

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@po.state.ct.us

www.ct.gov/csc

June 30, 2006

Elizabeth H. Lankenau, AICP
Planner
Kise Straw & Kolodner, Inc.
123 South Broad Street, Suite 1270
Philadelphia, PA 19109

RE: **EM-CING-064-043-155-094-060609** - New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 11 Mountain Road, Hartford; 2 Prestige Park Drive, East Hartford; 125 South Main Street, West Hartford; and 123 Costello Road, Newington, Connecticut.

Dear Ms. Lankenau:

At a public meeting held on June 27, 2006, the Connecticut Siting Council (Council) acknowledged your notice to modify the existing East Hartford, West Hartford, and Newington telecommunications facilities, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies, and tabled the Hartford proposal until further information is received.

The proposed modifications are to be implemented as specified here and in your notice dated May 31, 2006 and additional information dated June 27, 2006, including the placement of all necessary equipment and shelters within the tower compounds. 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 existing facility sites that would not increase tower heights, extend the boundaries of the tower sites, increase noise levels at the tower site boundaries by six decibels, and increase the total radio frequencies electromagnetic radiation power densities measured at the tower site boundaries to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. These facilities have also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on these towers.

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 any of these facilities 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. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,


Pamela B. Katz, P.E.
Chairman

PBK/laf

c: See Attached List.

List Attachment.

- c: The Honorable Melody A. Currey, Mayor, Town of East Hartford
- Michael J. Dayton, Town Planner, Town of East Hartford
- The Honorable Eddie A. Perez, Mayor, City of Hartford
- Robert A. LaPorte, Chairman of City Planning Commission, City of Hartford
- Lee C. Erdmann, Chief Operating Officer, City of Hartford
- The Honorable Rodney Burt Mortensen, Mayor, Town of Newington
- Paul J. Fetherston, Town Manager, Town of Newington
- Edmund Meehan, Town Planner, Town of Newington
- The Honorable Scott Slifka, Mayor, Town of West Hartford
- Barry M. Feldman, Town Manager, Town of West Hartford
- Mila Limson, Town Planner, Town of West Hartford
- Karen L. Couture, Site Acquisition Specialist
- Christopher B. Fisher, Esq., Cuddy & Feder LLP
- Michele G. Briggs, New Cingular Wireless PCS, LLC
- Spectrasite Communications
- Christine Farrell, T-Mobile
- Kenneth C. Baldwin, Esq., Robinson & Cole LLP
- Thomas J. Regan, Esq., Brown Rudnick Berlack Israels LLP
- Costello Industries

ORIGINAL

EM-CING-064-043-155-094-060609

RECEIVED
JUN - 9 2006

CONNECTICUT
SITING COUNCIL

31 May 2006

Ms. Pam Katz, Chairman, and
Members of the Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

**RE: Notice of Exempt Modification – Four (4) Existing Telecommunications
Tower Facilities in Hartford, East Hartford, West Hartford, and
Newington**

Dear Chairman Katz and Members of the Council:

Kise Straw & Kolodner Inc., in association with Network Building & Consulting, LLC, submits this notice of intent to modify existing telecommunications facilities. New Cingular Wireless PCS, LLC (“Cingular”) proposes to remove and replace telecommunications antennas and associated equipment located on an existing facility in the above-referenced municipalities. Cingular operates under licenses issued by the Federal Communications Commission (FCC) to provide cellular and PCS mobile telephone service in the areas to be served by the proposed installations.

Please accept this letter and attachments as notification to the Council, pursuant to Regulations of Connecticut State Agencies (RCSA) Section 16-50j-73. This submission will demonstrate that the proposed changes fall within the limits of an exempt modification as described under the RCSA Section 16-50j-72(b)(2).

In accordance with RCSA Section 16-50j-73, the chief elected officials will receive notification of the work proposed at locations within their jurisdiction.

Attached you will find summary sheets detailing the planned changes, including power density calculations reflecting the change in the effect of Cingular’s operations at each site. Also included is documentation of the structural sufficiency of each tower to accommodate the revised antenna configuration.

The planned changes to these facilities fall within those activities explicitly provided for in RCSA Section 16-50j-72(b)(2). As such, the proposed work does not result in any substantial adverse environmental effect.

1. The proposed work does not affect the height of the structure.

James Bennett Straw, AIA

Harvey D. Kolodner, MBA

James Nelson Kise, AIA/AICP/PP

Scott W. Killinger, AIA

John R. Gibbons, AIA/AICP

Philip E. Scott, EA

Suzanna Barucco

Katherine Bottom, LEED

LaVern Browne

Johnette Davies

Petar D. Glumac, Ph.D

Douglas S. Heckrotte, RA/LEED

Jody Holton, AICP

Marian Maxfield Hull, AICP/PP

Kise Straw & Kolodner Inc.
123 South Broad St.
Suite 1270
Philadelphia, PA 19109
(215) 790-1050 FAX (215) 790-0215
www.ksk1.com

2. The proposed changes do not affect the existing property boundaries. All proposed work will occur on the property controlled by Cingular.
3. The proposed work will not increase noise levels at the monopole site boundary by six (6) decibels or more.
4. Addition of the UMTS broadcasts will not increase the exposure to radio frequency electromagnetic energy, measured at the base of the tower, to or above the standard adopted by the state of Connecticut and the FCC. The power density tables provided for each facility summarize the cumulative results for a point of interest at the tower's base of the "worst-case" exposure calculations resulting from all carriers co-located on this tower. The calculations are in accordance with the Federal Communications Commission's Office of Engineering and Technology Bulletin No. 65 (1997), and for simplicity, an assumption is made that the antennas are all pointed down, thus focusing their energy at the tower's base.

For the foregoing reasons, Cingular respectfully submits that proposed changes at the these facilities constitute an exempt modification under RCSA Section 16-50j-72(b)(2).

Please do not hesitate to call me at 215.790.1050 ext. 138 with questions concerning this notice. Thank you for your consideration of this matter.

Sincerely,



Elizabeth H. Lankenau, AICP
Planner

Attachments

cc: Honorable Eddie A. Perez, Mayor, City of Hartford
Honorable Melody A. Currey, Mayor, Town of East Hartford
Honorable Scott Slifka, Mayor, Town of West Hartford
Honorable Rodney Burt Mortensen, Mayor, Town of Newington

11 Mountain Road, Hartford, CT

**Summary Sheet
Project Location Map
Site Plan and Elevation
Structural Analysis**

CINGULAR WIRELESS
Proposed Modifications

Site Address: 11 Mountain Road, Hartford, CT

Type of Existing Facility: 100' high monopole with a 59' x 64' compound; within the compound, Cingular has a 20' x 24' shelter

Antenna Configuration: Center line – 103' above ground level

Current unit: DUO4-8670; *specification attached*

Proposed unit: The existing antennas will be replaced with six (6) Powerwave 7770 units; *specification attached*

TMA Configuration: To be placed at same height as antenna

Proposed unit: Six (6) units to remain; six (6) new LGP 214mm units to be added; *specification attached*

Coaxial Cables:

Current cable size: Existing 7/8" cables to be removed

Proposed cable size: Add twelve (12) 1 5/8" cables

Power Density:

As the table demonstrates, the cumulative worst-case exposure would be approximately 40.28% of the ANSI/IEEE standard, as calculated for mixed frequency sites. Total power density levels resulting from Cingular's use of the monopole facility would be within applicable standards.

Site # 1011								
Carrier	Antenna Height (ft)	Freq. (MHz) For Limit	# of Channels	W ERP/Channel (ref 1/2-w dipole)	W EIRP/Sector	Power Density ($\mu\text{W}/\text{cm}^2$)	FCC Limit ($\mu\text{W}/\text{cm}^2$)	Percent of Limit (%)
Cingular UMTS	102	1935.0	1	500.0	820.0	17.3	1000	1.73%
West Hartford	60 & 75		-	-	-	-	-	16.36%
Cingular TDMA	102	880.0	16	100.0	2624.0	55.3	587	9.43%
Cingular 800	102	880.0	2	296.0	970.9	20.5	587	3.49%
Cingular 1900	102	1900.0	2	427.0	1400.6	29.5	1000	2.95%
T-Mobile	87	1900.0	8	166.4	2183.4	63.3	1000	6.33%
TOTAL								40.28%

Structural Analysis: Please see attachment. Says 104'

