80	0.00	313.80	2,188.38	1,094.19	2,761.77	1,363.93	2.44	-0.52	0.128
46.00	-34.49	-3.96	0.00	-309.80	0.00	309.80	2,181.23	1,090.62	2,738.53	1,352.46	2.55	-0.53	0.127
46.00	-34.49	-3.96	0.00	-309.80	0.00	309.80	2,181.23	1,090.62	2,738.53	1,352.46	2.55	-0.53	0.245
50.00	-33.41	-3.89	0.00	-293.96	0.00	293.96	2,152.23	1,076.12	2,646.00	1,306.76	3.01	-0.58	0.240
55.00	-32.13	-3.84	0.00	-274.53	0.00	274.53	2,115.05	1,057.52	2,531.33	1,250.13	3.69	-0.70	0.235
60.00	-30.93	-3.79	0.00	-255.31	0.00	255.31	2,076.82	1,038.41	2,417.88	1,194.10	4.48	-0.82	0.229
65.00	-29.76	-3.74	0.00	-236.34	0.00	236.34	2,037.56	1,018.78	2,305.75	1,138.72	5.40	-0.94	0.222
70.00	-28.62	-3.69	0.00	-217.63	0.00	217.63	1,985.28	992.64	2,181.88	1,077.55	6.45	-1.06	0.216
73.50	-27.51	-3.65	0.00	-204.71	0.00	204.71	1,473.98	736.99	1,624.63	802.34	7.26	-1.14	0.274
75.00	-27.20	-3.62	0.00	-199.23	0.00	199.23	1,466.30	733.15	1,601.82	791.08	7.62	-1.18	0.270
80.00	-26.19	-3.57	0.00	-181.11	0.00	181.11	1,440.02	720.01	1,526.17	753.72	8.94	-1.32	0.259
85.00	-25.20	-3.51	0.00	-163.26	0.00	163.26	1,412.70	706.35	1,451.16	716.67	10.40	-1.46	0.246
90.00	-24.23	-3.45	0.00	-145.71	0.00	145.71	1,384.33	692.17	1,376.90	680.00	12.00	-1.60	0.232
95.00	-23.29	-3.38	0.00	-128.47	0.00	128.47	1,354.93	677.47	1,303.49	643.74	13.75	-1.74	0.217
100.00	-22.37	-3.31	0.00	-111.56	0.00	111.56	1,324.49	662.24	1,231.03	607.96	15.64	-1.87	0.200
105.00	-21.47	-3.23	0.00	-95.02	0.00	95.02	1,293.01	646.50	1,159.62	572.69	17.66	-1.99	0.183
110.00	-20.59	-3.16	0.00	-78.86	0.00	78.86	1,247.15	623.58	1,077.84	532.31	19.81	-2.11	0.165
110.00	-20.59	-3.16	0.00	-78.86	0.00	78.86	856.51	428.26	744.61	367.73	19.81	-2.11	0.239
114.00	-13.36	-2.12	0.00	-66.24	0.00	66.24	841.90	420.95	709.95	350.62	21.61	-2.19	0.205
115.00	-13.22	-2.08	0.00	-64.12	0.00	64.12	838.15	419.07	701.32	346.35	22.07	-2.22	0.201
120.00	-12.54	-1.99	0.00	-53.72	0.00	53.72	818.74	409.37	658.39	325.15	24.47	-2.35	0.181
125.00	-11.88	-1.90	0.00	-43.75	0.00	43.75	798.29	399.15	615.93	304.18	26.99	-2.47	0.159
130.00	-11.24	-1.81	0.00	-34.23	0.00	34.23	776.81	388.40	574.03	283.49	29.64	-2.58	0.135
135.00	-10.62	-1.72	0.00	-25.17	0.00	25.17	754.28	377.14	532.79	263.13	32.40	-2.68	0.110
140.00	-10.02	-1.62	0.00	-16.57	0.00	16.57	730.85	365.43	492.42	243.19	35.24	-2.75	0.082
145.00	-9.44	-1.53	0.00	-8.46	0.00	8.46	695.89	347.95	446.18	220.35	38.15	-2.80	0.052
149.00	-0.09	-0.01	0.00	-0.01	0.00	0.01	667.92	333.96	410.83	202.89	40.51	-2.82	0.000
150.00	0.00	-0.01	0.00	0.00	0.00	0.00	660.93	330.46	402.22	198.64	41.10	-2.82	0.000

Site Number:	**302498**	**Code:**	**ANSI/TIA-222-G**
Site Name:	**Plainfield CT 6, CT**	**Engineering Number:**	**OAA681936_C3_01**
Customer:	**AT&T Mobility**		

