Centek Engineering, Inc.
3-2 North Branford Road
Branford, Connecticut 06405
Phone: (203) 488-0580
Fax: (203) 488-8587

Steven L. Levine
Real Estate Consultant

HAND DELIVERED

January 15, 2016

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 119 (aka 10) Tanner Marsh Road, Guilford

Dear Ms. Bachman:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") and/or Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, copies of this letter are being sent to the chief elected official of the municipality in which the affected cell site is located, the property owner of record, and the tower owner or operator.

UMTS technology offers services to mobile computer and phone users anywhere in the world. Based on the Global System for Mobile ("GSM") communication standard, UMTS is the planned worldwide standard for mobile users. UMTS, fully implemented, gives computer and phone users high-speed access to the Internet as they travel. They have the same capabilities even when they roam, through both terrestrial wireless and satellite transmissions.

LTE is a high-performance air interface for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical and environmental characteristics of the site will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The height of the overall structure will not increase.

2. The proposed changes will not extend the site boundaries.

3. The proposed changes will not increase the noise level at the site boundary by six decibels or more, or to levels that exceed state and local criteria.

4. The changes will not add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the site boundary to or above the standards adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes.

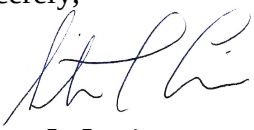
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The proposed changes will not impair the structural integrity of the facility, as determined in a certification provided by a professional engineer licensed in Connecticut.

For the foregoing reasons, AT&T respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (860) 830-0380 with questions concerning this matter. Thank you for your consideration.

Sincerely,



Steven L. Levine
Real Estate Consultant

cc: TownCEO – Honorable Joseph S. Mazza, 1st Selectman, Town of Guilford
Property owner of Record - Town of Guilford, Honorable Joseph S. Mazza, 1st Selectman
Tower Owner / Operator – American Tower (by email)

Attachments

NEW CINGULAR WIRELESS PCS, LLC
Equipment Modification

119 (aka 10) Tanner Marsh Road, Guilford, CT
Geographic Coordinates: N 41-17-19.3 W 72-39-29.9
Site Number 2017
Prior Decisions: Docket 44.2; Petition 1021
EM 4/89, 1/94/ 9/02, 1/09, 4/11, and 7/15

Tower Owner/Manager: American Tower

Land Owner of Record: Town of Guilford

Original Permitting: The 119 Tanner Marsh Road cell site was originally approved with a monopole structure by the Council in Docket 44.2 and with approval conditions as listed in the attached Decision and Order. The Council subsequently approved replacement of the monopole by a 191-ft self-supporting lattice tower in 2012 in Petition 1021, along with new equipment centerlines for existing carriers and reconfiguration of the site boundaries. (See the attached Approval and Staff Report for Petition 1021.) No approval conditions in these documents will be violated by the proposed equipment modifications.

Lease Area: The attached site plan exhibit from Petition 1021 depicts the currently approved site boundaries. Comparison of the attached Petition 1021 site plan exhibit with the attached Construction Drawings confirms that all proposed equipment modifications will occur either on the existing tower structure or within AT&T's existing equipment shelter. Accordingly, the proposed modifications will not extend either AT&T's lease area or the overall site boundaries.

Equipment configuration: 191-ft. Self-Supporting Lattice Tower

Current and/or approved:
Three sector frames with tie-back arms @ 163 ft a.g.l.
Six PowerWave 7770 antennas @ 166 ft c.l.
Three CCI OPA-65R-LCUU-H4 antennas @ 166 ft
Six PowerWave TMA's @ 166 ft
One Raycap DC6-48-60-18-8F @ 166 ft
Three RRUS-11 remote radio heads @ 166 ft
Three RRUS-12 remote radio heads with A2 modules @ 166 ft
Six diplexers @ 166 ft
Twelve runs 1 5/8 inch coax
Six runs 3/8 inch coax
One fiber cable and two DC control cables
Equipment shelter

Planned Modifications:
Remove three PowerWave 7770 antennas.
Remove three diplexers.
Install three Andrew SBNHH-1D65A antennas @ 166 ft c.l.
Install three RRUS-32 remote radio heads @ 166 ft.
Install one Raycap DC6-48-60-18-8F @ 166 ft.
Install one fiber cable and two DC control cables.

Power Density:

Worst-case calculations with 10 dB reduction for existing wireless operations at the site indicate a radio frequency electromagnetic radiation power density, measured at six feet above ground level beside the tower, of approximately 62.1 % of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density following proposed modifications would be approximately 62.3 % of the standard.

Existing

Company	Frequency (MHz)	Centerline Ht (feet)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm^2)	Standard Limits (mW/cm^2)	Percent of Limit
Other Users *							61.39
AT&T LTE	700	166	1	500	0.0070	0.4667	0.15
AT&T LTE	1900	166	1	500	0.0070	1.0000	0.07
AT&T UMTS	880	166	2	500	0.0140	0.5867	0.24
AT&T UMTS	1900	166	1	500	0.0070	1.0000	0.07
AT&T GSM	880	166	1	296	0.0042	0.5867	0.07
AT&T GSM	1900	166	1	427	0.0060	1.0000	0.06
Total							**62.1%**

***** Per CSC records.

Proposed

Company	Frequency (MHz)	Antenna (Total for all sectors)	Centerline Ht (feet)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm^2)	Standard Limits (mW/cm^2)	Percent of Limit
Other Users *								61.39
AT&T LTE	740	CCI 3 antennas	166	2	500	0.0140	0.4933	0.28
AT&T LTE	1900	CCI 3 antennas	166	2	500	0.0140	1.0000	0.14
AT&T LTE	2300	Andrew 3 antennas	166	2	500	0.0140	1.0000	0.14
AT&T UMTS	880	PowerWave 3 antennas	166	2	500	0.0140	0.5867	0.24
AT&T UMTS	1900	PowerWave 3 antennas	166	1	500	0.0070	1.0000	0.07
AT&T GSM	880	Andrew 3 antennas	166	1	296	0.0042	0.5867	0.07
Total								**62.3%**

***** Per CSC records

Structural information:

The attached structural analysis (American Tower, 1/13/16) demonstrates that the tower and foundation have adequate structural capacity to accommodate the proposed equipment modifications.

Docket 44 Approval Excerpt

DOCKET NO. 44

AN APPLICATION SUBMITTED BY THE SOUTHERN NEW ENGLAND TELEPHONE COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE AND OPERATION OF FACILITIES TO PROVIDE CELLULAR SERVICE IN NEW HAVEN COUNTY	:	CONNECTICUT SITING COUNCIL
	:	July 24, 1984

D E C I S I O N A N D O R D E R

Pursuant to the foregoing opinion, the Council hereby directs that a certificate of environmental compatibility and public need as required by section 16-50k of the General Statutes of Connecticut, revisions of 1958, revised to 1983, as amended, be issued to the Southern New England Telephone Company for the construction, operation, and maintenance of a telecommunications tower and associated equipment to provide cellular service at each of the following sites:

Jasudowich tract, Brushy Plain Road, Branford, Connecticut;
Town of Guilford tract, Tanner Marsh Road, Guilford, Connecticut;
Bridgeport Avenue, Milford, Connecticut;
Quagliaro tract, Farmdale Drive, Waterbury, Connecticut;
Pease Road, Woodbridge, Connecticut; and
Dwight Street, North Haven, Connecticut.

The facilities shall be constructed, operated, and maintained as specified in the Council's record on this matter, and subject to the following conditions:

1. The towers including antennas shall be no taller than necessary to provide the proposed service and in no event shall exceed

   a) 167' at the Branford site,
   b) 167' at the Guilford site,
   c) 117' at the Milford site,
   d) 167' at the Waterbury site,
   e) 167' at the Woodbridge site,
   f) 167' at the North Haven site;

2. A fence not lower than eight feet shall surround each tower and its associated equipment;

3. The applicant or its successor shall notify the Council if and when directional antennas or any other equipment is added to any of these facilities;
4. The applicant or its successor shall permit, in accordance with representations made by it during the proceeding, public or private entities to share space on the facilities, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing;
5. Unless necessary to comply with condition number six, below, no lights shall be installed on any of these towers;
6. The facilities shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations;
7. The applicant shall submit a development and management plan (D&M) for the Branford, Milford, Woodbridge, and North Haven sites pursuant to sections 16-50j-85 through 16-50j-87 of the regulations of state agencies, except that irrelevant items in section 16-50j-86 need only be identified as such. The D&M plans shall include appropriate evergreen screening of the sites, erosion control measures, reseeding plans, and tree removal plans. The applicant shall comply with the reporting requirements of section 16-50j-87 for all sites;
8. Construction activities shall take place during daylight working hours;
9. This decision and order shall be void and the towers and associated equipment approved herein shall be dismantled and removed, or reapplication for any new use shall be made to the Connecticut

Siting Council before any such new use is made, if the towers do not provide or permanently cease to provide cellular service following completion of construction;

10. This decision and order shall be void if all construction authorized is not completed within three years of the issuance of this decision.

Pursuant to section 16-50p of the General Statutes, we hereby direct that a copy of the opinion and decision and order be served on each person listed below. A notice of the issuance shall be published in the Hartford Courant, New Haven Register, and the Waterbury Republican.

The parties to this proceeding are

The Southern New England Telephone Company
Room 314
227 Church Street
New Haven, Connecticut 06506

(Applicant)

ATTENTION: Mr. Peter J. Tyrrell
Senior Attorney

(its attorney)

Town of Hamden
Peter F. Villano, Mayor
Shirley Gonzales, Town Planner

represented by:

Mr. Hugh Manke, Esquire
Office of the Town Attorney
Memorial Town Hall
2372 Whitney Avenue
Hamden, Connecticut 06518

Inland Wetlands Agency
Town of Woodbridge

represented by:

Robert J. Klancko
Chairman
Town Hall
11 Meeting House Lane
Woodbridge, Connecticut 06525

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Petition 1021 Approval - 2012

February 17, 2012

Brandon Ruotolo
Zoning Attorney
American Tower Corporation
10 Presidential Way
Woburn, MA 01801

RE: **PETITION NO. 1021** - American Tower Corporation petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required to replace and expand an existing telecommunications facility located at 10 Tanner Marsh Road, Guilford, Connecticut.

Dear Attorney Ruotolo:

At a public meeting held on February 16, 2012, the Connecticut Siting Council (Council) considered and ruled that this proposal would not have a substantial adverse environmental effect, and pursuant to General Statutes § 16-50k would not require a Certificate of Environmental Compatibility and Public Need with the following conditions:

- The coax lines shall be configured per the structural analysis report dated December 21, 2011 and sealed by Jaime Reyes, P.E.;
- The Council shall be notified in writing that the coax was installed as specified;
- Unless otherwise approved by the Council, the existing monopole shall be removed within 180 days of the installation of the new lattice tower; and
- The Council shall be notified in writing when the existing monopole is removed and the new tower is operational.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition, dated December 14, 2011 and revisions/supplemental information dated January 11, 2012 and February 8, 2012.

Enclosed for your information is a copy of the staff report on this project.

Very truly yours,

Robert Stein

Robert Stein
Chairman

RS/MP/laf

Enclosure: Staff Report dated February 16, 2012

c: The Honorable Joseph S. Mazza, First Selectman, Town of Guilford
Regina Reid, Zoning Enforcement Officer, Town of Guilford

S:\PETITION\1021\dc021612.docx

CSC
CONNECTICUT SITING COUNCIL

Petition No. 1021
American Tower Corporation
Staff Report
February 16, 2012

On December 14, 2011, the Connecticut Siting Council (Council) received a petition (Petition) from American Tower Corporation (ATC) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required to replace and expand an existing telecommunications facility at 10 Tanner Marsh Road, Guilford. This Petition was field reviewed by Council members Robin Stein and Dr. Barbara Bell, and Michael Perrone of the Council staff on January 11, 2012. Brandon Ruotolo, Brian Seabowrne, Matt Beaupre, Carlos Centore, and Doug Drost attended the field review as consultants for the project. Chief Charles Herrschaft from the Guilford Fire Department also attended the field review.

Specifically, ATC seeks to replace an existing 150-foot monopole with a new approximately 191-foot self-supporting lattice tower to accommodate the Town of Guilford's (Town) public safety communications objectives. The subject property is owned by the Town and currently contains a water tank and an another lattice tower owned and operated by Comcast.

The existing monopole is not structurally capable of supporting the Town's communications antennas. The water tank has insufficient height, and the existing lattice tower is not under ATC's ownership or control. Thus, ATC proposes a tower replacement. The additional height will allow the Town to meet its coverage objectives for emergency services communications. The lattice design was chosen over the monopole because of structural advantages given the significant height and the wind loading requirements. All existing carriers on the monopole would be moved to the new lattice tower at approximately the same heights. These carriers include T-Mobile, AT&T, USA Mobility, MetroPCS, and WMNR radio. The existing monopole would be removed immediately after the new lattice tower becomes fully functional. The tower compound would be expanded by approximately 30 feet by 67 feet to the south to accommodate the new tower and the Town's proposed 11-foot 5-inch by 28-foot equipment shelter.

There are no wetlands at the site. Lighting of the tower would not be required per the Federal Aviation Administration. The new tower would be structurally adequate to support the proposed loading. The maximum worst-case power density would be 16.5 percent of the applicable limit. ATC had a photo simulation performed for locations to the north, south, east, and west, up to a one-mile radius from the proposed tower location. The worst-case year-round tower visibility would extend approximately 0.21 miles to the north, 0.32 miles to the south, 1.0 miles to the east (within the study area), and 1.0 miles to the west (within the study area).