11 Mountain Road
Hartford, CT

Buena Vista Golf Course

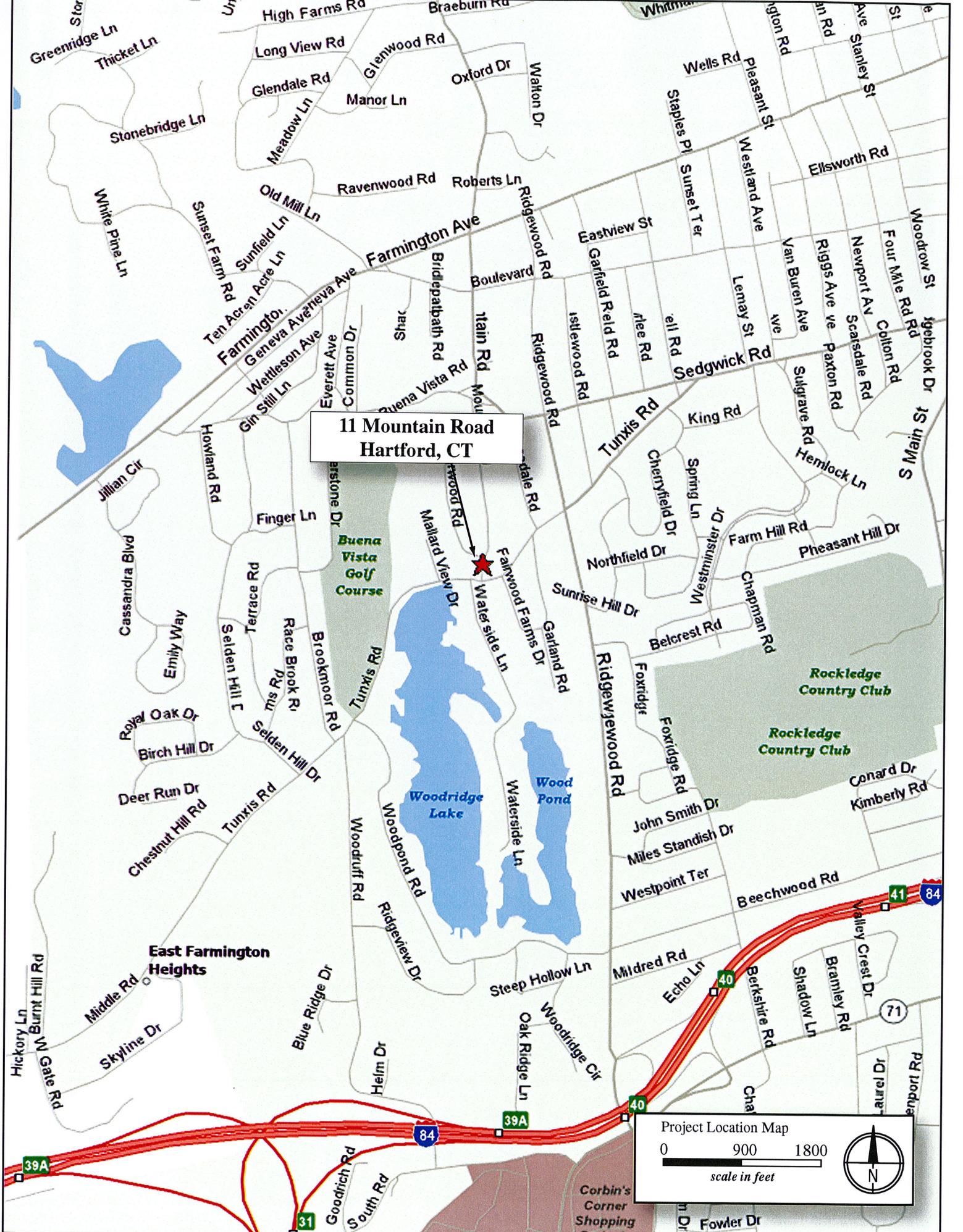
Rockledge Country Club

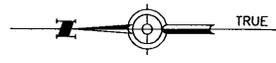
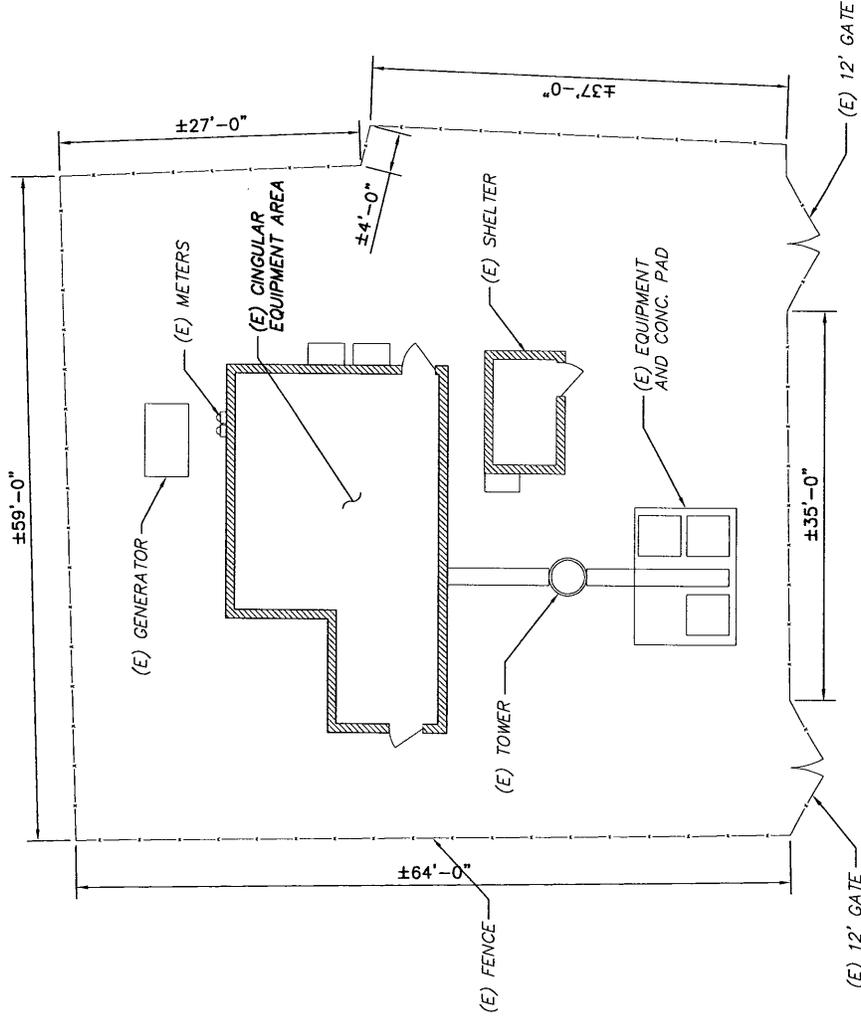
East Farmington Heights

Project Location Map

0 900 1800

scale in feet





COMPOUND LAYOUT
SCALE: 1/16" = 1'-0"

LATITUDE: 41° 43' 36"
LONGITUDE: 72° 42' 31"

cingular
CINGULAR WIRELESS
500 MAIN STREET
BOLTON, MA 01740

ERICSSON
6300 LEGACY DRIVE
PLANO, TX 75024

CH2MHILL
8619 WEST BRYN MAWR
CHICAGO, ILLINOIS 60631

infinigy
engineering
SUITE 312
300 GREAT OAKS BLVD.
ALBANY, NY 12203
OFFICE: (518) 890-0790
FAX: (518) 860-0793
185-003

SITE NAME: HARTFORD SOUTH
SITE NUMBER: 1011
11 MOUNTAIN STREET
HARTFORD, CT 06108

NO.	DATE	REVISION DESCRIPTION	BY	CHK	APPD
4	05/18/06	MISC. REVISIONS	PHR	CW	CW
3	05/12/06	MISC. REVISIONS	PHR	CW	CW
2	04/04/06	MISC. REVISIONS	PHR	CW	CW
1	03/29/06	MISC. REVISIONS	PHR	CW	CW
0	03/20/06	MISC. REVISIONS	PHR	CW	CW
SITE NUMBER			1011		



June 2, 2006

Mr. Thomas Sun, AIA
CH2M Hill Communications Group
8619 W. Bryn Mawr, Suite 615
Chicago, IL 60631

Re: *Level 1 Structural Evaluation*
Cingular Site #1011
Mountain Rd.,
Hartford, CT 06106

Natcomm Project No. 06500.Co05-1011

Dear Mr. Sun,

We have reviewed the proposed Cingular UMTS antenna upgrade at the above referenced site. The purpose of the review is to determine the adequacy of an existing 104' AGL monopole to support the proposed antennas. The review considered the effects of wind load, dead load, ice load and seismic forces in accordance with TIA/EIA-222-F and Connecticut State Building Code. Site assessment information obtained by Natcomm personnel on May 18, 2006 was used as reference material.

The existing antenna configuration is as follows:

- Cingular: Twelve (12) CSS DUO1417-8686 panel antennas on a standard platform at an elevation of 104' AGL.
- T-Mobile: Six (6) EMS panel antennas on a standard low profile platform at an elevation of 94' AGL.
- Town: One (1) panel antenna mounted to a standard side arm standoff at an elevation of 74' AGL.
- Town: One (1) panel antenna mounted to a standard side arm standoff at an elevation of 64' AGL.

The proposed modified antenna loading is as follows:

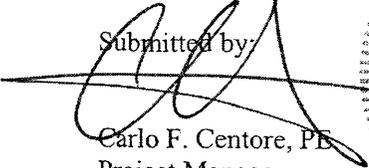
- Cingular: Six (6) Powerwave 7770.00 panel antennas w/ twelve (12) Powerwave LGP21401 TMA's on a standard low profile platform in lieu of the existing twelve (12) panel antennas at elevation of 104' AGL.

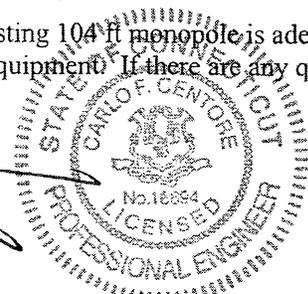
At the time of our site visit the grout below the tower base plate was found to be severely deteriorated and in need of repair.

Based on the information provided, re-grouting of the tower base plate and considering the interior routing of coaxial cables and reduced antenna loading, the existing structure will not exceed its original design capacity and meets the requirements of the TIA/EIA-222-F Standard considering the basic wind speed (fastest mile) of 80 mph for Hartford County.

In conclusion, the existing 104' monopole is adequate to support the proposed Cingular UMTS antenna upgrade and related equipment. If there are any questions regarding this matter, please feel free to call.

Submitted by:


Carlo F. Centore, PE
Project Manager



2 Prestige Park Drive, East Hartford, CT

**Summary Sheet
Project Location Map
Site Plan and Elevation
Structural Analysis**

CINGULAR WIRELESS
Proposed Modifications

Site Address: 2 Prestige Park Drive, East Hartford, CT

Type of Existing Facility: 150' high monopole; 23'4" x 19'11" equipment shelter; and two concrete equipment pads

Antenna Configuration: Center line – 152' above ground level

Current unit: DUO4-8670; *specification attached*

Proposed unit: Remove existing antennas and replace with six (6) Powerwave 7770 units; *specification attached*

TMA Configuration: To be placed at same height as antenna

Proposed unit: Six (6) existing units to remain; six (6) new LGP 214nn units to be added; *specification attached*

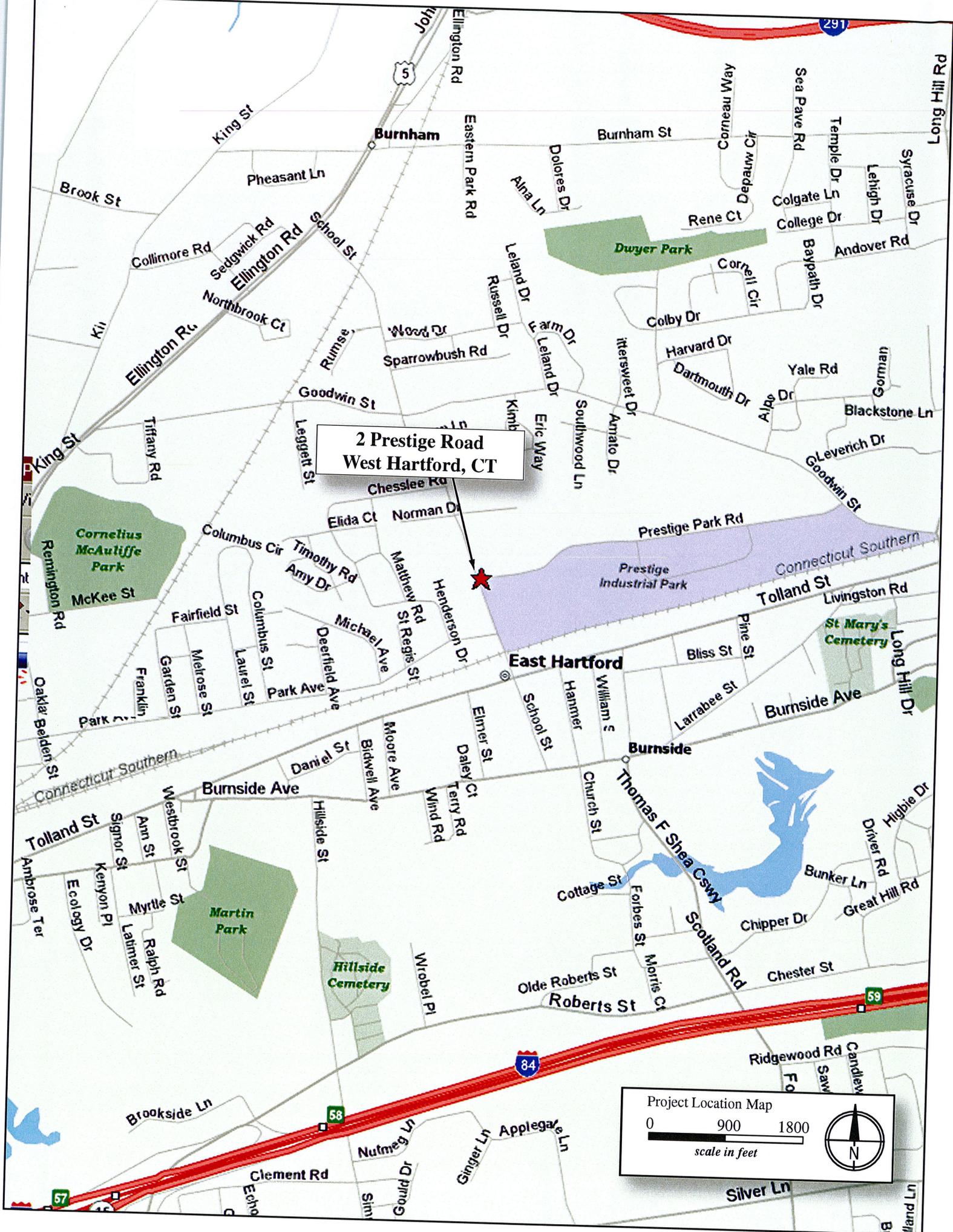
Coaxial Cables: Existing cables to be removed and replaced with twelve (12) 1 5/8" cables

Power Density:

As the table demonstrates, the cumulative worst-case exposure would be approximately 26.73% of the ANSI/IEEE standard, as calculated for mixed frequency sites. Total power density levels resulting from Cingular's use of the monopole facility would be within applicable standards.