7/27/2016 4:46:43 PM

Load Case: **1.0D + 1.0W** **Serviceability 60 mph** **27 Iterations**

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

Wind Importance 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	-25.09	-4.82	0.00	-449.41	0.00	449.41	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.123
5.00	-24.00	-4.69	0.00	-425.29	0.00	425.29	3,114.35	1,557.18	4,645.51	2,294.24	0.03	-0.05	0.119
10.00	-22.77	-4.56	0.00	-401.84	0.00	401.84	3,070.50	1,535.25	4,480.01	2,212.51	0.10	-0.10	0.115
15.00	-21.57	-4.43	0.00	-379.05	0.00	379.05	3,025.61	1,512.80	4,315.88	2,131.45	0.23	-0.15	0.112
20.00	-20.38	-4.29	0.00	-356.93	0.00	356.93	2,979.67	1,489.84	4,153.23	2,051.12	0.42	-0.20	0.108
25.00	-19.20	-4.16	0.00	-335.46	0.00	335.46	2,932.70	1,466.35	3,992.16	1,971.58	0.65	-0.25	0.104
30.00	-18.05	-4.07	0.00	-314.64	0.00	314.64	2,875.19	1,437.60	3,820.16	1,886.63	0.93	-0.29	0.100
31.50	-17.70	-4.01	0.00	-308.54	0.00	308.54	2,854.27	1,427.14	3,764.45	1,859.12	1.03	-0.31	0.099
35.00	-16.52	-3.94	0.00	-294.52	0.00	294.52	2,805.46	1,402.73	3,636.05	1,795.71	1.27	-0.34	0.096
35.67	-16.29	-3.88	0.00	-291.90	0.00	291.90	2,253.07	1,126.54	2,980.51	1,471.96	1.31	-0.35	0.110
40.00	-15.40	-3.75	0.00	-275.09	0.00	275.09	2,223.49	1,111.74	2,878.55	1,421.61	1.65	-0.39	0.106
45.00	-14.38	-3.65	0.00	-256.33	0.00	256.33	2,188.38	1,094.19	2,761.77	1,363.93	2.09	-0.44	0.101
46.00	-14.18	-3.59	0.00	-252.68	0.00	252.68	2,181.23	1,090.62	2,738.53	1,352.46	2.18	-0.45	0.100
46.00	-14.18	-3.59	0.00	-252.68	0.00	252.68	2,181.23	1,090.62	2,738.53	1,352.46	2.18	-0.45	0.193
50.00	-13.64	-3.48	0.00	-238.32	0.00	238.32	2,152.23	1,076.12	2,646.00	1,306.76	2.57	-0.49	0.189
55.00	-12.98	-3.39	0.00	-220.93	0.00	220.93	2,115.05	1,057.52	2,531.33	1,250.13	3.14	-0.58	0.183
60.00	-12.34	-3.31	0.00	-203.96	0.00	203.96	2,076.82	1,038.41	2,417.88	1,194.10	3.80	-0.68	0.177
65.00	-11.71	-3.22	0.00	-187.43	0.00	187.43	2,037.56	1,018.78	2,305.75	1,138.72	4.56	-0.78	0.170
70.00	-11.09	-3.14	0.00	-171.35	0.00	171.35	1,985.28	992.64	2,181.88	1,077.55	5.43	-0.87	0.165
73.50	-10.41	-3.08	0.00	-160.37	0.00	160.37	1,473.98	736.99	1,624.63	802.34	6.09	-0.94	0.207
75.00	-10.25	-3.03	0.00	-155.75	0.00	155.75	1,466.30	733.15	1,601.82	791.08	6.39	-0.97	0.204
80.00	-9.74	-2.94	0.00	-140.60	0.00	140.60	1,440.02	720.01	1,526.17	753.72	7.46	-1.08	0.193
85.00	-9.24	-2.85	0.00	-125.91	0.00	125.91	1,412.70	706.35	1,451.16	716.67	8.65	-1.19	0.182
90.00	-8.75	-2.76	0.00	-111.68	0.00	111.68	1,384.33	692.17	1,376.90	680.00	9.95	-1.29	0.171
95.00	-8.28	-2.66	0.00	-97.90	0.00	97.90	1,354.93	677.47	1,303.49	643.74	11.36	-1.40	0.158
100.00	-7.81	-2.57	0.00	-84.58	0.00	84.58	1,324.49	662.24	1,231.03	607.96	12.87	-1.49	0.145
105.00	-7.36	-2.48	0.00	-71.73	0.00	71.73	1,293.01	646.50	1,159.62	572.69	14.49	-1.59	0.131
110.00	-6.91	-2.39	0.00	-59.33	0.00	59.33	1,247.15	623.58	1,077.84	532.31	16.20	-1.68	0.117
110.00	-6.91	-2.39	0.00	-59.33	0.00	59.33	856.51	428.26	744.61	367.73	16.20	-1.68	0.169
114.00	-5.21	-1.63	0.00	-49.76	0.00	49.76	841.90	420.95	709.95	350.62	17.63	-1.74	0.148
115.00	-5.15	-1.58	0.00	-48.12	0.00	48.12	838.15	419.07	701.32	346.35	18.00	-1.76	0.145
120.00	-4.85	-1.50	0.00	-40.20	0.00	40.20	818.74	409.37	658.39	325.15	19.89	-1.86	0.130
125.00	-4.56	-1.41	0.00	-32.71	0.00	32.71	798.29	399.15	615.93	304.18	21.89	-1.95	0.113
130.00	-4.28	-1.33	0.00	-25.64	0.00	25.64	776.81	388.40	574.03	283.49	23.97	-2.03	0.096
135.00	-4.00	-1.25	0.00	-19.00	0.00	19.00	754.28	377.14	532.79	263.13	26.14	-2.10	0.078
140.00	-3.74	-1.16	0.00	-12.77	0.00	12.77	730.85	365.43	492.42	243.19	28.37	-2.16	0.058
145.00	-3.48	-1.09	0.00	-6.95	0.00	6.95	695.89	347.95	446.18	220.35	30.66	-2.20	0.037
149.00	-0.03	-0.01	0.00	-0.01	0.00	0.01	667.92	333.96	410.83	202.89	32.51	-2.22	0.000
150.00	0.00	-0.01	0.00	0.00	0.00	0.00	660.93	330.46	402.22	198.64	32.98	-2.22	0.000

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.24	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.26	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.03	
Upper Limit C_s	0.03	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	2.81	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	25.09	k
Seismic Base Shear (E):	0.98	k

Site Number:	**302498**	**Code: ANSI/TIA-222-G**	
Site Name:	**Plainfield CT 6, CT**	**Engineering Number: OAA681936_C3_01**	**7/27/2016 4:46:44 PM**
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):	**0.24**
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}):	**0.26**
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	**0.10**
Period Based on Rayleigh Method (sec):	**2.81**
Redundancy Factor (p):	**1.30**