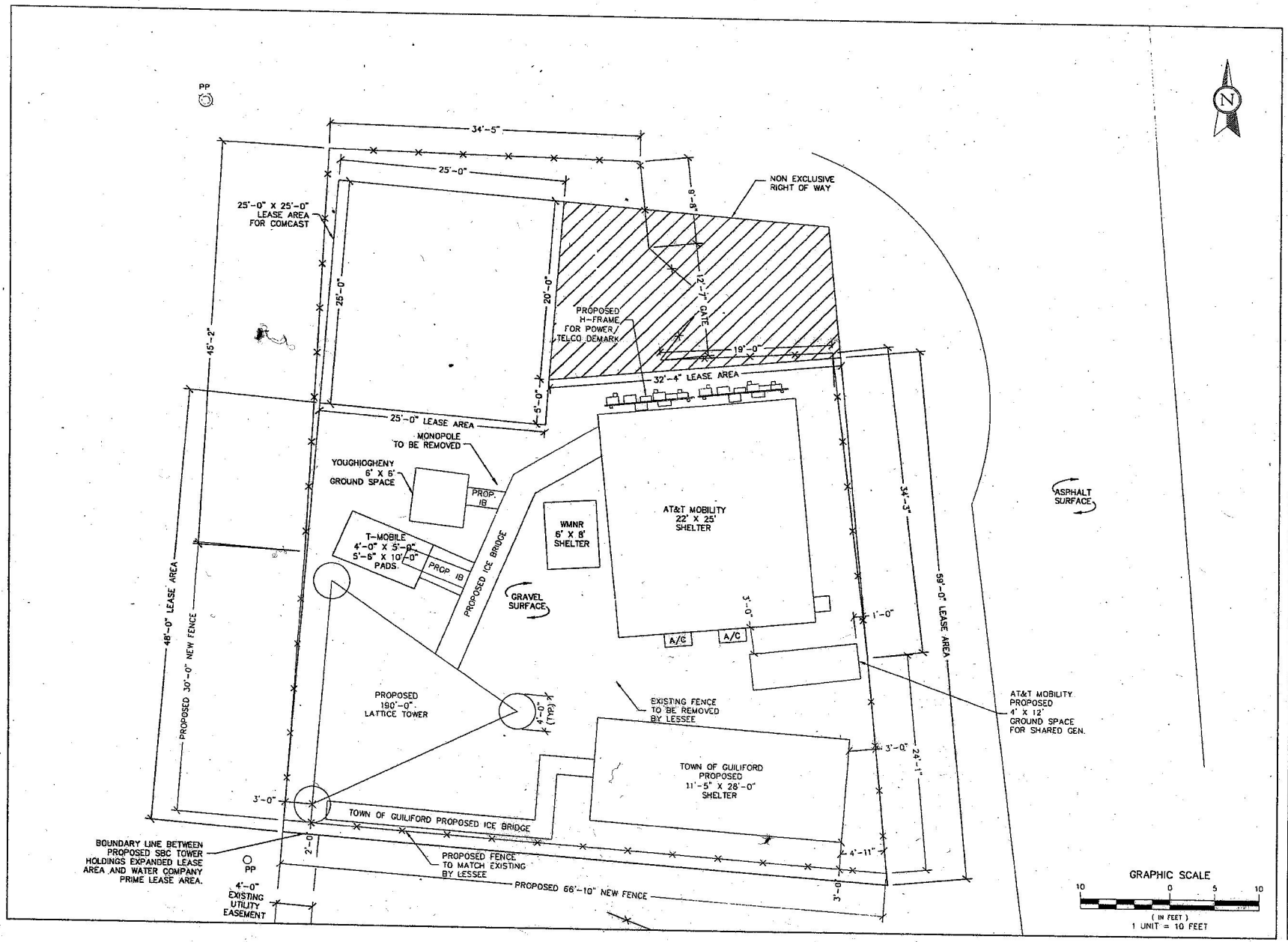
The site is located in a largely commercial area and is located next door to a diner. However, there are residences across the street. ATC provided notice to abutting property owners. ATC received two inquiries about the project, but no objections. On February 6, 2012, Mr. Ruotolo of ATC and Mr. Centore, the Town's consultant, made a presentation about the project at a regular Board of Selectman meeting. The meeting was publicly noticed, with public in attendance, and was also televised. After the presentation, Fire Chief Herrschaft spoke in favor. The Board asked questions answered by Mr. Ruotolo and Mr. Centore, and the Mayor invited public comment, but no one spoke.

The Town supports the proposed project according to letters received from First Selectman Joseph Mazza and In-house Counsel Pamela Millman dated August 19, 2011 and February 10, 2012, respectively. This proposed tower would solve the Town's critical emergency communications issues.

Staff suggests including the following conditions:

- The coax lines shall be configured per the structural analysis report dated December 21, 2011 and sealed by Jaime Reyes, P.E.;
- The Council shall be notified in writing that the coax was installed as specified;
- Unless otherwise approved by the Council, the existing monopole shall be removed within 180 days of the installation of the new lattice tower; and
- The Council shall be notified in writing when the existing monopole is removed and the new tower is operational.

Petition 1021Site Plan Excerpt



AMERICAN TOWER®
SITE DESIGN
400 REGENCY FOREST DRIVE
CARY, NORTH CAROLINA 27518
PHONE: (919) 468-0112
FAX: (919) 468-5040
NYSE AMT

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OF SERVICE, ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER CORPORATION AND THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. REUSE, REPRODUCTION OR PUBLICATION BY ANY METHOD, IN WHOLE OR IN PART, IS PROHIBITED EXCEPT BY WRITTEN PERMISSION FROM AMERICAN TOWER CORPORATION TITLE TO THESE PLANS AND/OR SPECIFICATIONS SHALL REMAIN WITH AMERICAN TOWER CORPORATION WITHOUT PREJUDICE AND VISUAL CONTACT WITH THEM SHALL CONSTITUTE PRIMA FACIE EVIDENCE OF ACCEPTANCE OF THESE RESTRICTIONS.

REV.	DESCRIPTION
0	REVISED DRAWING

SITE NUMBER:
302486

SITE NAME:
GLFD - GUILFORD
CONNECTICUT

DRAWN BY:	D STRAYER
DATE DRAWN:	3/24/11
CUSTOMER:	NA
COLLOCATION NO:	NA

LEGEND

⊗	GROUNDING TEST WELL
A/C	AIR CONDITIONING UNIT
A/V	AIR VENT
B	BOLLARD
C	CABINET
CSC	FIBER OPTIC CABINET
E	ELECTRICAL SERVICE DISC.
GEN	GENERATOR
G	GENERATOR RECEPTACLE
IB	ICE BRIDGE
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELEPHONE HOOK-UP
TD	TELEPHONE DEMARK
TRN	TRANSFORMER
W	WATER VALVE

DIMENSIONS NOT VERIFIED BY LICENSED SURVEYOR

SHEET TITLE:
SITE PLAN LAYOUT

SHEET NUMBER:	REV.
SP-1	0

SITE NUMBER: CT2017
SITE NAME: GUILFORD
PROJECT: LTE-3C 2016 UPGRADE

PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS
SITE ADDRESS:	10 TANNER MARSH ROAD GUILFORD, CT 06437
LATITUDE:	41.288694° N 41° 17' 19.3" N
LONGITUDE:	−72.658249° W −72° 39' 29.7" W
JURISDICTION:	NATIONAL, STATE & LOCAL CODES OR ORDINANCES
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

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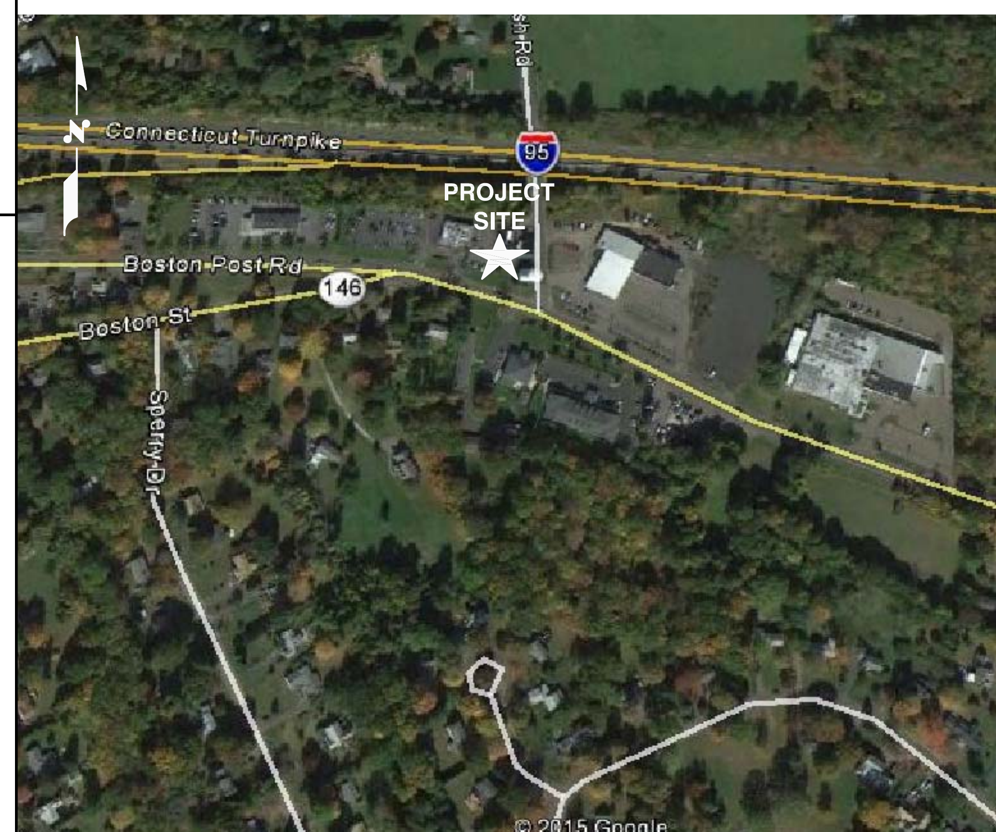
AMERICAN TOWER SITE #: 311305
AMERICAN TOWER SITE NAME: GLFD GUILFORD REBUILD CT

VICINITY MAP

DIRECTIONS TO SITE:

START OUT GOING WEST ON SR 30 W/COCHITUATE RD. CONTINUE TO FOLLOW SR 30 W. 0.9 MILES. STAY STRAIGHT TO GO ONTO SR 9 W/WORCESTER RD. 2.4 MILES. MERGE ONTO I−90 W/MASSACHUSETTS TPKE (PORTIONS TOLL). 22.0 MILES. TAKE EXIT 10 TOWARD AUBURN/WORCESTER. 0.7 MILES. KEEP LEFT AT THE FORK IN THE RAMP. 0.2 MILES. MERGE ONTO I−395 S VIA THE RAMP ON THE LEFT (CROSSING INTO CONNECTICUT). 66.8 MILES. I−395 S BECOMES I−95 S/CONNECTICUT TPKE. 26.9 MILES. TAKE EXIT 59. 0.3 MILES. TURN RIGHT ONTO GOOSE LN. 0.2 MILES. TURN LEFT ONTO US−1/BOSTON POST RD. 0.3 MILES. TURN LEFT ONTO TANNER MARSH RD. 0.0 MILES. SITE WILL BE LOCATED ON THE LEFT.



GENERAL NOTES

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

72 HOURS

BEFORE YOU DIG

CALL TOLL FREE 888−DIG−SAFE OR DIAL 811

UNDERGROUND SERVICE ALERT

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

SAI
27 NORTHWESTERN DR.
SALEM, NH 03079

SITE NUMBER: CT2017
SITE NAME: GUILFORD
ATC SITE # 311305
10 TANNER MARSH ROAD
GUILFORD, CT
NEW HAVEN COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	12/24/15	ISSUED FOR CONSTRUCTION	SG	AT	DJC
A	11/25/15	ISSUED FOR REVIEW	RB	AT	DJC

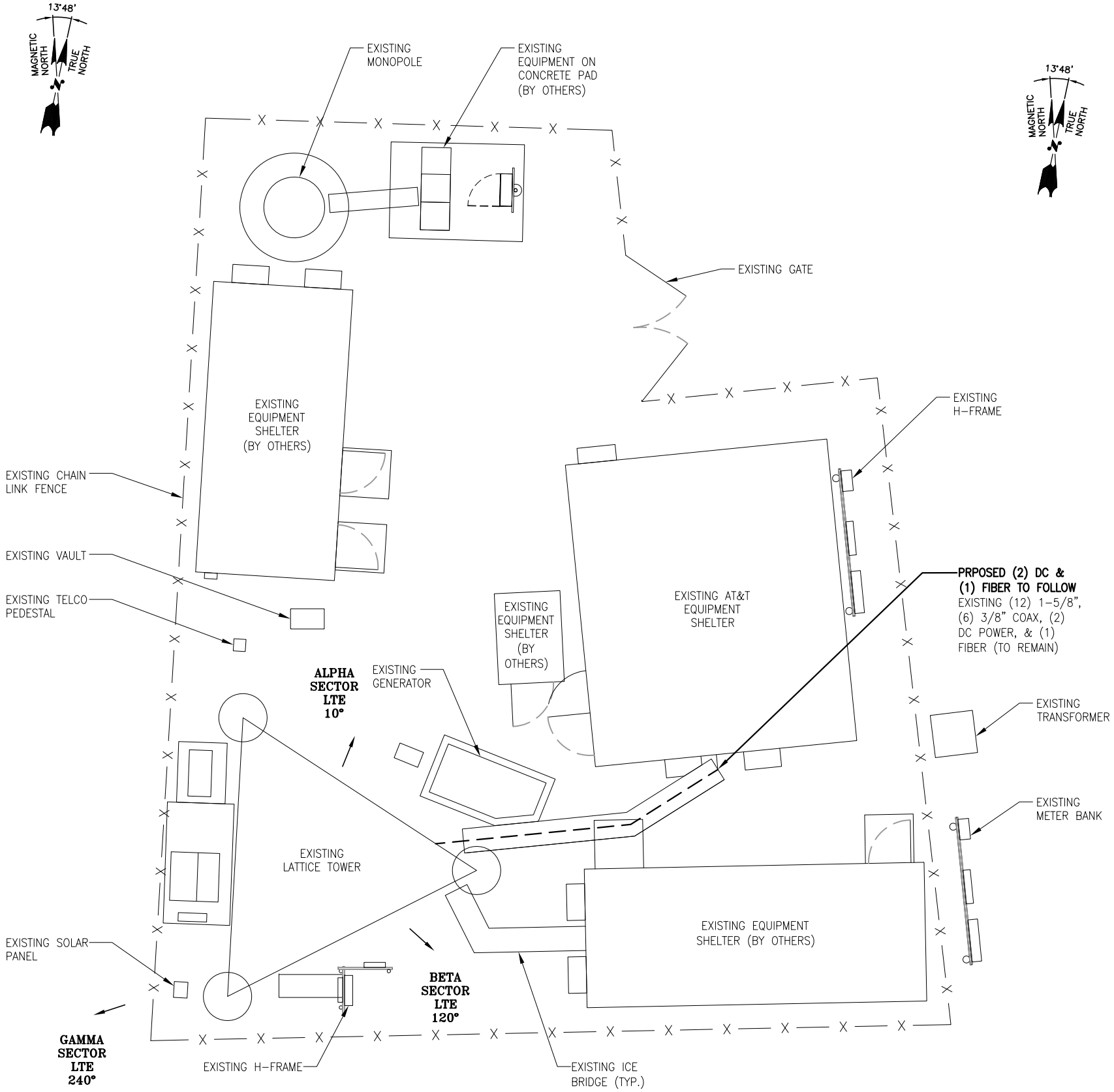
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: RB

STATE OF CONNECTICUT · DEREK J. CREASER · No. 26235 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(LTE−3C)

JOB NUMBER	DRAWING NUMBER	REV
2017.00	T−1	1



COMPOUND PLAN (1 / A-1)
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

0 2'-8" 5'-4" 10'-8" 16'-0"

NOTE:

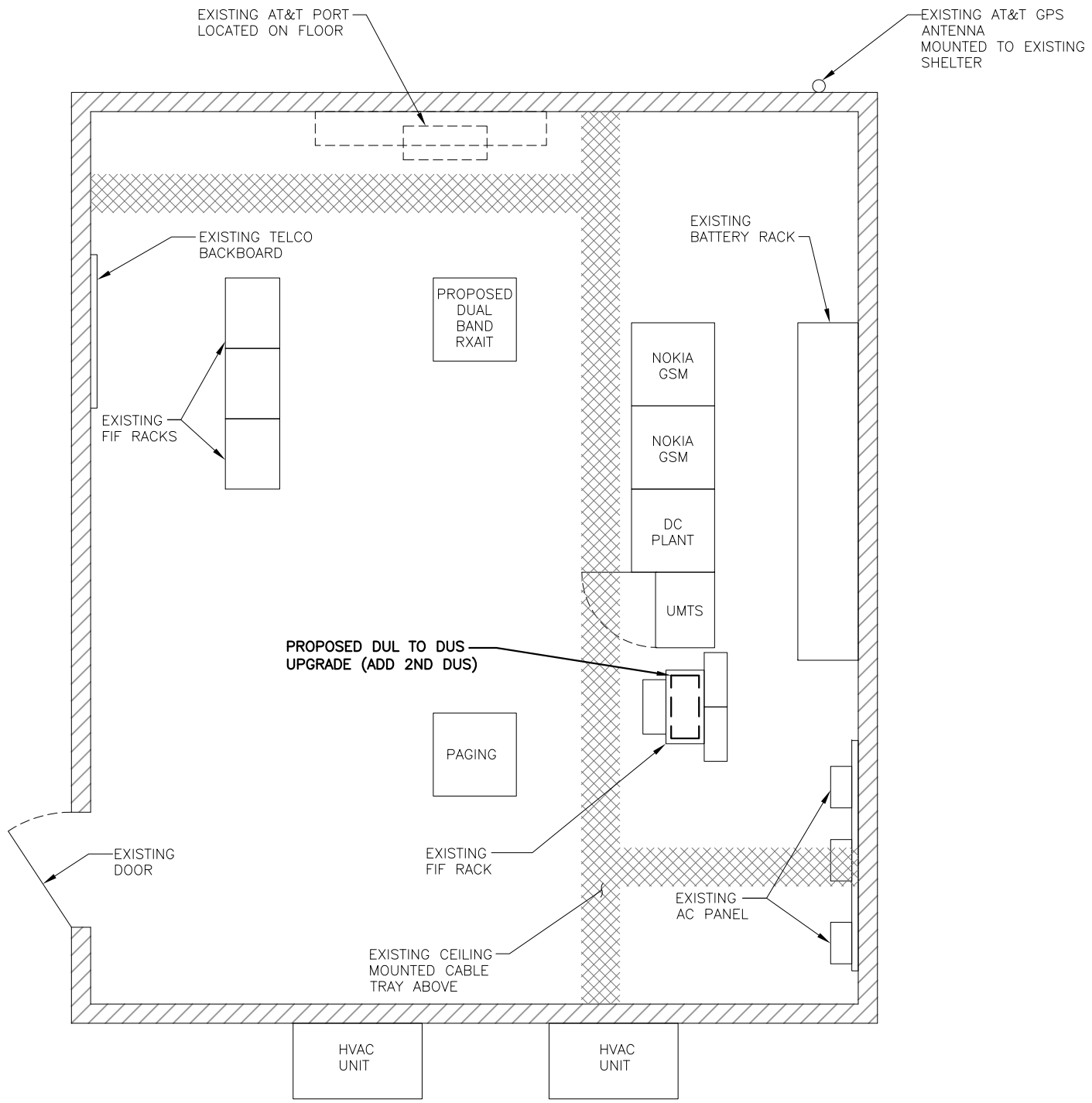
AN ASSESSMENT FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY HUDSON DESIGN GROUP, LLC. DATED: DECEMBER 01, 2015

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

ALL ANTENNAS AND RRHS ARE TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER & FINAL RF DATA SHEET.



EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"

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

SAI
27 NORTHWESTERN DR.
SALEM, NH 03079

SITE NUMBER: CT2017
SITE NAME: GUILFORD
ATC SITE # 311305
10 TANNER MARSH ROAD
GUILFORD, CT
NEW HAVEN COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	12/24/15	ISSUED FOR CONSTRUCTION	SG	AT	DJC
A	11/25/15	ISSUED FOR REVIEW	RB	AT	DJC

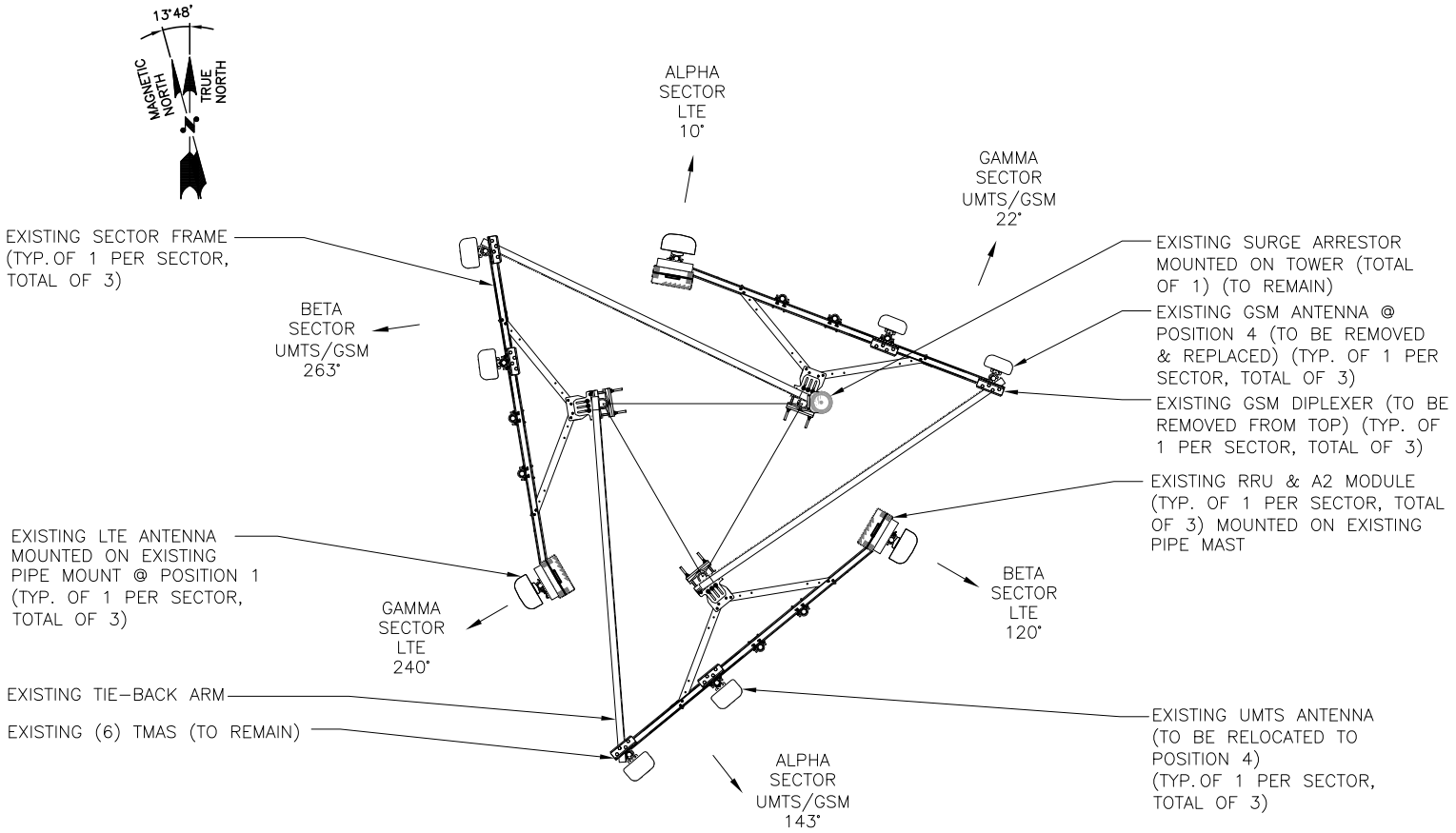
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: RB

STATE OF CONNECTICUT · DEREK J. PHANEUF · No. 23561 · LICENSED PROFESSIONAL ENGINEER

AT&T

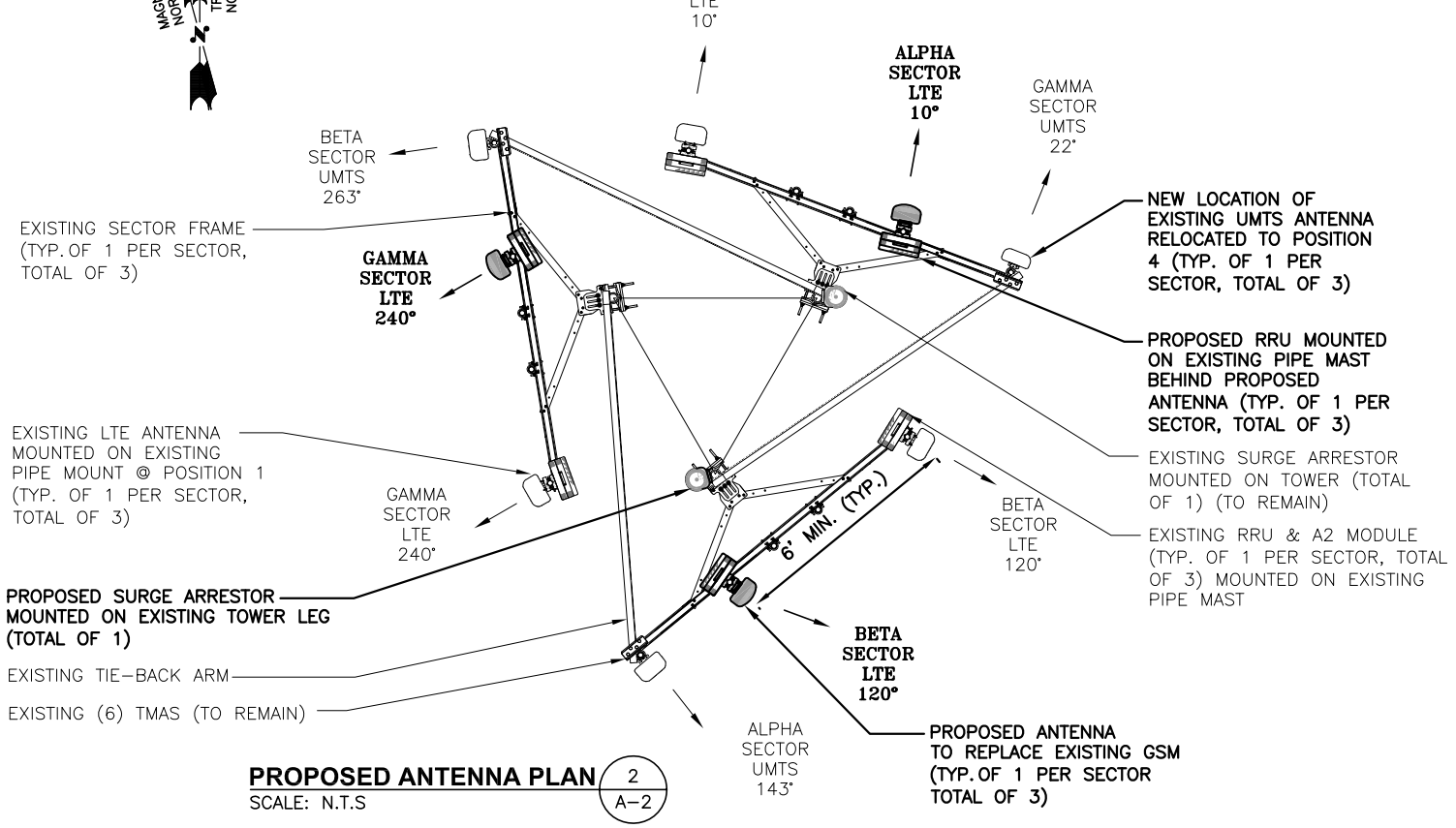
COMPOUND & EQUIPMENT PLAN (LTE-3C)

JOB NUMBER	DRAWING NUMBER	REV
2017.00	A-1	1



EXISTING ANTENNA PLAN (1 / A-2)

SCALE: N.T.S



PROPOSED ANTENNA PLAN (2 / A-2)

SCALE: N.T.S

NOTE:

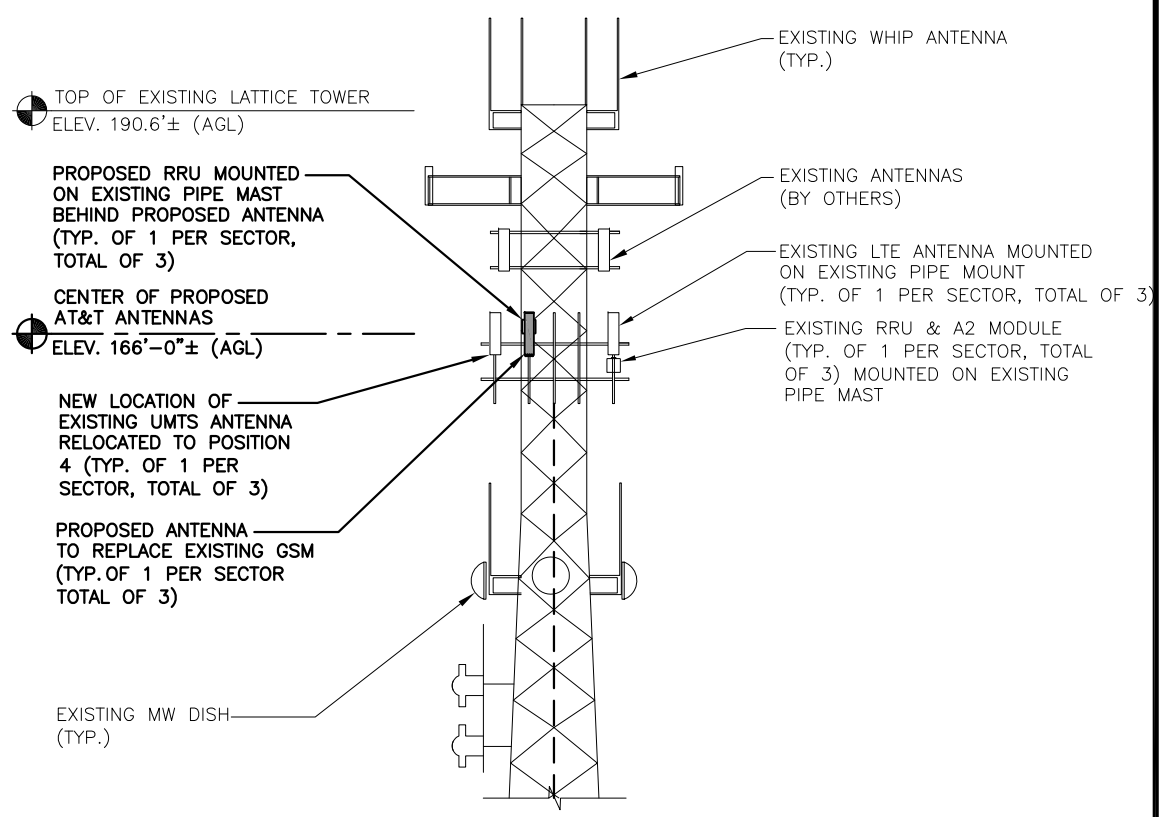
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

ALL ANTENNAS AND RRHS ARE TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER & FINAL RF DATA SHEET.

