smartlink

Via Overnight Delivery

January 27, 2014

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

Re:	**Tower Sharing Application**
Property Address:	**442 North Street, Goshen, CT 06614 (the "Property")**
Applicant:	**New Cingular Wireless PCS, LLC ("AT&T")**

Dear Ms. Bachman:

On behalf of AT&T, enclosed in connection with the shared use of a tower located on the Property, please find an original and fifteen (15) copies of a tower sharing application package along with a check in the amount of six hundred and twenty five ($625.00) dollars.

Please date stamp a copy of this letter and a copy of the check (both attached) and email them back to me. If you have any questions, please contact me.

Sincerely,

Adam F. Braillard

Enclosures

cc w/enclosures:
Robert P. Valentine, First Selectman, Town of Goshen
ARCA, LLC, Property Owners

33 Boston Post Road West, Marlborough, Massachusetts 01752
p: 508.954.7702 • adam.braillard@smartlinkllc.com
www.smartlinkllc.com

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SMARTLINK, LLC
1997 Annapolis Exchange Pkwy Suite 200
Annapolis, MD 21401

BRANCH BANKING AND TRUST COMPANY
65-330/550

0174

12/10/13

PAY TO THE ORDER OF Connecticut Siting Counsel $ 625.00

Six hundred twenty five + 0/100 DOLLARS

MEMO S1453 CSC filings

⑈000174⑈ ⑆055003308⑆0005158694044⑈

SMARTLINK, LLC 0174

SMARTLINK, LLC 0174

APPLICATION TO THE CONNECTICUT SITING COUNCIL
FOR AN ORDER TO APPROVE THE SHARED USE OF AN EXISTING TOWER
PURSUANT TO CONNECTICUT GENERAL STATUTE §16-50aa

APPLICANT

New Cingular Wireless PCS, LLC (AT&T)
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

TOWER/PROPERTY ADDRESS

442 North Street,
Goshen, Connecticut 06614

PREPARED BY: Adam F. Braillard
Regional Land Use Manager
Smartlink, LLC
33 Boston Post Road West
Marlborough, Massachusetts 01752
508-954-7702
adam.braillard@smartlinkllc.com

Date Submitted: January 27, 2014

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APPLICANT

New Cingular Wireless PCS, LLC (AT&T)
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

TOWER/PROPERTY ADDRESS

442 North Street,
Goshen, Connecticut 06614

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TAB 1

smartlink

January 27, 2014

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

Re:	**Request for an Order to Approve the Shared Use of an Existing Tower**
Property Address:	**442 North Street, Goshen, CT 06614 (the "Property")**
Applicant:	**New Cingular Wireless PCS, LLC ("AT&T")**

Dear Ms. Bachman:

On behalf of AT&T, please accept this application pursuant to Connecticut General Statute §16-50aa, as amended (the "Statute"), requesting the finding from the Connecticut Siting Council (the "Council") that the shared use of the tower and facility located on the Property (the "Facility") is technically, legally, economically and environmentally feasible, will meet public safety concerns, will avoid the unnecessary proliferation of towers and is in the public interest. AT&T further requests an order from the Council approving the shared use of the Facility.

I. The Facility

The Facility is owned by Cellco Partnership dba Verizon Wireless, ("Verizon") and consists of a 150' monopole style tower (the "Tower") located on the Property. The Tower is currently shared by Verizon with an antenna centerline height of 146'. The Facility also consists of a fenced compound at the base of the Tower with Verizon's radio equipment therein.

II. The Tower Share

AT&T proposes to install a total of twelve (12) panel antennas (4 per sector), remote radio heads ("RRHs"), and ancillary equipment on the Tower. The antennas will be mounted on the Tower at an antenna centerline of 137'. Further, AT&T proposes to install an 11'.6" x 16' equipment shelter and a generator at the base of the Tower within the fenced compound. The Tower will not be increased in height and the equipment compound will not be expanded. Moreover, no upgrades to the access road or parking area will be necessary. Please refer to

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www.smartlinkllc.com

Tab 3 (Engineering Drawings) of this application package for further specifications of AT&T's proposed installation.