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
36	149.50	31	1.877	1.914	1.116	0.475	13	26
35	147.00	201	1.815	1.608	1.004	0.421	73	170
34	142.50	258	1.706	1.144	0.823	0.332	74	219
33	137.50	266	1.588	0.742	0.654	0.244	56	226
32	132.50	274	1.475	0.441	0.513	0.167	40	233
31	127.50	282	1.366	0.222	0.397	0.100	24	239
30	122.50	290	1.261	0.069	0.302	0.043	11	246
29	117.50	298	1.160	-0.030	0.226	-0.004	-1	253
28	114.50	61	1.101	-0.069	0.188	-0.027	-1	51
27	112.00	290	1.054	-0.092	0.160	-0.044	-11	246
26	107.50	442	0.971	-0.116	0.117	-0.068	-26	375
25	102.50	453	0.883	-0.121	0.081	-0.085	-33	384
24	97.50	464	0.799	-0.112	0.053	-0.092	-37	393
23	92.50	474	0.719	-0.092	0.034	-0.088	-36	402
22	87.50	485	0.643	-0.068	0.020	-0.072	-30	412
21	82.50	496	0.572	-0.043	0.012	-0.046	-20	421
20	77.50	507	0.505	-0.018	0.007	-0.012	-5	430
19	74.25	154	0.463	-0.003	0.006	0.010	1	131
18	71.75	681	0.432	0.008	0.006	0.026	15	577
17	67.50	614	0.383	0.023	0.007	0.049	26	521
16	62.50	627	0.328	0.039	0.010	0.068	37	532
15	57.50	641	0.278	0.050	0.014	0.078	43	544
14	52.50	654	0.232	0.058	0.019	0.083	47	555
13	48.00	533	0.194	0.064	0.024	0.083	39	452
12	45.50	201	0.174	0.066	0.027	0.083	15	171
11	42.50	1,015	0.152	0.068	0.030	0.082	72	861
10	37.83	891	0.120	0.070	0.034	0.081	62	755
9	35.33	224	0.105	0.071	0.037	0.080	15	190
8	33.25	1,185	0.093	0.071	0.038	0.079	81	1,005
7	30.75	343	0.079	0.072	0.040	0.078	23	291
6	27.50	1,155	0.064	0.072	0.041	0.077	77	979
5	22.50	1,171	0.043	0.070	0.042	0.075	76	993
4	17.50	1,187	0.026	0.067	0.040	0.072	74	1,007
3	12.50	1,203	0.013	0.059	0.034	0.066	69	1,020

2	7.50	1,219	0.005	0.044	0.025	0.054	57	1,034
1	2.50	1,086	0.001	0.018	0.010	0.027	26	921
Powerwave Allgon LGP	149.00	33	1.865	1.850	1.093	0.464	13	28
Powerwave Allgon LGP	149.00	85	1.865	1.850	1.093	0.464	34	72
Raycap DC6-48-60-18-	149.00	20	1.865	1.850	1.093	0.464	8	17
Ericsson RRUS 12	149.00	150	1.865	1.850	1.093	0.464	60	127
Ericsson RRUS-11	149.00	165	1.865	1.850	1.093	0.464	66	140
Flat Side Arm	149.00	450	1.865	1.850	1.093	0.464	181	382
Powerwave Allgon 777	149.00	210	1.865	1.850	1.093	0.464	84	178
KMW AM-X-CD-17-65-00	149.00	119	1.865	1.850	1.093	0.464	48	101
Andrew SBNH-1D6565C	149.00	61	1.865	1.850	1.093	0.464	24	52
Round Platform w/ Ha	149.00	2,000	1.865	1.850	1.093	0.464	804	1,696
RFS FD9R6004/2C-3L	114.00	19	1.092	-0.074	0.182	-0.031	0	16
Alcatel-Lucent RRH2X	114.00	129	1.092	-0.074	0.182	-0.031	-3	109
Alcatel-Lucent RRH2X	114.00	165	1.092	-0.074	0.182	-0.031	-4	140
Amphenol Antel BXA-7	114.00	36	1.092	-0.074	0.182	-0.031	-1	31
RFS DB-T1-6Z-8AB-0Z	114.00	44	1.092	-0.074	0.182	-0.031	-1	37
Antel BXA-70063/6CF-	114.00	51	1.092	-0.074	0.182	-0.031	-1	43
Round T-Arms	114.00	750	1.092	-0.074	0.182	-0.031	-20	636
Commscope HBXX-	114.00	245	1.092	-0.074	0.182	-0.031	-6	208
		25,089	50.056	24.270	18.574	6.886	2,229	21,279

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)
36	149.50	31	1.877	1.914	1.116	0.475	13	26
35	147.00	201	1.815	1.608	1.004	0.421	73	170
34	142.50	258	1.706	1.144	0.823	0.332	74	219
33	137.50	266	1.588	0.742	0.654	0.244	56	226
32	132.50	274	1.475	0.441	0.513	0.167	40	233
31	127.50	282	1.366	0.222	0.397	0.100	24	239
30	122.50	290	1.261	0.069	0.302	0.043	11	246
29	117.50	298	1.160	-0.030	0.226	-0.004	-1	253
28	114.50	61	1.101	-0.069	0.188	-0.027	-1	51
27	112.00	290	1.054	-0.092	0.160	-0.044	-11	246
26	107.50	442	0.971	-0.116	0.117	-0.068	-26	375
25	102.50	453	0.883	-0.121	0.081	-0.085	-33	384
24	97.50	464	0.799	-0.112	0.053	-0.092	-37	393
23	92.50	474	0.719	-0.092	0.034	-0.088	-36	402
22	87.50	485	0.643	-0.068	0.020	-0.072	-30	412
21	82.50	496	0.572	-0.043	0.012	-0.046	-20	421
20	77.50	507	0.505	-0.018	0.007	-0.012	-5	430
19	74.25	154	0.463	-0.003	0.006	0.010	1	131
18	71.75	681	0.432	0.008	0.006	0.026	15	577
17	67.50	614	0.383	0.023	0.007	0.049	26	521
16	62.50	627	0.328	0.039	0.010	0.068	37	532
15	57.50	641	0.278	0.050	0.014	0.078	43	544
14	52.50	654	0.232	0.058	0.019	0.083	47	555
13	48.00	533	0.194	0.064	0.024	0.083	39	452
12	45.50	201	0.174	0.066	0.027	0.083	15	171
11	42.50	1,015	0.152	0.068	0.030	0.082	72	861
10	37.83	891	0.120	0.070	0.034	0.081	62	755
9	35.33	224	0.105	0.071	0.037	0.080	15	190
8	33.25	1,185	0.093	0.071	0.038	0.079	81	1,005
7	30.75	343	0.079	0.072	0.040	0.078	23	291
6	27.50	1,155	0.064	0.072	0.041	0.077	77	979
5	22.50	1,171	0.043	0.070	0.042	0.075	76	993
4	17.50	1,187	0.026	0.067	0.040	0.072	74	1,007
3	12.50	1,203	0.013	0.059	0.034	0.066	69	1,020