Site # 1002								
Carrier	Antenna Height (ft)	Freq. (MHz) For Limit	# of Channels	W ERP/Channel (ref 1/2-w dipole)	W EIRP/Sector	Power Density ($\mu\text{W}/\text{cm}^2$)	FCC Limit ($\mu\text{W}/\text{cm}^2$)	Percent of Limit (%)
Cingular UMTS	152	1935.0	1	500.0	820.0	7.8	1000	0.78%
Pagenet	157	900.0	1	150.0	246.0	2.2	600	0.36%
Cingular TDMA	152	880.0	16	150.0	3936.0	37.4	587	6.37%
Cingular 800	152	880.0	2	250.0	820.0	7.8	587	1.33%
Cingular 1900	152	1900.0	2	427.0	1400.6	13.3	1000	1.33%
Sprint	137	1900.0	12	500.0	9840.0	115.0	1000	11.50%
AT&T	146	1900.0	12	250.0	4920.0	50.6	1000	5.06%
TOTAL								26.73%

Structural Analysis: Please see attachment.

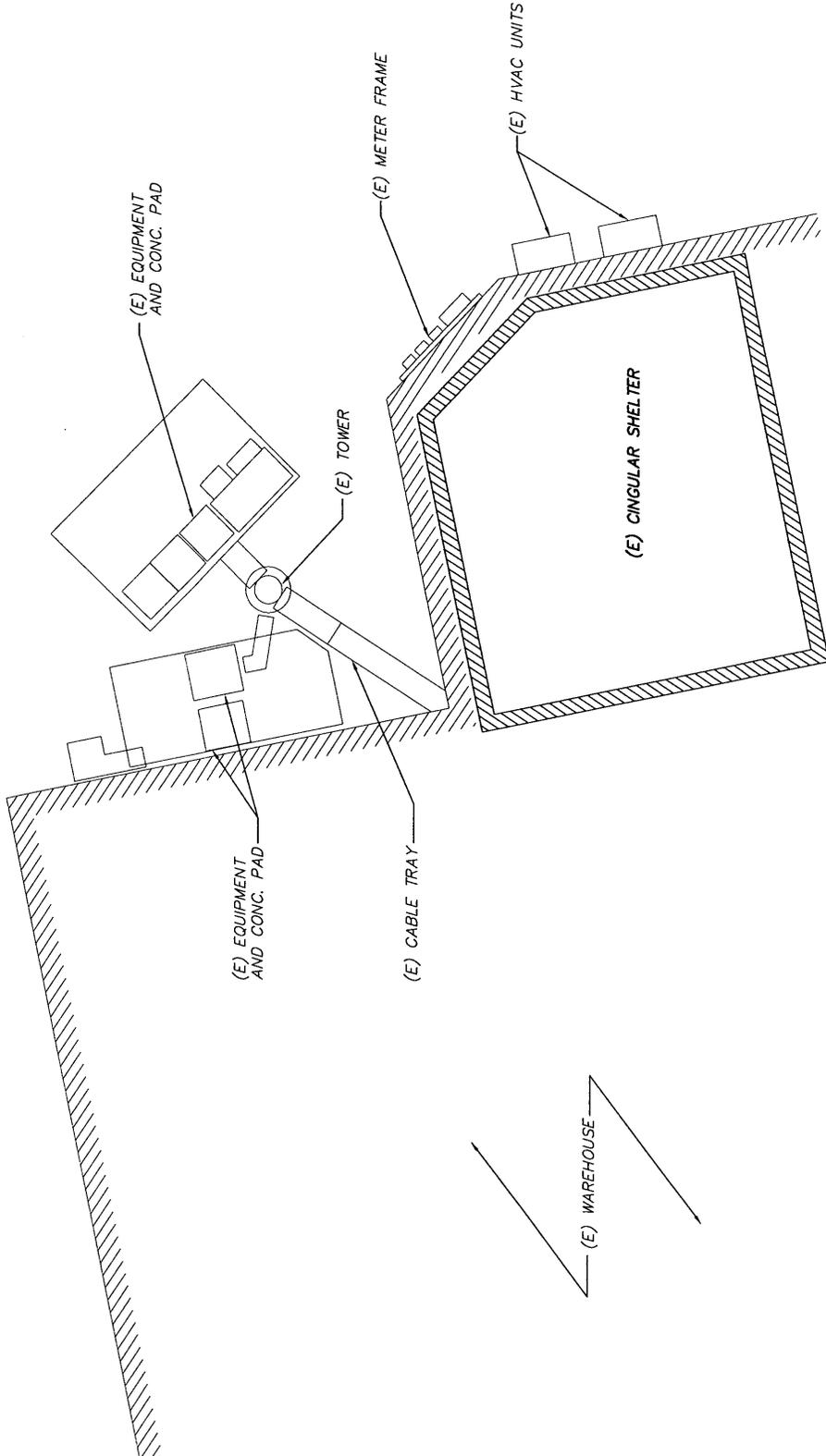


2 Prestige Road
West Hartford, CT

Project Location Map

0 900 1800

scale in feet



COMPOUND LAYOUT
SCALE: 1" = 10'-0"

LATITUDE: 41° 47' 18"
LONGITUDE: 72° 36' 04"



ERICSSON
6300 LEGACY DRIVE
PLANO, TX 75024

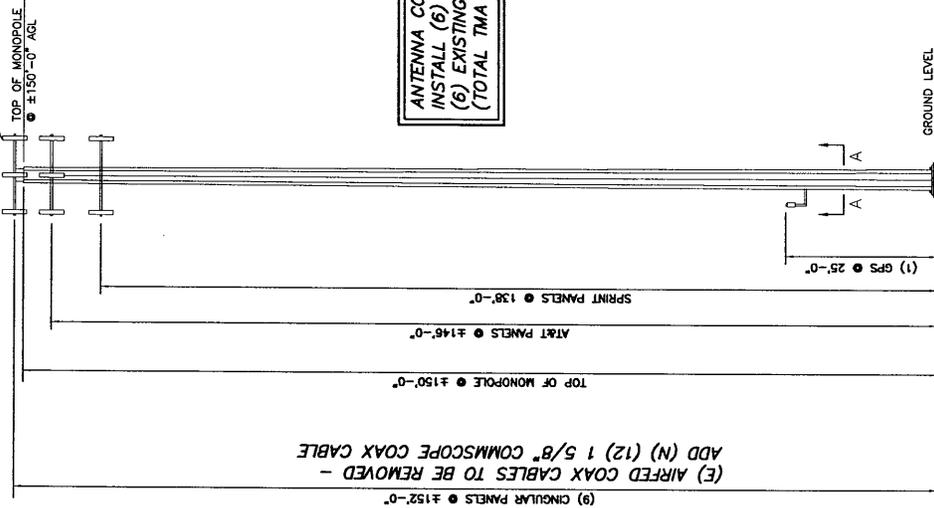
CH2MHILL
8619 WEST BRYN MAWR
CHICAGO, ILLINOIS 60631

infinigy
engineering
300 GREAT OAKS BLVD.
SUITE 312
ALBANY, NY 12203
OFFICE: (518) 860-0790
FAX: (518) 860-0785
185-001

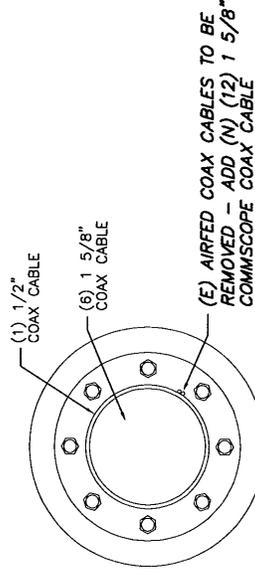
SITE NAME: EAST HARTFORD
SITE NUMBER: 1002
2 PRESTIGE PARK RD.
EAST HARTFORD, CT 06108

NO.	DATE	REVISION DESCRIPTION	BY	CHK APP'D
5	06/05/06	MISC. REVISIONS	PHR	CJW CJW
4	05/12/06	MISC. REVISIONS	PHR	CJW CJW
3	04/05/06	MISC. REVISIONS	MAK	CJW CJW
2	03/31/06	MISC. REVISIONS	PHR	CJW CJW
1	03/28/06	MISC. REVISIONS	PHR	CJW CJW
0	03/20/06	MISC. REVISIONS	MAK	CJW CJW
SITE NUMBER			1002	

(E) CINGULAR ANTENNAS TO BE REPLACED WITH (6) POWERWAVE ANTENNAS. (2) PER SECTOR, (3) SECTORS TOTAL (TYP.)



ANTENNA CONTRACTOR TO INSTALL (6) NEW TMA UNITS. (6) EXISTING TMA TO REMAIN. (TOTAL TMA UNITS = 12)



SECTION A-A

TOWER ELEVATION

SCALE: 1" = 30'-0"

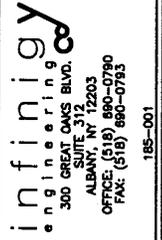
LATITUDE: 41° 47' 18"
LONGITUDE: 72° 36' 04"



CINGULAR WIRELESS
580 MAIN STREET
BOLTON, MA 01740

ERICSSON
6300 LEGACY DRIVE
PLANO, TX 75024

CH2MHILL
8619 WEST BRYN MAWR
CHICAGO, ILLINOIS 60631



300 GREAT OAKS BLVD.
ALBANY, NY 12203
OFFICE: (518) 890-0790
FAX: (518) 890-0793

185-001

SITE NAME: EAST HARTFORD
SITE NUMBER: 1002
2 PRESTIGE PARK RD.
EAST HARTFORD, CT 06108

NO.	DATE	REVISION DESCRIPTION	BY	CHK	APP'D
5	06/05/06	MISC. REVISIONS	PHR	CJW	CJW
4	05/12/06	MISC. REVISIONS	PHR	CJW	CJW
3	04/05/06	MISC. REVISIONS	PHR	CJW	CJW
2	03/31/06	MISC. REVISIONS	PHR	CJW	CJW
1	03/28/06	MISC. REVISIONS	PHR	CJW	CJW
0	03/20/06	MISC. REVISIONS	PHR	CJW	CJW
		REVISION DESCRIPTION	BY	CHK	APP'D
		SITE NUMBER			
		1002			



NATCOMM, LLC

Consulting Engineers

May 31, 2006

Mr. Thomas Sun, AIA
CH2M Hill Communications Group
8619 W. Bryn Mawr, Suite 615
Chicago, IL 60631

*Re: Level 1 Structural Evaluation
Cingular Site #1002
2 Prestige Park Rd.,
East Hartford, CT 06108*

Natcomm Project No. 06500.Co04-1002

Dear Mr. Sun,

We have reviewed the proposed Cingular UMTS antenna upgrade at the above referenced site. The purpose of the review is to determine the adequacy of an existing 156' AGL monopole to support the proposed antennas. The review considered the effects of wind load, dead load, ice load and seismic forces in accordance with TIA/EIA-222-F and Connecticut State Building Code. Site assessment information obtained by Natcomm personnel on May 9, 2006 was used as reference material.

