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

August 9, 2013

Steven L Levine
Centek Engineering, Inc.
63-2 North Branford Road
North Branford, CT 06405

RE: **EM-CING-038-130801** - New Cingular Wireless PCS, LLC notice of intent to install a temporary cellular telecommunications facility located at the 2013 Durham Agricultural Fair, Durham, Connecticut.

Dear Mr. Levine:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with the Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated August 1, 2013. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Melanie A. Bachman
Acting Executive Director

MAB/CDM/cm

c: The Honorable Laura L. Francis, First Selectman, Town of Durham
Geoffrey Colegrove, Town Planner, Town of Durham

Centek Engineering, Inc.
63-2 North Branford Road
Branford, Connecticut 06405
Phone: (203) 488-0580
Fax: (203) 488-8587

Steven L. Levine
Real Estate Consultant

August 1, 2013

Honorable Robert Stein, Chairman,
and Members of the Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Proposed New Cingular Wireless PCS, LLC Temporary Cellular Communications Site at the 2013 Durham Agricultural Fair, Durham, CT

Dear Chairman Stein and Members of the Council:

Centek Engineering, Inc. is pleased to submit this Notice of Exempt Modification on behalf of New Cingular Wireless PCS, LLC ("AT&T").

AT&T intends to install a temporary cellular communications facility for service during the 2013 Durham Agricultural Fair. Please accept this Notice to the Connecticut Siting Council ("Council"), pursuant to R.C.S.A Section 16-50j-73, of construction that constitutes an exempt modification under R.C.S.A Section 16-50j-72(d). In compliance with R.C.S.A. Section 16-50j-73, a copy of this Notice of Exempt Modification is being sent to the First Selectman of Durham.

The proposed temporary cell site meets the criteria set forth in R.C.S.A Section 16-50j-72(d) for temporary cellular service for events of statewide significance. This site is necessary to provide additional system capacity to accommodate increased communication needs during the Fair.

As in 2010 - 2012, moreover, AT&T plans to operate a Wi-Fi network during the Fair to serve vendors and fairgoers needing Internet access.

The Durham Agricultural Fair will be held at the Durham Fairgrounds off CT Route 17 on September 26 - 29, 2013.

AT&T operates under licenses issued by the Federal Communications Commission ("FCC") to provide cellular and PCS mobile telephone service in Middlesex County, which includes the area to be served by AT&T's proposed temporary installation.

Proposed Temporary Facility

The temporary cell site will be located off Town House Road in Durham on property owned by the Durham Agricultural Fair Association. (See the attached location map.) Coordinates for the location are N41 - 28 - 12.75, W72 - 40 - 53.59. A redacted lease signifying the Association's agreement to host the temporary cell site is attached. Electric power will be provided by the Agricultural Fair Association. The proposed temporary cell site will not increase noise level by six decibels or more.

Equipment installation will begin on or after August 19. The site will begin on-air operations on or about September 13 to be available during set-up of the Fair, and removal is scheduled for October 7.

AT&T's temporary cell site will consist of radio equipment installed in a trailer-mounted module referred to as a "Cell on Wheels" ("COW"). The COW is 17 feet in length, 8 feet in width, and 11 feet in height. Because this style of COW does not carry its own integrated tower to support AT&T's cellular antennas, a wood telephone pole will be set in the ground and erected beside the COW to height of approximately 53 feet above ground level ("AGL"), as shown on the attached site plan and elevation drawing. Three 6-ft KMW panel antennas, or their equivalent, will be mounted at the top of the pole with a centerline height of 50 feet. The attached structural report demonstrates that the pole will be adequate to support the required load. Wi-Fi antennas at the COW location will be placed on lower masts mounted directly to the top of the COW.

Power Density Calculations

AT&T's temporary cell site will not result in a total radio frequency electromagnetic radiation power density, measured at ground level at the COW location, at or above State or Federal standards. The following table shows the power density at the site from the proposed temporary cellular and Wi-Fi transmissions from the COW.

Transmissions	Centerline Height (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density† (mW/cm^2)	Standard Limits (mW/cm^2)	Percent of Limit
AT&T UMTS	50	850	2	500	0.1438	0.5867	24.51
AT&T UMTS	50	1900	2	500	0.1438	1.0000	14.38
AT&T Wi-Fi	18	5800	7	1.6	0.0124	1.0000	1.24
Total							**40.14%**

† Please note that the standard power density equation provided by the Council in its memo of January 22, 2001 incorporates a ground reflection factor of 2.56 as described in FCC OET Bulletin No. 65.

This "worst-case" power density calculation shows that AT&T's temporary transmissions from the COW will result in a power density corresponding to approximately 40 % of the ANSI/IEEE standard for uncontrolled environments. Therefore, total worst-case density levels from temporary cellular and Wi-Fi operations at this location would be within the applicable standard limits.

AT&T's proposed Wi-Fi network to serve vendors and other Internet users will consist of 19 stations, i.e., the Wi-Fi installation at the COW and 18 Wi-Fi repeater stations distributed throughout the fairgrounds. (See attachments for repeater station locations and a typical Wi-Fi station photograph.) Each of the low-power repeater stations will create its own local RF mini-environment. The repeaters will transmit signals back to the COW at 5800 MHz and will communicate with user devices over 2400 MHz transmissions. As demonstrated below, the repeater-to-COW and repeater-to-user RF emissions will be approximately 3% of the ANSI/IEEE standard for uncontrolled environments.