2	7.50	1,219	0.005	0.044	0.025	0.054	57	1,034
1	2.50	1,086	0.001	0.018	0.010	0.027	26	921
Powerwave Allgon LGP	149.00	33	1.865	1.850	1.093	0.464	13	28
Powerwave Allgon LGP	149.00	85	1.865	1.850	1.093	0.464	34	72
Raycap DC6-48-60-18-	149.00	20	1.865	1.850	1.093	0.464	8	17
Ericsson RRUS 12	149.00	150	1.865	1.850	1.093	0.464	60	127
Ericsson RRUS-11	149.00	165	1.865	1.850	1.093	0.464	66	140
Flat Side Arm	149.00	450	1.865	1.850	1.093	0.464	181	382
Powerwave Allgon 777	149.00	210	1.865	1.850	1.093	0.464	84	178
KMW AM-X-CD-17-65-00	149.00	119	1.865	1.850	1.093	0.464	48	101
Andrew SBNH-1D6565C	149.00	61	1.865	1.850	1.093	0.464	24	52
Round Platform w/ Ha	149.00	2,000	1.865	1.850	1.093	0.464	804	1,696
RFS FD9R6004/2C-3L	114.00	19	1.092	-0.074	0.182	-0.031	0	16
Alcatel-Lucent RRH2X	114.00	129	1.092	-0.074	0.182	-0.031	-3	109
Alcatel-Lucent RRH2X	114.00	165	1.092	-0.074	0.182	-0.031	-4	140
Amphenol Antel BXA-7	114.00	36	1.092	-0.074	0.182	-0.031	-1	31
RFS DB-T1-6Z-8AB-0Z	114.00	44	1.092	-0.074	0.182	-0.031	-1	37
Antel BXA-70063/6CF-	114.00	51	1.092	-0.074	0.182	-0.031	-1	43
Round T-Arms	114.00	750	1.092	-0.074	0.182	-0.031	-20	636
Commscope HBXX-	114.00	245	1.092	-0.074	0.182	-0.031	-6	208
		25,089	50.056	24.270	18.574	6.886	2,229	21,279

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
36	149.50	31	1.877	1.914	1.116	0.475	13	26
35	147.00	201	1.815	1.608	1.004	0.421	73	170
34	142.50	258	1.706	1.144	0.823	0.332	74	219
33	137.50	266	1.588	0.742	0.654	0.244	56	226
32	132.50	274	1.475	0.441	0.513	0.167	40	233
31	127.50	282	1.366	0.222	0.397	0.100	24	239
30	122.50	290	1.261	0.069	0.302	0.043	11	246
29	117.50	298	1.160	-0.030	0.226	-0.004	-1	253
28	114.50	61	1.101	-0.069	0.188	-0.027	-1	51
27	112.00	290	1.054	-0.092	0.160	-0.044	-11	246
26	107.50	442	0.971	-0.116	0.117	-0.068	-26	375
25	102.50	453	0.883	-0.121	0.081	-0.085	-33	384
24	97.50	464	0.799	-0.112	0.053	-0.092	-37	393
23	92.50	474	0.719	-0.092	0.034	-0.088	-36	402
22	87.50	485	0.643	-0.068	0.020	-0.072	-30	412
21	82.50	496	0.572	-0.043	0.012	-0.046	-20	421
20	77.50	507	0.505	-0.018	0.007	-0.012	-5	430
19	74.25	154	0.463	-0.003	0.006	0.010	1	131
18	71.75	681	0.432	0.008	0.006	0.026	15	577
17	67.50	614	0.383	0.023	0.007	0.049	26	521
16	62.50	627	0.328	0.039	0.010	0.068	37	532
15	57.50	641	0.278	0.050	0.014	0.078	43	544
14	52.50	654	0.232	0.058	0.019	0.083	47	555
13	48.00	533	0.194	0.064	0.024	0.083	39	452
12	45.50	201	0.174	0.066	0.027	0.083	15	171
11	42.50	1,015	0.152	0.068	0.030	0.082	72	861
10	37.83	891	0.120	0.070	0.034	0.081	62	755
9	35.33	224	0.105	0.071	0.037	0.080	15	190
8	33.25	1,185	0.093	0.071	0.038	0.079	81	1,005
7	30.75	343	0.079	0.072	0.040	0.078	23	291
6	27.50	1,155	0.064	0.072	0.041	0.077	77	979
5	22.50	1,171	0.043	0.070	0.042	0.075	76	993
4	17.50	1,187	0.026	0.067	0.040	0.072	74	1,007
3	12.50	1,203	0.013	0.059	0.034	0.066	69	1,020