III. Technical Feasibility

It is technically feasible for AT&T to install its equipment on the Tower. To determine the structural integrity of the Tower, AT&T has performed a structural analysis of the Tower with AT&T proposed modifications. The structural analysis, dated January 8, 2014 and attached herewith (see Tab 4) concludes that the "the subject tower is adequate to support the proposed modified antenna configuration"[1]. Consequently, the shared use of the Tower is technically feasible.

IV. Legal Feasibility

Pursuant to the Statute, the Council has the authority to issue an order approving the shared use of the Facility. By issuing an order approving AT&T's use of the Facility, AT&T will be able to proceed with obtaining a building permit from the Town of Goshen for the proposed installation on the Facility. Therefore, the shared use of the Facility is legally feasible.

V. Economic Feasibility

AT&T is a federally licensed telecommunications company providing service in areas of Connecticut, including the Town of Goshen. AT&T is entering into an agreement with Verizon for the purpose of locating AT&T equipment at the Facility. Consequently, the shared use of the Facility is economically feasible.

VI. Environmental Feasibility

Pursuant to the Statute, AT&T's proposed sharing of the Facility will be environmentally feasible for the following reasons:

a. The proposal neither increases the height of the Tower nor expands the existing compound of the Facility. Therefore, the proposed sharing of the Facility will have an insignificant incremental visual impact on the area surrounding the Tower and will no significant change or alter the physical or environmental characteristics of the Facility.

b. The addition of AT&T equipment will not increase the noise levels by six (6) decibels or more.

c. The addition of the AT&T antennas will not exceed the RF emissions standard adopted by the Federal Communications Commission ("FCC"). The cumulative "worst-case" RF emissions for the operation of the existing Verizon antennas and the

[1] Structural analysis was performed by Centek and consists of 60 pages. To reduce the number of pages needed to file this application, we only attached the summary pages of the structural analysis (7 pages) without the calculation appendixes. Those can be submitted upon request.

proposed AT&T antennas will be 25.87% of the FCC standards (see attached Tab 6, Power Density Table).

d. The proposed installation will have no impact on the local wetlands or water resources.

e. After installation, AT&T equipment will be unmanned and will only require monthly visits by maintenance personnel who will inspect the Facility to ensure it remains in good working order.

f. AT&T's proposal will have no impact on water, sanitary or sewer systems or other municipal utilities. Additionally, the proposal complies with all applicable local, state and federal safety rules and regulations.

VII. Public Safety and Benefits

As referenced in Section III above, AT&T has performed a structural analysis of the Tower confirming that the Tower is structurally feasible to hold AT&T's additional equipment. Further, as referenced in Section VI.c above, AT&T has performed an analysis of the radio frequency emanating from its proposed antennas to ensure compliance with FCC standards. The analysis indicates that the maximum level of radio frequency energy emitting from the Facility after the installation of AT&T's antennas will be below the FCC's exposure limits. Moreover, AT&T proposal is expected to enhance safety by improving wireless communications in the area of the Facility

VII. Conclusion

For the aforementioned reasons, AT&T's proposed shared use of the Facility meets all of the requirements set forth in the Statute, and the proposal advances the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. Moreover, the proposal is technically, legally, economically and environmentally feasible and meets all public safety concerns. Consequently, AT&T respectfully requests that the Council issue an order approving the proposed sharing use of the Facility.

Sincerely,

Adam F. Braillard

TAB 2

CERTIFICATE OF SERVICE

This is to certify that on the 27th day of January 2014, the foregoing application by AT&T for an Order to Approve the Shared Use of an Existing Tower was sent, via UPS, to the following:

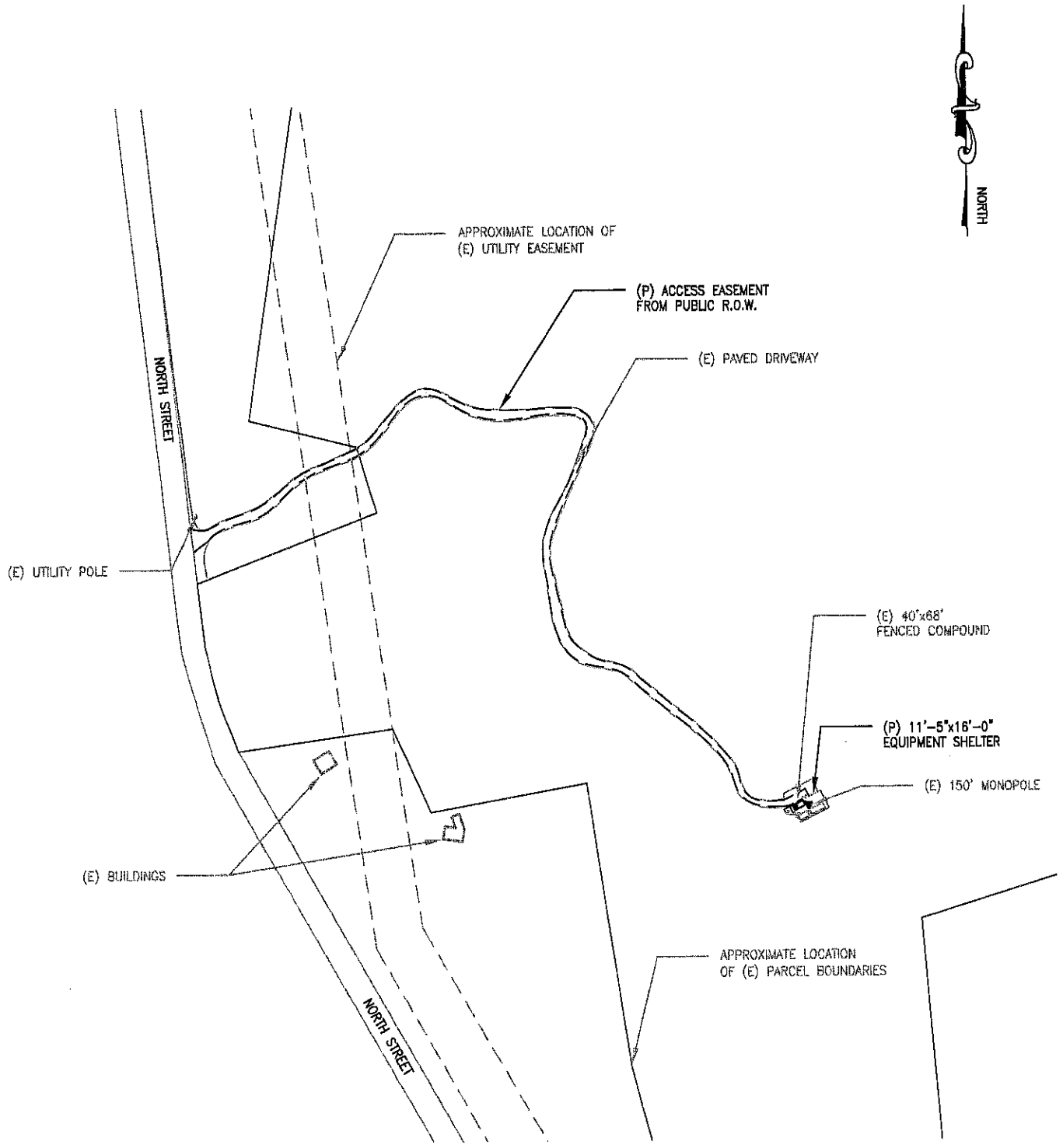
ARCA, LLC
25 Larchmont Circle
Stamford, CT 06614

and

First Selectman, Robert P. Valentine
42A North Street
Goshen, CT 06756
860-491-2308

By:_____
Adam F. Braillard

TAB 3



1/1 SITE PLAN

SCALE: 1"=100'-0"

