



May 30, 2017

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

Re: Notice of Exempt Modification – Antenna Swap
Property Address: 168 Cantoona Ln. Stamford, CT 06902
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 235-feet on an existing 300 – self-support lattice tower, owned by American Tower and located at 168 Cantoona Ln., Stamford, CT. 06092. AT&T now intends to REPLACE (3) EXISTING ANTENNAS, (1) PER SECTOR with (3) SBNHH-1D65A ON POSITION ONE (1) PER SECTOR AND (3) RRUS-32 B2 TO REPLACE (3) EXISTING RRUS-12, (1) PER SECTOR.

This facility approved the Application for Variance/ Special Exception # 109-88 by the City of Stamford Zoning Board of Appeals on October 26, 1988 and recorded with the Town Clerk on December 1, 1988 (Vol 3355 page 350) for a certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of telecommunications antennas, associated equipment, and building to provide Domestic Public Cellular radio Telecommunication service in the Connecticut- New England area. This approval included the following original conditions, including the total facility height or mounting restrictions. This modification complies with the aforementioned conditions.

1. No additional equipment can be installed in the existing building as it is filled to capacity.
2. The improvement of local cellular telephone communications through the use of the existing tower cannot be accomplished without the addition of the new building in which to house the required equipment.
3. The existing building and tower are set back from the residential street line, and are buffered from the multi-family housing to the west by heavy tree growth.
4. The new building is smaller in both size and height and would be behind the existing building and thus not visible from Catoona Lane.

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



The following is a list of subsequent decisions:

EM-AT&T-135-990721 - AT&T Wireless PCS notice of intent to modify an existing telecommunications facility located at 168 Catoonah Lane in **Stamford**.

EM-CING-135-135-135-141-142-070815 - New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 1590 Newfield Avenue, **Stamford**; 168 Catoonah Lane, **Stamford**; 70-78 Guinea Road, **Stamford**; 61 Lowell Davis Road, Thompson; and 497 Old Post Road, Tolland, Connecticut.

EM-CING-135-080729 – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 168 Catoonah Lane, **Stamford**, Connecticut.

EM-CING-135-081031- New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 168 Catoonah Lane, **Stamford**, Connecticut.

EM-CING-135-110517 – New Cingular Wireless notice of intent to modify an existing telecommunications facility located at 888 Washington Boulevard (168 Catoonah Lane), **Stamford**, Connecticut.

EM-CING-135-140512 – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 168 Catoonah Lane, Stamford, Connecticut. Decision. Completion Letter.

EM-AT&T-135-160223 - AT&T Mobility, LLC notice of intent to modify an existing telecommunications facility located at 168 Catoonah Lane, Stamford, Connecticut. Decision.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to David Martin, Mayor, and Vineeta Mathur, Zoning Officer, City of Stamford 888 Washington Boulevard, Stamford, CT 06901. A copy of this letter is also being sent to American Tower Corporation-Tower Owner- at 116 Huntington Ave., 11th floor, Boston, MA 02116.



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 235-foot level of the 300-lattice tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require an extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

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

Sincerely,

David Barbagallo

Enclosures
CC w/enclosures:

| David Martin, Mayor, City of Stamford
Vineeta Mathur, Zoning Officer City of Stamford
Owner - American Tower Corporation

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

MAYOR
THOM SERRANI



ZONING BOARD OF APPEALS
977-4160

CITY OF STAMFORD, CONNECTICUT

STAMFORD GOVERNMENT CENTER
888 WASHINGTON BOULEVARD
P.O. BOX 10152
STAMFORD, CT 06904-2152

November 30, 1988

RE: Application for Variance/Special Exception

Dear Applicant/Agent:

Attached is a copy of the Zoning Board of Appeals Certificate of Decision on your application.

This Certificate of Decision will be filed with the Town Clerk of the City of Stamford and advertised in the legal notices of the Advocate tomorrow, December 1, 1988.

Very truly yours,

Georgia A. Bacon
Administrative Assistant
and Clerk of the Board

Attach.

283

I, LEONARD DiPRETA, zoning enforcement officer for the City of Stamford,
in compliance with Special Act No. 379 of the 1951 General Assembly, hereby certify that on
October 26, 1988 a hearing was held by the Zoning Appeals Board on the application of:

SNET CELLULAR, INC.
(So. New England Telephone Company)

Appl. #109-88

for a variance of Section 10-A (Non-Conforming Uses) to permit the addition of a one-story (10 ft. high) 21' x 29' concrete equipment building behind existing building and tower which will house radio telephone equipment for cellular mobile telephone service. (Will be associated with antennas to be mounted on the tower).

Said property is located on the north side of Catoona Lane, in both the RM-1 and R-5 zones, and is described as follows:

All that certain parcel of land in Stamford (Fairfield County) Connecticut lying northerly of Catoona Lane, a public way, and more particularly bounded and described as follows:

Beginning at a concrete monument on the northerly sideline of Catoona Lane, said monument marking the southwesterly corner of land of Serafino Stoni and the southeasterly corner of the parcel described herein; thence S 82° 21' 00" W along the northerly sideline of Catoona Lane a distance of 100 feet to a concrete monument; thence N 7° 49' 40" W along land of owners unknown a distance of 125.83 feet to an iron pipe, thence N 81° 20' 15" E a distance of 50.01 feet to a concrete monument; thence N 7° 49' 30" W a distance of 363.95 feet to a concrete monument; thence N 82° 07' 00" E a distance of 402.57 feet to a concrete monument, the last three courses being along land of the City of Stamford; thence S 7° 53' 00" E a distance of 362.07 feet to a concrete monument; thence S 78° 43' 40" W a distance of 6.42 feet to a point; thence S 82° 37' 25" W a distance of 115.86 feet to a point; thence S 81° 12' 10" W a distance of 80.65 feet to a concrete monument, the last four courses being along land of the grantor herein; thence S 81° 12' 10" W a distance of 19.36 feet to a point; thence S 82° 00' 10" W a distance of 130.71 feet to a concrete monument thence S 7° 49' 40" E a distance of 127.59 feet to the point of beginning and containing 3.645 acres, the last three courses being along land of said Stoni.

The parcel described above is a portion of land described in Book 527 at Page 533, a deed from Sir Douglas Alexander dated October 13, 1943 and described in Book 591 at Page 100, a deed from H.A. Bostron dated January 28, 1947.

and that the land affected is owned by and located on the following streets:

NAME	LOCATION
American Telephone & Telegraph	North side of Catoona Lane

and that the following is a statement of its findings and approval or rejection.

November 16, 1988

To deny this variance would deny the applicant reasonable use of the property.

Therefore, the Board grants a variance of Section 10-A (Non-Conforming Uses) to permit the addition of a one-story (10 ft. high) 21' x 29' concrete equipment building behind existing building and tower which will house radio telephone equipment for cellular mobile telephone service.

The applicant is allowed one year from the effective date of this decision in which to obtain a building permit.

Dated at Stamford, Connecticut, this 1st day of December, 1988.

Raymond D. Sanborne

Raymond D. Sanborne
Chairman, Zoning Board of Appeals

Leonard DiPreta

Leonard DiPreta
Zoning Enforcing Officer of the City of Stamford

The land hereby affected lies in block 283

THE LAND AFFECTED HEREBY LIES IN BLOCK 283
OF THE STAMFORD BLOCK MAP, RECEIVED FOR RECORD
AT STAMFORD ON 12-1-88 AT 9:52A
ATTEST: LOIS PONTBRIANT, TOWN AND CITY CLERK

PUBLIC HEARING: October 26, 1988

BOARD MEETING: November 16, 1988

APPLICANT:

109-88

SNET CELLULAR, INC.

(So. New England Telephone Company)

North side of Catoona Lane

DECISION:

November 16, 1988

To deny this variance would deny the applicant reasonable use of the property.

Therefore, the Board grants a variance of Section 10-A (Non-Conforming Uses) to permit the addition of a one-story (10 ft. high) 21' x 29' concrete equipment building behind existing building and tower which will house radio telephone equipment for cellular mobile telephone service.

The applicant is allowed one year from the effective date of this decision in which to obtain a building permit.

1- Application of SNET Cellular, Inc. (So. New England Telephone Company) for a variance of Section 10-A (Non-Conforming Uses) to permit the addition of a one-story (10 ft. high) 21' x 29' concrete equipment building behind existing building and tower which will house radio telephone equipment for cellular mobile telephone service. (Will be associated with antennas to be mounted on the tower). Said property is located on the north side of Catoona Lane, in both the RM-1 and R-3 zones, and is described as follows:

All that certain parcel of land in Stamford (Fairfield Co.) Connecticut lying northerly of Catoona Street, a public way, and more particularly bounded and described as follows:

Beginning at a concrete monument in the northerly sideline of Catoona Street, said monument marking the southwestern corner of land of Serafine Stori and the southeastern corner of the parcel described herein; thence S 62° 21' 00" W along the northerly sideline of Catoona Street a distance of 100.00 feet to a concrete monument; thence N 7° 49' 30" W along land of owners unknown a distance of 125.83 feet to an iron pipe; thence N 81° 20' 15" E a distance of 50.01 feet to a concrete monument; thence N 7° 49' 30" W a distance of 363.95 feet to a concrete monument; thence N 82° 07' 00" E a distance of 402.57 feet to a concrete monument, the last three courses being along land of the City of Stamford; thence S 7° 53' 00" E a distance of 362.07 feet to a concrete monument; thence S 78° 43' 40" W a distance of 6.42 feet to a point; thence S 82° 37' 25" W a distance of 115.86 feet to a point; thence S 81° 12' 10" W a distance of 88.85 feet to a concrete monument, the last four courses being along land of the grantor herein; thence S 81° 12' 10" W a distance of 19.36 feet to a point; thence S 82° 00' 40" W a distance of 130.71 feet to a concrete monument; thence S 7° 49' 40" E a distance of 127.59 feet to the point of beginning and containing 3.645 acres, the last three courses being along land of said Stori.

The parcel described above is a portion of land described in Book 527 at Page 553, a deed from Sir Douglas Alexander dated October 13, 1943 and land described in Book 591 at Page 100, a deed from H. A. Boston dated January 28, 1947.

VOTE ON APPLICATION:

YES

Raymond D. Sanborne
Edward E. Friedlander
Thurston E. Haygood
Granelli

NO

168 CATOONA LANE

Location 168 CATOONA LANE

Mblu 000/ 0370/ / /

Acct# 000-0370

Owner AMERICAN TOWERS INC

Assessment \$3,252,940

Appraisal \$4,647,040

PID 116

Building Count 2

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$1,109,510	\$3,537,530	\$4,647,040
Assessment			
Valuation Year	Improvements	Land	Total
2015	\$776,670	\$2,476,270	\$3,252,940

Owner of Record

Owner	AMERICAN TOWERS INC	Sale Price	\$1,040,050
Co-Owner		Certificate	
Address	PO BOX 723597	Book & Page	5456/ 339
	ATLANTA, GA 31139	Sale Date	02/17/2000

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
AMERICAN TOWERS INC	\$1,040,050		5456/ 339	02/17/2000
AMERICAN T & T CO	\$0		1128/ 268	03/15/1968

Building Information

Building 1 : Section 1

Year Built: 1968
Living Area: 3,249

Building Attributes	
Field	Description
STYLE	Telephone Bldg
Stories:	1
Occupancy	1

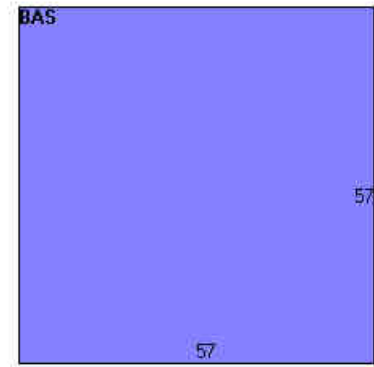
Exterior Wall 1	Reinforc Concr
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete Slab
Interior Floor 2	
Heating Fuel	Gas/LP
Heating Type	Hot Air-no Duc
AC Type	Central
Bldg Use	Industrial MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	300C
Heat/AC	Heat/AC Pkgs
Frame Type	Masonry
Baths/Plumbing	None
Ceiling/Wall	Ceil & Wall
Rooms/Prtns	Average
Wall Height	15
% Corn Wall	

Building Photo



(<http://images.vgsi.com/photos/StamfordCTPhotos//\00\11\89/>)

Building Layout



Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	3,249	3,249
		3,249	3,249

Building 2 : Section 1

Year Built: 1989
Living Area: 600

Building Attributes : Bldg 2 of 2	
Field	Description
STYLE	Telephone Bldg
Stories:	1
Occupancy	1
Exterior Wall 1	Reinforc Concr
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber

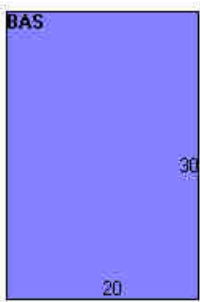
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete Slab
Interior Floor 2	
Heating Fuel	Gas/LP
Heating Type	Hot Air-no Duc
AC Type	Central
Bldg Use	Industrial MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	300C
Heat/AC	Heat/AC Pkgs
Frame Type	FireProofSteel
Baths/Plumbing	None
Ceiling/Wall	Ceil & Wall
Rooms/Prtns	Average
Wall Height	10
% Comn Wall	

Building Photo



(<http://images.vgsi.com/photos/StamfordCTPhotos//\00\11\89/>)

Building Layout



Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	600	600
		600	600

Extra Features

Extra Features	<u>Legend</u>
No Data for Extra Features	

Land

Land Use

Use Code	300C
Description	Industrial MDL-94
Zone	MZN
Neighborhood	0300

Land Line Valuation

Size (Acres)	3.64
Depth	
Assessed Value	\$2,476,270
Appraised Value	\$3,537,530

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
AP1	Fence Chn Lk			2400 L.F.	\$19,800	1
LP4	Pavng Asphlt			3880 S.F	\$4,370	1
CEL1	Cell Tower			6 SITES	\$839,250	1
CSHD	Cell Equipment			240 S.F.	\$6,840	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$1,109,510	\$3,537,530	\$4,647,040
2015	\$1,109,510	\$3,537,530	\$4,647,040
2014	\$1,109,510	\$3,537,530	\$4,647,040

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$776,670	\$2,476,270	\$3,252,940
2015	\$776,670	\$2,476,270	\$3,252,940
2014	\$776,670	\$2,476,270	\$3,252,940



**SmartLink, LLC on behalf of
AT&T Mobility, LLC
Site FA – 10034997
Site ID – CT2135 (RF)
USID – 60419
Site Name – Stamford West
Site Compliance Report**

**Catoonah Lane
Stamford, CT 06902**

Latitude: N41-3-07.96
Longitude: W73-33-47.27
Structure Type: Self-Support

Report generated date: May 26, 2017
Report by: Sam Cosgrove
Customer Contact: Michael Pattison

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

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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 Rooftop	<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: 10034997_PM201_170131_CTL02135

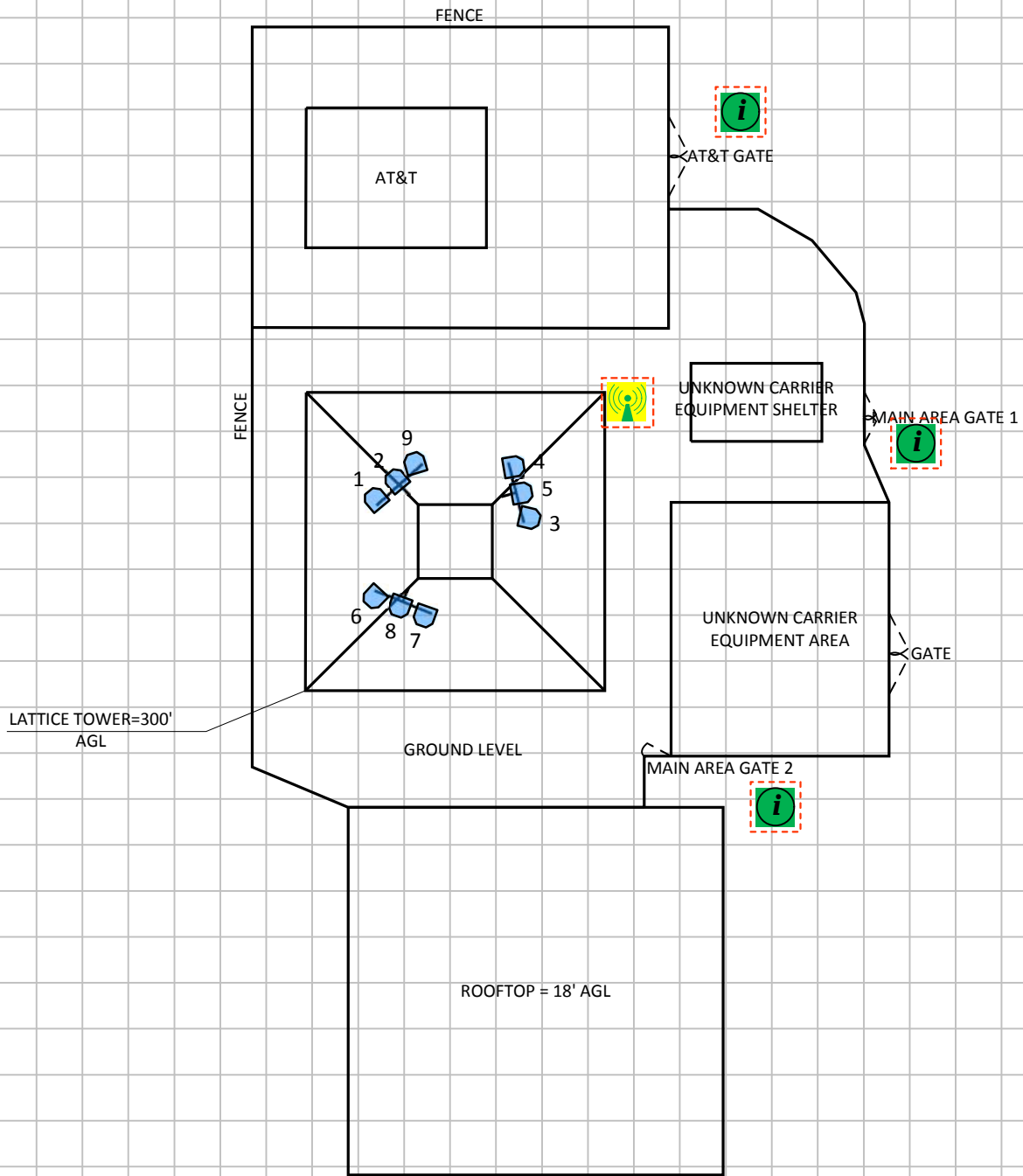
CD's: 10034997_AE201_170228_CTL02135_Rev1_CD_S&S_Retro

2 Scale Maps of Site

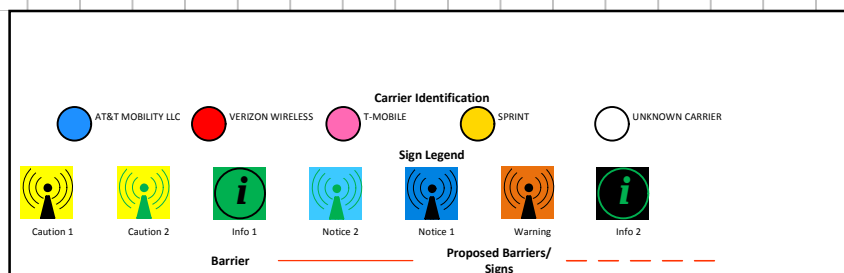
The following diagrams are included:

- Site Scale Map
- RF Exposure Diagram
- Elevation View

Site Scale Map For: Stamford West



(Feet)
 0 13.7 27.4
 www.sitesafe.com
 Site Name: Stamford West
 5/26/2017 2:53:30 PM



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 (AGL)
1	AT&T MOBILITY LLC	Andrew SBNHH-1D65A	Panel	737	0	66	4.6	11.29	0	0	1	792.5	67.6'	145.5'	232.7'
1	AT&T MOBILITY LLC (PROPOSED)	Andrew SBNHH-1D65A	Panel	1900	0	65	4.6	14.65	0	0	1	1733.8	67.6'	145.5'	232.7'
2	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H4	Panel	737	0	65.8	4	10.76	0	0	1	574.1	71'	148.5'	233'
2	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H4	Panel	850	0	60	4	11.36	0	0	1	659.2	71'	148.5'	233'
2	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H4	Panel	2300	0	61.1	4	14.26	0	0	1	1044.7	71'	148.5'	233'
3	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	143	82	4.6	11.51	0	2	0	509.4	92.8'	142.3'	232.7'
3	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	143	86	4.6	13.41	0	1	0	400.9	92.8'	142.3'	232.7'
4	AT&T MOBILITY LLC	Andrew SBNHH-1D65A	Panel	737	120	66	4.6	11.29	0	0	1	792.5	90.2'	150.7'	232.7'
4	AT&T MOBILITY LLC (PROPOSED)	Andrew SBNHH-1D65A	Panel	1900	120	65	4.6	14.65	0	0	1	1733.8	90.2'	150.7'	232.7'
5	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H4	Panel	737	120	65.8	4	10.76	0	0	1	574.1	91.5'	146.4'	233'
5	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H4	Panel	850	120	60	4	11.36	0	0	1	659.2	91.5'	146.4'	233'
5	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H4	Panel	2300	120	61.1	4	14.26	0	0	1	1044.7	91.5'	146.4'	233'
6	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	263	82	4.6	11.51	0	2	0	509.4	67.5'	129.4'	232.7'
7	AT&T MOBILITY LLC	Andrew SBNHH-1D65A	Panel	737	240	66	4.6	11.29	0	0	1	792.5	75.7'	126.3'	232.7'
7	AT&T MOBILITY LLC (PROPOSED)	Andrew SBNHH-1D65A	Panel	1900	240	65	4.6	14.65	0	0	1	1733.8	75.7'	126.3'	232.7'
8	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H4	Panel	737	240	65.8	4	10.76	0	0	1	574.1	71.6'	127.9'	233'
8	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H4	Panel	850	240	60	4	11.36	0	0	1	659.2	71.6'	127.9'	233'
8	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H4	Panel	2300	240	61.1	4	14.26	0	0	1	1044.7	71.6'	127.9'	233'
9	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	23	82	4.6	11.51	0	2	0	509.4	74.1'	151.3'	232.7'

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.

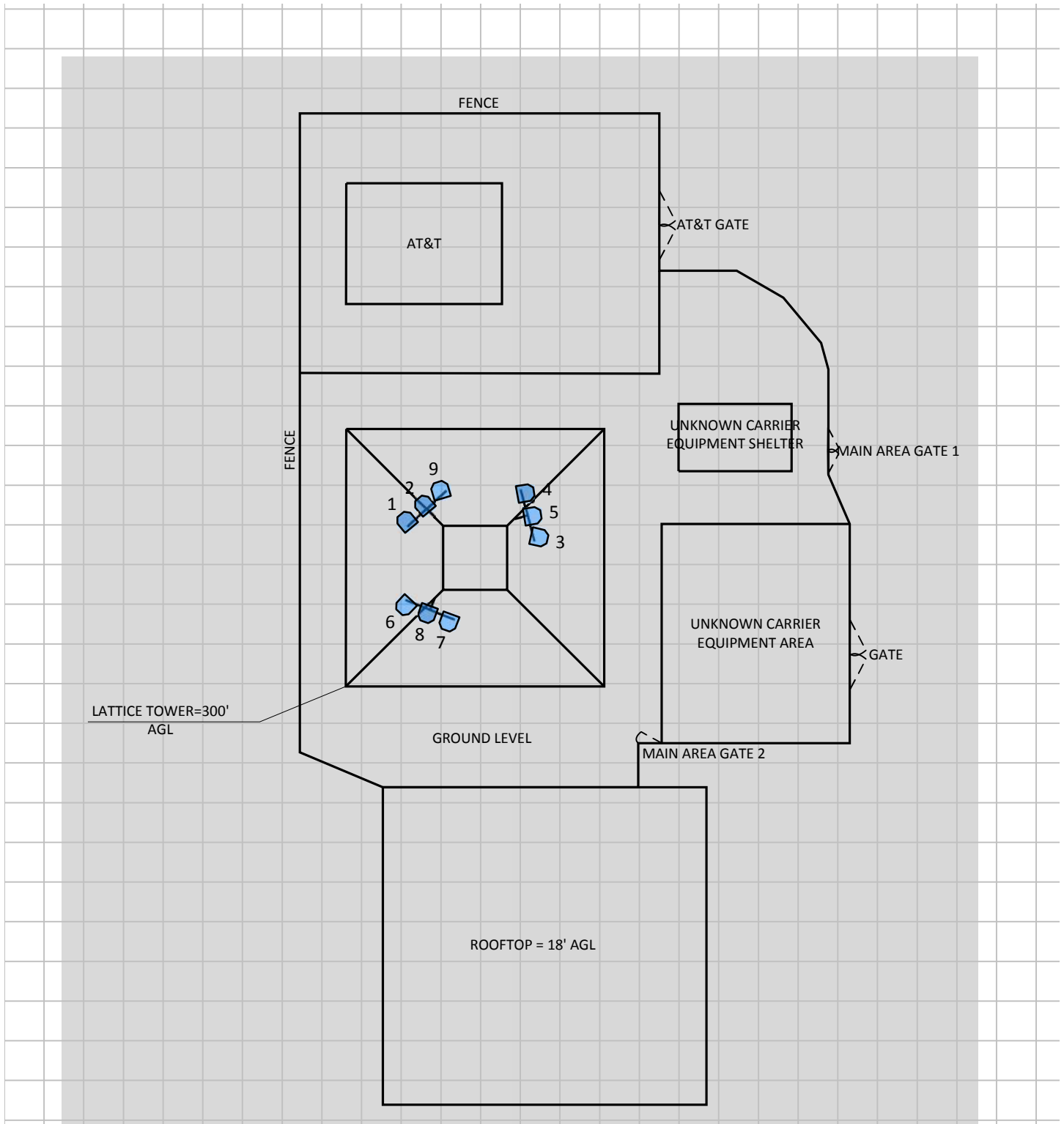
There are other carriers and land mobile antennas on this tower. Site Safe was not provided information on these system; therefore they are not included in our analysis.

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.

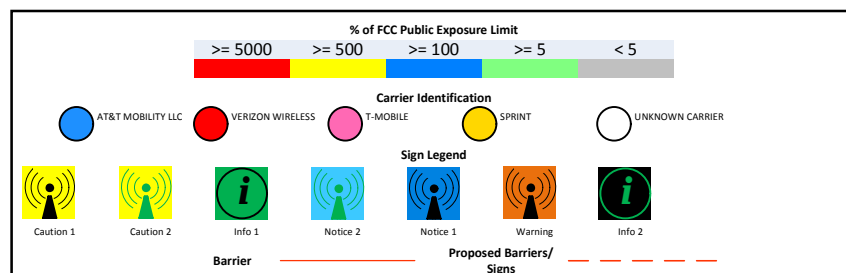
The Antenna Inventory heights are referenced to the same level.

RF Exposure Simulation For: Stamford West



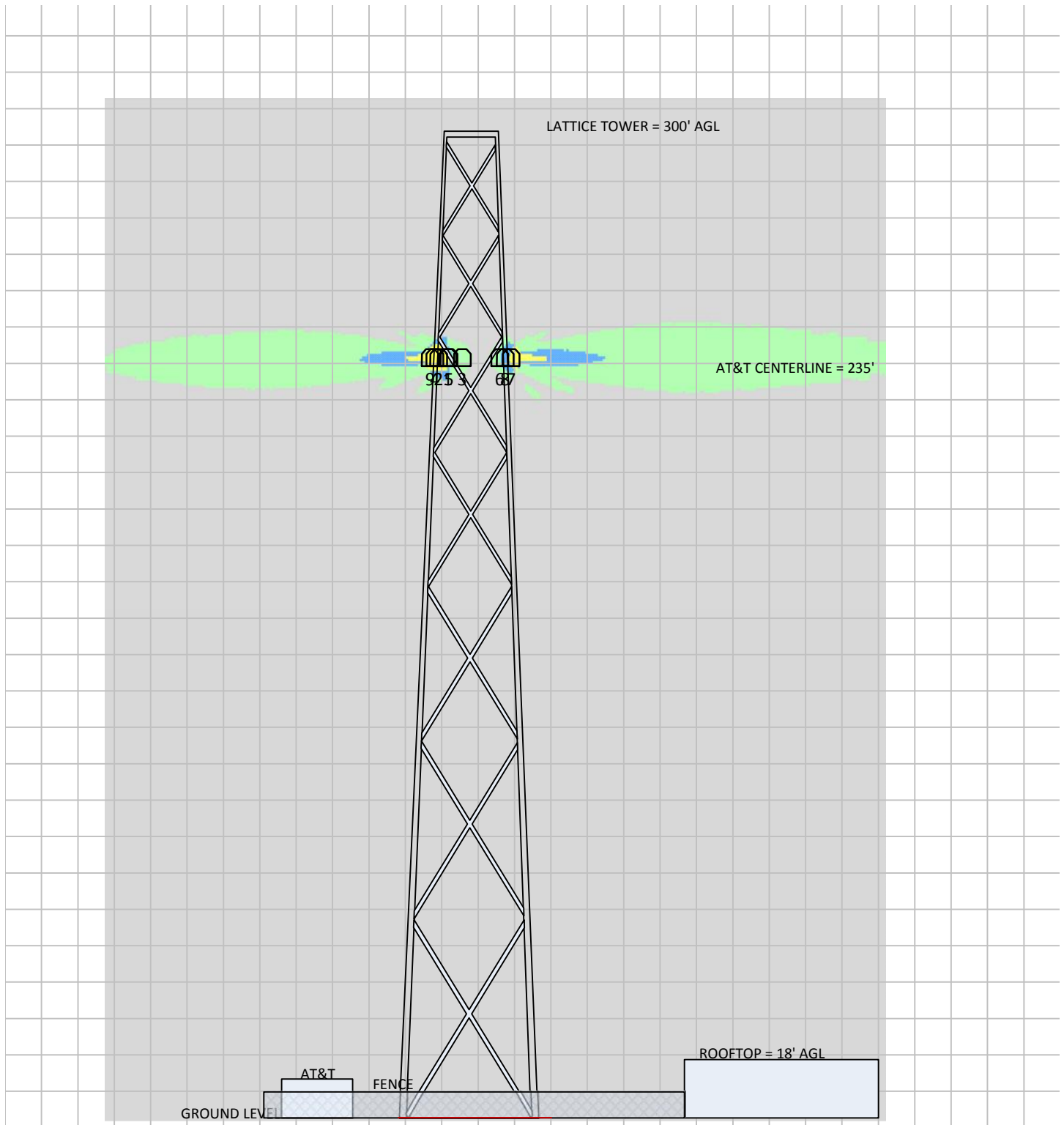
% of FCC Public Exposure Limit
Spatial average 0' - 6'

(Feet)
0 14.1 28.3
www.sitesafe.com
Site Name: Stamford West
5/26/2017 2:45:25 PM



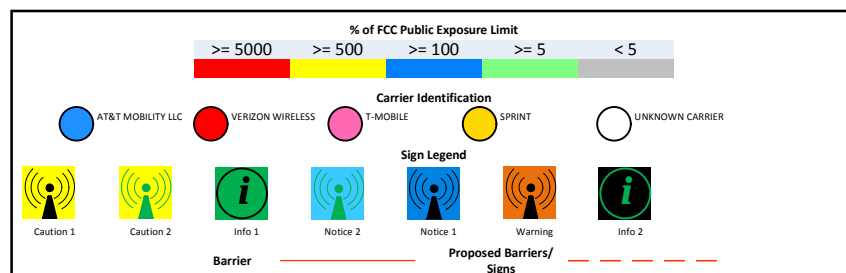
SitesafeTC Version: 1.0.0.0 - 0.0.0.262
Sitesafe OET-65 Model
Near Field Boundary: 1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

RF Exposure Simulation For: Stamford West Elevation View



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

(Feet)
0 23.1 46.2
www.sitesafe.com
Site Name: Stamford West
5/26/2017 2:52:02 PM



SitesafeTC Version: 1.0.0.0 - 0.0.0.262
Sitesafe OET-65 Model
Near Field Boundary: 1.5 * Aperture
Reflection Factor: 1
Single Level (0)

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 Locations

Information 1 sign required at AT&T Gate, Main Area Gate 2 and Main Area Gate 2.

Yellow caution 2 sign required at all accesses at the base of the lattice tower.

6 Reviewer Certification

The reviewer whose signature appears below hereby certifies and affirms:

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

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

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

May 26, 2017

Appendix A – Statement of Limiting Conditions

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

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

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

Appendix B – Regulatory Background Information

FCC Rules and Regulations

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

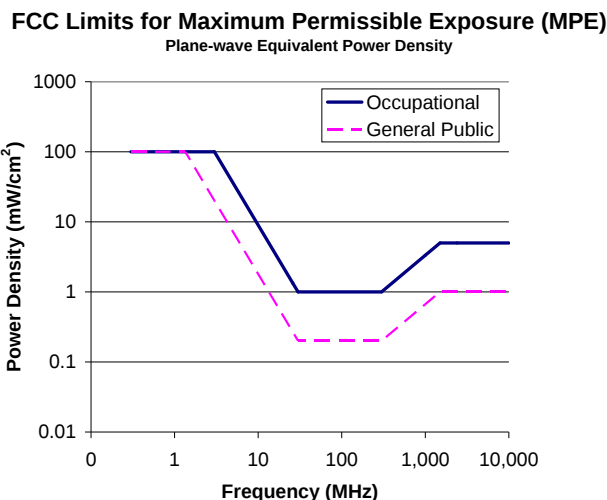
FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible*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

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

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

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

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



Limits for Occupational/Controlled Exposure (MPE)

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

Limits for General Population/Uncontrolled Exposure (MPE)

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

f = frequency in MHz

*Plane-wave equivalent power density

OSHA Statement

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

(a) Each employer –

- (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
- (2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

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

Appendix C – Safety Plan and Procedures

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

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

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

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

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

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

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

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

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

Appendix D – RF Emissions

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

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

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

Appendix E – Assumptions and Definitions

General Model Assumptions

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

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

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

Use of Generic Antennas

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

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

Definitions

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix F – References

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

Sitesafe, Inc.

<http://www.sitesafe.com>

FCC Radio Frequency Safety

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

National Council on Radiation Protection and Measurements (NCRP)

<http://www.ncrponline.org>

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

<http://www.ieee.org>

American National Standards Institute (ANSI)

<http://www.ansi.org>

Environmental Protection Agency (EPA)

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

National Institutes of Health (NIH)

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

Occupational Safety and Health Agency (OSHA)

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

International Commission on Non-Ionizing Radiation Protection (ICNIRP)

<http://www.icnirp.org>

World Health Organization (WHO)

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

National Cancer Institute

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

American Cancer Society (ACS)

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

European Commission Scientific Committee on Emerging and Newly Identified Health Risks

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

Fairfax County, Virginia Public School Survey

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

UK Health Protection Agency Advisory Group on Non-ionising Radiation

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

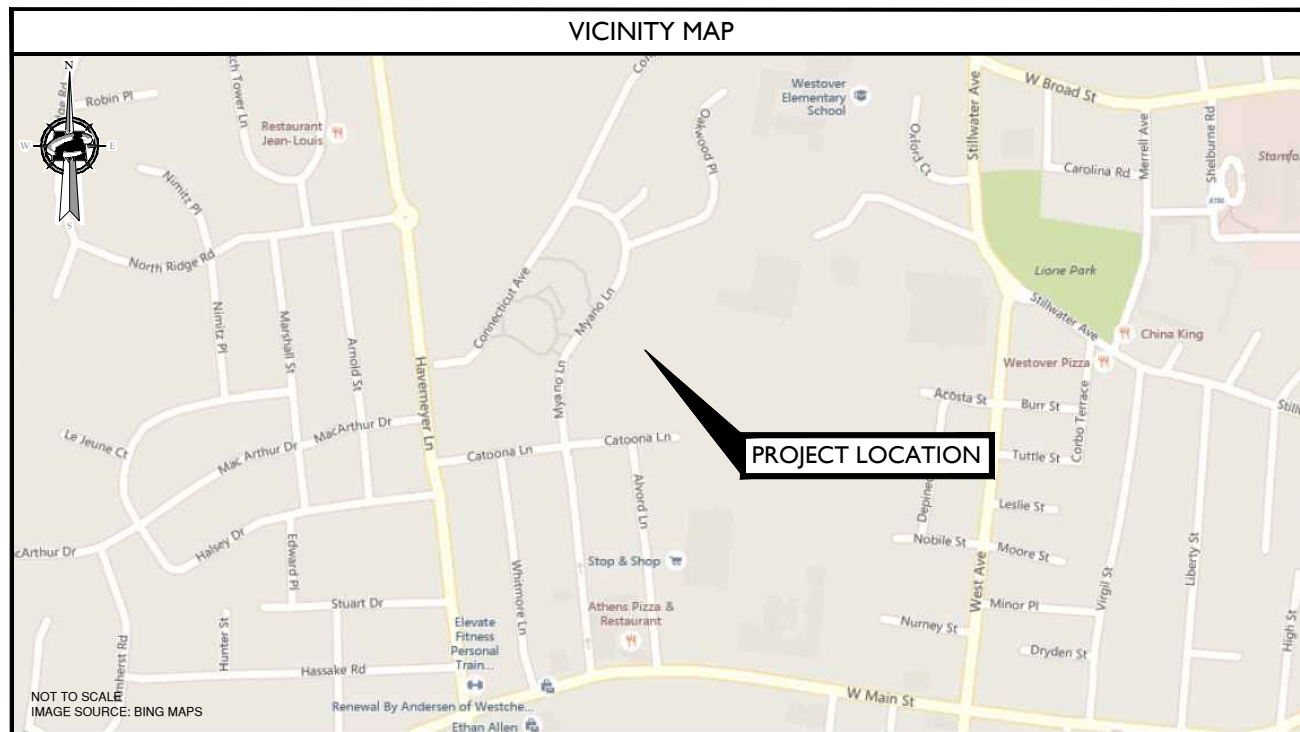
Norwegian Institute of Public Health

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



SITE NAME: STAMFORD WEST
FA NUMBER: 10034997
SITE NUMBER: CTL02135
RETROFIT - MRCTB019426
CATOONAH LANE
STAMFORD, CT 06902
FAIRFIELD COUNTY

AMERICAN TOWER SITE NAME: STAMFORD
AMERICAN TOWER SITE NUMBER: 88018



SCALE:	JOB NUMBER:
AS SHOWN	1694042A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
1	02/28/17	FOR CONSTRUCTION	RA	FEP
0	02/24/17	ISSUED FOR REVIEW	AJC	FEP



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE AN EXCEPTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME:

STAMFORD WEST
FA# 10034997
SITE # CTL02135
CATOONAH LANE
STAMFORD, CT 06902
FAIRFIELD COUNTY



SHEET TITLE:

TITLE SHEET

SHEET NUMBER:

T-1

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.