2	7.50	1,219	0.005	0.044	0.025	0.054	57	1,034
1	2.50	1,086	0.001	0.018	0.010	0.027	26	921
Powerwave Allgon LGP	149.00	33	1.865	1.850	1.093	0.464	13	28
Powerwave Allgon LGP	149.00	85	1.865	1.850	1.093	0.464	34	72
Raycap DC6-48-60-18-	149.00	20	1.865	1.850	1.093	0.464	8	17
Ericsson RRUS 12	149.00	150	1.865	1.850	1.093	0.464	60	127
Ericsson RRUS-11	149.00	165	1.865	1.850	1.093	0.464	66	140
Flat Side Arm	149.00	450	1.865	1.850	1.093	0.464	181	382
Powerwave Allgon 777	149.00	210	1.865	1.850	1.093	0.464	84	178
KMW AM-X-CD-17-65-00	149.00	119	1.865	1.850	1.093	0.464	48	101
Andrew SBNH-1D6565C	149.00	61	1.865	1.850	1.093	0.464	24	52
Round Platform w/ Ha	149.00	2,000	1.865	1.850	1.093	0.464	804	1,696
RFS FD9R6004/2C-3L	114.00	19	1.092	-0.074	0.182	-0.031	0	16
Alcatel-Lucent RRH2X	114.00	129	1.092	-0.074	0.182	-0.031	-3	109
Alcatel-Lucent RRH2X	114.00	165	1.092	-0.074	0.182	-0.031	-4	140
Amphenol Antel BXA-7	114.00	36	1.092	-0.074	0.182	-0.031	-1	31
RFS DB-T1-6Z-8AB-0Z	114.00	44	1.092	-0.074	0.182	-0.031	-1	37
Antel BXA-70063/6CF-	114.00	51	1.092	-0.074	0.182	-0.031	-1	43
Round T-Arms	114.00	750	1.092	-0.074	0.182	-0.031	-20	636
Commscope HBXX-	114.00	245	1.092	-0.074	0.182	-0.031	-6	208
		25,089	50.056	24.270	18.574	6.886	2,229	21,279

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)
36	149.50	31	1.877	1.914	1.116	0.475	13	26
35	147.00	201	1.815	1.608	1.004	0.421	73	170
34	142.50	258	1.706	1.144	0.823	0.332	74	219
33	137.50	266	1.588	0.742	0.654	0.244	56	226
32	132.50	274	1.475	0.441	0.513	0.167	40	233
31	127.50	282	1.366	0.222	0.397	0.100	24	239
30	122.50	290	1.261	0.069	0.302	0.043	11	246
29	117.50	298	1.160	-0.030	0.226	-0.004	-1	253
28	114.50	61	1.101	-0.069	0.188	-0.027	-1	51
27	112.00	290	1.054	-0.092	0.160	-0.044	-11	246
26	107.50	442	0.971	-0.116	0.117	-0.068	-26	375
25	102.50	453	0.883	-0.121	0.081	-0.085	-33	384
24	97.50	464	0.799	-0.112	0.053	-0.092	-37	393
23	92.50	474	0.719	-0.092	0.034	-0.088	-36	402
22	87.50	485	0.643	-0.068	0.020	-0.072	-30	412
21	82.50	496	0.572	-0.043	0.012	-0.046	-20	421
20	77.50	507	0.505	-0.018	0.007	-0.012	-5	430
19	74.25	154	0.463	-0.003	0.006	0.010	1	131
18	71.75	681	0.432	0.008	0.006	0.026	15	577
17	67.50	614	0.383	0.023	0.007	0.049	26	521
16	62.50	627	0.328	0.039	0.010	0.068	37	532
15	57.50	641	0.278	0.050	0.014	0.078	43	544
14	52.50	654	0.232	0.058	0.019	0.083	47	555
13	48.00	533	0.194	0.064	0.024	0.083	39	452
12	45.50	201	0.174	0.066	0.027	0.083	15	171
11	42.50	1,015	0.152	0.068	0.030	0.082	72	861
10	37.83	891	0.120	0.070	0.034	0.081	62	755
9	35.33	224	0.105	0.071	0.037	0.080	15	190
8	33.25	1,185	0.093	0.071	0.038	0.079	81	1,005
7	30.75	343	0.079	0.072	0.040	0.078	23	291
6	27.50	1,155	0.064	0.072	0.041	0.077	77	979
5	22.50	1,171	0.043	0.070	0.042	0.075	76	993
4	17.50	1,187	0.026	0.067	0.040	0.072	74	1,007
3	12.50	1,203	0.013	0.059	0.034	0.066	69	1,020

2	7.50	1,219	0.005	0.044	0.025	0.054	57	1,034
1	2.50	1,086	0.001	0.018	0.010	0.027	26	921
Powerwave Allgon LGP	149.00	33	1.865	1.850	1.093	0.464	13	28
Powerwave Allgon LGP	149.00	85	1.865	1.850	1.093	0.464	34	72
Raycap DC6-48-60-18-	149.00	20	1.865	1.850	1.093	0.464	8	17
Ericsson RRUS 12	149.00	150	1.865	1.850	1.093	0.464	60	127
Ericsson RRUS-11	149.00	165	1.865	1.850	1.093	0.464	66	140
Flat Side Arm	149.00	450	1.865	1.850	1.093	0.464	181	382
Powerwave Allgon 777	149.00	210	1.865	1.850	1.093	0.464	84	178
KMW AM-X-CD-17-65-00	149.00	119	1.865	1.850	1.093	0.464	48	101
Andrew SBNH-1D6565C	149.00	61	1.865	1.850	1.093	0.464	24	52
Round Platform w/ Ha	149.00	2,000	1.865	1.850	1.093	0.464	804	1,696
RFS FD9R6004/2C-3L	114.00	19	1.092	-0.074	0.182	-0.031	0	16
Alcatel-Lucent RRH2X	114.00	129	1.092	-0.074	0.182	-0.031	-3	109
Alcatel-Lucent RRH2X	114.00	165	1.092	-0.074	0.182	-0.031	-4	140
Amphenol Antel BXA-7	114.00	36	1.092	-0.074	0.182	-0.031	-1	31
RFS DB-T1-6Z-8AB-0Z	114.00	44	1.092	-0.074	0.182	-0.031	-1	37
Antel BXA-70063/6CF-	114.00	51	1.092	-0.074	0.182	-0.031	-1	43
Round T-Arms	114.00	750	1.092	-0.074	0.182	-0.031	-20	636
Commscope HBXX-	114.00	245	1.092	-0.074	0.182	-0.031	-6	208
		25,089	50.056	24.270	18.574	6.886	2,229	21,279