Transmissions	Centerline Height (feet)	Frequency (MHz)	Maximum Number of Channels	Power Per Channel (Watts)	Power Density† (mW/cm^2)	Standard Limits (mW/cm^2)	Percent of Limit
AT&T Wi-Fi	10	5800	5	1	0.0180	1.0000	1.80
AT&T Wi-Fi	10	2400	3	1	0.0108	1.0000	1.08
Total							2.88%

Conclusion

For the reasons above, we respectfully request that the Council acknowledge AT&T's Notice of Exempt Modification for the temporary cell site and Wi-Fi network to be operated during the Durham Agricultural Fair pursuant to R.C.S.A. Section 16-50j-72(d).

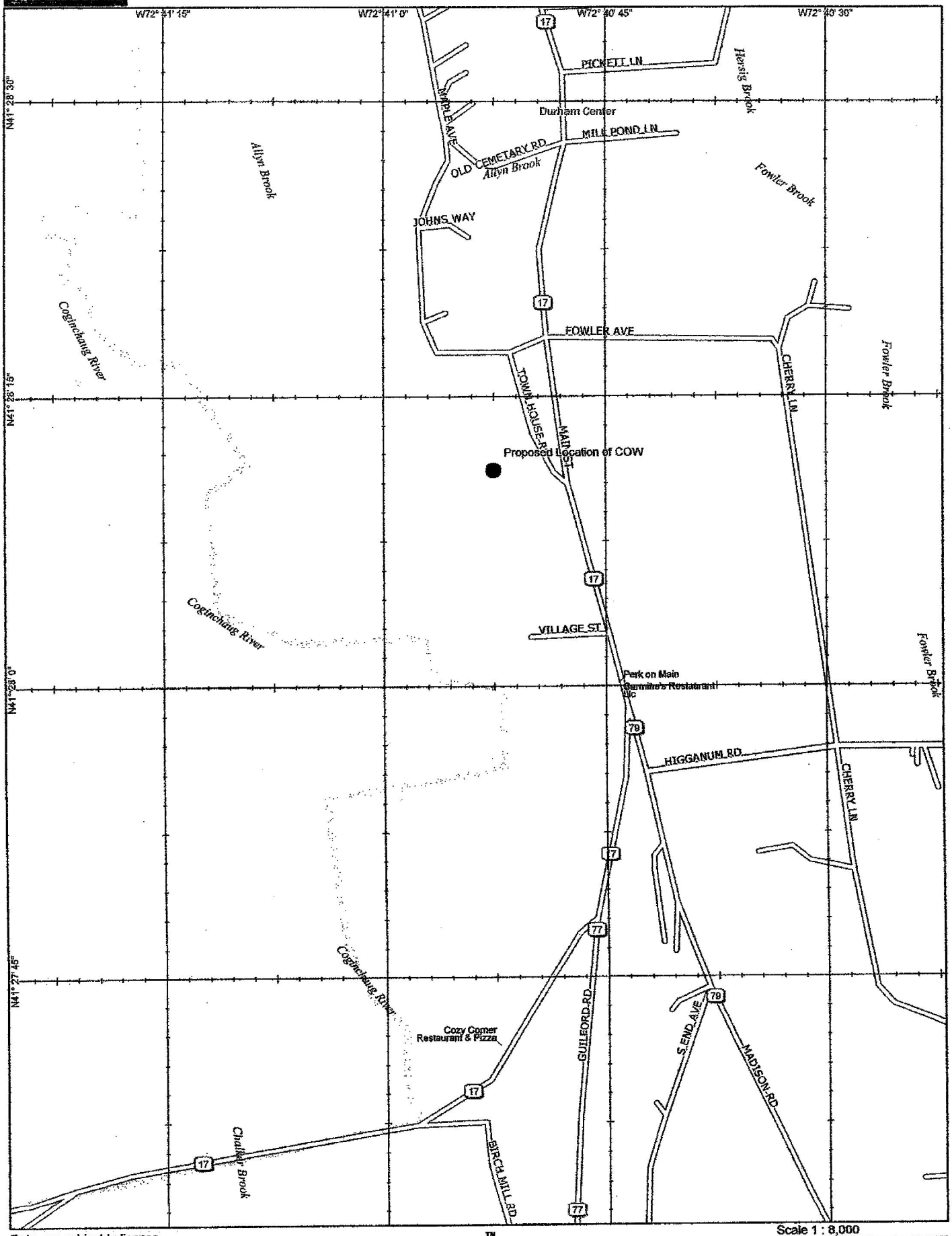
Please call Mark Appleby in AT&T's Rocky Hill office at (860) 513-7536, or Steve Levine at 860-830-0380 should you have any questions concerning this Notice. Thank you for your consideration in this matter.

Respectfully yours,

Steven Levine
Real Estate Consultant

cc: Honorable Laura L. Francis, 1st Selectman, Town of Durham
Durham Agricultural Fair Association

Attachments



TN

MN (13.9°W)

Scale 1 : 8,000

1" = 666.7 ft

Data Zoom 14-6

DURHAM FAIR

2013
Outdoor Commercial Department
P.O. Box 225
Durham, Connecticut 06422

OUTDOOR COMMERCIAL RENTAL CONTRACT

This agreement made between THE DURHAM AGRICULTURAL FAIR ASSOCIATION, Inc. hereinafter called THE ASSOCIATION and:

Concession: New Cingular Wireless PCS, LLC

Name: Mark Appleby	E-Mail: mark.appleby@sai-comm.com	
Street: 500 Enterprise Drive, Suite 3A	Phone: 860 977-2427	
Town: Rocky Hill	State: CT	Zip: 06067

hereinafter called THE LESSEE.

THE ASSOCIATION agrees to lease to THE LESSEE certain space in a location to be determined by the Superintendent of Outdoor Rentals for use during The Durham Agricultural Fair to be held on September 26, 27, 28, and 29, 2013, subject to the following rules, regulations, terms and conditions.