- 2016 CONNECTICUT STATE BUILDING CODE INCORPORATING THE 2012 IBC
- NATIONAL ELECTRIC CODE 2014
- 2012 NFPA101
- LIGHTNING PROTECTION CODE 201
- AMERICAN CONCRETE INSTITUTE 318
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION 360-10
- EIA/TIA-222 REVISION G
- TIA 607 FOR GROUNDING
- INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS 81
- IEEE C2 LATEST EDITION
- TELCORDIA GR-1275 12, ANSI T1.311

GENERAL CONTRACTOR NOTES

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED. EXISTING SAFETY BOARD NEAR DOOR ENTRANCE CONTAINS TWO FIRE EXTINGUISHERS. SHELTER EQUIPPED WITH SMOKE DETECTOR TIED INTO CENTRAL ALARM PANEL.

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

PROJECT DESCRIPTION/SCOPE OF WORK

THIS PROJECT WILL BE COMPRISED OF:

- (3) PROPOSED ANTENNAS TO REPLACE (3) EXISTING ANTENNAS, (1) PER SECTOR
- (3) RRUS-32 B2 TO REPLACE (3) EXISTING RRUS-12, (1) PER SECTOR

PROPOSED PROJECT SCOPE BASED OFF OF RFDS ID # 1342627, VERSION 4.0, LAST UPDATED 01/31/17

PROJECT TEAM

CLIENT REPRESENTATIVE

COMPANY: SMARTLINK, LLC
ADDRESS: 85 RANGEWAY ROAD, BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 01862
CONTACT: TODD OLIVER
PHONE: (774) 369-3618
E-MAIL: TODD.OLIVER@SMARTLINKLLC.COM

SITE ACQUISITION

COMPANY: SMARTLINK, LLC
ADDRESS: 85 RANGEWAY ROAD, BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 01862
CONTACT: TODD OLIVER
PHONE: (774) 369-3618
E-MAIL: TODD.OLIVER@SMARTLINKLLC.COM

ENGINEER

COMPANY: MASER CONSULTING CONNECTICUT
ADDRESS: 331 NEWMAN SPRINGS ROAD
CITY, STATE, ZIP: RED BANK, NJ 07701-5699
CONTACT: FRANK PAZDEN
PHONE: (732) 383-1950
E-MAIL: FPAZDEN@MASERCONSULTING.COM

RF ENGINEER

COMPANY: NEW CINGULAR WIRELESS PCS, LLC
ADDRESS: 550 COCHITUATE ROAD
CITY, STATE, ZIP: FRAMINGHAM, MA 01701
CONTACT: PARMINDER SINGH
E-MAIL: SP656B@ATT.COM

CONSTRUCTION MANAGER

COMPANY: SMARTLINK, LLC
ADDRESS: 85 RANGEWAY ROAD, BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 01862
CONTACT: MARK DONNELLY
PHONE: (617) 515-2080
E-MAIL: MARK.DONNELLY@SMARTLINKLLC.COM

SITE INFORMATION

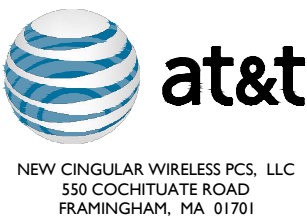
APPLICANT/LESSEE



NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

PROPERTY/TOWER OWNER:

NAME: AMERICAN TOWER
ADDRESS: 116 HUNTINGTON AVE., 11TH FLOOR
CITY, STATE, ZIP: BOSTON, MA 02116
SITE ID #: 88018
LATITUDE: 41.0522139° N
LONGITUDE: 73.5631381° W
LAT./LONG. TYPE: NAD 83
AREA OF CONSTRUCTION: EXISTING EQUIPMENT SHELTER AND LATTICE TOWER
ZONING/JURISDICTION: CITY OF STAMFORD
CURRENT USE/PROPOSED USE: UNMANNED TELECOMMUNICATIONS FACILITY
HANDICAP REQUIREMENTS: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.
CONSTRUCTION TYPE: IIB
USE GROUP: U



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SCALE :	JOB NUMBER :
AS SHOWN	16946042A

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I	02/28/17	FOR CONSTRUCTION	RA	FEP	
O	02/24/17	ISSUED FOR REVIEW	AJC	FEP	
REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME:

STAMFORD WEST
FA# 10034997
SITE # CTL02135
CATOONAH LANE
STAMFORD, CT 06902
FAIRFIELD COUNTY



email: solutions@maserconsulting.com

SHEET TITLE :

GENERAL NOTES

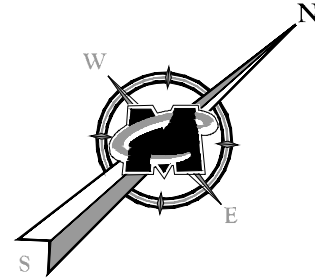
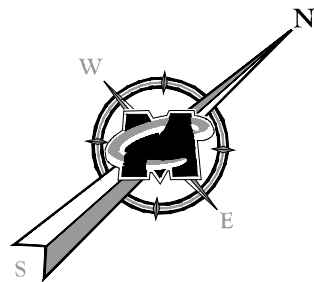
SHEET NUMBER

GN-I

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GESS'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 50 HMS OR LESS.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
5. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
6. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
7. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
10. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
11. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
12. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
13. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELD CONNECTIONS.
14. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
15. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
16. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
17. ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
18. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
19. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
20. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
21. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.

1. FOR THE PURPOSE OF THE FOLLOWING DEFINITIONS, THE FOLLOWING DEFINITIONS SHALL APPLY:
- | | |
|-----------------|---------------------------------------|
| CONTRACTOR - | SMARTLINK |
| SUBCONTRACTOR - | GENERAL CONTRACTOR (CONSTRUCTION) |
| OWNER - | AT&T (NEW CINGULAR WIRELESS PCS, LLC) |
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
3. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
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. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
10. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
11. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
12. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
13. 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.
14. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
15. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
16. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
18. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
19. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
20. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
21. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.

22. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
23. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
24. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
25. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 ($F_y = 36$ ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E ($F_y = 36$ ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
26. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
27. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
28. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION, ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
29. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN ALERT OF DANGEROUS EXPOSURE LEVELS.



NOTES:

1. THE CONDUIT ROUTING IS DIAGRAMMATICALLY SHOWN ON THE PLANS AND ARE ONLY APPROXIMATIONS. THE EXACT LOCATION AND ROUTING SHALL BE FIELD VERIFIED.
2. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATES, INDICATING THE CIRCUITS ORIGINATION AND ALL EQUIPMENT TERMINATIONS.
3. SUBCONTRACTOR SHALL PROVIDE ALL CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETED SYSTEM AND SHALL BE IN COMPLIANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
4. ALL NEW CABLING TO BE ROUTED ON EXISTING CABLE RACKS.
5. ALL INSTALLED GROUND LUGS MUST BE INSPECTION HOLE LUGS.
6. INSTALLED GROUND LEADS MUST TERMINATE AT MGB, NOT HALO.
7. NO OVERLAPPING GROUND HARDWARE.

Existing AT&T Equipment Shelter
(SEE EQUIPMENT PLAN ON THIS SHEET)

Existing Lattice Tower
(SEE ELEVATION VIEW ON SHEET A-2)

Existing Chain Link Fence

Existing Ice Bridge
(By Others)
(Typ.)

Existing (6) 1-5/8" AT&T Coax From Position 3 Antennas

Existing AT&T Ice Bridge (Typ.)

Existing Equipment Shelter
(By Others)

Existing Generator

Existing Equipment Shelter
(By Others)

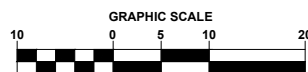
Existing Propane Tank

Existing Access Gate (Typ.)

Existing Satellite Dish

Existing Equipment Shelter
(By Others)

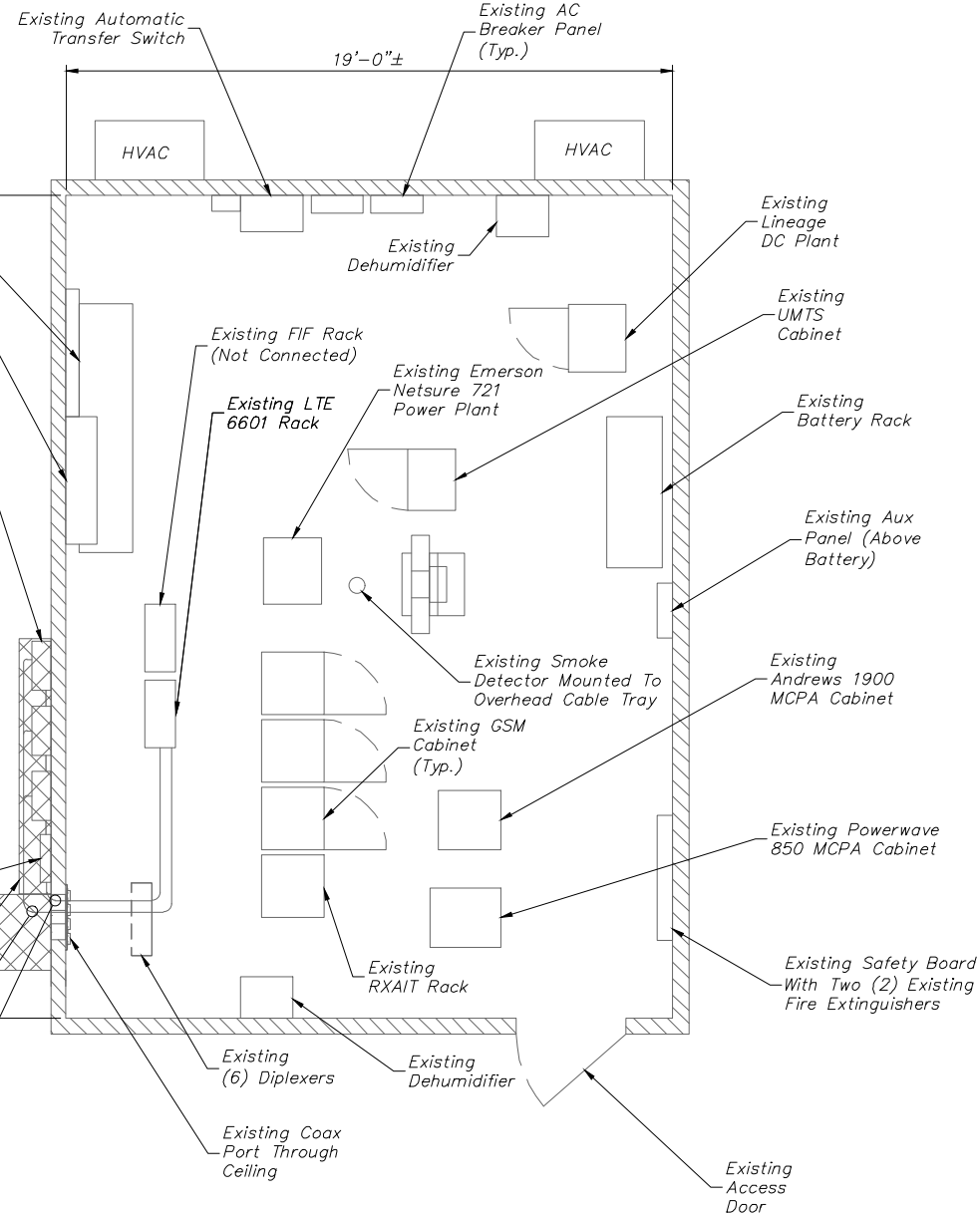
COMPOUND PLAN



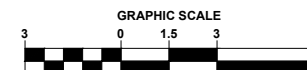
(IN FEET)
SCALE: 1" = 10' FOR 24"x36" DRAWINGS
(DO NOT SCALE 11"x17" DRAWINGS)

NOTE:

THESE PLANS WERE DESIGNED WITH THE ASSUMPTION THAT THE PREVIOUS PLANS PREPARED BY MASER CONSULTING CONNECTICUT, DATED 03/15/16, WILL BE COMPLETED PRIOR TO THE CURRENT SCOPE OF WORK BEING INSTALLED. ANY CHANGES IN PREVIOUS DESIGN SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.



EQUIPMENT PLAN



(IN FEET)
SCALE: 1" = 3' FOR 24"x36" DRAWINGS
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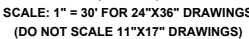


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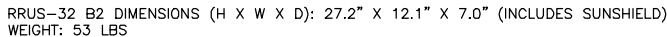
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SHEET NUMBER: A-1

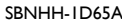
1. NO CONSTRUCTION OF THE PROPOSED LOADING SHOWN SHALL PROCEED UNTIL ADEQUACY OF THE EXISTING STRUCTURE AND FOUNDATION, INCLUDING THE PROPOSED AT&T ANTENNA MOUNTING CONFIGURATION SHOWN HEREIN, HAS BEEN COMPLETED.
2. THE STRUCTURE ELEVATION IS SHOWN FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT REFLECT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



ANTENNA SCHEDULE



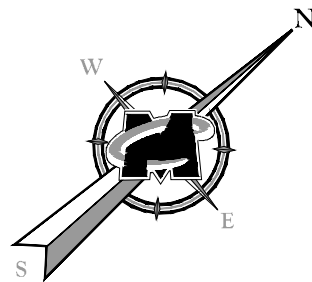
THESE PLANS WERE DESIGNED WITH THE ASSUMPTION THAT THE PREVIOUS PLANS PREPARED BY MASER CONSULTING CONNECTICUT DATED 03/15/16, WILL BE COMPLETED PRIOR TO THE CURRENT SCOPE OF WORK BEING INSTALLED. ANY CHANGES IN PREVIOUS DESIGN SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.



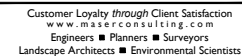
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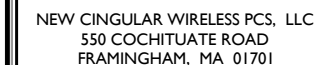




THESE PLANS WERE DESIGNED WITH THE ASSUMPTION THAT THE PREVIOUS PLANS PREPARED BY MASER CONSULTING CONNECTICUT, DATED 03/15/16, WILL BE COMPLETED PRIOR TO THE CURRENT SCOPE OF WORK BEING INSTALLED. ANY CHANGES IN PREVIOUS DESIGN SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.



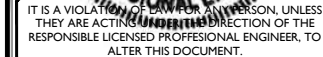
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SHEET TITLE :

ANTENNA LAYOUTS

SHEET NUMBER

A-3

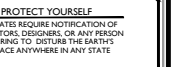




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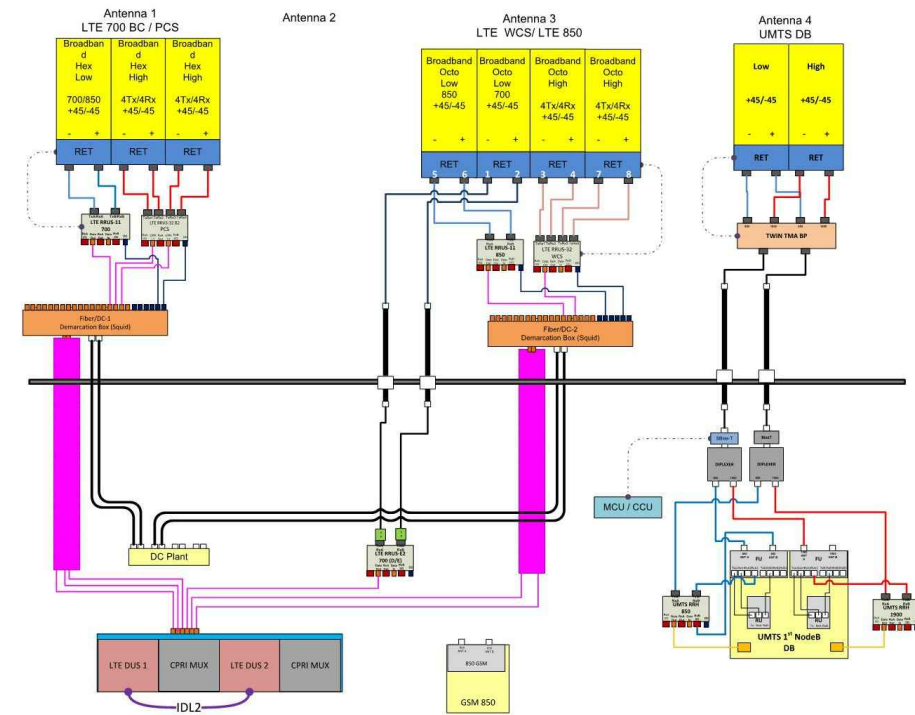
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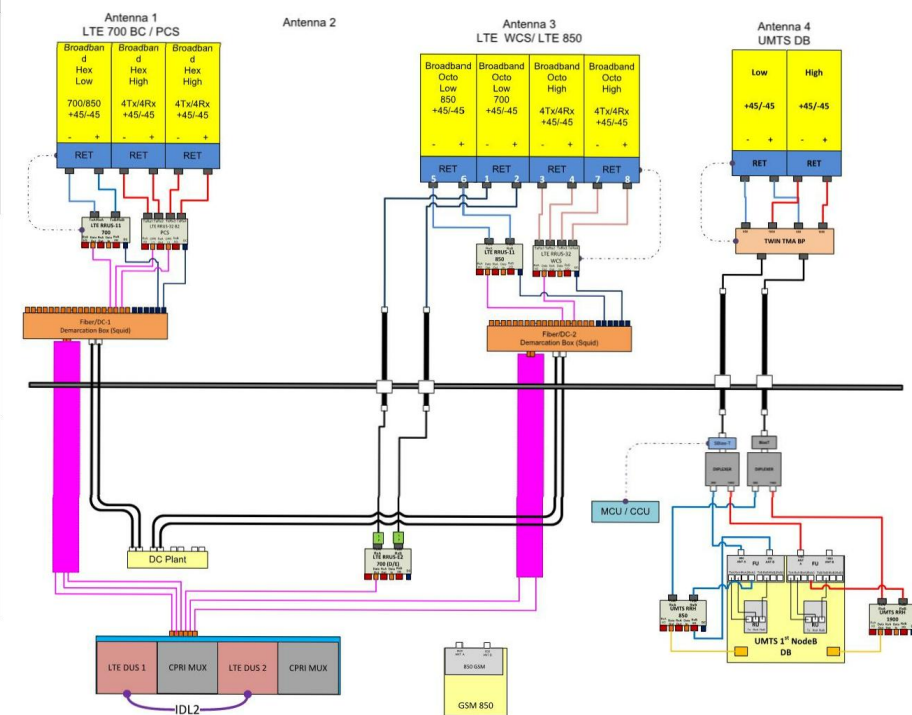
RF PLUMBING DIAGRAMS