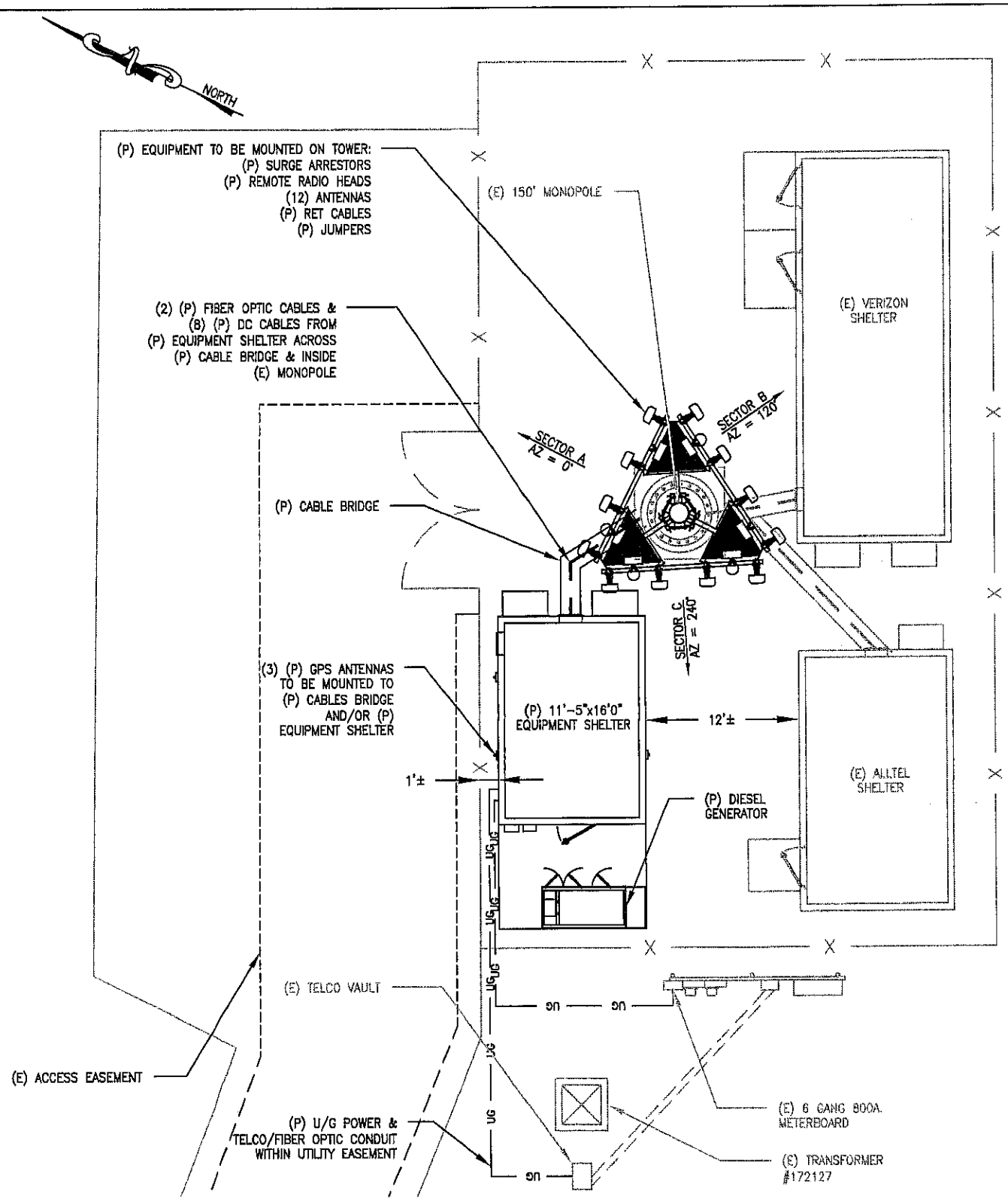
ADVANCED ENGINEERING GROUP, P.C.
Civil Engineering - Site Development
Surveying - Telecommunications
500 NORTH BROADWAY
EAST PROVIDENCE, RI 02914
PH: (401) 354-2403
FAX: (401) 633-6354

at&t
550 COCHITUATE ROAD, SUITE 13 & 14,
FRAMINGHAM, MA 01701-4681

smartlink
1997 ANNAPOLIS EXCHANGE PKWY, SUITE 200
ANNAPOLIS, MD 21401

TITLE: LEASE EXHIBIT
SITE NO: S1453A
SITE NAME: GOSHEN NORTH STREET
ADDRESS: 442 NORTH STREET
GOSHEN, CT 06614

DATE: 01/21/14
DRAWN BY: SOS
REVISION: 3
SCALE: NOTED
SHEET: 1 OF 3



1/2 COMPOUND PLAN

SCALE: 3/32"=1'-0"