Type of Space: X Non Food ☐ Food **Size of Space** * **Frontage: N/A** **Rate: N/A**

***Outdoor vendors may require an additional 4 feet (2' on each side of location for access)**

Type of Products Sold : C.O.W. Cingular On Wheels

Rental Fee:			
Energy Fee:	[redacted]	*Space: (X)	[redacted]
Hookup by Electrician:	[redacted]	Insurance:	[redacted]
Extra Amps:	[redacted]	Total Electrical:	[redacted]
TOTAL ELECTRICAL	[redacted]	Discount: %	[redacted]
		TOTAL RENTAL FEE	[redacted]

Make Check Payable to: Durham Agricultural Fair Association

This contract subject to the attached addenda:

5) **LOCAL ORDINANCE GOVERNING CONCESSIONS AT THE DURHAM AGRICULTURAL FAIR** *(See back of this contract)*
6) **RULES AND REGULATIONS OF THE DURHAM AGRICULTURAL FAIR ASSOCIATION, INC.** *(See back of this contract)*
7) **RULES AND REGULATIONS OF THE COMMERCIAL RENTALS DEPARTMENT** *(See back of this contract)*
8) **RULES OF DEPARTMENT OF REVENUE SERVICES (Supply Copy of Sales Tax License)**
9) **RULES OF DEPARTMENT OF CONSUMER PROTECTION**
   Rules and regulations pertaining to labeling, packaging and sale of commodities. CGS 42-1 15 J-1 through 42-1 15 J-8.
10) **RULES OF DEPARTMENT OF CONSUMER PROTECTION (Supply Copy of License)**
   Rules and regulations pertaining to frozen dessert products. CGS 21-A Section 48 through 58.
11) **RULES OF DEPARTMENT OF CONSUMER PROTECTION (Supply Copy of License)**
   Rules and regulations pertaining to bakeries. CGS 21-A Section 151 through 159.
12) **FOOD AND BEVERAGE DISPENSING REQUIREMENTS OF THE TOWN OF DURHAM, HEALTH DEPARTMENT**
13) **CANCELLATION POLICY AS OUTLINED IN SECTION 13** *(See back of this contract)*
14) **SPECIFIC ADDENDA AS ATTACHED**

I have read this contract and attached addenda completely and agree to conduct the herein named concession in accordance with the rules, regulations, terms and conditions of this contract and addenda. I will also direct my employees to follow the said rules, regulations, terms and conditions of this contract and addenda. This contract is accepted upon condition that the business of the above stated is to be conducted in accordance with the rules and regulations of the State of Connecticut, Town of Durham and The Durham Agricultural Fair Association, Inc.