The existing antenna configuration is as follows:

- Cingular: Nine (9) CSS DUO4-8670 panel antennas on a standard platform at an elevation of 156' AGL.
- SNET: One (1) whip antenna on a standard side arm standoff on off of Cingular's platform at an elevation of 156' AGL.
- Sprint: Six (6) DB9138F65T2E-M panel antennas on a standard t-arm standoffs at an elevation of 138' AGL.

The proposed modified antenna loading is as follows:

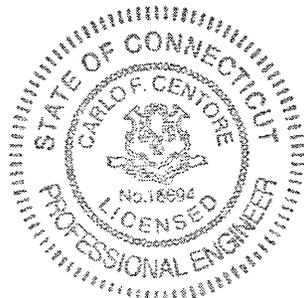
- Cingular: Six (6) Powerwave 7770.00 panel antennas w/ twelve (12) Powerwave LGP21401 TMA's on a standard low profile platform in lieu of the existing nine (9) panel antennas at elevation of 156' AGL.

Based on the information provided, and considering the reduced antenna loading, the existing structure will not exceed its original design capacity and meets the requirements of the TIA/EIA-222-F Standard considering the basic wind speed (fastest mile) of 80 mph for Hartford County.

In conclusion, the existing 156 ft monopole is adequate to support the proposed Cingular UMTS antenna upgrade and related equipment. If there are any questions regarding this matter, please feel free to call.

Submitted by:

Carlo F. Centore, PE
Project Manager



125 S. Main Street, West Hartford, CT

**Summary Sheet
Project Location Map
Site Plan and Elevation
Structural Analysis**

**CINGULAR WIRELESS
Proposed Modifications**

Site Address: 125 S. Main Street, West Hartford, CT

Type of Existing Facility: 100' high monopole with a 20' x 19' equipment shelter

Antenna Configuration: Center line – 106' above ground level

Current unit: DUO4-8670; *specification attached*

Proposed unit: Existing units to be replaced by six (6) Powerwave 7770 units; *specification attached*

TMA Configuration: To be placed at same height as antenna

Proposed unit: Six (6) units to remain; six (6) new LGP 214nn units to be added; *specification attached*

Coaxial Cables:

Current cable size: Nine (9) existing 1 5/8" cables

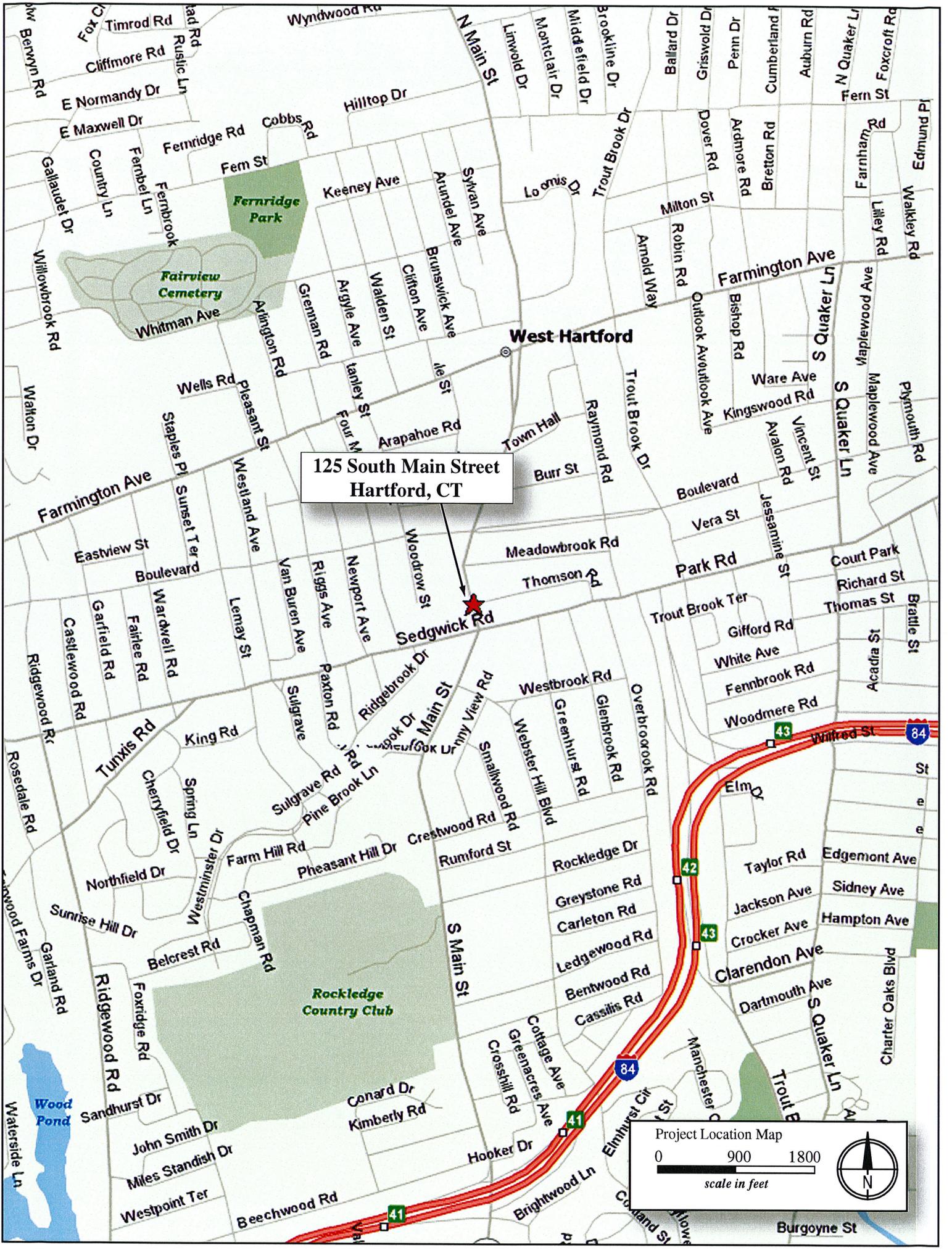
Proposed cable size: Add three (3) 1 5/8" cables

Power Density:

As the table demonstrates, the cumulative worst-case exposure would be approximately 16.29% of the ANSI/IEEE standard, as calculated for mixed frequency sites. Total power density levels resulting from Cingular's use of the monopole facility would be within applicable standards.

Site # 1076								
Carrier	Antenna Height (ft)	Freq. (MHz) For Limit	# of Channels	W ERP/Channel (ref 1/2-w dipole)	W EIRP/Sector	Power Density ($\mu\text{W}/\text{cm}^2$)	FCC Limit ($\mu\text{W}/\text{cm}^2$)	Percent of Limit (%)
Cingular UMTS	106	1935.0	1	500.0	820.0	16.0	1000	1.60%
Cingular TDMA	106	880.0	16	100.0	2624.0	51.2	587	8.73%
Cingular 800	106	880.0	2	296.0	970.9	18.9	587	3.23%
Cingular 1900	106	1900.0	2	427.0	1400.6	27.3	1000	2.73%
TOTAL								16.29%

Structural Analysis: Please see attachment.



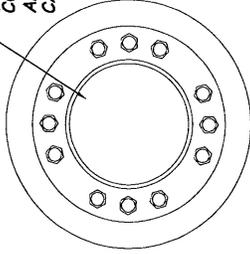
125 South Main Street
Hartford, CT

Project Location Map

0 900 1800

scale in feet

(E) (9) 1 5/8" CABLEWAVE
COAX CABLES TO REMAIN -
ADD (N) (3) 1 5/8"
CABLEWAVE COAX CABLE



SECTION A-A

TOP OF MONOPOLE
±100'-0" AGL

(E) CINGULAR ANTENNAS TO
BE REPLACED WITH (6)
KATHREIN ANTENNAS, (2) PER
SECTOR, (3) SECTORS TOTAL
(TYP.)

ANTENNA CONTRACTOR TO
INSTALL (6) NEW TMA UNITS.
(6) EXISTING TMA TO REMAIN.
(TOTAL TMA UNITS = 12)

±100'-0" MONOPOLE

GROUND LEVEL

(9) CINGULAR PANELS ±106'-0"
(E) (9) 1 5/8" CABLEWAVE COAX CABLES TO REMAIN
- ADD (N) (3) 1 5/8" CABLEWAVE COAX CABLE

TOWER ELEVATION

SCALE: 1" = 20'-0"

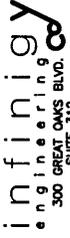
LATITUDE: 41° 45' 36"
LONGITUDE: 72° 46' 36"



CINGULAR WIRELESS
550 MAIN STREET
BOLTON, MA 01740

ERICSSON
6300 LEGACY DRIVE
PLANO, TX 75024

CH2MHILL
8619 WEST BRYN MAWR
CHICAGO, ILLINOIS 60631



300 GREAT OAKS BLVD.
SUITE 312
ALBANY, NY 12203
OFFICE: (518) 880-0790
FAX: (518) 880-0793

188-010

SITE NAME: WEST HARTFORD
SITE NUMBER: 1076
125 SOUTH MAIN
W. HARTFORD, CT 06107

NO.	DATE	REVISION DESCRIPTION	BY	CHK	APP'D
3	06/05/06	MISC. REVISIONS	PHR	CJM	CJM
2	05/12/06	MISC. REVISIONS	PHR	CJM	CJM
1	04/05/06	MISC. REVISIONS	PHR	CJM	CJM
0	03/29/06	MISC. REVISIONS	PHR	CJM	CJM
NO. DATE REVISION DESCRIPTION BY CHK APP'D					SITE NUMBER
					1076

DETAILED STRUCTURAL ANALYSIS AND EVALUATION OF EXISTING 100' MONOPOLE FOR NEW ANTENNA ARRANGEMENT

Cingular Site #1076
125 South Main Street
West Hartford, Connecticut

prepared for

CH2MHILL

8619 West Bryn Mawr, Suite 615
Chicago, IL 60631



Cingular Wireless
580 Main Street
Bolton, MA 01740

prepared by



URS CORPORATION
500 ENTERPRISE DR, SUITE 3B
ROCKY HILL, CT 06067
TEL. 860-529-8882

36922911.00008
CH2-001

June 1, 2006

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1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 100' steel monopole structure located at 125 South Main Street in West Hartford, Connecticut. The analysis was conducted in accordance with the 2005 Connecticut State Building Code and the TIA/EIA-222-F standard for wind velocity of 80 mph and 69 mph concurrent with 1/2" ice. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined in the Introduction Section of this report. The proposed Cingular modification is as follows:

Proposed Antenna and Mount	Carrier	Antenna Center Elevation
Remove: (9) existing CSS DUO1417-8686 antennas		
Install: (6) Powerwave 7770.00 antennas (12) Powerwave LGP21401 TMA's on the existing Platform with handrails with (9) existing 7/8" coax cables within the monopole and (3) new 7/8" coax cables within the monopole.	Cingular (Proposed)	@ 102'

The results of the analysis indicate that the tower structure is in compliance with the proposed loading conditions. **The tower and its foundation are considered structurally adequate with the wind load classification specified above and all the existing and proposed antenna loading.**

This analysis is based on:

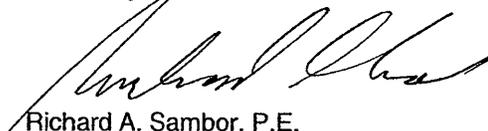
- 1) The tower structure's theoretical capacity, not including any assessment of the condition of the tower.
- 2) Tower geometry and structural member sizes taken from original construction drawings prepared by Engineered Endeavors, Inc., drawing number GS50927, dated June 4, 1998.
- 3) Antenna and mount configuration as specified on the following page of this report.