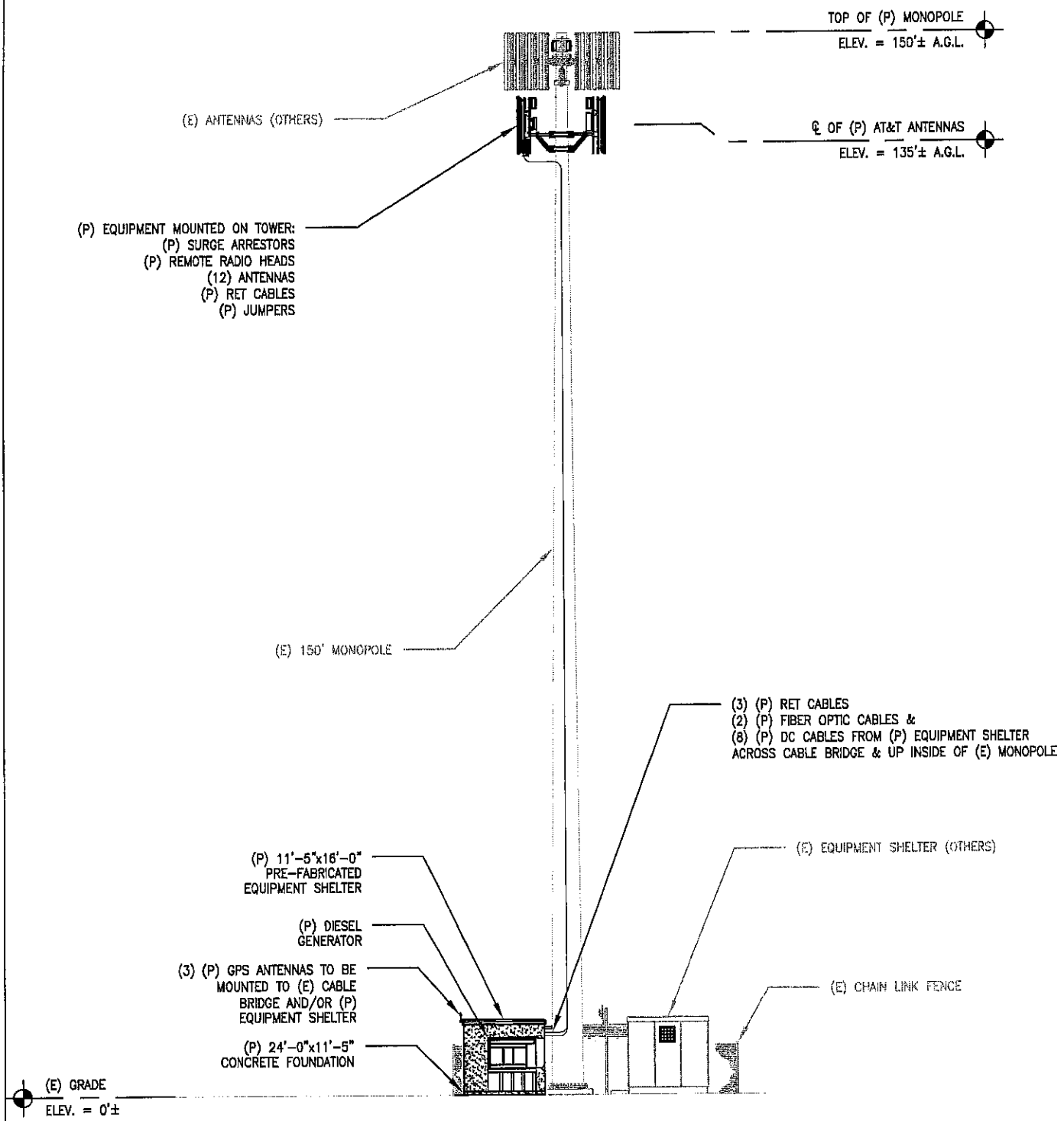
ADVANCED ENGINEERING GROUP, P.C.
Civil Engineering - Site Development
Surveying - Telecommunications
500 NORTH BROADWAY
EAST PROVIDENCE, RI 02914
PH: (401) 354-2403
FAX: (401) 633-6354

at&t
550 COCHITUATE ROAD, SUITE 13 & 14,
FRAMINGHAM, MA 01701-4681

smartlink
1997 ANNAPOLIS EXCHANGE PKWY, SUITE 200
ANNAPOLIS, MD 21401

TITLE:	LEASE EXHIBIT
SITE NO:	S1453A
SITE NAME:	GOSHEN NORTH STREET
ADDRESS:	442 NORTH STREET GOSHEN, CT 06614

DATE:	01/21/14
DRAWN BY:	SOS
REVISION:	3
SCALE:	NOTED
SHEET:	2 OF 3



1/3 ELEVATION

SCALE: 1"=20'-0"