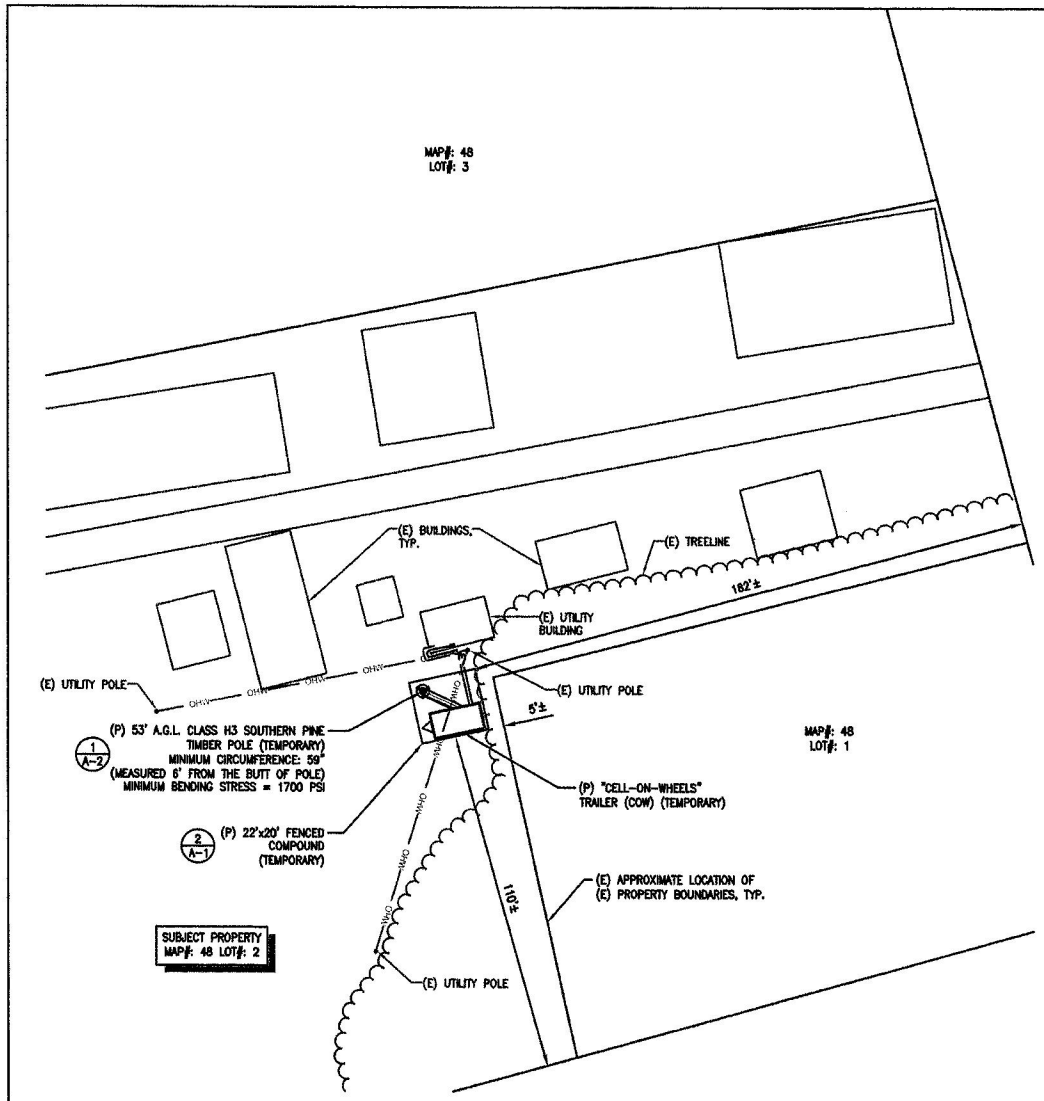
FOR OFFICE USE ONLY
FEE PAID:
CHECK #
CT SALES TAX #

CONTRACT # 013-130

ACCEPTED BY: New Cingular Wireless, PCS, LLC By: AT&T Mobility Corporation Its. Manager By: [signature] Print Name: Kevin Mason Area Manager Lessee Signature	DATE 7-25-2013
ACCEPTED BY: [signature] The Association (Superintendent of Outdoor Rentals)	DATE 7-31-13

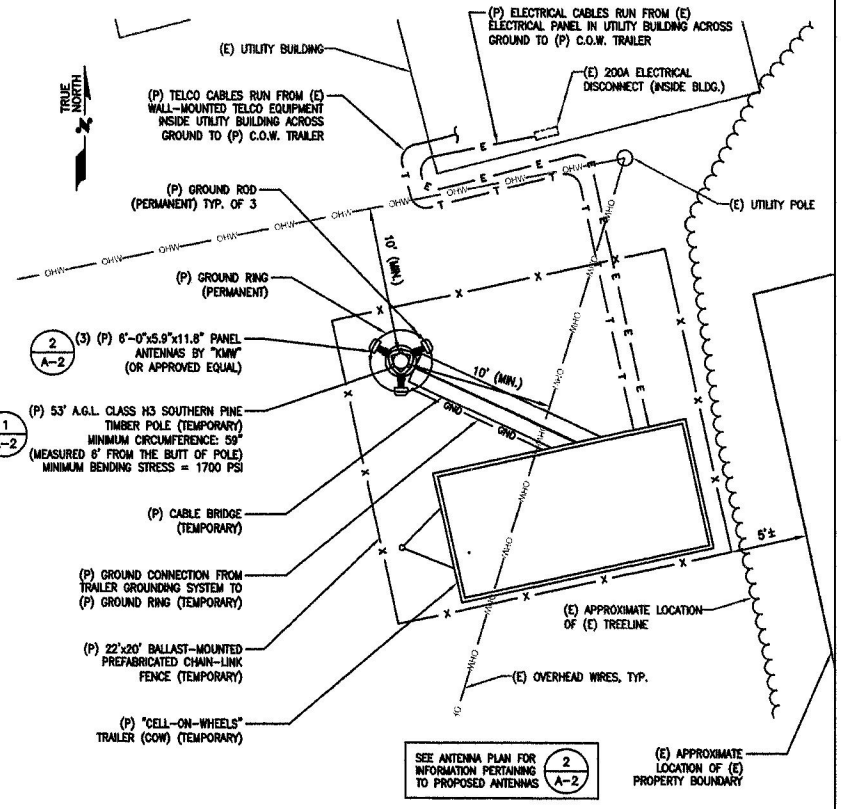
LETTER SIZE PRINT
THIS DRAWING NOT TO SCALE IF PRINTED ON 8 1/2"x11" PAPER

STATE OF CONNECTICUT
MARC R. CHRETIEN
No.28307
LICENSED
PROFESSIONAL ENGINEER



1 A-1 **C.O.W. AREA PLAN** SCALE: 1" = 20'

0' 10' 20' 40'



2 A-1 **TEMPORARY COMPOUND PLAN** SCALE: 1/4" = 1'-0"

0' 2' 4' 8'

ADVANCED ENGINEERING GROUP, P.C.
Civil Engineering - Site Development
Surveying - Telecommunications
500 NORTH BROADWAY, EAST PROVIDENCE, RI 02914
PH: 401-354-2403 FAX: 401-633-6364

SAI
SITE ACQUISITION, INC.
27 NORTHWEST DRIVE
SALEM, NH 03079

SITE NUMBER: CT2301
SITE NAME:
DURHAM FAIR C.O.W.
24 TOWN HOUSE ROAD
DURHAM, CT
MIDDLESEX COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	7/30/13	UPDATED	MER	MRC	MRC
A	7/23/13	ISSUED FOR REVIEW	MER	MRC	MRC