This report is only valid as per the assumptions and data utilized in this report for antenna inventory, mounts and associated cables. The user of this report shall field verify the assumption of the antenna and mount configuration as well as the physical condition of the tower. Notify the engineer in writing immediately if any of the information in this report is found to be other than specified.

If you should have any questions, please call.

Sincerely,

URS Corporation


Richard A. Sambor, P.E.
Manager Facilities Design



RAS/jek

cc: AA, DR, IA, CF/Book – URS

2. INTRODUCTION

The subject tower is located at 125 South Main Street in West Hartford, Connecticut. The structure is a 100' steel monopole designed and manufactured by Engineered Endeavors, Inc.

The inventory is summarized in the table below:

<i>Antenna Type</i>	<i>Carrier</i>	<i>Mount</i>	<i>Antenna Centerline Elevation</i>	<i>Cable</i>
(6) Powerwave 7770.00 antennas and (12) Powerwave LGP21401 TMA's	Cingular (proposed)	Platform w/handrail	102'	(9) existing 7/8" coax cables (within monopole) and (3) new 7/8" coax cables (within monopole)
(1) GPS antenna	(existing)	Standoff Mount	75'	(1) 1/2" coax cable (within monopole)

This structural analysis of the communications tower was performed by URS Corporation (URS) for CH2Mhill/Cingular Wireless. The purpose of this analysis was to investigate the structural integrity of the existing tower with its existing and proposed antenna loads. This analysis was conducted to evaluate stress on the tower and the effect of forces to the foundation of the tower resulting from existing and proposed antenna arrangements.

3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

The structural analysis was done in accordance with the 2005 Connecticut State Building Code, TIA/EIA-222-F—Structural Standard for Steel Antenna Towers and Antenna Supporting Structures, and the American Institute of Steel Construction (AISC) Manual of Steel Construction—Allowable Stress Design (ASD).

The analysis was conducted using ERI Tower 3.0. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA.

Load Condition 1 = 80 mph Wind Load (without ice) + Tower Dead Load
Load Condition 2 = 69 mph Wind Load (with ice) + Ice Load + Tower Dead Load

Please note that wind pressure is a function of velocity squared. Under Load Condition 2, a 25 percent reduction in wind pressure is allowed by code to account for the unlikelihood of the full wind pressure and ice load occurring at the same time. The same results may be achieved by utilizing a lower wind pressure without taking the 25 percent reduction, as shown above.

The TIA/EIA standard permits a one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For the purposes of this analysis, in computing the load capacity the allowable stresses of the tower members were increased by one-third.

4. FINDINGS AND EVALUATION

Combined axial and bending stresses on the monopole structure were evaluated to compare with allowable stresses in accordance with AISC. The calculated stresses under the proposed loading were below the allowable stresses. Detailed analysis and calculations for the proposed load condition are provided in section 6 of this report. The anchor bolts and base plate were found to be within allowable limits. No further analysis was conducted on the foundation since the shear and the moment at the top of the foundation were below the original design.

5. CONCLUSIONS

The results of the analysis indicate that the tower structure is in compliance with the proposed loading conditions. **The tower and its foundation are structurally adequate under the TIA/EIA-222-F wind load classification specified above and the proposed antenna loadings.**

Limitations/Assumptions:

This report is based on the following:

1. Tower inventory as listed in this report.
2. Tower is properly installed and maintained.
3. All members are as specified in the original design documents and are in good condition.
4. All required members are in place.
5. All bolts are in place and are properly tightened.
6. Tower is in plumb condition.
7. All member protective coatings are in good condition.
8. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
9. Foundations were properly constructed to support original design loads as specified in the original design documents.
10. All coaxial cable is installed within the monopole unless specified otherwise.

URS is not responsible for any modifications completed prior to or hereafter in which URS is not or was not directly involved. Modifications include but are not limited to:

- A. Adding antennas
- B. Removing/replacing antennas
- C. Adding coaxial cables

URS hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact URS. URS disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

Ongoing and Periodic Inspection and Maintenance:

After the Contractor has successfully completed the installation and the work has been accepted, the owner will be responsible for the ongoing and periodic inspection and maintenance of the tower.

The owner shall refer to TIA/EIA-222-F for recommendations for maintenance and inspection. The frequency of the inspection and maintenance intervals is to be determined by the owner based upon actual site and environmental conditions. It is recommended that a complete and thorough inspection of the entire tower structural system be performed at least yearly and more frequently as conditions warrant. According to TIA/EIA-222-F section 14.1, Note 1: It is recommended that the structure be inspected after severe wind and/or ice storms or other extreme loading conditions.

123 Costello Road, Newington, CT

**Summary Sheet
Project Location Map
Site Plan and Elevation
Structural Analysis**

**CINGULAR WIRELESS
Proposed Modifications**

Site Address: 123 Costello Road, Newington, CT

Type of Existing Facility: 145' high monopole; 65' x 113' compound; Cingular has a shelter within this compound that measures approximately 10' x 17'

Antenna Configuration: Center line – 105' above ground level

Current unit: CSS DUO 1417-8686; *specification attached*

Proposed unit: Remove existing antennas and replace with six (6) Powerwave 7770 units; *specification attached*

TMA Configuration: To be placed at same height as antenna

Proposed unit: Six (6) existing units to remain; six (6) new LGP 214nm units to be added; *specification attached*

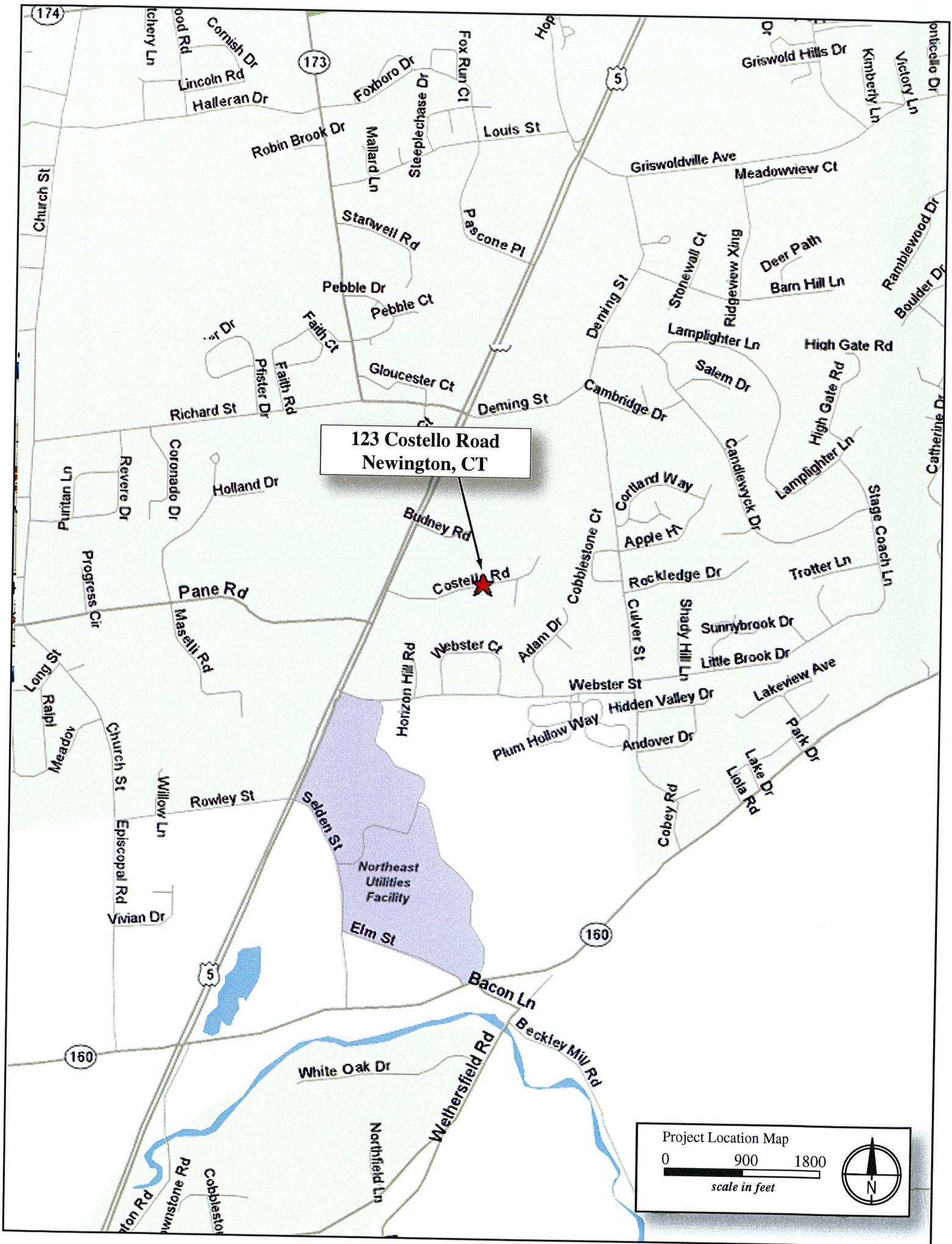
Coaxial Cables: Nine (9) existing 1 5/8" cables to remain and add three (3) new cables of the same dimension

Power Density:

As the table demonstrates, the cumulative worst-case exposure would be approximately 32.87% of the ANSI/IEEE standard, as calculated for mixed frequency sites. Total power density levels resulting from Cingular's use of the monopole facility would be within applicable standards.