ADVANCED ENGINEERING GROUP, P.C.
Civil Engineering - Site Development
Surveying - Telecommunications
500 NORTH BROADWAY
EAST PROVIDENCE, RI 02914
PH: (401) 354-2403
FAX: (401) 633-6354

at&t
550 COCHITUATE ROAD, SUITE 13 & 14,
FRAMINGHAM, MA 01701-4681

smartlink
1997 ANNAPOLIS EXCHANGE PKWY, SUITE 200
ANNAPOLIS, MD 21401

TITLE:	LEASE EXHIBIT
SITE NO:	S1453A
SITE NAME:	GOSHEN NORTH STREET
ADDRESS:	442 NORTH STREET GOSHEN, CT 06614

DATE:	01/21/14
DRAWN BY:	SOS
REVISION:	3
SCALE:	NOTED
SHEET:	3 OF 3

TAB 4

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

150-ft Existing EEI Monopole

Proposed AT&T Mobility
Antenna Installation

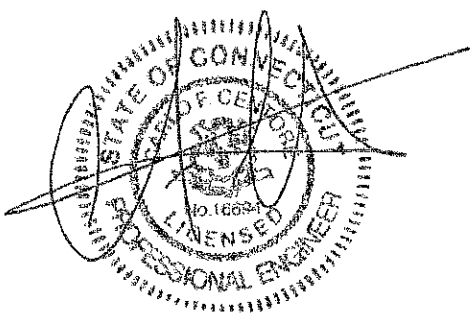
AT&T Site Ref: CT1453

Verizon Site Ref: Goshen

North Street (Route 63)
Goshen, CT

CENTEK Project No. 13351.000

Date: January 08, 2014



Prepared for:

AT&T Mobility
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 www.CentekEng.com

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- CONCLUSION.

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Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the antenna installation proposed by AT&T Mobility on the existing monopole (tower) owned and operated by Verizon Wireless, located in Goshen, CT.

The host tower is a 150-ft tall, three-section, eighteen sided, tapered monopole, originally designed and manufactured by Engineered Endeavors Inc., job no; 15244-E01, dated January 23, 2008. The tower geometry, structure member sizes and foundation system information were obtained from the aforementioned EEI design documents. Antenna and appurtenance information were obtained from a previous structural analysis prepared by Centek Engineering, Inc., for Verizon Wireless, marked Revision #1, dated December 12, 2011 and an AT&T RF data sheet.

The tower consists of three (3) tapered steel vertical sections conforming to ASTM A572-65 (65ksi). The vertical tower sections are slip joint connected. The diameter of the pole (flat-flat) is 24.0-in at the top and 57.0-in at the base.

AT&T proposes the installation of twelve (12) panel antennas, twenty-seven (27) Remote Radio Heads (RRU's) and four (4) surge arrestors mounted on a steel platform. Refer to the Antenna and Appurtenance Summary below for a detailed description of the proposed antenna and appurtenance configuration.

Antenna and Appurtenance Summary

The existing, proposed and future loads considered in this analysis consist of the following:

- UNKNOWN (EXISTING):
  Antennas: One (1) 15-ft Omni-directional whip antenna mounted to the Verizon T-Arm with an elevation of 147.5-ft above the existing grade.
  Coax Cables: One (1) 7/8" ∅ coax cable running on the inside of the existing tower.
- UNKNOWN (EXISTING):
  Antennas: One (1) 5-ft dipole antenna mounted to the Verizon T-Arm with an elevation of 147.5-ft above the existing grade.
  Coax Cables: One (1) 7/8" ∅ coax cable running on the inside of the existing tower.
- VERIZON WIRELESS (Reserved):
  Antennas: Six (6) Antel LPA-80063-6CF panel antennas, six (6) Antel BXA-70063-6CF panel antennas, six (6) LPA-171063-12CF panel antennas, six (6) RFS FD9R6004/2C-3L diplexers, six (6) RRH's and one (1) main distribution box mounted on three (3) T-Arms with a RAD center elevation of 150-ft above grade level.
  Coax Cables: Eighteen (18) 1-5/8" ∅ coax cables and two (2) 1-5/8" ∅ fiber cables running on the inside of the existing tower.