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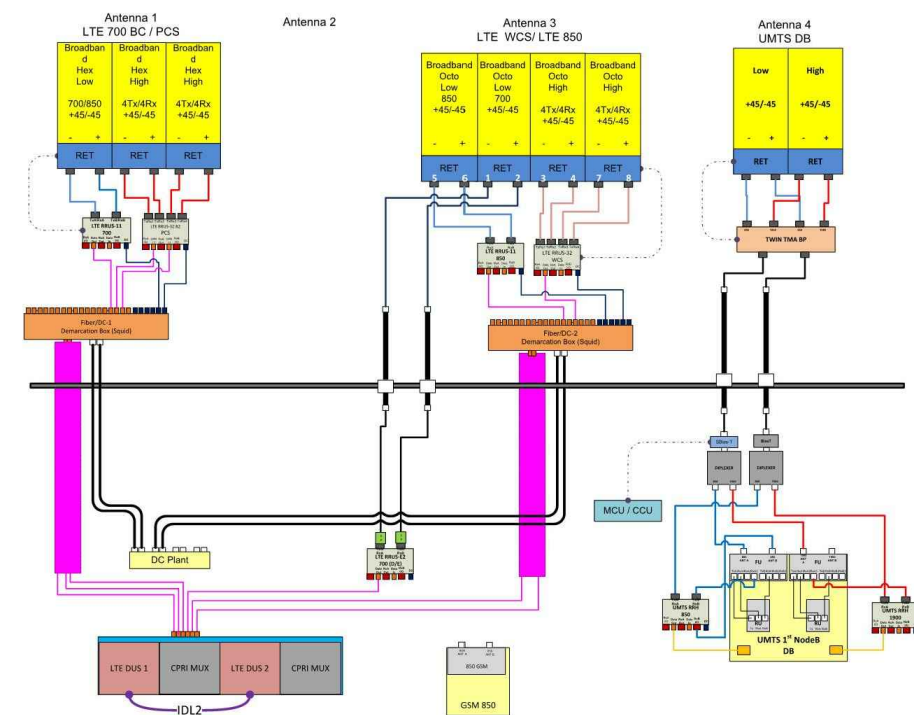
A-4



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR

BASED ON RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CTU2135_2017-LTE-Extended-Carrier_4TXRX_sp656b_2051A06YG3_10034997_60419_08-05-2016_Final-Approved_v4.00", Last Updated 01/31/17

RF PLUMBING DIAGRAMS



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

SECTION "P" - SURGE PRODUCERS

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

SECTION "A" - SURGE ABSORBERS

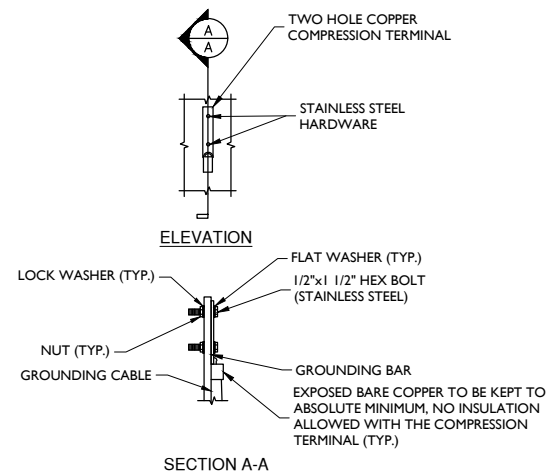
INTERIOR GROUND RING (#2)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
BUILDING STEEL (IF AVAILABLE) (#2)

MASTER GROUND BAR

NOT TO SCALE



NOT TO SCALE



TYPICAL GROUND BAR CONNECTION DETAIL

NOT TO SCALE



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

TYPICAL GROUND WIRE TO GROUNDING BAR

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Fax: 732.383.1984

email: solutions@maserconsulting.com

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

G-1



AMERICAN TOWER®
C O R P O R A T I O N

Structural Analysis Report

Structure : 300 ft Self Supported AT&T TAG Tower
ATC Site Name : Stamford (Katoona), CT
ATC Site Number : 88018
Engineering Number : OAA697743_C3_03
Proposed Carrier : AT&T Mobility
Carrier Site Name : Stamford West
Carrier Site Number : CTL02135 / 10034997
Site Location : Catoona Lane
Stamford, CT 06902-4573
41.052800,-73.563000
County : Fairfield
Date : May 2, 2017
Max Usage : 98%
Result : Pass

Prepared By:
Robert D. Barrett, E.I.
Structural Engineer I

Robert D. Barrett

Reviewed By:

COA: PEC.0001553



Table of Contents

Introduction	1
Supporting Documents	1
Analysis	1
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Proposed Equipment	3
Structure Usages	4
Foundations	4
Standard Conditions	5
Calculations	Attached



Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 300 ft self supported AT&T tag tower to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	CSEI Analysis, ATC Eng. #73123451, dated September 28, 2005
Foundation Drawing	Rose, Chulkoff, and Rose Job #C67229, dated August 9, 1967
Geotechnical Report	Rose, Chulkoff, and Rose Job #C67229, dated August 9, 1967
Modifications	ATC Eng. #42439132, dated September 26, 2008 ATC Eng. #44209632, dated December 2, 2009

Analysis

The tower was analyzed using Power Line Systems, Inc. tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	93 mph (3-Second Gust, V_{asd}) / 120 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1

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					
300.0	335.0	1	TX RX Systems 101-68-10-X-03N	Platform w/ Handrails	(1) 1 1/4" Coax	Marcus Comm.
	320.0	1	16' Omni		-	Other
	317.0	1	16' Omni		(1) 1 1/4" Coax	Marcus Comm.
	311.0	1	4' Std. Dish		(1) 1/2" Coax	
		1	Radio/ODU			
	300.0	3	DragonWave Horizon Compact		(6) 7/8" Coax	Clearwire
		3	DragonWave A-ANT-18G-2-C			
276.0	276.0	1	Dielectric TLP-08M-2E	Side Arm	(1) 3 1/8" HL	Other
275.0	275.0	1	Rohde & Schwarz ADD090	Side Arm	(2) 7/8" Coax	US Dept Of Homeland Security
272.0	272.0	2	Til-Tek TA-2350-DAB	Leg	(1) EW20	Sirius XM Radio
268.0	268.0	-	-		(1) 1 5/8" Coax	
265.0	265.0	3	RFS ATMAA1412D-1A20	Sector Frames	(15) 1 5/8" Coax (3) 7/8" (0.88") Fiber	T-Mobile
		3	Ericsson RRUS 11 B12			
		3	Ericsson AIR 21, 1.3 M, B2A B4P			
		3	Ericsson AIR-32 B2A/B66Aa			
		3	Andrew LNX-6515DS-VTM			
250.0	250.0	1	Sinclair SC381-HL	Side Arm	(1) 7/8" Coax	US Dept Of Homeland Security
240.0	240.0	1	Sinclair SC281-L	Side Arm	(1) 7/8" Coax	
235.0	235.0	6	CCI TPX-070821	Sector Frames	(12) 1 5/8" Coax (4) 0.74" 8 AWG 7 (2) 0.39" Fiber Trunk	AT&T Mobility
		6	Powerwave TT19-08BP111-001			
		2	Raycap DC2-48-60-0-9E			
		6	Ericsson RRUS A2			
		3	Ericsson RRUS-11 800 MHz			
		3	Ericsson RRUS 12			
		3	Ericsson RRUS E2 B29			
		3	Ericsson RRUS-11			
		3	KMW AM-X-CD-14-65-00T-RET			
		3	Powerwave 7770.00			
		3	Andrew SBNHH-1D65A			
		3	CCI OPA-65R-LCUU-H4			
222.0	222.0	12	Decibel DB844H90E-XY	Sector Frames	(15) 1 5/8" Coax	Sprint Nextel
210.0	210.0	1	Sinclair SC281-L	Side Arm	(1) 7/8" Coax	US Dept Of Homeland Security
201.0	201.0	2	TX RX Systems 101-68-10-X-03N	Side Arms	(2) 1 1/4" Coax	Marcus Comm.
193.0	193.0	1	30" x 30" Reflector	Leg	(2) 0.27" RG-6/U	Other
183.0	183.0	3	Antel BCD-87010	Side Arm	(3) 7/8" Coax	Spok Holdings
171.0	171.0	3	NextNet BTS-2500	T-Arms	(6) 5/16" Coax	Clearwire
		3	Argus LLPX310R		(2) 2" Conduit	
160.0	160.0	6	Kathrein 800 10504	Leg	(12) 1 5/8" Coax	Metro PCS
		15	RCU		(2) 3/8" Coax	

Existing and Reserved Equipment (Continued)

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
150.0	150.0	3	RFS IBC1900HB-2	Sector Frames	(5) 1 1/4" Hybriflex	Sprint Nextel
		3	Alcatel-Lucent 800 MHz RRH			
		6	Alcatel-Lucent 1900MHz RRH			
		3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
		3	RFS APXVTM14-C-I20			
		3	RFS APXVSPP18-C-A20			
		3	Alcatel-Lucent ALU 800MHz External Notch Filter			
142.0	142.0	1	Antel BCD-87010 ____ 4°	Stand-Off	(1) 7/8" Coax	Sensus USA
130.0	130.0	1	L-com HG908U-PRO	Stand-Off	(1) 0.38" Cat 5e (1) 1/2" Coax	Senet
		1	Tycon ENC-DC			
120.0	120.0	1	Channel Master Type 120	Leg	(1) 1/2" Coax	Spok Holdings
100.0	100.0	1	TX RX Systems 101-68-10-X-03N	Side Arm	(1) 1 1/4" Coax	Marcus Comm.
92.0	92.0	3	Alcatel-Lucent RRH2X60-1900A-4R	Sector Frames	(2) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent RRH2x60 700			
		3	Alcatel-Lucent RRH4x45-B66 w/o Solar Shield			
		2	RFS DB-T1-6Z-8AB-0Z			
		12	Andrew SBNHH-1D65B			
22.0	22.0	1	Til-Tek TA-2324-LHCP	Leg	(1) 7/8" Coax	Sirius XM Radio
6.0	6.0	1	Trimble Acutime 2000	Stand-Off	(1) 1/2" Coax (1) 1/4" Coax	Spok Holdings
		1	Channel Master Type 120			

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
235.0	235.0	3	Ericsson RRUS 12	-	-	AT&T Mobility
		3	Ericsson RRUS 32-(77 lbs)			

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
235.0	235.0	3	Ericsson RRUS 32 B2	Sector Frames	-	AT&T Mobility
		3	Ericsson RRUS 32 (50.8 lbs)			

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

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	76%	Pass
Diagonals	92%	Pass
Truss Diagonals	96%	Pass
Horizontals	86%	Pass
Truss Horizontals	98%	Pass
Anchor Bolts	53%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Uplift (Kips)	351.6	97%
Axial (Kips)	481.0	5%

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.



Standard Conditions

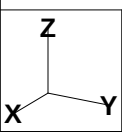
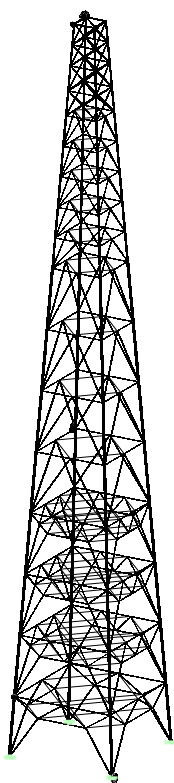
All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

- 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.



Project Name : 88818 - Stamford (Katoona), CT
Project Notes: OAA697743_C3_03 - AT&T Mobility
Project File : N:\L2 - ATC\88818\2017.05.02 - AT&T Mobility - OAA697743_C3_03.tow
Date run : 7:20:10 PM Tuesday, May 02, 2017
by : Tower Version 14.20
Licensed to : American Tower Corp.

Successfully performed nonlinear analysis

The model has 0 warnings.

Member check option: ANSI/TIA 222-G-1
Connection rupture check: Not Checked
Crossing diagonal check: Fixed
Included angle check: None
Climbing load check: None
Redundant members checked with: Actual Force
Loads from file: n:\l2 - atc\88818\2017.05.02 - atat mobility - oaa697743_c3_03\2017.05.02 - atat mobility - oaa697743_c3_03.eia

*** Analysis Results:

Maximum element usage is 98.24% for Angle "LH 3X" in load case "W -45"

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Bending Moment (ft-k)	Vert. Bending Moment (ft-k)	Found. Usage %
W 0	OP	-47.47	-22.26	-346.77	52.43	-0.93	-5.79	5.86	-2.30 0.00
W 0	OX	-45.54	22.71	-336.60	50.89	0.59	-5.48	5.52	2.42 0.00
W 0	OXY	-36.53	-15.63	218.35	39.74	0.53	-6.01	6.03	2.20 0.00
W 0	OY	-37.65	14.64	215.43	40.39	-0.35	-6.33	6.33	-2.17 0.00
W 180	OP	37.76	-14.46	213.23	40.43	-0.33	6.39	6.39	2.06 0.00
W 180	OX	36.42	-15.21	212.57	39.47	0.54	6.10	6.12	-2.21 0.00
W 180	OXY	45.66	22.64	-334.53	50.96	0.58	5.57	5.60	-2.43 0.00
W 180	OY	47.20	-21.85	-348.86	52.01	-0.93	5.85	5.92	2.42 0.00
W 45	OP	-48.63	-7.75	-480.97	68.86	3.76	-3.74	5.30	0.13 0.00
W 45	OX	-20.77	-13.07	-58.85	24.55	4.92	-3.93	6.30	3.33 0.00
W 45	OXY	-41.17	-41.28	351.57	58.30	4.71	-4.68	6.64	-0.09 0.00
W 45	OY	-12.82	22.06	-61.94	24.65	3.96	-4.90	6.30	-3.34 0.00
W -45	OP	-22.13	13.87	-65.00	26.12	-5.17	-4.17	6.64	-3.39 0.00
W -45	OX	-47.14	48.93	-472.88	67.94	-4.01	-3.52	5.33	0.01 0.00
W -45	OXY	-11.96	20.41	-68.05	23.66	-3.83	-4.67	6.63	3.36 0.00
W -45	OY	-41.89	-40.47	348.35	58.22	-4.57	4.91	6.71	0.03 0.00
W 90	OP	-22.25	-47.78	-347.46	52.71	5.81	0.95	5.89	2.42 0.00
W 90	OX	14.70	-37.81	216.35	40.57	6.35	0.34	6.36	2.16 0.00
W 90	OXY	-15.68	36.63	-218.96	39.85	6.02	-0.53	6.04	2.21 0.00
W 90	OY	22.81	-45.65	-337.44	51.03	5.49	-0.58	5.53	-2.42 0.00
W -90	OP	14.48	39.14	213.81	40.80	-6.40	0.33	6.41	-2.18 0.00
W -90	OX	-21.87	47.34	-342.01	52.15	-5.87	5.84	-2.42 0.00	
W -90	OXY	22.71	45.66	-334.92	51.00	-5.56	-0.56	5.59	2.43 0.00
W -90	OY	-15.32	36.46	213.53	39.55	-6.08	-0.54	6.11	2.22 0.00
W 0 Ice	OP	-20.66	-13.94	-194.79	24.93	-1.49	-0.29	1.52	-0.62 0.00
W 0 Ice	OX	-19.97	14.61	-189.59	24.39	1.36	0.21	1.38	0.63 0.00
W 0 Ice	OXY	-2.90	2.89	-34.19	4.09	1.40	-2.96	3.28	0.62 0.00
W 0 Ice	OY	-2.94	-3.07	-37.70	4.25	-1.43	-3.04	3.36	-0.61 0.00
W 180 Ice	OP	2.93	-3.39	-37.70	4.25	-1.42	-3.04	3.36	-0.60 0.00
W 180 Ice	OX	2.90	3.19	-38.70	4.31	1.41	3.06	3.37	-0.64 0.00
W 180 Ice	OXY	20.03	13.83	-185.86	24.34	1.35	0.31	1.38	-0.65 0.00
W 180 Ice	OY	20.57	-13.62	-198.16	24.67	-1.50	0.37	1.54	0.65 0.00
W 45 Ice	OP	-21.54	-5.88	-233.34	30.49	6.18	0.19	6.26	0.02 0.00
W 45 Ice	OX	-12.99	4.01	-113.41	13.59	2.61	0.22	2.62	0.93 0.00
W 45 Ice	OXY	-4.31	-4.34	4.06	6.12	2.60	-2.59	3.68	-0.09 0.00
W 45 Ice	OY	4.45	13.03	-113.59	13.65	-2.21	-2.60	2.61	0.03 0.00
W -45 Ice	OP	-13.54	-3.88	-117.75	14.09	-2.72	0.15	2.72	-0.94 0.00
W -45 Ice	OX	-21.00	21.59	-228.58	30.12	0.07	0.25	0.26	-0.01 0.00
W -45 Ice	OXY	4.10	12.93	-118.41	13.56	0.16	-2.54	2.54	0.94 0.00
W -45 Ice	OY	-4.28	4.21	8.48	6.08	-2.85	2.65	3.75	0.02 0.00
W 90 Ice	OP	-13.93	-20.74	-194.95	24.98	0.30	1.50	1.53	0.64 0.00
W 90 Ice	OX	-3.07	-2.96	-37.86	4.27	3.05	1.43	3.37	0.61 0.00
W 90 Ice	OXY	2.89	-2.93	-34.06	4.11	2.97	-1.40	3.28	-0.63 0.00
W 90 Ice	OY	14.02	-19.97	-189.40	24.40	0.22	-1.35	1.37	-0.63 0.00
W -90 Ice	OP	-3.38	2.99	-41.42	4.51	-3.11	1.42	3.42	-0.62 0.00
W -90 Ice	OX	-13.63	20.61	-198.77	24.71	-0.37	1.50	1.55	-0.65 0.00
W -90 Ice	OXY	-13.86	-20.61	-185.94	24.34	0.30	-1.34	1.37	0.65 0.00
W -90 Ice	OY	3.15	2.93	-38.14	4.30	-3.06	-1.41	3.36	0.64 0.00

Summary of Joint Support Reactions For All Load Cases in Direction of Leg:

Load Case	Support	Origin	Joint	Member	Leg Dir.	Force In	Residual Perpendicular	Residual Shear Horizontal	Residual Shear Horizontal	Residual Shear Horizontal	Total Long.	Total Tran.	Total Vert.
						(kips)	To Leg (kips)	To Leg - Res. (kips)	To Leg - Long. (kips)	To Leg - Tran. (kips)	(kips)	(kips)	(kips)
W 0	OP	1P	L 1P	349.742		26.053		26.195	26.091	0.873	-47.47	-22.26	-346.77
W 0	OX	1X	L 1X	339.519		24.808		24.863	24.786	-1.955	-45.54	22.71	-336.60
W 0	OXY	1XY	L 1XY	-220.725		23.118		23.169	23.068	2.164	-36.53	-15.63	218.35
W 0	OY	1Y	L 1Y	-217.832		24.347		24.398	24.360	-1.356	-37.65	14.64	215.43
W 180	OP	1P	L 1P	215.628		24.592		24.643	24.608	-1.311	37.76	-14.46	213.23
W 180	OX	1X	L 1X	-214.938		23.354		23.406	-23.311	2.106	36.42	-15.21	212.57
W 180	OXY	1XY	L 1XY	337.457		25.055		25.110	-25.029	-2.007	45.63	22.64	-334.53
W 180	OY	1Y	L 1Y	343.810		26.138		26.190	-26.177	0.829	47.20	-21.85	-348.86
W 45	OP	1P	L 1P	485.136		26.811		26.912	18.974	19.088	-48.63	-48.75	-488.97
W 45	OX	1X	L 1X	59.101		23.937		23.937	17.146	16.707	-20.77	-13.07	-58.85
W 45	OXY	1XY	L 1XY	-355.306		27.534		27.639	19.490	19.597	-41.17	-41.28	351.57
W 45	OY	1Y	L 1Y	61.111		23.958		23.958	16.598	17.277	-12.82	-21.06	-61.34
W -45	OP	1P	L 1P	65.266		25.458		25.458	18.121	-17.882	-22.13	13.87	-65.00
W -45	OX	1X	L 1X	476.994		26.616		26.717	17.976	-19.766	-47.14	48.93	-472.88
W -45	OXY	1XY	L 1XY	60.344		22.984		22.984	15.663	-16.711	-11.96	20.41	-68.05
W -45	OY	1Y	L 1Y	-352.089		27.739		27.845	20.369	18.985	-41.85	-40.47	348.35
W 90	OP	1P	L 1P	350.445		26.312		26.365	0.828	26.352	-22.25	-47.78	-347.46
W 90	OX	1X	L 1X	-218.756		24.454		24.506	-1.354	24.468	14.70	-37.81	216.35
W 90	OXY	1XY	L 1XY	-221.945		23.179		23.231	2.182	-23.129	-15.68	-36.63	218.96
W 90	OY	1Y	L 1Y	340.368		24.867		24.922	-1.998	24.841	22.83	-45.65	-337.44
W -90	OP	1P	L 1P	-216.231		24.938		24.991	-1.292	-24.957	14.48	39.14	213.81
W -90	OX	1X	L 1X	344.964		26.208		26.261	0.775	-26.249	-21.87	47.34	-342.01
W -90	OXY	1XY	L 1XY	337.851		25.039		25.094	-2.061	-25.009	22.71	45.66	-334.92
W -90	OY	1Y	L 1Y	-215.962		23.339		23.391	2.147	-23.293	-15.32	36.46	213.53
W 0 Ice	OP	1P	L 1P	196.178		8.841		8.865	8.652	1.932	-20.66	-13.94	-194.79
W 0 Ice	OX	1X	L 1X	195.966		8.569		8.593	8.274	-2.320	-19.97	14.61	-189.59
W 0 Ice	OXY	1XY	L 1XY	34.062		5.059		5.066	5.005	-0.781	-2.90	2.89	-34.19
W 0 Ice	OY	1Y	L 1Y	37.567		5.307		5.315	5.262	0.744	-2.94	-3.07	-37.70
W 180 Ice	OP	1P	L 1P	41.420		5.547		5.554	5.492	0.829	2.93	-3.39	-41.55
W 180 Ice	OX	1X	L 1X	38.568		5.884		5.891	5.851	-0.884	2.80	3.19	-38.70
W 180 Ice	OXY	1XY	L 1XY	187.238		8.864		8.890	-8.569	-2.367	20.03	13.83	-185.86
W 180 Ice	OY	1Y	L 1Y	191.542		9.016		9.040	-8.839	1.893	20.57	-13.62	-198.16
W 45 Ice	OP	1P	L 1P	187.318		19.105		19.143	7.153	7.191	-21.54	21.58	-233.34
W 45 Ice	OX	1X	L 1X	114.022		6.695		6.697	5.992	2.984	-12.99	4.01	-113.41
W 45 Ice	OXY	1XY	L 1XY	-4.579		5.743		5.745	4.060	4.093	-4.31	-4.34	4.06
W 45 Ice	OY	1Y	L 1Y	114.207		6.709		6.712	2.949	-6.930	4.06	-4.03	-120.59
W -45 Ice	OP	1P	L 1P	118.375		7.131		7.133	6.282	-3.379	-13.54	-3.88	-117.75
W -45 Ice	OX	1X	L 1X	230.335		10.154		10.192	6.902	-7.496	-21.00	21.59	-228.58
W -45 Ice	OXY	1XY	L 1XY	111.039		6.688		6.691	2.710	-6.118	4.10	12.93	-118.41
W -45 Ice	OY	1Y	L 1Y	9.995		5.934		5.956	4.247	-4.176	4.28	4.21	9.48
W 90 Ice	OP	1P	L 1P	196.339		8.901		8.925	1.909	8.718	-13.93	-20.74	-194.95
W 90 Ice	OX	1X	L 1X	37.721		5.338		5.345	0.738	5.294	-3.07	-2.96	-37.86
W 90 Ice	OXY	1XY	L 1XY	33.930		5.084		5.090	-0.789	5.029	2.89	-2.93	-34.06
W 90 Ice	OY	1Y	L 1Y	190.775		8.593		8.617	-2.342	8.293	14.02	-19.97	-189.40
W -90 Ice	OP	1P	L 1P	41.286		5.597		5.604	0.821	-5.544	-3.38	2.99	-41.42
W -90 Ice	OX	1X	L 1X	192.154		9.020		9.044	1.869	-8.849	-13.63	20.61	-198.77
W -90 Ice	OXY	1XY	L 1XY	187.318		8.850		8.875	-2.391	-8.547	-13.86	20.61	-185.94
W -90 Ice	OY	1Y	L 1Y	38.007		5.331		5.338	-0.801	-5.277	3.15	2.93	-38.14

Overturning Moment Summary For All Load Cases:

Load Case	Transverse Moment (ft-k)	Longitudinal Moment (ft-k)	Resultant Moment (ft-k)
W 0	300.884	25694.434	25696.196
W 180	130.520	-25327.140	25327.476
W 45	19205.655	19091.297	27080.155
W -45	-18774.381	19092.180	26712.548
W 90	25764.639	290.447	25766.276
W -90	-25397.934	-156.656	-25398.417
W 0 Ice	280.407	7187.071	7189.864
W 180 Ice	164.506	-6802.853	6804.841
W 45 Ice	5464.339	5456.943	7721.879
W -45 Ice	5099.528	5437.162	7454.389
W 90 Ice	7189.864	7189.864	10165.981
W -90 Ice	-8834.581	-186.696	-8837.128

272.7-282.8	282.834	272.667	8	16	11.12	12.37	119.40	1.1970	1.1970	1.436
262.5-272.7	272.667	262.500	12	24	12.12	13.63	132.10	1.2030	1.2030	1.444
250.0-262.5	262.500	250.000	16	24	13.63	15.17	179.95	1.2010	1.2010	1.441
237.5-250.0	250.000	237.500	16	24	15.17	16.71	199.22	1.2070	1.2070	1.449
225.0-237.5	237.500	225.000	16	24	16.71	18.25	218.49	1.2130	1.2130	1.456
212.5-225.0	225.000	212.500	16	24	18.25	19.79	237.76	1.2190	1.2190	1.463
200.0-212.5	212.500	200.000	16	24	19.79	21.33	257.03	1.2250	1.2250	1.470
187.5-200.0	200.000	187.500	16	24	21.33	24.42	271.87	1.2320	1.2320	1.479
150.0-175.0	175.000	150.000	16	24	24.42	27.56	286.70	1.2570	1.2570	1.509
125.0-150.0	150.000	125.000	16	24	27.56	30.58	326.04	1.2660	1.2660	1.519
100.0-125.0	125.000	100.000	20	32	30.58	33.67	383.13	1.2790	1.2790	1.535
75.0-100.0	100.000	75.000	32	76	33.67	36.75	448.21	1.2760	1.2760	1.531
50.0-75.0	75.000	50.000	36	76	36.75	39.83	497.29	1.2790	1.2790	1.535
25.0-50.0	50.000	25.000	32	68	39.83	42.92	563.38	1.2820	1.2820	1.539
0.000-25.00	25.000	0.000	20	40	42.92	46.00	611.46	1.3210	1.3210	1.586

Printed capacities do not include the strength factor entered for each load case.
The Group Summary reports on the member and load case that resulted in maximum usage which may not necessarily be the same as that which produces maximum force.

Group Summary (Compression Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength	Max Usage	Max Use Control	Comp. Member	Comp. Force	Comp. Control Case	L/r Capacity	Comp. Connect.	Comp. Bearing	RLX	RLY	RLZ	L/r		
				(ksi)	%			(kips)		(kips)		(kips)						
Leg S1	L 8" x 8" x 1.125"	SAE	8X8X1.13	36.0	76.24	Comp	76.24	L 1P	-419.815	W	45	464.114	0.000	0.000	0.281	0.281	0.281	54.30
Leg S2	L 8" x 8" x 1.125"	SAE	8X8X1.13	36.0	71.35	Comp	71.35	L 2P	-354.380	W	45	464.114	0.000	0.000	0.281	0.281	0.281	54.30
Leg S3	L 8" x 8" x 1.125"	SAE	8X8X1.13	36.0	65.42	Comp	65.42	L 3P	-303.636	W	45	464.114	0.000	0.000	0.281	0.281	0.281	54.30
Leg S4	L 8" x 8" x 0.875"	SAE	8X8X0.88	36.0	60.33	Comp	60.33	L 4P	-251.027	W	45	416.121	0.000	0.000	0.281	0.281	0.281	54.30
Leg S5	L 8" x 8" x 0.875"	SAE	8X8X0.88	36.0	69.21	Comp	69.21	L 5P	-239.240	W	45	345.671	0.000	0.000	0.333	0.333	0.333	63.93
Leg S6	L 8" x 8" x 0.875"	SAE	8X8X0.88	36.0	56.37	Comp	56.37	L 6P	-194.845	W	45	345.671	0.000	0.000	0.333	0.333	0.333	63.93
Leg S7	L 8" x 8" x 0.75"	SAE	8X8X0.75	36.0	58.86	Comp	58.86	L 7P	-152.445	W	45	299.714	0.000	0.000	0.333	0.333	0.333	63.93
Leg S8	L 8" x 8" x 0.625"	SAE	8X8X0.63	36.0	45.21	Comp	45.21	L 8P	-113.827	W	45	251.771	0.000	0.000	0.333	0.333	0.333	63.93
Leg S9	L 6" x 6" x 0.75"	SAE	6X6X0.75	36.0	34.12	Comp	34.12	L 9P	-94.367	W	45	219.900	0.000	0.000	0.500	0.500	0.500	64.35
Leg S10	L 6" x 6" x 0.75"	SAE	6X6X0.75	36.0	34.12	Comp	34.12	L 10P	-75.935	W	45	219.900	0.000	0.000	0.500	0.500	0.500	64.35
Leg S11	L 6" x 6" x 0.5625"	SAE	6X6X0.56	36.0	34.68	Comp	34.68	L 11P	-58.329	W	45	168.148	0.000	0.000	0.500	0.500	0.500	63.80
Leg S12	L 6" x 6" x 0.5625"	SAE	6X6X0.56	36.0	25.67	Comp	25.67	L 12P	-43.159	W	45	168.148	0.000	0.000	0.500	0.500	0.500	63.80
Leg S13	L 6" x 6" x 0.4375"	SAE	6X6X0.44	36.0	21.55	Comp	21.55	L 13P	-28.621	W	45	132.797	0.000	0.000	0.500	0.500	0.500	62.10
Leg S14	L 5" x 5" x 0.4375"	SAE	5X5X0.44	36.0	19.51	Comp	19.51	L 14P	-21.565	W	45	110.546	0.000	0.000	0.500	0.500	0.500	62.10
Leg S15	L 5" x 5" x 0.4375"	SAE	5X5X0.44	36.0	12.46	Comp	12.46	L 15P	-13.774	W	45	110.546	0.000	0.000	0.500	0.500	0.500	62.10
Leg S16	L 5" x 5" x 0.3125"	SAE	5X5X0.31	36.0	9.51	Comp	9.51	L 16P	-6.456	W	45	84.920	0.000	0.000	0.500	0.500	0.500	52.01
Leg S17	L 5" x 5" x 0.3125"	SAE	5X5X0.31	36.0	3.49	Comp	3.49	L 17P	-2.964	W	45	84.920	0.000	0.000	0.500	0.500	0.500	52.01
Leg S18	B/B L3"x4"x0.25"	DAS	4X3X0.25	36.0	83.17	Comp	83.17	D 2X	-50.996	W	-90	61.196	0.000	0.000	0.310	0.310	0.310	124.62
Leg S19	B/B L3"x4"x0.25"	DAS	4X3X0.25	36.0	91.60	Comp	91.60	D 4X	-56.090	W	-90	48.311	0.000	0.000	0.333	0.333	0.333	111.82
Leg S20	B/B L2.5"x3"x5"x0.25"	DAS	3.5X2.5X0.25	36.0	99.72	Comp	99.72	D 8X	-66.339	W	-90	49.384	0.000	0.000	0.333	0.333	0.333	109.94
Leg S21	B/B L3"x4"x0.25"	DAS	4X3X0.25	36.0	76.73	Comp	76.73	D 10X	-66.773	W	-90	45.574	0.000	0.000	0.333	0.333	0.333	134.71
Leg S22	B/B L3"x4"x0.25"	DAS	4X3X0.25	36.0	72.95	Comp	72.95	D 11X	-34.287	W	-90	46.997	0.000	0.000	0.333	0.333	0.333	131.00
Leg S23	B/B L3"x4"x0.25"	DAS	4X3X0.25	36.0	63.78	Comp	63.78	D 13X	-30.831	W	-90	48.336	0.000	0.000	0.333	0.333	0.333	127.55
Leg S24	B/B L3"x3"x5"x0.25"	DAE	3.5X3X0.25	36.0	65.42	Comp	65.42	D 15X	-28.459	W	-90	43.503	0.000	0.000	0.333	0.333	0.333	140.20
Leg S25	B/B L2.5"x2"x5"x0.25"	DAE	2.5X2.5X0.25	36.0	58.26	Comp	58.26	D 17X	-16.484	W	-90	46.570	0.000	0.000	0.320	0.320	0.320	97.87
Leg S26	B/B L2.5"x2"x5"x0.25"	DAE	2.5X2.5X0.25	36.0	58.26	Comp	58.26	D 19X	-14.800	W	-90	25.507	0.000	0.000	0.500	0.500	0.500	160.96
Leg S27	B/B L2.5"x2"x5"x0.25"	DAL	2.5X2X0.25	36.0	74.87	Comp	74.87	D 21X	-13.458	W	-90	17.975	0.000	0.000	0.480	0.480	0.480	190.92
Leg S28	B/B L2.5"x2"x5"x0.25"	DAL	2.5X2X0.25	36.0	67.87	Comp	67.87	D 23X	-11.197	W	-90	17.975	0.000	0.000	0.480	0.480	0.480	190.92
Leg S29	B/B L2.5"x2"x5"x0.25"	DAL	2.5X2X0.25	36.0	56.07	Comp	56.07	D 25X	-10.312	W	-90	18.390	0.000	0.000	0.500	0.500	0.500	187.90
Leg S30	L 3" x 3" x 0.25"	SAE	3.5X3X0.25	36.0	26.34	Comp	26.34	D 28X	-8.505	W	-90	19.003	0.000	0.000	0.520	0.520	0.520	148.48
Leg S31	L 3" x 3" x 0.25"	SAE	3.5X3X0.25	36.0	19.13	Comp	19.13	D 30X	-4.913	W	-90	19.003	0.000	0.000	0.520	0.520	0.520	139.62
Leg S32	L 3" x 3" x 0.25"	SAE	3.5X3X0.25	36.0	13.15	Comp	13.15	D 32X	-2.242	W	-90	17.044	0.000	0.000	0.520	0.520	0.520	143.77
Leg S33	L 3" x 3" x 0.25"	SAE	3.5X3X0.25	36.0	9.18	Comp	9.18	D 34X	-1.719	W	-90	18.723	0.000	0.000	0.520	0.520	0.520	135.30
Leg S34	B/B L3"x2"x5"x0.25"	DAL	3.5X2.5X0.25	36.0	86.48	Comp	86.48	H 1P	-48.968	W	-90	47.419	0.000	0.000	0.480	0.480	0.480	113.39
Leg S35	B/B L3"x2"x5"x0.25"	DAL	3.5X2.5X0.25	36.0	86.48	Comp	86.48	H 3P	-42.245	W	-90	73.448	0.000	0.000	0.500	0.500	0.500	113.39
Leg S36	B/B L3"x2"x5"x0.25"	DAL	3.5X2.5X0.25	36.0	53.26	Comp	53.26	H 5P	-39.119	W	-90	73.448	0.000	0.000	0.500	0.500	0.500	67.43
Leg S37	B/B L3"x2"x5"x0.25"	DAL	3.5X2.5X0.25	36.0	82.88	Comp	82.88	H 7P	-36.479	W	-90	44.013	0.000	0.000	0.470	0.470	0.470	112.92
Leg S38	B/B L3"x2"x5"x0.25"	DAL	3.5X2.5X0.25	36.0	78.63	Comp	78.63	H 9P	-37.861	W	-90	21.660	0.000	0.000	1.000	1.000	1.000	194.18
Leg S39	B/B L3"x2"x5"x0.25"	DAL	3.5X2.5X0.25	36.0	61.93	Comp	61.93	H 11P	-15.601	W	-90	25.190	0.000	0.000	1.000	1.000	1.000	174.60
Leg S40	B/B L2.5"x2"x5"x0.25"	DAE	2.5X2.5X0.25	36.0	63.94	Comp	63.94	H 13P	-12.883	W	-90	20.147	0.000	0.000	1.000	1.000	1.000	199.51
Leg S41	B/B L2.5"x2"x5"x0.25"	DAE	2.5X2.5X0.25	36.0	45.82	Comp	45.82	H 15P	-11.162	W	-90	24.360	0.000	0.000	1.000	1.000	1.000	166.45
Leg S42	B/B L2.5"x2"x5"x0.25"	DAE	2.5X2.5X0.25	36.0	45.82	Comp	45.82	H 17P	-9.926	W	-90	25.980	0.000	0.000	1.000	1.000	1.000	154.42
Leg S43	B/B L2.5"x2"x5"x0.25"	DAE	2.5X2.5X0.25	36.0	27.68	Comp	27.68	H 19P	-8.317	W	-90	30.846	0.000	0.000	1.000	1.000	1.000	142.39
Leg S44	B/B L2.5"x2"x5"x0.25"	DAE	2.5X2.5X0.25	36.0	21.78	Comp	21.78	H 21P	-7.245	W	-90	33.265	0.000	0.000	1.000	1.000	1.000	130.36
Leg S45	B/B L2.5"x2"x5"x0.25"	DAE	2.5X2.5X0.25	36.0	16.87	Comp	16.87	H 23P	-6.948	W	-90	33.265	0.000	0.000	1.000	1.000	1.000	130.36
Leg S46	B/B L2.5"x2"x5"x0.25"	DAE	2.5X2.5X0.25	36.0	18.88	Comp	18.88	H 25X	-4.628	W	-90	42.534	0.000	0.000	1.000	1.000	1.000	106.31
Leg S47	L 4" x 3" x 2.5" x 0.25"	SAU	3X2X0.25	36.0	7.49	Comp	7.49	H 28X	-0.693	W	-90	9.254	0.000	0.000	0.500	0.500	0.500	197.15
Leg S48	B/B L3"x2"x5"x0.25"	DAL	3.5X2.5X0.25	36.0	82.88	Comp	82.88	H 29X	-0.693	W	-90	9.254	0.000	0.000	0.500	0.500	0.500	197.15
Leg S49	B/B L3"x2"x5"x0.25"	DAL	3.5X2.5X0.25	36.0	1.53	Comp	1.53	H 30X	-0.693	W	-90	9.254	0.000	0.000	0.500	0.500	0.500	197.15
Leg S50	B/B L2.5"x2"x5"x0.25"	DAE	2.5X2.5X0.25	36.0	1.53	Comp	1.53	H 31X	-0.629	W	-90	13.623	0.000	0.000	0.500	0.500	0.500	160.30
Leg S51	B/B L2.5"x2"x5"x0.25"	DAE	2.5X2.5X0.25	36.0	0.99	Comp	0.99	H 33X	-0.294	W	-90	25.726	0.000	0.000	1.000	1.000	1.000	172.80
Leg S52	B/B L3"x2"x5"x0.25"	DAL	3.5X2.5X0.25	36.0	71.35	Comp	71.35	H 35X	-28.567	W	-90	28.827	0.000	0.000	0.850	0.850	0.850	146.95
Leg S53	B/B L4"x3"x0.25"	DAL	4X3X0.25	36.0	82.88	Comp	82.88	H 37X	-28.567	W	-90	28.827	0.000	0.000	0.850	0.850	0.850	146.95
Leg S54	B/B L2.5"x2"x5"x0.25"	DAL	2.5X2X0.25	36.0	95.81	Comp	95.81	LD 7X	-26.339	W	-90	24.372	0.000	0.000	0.870	0.870	0.870	153.35
Leg S55	B/B L2.5"x2"x5"x0.25"	DAL	2.5X2X0.25	36.0	91.15	Comp	91.15	LD 9X	-37.074	W	-90	40.657	0.000	0.000	0.800	0.800	0.800	109.25
Leg S56	B/B L3"x2"x5"x0.25"	DAL	3.5X2.5X0.25	36.0	77.92	Comp	77.92	LD 11X	-26.339	W	-90	24.372	0.000	0.000	0.800	0.800	0.800	109.25
Leg S57	B/B L3"x2"x5"x0.25"	DAL	3.5X2.5X0.25	36.0	66.05	Comp	66.05	LD 13X	-25.826	W	-90	43.065	0.000	0.000	0.865	0.865	0.865	122.12
Leg S58	B/B L2.5"x2"x5"x0.25"	DAL	2.5X2X0.25	36.0	96.57	Comp	96.57	LD 15X	-36.559	W	-90	40.354	0.000	0.000	0.820	0.820	0.820	106.96
Leg S59	B/B L3"x2"x5"x0.25"	DAL	3.5X2.5X0.25	36.0	89.27	Comp	89.27	LD 17X	-25.826	W	-90	43.065	0.000	0.000	0.820	0.820	0.820	106.96
Leg S60	B/B L3"x2"x5"x0.25"	DAL	3.5X2.5X0.25	36.0	56.78	Comp	56.78	LD 19X	-26.325	W	-90	43.065	0.000	0.000	0.860	0.860	0.860	115.26
Leg S61	B/B L2.5"x2"x5"x0.25"	DAL	2.5X2X0.25	36.0	88.81	Comp	88.81	LD 21X	-36.487	W	-90	41.083	0.000	0.000	0.820	0.820	0.820	99.26
Leg S62	B/B L2.5"x2"x5"x0.375"	DAE	2.5X2.5X0.38	36.0	74.19	Comp	74.19	LD 23P	-38.472	W	-90	51.857	0.000	0.000	0.850	0.850	0.850	122.61
Leg S63	B/B L2.5"x2"x5"x0.375"	DAE	2.5X2.5X0.38	36.0	14.21	Comp	14.21	LD 25P	-14.080	W	-90	51.857	0.000	0.000	0.850	0.850	0.850	