Analysis Summary

Load Case	Reactions Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage Elev (ft)	Interaction Ratio
1.2D + 1.6W	23.14	0.00	30.06	0.00	0.00	2203.48	73.50	1.00
0.9D + 1.6W	23.08	0.00	22.53	0.00	0.00	2168.29	73.50	0.97
1.2D + 1.0Di + 1.0Wi	4.76	0.00	52.52	0.00	0.00	513.45	73.50	0.27
(1.2 + 0.2Sds) * DL + E ELFM	0.98	0.00	30.05	0.00	0.00	125.14	73.50	0.08
(1.2 + 0.2Sds) * DL + E EMAM	2.21	0.00	30.05	0.00	0.00	258.26	110.00	0.19
(0.9 - 0.2Sds) * DL + E ELFM	0.98	0.00	20.36	0.00	0.00	122.38	73.50	0.07
(0.9 - 0.2Sds) * DL + E EMAM	2.21	0.00	20.36	0.00	0.00	252.15	110.00	0.18
1.0D + 1.0W	4.82	0.00	25.09	0.00	0.00	449.41	73.50	0.21

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Upper Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Lower Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Max Member Pu (kip)	phiPn (kip)	Ratio
0.00	46.0	(4) SOL-#20 All Thre	231.2	6.9	16.8	194.3	12.0	17	20	0.0	12.0	0	0	229.6	330.5	0.695

Code Rev.	***G***	**Date**	7/27/2016
		Engineer	I. Dodson
		Site #	302498
Moment	2203.5 k-ft	**Carrier**	AT&T Mobility
Axial	30.1 k		

Base/Flange Plate	Plate Type	***Baseplate***	
	Pole Diameter	37.38	in
	Pole Thickness	0.375	in
	Plate Length	44	in
	Plate Thickness	2.5	in
	Plate Fy	60	ksi
	Weld Length	0.3125	in
	ϕ_s Resistance	1382.37	k-in
	Applied	621.82	k-in
Stiffeners	#	***0***	

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	184.51	k
Reinforcement	#	***4***	
●	DYW. Circle	44.255	in
	Offset Angle	0	°
	Type	#20	
	Diameter	2.5	in
	Fu	100	ksi
	ϕ_s Resistance	392.70	k
	Applied	165.41	k
Extra Bolts O	#	***0***	

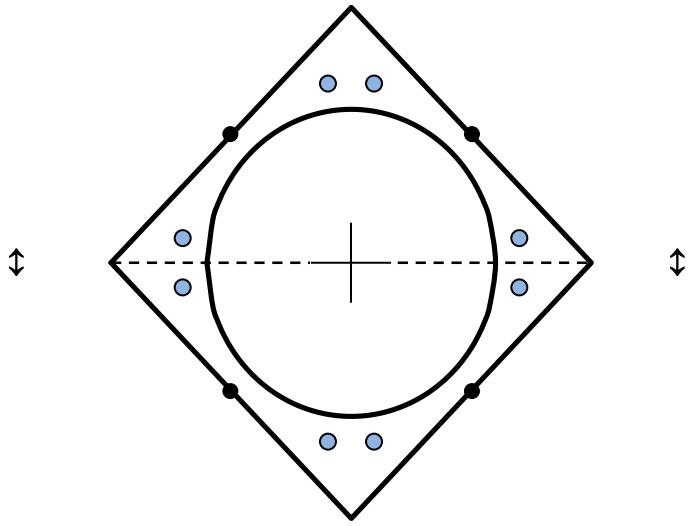


Plate Stress Ratio:
0.45 (Pass)

Bolt Stress Ratio:
0.71 (Pass)

Reinforcement Stress Ratio:
0.42 (Pass)

Base/Flange Plate	Plate Type	***Flange***	***@ 110.0 ft***
	Pole Diameter	21.27	in
	Pole Thickness	0.1875	in
	Plate Diameter	28.5	in
	Plate Thickness	1	in
	Plate Fy	60	ksi
	Weld Length	0.25	in
	ϕ_s Resistance	75.17	k-in
	Applied	63.66	k-in
Stiffeners	#	***0***	

Bolts	#	***12***	
	Bolt Circle	25.75	in
	(R)adial / (S)quare	R	
	Diameter	1	in
	Hole Diameter	1.125	in
	Type	A325	
	Fy	92	ksi
	Fu	120	ksi
	ϕ_s Resistance	54.52	k
	Applied	44.60	k
Reinforcement ●	#	***0***	
Extra Bolts O	#	***0***	

Code Rev. ***G***

Date	7/27/2016
Engineer	I. Dodson
Site #	302498
Carrier	AT&T Mobility

Moment 293.6 k-ft
Axial 11.8 k

Required Flange Thickness:
0.92 in OK

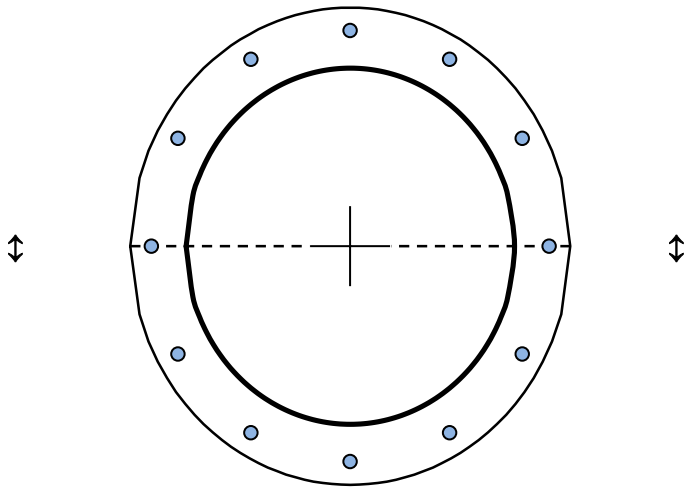
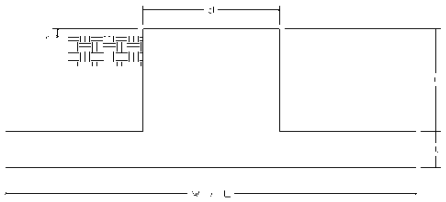