- **AT&T (PROPOSED):**
  Antennas: Twelve (12) CCI HPA-65R-BUU-H8 panel antennas, twenty seven (27) Remote Radio Heads (RRU's) and four (4) Raycap DC6-48-60-18-8F surge arrestors mounted on steel platform Commscope p/n MTC3607R with a RAD center elevation of 135-ft above existing grade.
  Coax Cables: Two (2) fiber cable, eight (8) dc control cables and three (3) RET cables running on the exterior of the existing tower.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents or reinforcement drawings.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All existing coax cables to be installed as indicated in this report.

Analysis

The existing tower was analyzed using a comprehensive computer program entitled tnxTower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower shaft, and the model assumes that the shaft members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for the controlling basic wind speed (fastest mile) with no ice and a 75% reduction of wind force with ½ inch accumulative ice to determine stresses in members as per guidelines of TIA/EIA-222-F-96 entitled "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix K of the CSBC[1] and the wind speed data available in the TIA/EIA-222-F-96 Standard. The higher of the two wind speeds is utilized in preparation of the tower analysis.

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA/EIA-222-F, gravity loads of the tower structure and its components, and the application of ½" radial ice on the tower structure and its components.

Basic Wind Speed:	Litchfield; v = 80 mph (fastest mile)	*[Section 16 of TIA/EIA-222-F-96]*
	Goshen; v = 90 mph (3 second gust) equivalent to v = 75 mph (fastest mile)	*[Appendix K of the 2005 CT Building Code Supplement]*
	TIA/EIA-222-F wind speed controls.	
Load Cases:	Load Case 1; 80 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	*[Section 2.3.16 of TIA/EIA-222-F-96]*
	Load Case 2; 69 mph wind speed w/ ½" radial ice plus gravity load – used in calculation of tower stresses. The 69 mph wind speed velocity represents 75% of the wind pressure generated by the 80 mph wind speed.	*[Section 2.3.16 of TIA/EIA-222-F-96]*
	Load Case 3; Seismic – not checked	*[Section 1614.5 of State Bldg. Code 2005] does not control in the design of this structure type*

[1] The 2005 Connecticut State Building Code as amended by the 2009 CT State Supplement. (CSBC)

Tower Capacity

Tower stresses were calculated utilizing the structural analysis software tnxTower. Allowable stresses were determined based on Table 5 of the TIA/EIA code with a 1/3 increase per Section 3.1.1.1 of the same code.

- Calculated stresses were found to be within allowable limits. In Load Case 1, per tnxTower "Section Capacity Table", the maximum tower steel usage was found to be at **91.4%** of its total capacity.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Pole Shaft (L1)	96.46'-150.00'	81.3%	**PASS**
Pole Shaft (L2)	48.04'-96.46'	**91.4%**	**PASS**
Pole Shaft (L3)	1.0'-48.04'	84.9%	**PASS**

Foundation and Anchors

The existing foundation consists of a 7.0-ft square x 3.0-ft long reinforced concrete pier on a 28.0-ft square x 3.0-ft thick reinforced concrete pad. The sub-grade conditions used in the analysis of the existing foundation were obtained from the aforementioned EEI design documents; job no; 15244-E01, dated January 23, 2008. The base of the tower is connected to the foundation by means of (24) 2.25"∅, ASTM A615-75 anchor bolts embedded approximately 5-ft into the concrete foundation structure.

Review of the foundation and anchor design consisted of verification of applied loads obtained from the tower design calculations and code checks of allowable stresses:

- The tower base reactions developed from the governing Load Case 1 were used in the verification of the foundation and its anchors:

Location	Vector	Proposed Reactions
Base	Shear	29 kips
	Compression	33 kips
	Moment	3418 kip-ft

- The foundation was found to be within allowable limits.