LD 6	B/B L3"x3"x0.25"	DAE	3X3X0.25	36.0	77.23	Comp	44.48	LD 11X	41.507	W -90	93.312	0.000	0.000	0.000	9.081	0 0.000	0
LD 7	B/B L3"x3"x0.25"	DAE	3X3X0.25	36.0	60.05	Comp	25.02	LD 14Y	23.344	W -45	93.312	0.000	0.000	0.000	10.941	0 0.000	0
LD 8	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	36.0	90.57	Comp	46.98	LD 15P	32.424	W -90	69.012	0.000	0.000	0.000	8.044	0 0.000	0
LD 9	B/B L3"x2"x0.25"	DAL	3X2X0.25	36.0	89.49	Comp	52.41	LD 17X	40.415	W -90	77.112	0.000	0.000	0.000	9.336	0 0.000	0
LD 10	B/B L3"x3"x0.25"	DAE	3X3X0.25	36.0	56.78	Comp	24.86	LD 20Y	23.197	W -45	93.312	0.000	0.000	0.000	10.387	0 0.000	0
LD 11	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	36.0	88.61	Comp	46.29	LD 21P	31.945	W -90	69.012	0.000	0.000	0.000	7.909	0 0.000	0
LD 12	B/B L2.5"x2.5"x0.375"	DAE	2.5X2.5X0.38	36.0	74.19	Comp	35.01	LD 23X	39.361	W -90	112.428	0.000	0.000	0.000	9.008	0 0.000	0
LH 1	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	36.0	12.21	Tens	12.21	LH 2X	10.401	W 90	85.212	0.000	0.000	0.000	21.458	0 0.000	0
LH 2	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	36.0	90.24	Comp	11.50	LH 3P	26.944	W -90	85.212	0.000	0.000	0.000	10.808	0 0.000	0
LH 3	B/B L2.5"x3"x0.375"	DAS	3X2.5X0.38	36.0	70.99	Comp	20.26	LH 6Y	25.210	W -45	124.416	0.000	0.000	0.000	10.005	0 0.000	0
LH 4	B/B L3.5"x3.5"x0.25"	DAE	3.5X3.5X0.25	36.0	63.49	Comp	21.99	LH 8Y	24.079	W -45	109.512	0.000	0.000	0.000	9.202	0 0.000	0
DUM 1	Dummy Bracing Member	DUM	0.1X0.1X1	36.0	0.00		0.00	BR 11X	1.018	W -45	0.324	0.000	0.000	0.000	19.445	0 0.000	0

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
W 0	97.22	LH 4P	Angle
W 180	97.55	LH 4Y	Angle
W 45	95.10	LH 3P	Angle
W -45	98.24	LH 3X	Angle
W 90	97.59	LH 3P	Angle
W -90	97.85	LH 3X	Angle
W 0 Ice	35.98	LH 4P	Angle
W 180 Ice	36.74	LH 4Y	Angle
W 45 Ice	37.90	L 1P	Angle
W -45 Ice	37.05	L 1X	Angle
W 90 Ice	36.13	LH 3P	Angle
W -90 Ice	36.79	LH 3X	Angle

*** Weight of structure (lbs):
 Weight of Angles*Section DLF: 146562.4
 Weight of Equipment: 949.0
 Total: 147511.4

*** End of Report

Site #: 88018
Name: Stamford (Katoona), CT

Engineer: RDB
Date: 05/02/17

Windspeed: No Ice: 93 mph Ice: 50 mph
Carrier: AT&T Mobility

Taper: -0.123333
FW @ Base: 46 ft

Taper Change: 300 ft
FW @ Top: 9 ft

Joint Label	Symmetry Code	X Coord. (ft)	Y Coord. (ft)	Z Coord. (ft)	X Disp. Rest.	Y Disp. Rest.	Z Disp. Rest.	X Rot. Rest.	Y Rot. Rest.	Z Rot. Rest.	Sub-Brace (Y or Blank)	Spreadsheet Version Last Updated: 11/12/2014							
												# Vert	Drop (ft)	Height (ft)	Type	Count	Z-Elev. (ft)	FW (ft)	# Sub-Brace
0	XY-Symmetry	23	23	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed		3	7.033	25	1	1	0	46	3
1	XY-Symmetry	21.45833333	21.45833333	25	Free	Free	Free	Free	Free	Free		2	7.033	25	2	2	25	42.91666667	3
2	XY-Symmetry	19.91666667	19.91666667	50	Free	Free	Free	Free	Free	Free		2	7.033	25	2	3	50	39.83333333	3
3	XY-Symmetry	18.375	18.375	75	Free	Free	Free	Free	Free	Free		2	7.033	25	2	4	75	36.75	3
4	XY-Symmetry	16.83333333	16.83333333	100	Free	Free	Free	Free	Free	Free				25	A	5	100	33.66666667	2
5	XY-Symmetry	15.29166667	15.29166667	125	Free	Free	Free	Free	Free	Free				25	A	6	125	30.58333333	2
6	XY-Symmetry	13.75	13.75	150	Free	Free	Free	Free	Free	Free				25	A	7	150	27.5	2
7	XY-Symmetry	12.20833333	12.20833333	175	Free	Free	Free	Free	Free	Free				25	A	8	175	24.41666667	2
8	XY-Symmetry	10.66666667	10.66666667	200	Free	Free	Free	Free	Free	Free				12.5	A	9	200	21.33333333	1
9	XY-Symmetry	9.895833333	9.895833333	212.5	Free	Free	Free	Free	Free	Free				12.5	A	10	212.5	19.79166667	1
10	XY-Symmetry	9.125	9.125	225	Free	Free	Free	Free	Free	Free				12.5	A	11	225	18.25	1
11	XY-Symmetry	8.354166667	8.354166667	237.5	Free	Free	Free	Free	Free	Free				12.5	A	12	237.5	16.70833333	1
12	XY-Symmetry	7.583333333	7.583333333	250	Free	Free	Free	Free	Free	Free				12.5	A	13	250	15.16666667	1
13	XY-Symmetry	6.8125	6.8125	262.5	Free	Free	Free	Free	Free	Free		1		10.167	X	14	262.5	13.625	1
14	XY-Symmetry	6.185535	6.185535	272.667	Free	Free	Free	Free	Free	Free		1		10.167	X	15	272.667	12.37107	1
15	XY-Symmetry	5.55857	5.55857	282.834	Free	Free	Free	Free	Free	Free		1		8.583	X	16	282.834	11.11714	1
16	XY-Symmetry	5.029285	5.029285	291.417	Free	Free	Free	Free	Free	Free				8.583	X	17	291.417	10.05857	1
17	XY-Symmetry	4.5	4.5	300	Free	Free	Free	Free	Free	Free						18	300	9	
A1	Y-Symmetry	21.45833333	0	25	Free	Free	Free	Free	Free	Free									
A2	X-Symmetry	0	21.45833333	25	Free	Free	Free	Free	Free	Free									
A3	XY-Symmetry	19.91666667	6.638888889	50	Free	Free	Free	Free	Free	Free									
A4	XY-Symmetry	6.638888889	19.91666667	50	Free	Free	Free	Free	Free	Free									
A5	XY-Symmetry	18.375	6.125	75	Free	Free	Free	Free	Free	Free									
A6	XY-Symmetry	6.125	18.375	75	Free	Free	Free	Free	Free	Free									
A7	XY-Symmetry	16.83333333	5.611111111	100	Free	Free	Free	Free	Free	Free									
A8	XY-Symmetry	5.611111111	16.83333333	100	Free	Free	Free	Free	Free	Free									
A9	Y-Symmetry	15.29166667	0	125	Free	Free	Free	Free	Free	Free									
A10	X-Symmetry	0	15.29166667	125	Free	Free	Free	Free	Free	Free									
A11	Y-Symmetry	13.75	0	150	Free	Free	Free	Free	Free	Free									
A12	X-Symmetry	0	13.75	150	Free	Free	Free	Free	Free	Free									
A13	Y-Symmetry	12.20833333	0	175	Free	Free	Free	Free	Free	Free									
A14	X-Symmetry	0	12.20833333	175	Free	Free	Free	Free	Free	Free									
A15	Y-Symmetry	10.66666667	0	200	Free	Free	Free	Free	Free	Free									
A16	X-Symmetry	0	10.66666667	200	Free	Free	Free	Free	Free	Free									
A17	Y-Symmetry	9.895833333	0	212.5	Free	Free	Free	Free	Free	Free									
A18	X-Symmetry	0	9.895833333	212.5	Free	Free	Free	Free	Free	Free									
A19	Y-Symmetry	9.125	0	225	Free	Free	Free	Free	Free	Free									
A20	X-Symmetry	0	9.125	225	Free	Free	Free	Free	Free	Free									
A21	Y-Symmetry	8.354166667	0	237.5	Free	Free	Free	Free	Free	Free									
A22	X-Symmetry	0	8.354166667	237.5	Free	Free	Free	Free	Free	Free									
A23	Y-Symmetry	7.583333333	0	250	Free	Free	Free	Free	Free	Free									
A24	X-Symmetry	0	7.583333333	250	Free	Free	Free	Free	Free	Free									
A25	Y-Symmetry	6.8125	0	262.5	Free	Free	Free	Free	Free	Free									
A26	X-Symmetry	0	6.8125	262.5	Free	Free	Free	Free	Free	Free									
H1	XY-Symmetry	21.892035	10.72916667	17.967	Free	Free	Free	Free	Free	Free									
H2	XY-Symmetry	10.72916667	21.892035	17.967	Free	Free	Free	Free	Free	Free									
H5	XY-Symmetry	20.35036833	10.807895	42.967	Free	Free	Free	Free	Free	Free									
H6	XY-Symmetry	10.807895	20.35036833	42.967	Free	Free	Free	Free	Free	Free									
H7	Y-Symmetry	20.35036833	0	42.967	Free	Free	Free	Free	Free	Free									
H8	X-Symmetry	0	20.35036833	42.967	Free	Free	Free	Free	Free	Free									
H9	XY-Symmetry	18.80870167	10.00487167	67.967	Free	Free	Free	Free	Free	Free									
H10	XY-Symmetry	10.00487167	18.80870167	67.967	Free	Free	Free	Free	Free	Free									
H11	Y-Symmetry	18.80870167	0	67.967	Free	Free	Free	Free	Free	Free									
H12	X-Symmetry	0	18.80870167	67.967	Free	Free	Free	Free	Free	Free									
H13	XY-Symmetry	17.267035	9.201848333	92.967	Free	Free	Free	Free	Free	Free									
H14	XY-Symmetry	9.201848333	17.267035	92.967	Free	Free	Free	Free	Free	Free									
H15	Y-Symmetry	17.267035	0	92.967	Free	Free	Free	Free	Free	Free									
H16	X-Symmetry	0	17.267035	92.967	Free	Free	Free	Free	Free	Free									

NOTES

Types:

1: Built up Horiz. w/ A

2: Built up Horiz. w/ M

A: Typical A brace

X: Typical X brace

Drop: Use only for types 1 & 2

Sections: 17

Legs

Site No.:	88018
Engineer:	RDB
Date:	05/02/2017
Carrier:	AT&T Mobility

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape ^[1]	Diameter or Length (in)	Thickness ^[2] (in)	F _y (ksi)
1	0.000-25.00	L	8	1.125	36
2	25.00-50.00	L	8	1.125	36
3	50.00-75.00	L	8	1.125	36
4	75.00-100.0	L	8	1	36
5	100.0-125.0	L	8	0.875	36
6	125.0-150.0	L	8	0.875	36
7	150.0-175.0	L	8	0.75	36
8	175.0-200.0	L	8	0.625	36
9	200.0-212.5	L	6	0.75	36
10	212.5-225.0	L	6	0.75	36
11	225.0-237.5	L	6	0.5625	36
12	237.5-250.0	L	6	0.5625	36
13	250.0-262.5	L	6	0.4375	36
14	262.5-272.7	L	5	0.4375	36
15	272.7-282.8	L	5	0.4375	36
16	282.8-291.4	L	5	0.3125	36
17	291.4-300.0	L	5	0.3125	36

Notes:

^[1] Type of Leg Shape: **R** = Round or **P** = Bent Plate or **S** = Schifflerized Angle. **L** = Even Leg

^[2] For Solid Round Leg Shapes Thickness Equals Zero.

^[3] Adjust for Bent Plate Leg Shapes.

Diagonals

Site No.:	88018
Engineer:	RDB
Date:	05/02/2017
Carrier:	AT&T Mobility

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape ^[1]	Diameter ^[2] (in)	Web Length ^[3] (in)	Flange Length ^[3] (in)	Thickness (in)	F _y (ksi)	Is Diag. Tension Only? (Y/N)
1	0.000-25.00	2L		3	4	0.3125	36	
2	25.00-50.00	2L		3	3.5	0.25	36	
3	50.00-75.00	2L		2.5	3.5	0.25	36	
4	75.00-100.0	2L		2.5	3.5	0.25	36	
5	100.0-125.0	2L		3	4	0.25	36	
6	125.0-150.0	2L		3	4	0.25	36	
7	150.0-175.0	2L		3	4	0.25	36	
8	175.0-200.0	2L		3.5	3.5	0.25	36	
9	200.0-212.5	2L		2.5	2.5	0.25	36	
10	212.5-225.0	2L		2.5	2.5	0.25	36	
11	225.0-237.5	2L		2.5	2	0.25	36	
12	237.5-250.0	2L		2.5	2	0.25	36	
13	250.0-262.5	2L		2.5	2	0.25	36	
14	262.5-272.7	L		3.5	3.5	0.25	36	
15	272.7-282.8	L		3.5	3.5	0.25	36	
16	282.8-291.4	L		3	3	0.25	36	
17	291.4-300.0	L		3	3	0.25	36	

Notes:

^[1] Type of Diagonal Shape: **R** = Round, **L** = Single-Angle or **2L** = Double-Angle.

^[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

^[3] Applies to Single-Angle and Double-Angle Shapes only.

^[4] Applies to Double-Angle Shapes only.

^[5] Applies to Single-Angle Shapes only.

Horizontals

Site No.:	88018
Engineer:	RDB
Date:	05/02/2017
Carrier:	AT&T Mobility

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape ^[1]	Diameter ^[2] (in)	Web Length ^[3] (in)	Flange Length ^[3] (in)	Thickness (in)	F _y (ksi)	
1	0.000-25.00	2L		3.5	2.5	0.25	36	
2	25.00-50.00	2L		3.5	2.5	0.25	36	
3	50.00-75.00	2L		3.5	2.5	0.25	36	
4	75.00-100.0	2L		3	2.5	0.25	36	
5	100.0-125.0	2L		3	2.5	0.25	36	
6	125.0-150.0	2L		3	2.5	0.25	36	
7	150.0-175.0	2L		2.5	2.5	0.25	36	
8	175.0-200.0	2L		2.5	2.5	0.25	36	
9	200.0-212.5	2L		2.5	2.5	0.25	36	
10	212.5-225.0	2L		2.5	2.5	0.25	36	
11	225.0-237.5	2L		2.5	2.5	0.25	36	
12	237.5-250.0	2L		2.5	2.5	0.25	36	
13	250.0-262.5	2L		2.5	2.5	0.25	36	
14	262.5-272.7	L		3	2.5	0.25	36	
15	272.7-282.8	2L		3	2.5	0.25	36	
16	282.8-291.4	L		3	2.5	0.25	36	
17	291.4-300.0	C		8	11.5		36	

Notes:

^[1] Type of Horizontal Shape: **R** = Round, **L** = Single-Angle, **2L** = Double-Angle, **C** = Channel, **W** = W Shape

^[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

^[3] Applies to Single-Angle and Double-Angle Shapes only.

^[4] Applies to Double-Angle Shapes only.

^[5] Applies to Single-Angle Shapes only.

Built-up Diagonals

Site No.:	88018
Engineer:	RDB
Date:	05/02/2017
Carrier:	AT&T Mobility

When inputting thickness values, include all decimal places.