Plate Stress Ratio:
0.85 (Pass)

Bolt Stress Ratio:
0.82 (Pass)

Site Name:	Plainfield CT 6, CT
Site Number:	302498
Engineering Number:	OAA681936_C3_01
Engineer:	I. Dodson
Date:	07/27/16
Tower Type:	MP

Program Last Updated: *5/13/2014*



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

Design / Analysis / Mapping:	Analysis				
Compression/Leg:	30.1	k	Concrete Strength (f'_c):	3000	psi
Uplift/Leg:	0.0	k	Pad Tension Steel Depth:	32.00	in
Total Shear:	23.1	k	ϕ_{Shear}:	0.75	
Moment:	2203.5	k-ft	$\phi_{Flexure\ /\ Tension}$:	0.90	
Tower + Appurtenance Weight:	25.1	k	$\phi_{Compression:}$	0.65	
Depth to Base of Foundation (l + t - h):	8.00	ft	β:	0.85	
Diameter of Pier (d):	6.00	ft	Bottom Pad Rebar Size #:	10	
Height of Pier above Ground (h):	0.50		# of Bottom Pad Rebar:	36	
Width of Pad (W):	18.00	ft	Pad Bottom Steel Area:	45.72	in^2
Length of Pad (L):	18.00	ft	Pad Steel F_y:	60000	psi
Thickness of Pad (t):	3.00	ft	Top Pad Rebar Size #:	5	
Tower Leg Center to Center:	0.00	ft	# of Top Pad Rebar:	36	
Number of Tower Legs:	1.0	(1 if MP or GT)	Pad Top Steel Area:	11.16	in^2
Tower Center from Mat Center:	0.00	ft	Pier Rebar Size #:	11	
Depth Below Ground Surface to Water Table:	3.50	ft	Pier Steel Area (Single Bar):	1.56	in^2
Unit Weight of Concrete:	150.0	pcf	# of Pier Rebar:	52	
Unit Weight of Soil Above Water Table:	135.0	pcf	Pier Steel F_y:	60000	psi
Unit Weight of Water:	62.4	pcf	Pier Cage Diameter:	64.0	in
Unit Weight of Soil Below Water Table:	75.0	pcf	Rebar Strain Limit:	0.008	
Friction Angle of Uplift:	30.0	Degrees	Steel Elastic Modulus:	29000	ksi
Ultimate Coefficient of Shear Friction:	0.35		Tie Rebar Size #:	4	
Ultimate Compressive Bearing Pressure:	15000.0	psf	Tie Steel Area (Single Bar):	0.20	in^2
Ultimate Passive Pressure on Pad Face:	1000.0	psf	Tie Spacing:	12	in
$\phi_{Soil\ and\ Concrete\ Weight}$:	0.9		Tie Steel F_y:	60000	psi
ϕ_{Soil}:	0.75				

Overturning Moment Usage

Design OTM:	2400.2	k-ft
OTM Resistance:	2793.1	k-ft
Design OTM / OTM Resistance:	0.86	Result: OK

Soil Bearing Pressure Usage

Net Bearing Pressure:	4617	psf
Factored Nominal Bearing Pressure:	11250	psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.41	Result: OK
Load Direction Controling Design Bearing Pressure:	Diagonal to Pad Edge	