NOTE:

AN ASSESSMENT FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY HUDSON DESIGN GROUP, LLC. DATED: DECEMBER 01, 2015



SOUTH ELEVATION (3 / A-2)

22x34 SCALE: 3/32"=1'-0" 11x17 SCALE: 3/64"=1'-0"

0 5'-4" 10'-8" 21'-4" 32'-0"

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

SAI
27 NORTHWESTERN DR.
SALEM, NH 03079

SITE NUMBER: CT2017
SITE NAME: GUILFORD
ATC SITE # 311305
10 TANNER MARSH ROAD
GUILFORD, CT
NEW HAVEN COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	12/24/15	ISSUED FOR CONSTRUCTION	SG	AT	DJC
A	11/25/15	ISSUED FOR REVIEW	RB	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: RB

CONNECTICUT LICENSED PROFESSIONAL ENGINEER No. 23651

AT&T

ANTENNA LAYOUT AND ELEVATION (LTE-3C)

JOB NUMBER	DRAWING NUMBER	REV
2017.00	A-2	1

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**190.6 ft Self Supported Tower**
ATC Site Name	:	**GLFD-Guilford Rebuild CT, CT**
ATC Site Number	:	**311305**
Engineering Number	:	**64556222**
Proposed Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**Guilford**
Carrier Site Number	:	**CT2017/FA#10034980**
Site Location	:	**10 Tanner Marsh Road** **Guilford, CT 06437-2942** **41.288608,-72.658281**
County	:	**New Haven**
Date	:	**January 13, 2016**
Max Usage	:	**98%**
Result	:	**Pass**

Prepared By:
Sarah W. Frye, E.I.
Structural Engineer I

COA: PEC.0001553

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 190.6 ft self supported tower to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	Nello Job #RFQ34841, dated April 8, 2011
Foundation Drawing	ATC Job #47517572B, dated June 15, 2011
Geotechnical Report	GEOServices Project #21-07254, dated March 11, 2008

Analysis

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

Basic Wind Speed:	110 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Spectral Response:	Ss = 0.17, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

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

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

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
190.0	194.0	2	Diamond X50A	Leg	(1) 1/2" Coax	Enertrac
187.0	192.0	3	10' Dipole	Leg	(3) 1 1/4" Coax	Town Of Guilford
183.0	183.0	3	RFS APXV18-206517S-C	Side Arms	(6) 1 5/8" Coax (1) 3/8" Coax	Metro PCS
	181.0	3	RCU			
172.0	177.0	3	Ericsson RRUS 11 B12	Sector Frames	(12) 1 5/8" Coax (1) 1 1/4" Hybriflex	T-Mobile
	175.0	3	Andrew LNX-6515DS-VTM			
		3	Ericsson AIR 21 B4A B2P			
		3	Ericsson AIR 21, 1.3 M, B2A B4P, AWS - 1700/2100			
		3	Ericsson KRY 112 144/1			
163.0	166.0	3	Ericsson RRUS-11 (19.7")	Sector Frames	(12) 1 5/8" Coax (2) 0.74" 8 AWG 7 (6) 3/8" Coax (1) 1/2" Coax (1) 0.39" Fiber Trunk	AT&T Mobility
		3	CCI OPA-65R-LCUU-H4 (14.4" width)			
		3	Ericsson RRUS-12 B2			
		3	Ericsson RRUS A2 B2			
		1	Raycap DC6-48-60-18-8F			
		3	Powerwave 7770.00			
		6	Powerwave LGP21401			
		6	Powerwave 7020			
		6	Powerwave LGP21901			
142.0	142.0	2	Diamond X50A	Side Arms	(2) 1/2" Coax	Senet
140.0	147.0	1	Andrew DB408	Side Arm	(6) 7/8" Coax	Town Of Guilford
138.0	138.0	1	Shively 6812B-1 w/o Radome	Leg	(1) 7/8" Coax	Monroe B.o.e
130.0	130.0	1	Shively 6810-HW-2 w/ Radome	Leg	-	
108.8	108.8	1	Scala PR-950	Leg	(1) 7/8" Coax	
108.5	108.5	1	Harris FML-4E	Leg	(1) 7/8" Coax	
87.0	92.5	1	Antel BCD-87010 ___ 4°	Stand-Off	(1) 1 5/8" Coax	Spok Holdings
80.0	80.0	2	4' Dish w/ Radome	Leg	(2) 7/8" Coax	Town Of Guilford
16.0	16.0	1	Channel Master Type 120	Leg	(1) 0.28" RG-6	Spok Holdings

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
163.0	166.0	3	Powerwave 7770.00	-	-	AT&T Mobility

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
163.0	166.0	1	Raycap DC6-48-60-18-8F	Sector Frames	(2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk	AT&T Mobility
		3	Commscope SBNHH-1D65A			
		3	Ericsson RRUS 32 B30			

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

Double stack proposed (2) 0.78" 8 AWG 6 coax alongside existing AT&T Mobility coax. Install (1) 0.39" Fiber Trunk on top of existing coax.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	77%	Pass
Diagonals	98%	Pass
Horizontals	11%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Uplift (Kips)	404.0	84%
Axial (Kips)	456.7	59%
Shear (Kips)	45.8	12%

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

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
163.0	Raycap DC6-48-60-18-8F	AT&T Mobility	0.270	0.019	0.205
	Ericsson RRUS 32 B30				
	Commscope SBNHH-1D65A				
108.8	Scala PR-950	Monroe B.O.E	0.123	0.006	0.126
80.0	4' Dish w/ Radome	Town of Guilford	0.070	0.004	0.099
16.0	Channel Master Type 120	Spok Holdings			

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

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CORPORATION

Standard Conditions

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

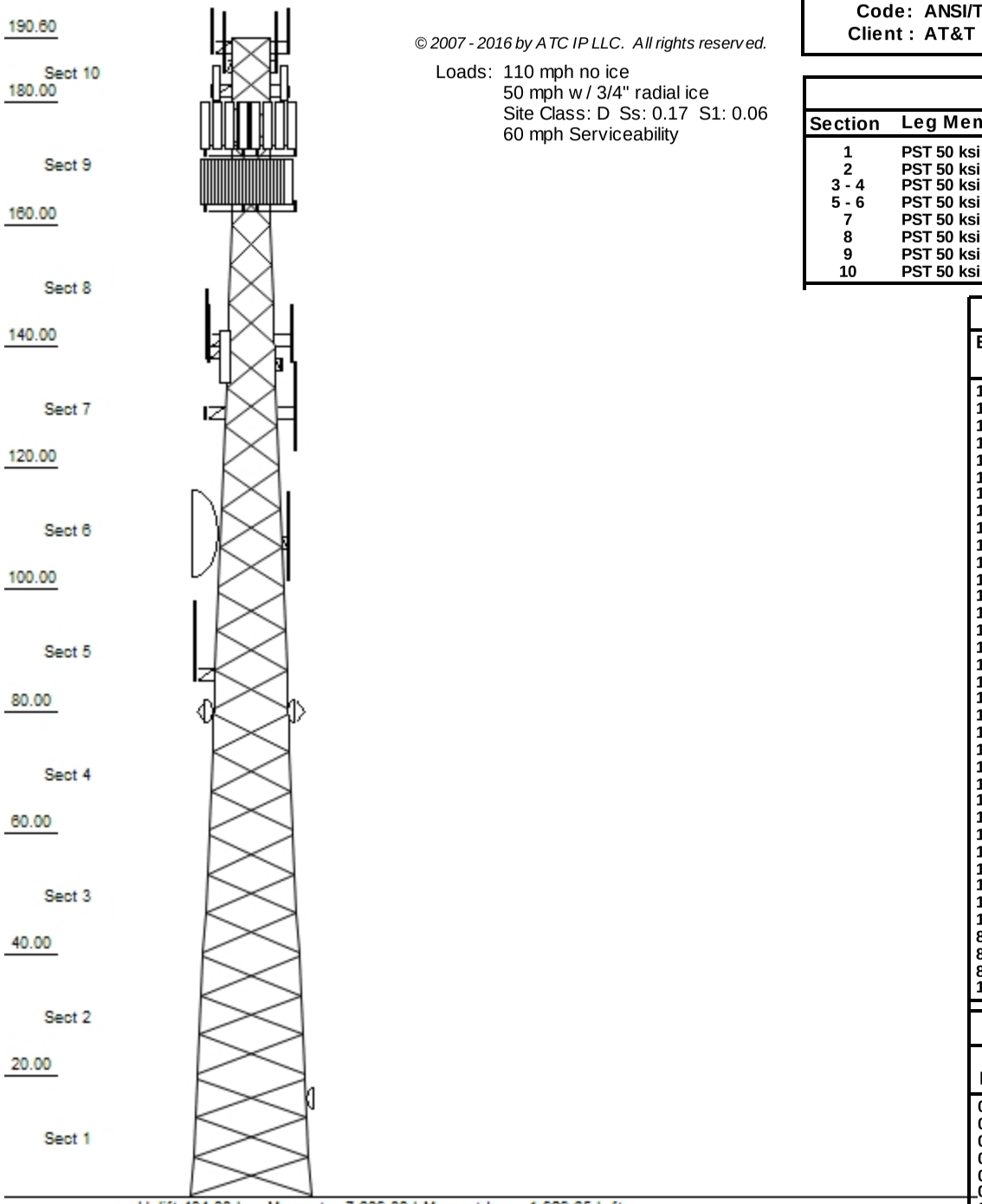
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

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

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

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

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



Uplift 404.00 k Moment 7,609.08 k Moment Ice 1,929.65 k-ft
Vert 456.70 k Tot Down 52.17 k Tot Down Ice 143.93 k
Horiz 45.83 k Tot Shear 77.12 k Tot Shear Ice 19.17 k

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Loads: 110 mph no ice
50 mph w / 3/4" radial ice
Site Class: D Ss: 0.17 S1: 0.06
60 mph Serviceability

Job Information

Tower : 311305	Location : GLFD-Guilford Rebuild CT, CT	
Code: ANSI/TIA-222-G	Shape : Triangle	Base Width : 20.00 ft
Client : AT&T MOBILITY		Top Width : 6.50 ft

Sections Properties

Section	Leg Members		Diagonal Members	Horizontal Members
1	PST 50 ksi	12" DIA PIPE	SAE 50 ksi 4X4X0.25	
2	PST 50 ksi	10" DIA PIPE	SAE 50 ksi 3.5X3.5X0.25	
3 - 4	PST 50 ksi	10" DIA PIPE	SAE 50 ksi 3X3X0.25	
5 - 6	PST 50 ksi	8" DIA PIPE	SAE 50 ksi 3X3X0.1875	
7	PST 50 ksi	6" DIA PIPE	SAE 50 ksi 3X3X0.1875	
8	PST 50 ksi	5" DIA PIPE	SAE 50 ksi 2.5X2.5X0.1875	
9	PST 50 ksi	3" DIA PIPE	SAE 50 ksi 2.5X2.5X0.1875	
10	PST 50 ksi	2" DIA PIPE	SAE 50 ksi 2X2X0.1875	SAE 36 ksi 2X2X0.1875

Discrete Appurtenance

Elev (ft)	Type	Qty	Description
190.00	Whip	2	Diamond X50A
187.00	Whip	3	10' Dipole
183.00	Panel	3	RFS APXV18-206517S-C
183.00	Panel	3	RCU
183.00	Straight Arm	3	Round Side Arm
172.00	Panel	3	Andrew LNX-6515DS-VTM
172.00	Panel	3	Ericsson RRUS 11 B12
172.00	Mounting Frame	3	Round Sector Frame
172.00	Panel	3	Ericsson AIR 21 B4A B2P
172.00	Panel	3	Ericsson AIR 21, 1.3 M, B2A B4
172.00	Panel	3	Ericsson KRY 112 144/1
163.00	Panel	1	Raycap DC6-48-60-18-8F
163.00	Panel	3	Commscope SBNHH-1D65A
163.00	Panel	3	Ericsson RRUS 32 B30
163.00	Panel	3	Ericsson RRUS-11 (19.7")
163.00	Panel	3	CCI OPA-65R-LCUU-H4 (14.4" wid
163.00	Panel	3	Ericsson RRUS-12 B2
163.00	Panel	3	Ericsson RRUS A2 B2
163.00	Panel	1	Raycap DC6-48-60-18-8F
163.00	Panel	3	Powerwave Allgon 7770.00
163.00	Panel	6	Powerwave Allgon LGP21401
163.00	Panel	6	Powerwave Allgon 7020
163.00	Panel	6	Powerwave Allgon LGP21901
163.00	Mounting Frame	3	Flat Light Sector Frame
142.00	Straight Arm	2	Round Side Arm
142.00	Whip	2	Diamond X50A
140.00	Whip	1	Andrew DB408
140.00	Straight Arm	1	Round Side Arm
138.00	Panel	1	Shively 6812B-1 w/o Radome
130.00	Whip	1	Shively 6810-HW-2 w/ Radome
108.80	Dish	1	Scala PR-950
108.50	Whip	1	Harris FML-4E
87.00	Whip	1	Antel BCD-87010 ___ 4°
87.00	Straight Arm	1	Stand-Off
80.00	Dish	2	4' Dish w/ Radome
16.00	Dish	1	Channel Master Type 120

Linear Appurtenance

Elev (ft) From	To	Qty	Description
0.000	190.00	1	1/2" Coax
0.000	189.99	1	Climbing Ladder
0.000	187.00	3	1 1/4" Coax
0.000	183.00	1	Waveguide
0.000	183.00	1	3/8" Coax
0.000	183.00	6	1 5/8" Coax
0.000	172.00	1	Waveguide
0.000	172.00	12	1 5/8" Coax
0.000	172.00	1	1 1/4" Hybriflex Cab

Centek Engineering, Inc.
3-2 North Branford Road
Branford, Connecticut 06405
Phone: (203) 488-0580
Fax: (203) 488-8587

Steven L. Levine
Real Estate Consultant

January 15, 2016

Honorable Joseph S. Mazza
1st Selectman, Town of Guilford
Town Hall, 31 Park Street
Guilford, Connecticut 06437

Re: Existing Telecommunications Facility – 119 (aka 10)Tanner Marsh Road, Guilford

Dear Mr. Mazza:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") and Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies ("R.C.S.A.") Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review AT&T's proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The enclosed Notice fully sets forth the AT&T proposal. However, if you have any questions or require any further information on the plans for the site or the Siting Council's procedures, please contact the undersigned at 860-830-0380 or Ms. Melanie Bachman, Acting Executive Director, Connecticut Siting Council at (860) 827-2935.