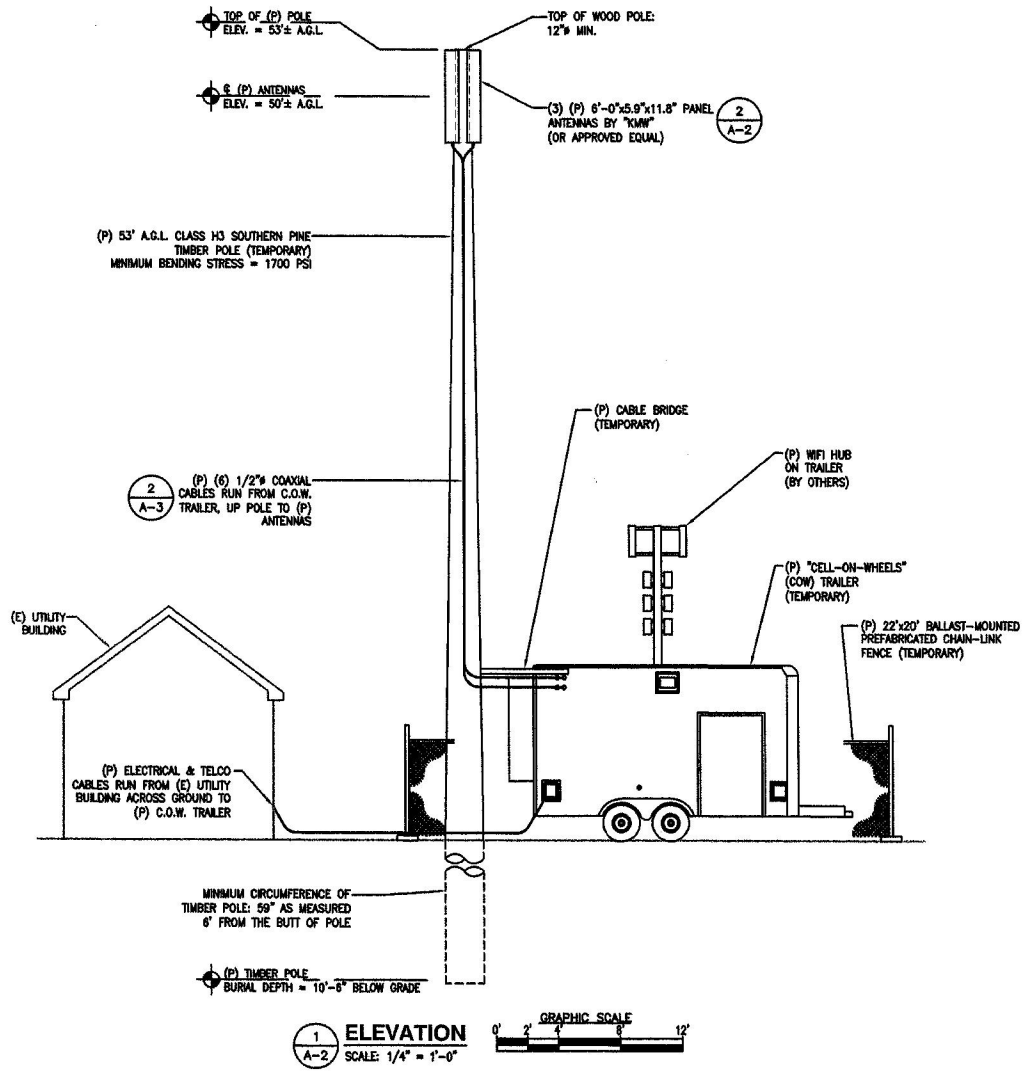
SCALE: AS SHOWN | DESIGNED BY: MRC | DRAWN BY: MER

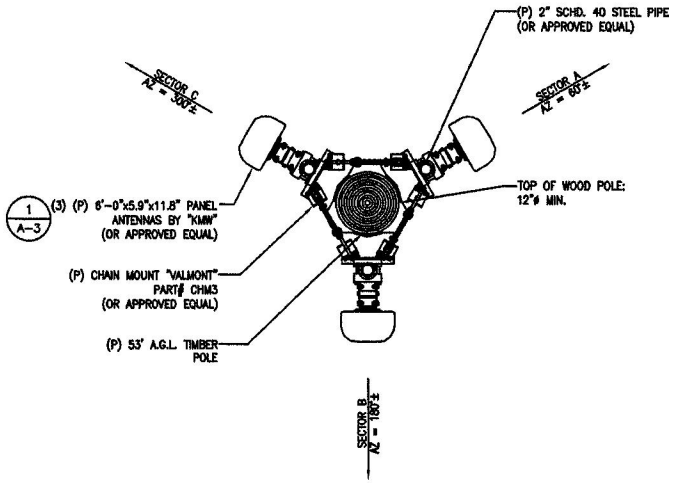
AT&T

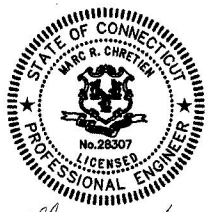
PLAN VIEWS

JOB NUMBER	DRAWING NUMBER	REV
CT2301	A-1	0

LETTER SIZE PRINT
THIS DRAWING NOT TO SCALE IF PRINTED ON 8 1/2"x11" PAPER







ADVANCED ENGINEERING GROUP, P.C.
Civil Engineering - Site Development
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500 NORTH BROADWAY, EAST PROVIDENCE, RI 02914
PH: 401-334-2403
FAX: 401-633-6354

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550 COCHITUATE ROAD, SUITE 13,
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NO.	DATE	REVISIONS	BY	CHK	APP'D
0	7/30/13	UPDATED	MER	MRC	MRC
A	7/23/13	ISSUED FOR REVIEW	MER	MRC	MRC