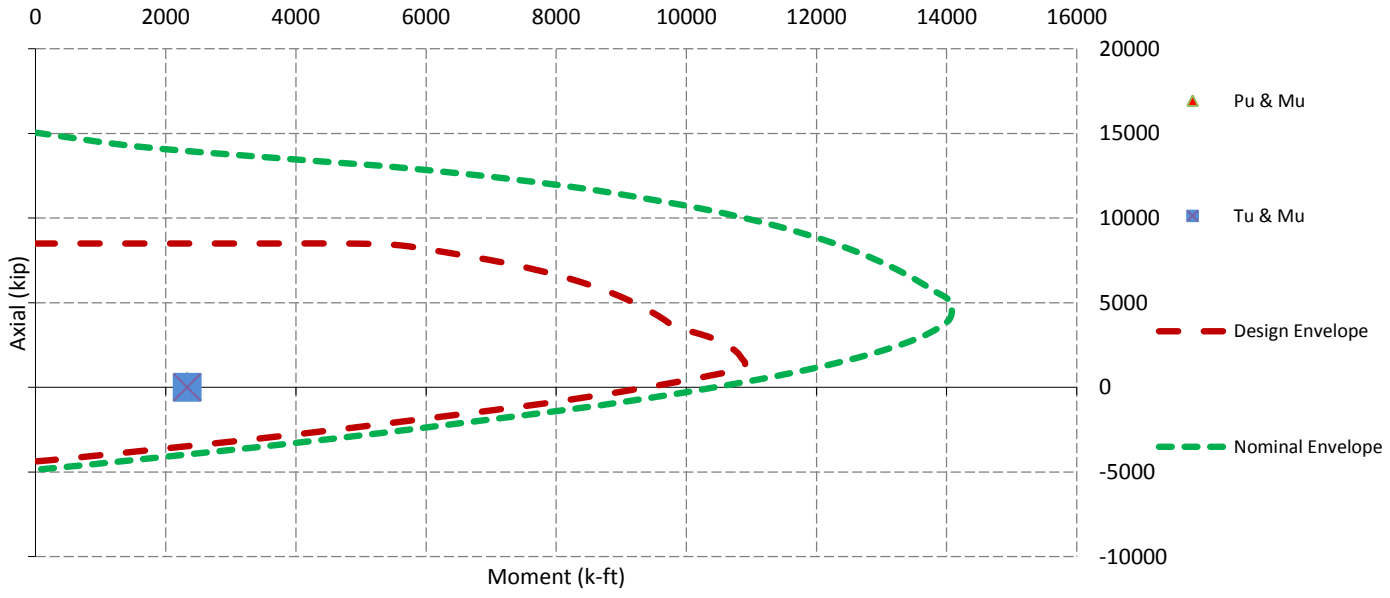
Sliding Factor of Safety

Total Factored Sliding Resistance:	115.1	k
Sliding Design / Sliding Resistance:	0.20	Result: OK

One Way Shear, Flexual Capacity, and Punching Shear

Factored One Way Shear (V_u):	141.7	k
One Way Shear Capacity (ϕV_c):	445.5	k - ACI11.3.1.1
V_u / ϕV_c:	0.32	Result: OK
Load Direction Controling Shear Capacity:	Diagonal to Pad Edge	
Lower Steel Pad Factored Moment (M_u):	854.0	k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	6449.8	k-ft - ACI10.3
M_u / ϕM_n:	0.13	Result: OK
Load Direction Controling Flexural Capacity:	Diagonal to Pad Edge	
Upper Steel Pad Factored Moment (M_u):	439.5	k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	1581.1	k-ft
M_u / ϕM_n:	0.28	Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0066	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0016	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	6	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	6	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear (V_u):	0.0	k
Nominal Punching Shear Capacity ($\phi_c V_n$):	1718.0	k - ACI11.12.2.1
V_u / ϕV_c:	0.00	Result: OK
Factored Moment in Pier (M_u):	2330.8	k-ft
Pier Moment Capacity (ϕM_n):	11423.2	k-ft
M_u / ϕM_n:	0.20	Result: OK
Factored Shear in Pier (V_u):	23.1	k
Pier Shear Capacity (ϕV_n):	335.7	k
V_u / ϕV_c:	0.07	Result: OK
Pier Shear Reinforcement Ratio:	0.0005	No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier (T_u):	0.0	k
Pier Tension Capacity (ϕT_n):	4380.5	k
T_u / ϕT_n:	0.00	Result: OK
Factored Compression in Pier (P_u):	30.1	k
Pier Compression Capacity (ϕP_n):	5291.2	k - ACI10.3.6.2
P_u / ϕP_n:	0.01	Result: OK
Pier Compression Reinforcement Ratio:	0.020	OK - Reinforcement Ratio Met - ACI10.9.1 & 10.8.4
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.20	Result: OK

Nominal and Design Moment Capacity and Factored Design Loads



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	10.3751	1	0			10.3751
1	AT&T MOB	1900	16.78809	1	0			16.78809
2	AT&T MOB	850	7.979269	1	0			7.979269
3	AT&T MOB	737	62.47412	1	0			62.47412
3	AT&T MOB	1900	68.17105	1	0			68.17105
4	AT&T MOB	850	16.44378	1	0			16.44378
4	AT&T MOB	1900	16.78809	1	0			16.78809
5	AT&T MOB	850	8.071797	1	0			8.071797
6	AT&T MOB	737	50.46615	1	0			50.46615
6	AT&T MOB	1900	73.79042	1	0			73.79042
7	AT&T MOB	850	20.70146	1	0			20.70146
7	AT&T MOB	1900	16.78809	1	0			16.78809
8	AT&T MOB	850	8.071797	1	0			8.071797
9	AT&T MOB	737	50.46615	1	0			50.46615
9	AT&T MOB	1900	73.79042	1	0			73.79042

StartSymbolData

Calc Power	Mfg	Model	(ft) X	(ft) Y	(ft) Z	Type	(ft) Aper	dBd Gain
	Powerwav	7770	25.03	39.82	151.7085	Panel	4.583	11.51
	Powerwav	7770	25.03	39.82	151.7085	Panel	4.583	13.41
	Powerwav	7770	17.73	35.42	151.7085	Panel	4.583	11.51
	Andrew	SBNH-1D65	14.53	33.52	149.9835	Panel	8.033	13.733
	Andrew	SBNH-1D65	14.53	33.52	149.9835	Panel	8.033	15.504
	Powerwav	7770	12.78	34.49	151.7085	Panel	4.583	11.51
	Powerwav	7770	12.78	34.49	151.7085	Panel	4.583	13.41
	Powerwav	7770	12.68	42.49	151.7085	Panel	4.583	11.51
	KMW	AM-X-CD-1	12.68	46.59	150	Panel	8	14.66
	KMW	AM-X-CD-1	12.68	46.59	150	Panel	8	15.16
	Powerwav	7770	14.34	47.64	151.7085	Panel	4.583	11.51
	Powerwav	7770	14.34	47.64	151.7085	Panel	4.583	13.41
	Powerwav	7770	21.54	43.44	151.7085	Panel	4.583	11.51
	KMW	AM-X-CD-1	24.84	41.54	150	Panel	8	14.66
	KMW	AM-X-CD-1	24.84	41.54	150	Panel	8	15.16

BWdth Pt Dir	Uptime Profile	ON flag
82;143	100%	ON•
86;143	100%	ON•
82;143	100%	ON•
71;143	100%	ON•
57;143	100%	ON•
82;263	100%	ON•
86;263	100%	ON•
82;263	100%	ON•
68;263	100%	ON•
68;263	100%	ON•
82;23	100%	ON•
86;23	100%	ON•
82;23	100%	ON•
68;23	100%	ON•
68;23	100%	ON•