Sincerely,

Steven L. Levine
Real Estate Consultant

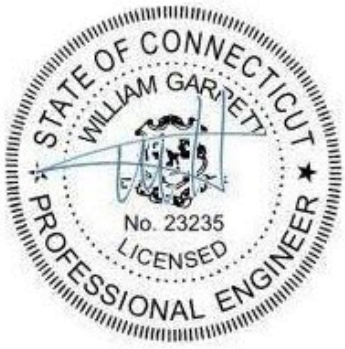
Enclosure

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**190.6 ft Self Supported Tower**
ATC Site Name	:	**GLFD-Guilford Rebuild CT, CT**
ATC Site Number	:	**311305**
Engineering Number	:	**64556222**
Proposed Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**Guilford**
Carrier Site Number	:	**CT2017/FA#10034980**
Site Location	:	**10 Tanner Marsh Road** **Guilford, CT 06437-2942** **41.288608,-72.658281**
County	:	**New Haven**
Date	:	**January 13, 2016**
Max Usage	:	**98%**
Result	:	**Pass**

Reviewed by:
William Garrett, PE
Chief Engineer



Jan 14 2016 7:00 AM

Prepared By:
Sarah W. Frye, E.I.
Structural Engineer I

COA: PEC.0001553

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Table of Contents

Introduction

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Analysis

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

Basic Wind Speed:	110 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Spectral Response:	Ss = 0.17, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

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

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

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
190.0	194.0	2	Diamond X50A	Leg	(1) 1/2" Coax	Enertrac
187.0	192.0	3	10' Dipole	Leg	(3) 1 1/4" Coax	Town Of Guilford
183.0	183.0	3	RFS APXV18-206517S-C	Side Arms	(6) 1 5/8" Coax (1) 3/8" Coax	Metro PCS
	181.0	3	RCU			
172.0	177.0	3	Ericsson RRUS 11 B12	Sector Frames	(12) 1 5/8" Coax (1) 1 1/4" Hybriflex	T-Mobile
	175.0	3	Andrew LNX-6515DS-VTM			
		3	Ericsson AIR 21 B4A B2P			
		3	Ericsson AIR 21, 1.3 M, B2A B4P, AWS - 1700/2100			
		3	Ericsson KRY 112 144/1			
163.0	166.0	3	Ericsson RRUS-11 (19.7")	Sector Frames	(12) 1 5/8" Coax (2) 0.74" 8 AWG 7 (6) 3/8" Coax (1) 1/2" Coax (1) 0.39" Fiber Trunk	AT&T Mobility
		3	CCI OPA-65R-LCUU-H4 (14.4" width)			
		3	Ericsson RRUS-12 B2			
		3	Ericsson RRUS A2 B2			
		1	Raycap DC6-48-60-18-8F			
		3	Powerwave 7770.00			
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142.0	142.0	2	Diamond X50A	Side Arms	(2) 1/2" Coax	Senet
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138.0	138.0	1	Shively 6812B-1 w/o Radome	Leg	(1) 7/8" Coax	Monroe B.o.e
130.0	130.0	1	Shively 6810-HW-2 w/ Radome	Leg	-	
108.8	108.8	1	Scala PR-950	Leg	(1) 7/8" Coax	
108.5	108.5	1	Harris FML-4E	Leg	(1) 7/8" Coax	
87.0	92.5	1	Antel BCD-87010 ___ 4°	Stand-Off	(1) 1 5/8" Coax	Spok Holdings
80.0	80.0	2	4' Dish w/ Radome	Leg	(2) 7/8" Coax	Town Of Guilford
16.0	16.0	1	Channel Master Type 120	Leg	(1) 0.28" RG-6	Spok Holdings

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
163.0	166.0	3	Powerwave 7770.00	-	-	AT&T Mobility

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
163.0	166.0	1	Raycap DC6-48-60-18-8F	Sector Frames	(2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk	AT&T Mobility
		3	Commscope SBNHH-1D65A			
		3	Ericsson RRUS 32 B30			

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

Double stack proposed (2) 0.78" 8 AWG 6 coax alongside existing AT&T Mobility coax. Install (1) 0.39" Fiber Trunk on top of existing coax.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	77%	Pass
Diagonals	98%	Pass
Horizontals	11%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Uplift (Kips)	404.0	84%
Axial (Kips)	456.7	59%
Shear (Kips)	45.8	12%

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

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
163.0	Raycap DC6-48-60-18-8F	AT&T Mobility	0.270	0.019	0.205
	Ericsson RRUS 32 B30				
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80.0	4' Dish w/ Radome	Town of Guilford	0.070	0.004	0.099
16.0	Channel Master Type 120	Spok Holdings			

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

AMERICAN TOWER®
CORPORATION

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-- 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.

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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.

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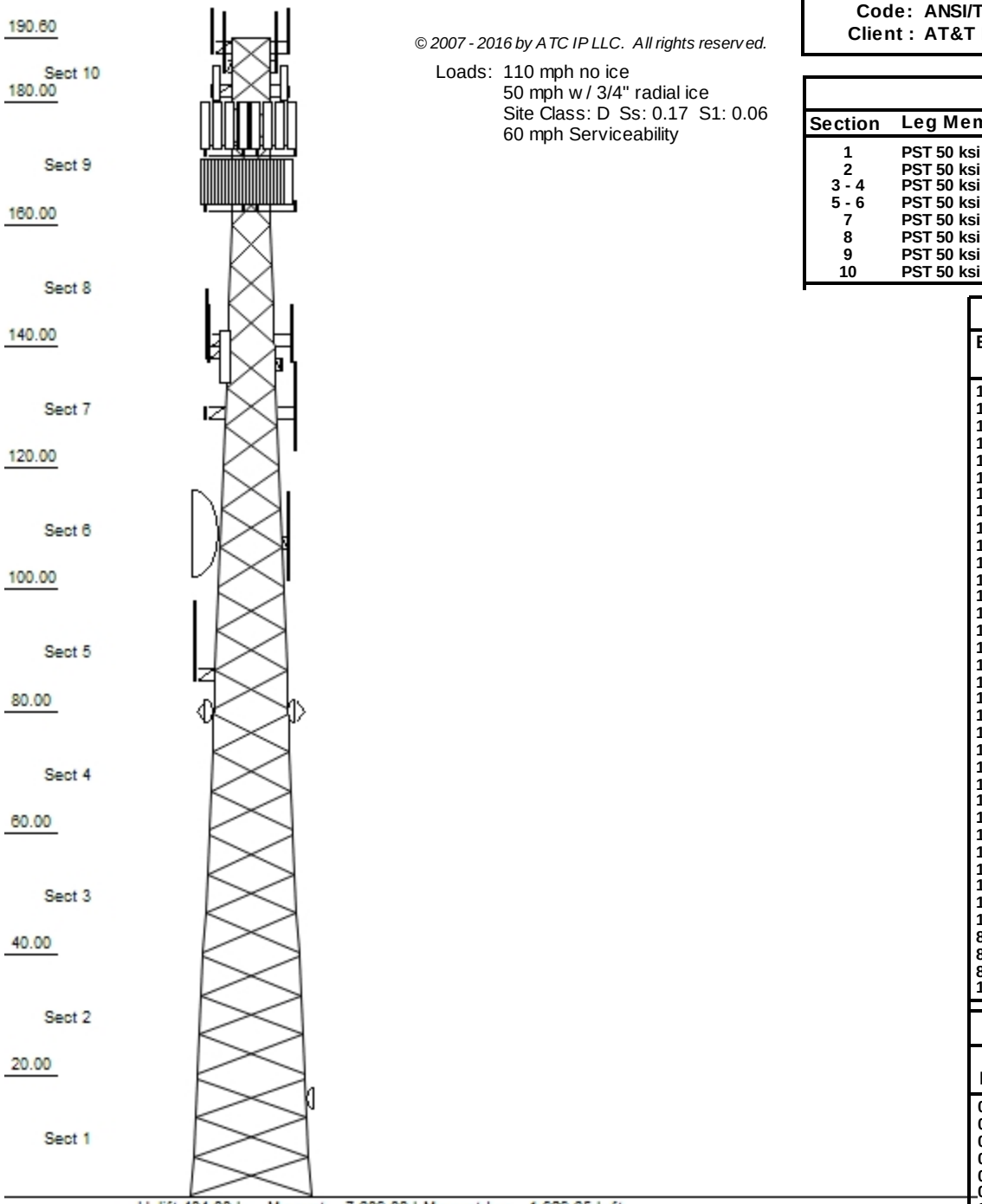

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Loads: 110 mph no ice
50 mph w / 3/4" radial ice
Site Class: D Ss: 0.17 S1: 0.06
60 mph Serviceability

Job Information

Tower : 311305	Location : GLFD-Guilford Rebuild CT, CT	
Code: ANSI/TIA-222-G	Shape : Triangle	Base Width : 20.00 ft
Client : AT&T MOBILITY		Top Width : 6.50 ft

Sections Properties

Section	Leg Members		Diagonal Members	Horizontal Members
1	PST 50 ksi	12" DIA PIPE	SAE 50 ksi 4X4X0.25	
2	PST 50 ksi	10" DIA PIPE	SAE 50 ksi 3.5X3.5X0.25	
3 - 4	PST 50 ksi	10" DIA PIPE	SAE 50 ksi 3X3X0.25	
5 - 6	PST 50 ksi	8" DIA PIPE	SAE 50 ksi 3X3X0.1875	
7	PST 50 ksi	6" DIA PIPE	SAE 50 ksi 3X3X0.1875	
8	PST 50 ksi	5" DIA PIPE	SAE 50 ksi 2.5X2.5X0.1875	
9	PST 50 ksi	3" DIA PIPE	SAE 50 ksi 2.5X2.5X0.1875	
10	PST 50 ksi	2" DIA PIPE	SAE 50 ksi 2X2X0.1875	SAE 36 ksi 2X2X0.1875

Discrete Appurtenance

Elev (ft)	Type	Qty	Description
190.00	Whip	2	Diamond X50A
187.00	Whip	3	10' Dipole
183.00	Panel	3	RFS APXV18-206517S-C
183.00	Panel	3	RCU
183.00	Straight Arm	3	Round Side Arm
172.00	Panel	3	Andrew LNX-6515DS-VTM
172.00	Panel	3	Ericsson RRUS 11 B12
172.00	Mounting Frame	3	Round Sector Frame
172.00	Panel	3	Ericsson AIR 21 B4A B2P
172.00	Panel	3	Ericsson AIR 21, 1.3 M, B2A B4
172.00	Panel	3	Ericsson KRY 112 144/1
163.00	Panel	1	Raycap DC6-48-60-18-8F
163.00	Panel	3	Commscope SBNHH-1D65A
163.00	Panel	3	Ericsson RRUS 32 B30
163.00	Panel	3	Ericsson RRUS-11 (19.7")
163.00	Panel	3	CCI OPA-65R-LCUU-H4 (14.4" wid
163.00	Panel	3	Ericsson RRUS-12 B2
163.00	Panel	3	Ericsson RRUS A2 B2
163.00	Panel	1	Raycap DC6-48-60-18-8F
163.00	Panel	3	Powerwave Allgon 7770.00
163.00	Panel	6	Powerwave Allgon LGP21401
163.00	Panel	6	Powerwave Allgon 7020
163.00	Panel	6	Powerwave Allgon LGP21901
163.00	Mounting Frame	3	Flat Light Sector Frame
142.00	Straight Arm	2	Round Side Arm
142.00	Whip	2	Diamond X50A
140.00	Whip	1	Andrew DB408
140.00	Straight Arm	1	Round Side Arm
138.00	Panel	1	Shively 6812B-1 w/o Radome
130.00	Whip	1	Shively 6810-HW-2 w/ Radome
108.80	Dish	1	Scala PR-950
108.50	Whip	1	Harris FML-4E
87.00	Whip	1	Antel BCD-87010 ___ 4°
87.00	Straight Arm	1	Stand-Off
80.00	Dish	2	4' Dish w/ Radome
16.00	Dish	1	Channel Master Type 120

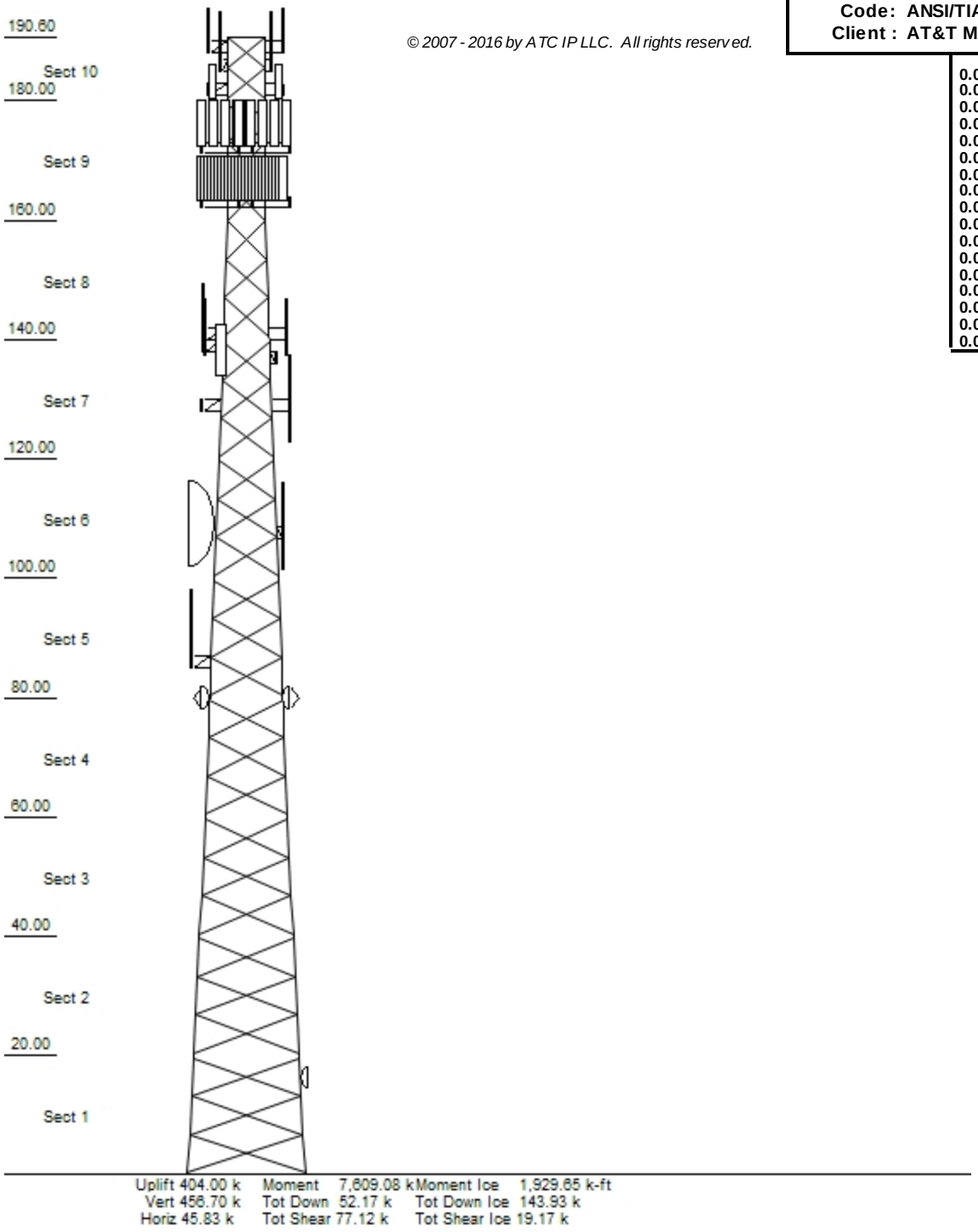
Linear Appurtenance

Elev (ft) From	To	Qty	Description
0.000	190.00	1	1/2" Coax
0.000	189.99	1	Climbing Ladder
0.000	187.00	3	1 1/4" Coax
0.000	183.00	1	Waveguide
0.000	183.00	1	3/8" Coax
0.000	183.00	6	1 5/8" Coax
0.000	172.00	1	Waveguide
0.000	172.00	12	1 5/8" Coax
0.000	172.00	1	1 1/4" Hybriflex Cab