Site # 1108								
Carrier	Antenna Height (ft)	Freq. (MHz) For Limit	# of Channels	W ERP/Channel (ref 1/2-w dipole)	W EIRP/Sector	Power Density ($\mu\text{W}/\text{cm}^2$)	FCC Limit ($\mu\text{W}/\text{cm}^2$)	Percent of Limit (%)
Cingular UMTS	105	1935.0	1	500.0	820.0	16.3	1000	1.63%
AT&T	145	1900.0	16	250.0	6560.0	68.4	1000	6.84%
Nextel	135	851.0	9	100.0	1476.0	17.8	567	3.13%
Sprint	125	1900.0	11	250.0	4510.0	63.3	1000	6.33%
Verizon 800	115	875.0	19	100.0	3116.0	51.7	583	8.86%
Cingular 800	105	880.0	2	296.0	970.9	19.3	587	3.29%
Cingular 1900	105	1900.0	2	427.0	1400.6	27.9	1000	2.79%
TOTAL								32.87%

Structural Analysis: Please see attachment.



123 Costello Road
Newington, CT

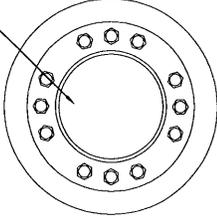
Project Location Map

0 900 1800

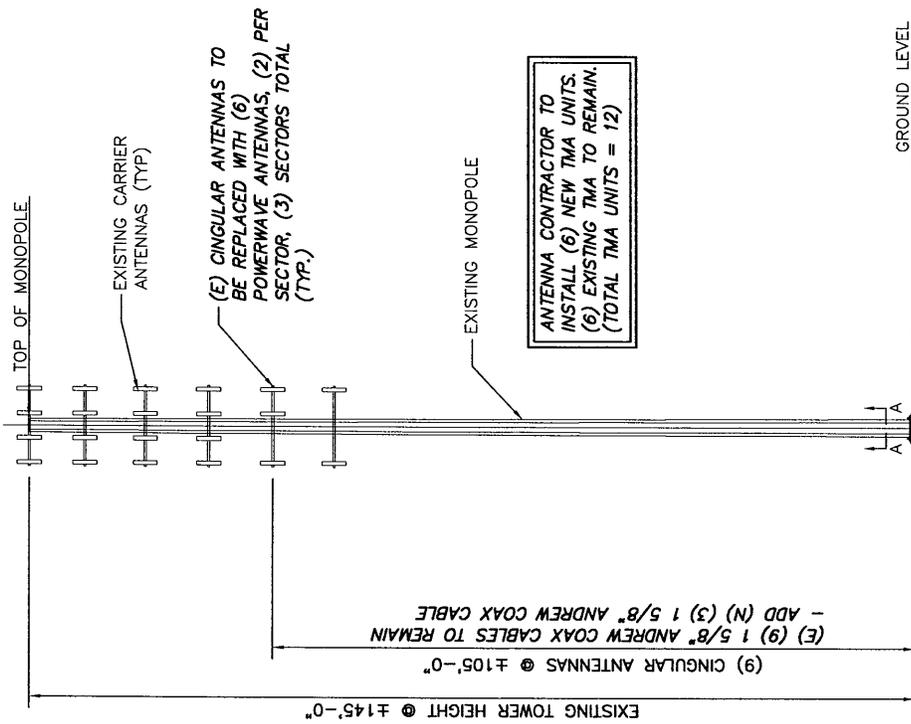
scale in feet



(E) (9) 1 5/8" ANDREW COAX CABLES TO REMAIN - ADD (N) (3) 1 5/8" ANDREW COAX CABLE



SECTION VIEW



EXISTING TOWER HEIGHT @ ±145'-0"
 (9) CINGULAR ANTENNAS @ ±105'-0"
 - ADD (N) (3) 1 5/8" ANDREW COAX CABLE TO REMAIN
 (E) (9) 1 5/8" ANDREW COAX CABLES TO REMAIN

TOWER ELEVATION
 SCALE: 1" = 30'-0"

LATITUDE: 41° 39' 18.71"
 LONGITUDE: 72° 43' 17.2"



CINGULAR WIRELESS
 580 MAIN STREET
 BOLTON, MA 01740

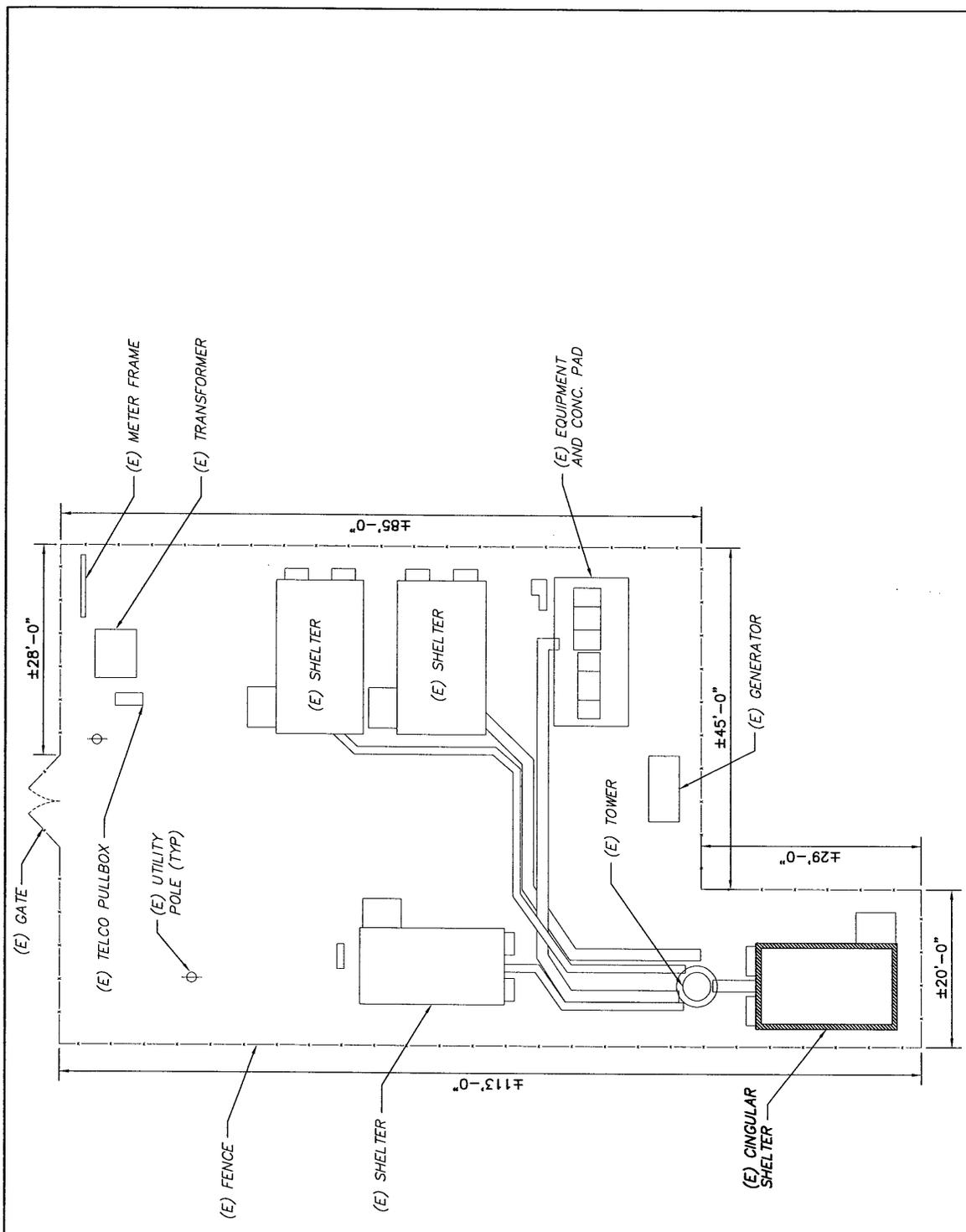
ERICSSON
 6300 LEGACY DRIVE
 PLANO, TX 75024

CH2MHILL
 8619 WEST BRYN MAWR
 CHICAGO, ILLINOIS 60631

engineering
 300 GREAT OAKS BLVD.
 SUITE 312
 ALBANY, NY 12203
 OFFICE: (518) 890-0790
 FAX: (518) 890-0793
 185-017

SITE NAME: NEWINGTON
 BERLIN TOWERS
 SITE NUMBER: 1108
 123 COSTELLO ROAD
 NEWINGTON, CT 06111

NO.	DATE	REVISION DESCRIPTION	BY	CHK APP'D
3	06/05/06	MISC. REVISIONS	PHR	CJW CJW
2	05/12/06	MISC. REVISIONS	PHR	CJW CJW
1	04/11/06	MISC. REVISIONS	PHR	CJW CJW
0	04/10/06	MISC. REVISIONS	PHR	CJW CJW
SITE NUMBER				1108



COMPOUND LAYOUT
SCALE: 1" = 20'-0"

LATITUDE: 41° 39' 18.71"
LONGITUDE: 72° 43' 17.2"



ERICSSON
6300 LEGACY DRIVE
PLANO, TX 75024

CH2MHILL
8619 WEST BRYN MAWR
CHICAGO, ILLINOIS 60631

infinigy
engineering
300 GREAT OAKS BLVD.
SUITE 312003
ALBANY, NY 12203
OFFICE: (518) 860-0780
FAX: (518) 860-0733
185-017

SITE NAME: NEWINGTON
BERLIN TOWERS
SITE NUMBER: 1108
123 CASTLE ROAD
NEWINGTON, CT 06111

NO.	DATE	REVISION DESCRIPTION	BY	CHK	APPD
3	06/05/06	MISC. REVISIONS	PHR	CJM	CJM
2	05/12/06	MISC. REVISIONS	PHR	CJM	CJM
1	04/11/06	MISC. REVISIONS	PHR	CJM	CJM
0	04/10/06	MISC. REVISIONS	PHR	CJM	CJM
		REVISION DESCRIPTION			
SITE NUMBER					1108

1079 N. 204th Avenue
Elkhorn, NE 68022
Ph: 402-289-1888
Fax: 402-289-1861

SEMAAN ENGINEERING SOLUTIONS

145 ft SUMMIT Monopole Structural Analysis

Prepared for:
Global Signal
301 North Cattlemen Road, Suite 300
Sarasota, FL 34232

Site: 3023026
For Cingular
Costelo Road.
Newington, CT



May 25, 2006

Mr. Louis Belizaire
Global Signal
301 North Cattlemen Road, Suite 300
Sarasota, FL 34232

Re: Site Number 3023026 – 123 Costelo Road. Newington, CT.

Dear Mr. Belizaire:

We have completed the structural analysis for the existing monopole, located at the above referenced site. The purpose of this analysis is to determine that the existing monopole design is in conformance with the TIA/EIA Rev F standard and local building codes for the proposed antennae loads installation. Refer to the Review and Recommendations section at the end of this report for the analysis results.

Description of Structure:

The structure is a 145 ft SUMMIT Monopole.

Refer to SUMMIT job No 5153 dated October 8, 1999 for a detailed description of the structure.

Method of analysis:

The tower was analyzed using Semaan Engineering Solutions' software suite for communication structures. The structural analysis is performed using the SAPS finite element engine. The method is 3D, non-linear, which accounts for the second order geometric effects due to the displacements. It also treats guys as exact cable elements and therefore is ideal for guyed towers. The analysis was performed in conformance with **TIA/EIA Rev F and local building codes for a basic wind speed of 80 mph and 1/2" radial ice with reduced wind speed (fastest mile)**. This is in conformance with the IBC 2003: Section 1609.1.1, Exception (5) and Section 3108.4. Wind is applied to the structure, accessories and antennas.