Input diags. from left to center & from base section upward.

Tower Built-up Diag. #	Section Elevations (ft)	Type of Shape ^[1]	Diameter ^[2] (in)	Web Length ^[3] (in)	Flange Length ^[3] (in)	Thickness (in)	F _y (ksi)
1	0.000-25.00	2L		3	2	0.25	36
2	0.000-25.00	2L		4	3	0.25	36
3	25.00-50.00	2L		2.5	2	0.25	36
4	25.00-50.00	2L		2.5	2	0.25	36
5	25.00-50.00	2L		3	3	0.25	36
6	50.00-75.00	2L		3	3	0.25	36
7	50.00-75.00	2L		2.5	2	0.25	36
8	50.00-75.00	2L		3	2	0.25	36
9	75.00-100.0	2L		3	3	0.25	36
10	75.00-100.0	2L		2.5	2	0.25	36
11	75.00-100.0	2L		2.5	2.5	0.375	36

Notes:

^[1] Type of Diagonal Shape: **R** = Round, **L** = Single-Angle or **2L** = Double-Angle.

^[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

^[3] Applies to Single-Angle and Double-Angle Shapes only.

^[4] Applies to Double-Angle Shapes only.

^[5] Applies to Single-Angle Shapes only.

Built-up Horizontals

Site No.:	88018
Engineer:	RDB
Date:	05/02/2017
Carrier:	AT&T Mobility

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape ^[1]	Diameter ^[2] (in)	Web Length ^[3] (in)	Flange Length ^[3] (in)	Thickness (in)	F _y (ksi)	Is Horiz. Tension Only? (Y/N)
1	0.000-25.00	2L		2.5	3	0.25	36	Y
2	25.00-50.00	2L		2.5	3	0.25	36	
3	50.00-75.00	2L		2.5	3	0.375	36	
4	75.00-100.0	2L		3.5	3.5	0.25	36	

Notes:

^[1] Type of Horizontal Shape: **R** = Round, **L** = Single-Angle or **2L** = Double-Angle.

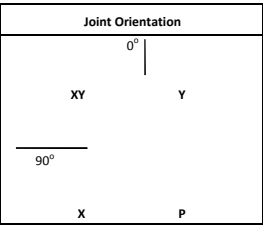
^[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

^[3] Applies to Single-Angle and Double-Angle Shapes only.

^[4] Applies to Double-Angle Shapes only.

^[5] Applies to Single-Angle Shapes only.

Site No.:	88018
Engineer:	RDB
Date:	05/02/17
Carrier:	AT&T Mobility

Dish Types		Joint Orientation	
S	Standard		
R	Standard w/ Radome		
H	High Performance		
G	Grid		

Dish Elevation (ft)	Dish Dia. (ft)	Dish Angle (deg)	Dish Type	Joint Orientation	Equipment Label	Attach Label	Equipment Property Set	EIA Antenna Orientation Angle

Description	From (ft)	To (ft)	Quantity	Shape	Width or Diameter (in)	Perimeter (in)	Unit Weight (lb/ft)	Part of Face Solidity Ratio (Yes/No)	Include in Wind Load (Yes/No)
Marcus-335-1	5	300	1	Round	1.55	4.9	0.63	Yes	Yes
United-320-1	5	300	1	Round	1.09	3.4	0.33	Yes	Yes
Marcus-311-1	5	300	1	Round	1.55	4.9	0.63	Yes	Yes
Unknown-306-1	5	300	1	Round	0.63	2.0	0.15	Yes	Yes
Clearwire-300-1	5	300	5	Round	1.09	3.4	0.33	Yes	Yes
Qualcomm-276-1	5	276	1	Round	3.13	9.8	3.04	Yes	Yes
US DOHS-275-1	5	275	2	Round	1.09	3.4	0.33	Yes	Yes
Sirius-272-1	5	272	1	Round	5.02	15.8	1.85	Yes	Yes
Sirius-268-1	5	268	1	Round	1.98	6.2	0.82	Yes	Yes
T-Mobile-265-1	5	265	3	Round	0.88	2.8	0.7	Yes	Yes
US DOHS-250-1	5	250	1	Round	1.09	3.4	0.33	Yes	Yes
US DOHS-245-1	5	245	1	Round	1.09	3.4	0.33	Yes	Yes
US DOHS-210-1	5	210	1	Round	1.09	3.4	0.33	Yes	Yes
US DOHS-201-1	5	201	2	Round	1.55	4.9	0.63	Yes	Yes
Spok-183-1	5	183	3	Round	1.09	3.4	0.33	Yes	Yes
Clearwire-171-1	5	171	2	Round	2.38	7.5	3.65	Yes	Yes
Clearwire-171-2	5	171	6	Round	0.31	1.0	0.05	Yes	Yes
Clearwire-167-1	5	167	2	Round	2.38	7.5	3.65	Yes	Yes
Metro-160-1	5	160	2	Round	0.44	1.4	0.08	Yes	Yes
Sprint-150-1	5	150	5	Round	1.54	4.8	1	Yes	Yes
Senus-142-1	5	142	1	Round	1.09	3.4	0.33	Yes	Yes
Senet-130-1	5	130	1	Round	0.38	1.2	0.09	Yes	Yes
Senet-130-2	5	130	1	Round	0.63	2.0	0.15	Yes	Yes
Spok-120-1	5	120	1	Round	0.63	2.0	0.15	Yes	Yes
Marcus-100-1	5	100	1	Round	1.55	4.9	0.63	Yes	Yes
Verizon-92-1	5	92	2	Round	1.98	6.2	1.3	Yes	Yes
Sirius-22-1	5	22	1	Round	1.09	3.4	0.33	Yes	Yes
Spok-6-1	5	6	1	Round	0.63	2.0	0.15	Yes	Yes
Spok-6-2	5	6	1	Round	0.34	1.1	0.06	Yes	Yes
AT&T-235-2	5	235	2	Round	0.39	1.2	0.06	No	No
AT&T-235-3	5	235	4	Round	0.74	2.3	0.49	No	No
Other-193-1	5	193	1	Round	0.27	0.8	0.04	Yes	Yes

Coax and Dishes (p. 2 of 2)

Tia Code: TIA-222-G

Exposure

Topo Cat:

Crest Ht:

f

B

1

0

α

z_g

K_e

7 $k_{z \max}$

1200 $k_{z \min}$

0.9 K_t

2.01

0.7

Description	From	To	Quantity	Face #	Coax Width	Considered Coax Shape (Block / Flat / Ind)	% Exposed	Spacing	Shape (Round/Flat)	Block Width (# coax)	Block Depth (# coax)	Perimeter (in)	Unit Weight (lb/ft)	In Face Zone (Yes/No)	Include in Wind Load (Yes/No)
	(ft)	(ft)		(1-4, A-D)	(in)			(in)							
							100							No	No
Marcus-335-1	5	300	1	B	1.55	Ind	100	0	Round	1	1	4.9	0.63	Yes	Yes
United-320-1	5	300	1	B	1.09	Ind	100		Round	1	1	3.4	0.33	Yes	Yes
Marcus-311-1	5	300	1	B	1.55	Ind	100	0	Round	1	1	4.9	0.63	Yes	Yes
Unknown-306-1	5	300	1	B	0.63	Ind	100		Round	1	1	2.0	0.15	Yes	Yes
Clearwire-300-1	5	300	5	2	1.09	Ind	100	0	Round	5	1	3.4	0.33	Yes	Yes
Qualcomm-276-1	5	276	1	B	3.13	Ind	100		Round	1	1	9.8	3.04	Yes	Yes
US DOHS-275-1	5	275	2	2	1.09	Ind	100	0	Round	2	1	3.4	0.33	Yes	Yes
Sirius-272-1	5	272	1	4	5.02	Ind	100		Round	1	1	15.8	1.85	Yes	Yes
Sirius-268-1	5	268	1	4	1.98	Ind	100	0	Round	1	1	6.2	0.82	Yes	Yes
T-Mobile-265-1	5	265	3	4	0.88	Ind	100		Round	3	1	2.8	0.7	Yes	Yes
US DOHS-250-1	5	250	1	2	1.09	Ind	100	0	Round	1	1	3.4	0.33	Yes	Yes
US DOHS-245-1	5	245	1	2	1.09	Ind	100		Round	1	1	3.4	0.33	Yes	Yes
US DOHS-210-1	5	210	1	2	1.09	Ind	100	0	Round	1	1	3.4	0.33	Yes	Yes
US DOHS-201-1	5	201	2	2	1.55	Ind	100		Round	2	1	4.9	0.63	Yes	Yes
Spok-183-1	5	183	3	B	1.09	Ind	100	0	Round	3	1	3.4	0.33	Yes	Yes
Clearwire-171-1	5	171	2	2	2.38	Ind	100		Round	2	1	7.5	3.65	Yes	Yes
Clearwire-171-2	5	171	6	2	0.31	Ind	100	0	Round	6	1	1.0	0.05	Yes	Yes
Clearwire-167-1	5	167	2	2	2.38	Ind	100		Round	2	1	7.5	3.65	Yes	Yes
Metro-160-1	5	160	2	1	0.44	Ind	100	0	Round	2	1	1.4	0.08	Yes	Yes
Sprint-150-1	5	150	5	2	1.54	Ind	100		Round	5	1	4.8	1	Yes	Yes
Senus-142-1	5	142	1	B	1.09	Ind	100	0	Round	1	1	3.4	0.33	Yes	Yes
Senet-130-1	5	130	1	3	0.38	Ind	100		Round	1	1	1.2	0.09	Yes	Yes
Senet-130-2	5	130	1	3	0.63	Ind	100	0	Round	1	1	2.0	0.15	Yes	Yes
Spok-120-1	5	120	1	B	0.63	Ind	100		Round	1	1	2.0	0.15	Yes	Yes
Marcus-100-1	5	100	1	B	1.55	Ind	100	0	Round	1	1	4.9	0.63	Yes	Yes
Verizon-92-1	5	92	2	4	1.98	Ind	100		Round	2	1	6.2	1.3	Yes	Yes
Sirius-22-1	5	22	1	4	1.09	Ind	100	0	Round	1	1	3.4	0.33	Yes	Yes
Spok-6-1	5	6	1	B	0.63	Ind	100		Round	1	1	2.0	0.15	Yes	Yes
Spok-6-2	5	6	1	B	0.34	Ind	100	0	Round	1	1	1.1	0.06	Yes	Yes
AT&T-235-2	5	235	2	1	0.39	Ind	100		Round	2	1	1.2	0.06	No	No
AT&T-235-3	5	235	4	1	0.74	Ind	100	0	Round	4	1	2.3	0.49	No	No
Other-193-1	5	193	1	3	0.27	Ind	100		Round	1	1	0.8	0.04	Yes	Yes
							100	0						No	Yes
							100							No	Yes
							100	0						No	Yes
							100							No	Yes
							100	0						No	Yes
							100							No	Yes
							100	0						No	Yes

Site No.:	88018
Engineer:	RDB
Date:	05/02/17
Carrier:	AT&T Mobility

Dish Types		Joint Orientation	
S	Standard	0°	
		XY	Y
R	Standard w/ Radome	90°	
H	High Performance		
G	Grid	X	P

Dish Elevation (ft)	Dish Dia. (ft)	Dish Angle (deg)	Dish Type	Joint Orientation

Equipment Label	Attach Label	Equipment Property Set	EIA Antenna Orientation Angle

Description	From (ft)	To (ft)	Quantity	Shape	Width or Diameter (in)	Perimeter (in)	Unit Weight (lb/ft)	Part of Face Solidity Ratio (Yes/No)	Include in Wind Load (Yes/No)
LADDER	0	300	1	Flat	1.5	6.0	6	Yes	Yes
Short Ladder1	8.3333	33.3333	2	Flat	1.5	6.0	6	Yes	Yes
Short Ladder2	8.3333	33.3333	2	Flat	1.5	6.0	6	Yes	Yes
WG-1	5	300	1	Flat	1.5	6.0	6	Yes	Yes
WG-2	5	272	1	Flat	1.5	6.0	6	Yes	Yes
WG-3	5	235	1	Flat	1.5	6.0	6	Yes	Yes
WG-4	5	223	1	Flat	1.5	6.0	6	Yes	Yes
WG-5	5	160	1	Flat	1.5	6.0	6	Yes	Yes
T-Mobile-265-3	5	265	1	Flat	8.925	37.7	12.3	Yes	Yes
AT&T-235-1	5	235	1	Flat	10.785	37.7	9.84	Yes	Yes
Sprint-222-1	5	222	1	Flat	5.205	37.7	12.3	Yes	Yes
Metro-161-1	5	161	1	Flat	10.785	37.7	9.84	Yes	Yes

Coax and Dishes (p. 2 of 2)

Tia Code: TIA-222-G

Exposure

Topo Cat:

Crest Ht:

B

1

0

α

z_g

K_e

7 $k_{z,max}$

1200 $k_{z,min}$

0.9 K_t

2.01

0.7

f

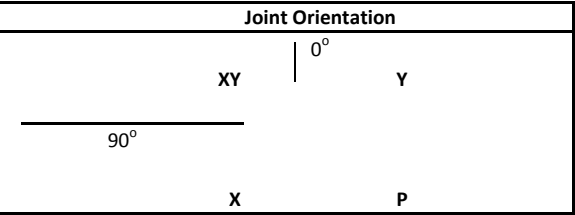
Description	From	To	Quantity	Face #	Coax Width	Considered Coax Shape (Block / Flat / Ind)	% Exposed	Spacing	Shape (Round/Flat)	Block Width	Block Depth	Perimeter	Unit	In Face Zone	Include in
	(ft)	(ft)		(1-4, A-D)	(in)			(in)		(# coax)	(# coax)	(in)	(lb/ft)	(Yes/No)	Wind Load (Yes/No)
							100							No	No
LADDER	0	300	1	B	1.5	Flat	100	0	Flat	1	1	6.0	6	Yes	Yes
Short Ladder1	8.3333	33.3333	2	1	1.5	Flat	100		Flat	2	1	6.0	6	Yes	Yes
Short Ladder2	8.3333	33.3333	2	3	1.5	Flat	100	0	Flat	2	1	6.0	6	Yes	Yes
							100							No	No
WG-1	5	300	1	2	1.5	Flat	100	0	Flat	1	1	6.0	6	Yes	Yes
WG-2	5	272	1	3	1.5	Flat	100		Flat	1	1	6.0	6	Yes	Yes
WG-3	5	235	1	1	1.5	Flat	100	0	Flat	1	1	6.0	6	Yes	Yes
WG-4	5	223	1	2	1.5	Flat	100		Flat	1	1	6.0	6	Yes	Yes
WG-5	5	160	1	1	1.5	Flat	100	0	Flat	1	1	6.0	6	Yes	Yes
T-Mobile-265-3	5	265	15	3	1.98	Block	33	0.5	Flat	5	3	37.7	12.3	Yes	Yes
AT&T-235-1	5	235	12	1	1.98	Block	50	0.5	Flat	6	2	37.7	9.84	Yes	Yes
Sprint-222-1	5	222	15	2	1.98	Block	33	0.5	Flat	5	3	37.7	12.3	Yes	Yes
Metro-161-1	5	161	12	1	1.98	Block	50	0.5	Flat	6	2	37.7	9.84	Yes	Yes
							100							No	Yes
							100	0						No	Yes
							100							No	Yes
							100	0						No	Yes
							100							No	Yes
							100	0						No	Yes
							100							No	Yes
							100	0						No	Yes
							100							No	Yes
							100	0						No	Yes
							100							No	Yes
							100	0						No	Yes
							100							No	Yes
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							100	0						No	Yes
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							100							No	Yes
							100	0						No	Yes
							100							No	Yes
							100	0						No	Yes
							100								

Coax & Dishes

Dish Types	
S	Standard
R	Standard w/ Radome
H	High Performance
G	Grid

Dish Elevation (ft)	Dish Dia. (ft)	Dish Angle (deg)	Dish Type	Joint Orientation
300	4	51.4	S	XY
300	2	90	H	XY
300	2	180	H	X
300	2	270	H	P
120	4	90	S	XY
22	2	197	R	X
6	4	270	S	P

Equipment Label	Attach Label	Equipment Property Set	EIA Antenna Orientation Angle (deg)
4' STD 1 @ 300'	17XY	4 ft STD Dish	51.4
2' HP 2 @ 300'	17XY	2 ft HP Dish	90
2' HP 3 @ 300'	17X	2 ft HP Dish	180
2' HP 4 @ 300'	17P	2 ft HP Dish	270
4' STD 5 @ 120'	5XY	4 ft STD Dish	90
2' RAD 6 @ 22'	1X	2 ft RAD Dish	197
4' STD 7 @ 6'	0P	4 ft STD Dish	270