Foundation	Design Limit	IBC 2003/2005 CT State Building Code Section 3108.4.2 (FS)[1]	Proposed Loading (FS)[1]	Result
Reinforced Concrete Pad and Pier	OTM[2]	2.0	2.39	**PASS**
Pier Moment Capacity	Bending	n/a	95%	**PASS**

Note 1: FS denotes Factor of Safety.

Note 2: OTM denotes Overturning Moment

- The anchor bolts and base plate were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (percentage of capacity)	Result
Anchor Bolts	Combined Axial and Bending	54.7%	**PASS**
Base Plate	Bending	40.3%	**PASS**

Conclusion

This analysis shows that the subject tower **is adequate** to support the proposed modified antenna configuration.

The analysis is based, in part, on the information provided to this office by AT&T Mobility. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:

Carlo F. Centore, PE
Principal ~ Structural Engineer

STATE OF CONNECTICUT
CARLO F. CENTORE
No. 18684
LICENSED
PROFESSIONAL ENGINEER

Prepared by:

Jason R. Mead.
Structural Engineer

TAB 5

Power Density Calculations

Applicant:	New Cingular Wireless PCS, LLC ("AT&T")
Site ID:	S1453
Site Type:	Existing 1500' Monopole Tower
Address:	442 North Street, Goshen, CT 06614
Date:	January 27, 2014

---

1. Existing Power Density [1]

Carrier	# Channels	ERP/Ch	Ant Ht	Power Density (mW/cm2)	Frequency MHz	Limit	%MPE
Verizon PCS	7	268	150	0.0300	1970	1.0000	3.00%
Verizon cellular	9	332	150	0.0478	869	0.5793	8.24%
Verizon AWS	1	670	150	0.0107	2145	1.0000	1.07%
Verizon LTE	2	780	150	0.0249	698	0.4653	5.36%
						TOTAL	**17.67%**

2. Proposed AT&T Power Density [2]

Carrier	#Channels	ERP/Ch	Ant Ht in feet	Power Density (mW/cm2)	Frequency MHz	Limit	%MPE
AT&T UMTS	2	500	137	0.0192	800 Band	0.5867	3.27
AT&T UMTS	1	500	137	0.0096	1900 Band	1.0000	0.96
AT&T LTE	1	500	137	0.0096	700 Band	0.4667	2.05
AT&T LTE	1	500	137	0.0096	1900 Band	1.0000	0.96
AT&T LTE	1	500	137	0.0096	2300 Band	1.0000	0.96
						TOTAL	**8.20%**

3. Cumulative Power Density Calculation Results

Carrier	#Channels	ERP/Ch	Ant Ht	Power Density (mW/cm2)	Frequency MHz	Limit	%MPE
Verizon cellular	7	268	150	0.0300	1970	1.0000	3.00%
Verizon PCS	9	332	150	0.0478	869	0.5793	8.24%
Verizon AWS	1	670	150	0.0107	2145	1.0000	1.07%
Verizon LTE	2	780	150	0.0249	698	0.4653	5.36%
AT&T UMTS	2	500	137	0.0192	800 Band	0.5867	3.27
AT&T UMTS	1	500	137	0.0096	1900 Band	1.0000	0.96
AT&T LTE	1	500	137	0.0096	700 Band	0.4667	2.05
AT&T LTE	1	500	137	0.0096	1900 Band	1.0000	0.96
AT&T LTE	1	500	137	0.0096	2300 Band	1.0000	0.96
						TOTAL	**25.87%**

[1] This Power Density information was taken from the Connecticut Siting Council database dated October 1, 2013.
[2] This Power Density information is based on worse case assumptions from AT&T's radio frequency engineers.

4. Conclusion:

The addition of AT&T's antennas on the existing tower will result in the cumulative maximum permissible exposure (MPE) level of 25.87%. The proposal complies with the National Council on Radiation Protection and Measurements standard for MPE adopted by the Federal Communications Commission ("FCC"). Moreover, the maximum level of radio-frequency energy emitted from AT&T's installation will be well below the FCC's mandated radio frequency exposure limits.