Structure loading:

The following loads were used in the tower analysis:

Elev (ft)	Qty	Antennas	Mounts	Coax	Carrier
145.0	12	RV105-10-00	Low Profile Platform	(12) 1 5/8"	AT&T
135.0	12	RV65-18-00DP	Low Profile Platform	(12) 1 5/8"	Nextel
125.0	6	RR65-19-02DP	Low Profile Platform	(9) 1 5/8"	Sprint
115.0	12	FR90-1202DP	Low Profile Platform	(12) 1 5/8"	Verizon
95.0	6	RR65-18-02DP	Low Profile Platform	(6) 1 5/8"	T-Mobile

Proposed Loads:

Elev (ft)	Qty	Antennas	Mounts	Coax	Carrier
105.0	12	Allgon 7770	Low Profile Platform	(12) 1 5/8"	Cingular
	12	21401 TMA			

All new access holes shall be reinforced with welded rims that are compatible with the pole and to be sized and supplied by pole manufacturer.
All transmission lines are assumed running inside of pole shaft.

Results of Analysis:

Refer to the attached Computer Summary sheets for detailed analysis results.

Structure:

The existing monopole is structurally capable of supporting the existing and proposed antennas. The maximum structure usage is: 95.6%.

Foundation:

Pole Reactions	Original Design Reactions	Current Analysis Reactions	% Of Design
Moment (ft-kips)	3,075.00	2,936.36	95.5
Shear (kips)	28.50	27.18	95.4

The analysis reactions are less than the design reactions therefore no foundation modifications are required.

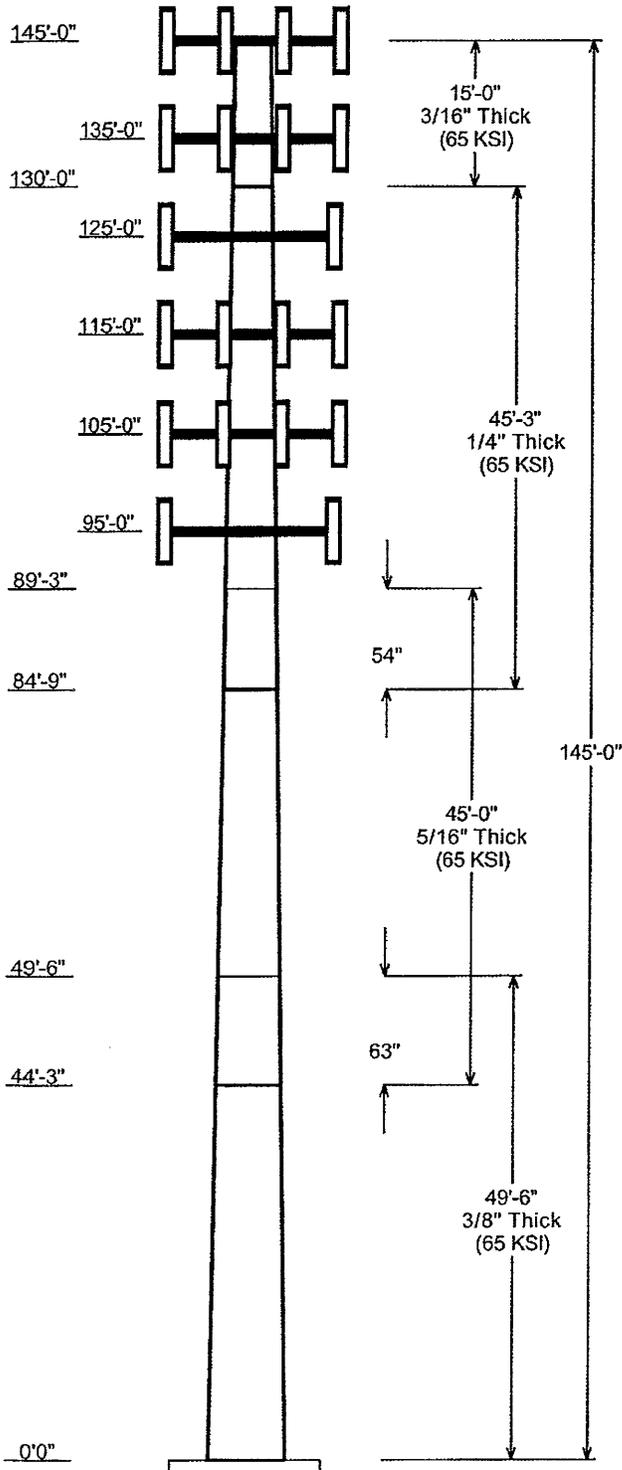
Review and Recommendations:

Based on the analysis results, the existing structure meets the requirements per the TIA/EIA Rev F standards for a basic wind speed of 80 mph and 1/2" radial ice with reduced wind speed. This wind speed is equivalent to a 100 mph 3-second gust.

SEMAAN ENGINEERING SOLUTIONS

1079 N.204th Avenue
 Elkhorn, NE 68022
 Phone: 402-289-1888
 Fax: 402-289-1861

Copyright Semaan Engineering Solutions, Inc



Job Information			
Pole:	3023026	Code:	TIA/EIA Rev F
Description:	Client: Global Signal		
	Location: - Newington, CT		
Shape:	18 Sides	Base Elev (ft):	0.00
Height:	145.00 (ft)	Taper:	0.185896(in/ft)

Sections Properties							
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Steel Grade (ksi)
		Across Top	Flats Bottom				
1	49.500	40.62	49.83	0.375		0.000	0.185896 65
2	45.000	33.86	42.22	0.313	Slip Joint	63.000	0.185896 65
3	45.250	26.78	35.20	0.250	Slip Joint	54.000	0.185896 65
4	15.000	24.00	26.78	0.188	Butt Joint	0.000	0.185896 65

Discrete Appurtenance				
Attach Elev (ft)	Force Elev (ft)	Qty	Description	
145.000	145.000	1	Low Profile Platform	
145.000	145.000	12	RV105-10-00	
135.000	135.000	1	Low Profile Platform	
135.000	135.000	12	RV65-18-00DP	
125.000	125.000	1	Low Profile Platform	
125.000	125.000	6	RR65-19-02DP	
115.000	115.000	1	Low Profile Platform	
115.000	115.000	12	FR90-1202DP	
105.000	105.000	1	Low Profile Platform	
105.000	105.000	12	21401 TMA	
105.000	105.000	12	Allgon 7770	
95.000	95.000	1	Low Profile Platform	
95.000	95.000	6	RR65-18-02DP	

Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
0.000	95.000	1 5/8" Coax	No
0.000	105.0	1 5/8" Coax	No
0.000	115.0	1 5/8" Coax	No
0.000	125.0	1 5/8" Coax	No
0.000	135.0	1 5/8" Coax	No
0.000	145.0	1 5/8" Coax	No

Load Cases	
No Ice	80.00 mph Wind with No Ice
Ice	69.28 mph Wind with Ice

Reactions			
Load Case	Moment (Kip-ft)	Shear (Kips)	Axial (Kips)
No Ice	2936.36	27.18	38.21
Ice	2428.19	21.98	46.48

Specifications for Proposed New Equipment

**11 Mountain Road, Hartford, CT
2 Prestige Park Drive, East Hartford, CT
125 S. Main Street, West Hartford, CT
123 Costello Road, Newington, CT**

Dual Broadband Antenna

90° 1.4 m MET Antenna

806-960/1710-2170 MHz

Part Number:
7770.00

Horizontal Beamwidth: 90°
Gain: 13.5/16 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 female

The Powerwave dual band dual polarized broadband antenna has individual adjustable electrical downtilt per band (upgradeable to Remote Electrical Tilt (RET)). Four connector ports allow separate tilts on each frequency band and ensure the use of diversity concepts. The phase shifter technology, based on a patented sliding dielectric, minimizes intermodulation distortion and maximizes efficiency. The slant +/- 45° dual polarization system provides the independent fading signals needed for achieving top-quality coverage via diversity concepts. The Powerwave Broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design which provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

Preliminary

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS

THE POWER IN WIRELESS®

 **Powerwave**
technologies

Dual Broadband Antenna

806-960/1710-2170 MHz

Electrical Specifications (Preliminary)

Frequency band (MHz)	806-960	1710-2170
Gain, ± 0.5 dB (dBi)	13.5	16.0
Polarization	Dual linear $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR	1.5:1	
VSWR		1.5:1
Isolation between inputs (dB)	30	
Isolation between inputs (dB)		30
Inter band isolation (dB)	40	
Horizontal -3 dB beamwidth	$85 \pm 5^\circ$	$85 \pm 5^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<2.0	
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<2.0	
Electrical downtilt range (adjustable)	0° to 10°	0° to 8°
Vertical -3 dB beamwidth	$14.3 \pm 2.0^\circ$	$6.6 \pm 1^\circ$
Sidelobe suppression, Vertical 1 st upper (dB)	>17, 16, 15 x=0, 5, 10° MET	> 17, 16, 15 x=0, 4, 8° MET
Vertical beam squint	<0.8°	<0.5°
First null-fill (dB)	<-25	<-25
Front-to-back ratio (dB)	>25	>27
Front-to-back ratio, total power (dB)	>20	>23
IM3, 2Tx@43dBm (dBc)	<-153	
IM3, 2Tx@43dBm (dBc)		<-153
IM7, 2Tx@43dBm (dBc)		<-160
Power Handling, Average per input (W)	400	250
Power Handling, Average total (W)	800	500

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	4 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1408mm x 280mm x 125mm (55"x11"x5")
Weight Including Brackets	15.8 kg (35 lbs)
Wind Load, Frontal, 42m/s Cd=1	435N (98 lbf)
Survival Wind Speed (m/s)	70 (156mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Mounting	Pre-mounted Standard Brackets
Packing Size	1550mm x 355mm x 255mm (61"x14"x10")

Corporate Headquarters
Powerwave Technologies, Inc.
1801 East St. Andrew Place
Santa Ana, CA 92705 USA
Tel: 714-466-1000
Fax: 714-466-5800
www.powerwave.com

Main European Office
Antennvägen 6
SE-187 80 Täby
Sweden
Tel: +46 8 540 822 00
Fax: +46 8 540 823 40

Main Asia Pacific Office
23 F Tai Yau Building
181 Johnston Road
Wanchai, Hong Kong
Tel: +852 2512 6123
Fax: +852 2575 4860



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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Tower Mounted Amplifier

Dual Band 1900 MHz with 850 MHz Bypass

1900/850 MHz

Part Number:
LGP 214nn

Up-link: 1850-1910 MHz
Down-link: 1930-1990 MHz
Bypass: 824-894 MHz

Gain: 12 dB
Noise Figure: < 1.7 dB

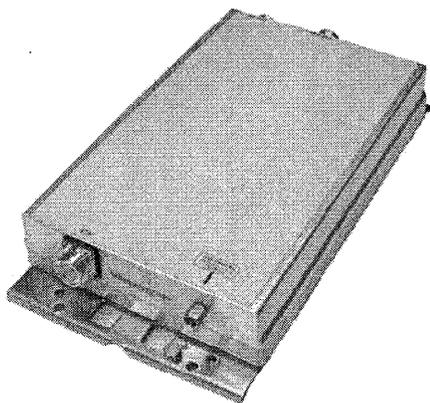
The Powerwave® TMA-DD 1900/850 is a dual band Tower Mounted Amplifier (TMA) to be installed near the antenna. Deployed in an AMPS, GSM, GPRS, EDGE and CDMA network it will increase capacity and coverage as well as extend the battery life time for the handsets. The TMA System will provide enhanced coverage and improved up-link signal quality. Appropriate for new rollouts by optimizing coverage with a reduced number of BTSs or as an upgrade to existing BTSs for enhancing the existing coverage.