Site #:	88018
Name:	AT&T Mobility

Engineer:	RDB
Date:	05/02/17

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ	
L 1	Leg S1		XY-Symmetry	0P	1P		1	4	0.28132	0.28132	0.28132
L 2	Leg S2		XY-Symmetry	1P	2P		1	4	0.28132	0.28132	0.28132
L 3	Leg S3		XY-Symmetry	2P	3P		1	4	0.28132	0.28132	0.28132
L 4	Leg S4		XY-Symmetry	3P	4P		1	4	0.28132	0.28132	0.28132
L 5	Leg S5		XY-Symmetry	4P	5P		1	4	0.33333333	0.33333333	0.33333333
L 6	Leg S6		XY-Symmetry	5P	6P		1	4	0.33333333	0.33333333	0.33333333
L 7	Leg S7		XY-Symmetry	6P	7P		1	4	0.33333333	0.33333333	0.33333333
L 8	Leg S8		XY-Symmetry	7P	8P		1	4	0.33333333	0.33333333	0.33333333
L 9	Leg S9		XY-Symmetry	8P	9P		1	4	0.5	0.5	0.5
L 10	Leg S10		XY-Symmetry	9P	10P		1	4	0.5	0.5	0.5
L 11	Leg S11		XY-Symmetry	10P	11P		1	4	0.5	0.5	0.5
L 12	Leg S12		XY-Symmetry	11P	12P		1	4	0.5	0.5	0.5
L 13	Leg S13		XY-Symmetry	12P	13P		1	4	0.5	0.5	0.5
L 14	Leg S14		XY-Symmetry	13P	14P		1	4	0.5	0.5	0.5
L 15	Leg S15		XY-Symmetry	14P	15P		1	4	0.5	0.5	0.5
L 16	Leg S16		XY-Symmetry	15P	16P		1	4	0.5	0.5	0.5
L 17	Leg S17		XY-Symmetry	16P	17P		1	4	0.5	0.5	0.5
D 1	Diag S1		XY-Symmetry	0P	H2P		1	6	0.31	0.92	0.31
D 2	Diag S1		XY-Symmetry	0P	H1P		1	6	0.31	0.92	0.31
D 3	Diag S2		XY-Symmetry	1P	H6P		1	6	0.31	0.62	0.31
D 4	Diag S2		XY-Symmetry	1P	H5P		1	6	0.31	0.62	0.31
D 5	Diag S3		XY-Symmetry	2P	H10P		1	6	0.33333333	0.66666667	0.33333333
D 6	Diag S3		XY-Symmetry	2P	H9P		1	6	0.33333333	0.66666667	0.33333333
D 7	Diag S4		XY-Symmetry	3P	H14P		1	6	0.33333333	0.66666667	0.33333333
D 8	Diag S4		XY-Symmetry	3P	H13P		1	6	0.33333333	0.66666667	0.33333333
D 9	Diag S5		XY-Symmetry	4P	A9P		1	6	0.33333333	0.66666667	0.33333333
D 10	Diag S5		XY-Symmetry	4P	A10P		1	6	0.33333333	0.66666667	0.33333333
D 11	Diag S6		XY-Symmetry	5P	A11P		1	6	0.33333333	0.66666667	0.33333333
D 12	Diag S6		XY-Symmetry	5P	A12P		1	6	0.33333333	0.66666667	0.33333333
D 13	Diag S7		XY-Symmetry	6P	A13P		1	6	0.33333333	0.66666667	0.33333333
D 14	Diag S7		XY-Symmetry	6P	A14P		1	6	0.33333333	0.66666667	0.33333333
D 15	Diag S8		XY-Symmetry	7P	A15P		1	6	0.33333333	0.66666667	0.33333333
D 16	Diag S8		XY-Symmetry	7P	A16P		1	6	0.33333333	0.66666667	0.33333333
D 17	Diag S9		XY-Symmetry	8P	A17P		1	6	0.32	0.59	0.32
D 18	Diag S9		XY-Symmetry	8P	A18P		1	6	0.32	0.59	0.32
D 19	Diag S10		XY-Symmetry	9P	A19P		1	6	0.5	1	0.5
D 20	Diag S10		XY-Symmetry	9P	A20P		1	6	0.5	1	0.5
D 21	Diag S11		XY-Symmetry	10P	A21P		1	6	0.48	0.96	0.48
D 22	Diag S11		XY-Symmetry	10P	A22P		1	6	0.48	0.96	0.48
D 23	Diag S12		XY-Symmetry	11P	A23P		1	6	0.5	1	0.5
D 24	Diag S12		XY-Symmetry	11P	A24P		1	6	0.5	1	0.5
D 25	Diag S13		XY-Symmetry	12P	A25P		1	6	0.5	1	0.5
D 26	Diag S13		XY-Symmetry	12P	A26P		1	6	0.5	1	0.5
D 27	Diag S14		XY-Symmetry	13P	14Y		2	5	0.52	0.52	0.52
D 28	Diag S14		XY-Symmetry	13P	14X		2	5	0.52	0.52	0.52
D 29	Diag S15		XY-Symmetry	14P	15Y		2	5	0.52	0.52	0.52
D 30	Diag S15		XY-Symmetry	14P	15X		2	5	0.52	0.52	0.52
D 31	Diag S16		XY-Symmetry	15P	16Y		2	5	0.52	0.52	0.52
D 32	Diag S16		XY-Symmetry	15P	16X		2	5	0.52	0.52	0.52
D 33	Diag S17		XY-Symmetry	16P	17Y		2	5	0.52	0.52	0.52
D 34	Diag S17		XY-Symmetry	16P	17X		2	5	0.52	0.52	0.52
H 1	Horiz 1		XY-Symmetry	1P	A1P		1	6	0.48	0.48	0.48
H 2	Horiz 1		XY-Symmetry	1P	A2P		1	6	0.48	0.48	0.48
H 3	Horiz 2		XY-Symmetry	2P	A3P		1	6	0.5	0.5	0.5
H 4	Horiz 2		XY-Symmetry	2P	A4P		1	6	0.5	0.5	0.5
H 5	Horiz 3		XY-Symmetry	3P	A5P		1	6	0.5	0.5	0.5
H 6	Horiz 3		XY-Symmetry	3P	A6P		1	6	0.5	0.5	0.5
H 7	Horiz 4		XY-Symmetry	4P	A7P		1	6	0.47	0.94	0.47
H 8	Horiz 4		XY-Symmetry	4P	A8P		1	6	0.47	0.94	0.47
H 9	Horiz 5		XY-Symmetry	5P	A9P		1	6	1	1	1
H 10	Horiz 5		XY-Symmetry	5P	A10P		1	6	1	1	1
H 11	Horiz 6		XY-Symmetry	6P	A11P		1	6	1	1	1

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ
H 12	Horiz 6		XY-Symmetry	6P	A12P		1 6	1	1	1
H 13	Horiz 7		XY-Symmetry	7P	A13P		1 6	1	1	1
H 14	Horiz 7		XY-Symmetry	7P	A14P		1 6	1	1	1
H 15	Horiz 8		XY-Symmetry	8P	A15P		1 6	1	1	1
H 16	Horiz 8		XY-Symmetry	8P	A16P		1 6	1	1	1
H 17	Horiz 9		XY-Symmetry	9P	A17P		1 6	1	1	1
H 18	Horiz 9		XY-Symmetry	9P	A18P		1 6	1	1	1
H 19	Horiz 10		XY-Symmetry	10P	A19P		1 6	1	1	1
H 20	Horiz 10		XY-Symmetry	10P	A20P		1 6	1	1	1
H 21	Horiz 11		XY-Symmetry	11P	A21P		1 6	1	1	1
H 22	Horiz 11		XY-Symmetry	11P	A22P		1 6	1	1	1
H 23	Horiz 12		XY-Symmetry	12P	A23P		1 6	1	1	1
H 24	Horiz 12		XY-Symmetry	12P	A24P		1 6	1	1	1
H 25	Horiz 13		XY-Symmetry	13P	A25P		1 6	1	1	1
H 26	Horiz 13		XY-Symmetry	13P	A26P		1 6	1	1	1
H 27	Horiz 14		Y-Symmetry	14P	14X		3 5	0.5	1	0.5
H 28	Horiz 14		X-Symmetry	14P	14Y		3 5	0.5	1	0.5
H 29	Horiz 15		Y-Symmetry	15P	15X		1 6	0.5	1	0.5
H 30	Horiz 15		X-Symmetry	15P	15Y		1 6	0.5	1	0.5
H 31	Horiz 16		Y-Symmetry	16P	16X		3 5	0.5	1	0.5
H 32	Horiz 16		X-Symmetry	16P	16Y		3 5	0.5	1	0.5
H 33	Horiz 17		Y-Symmetry	17P	17X		3 5	1	1	1
H 34	Horiz 17		X-Symmetry	17P	17Y		3 5	1	1	1
H 37	Horiz 2		Y-Symmetry	A3P	A3X		1 6	0.5	1	0.5
H 38	Horiz 2		X-Symmetry	A4P	A4Y		1 6	0.5	1	0.5
H 39	Horiz 3		Y-Symmetry	A5P	A5X		1 6	0.5	1	0.5
H 40	Horiz 3		X-Symmetry	A6P	A6Y		1 6	0.5	1	0.5
H 41	Horiz 4		Y-Symmetry	A7P	A7X		1 6	0.5	1	0.5
H 42	Horiz 4		X-Symmetry	A8P	A8Y		1 6	0.5	1	0.5
LH 1	LH 1		Y-Symmetry	H1P	H1X		1 6	100	100	100
LH 2	LH 1		X-Symmetry	H2P	H2Y		1 6	100	100	100
LH 3	LH 2		XY-Symmetry	H5P	H7P		1 6	1	2	1
LH 4	LH 2		XY-Symmetry	H6P	H8P		1 6	1	2	1
LH 5	LH 3		XY-Symmetry	H9P	H11P		1 6	1	2	1
LH 6	LH 3		XY-Symmetry	H10P	H12P		1 6	1	2	1
LH 7	LH 4		XY-Symmetry	H13P	H15P		1 6	0.998	1.995	0.998
LH 8	LH 4		XY-Symmetry	H14P	H16P		1 6	0.998	1.995	0.998
LD 1	LD 1		XY-Symmetry	H1P	1P		1 6	0.85	0.85	0.85
LD 2	LD 1		XY-Symmetry	H2P	1P		1 6	0.85	0.85	0.85
LD 3	LD 2		XY-Symmetry	H1P	A1P		1 6	0.82	0.82	0.82
LD 4	LD 2		XY-Symmetry	H2P	A2P		1 6	0.82	0.82	0.82
LD 7	LD 4		XY-Symmetry	H5P	2P		1 6	0.87	0.87	0.87
LD 8	LD 4		XY-Symmetry	H6P	2P		1 6	0.87	0.87	0.87
LD 9	LD 5		XY-Symmetry	H5P	A3P		1 6	0.8	0.8	0.8
LD 10	LD 5		XY-Symmetry	H6P	A4P		1 6	0.8	0.8	0.8
LD 11	LD 6		XY-Symmetry	A3P	H7P		1 6	0.84	0.84	0.84
LD 12	LD 6		XY-Symmetry	A4P	H8P		1 6	0.84	0.84	0.84
LD 13	LD 7		XY-Symmetry	H9P	3P		1 6	0.865	0.865	0.865
LD 14	LD 7		XY-Symmetry	H10P	3P		1 6	0.865	0.865	0.865
LD 15	LD 8		XY-Symmetry	H9P	A5P		1 6	0.82	0.82	0.82
LD 16	LD 8		XY-Symmetry	H10P	A6P		1 6	0.82	0.82	0.82
LD 17	LD 9		XY-Symmetry	A5P	H11P		1 6	0.82	0.82	0.82
LD 18	LD 9		XY-Symmetry	A6P	H12P		1 6	0.82	0.82	0.82
LD 19	LD 10		XY-Symmetry	H13P	4P		1 6	0.86	0.86	0.86
LD 20	LD 10		XY-Symmetry	H14P	4P		1 6	0.86	0.86	0.86
LD 21	LD 11		XY-Symmetry	H13P	A7P		1 6	0.82	0.82	0.82
LD 22	LD 11		XY-Symmetry	H14P	A8P		1 6	0.82	0.82	0.82
LD 23	LD 12		XY-Symmetry	A7P	H15P		1 6	0.85	0.85	0.85
LD 24	LD 12		XY-Symmetry	A8P	H16P		1 6	0.85	0.85	0.85
BR 1	DUM 1		XY-Symmetry	A1P	A2P		1 4	1	1	1

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ
BR 3	DUM 1		XY-Symmetry	A3P	A4P		1	4	1	1
BR 4	DUM 1		XY-Symmetry	A3P	A4XY		1	4	1	1
BR 5	DUM 1		XY-Symmetry	A5P	A6P		1	4	1	1
BR 6	DUM 1		XY-Symmetry	A5P	A6XY		1	4	1	1
BR 7	DUM 1		XY-Symmetry	A7P	A8P		1	4	1	1
BR 8	DUM 1		XY-Symmetry	A7P	A8XY		1	4	1	1
BR 9	DUM 1		XY-Symmetry	A9P	A10P		1	4	1	1
BR 11	DUM 1		XY-Symmetry	A11P	A12P		1	4	1	1
BR 13	DUM 1		XY-Symmetry	A13P	A14P		1	4	1	1
BR 15	DUM 1		XY-Symmetry	A15P	A16P		1	4	1	1
BR 17	DUM 1		XY-Symmetry	A17P	A18P		1	4	1	1
BR 19	DUM 1		XY-Symmetry	A19P	A20P		1	4	1	1
BR 21	DUM 1		XY-Symmetry	A21P	A22P		1	4	1	1
BR 23	DUM 1		XY-Symmetry	A23P	A24P		1	4	1	1
BR 25	DUM 1		XY-Symmetry	A25P	A26P		1	4	1	1
BR 61	DUM 1		XY-Symmetry	H1P	H2P		1	4	1	1
BR 62	DUM 1		XY-Symmetry	H1P	H2XY		1	4	1	1
BR 64	DUM 1		XY-Symmetry	H5P	H6P		1	4	1	1
BR 65	DUM 1		XY-Symmetry	H5P	H6XY		1	4	1	1
BR 66	DUM 1		XY-Symmetry	H7P	H8P		1	4	1	1
BR 67	DUM 1		XY-Symmetry	H9P	H10P		1	4	1	1
BR 68	DUM 1		XY-Symmetry	H9P	H10XY		1	4	1	1
BR 69	DUM 1		XY-Symmetry	H11P	H12P		1	4	1	1
BR 70	DUM 1		XY-Symmetry	H13P	H14P		1	4	1	1
BR 71	DUM 1		XY-Symmetry	H13P	H14XY		1	4	1	1
BR 72	DUM 1		XY-Symmetry	H15P	H16P		1	4	1	1

No.	Elevation	C _u A _c	C _u A _c (ice)	Force	Force (ice)	Weight	Weight (ice)	60 Azi	Force	F (ice)	Height Flag	Sum of Forces (No I	
	(ft)	(ft ²)	(ft ²)	(lb)	(lb)	(lb)	(lb)	Mult.	mean	mean		60 Azi.	180 Azi.
1	300	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00			
	300	55.00	74.25	1902.187	464.401	4800	6240	1.00	1046.20	255.42			
2	283	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00			
	283	40.00	54.00	1360.542	332.164	3300	4290	1.00	748.30	182.69			
3	212.5	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00			
	212.5	50.00	67.50	1567.008	382.570	3600	4680	1.00	861.85	210.41			
4	100	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00			
	100	50.00	67.50	1263.398	308.447	3600	4680	1.00	694.87	169.65			
5													
6	335	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00			
	335	5.53	7.47	197.382	48.189	84	109	1.00	108.56	26.50			
7	320	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00			
	320	4.80	6.48	169.099	41.284	66	86	1.00	93.00	22.71			
8	317	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00			
	317	4.80	6.48	168.644	41.173	66	86	1.00	92.75	22.65			
9	311	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00			
	311	0.80	1.08	27.954	6.825	36	47	1.00	15.37	3.75			
10	300	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00			
	300	0.65	0.87	22.307	5.446	38	50	1.00	12.27	3.00			
11	276	22.75	24.83	768.392	151.674	156	856	1.00	422.62	83.42			
	276	5.20	7.02	175.609	42.873	180	234	1.00	96.59	23.58			
12	275	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00			
	275	20.66	27.89	696.986	170.163	106	138	1.00	383.34	93.59			
13	272	2.68	4.01	90.242	24.387	36	124	1.00	49.63	13.41			
	272	9.36	12.64	314.781	69.166	360	468	1.00	173.13	38.04			
14	265	1.20	1.81	40.057	10.934	47	90	1.00	22.03	6.01			
	265	4.19	5.65	139.699	27.285	183	237	1.00	76.83	15.01			
15	265	10.31	12.86	344.095	77.632	299	564	1.00	189.25	42.70			
	265	12.89	17.40	430.162	84.016	476	619	1.00	236.59	46.21			
16	265	19.20	21.56	641.058	130.136	185	563	1.00	352.58	71.57			
	265	35.98	48.57	1201.010	219.911	1440	1872	1.00	660.56	120.95			
17	250	10.46	13.68	343.344	81.202	95	615	1.00	188.84	44.66			
	250	5.20	7.02	170.715	41.678	180	234	1.00	93.89	22.92			
18	245	5.56	7.49	181.523	44.186	56	340	1.00	99.84	24.30			
	245	5.20	7.02	169.732	41.438	180	234	1.00	93.35	22.79			
19	235	7.91	10.14	255.152	59.139	131	318	1.00	140.33	32.53			
	235	36.31	49.02	1171.159	228.742	1478	1921	1.00	644.14	125.81			
20	235	8.59	10.71	277.170	62.480	126	322	1.00	152.44	34.36			
	235	12.17	16.43	392.588	76.677	147	191	1.00	215.92	42.17			
21	235	9.64	12.43	310.785	72.479	205	443	1.00	170.93	39.86			
	235	35.98	48.57	1160.482	212.491	1440	1872	1.00	638.27	116.87			
22	222	26.52	32.48	841.643	186.394	202	371	1.00	462.90	102.52			
	222	35.98	48.57	1141.766	209.064	1440	1872	1.00	627.97	114.98			
23	210	10.46	13.68	326.659	77.256	95	605	1.00	179.66	42.49			
	210	5.20	7.02	162.419	39.653	180	234	1.00	89.33	21.81			
24	201	11.06	15.93	341.156	88.835	168	482	1.00	187.64	48.86			
	201	9.36	12.64	288.718	63.429	360	468	1.00	158.79	34.89			
25	193	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00			
	193	7.50	10.13	228.675	55.829	36	47	1.00	125.77	30.71			
26	183	8.71	13.89	261.562	75.427	95	274	1.00	143.86	41.48			
	183	11.06	14.92	331.982	81.050	540	702	1.00	182.59	44.58			
27	171	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00			
	171	2.73	3.69	80.409	15.705	126	164	1.00	44.22	8.64			
28	171	6.49	8.50	191.142	45.301	103	254	1.00	105.13	24.92			
	171	25.93	35.00	763.706	139.839	900	1170	1.00	420.04	76.91			
29	160	13.44	16.60	388.463	86.779	127	250	1.00	213.65	47.73			
	160	1.20	1.62	34.679	8.467	18	23	1.00	19.07	4.66			
30	150	10.05	12.55	285.032	64.396	190	419	1.00	156.77	35.42			
	150	21.92	29.59	621.761	121.438	935	1216	1.00	341.97	66.79			
31	150	13.29	15.74	377.014	80.752	205	484	1.00	207.36	44.41			
	150	40.28	54.37	1142.661	209.227	1440	1872	1.00	628.46	115.08			
32	142	2.90	4.63	81.092	23.385	32	192	1.00	44.60	12.86			
	142	5.20	7.02	145.239	35.459	180	234	1.00	79.88	19.50			
33	130	0.79	1.51	21.447	7.427	5	56	1.00	11.80	4.08			
	130	0.91	1.23	24.784	6.051	5	6	1.00	13.63	3.33			
34	130	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00			
	130	2.50	3.38	68.087	16.623	90	117	1.00	37.45	9.14			
35	100	5.53	7.96	139.732	36.385	84	358	1.00	76.85	20.01			
	100	5.20	7.02	131.393	32.078	180	234	1.00	72.27	17.64			

Foundation

Design Loads (Factored)

Compression/Leg:	480.97	k
Uplift/Leg:	351.57	k
Shear/Leg	68.86	k

Face Width @ Top of Pier (d_1):	4.00	ft
Face Width @ Bottom of Pier (d_2):	8.00	ft
Total Length of Pier (l):	8.00	ft
Height of Pedestal Above Ground (h):	0.50	ft
Width of Pad (W):	18.00	ft
Length of Pad (L):	18.00	ft
Thickness of Pad (t):	3.00	ft
Water Table Depth (w):	30.00	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil (Above Water Table):	100.0	pcf
Unit Weight of Soil (Below Water Table):	50.0	pcf
Friction Angle of Uplift (A):	20	°
Ultimate Compressive Bearing Pressure:	40000	psf

Volume Pier (Total):	298.67	ft ³
Volume Pad (Total):	972.00	ft ³
Volume Soil (Total):	2935.41	ft ³
Volume Pier (Buoyant):	0.00	ft ³
Volume Pad (Buoyant):	0.00	ft ³
Volume Soil (Buoyant):	0.00	ft ³
Weight Pier:	44.80	k
Weight Pad:	145.80	k
Weight Soil:	293.54	k

Uplift Check

ϕ s Uplift Resistance (k)	Ratio	Result
363.11	0.97	OK

Axial Check

ϕ s Axial Resistance (k)	Ratio	Result
9720.00	0.05	OK

Anchor Bolt Check

Bolt Diameter (in)	2.25
# of Bolts	6
Steel Grade	A36
Steel Fy	36
Steel Fu	58
Detail Type	C

Usage Ratio	Result
0.53	OK

Site No.:	88018
Engineer:	RDB
Date:	05/02/17
Carrier:	AT&T Mobility