Job Information

Tower :	**311305**	**Location :**	**GLFD-Guilford Rebuild CT, CT**
Code:	**ANSI/TIA-222-G**	**Shape :**	**Triangle**
Client :	**AT&T MOBILITY**		

Base Width : 20.00 ft
Top Width : 6.50 ft



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0.000	163.00	1	Waveguide
0.000	163.00	6	3/8" Coax
0.000	163.00	1	1/2" Coax
0.000	163.00	4	1 5/8" Coax
0.000	163.00	8	1 5/8" Coax
0.000	163.00	2	0.78" 8 AWG 6
0.000	163.00	2	0.74" 8 AWG 7
0.000	163.00	1	0.39" Fiber Trunk
0.000	163.00	1	0.39" Fiber Trunk
0.000	142.00	2	1/2" Coax
0.000	140.00	6	7/8" Coax
0.000	138.00	1	7/8" Coax
0.000	108.80	1	7/8" Coax
0.000	108.50	1	7/8" Coax
0.000	87.000	1	1 5/8" Coax
0.000	80.000	2	7/8" Coax
0.000	16.000	1	0.28" RG-6

Site Number:	**311305**	**Code:**	**ANSI/TIA-222-G**	*© 2007 - 2016 by ATC IP LLC. All rights reserved.*
Site Name:	**GLFD-Guilford Rebuild CT, CT**	**Engineering Number:**	**64556222**	1/13/2016 8:47:09 PM
Customer:	**AT&T MOBILITY**			

Analysis Parameters

Location:	**New Haven County, CT**		
Code:	**ANSI/TIA-222-G**	**Height (ft):**	**190.5999**
Shape:	**Triangle**	**Base Elevation (ft):**	**0.00**
Tower Manufacturer:	**Nello Corp**	**Bottom Face Width (ft):**	**20.00**
Tower Type:	**Self Support**	**Top Face Width (ft):**	**6.50**

Ice & Wind Parameters

Structure Class:	**II**	**Design Windspeed Without Ice:**	**110 mph**
Exposure Category:	**C**	**Design Windspeed With Ice:**	**50 mph**
Topographic Category:	**1**	**Operational Windspeed:**	**60 mph**
Crest Height:	**0.0 ft**	**Design Ice Thickness:**	**0.75 in**

Seismic Parameters

Analysis Method:	**Equivalent Modal Analysis Method**				
Site Class:	**D - Stiff Soil**				
Period Based on Rayleigh Method (sec):	**0.81**				
T_L(sec):	**6**	**p:**	**1.3**	**C_S:**	**0.000**
S_S:	**0.173**	**S_1:**	**0.060**	**C_S, Max:**	**0.000**
F_a:	**1.600**	**F_V:**	**2.400**	**C_S, Min:**	**0.000**
S_{ds}:	**0.185**	**S_{d1}:**	**0.096**		

Load Cases

1.2D + 1.6W Normal	**110 mph Normal to Face with No Ice**
1.2D + 1.6W 60 deg	**110 mph 60 degree with No Ice**
1.2D + 1.6W 90 deg	**110 mph 90 degree with No Ice**
0.9D + 1.6W Normal	**110 mph Normal to Face with No Ice (Reduced DL)**
0.9D + 1.6W 60 deg	**110 mph 60 deg with No Ice (Reduced DL)**
0.9D + 1.6W 90 deg	**110 mph 90 deg with No Ice (Reduced DL)**
1.2D + 1.0Di + 1.0Wi Normal	**50 mph Normal with 0.75 in Radial Ice**
1.2D + 1.0Di + 1.0Wi 60 deg	**50 mph 60 degree with 0.75 in Radial Ice**
1.2D + 1.0Di + 1.0Wi 90 deg	**50 mph 90 degree with 0.75 in Radial Ice**
(1.2 + 0.2Sds) * DL + E Normal	**Seismic Normal**
(1.2 + 0.2Sds) * DL + E 60 deg	**Seismic 60 degree**
(1.2 + 0.2Sds) * DL + E 90 deg	**Seismic 90 degree**
(0.9 - 0.2Sds) * DL + E Normal	**Seismic (Reduced DL) Normal**
(0.9 - 0.2Sds) * DL + E 60 deg	**Seismic (Reduced DL) 60 degree**
(0.9 - 0.2Sds) * DL + E 90 deg	**Seismic (Reduced DL) 90 degree**
1.0D + 1.0W Service Normal	**Serviceability - 60 mph Wind Normal**
1.0D + 1.0W Service 60 deg	**Serviceability - 60 mph Wind 60 degree**
1.0D + 1.0W Service 90 deg	**Serviceability - 60 mph Wind 90 degree**

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Tower Loading

Discrete Appurtenance Properties 1.2D + 1.6W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
190.0	Diamond X50A	2	2	1.1	5.6	2.0	2.0	1.00	1.00	4.0	466.9	38.31	117	7
187.0	10' Dipole	3	30	3.8	8.0	3.0	3.0	1.00	0.90	5.0	2639.1	38.23	528	130
183.0	RCU	3	1	0.2	0.7	2.0	2.0	0.80	0.50	-2.0	19.7	37.76	10	4
183.0	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	0.80	0.68	0.0	0.0	37.84	433	114
183.0	Round Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.0	37.84	538	648
172.0	Ericsson KRY 112	3	11	0.4	0.6	6.1	2.7	0.80	0.50	3.0	75.3	37.49	25	48
172.0	Ericsson RRUS 11	3	51	2.8	1.6	17.0	7.2	0.80	0.50	5.0	855.6	37.58	171	219
172.0	Ericsson AIR 21, 1.3	3	90	5.8	4.5	12.0	8.0	0.80	0.71	3.0	1511.7	37.49	504	389
172.0	Ericsson AIR 21 B4A	3	90	5.8	4.5	12.0	8.0	0.80	0.71	3.0	1511.7	37.49	504	389
172.0	Andrew LNX-	3	51	11.4	8.0	11.9	7.1	0.80	0.70	3.0	2937.2	37.49	979	222
172.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	37.35	1103	1296
163.0	Powerwave Allgon	6	6	0.2	0.3	6.0	3.0	0.80	0.50	3.0	83.5	37.08	28	48
163.0	Powerwave Allgon	6	2	0.4	0.7	4.9	2.4	0.80	0.50	3.0	145.2	37.08	48	19
163.0	Powerwave Allgon	6	14	1.1	1.2	9.2	2.6	0.80	0.50	3.0	399.3	37.08	133	122
163.0	Raycap DC6-48-60-	1	20	1.1	2.0	9.7	9.7	0.80	1.00	3.0	134.3	37.08	45	29
163.0	Raycap DC6-48-60-	1	20	1.1	2.0	9.7	9.7	0.80	1.00	3.0	134.3	37.08	45	29
163.0	Ericsson RRUS A2 B2	3	22	2.1	1.4	16.0	5.8	0.80	0.50	3.0	373.9	37.08	125	95
163.0	Ericsson RRUS-11	3	51	2.8	1.6	17.0	8.0	0.80	0.50	3.0	506.4	37.08	169	220
163.0	Ericsson RRUS 32	3	60	3.1	2.2	12.1	6.7	0.80	0.50	3.0	570.0	37.08	190	259
163.0	Ericsson RRUS-12 B2	3	58	3.2	2.1	15.1	6.7	0.80	0.50	3.0	571.8	37.08	191	251
163.0	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	3.0	1300.2	37.08	433	151
163.0	CCI OPA-65R-LCUU-	3	57	5.9	7.7	14.8	7.4	0.80	0.66	3.0	1423.3	37.08	474	246
163.0	Commscope SBNHH-	3	34	6.4	4.6	11.9	7.1	0.80	0.66	3.0	1523.9	37.08	508	145
163.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	36.93	1355	1728
142.0	Diamond X50A	2	2	1.1	9.7	3.0	3.0	0.90	1.00	0.0	0.0	35.88	98	7
142.0	Round Side Arm	2	150	5.2	0.0	0.0	0.0	0.90	0.90	0.0	0.0	35.88	411	432
140.0	Andrew DB408	1	17	2.9	9.7	3.0	3.0	1.00	1.00	7.0	997.7	36.14	143	24
140.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	35.77	253	216
138.0	Shively 6812B-1 w/o	1	3	0.6	9.0	24.0	24.0	1.00	1.00	0.0	0.0	35.66	29	4
130.0	Shively 6810-HW-2	1	247	13.8	14.6	96.5	63.0	1.00	1.00	0.0	0.0	35.22	661	356
108.8	Scala PR-950	1	38	10.1	14.6	96.5	63.0	1.00	1.00	0.0	0.0	33.92	465	55
108.5	Harris FML-4E	1	227	12.8	14.6	96.5	63.0	1.00	1.00	0.0	0.0	33.90	592	327
87.00	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	32.36	110	108
87.00	Antel BCD-87010	1	27	2.9	11.2	2.6	2.6	1.00	1.00	5.5	711.1	32.78	129	38
80.00	4' Dish w/ Radome	2	120	10.9	4.0	0.0	0.0	1.00	1.00	0.0	0.0	31.79	938	346
16.00	Channel Master	1	126	20.2	3.9	47.2	0.0	1.00	1.00	0.0	0.0	22.66	622	181
	Totals	91	6180	425.5										

Discrete Appurtenance Properties 0.9D + 1.6W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
190.0	Diamond X50A	2	2	1.1	5.6	2.0	2.0	1.00	1.00	4.0	466.9	38.31	117	4
187.0	10' Dipole	3	30	3.8	8.0	3.0	3.0	1.00	0.90	5.0	2639.1	38.23	528	73
183.0	RCU	3	1	0.2	0.7	2.0	2.0	0.80	0.50	-2.0	19.7	37.76	10	2
183.0	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	0.80	0.68	0.0	0.0	37.84	433	64
183.0	Round Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.0	37.84	538	365
172.0	Ericsson KRY 112	3	11	0.4	0.6	6.1	2.7	0.80	0.50	3.0	75.3	37.49	25	27
172.0	Ericsson RRUS 11	3	51	2.8	1.6	17.0	7.2	0.80	0.50	5.0	855.6	37.58	171	123
172.0	Ericsson AIR 21, 1.3	3	90	5.8	4.5	12.0	8.0	0.80	0.71	3.0	1511.7	37.49	504	219
172.0	Ericsson AIR 21 B4A	3	90	5.8	4.5	12.0	8.0	0.80	0.71	3.0	1511.7	37.49	504	219
172.0	Andrew LNX-	3	51	11.4	8.0	11.9	7.1	0.80	0.70	3.0	2937.2	37.49	979	125

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Tower Loading

172.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	37.35	1103	729
163.0	Powerwave Allgon	6	6	0.2	0.3	6.0	3.0	0.80	0.50	3.0	83.5	37.08	28	27
163.0	Powerwave Allgon	6	2	0.4	0.7	4.9	2.4	0.80	0.50	3.0	145.2	37.08	48	11
163.0	Powerwave Allgon	6	14	1.1	1.2	9.2	2.6	0.80	0.50	3.0	399.3	37.08	133	69
163.0	Raycap DC6-48-60-	1	20	1.1	2.0	9.7	9.7	0.80	1.00	3.0	134.3	37.08	45	16
163.0	Raycap DC6-48-60-	1	20	1.1	2.0	9.7	9.7	0.80	1.00	3.0	134.3	37.08	45	16
163.0	Ericsson RRUS A2 B2	3	22	2.1	1.4	16.0	5.8	0.80	0.50	3.0	373.9	37.08	125	53
163.0	Ericsson RRUS-11	3	51	2.8	1.6	17.0	8.0	0.80	0.50	3.0	506.4	37.08	169	124
163.0	Ericsson RRUS 32	3	60	3.1	2.2	12.1	6.7	0.80	0.50	3.0	570.0	37.08	190	146
163.0	Ericsson RRUS-12 B2	3	58	3.2	2.1	15.1	6.7	0.80	0.50	3.0	571.8	37.08	191	141
163.0	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	3.0	1300.2	37.08	433	85
163.0	CCI OPA-65R-LCUU-	3	57	5.9	7.7	14.8	7.4	0.80	0.66	3.0	1423.3	37.08	474	139
163.0	Commscope SBNHH-	3	34	6.4	4.6	11.9	7.1	0.80	0.66	3.0	1523.9	37.08	508	81
163.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	36.93	1355	972
142.0	Diamond X50A	2	2	1.1	9.7	3.0	3.0	0.90	1.00	0.0	0.0	35.88	98	4
142.0	Round Side Arm	2	150	5.2	0.0	0.0	0.0	0.90	0.90	0.0	0.0	35.88	411	243
140.0	Andrew DB408	1	17	2.9	9.7	3.0	3.0	1.00	1.00	7.0	997.7	36.14	143	14
140.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	35.77	253	122
138.0	Shively 6812B-1 w/o	1	3	0.6	9.0	24.0	24.0	1.00	1.00	0.0	0.0	35.66	29	2
130.0	Shively 6810-HW-2	1	247	13.8	14.6	96.5	63.0	1.00	1.00	0.0	0.0	35.22	661	200
108.8	Scala PR-950	1	38	10.1	14.6	96.5	63.0	1.00	1.00	0.0	0.0	33.92	465	31
108.5	Harris FML-4E	1	227	12.8	14.6	96.5	63.0	1.00	1.00	0.0	0.0	33.90	592	184
87.00	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	32.36	110	61
87.00	Antel BCD-87010	1	27	2.9	11.2	2.6	2.6	1.00	1.00	5.5	711.1	32.78	129	21
80.00	4' Dish w/ Radome	2	120	10.9	4.0	0.0	0.0	1.00	1.00	0.0	0.0	31.79	938	194
16.00	Channel Master	1	126	20.2	3.9	47.2	0.0	1.00	1.00	0.0	0.0	22.66	622	102
	Totals	91	6180	425.5										

Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elevation (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
190.0	Diamond X50A	2	65	2.5	5.6	2.0	2.0	1.00	1.00	4.0	136.5	7.92	34	156
187.0	10' Dipole	3	140	9.7	8.0	3.0	3.0	1.00	0.90	5.0	880.7	7.90	176	525
183.0	RCU	3	12	0.4	0.7	2.0	2.0	0.80	0.50	-2.0	5.9	7.80	3	42
183.0	RFS APXV18-	3	147	6.4	6.0	6.8	3.2	0.80	0.68	0.0	0.0	7.82	70	549
183.0	Round Side Arm	3	225	8.0	0.0	0.0	0.0	1.00	0.67	0.0	0.0	7.82	107	918
172.0	Ericsson KRY 112	3	28	0.6	0.6	6.1	2.7	0.80	0.50	3.0	15.1	7.75	5	108
172.0	Ericsson RRUS 11	3	138	3.5	1.6	17.0	7.2	0.80	0.50	5.0	137.8	7.76	28	535
172.0	Ericsson AIR 21, 1.3	3	256	6.9	4.5	12.0	8.0	0.80	0.71	3.0	231.6	7.75	77	987
172.0	Ericsson AIR 21 B4A	3	256	6.9	4.5	12.0	8.0	0.80	0.71	3.0	231.6	7.75	77	987
172.0	Andrew LNX-	3	319	13.1	8.0	11.9	7.1	0.80	0.70	3.0	435.2	7.75	145	1184
172.0	Round Sector Frame	3	673	31.2	0.0	0.0	0.0	0.75	0.67	0.0	0.0	7.72	308	2640
163.0	Powerwave Allgon	6	18	0.4	0.3	6.0	3.0	0.80	0.50	3.0	20.1	7.66	7	138
163.0	Powerwave Allgon	6	18	0.6	0.7	4.9	2.4	0.80	0.50	3.0	29.1	7.66	10	132
163.0	Powerwave Allgon	6	48	1.6	1.2	9.2	2.6	0.80	0.50	3.0	73.3	7.66	24	364
163.0	Raycap DC6-48-60-	1	101	2.5	2.0	9.7	9.7	0.80	1.00	3.0	39.4	7.66	13	125
163.0	Raycap DC6-48-60-	1	101	2.5	2.0	9.7	9.7	0.80	1.00	3.0	39.4	7.66	13	125
163.0	Ericsson RRUS A2 B2	3	90	2.8	1.4	16.0	5.8	0.80	0.50	3.0	65.7	7.66	22	338
163.0	Ericsson RRUS-11	3	141	3.5	1.6	17.0	8.0	0.80	0.50	3.0	81.3	7.66	27	545
163.0	Ericsson RRUS 32	3	145	3.4	2.2	12.1	6.7	0.80	0.50	3.0	80.1	7.66	27	567
163.0	Ericsson RRUS-12 B2	3	151	3.9	2.1	15.1	6.7	0.80	0.50	3.0	91.1	7.66	30	585
163.0	Powerwave Allgon	3	170	6.6	4.6	11.0	5.0	0.80	0.65	3.0	200.1	7.66	67	638
163.0	CCI OPA-65R-LCUU-	3	348	14.6	7.7	14.8	7.4	0.80	0.66	3.0	451.6	7.66	151	1294
163.0	Commscope SBNHH-	3	192	7.0	4.6	11.9	7.1	0.80	0.66	3.0	215.2	7.66	72	714
163.0	Flat Light Sector	3	702	33.0	0.0	0.0	0.0	0.75	0.67	0.0	0.0	7.63	323	2814

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Tower Loading

142.0	Diamond X50A	2	132	5.7	9.7	3.0	3.0	0.90	1.00	0.0	0.0	7.41	64	317
142.0	Round Side Arm	2	223	7.9	0.0	0.0	0.0	0.90	0.90	0.0	0.0	7.41	81	608
140.0	Andrew DB408	1	144	5.6	9.7	3.0	3.0	1.00	1.00	7.0	250.9	7.47	36	177
140.0	Round Side Arm	1	222	7.9	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.39	50	303
138.0	Shively 6812B-1 w/o	1	706	25.2	9.0	24.0	24.0	1.00	1.00	0.0	0.0	7.37	158	848
130.0	Shively 6810-HW-2	1	4177	87.0	14.6	96.5	63.0	1.00	1.00	0.0	0.0	7.28	538	5072
108.8	Scala PR-950	1	51	13.5	14.6	96.5	63.0	1.00	1.00	0.0	0.0	7.01	80	70
108.5	Harris FML-4E	1	4090	86.9	14.6	96.5	63.0	1.00	1.00	0.0	0.0	7.00	517	4962
87.00	Stand-Off	1	125	4.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	6.69	24	168
87.00	Antel BCD-87010	1	153	6.5	11.2	2.6	2.6	1.00	1.00	5.5	207.3	6.77	38	190
80.00	4' Dish w/ Radome	2	416	12.3	4.0	0.0	0.0	1.00	1.00	0.0	0.0	6.57	138	1057
16.00	Channel Master	1	235	22.5	3.9	47.2	0.0	1.00	1.00	0.0	0.0	4.68	89	312
	Totals	91	24676	821.1										

Discrete Appurtenance Properties 1.0D + 1.0W Service

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
190.0	Diamond X50A	2	2	1.1	5.6	2.0	2.0	1.00	1.00	4.0	86.8	11.40	22	5
187.0	10' Dipole	3	30	3.8	8.0	3.0	3.0	1.00	0.90	5.0	490.7	11.37	98	90
183.0	RCU	3	1	0.2	0.7	2.0	2.0	0.80	0.50	-2.0	3.7	11.23	2	3
183.0	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	0.80	0.68	0.0	0.0	11.26	81	79
183.0	Round Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.0	11.26	100	450
172.0	Ericsson KRY 112	3	11	0.4	0.6	6.1	2.7	0.80	0.50	3.0	14.0	11.15	5	33
172.0	Ericsson RRUS 11	3	51	2.8	1.6	17.0	7.2	0.80	0.50	5.0	159.1	11.18	32	152
172.0	Ericsson AIR 21, 1.3	3	90	5.8	4.5	12.0	8.0	0.80	0.71	3.0	281.1	11.15	94	270
172.0	Ericsson AIR 21 B4A	3	90	5.8	4.5	12.0	8.0	0.80	0.71	3.0	281.1	11.15	94	270
172.0	Andrew LNX-	3	51	11.4	8.0	11.9	7.1	0.80	0.70	3.0	546.2	11.15	182	154
172.0	Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.67	0.0	0.0	11.11	205	900
163.0	Powerwave Allgon	6	6	0.2	0.3	6.0	3.0	0.80	0.50	3.0	15.5	11.03	5	33
163.0	Powerwave Allgon	6	2	0.4	0.7	4.9	2.4	0.80	0.50	3.0	27.0	11.03	9	13
163.0	Powerwave Allgon	6	14	1.1	1.2	9.2	2.6	0.80	0.50	3.0	74.3	11.03	25	85
163.0	Raycap DC6-48-60-	1	20	1.1	2.0	9.7	9.7	0.80	1.00	3.0	25.0	11.03	8	20
163.0	Raycap DC6-48-60-	1	20	1.1	2.0	9.7	9.7	0.80	1.00	3.0	25.0	11.03	8	20
163.0	Ericsson RRUS A2 B2	3	22	2.1	1.4	16.0	5.8	0.80	0.50	3.0	69.5	11.03	23	66
163.0	Ericsson RRUS-11	3	51	2.8	1.6	17.0	8.0	0.80	0.50	3.0	94.2	11.03	31	153
163.0	Ericsson RRUS 32	3	60	3.1	2.2	12.1	6.7	0.80	0.50	3.0	106.0	11.03	35	180
163.0	Ericsson RRUS-12 B2	3	58	3.2	2.1	15.1	6.7	0.80	0.50	3.0	106.3	11.03	35	174
163.0	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	3.0	241.8	11.03	81	105
163.0	CCI OPA-65R-LCUU-	3	57	5.9	7.7	14.8	7.4	0.80	0.66	3.0	264.7	11.03	88	171
163.0	Commscope SBNHH-	3	34	6.4	4.6	11.9	7.1	0.80	0.66	3.0	283.4	11.03	94	101
163.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	10.99	252	1200
142.0	Diamond X50A	2	2	1.1	9.7	3.0	3.0	0.90	1.00	0.0	0.0	10.67	18	5
142.0	Round Side Arm	2	150	5.2	0.0	0.0	0.0	0.90	0.90	0.0	0.0	10.67	76	300
140.0	Andrew DB408	1	17	2.9	9.7	3.0	3.0	1.00	1.00	7.0	185.5	10.75	27	17
140.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	10.64	47	150
138.0	Shively 6812B-1 w/o	1	3	0.6	9.0	24.0	24.0	1.00	1.00	0.0	0.0	10.61	5	3
130.0	Shively 6810-HW-2	1	247	13.8	14.6	96.5	63.0	1.00	1.00	0.0	0.0	10.48	123	247
108.8	Scala PR-950	1	38	10.1	14.6	96.5	63.0	1.00	1.00	0.0	0.0	10.09	87	38
108.5	Harris FML-4E	1	227	12.8	14.6	96.5	63.0	1.00	1.00	0.0	0.0	10.09	110	227
87.00	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	9.63	20	75
87.00	Antel BCD-87010	1	27	2.9	11.2	2.6	2.6	1.00	1.00	5.5	132.2	9.75	24	27
80.00	4' Dish w/ Radome	2	120	10.9	4.0	0.0	0.0	1.00	1.00	0.0	0.0	9.46	174	240
16.00	Channel Master	1	126	20.2	3.9	47.2	0.0	1.00	1.00	0.0	0.0	6.74	116	126

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Tower Loading

Totals	**91**	**6180**	**425.5**

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Tower Loading

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out Of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	190.0	1/2" Coax	1	0.63	0.15	0	1	Individual	0.00	N	1.00	1.00	0.00
0.00	189.9	Climbing Ladder	1	2.00	6.90	0	2	Individual	0.00	N	1.00	1.00	0.00
0.00	187.0	1 1/4" Coax	3	1.55	0.63	0	3	Individual	0.00	N	1.00	1.00	0.00
0.00	183.0	1 5/8" Coax	6	1.98	0.82	50	3	Block	0.00	N	0.00	1.00	0.00
0.00	183.0	3/8" Coax	1	0.44	0.08	0	3	Individual	0.00	N	1.00	1.00	0.01
0.00	183.0	Waveguide	1	2.00	6.00	0	3	Individual	0.00	N	1.00	1.00	0.00
0.00	172.0	1 1/4" Hybriflex	1	1.54	1.00	0	2	Individual	0.00	N	1.00	1.00	0.01
0.00	172.0	1 5/8" Coax	12	1.98	0.82	50	2	Block	0.00	N	0.00	1.00	0.00
0.00	172.0	Waveguide	1	2.00	6.00	0	2	Individual	0.00	N	1.00	1.00	0.00
0.00	163.0	0.39" Fiber Trunk	1	0.39	0.06	0	2	Individual	0.00	N	1.00	1.00	0.01
0.00	163.0	0.39" Fiber Trunk	1	0.39	0.06	100	2	Individual	0.00	N	1.00	1.00	0.01
0.00	163.0	0.74" 8 AWG 7	2	0.74	0.49	50	2	Block	0.00	N	0.00	1.00	0.00
0.00	163.0	0.78" 8 AWG 6	2	0.78	0.59	50	2	Block	0.00	N	0.00	1.00	0.00
0.00	163.0	1 5/8" Coax	8	1.98	0.82	50	2	Block	0.00	N	0.00	1.00	0.00
0.00	163.0	1 5/8" Coax	4	1.98	0.82	0	2	Individual	0.00	N	1.00	1.00	0.00
0.00	163.0	1/2" Coax	1	0.63	0.15	0	2	Individual	0.00	N	1.00	1.00	0.01
0.00	163.0	3/8" Coax	6	0.44	0.08	50	2	Block	0.00	N	0.00	1.00	0.01
0.00	163.0	Waveguide	1	2.00	6.00	0	2	Individual	0.00	N	1.00	1.00	0.00
0.00	142.0	1/2" Coax	2	0.63	0.15	0	3	Individual	0.00	N	1.00	1.00	0.00
0.00	140.0	7/8" Coax	6	1.09	0.33	50	3	Block	0.00	N	1.00	1.00	0.00
0.00	138.0	7/8" Coax	1	1.09	0.33	0	3	Individual	0.00	N	1.00	1.00	0.00
0.00	108.8	7/8" Coax	1	1.09	0.33	0	3	Individual	0.00	N	1.00	0.00	0.00
0.00	108.5	7/8" Coax	1	1.09	0.33	0	3	Individual	0.00	N	1.00	1.00	0.01
0.00	87.00	1 5/8" Coax	1	1.98	0.82	0	3	Individual	0.00	N	1.00	1.00	0.00
0.00	80.00	7/8" Coax	2	1.09	0.33	0	2	Individual	0.00	N	1.00	1.00	0.01
0.00	16.00	0.28" RG-6	1	0.28	0.03	0	3	Individual	0.00	N	1.00	1.00	0.01

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Force/Stress Summary

Section: 1 1 Bot Elev (ft): 0.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 12" DIA PIPE	-450.43	1.2D + 1.6W	6.43	100	100	100	17.6	50.0	642.27	0	0	0.00	0.00	70	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 4X4X0.25	-13.62	1.2D + 1.6W 90	19.44	48	48	48	140.9	43.5	22.07	0	0	0.00	0.00	61	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 12" DIA PIPE	402.21	1.2D + 1.6W 60	50	65	657.00	0	0	0.00	0.00	61	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 4X4X0.25	13.36	1.2D + 1.6W 90	50	65	87.30	0	0	0.00	0.00	15	Member

Section: 2 2 Bot Elev (ft): 20.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 10" DIA PIPE	-413.45	1.2D + 1.6W	0.38	100	100	100	1.2	50.0	535.44	0	0	0.00	0.00	77	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3.5X3.5X0.25	-12.60	1.2D + 1.6W 90	18.77	48	48	48	155.8	42.0	15.73	0	0	0.00	0.00	80	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 10" DIA PIPE	364.50	1.2D + 1.6W 60	50	65	535.50	0	0	0.00	0.00	68	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3.5X3.5X0.25	12.35	1.2D + 1.6W 90	50	65	76.05	0	0	0.00	0.00	16	Member

Section: 3 3 Bot Elev (ft): 40.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 10" DIA PIPE	-364.92	1.2D + 1.6W	0.38	100	100	100	1.2	50.0	535.44	0	0	0.00	0.00	68	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.25	-11.90	1.2D + 1.6W 90	16.90	48	48	48	164.5	50.0	12.02	0	0	0.00	0.00	98	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 10" DIA PIPE	322.79	1.2D + 1.6W 60	50	65	535.50	0	0	0.00	0.00	60	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.25	11.69	1.2D + 1.6W 90	50	65	64.80	0	0	0.00	0.00	18	Member