SCALE: AS SHOWN | DESIGNED BY: MRC | DRAWN BY: MER

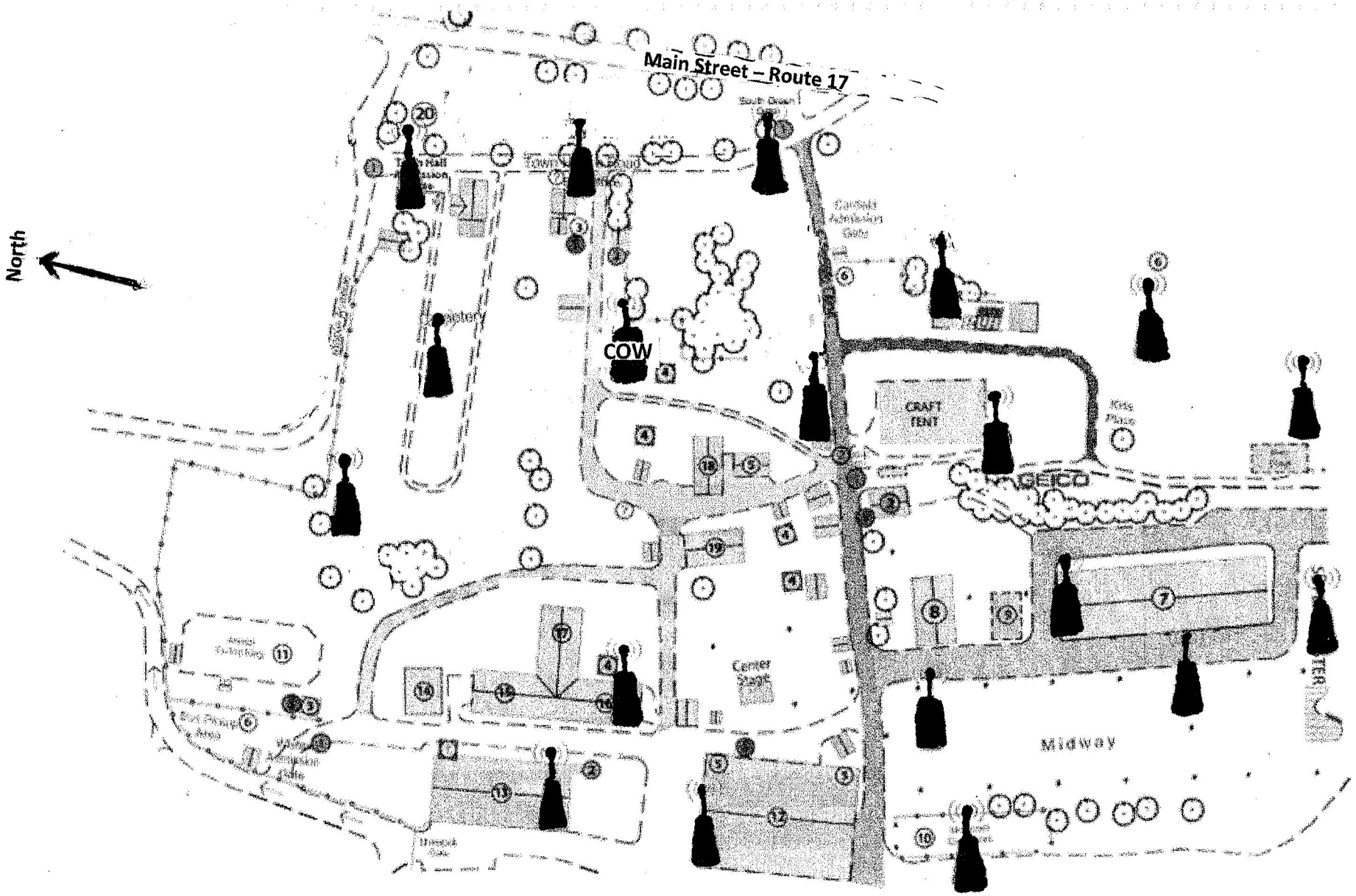
AT&T

ELEVATION AND ANTENNA PLANS

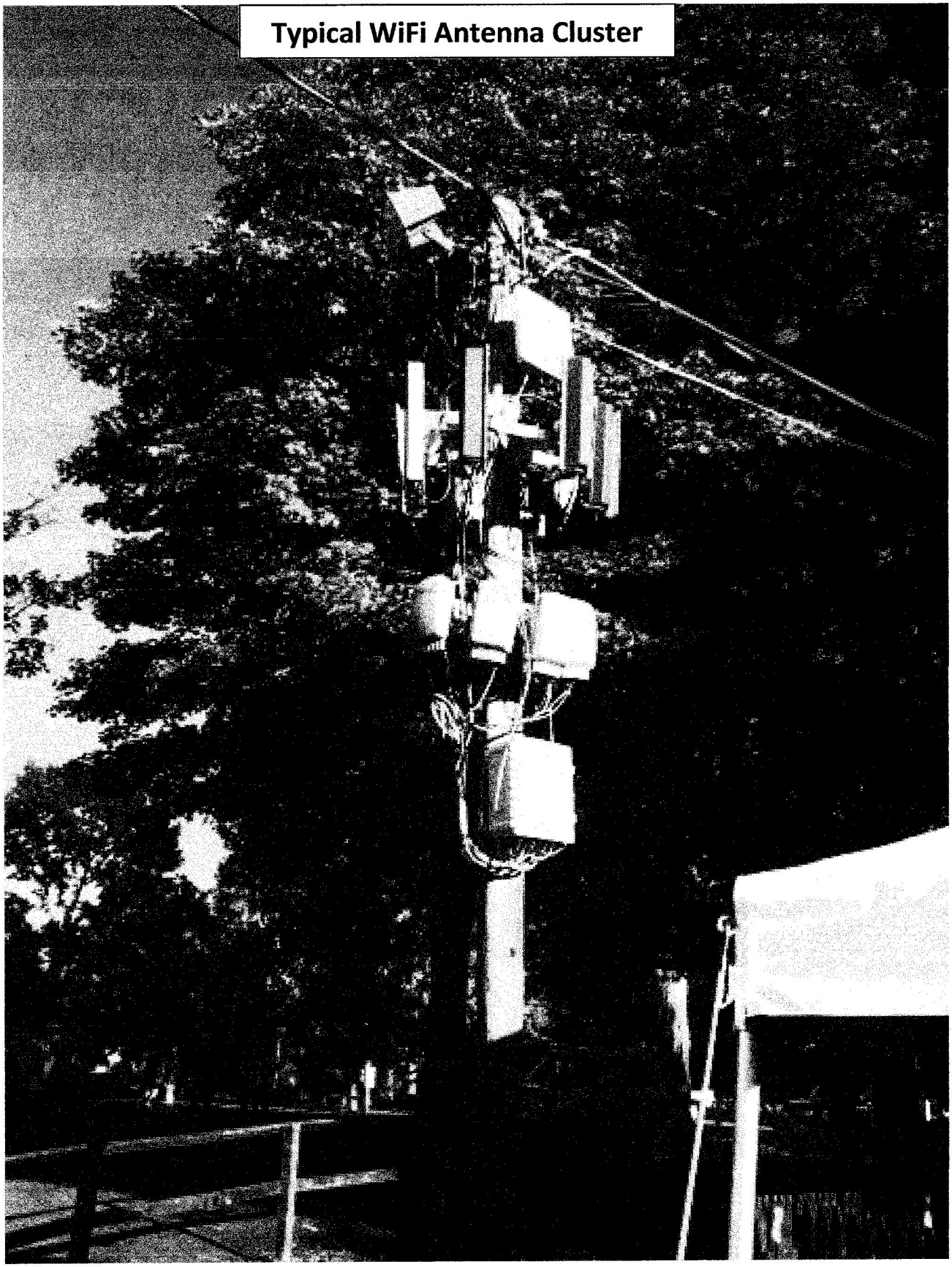
JOB NUMBER	DRAWING NUMBER	REV
CT2301	A-2	0


at&t

Locations of 19 WiFi Clusters at the 2013 Durham Fair



Typical WiFi Antenna Cluster



Centek Engineering, Inc.
63-2 North Branford Road
Branford, Connecticut 06405
Phone: (203) 488-0580
Fax: (203) 488-8587

Steven L. Levine
Real Estate Consultant

August 1, 2013

Honorable Laura L. Francis
1st Selectman, Town of Durham
Town Hall, 30 Town House Rd.
Durham, Connecticut 06422

Re: Proposed New Cingular Wireless PCS, LLC Temporary Cellular Communications Site at the 2013 Durham Agricultural Fair, Durham, CT

Dear Ms. Francis:

Centek Engineering, Inc. is pleased to submit the enclosed Notice on behalf of New Cingular Wireless PCS, LLC ("AT&T").

AT&T intends to install a temporary cellular and Wi-Fi communications facility for service during the upcoming 2013 Durham Agricultural Fair.

A Notice of Exempt Modification has been filed with the Connecticut Siting Council as required by Regulations of Connecticut State Agencies ("R.C.S.A.") Section 16-50j-73. Please accept this letter as notification to the Town of Durham under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(d).

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,

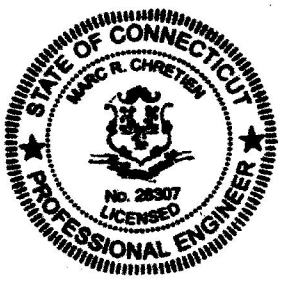
Steven Levine
Real Estate Consultant

Enclosure

ADVANCED
ENGINEERING GROUP, P.C.

500 North Broadway
East Providence, RI 02914
Ph: 508-342-5339
Fax: 508-342-5303

Structural Design Calculations



Site No.: CT2301 - Durham Fair COW
Client: SAI c/o AT&T
Date: July 31, 2013

Client: SAI Communcation
Site No.: CT2301
Subject: Durham Fair Temporary COW

Advanced Engineering Group
500 North Broadway
East Providence, RI 02914
Ph: 401-354-2403

Synopsis:

The proposed AT&T LTE temporary installation will consist of a 55' tall, direct-burial, wood pole that will support three (3) KMW 6'Hx12"Wx6"D panel antenna, six (6) 1/2" coaxial cable. Since the site is considerered temporary (June-September), ice loading will not be considered.

Environmental Loads:

Wind load:

Height of pole above grade, $z := 55 \cdot ft$

Exposure category, C (TIA-222-G, Sec 2.6.5.1)

Basic wind velocity, $V_{MW} := 105$ mph (TIA-222-G, Annex B)

Importance factor, $I := .87$ (category I) (TIA-222-G, Table 2-1)

Velocity pressure coefficient, $K_z := 2.01 \cdot \left(\frac{z}{z_g}\right)^{\frac{2}{\alpha}}$ (TIA-222-G, Sec 2.6.5.2)

Where, $z_g \equiv 900 \cdot ft$ $\alpha \equiv 9.5$ $K_z = 1.12$

Topographic factor, $K_{zt} := 1.0$ (TIA-222-G, Sec 2.6.6.4)

Wind direction probability factor, $K_d := .95$ (TIA-222-G, Table 2-2)

Gust effect factor, $G_h := 1.10$ (TIA-222-G, Sec 2.6.7.3)

Velocity wind pressure on pole, $q_z := .00256 \cdot V^2 \cdot K_z \cdot I \cdot K_{zt} \cdot K_d \cdot G_h \cdot psf$

$q_z = 28.63 \cdot psf$

Force coefficient for pole structure, $C_{f\_pole} := 1.2$ (TIA-222-G, Table 2-7)

Force coefficient for flat appurtenance, $C_{f\_flat} := 1.4$ (TIA-222-G, Table 2-8)

Advanced Engineering Group
500 North Broadway
East Providence, RI 02914
Ph: 401-354-2403

Equipment Loads:

Proposed Panel Antenna:

Width, $w_{ant} := 12 \cdot in$ Length, $l_{ant} := 72 \cdot in$

Depth, $t_{ant} := 6 \cdot in$ Weight, $W_{ant} := 50 \cdot lb$

Wind force on panel antenna, $P_{ss} := \left(\left(w_{ant} \cdot l_{ant}\right)\right) \cdot q_z \cdot C_{f\_flat}$

$P_{ss} = 240.53\,lb$

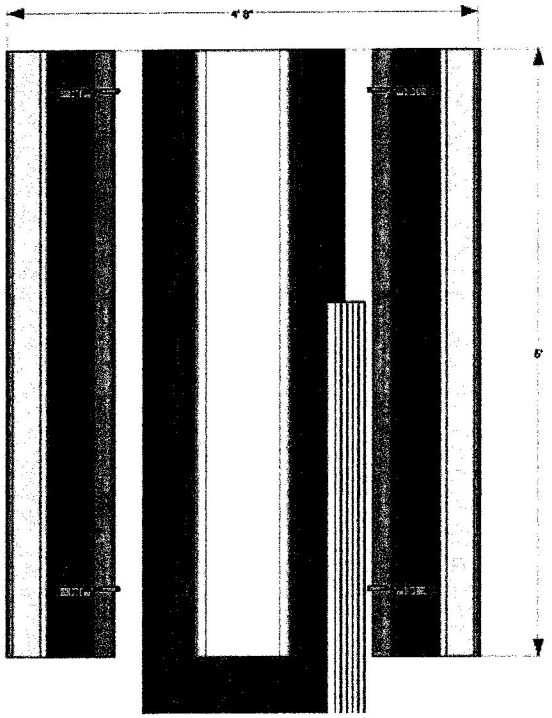
Weight of brackets, pipe, mounts, $W_{misc} := 200lb$

Weight of coax, $W_{coax} := (6) \cdot (.75 \cdot plf) \cdot z$

$W_{coax} = 247.5\,lb$

Analysis:

Fig. 1 Equipment Layout



Conservatively assume
effective wind area, $A_{eff} := (4.67 \cdot ft) \cdot (6 \cdot ft)$

$A_{eff} = 28.02\,ft^2$

Height of pole above grade, $H := z = 55\,ft$

Advanced Engineering Group
500 North Broadway
East Providence, RI 02914
Ph: 401-354-2403

Approximate location of assembly resultant below top of pole, $d := 3 \cdot ft$

Wind force on assembly, $P_{wind} := q_z \cdot A_{eff} \cdot C_{f\_flat}$

$P_{wind} = 1123.29\,lb$

Wind load on pole, $w_{pole} := q_z \cdot C_{f\_pole} \cdot (18 \cdot in + 2 \cdot in)$ (assume 18" dia. wood pole and 2" coax bundle)

$w_{pole} = 57.27 \cdot plf$

Resultant horizontal load, $P := w_{pole} \cdot H + P_{wind}$

$P = 4273.14\,lb$

Moment at base of pole, $M_{pole} := \frac{w_{pole} \cdot H^2}{2} + P_{wind} \cdot (H - d)$

$M_{pole} = 1740383.13 \cdot in \cdot lb$

Location of resultant from base, $h' := \frac{M_{pole}}{P}$

$h' = 33.94\,ft$

Pole Design:

Use Southern Pine

Design bending stress, $F_b := 1700 \cdot psi$ (table 6.5, Ref. 3)

Load duration factor, $C_d := 1.6$ (wind)

Allowable bending stress, $F'_b := F_b \cdot C_d$

$F'_b = 2720 \cdot psi$

Required circumference, $C := \left(\frac{32 \cdot \pi^2 \cdot M_{pole}}{F'_b} \right)^{\frac{1}{3}}$

$C = 58.68 \cdot in$

Use Class H3 pole with a minimum circumference of 59" 6' from butt

Required diameter, $D := \frac{C}{\pi}$

$D = 1.56\,ft$

Advanced Engineering Group
500 North Broadway
East Providence, RI 02914
Ph: 401-354-2403

Determine Burial Depth:

Assume medium-dense sandy gravel

Rule of thumb burial depth, $d' := .10 \cdot z + 2 \cdot ft$

$d' = 7.5\,ft$

Diameter of butt, $B := \frac{[C + (6) \cdot (.25 \cdot in)]}{\pi}$

$B = 1.6\,ft$

Allowable lateral soil bearing pressure, $S_0 := 650 \cdot \frac{psf}{ft}$ (table 6.6, Ref 3)

Unrestrained lateral bearing pressure, $S_1 := \frac{S_0 \cdot 2 \cdot d'}{3}$ (pg 6-369, Ref 3)

$S_1 = 3250 \cdot psf$

$A := \frac{2.34 \cdot P}{S_1 \cdot B}$ (eq 6-10, Ref 3)

$A = 1.93\,ft$

Calculated depth of embedment, $d := \frac{A}{2} \cdot \left(1 + \sqrt{1 + \frac{4.36 \cdot h'}{A}}\right)$

$d = 9.46\,ft$ **Use 9'-6" minimum burial depth**

Conclusion:

Based on the results of the analysis, the proposed AT&T LTE installation is structurally sound, as designed and depicted on plans by this office entitled "CT320, Durham Fair COW", dated 7/30/13, Rev A. The analysis was conducted in accordance with the Connecticut State Building Code, and ASCE 7-05. As designed, the proposed wood pole is at 100% capacity.

References:

1. American Society of Civil Engineers (1998), Minimum Design Loads for Buildings and Other Structures (7-05), American Society of Civil Engineers, New York, NY
2. Connecticut State Building Code (IBC 2003)
3. Timber Construction Manual, 4th Edition, American Institute of Timber Construction