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Force/Stress Summary

Section: 4 4 Bot Elev (ft): 60.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 10" DIA PIPE	-314.82	1.2D + 1.6W	0.38	100	100	100	1.2	50.0	535.44	0	0	0.00	0.00	58	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.25	-13.40	1.2D + 1.6W 90	15.15	48	48	48	147.5	50.0	14.96	0	0	0.00	0.00	89	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 10" DIA PIPE	278.94	1.2D + 1.6W 60	50	65	535.50	0	0	0.00	0.00	52	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.25	13.16	1.2D + 1.6W 90	50	65	64.80	0	0	0.00	0.00	20	Member

Section: 5 5 Bot Elev (ft): 80.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 8" DIA PIPE	-253.47	1.2D + 1.6W	0.38	100	100	100	1.5	50.0	377.94	0	0	0.00	0.00	67	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.1875	-11.61	1.2D + 1.6W 90	13.81	48	48	48	133.5	44.0	13.82	0	0	0.00	0.00	84	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 8" DIA PIPE	224.19	1.2D + 1.6W 60	50	65	378.00	0	0	0.00	0.00	59	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.1875	11.42	1.2D + 1.6W 90	50	65	49.05	0	0	0.00	0.00	23	Member

Section: 6 6 Bot Elev (ft): 100.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 8" DIA PIPE	-195.40	1.2D + 1.6W	0.38	100	100	100	1.5	50.0	377.94	0	0	0.00	0.00	51	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.1875	-11.03	1.2D + 1.6W 90	12.50	48	48	48	120.8	44.0	16.87	0	0	0.00	0.00	65	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 8" DIA PIPE	171.51	1.2D + 1.6W 60	50	65	378.00	0	0	0.00	0.00	45	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.1875	10.52	1.2D + 1.6W 90	50	65	49.05	0	0	0.00	0.00	21	Member

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Force/Stress Summary

Section: 7 7 Bot Elev (ft): 120.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 6" DIA PIPE	-129.06	1.2D + 1.6W	6.42	100	100	100	34.3	50.0	230.46	0	0	0.00	0.00	56	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.1875	-8.99	1.2D + 1.6W 90	11.24	48	48	48	111.5	44.0	19.40	0	0	0.00	0.00	46	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 6" DIA PIPE	121.09	0.9D + 1.6W 60	50	65	251.10	0	0	0.00	0.00	48	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.1875	8.54	1.2D + 1.6W 90	50	65	49.05	0	0	0.00	0.00	17	Member

Section: 8 8 Bot Elev (ft): 140.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 5" DIA PIPE	-76.77	1.2D + 1.6W	6.55	100	100	100	41.8	50.0	170.30	0	0	0.00	0.00	45	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2.5X2.5X0.1875	-6.88	1.2D + 1.6W 90	10.12	48	48	48	118.4	50.0	14.55	0	0	0.00	0.00	47	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 5" DIA PIPE	72.06	0.9D + 1.6W 60	50	65	193.50	0	0	0.00	0.00	37	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2.5X2.5X0.1875	6.73	1.2D + 1.6W 90	50	65	40.59	0	0	0.00	0.00	16	Member

Section: 9 9 Bot Elev (ft): 160.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 3" DIA PIPE	-30.61	1.2D + 1.6W	6.54	100	100	100	67.7	50.0	71.80	0	0	0.00	0.00	42	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2.5X2.5X0.1875	-5.05	1.2D + 1.6W	9.222	48	48	48	110.5	50.0	16.63	0	0	0.00	0.00	30	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 3" DIA PIPE	23.41	0.9D + 1.6W 60	50	65	100.35	0	0	0.00	0.00	23	Member
HORIZ	0.00		0	0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2.5X2.5X0.1875	5.08	1.2D + 1.6W 90	50	65	40.59	0	0	0.00	0.00	12	Member

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Force/Stress Summary

Section: 10 10 **Bot Elev (ft): 180.0** **Height (ft): 10.599**

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 2" DIA PIPE	-2.86	1.2D + 1.6W	5.11	100	100	100	77.9	50.0	30.88	0	0	0.00	0.00	9	Member X
HORIZ SAE - 2X2X0.1875	-0.47	1.2D + 1.6W	6.500	100	100	100	198.0	36.0	4.12	0	0	0.00	0.00	11	Member Z
DIAG SAE - 2X2X0.1875	-1.15	1.2D + 1.6W	8.269	48	48	48	120.9	50.0	11.05	0	0	0.00	0.00	10	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PST - 2" DIA PIPE	2.20	1.2D + 1.6W 60	50	65	48.15	0	0	0.00	0.00	4	Member
HORIZ SAE - 2X2X0.1875	0.49	1.2D + 1.6W	36	58	23.17	0	0	0.00	0.00	2	Member
DIAG SAE - 2X2X0.1875	1.43	1.2D + 1.6W	50	65	32.17	0	0	0.00	0.00	4	Member

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Support Forces Summary

Load Case	Node	FX (kip)	FY (kip)	FZ (kip)	(-) = Uplift (+) = Down
(0.9 - 0.2Sds) * DL + E 60 deg	1b	0.00	2.06	0.00	
	1a	-1.09	17.25	0.59	
	1	-0.04	17.25	-1.23	
(0.9 - 0.2Sds) * DL + E 90 deg	1b	0.08	3.28	0.07	
	1a	-1.35	21.10	0.75	
	1	-0.04	12.19	-0.82	
(0.9 - 0.2Sds) * DL + E Normal	1b	0.37	7.04	0.17	
	1a	-0.37	7.04	0.17	
	1	0.00	22.48	-1.66	
(1.2 + 0.2Sds) * DL + E 60 deg	1b	0.31	7.33	0.18	
	1a	-1.40	22.53	0.76	
	1	-0.04	22.53	-1.59	
(1.2 + 0.2Sds) * DL + E 90 deg	1b	0.39	8.54	0.25	
	1a	-1.66	26.39	0.93	
	1	-0.04	17.47	-1.18	
(1.2 + 0.2Sds) * DL + E Normal	1b	0.68	12.31	0.35	
	1a	-0.68	12.31	0.35	
	1	0.00	27.77	-2.01	
0.9D + 1.6W 60 deg	1b	-36.45	-404.00	-21.24	
	1a	-21.59	220.68	6.87	
	1	-5.18	222.44	-22.12	
0.9D + 1.6W 90 deg	1b	-33.52	-351.97	-15.73	
	1a	-34.43	378.06	16.58	
	1	-6.08	13.04	-0.85	
0.9D + 1.6W Normal	1b	-15.88	-206.26	-16.04	
	1a	16.16	-206.51	-15.55	
	1	-0.28	451.91	-45.53	
1.0D + 1.0W Service 60 deg	1b	-6.21	-64.10	-3.62	
	1a	-4.82	53.58	1.67	
	1	-1.03	54.00	-5.02	
1.0D + 1.0W Service 90 deg	1b	-5.65	-54.27	-2.58	
	1a	-7.28	83.27	3.54	
	1	-1.18	14.48	-0.96	
1.0D + 1.0W Service Normal	1b	-2.31	-26.61	-2.63	
	1a	2.37	-26.88	-2.55	
	1	-0.06	96.97	-9.48	
1.2D + 1.0Di + 1.0Wi 60 deg	1b	-14.65	-59.73	-8.46	
	1a	-0.29	101.68	-1.31	
	1	-1.29	101.98	0.40	
1.2D + 1.0Di + 1.0Wi 90 deg	1b	-13.82	-45.31	-7.04	
	1a	-3.62	142.65	1.11	
	1	-1.41	46.59	5.93	
1.2D + 1.0Di + 1.0Wi Normal	1b	-9.24	-5.70	-7.00	
	1a	9.44	-9.74	-6.82	

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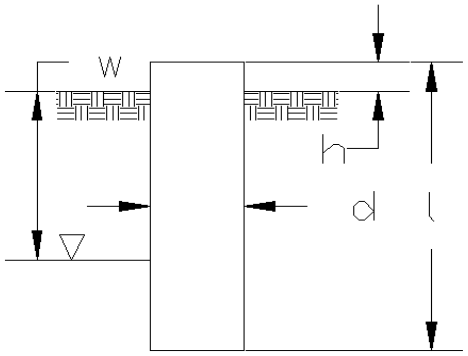
	1	-0.20	159.36	-5.35
1.2D + 1.6W 60 deg	1b	-36.21	-400.04	-21.11
	1a	-21.84	225.20	7.02
	1	-5.17	227.00	-22.42
1.2D + 1.6W 90 deg	1b	-33.27	-347.96	-15.59
	1a	-34.69	382.75	16.73
	1	-6.07	17.38	-1.14
1.2D + 1.6W Normal	1b	-15.64	-202.10	-15.89
	1a	15.92	-202.43	-15.40
	1	-0.28	456.70	-45.83

Max Uplift:	404.00 (kip)	**Moment:**	7,609.08 (kip-ft)	1.2D + 1.6W Normal
Max Down:	456.70 (kip)	**Total Down:**	52.17 (kip)	
Max Shear:	45.83 (kip)	**Total Shear:**	77.12 (kip)	

Site Name:	GLFD-Guilford Rebuild CT, CT	*Program Last Updated:*	*5/13/2014*
Site Number:	311305	*American Tower Corporation*	
Engineer:	SWF		
Engineering Number:	64556221		
Date:	01/13/16		



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

Analyze or Design a Foundation?	Analyze	
Foundation Mapped:	N	
Moment (M):		k-ft
Shear/Leg (V):	45.8	k
Compression/Leg (P):	456.7	k
Uplift/Leg (U):	404.0	k
Tower Type (GT / SST / MP):	SST	
Diameter of Caisson (d):	6.0	ft
Caisson Embedment (L-h):	34.5	ft
Caisson Height Above Ground (h):	0.5	ft
Depth Below Ground Surface to Water Table (w):	99.0	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Water:	62.4	pcf
Tension Skin Friction/Compression Skin Friction:	1.00	
Pullout Angle:	30.0	degrees

Engineer Notes

Soil Mechanical Properties

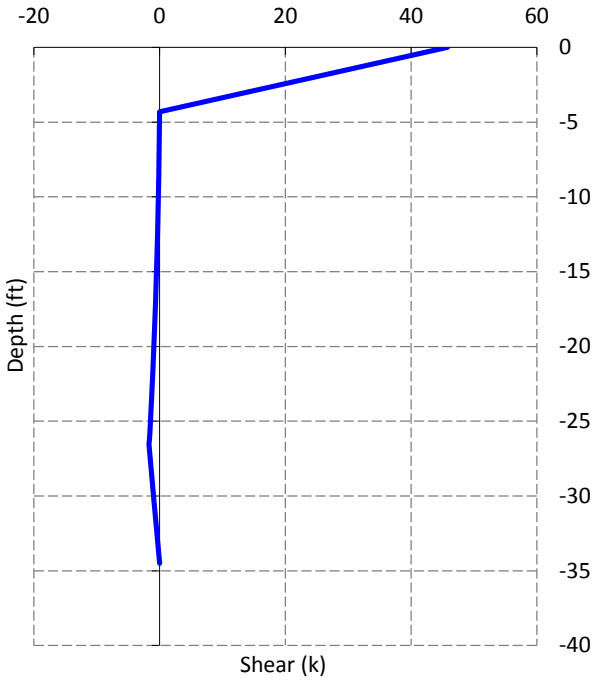
Depth (ft) Top	Depth (ft) Bottom	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
0.0	3.0	100	0	0	0	0
3.0	25.0	115	0	33	0	0
25.0	35.5	130	5000	0	2750	22222

Volume of Concrete:	989.6	ft^3 =	36.7 yd^3
Weight of Concrete (Buoyancy Effect Considered):	148.4	k	
Average Soil Unit Weight:	117.8	pcf	
Skin Friction Resistance:	492.4	k	
Compressive Bearing Resistance:	628.3	k	
Pullout Weight (Minus Concrete Weight):	2452.0	k	
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	480.7	k	
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	840.6	k	
P_u:	494.4	k	
$T_u/\phi_s T_n$:	0.84	Result:	OK
$P_u/\phi_s P_n$:	0.59	Result:	OK
Total Lateral Resistance:	4117.9	k	
Inflection Point (Below Ground Surface):	26.5	ft	
Design Overturning Moment At Inflection Point (M_D):	1238.2	k-ft	
Nominal Moment Capacity ($\phi_s M_n$):	19008.7	k-ft	
$M_D/\phi_s M_n$:	0.07	Result:	OK
ϕ_s:	0.75		

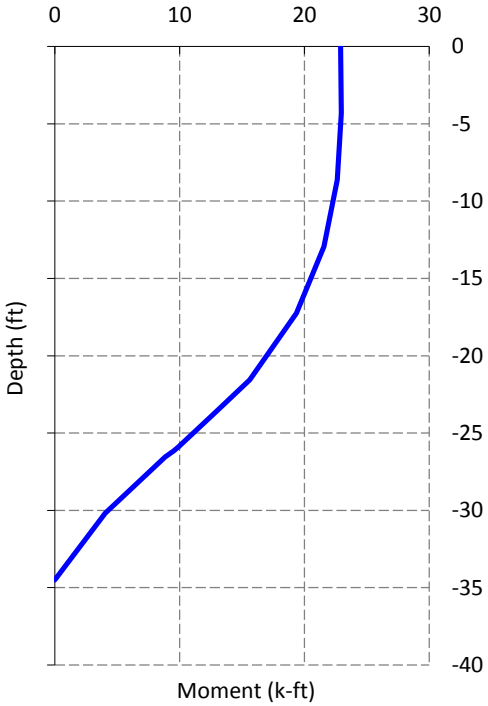
Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	4500	psi
Vertical Steel Rebar Size #:	9	
Vertical Steel Rebar Area:	1.00	in^2
# of Vertical Steel Rebars:	22	
Vertical Steel Rebar Yield Strength (F_y):	60	ksi
Horizontal Tie / Stirrup Size #:	5	
Horizontal Tie / Stirrup Area:	0.31	in^2
Design Horizontal Tie / Stirrup Spacing:	12.0	in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60	ksi
Rebar Cage Diameter:	64.0	in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90	ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75	ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor (ϕ_V):	0.65	ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000	ksi
Design Moment (M_u):	417.9	k-ft
Nominal Moment Capacity ($\phi_B M_n$):	3102.9	k-ft - ACI318-005 - 10.2
$M_u/\phi_B M_n$:	0.13	Result: OK
Design Shear (V_u):	45.8	k
Nominal Shear Capacity ($\phi_V V_n$):	389.4	k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$:	0.12	Result: OK
Design Tension (T_u):	404.0	k
Nominal Tension Capacity ($\phi_T T_n$):	1188.0	k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.34	Result: OK
Design Compression (P_u):	494.4	k
Nominal Compression Capacity ($\phi_P P_n$):	8054.5	k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.06	Result: OK
Bending Reinforcement Ratio:	0.005	ACI318-05 - 10.8.4 & 10.9.1
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.47	Result: OK

Design Factored Shear / Depth



Design Factored Moment / Depth



Nominal and Factored Moment Capacity and Factored Design Loads