Extended band TMA facilitates simplified logistics, especially when the frequency bands are scattered. The unit comprises of high Q band-pass filters, dual balanced low noise amplifiers with circuits for active bias, supervision, alarms and lightning protection circuit. The Powerwave patented design with all active components integrated within the filter body provides an extremely reliable, compact and lightweight TMA solution. The vented enclosure design is employed to prevent the effect of condensation, thereby guaranteeing long, reliable, maintenance-free service in all environmental conditions. These TMAs offer an easy to install, maintenance free, cost effective solution for coverage enhancement and increased quality in mobile communication networks.

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS



Key Benefits:

- 850 MHz Bypass
- Improved Network Quality
- Increased Coverage
- State of the Art Performance
- Excellent Power Handling
- Low Tx Loss
- Exceptional Reliability

Tower Mounted Amplifier



1900/850 MHz

Technical Specifications

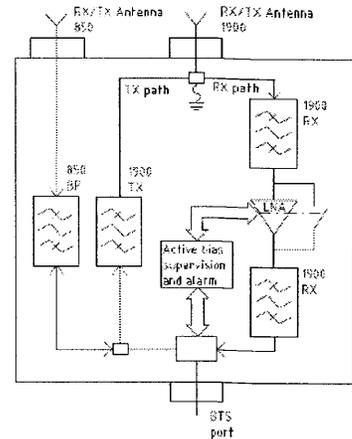
Product Number	LGP214nn	
850 MHz	Bypass (MHz)	824-894
	Return loss* (dB)	> 20
	Insertion loss* (dB)	< 0.3
1900 MHz		
Up-link	Frequency range, full band (60 MHz)	1850-1910
	Nominal gain (dB)	12
	Return loss* (dB)	> 20
	Noise figure* (dB)	< 1.7
	Output 3rd order Intercept Point* (dBm)	> +23
Down-link	Frequency range, full band (60 MHz)	1930-1990
	Insertion loss* (dB)	< 0.6
	Return loss* (dB)	> 20
Intermodulation	2 Tx@x43 dBm (dBc)	<-158
Alarm Functionality	Two levels, individually supervised LNAs	
Power Consumption	@12 VDC	1.2 W

* Typical

All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.

Mechanical Specifications

Size, W x H x D (without mounting plate)	235 x 366 x 66 mm (9.2 x 14.4 x 2.6 in)
Weight	6.4 kg (14.1 lbs)
Color	Off white (NCS 1502-R)
Housing	Aluminum
RF-connectors	DIN 7/16 female.
Mounting kit	Mounting kit for pole and wall is included
Temperature range	-40 °C to +65 °C (-40 °F to +149 °F)
MTBF	>1 million hours
Safety	UL 60 950
Ingress protection, IP 65	EN 60 529
Environmental	ETS 300 019
EMC	FCC Part 15



D031-08422 Rev. A Pg. 2 of 2

Corporate Headquarters
 Powerwave Technologies, Inc.
 1801 East St. Andrew Place
 Santa Ana, CA 92705 USA
 Tel: 714-466-1000
 Fax: 714-466-5800
 www.powerwave.com

Main European Office
 Antennvägen 6
 SE-187 80 Täby
 Sweden
 Tel: +46 8 540 822 00
 Fax: +46 8 540 823 40

Main Asia-Pacific Office
 23 F Tai Yau Building
 181 Johnston Road
 Wanchai, Hong Kong
 Tel: +852 2512 6123
 Fax: +852 2575 4860



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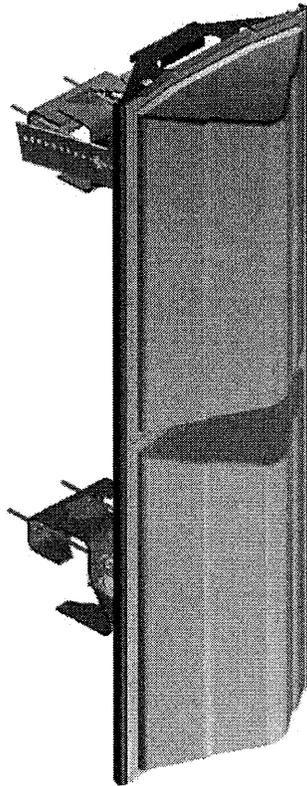
Specifications for Existing Equipment

DUO 1417-8686 / 8670



Directing our energies for you.

Dual Band Antenna DUO1417-8686



86 & 86 Azimuth Beams
15 & 7 Elevation Beams
14.0 & 16.0 dBi Gain

- PCS & Cellular in One Package
- Independent Control of Electrical Beam Downtilt
- High Power Handling Capability
- Anti-Corrosion Design for Superb IM Performance
- Available With Optional Internal Dual Band Combiner



Directing our energies for you.

Dual Band Antenna DUO1417- 8686

Electrical Specifications

Cellular

PCS

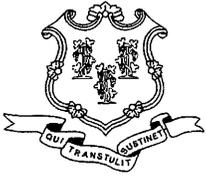
Frequency Range	806-900 MHz	1850-1990 MHz
Gain	14.0 dBi	16.0 dBi
Electrical Downtilt Options	0, 2, 4 or 6 Degrees	0 or 4 Degrees
VSWR	1.35:1 Maximum	1.35:1 Maximum
VSWR (with -i option)	1.40:1 Maximum	1.40:1 Maximum
Front-to-Back at Horizon	> 25 dB	> 30 dB
Upper Side Lobe Suppression	< -17 dB	< -18 dB
Elevation Beam (3-dB Points)	15 Degrees	7 Degrees
Azimuth Beam (3-dB Points)	86 Degrees	86 Degrees
Polarization	Vertical	Vertical
Impedance	50 Ohms	50 Ohms
Power Input Rating	500 CW	200 CW
Intermodulation Specification	<-110dBm at 2x10W	<-110dBm at 2x10W

Mechanical Specifications

Input Connectors (female)	Two Back Mounted 7/16 DIN (Silver Finish)
Antenna Dimensions	48.4 x 14 x 9 Inches (10.7" deep with option 'i')
Antenna Weight	20.3 lbs
Antenna Weight (w/opt. 'i')	32.0 lbs
Bracket Weight	10.5 lbs
Lightning Protection	Direct Ground
RF Distribution	Cellular: Silver Plated Brass PCS: Printed Microstrip Substrate
Radome	Ultra High-Strength Luran
Weatherability	UV Stabilized, ASTM D1925
Radome Water Absorption	ASTM D570, 0.45%
Environmental	MIL-STD-810E
Wind Survival	150 mph
Front Wind Load at 100 mph	124 lbs
Front Flat Plate Equivalent	2.54 sq-ft. (c=2)
Mounting Brackets	Fits 2.5 to 3 Inch Schedule 40 Pipe
Mechanical Downtilt Range	0-12 Degrees in 1 Degree Increments
Clamps/Bolts	Hot Dip Galvanized Steel/Stainless Steel

Ordering Information

<u>Model</u>	<u>Options</u>
DUO1417- 8686-xy	x=Electrical Downtilt at 800 MHz in Degrees (0, 2, 4 or 6) y=Electrical Downtilt at 1900 MHz in Degrees (0 or 4)
DUO1417-8686-xyi	i=Dual Band Combiner included as an internal device



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@po.state.ct.us

www.ct.gov/csc

June 12, 2006

The Honorable Melody A. Currey
Mayor
Town of East Hartford
Town Hall
740 Main Street
East Hartford, CT 06108-3114

RE: **EM-CING-064-043-155-094-060609** - New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 11 Mountain Road, Hartford; 2 Prestige Park Drive, East Hartford; 125 South Main Street, West Hartford; and 123 Costello Road, Newington, Connecticut.

Dear Mayor Currey:

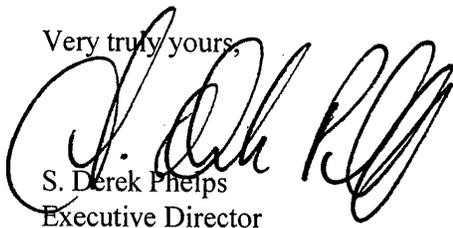
The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for Tuesday, June 27, 2006 at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

If you have any questions or comments regarding this proposal, please call me or inform the council by June 20, 2006.

Thank you for your cooperation and consideration.

Very truly yours,

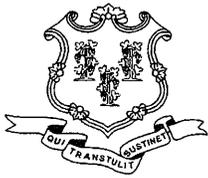


S. Derek Phelps
Executive Director

SDP/ap

Enclosure: Notice of Intent

c: Michael J. Dayton, Town Planner, Town of East Hartford



STATE OF CONNECTICUT

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www.ct.gov/csc

June 12, 2006

The Honorable Rodney Burt Mortensen
Mayor
Town of Newington
131 Cedar Street
Newington, CT 06111

RE: **EM-CING-064-043-155-094-060609** - New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 11 Mountain Road, Hartford; 2 Prestige Park Drive, East Hartford; 125 South Main Street, West Hartford; and 123 Costello Road, Newington, Connecticut.

Dear Mayor Mortensen:

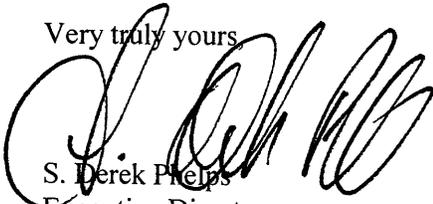
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If you have any questions or comments regarding this proposal, please call me or inform the council by June 20, 2006.

Thank you for your cooperation and consideration.

Very truly yours,



S. Derek Phelps
Executive Director

SDP/ap

Enclosure: Notice of Intent

c: Edmund Meehan, Town Planner, Town of Newington
Paul J. Fetherston, Town Manager, Town of Newington



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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www.ct.gov/csc

June 12, 2006

The Honorable Eddie A. Perez
Mayor
City of Hartford
Municipal Building
550 Main Street
Hartford, CT 06103

RE: **EM-CING-064-043-155-094-060609** - New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 11 Mountain Road, Hartford; 2 Prestige Park Drive, East Hartford; 125 South Main Street, West Hartford; and 123 Costello Road, Newington, Connecticut.

Dear Mayor Perez:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for Tuesday, June 27, 2006 at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

If you have any questions or comments regarding this proposal, please call me or inform the council by June 20, 2006.

Thank you for your cooperation and consideration.

Very truly yours,

A handwritten signature in black ink, appearing to read "S. Derek Phelps".

S. Derek Phelps
Executive Director

SDP/ap

Enclosure: Notice of Intent

c: Robert A. LaPorte, Chairman of City Plan Com., City of Hartford
Lee C. Erdmann, Chief Operating Officer, City of Hartford



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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E-Mail: siting.council@po.state.ct.us

www.ct.gov/csc

June 12, 2006

The Honorable Scott Slifka
Mayor
Town of West Hartford
Town Hall
50 South Main Street, Room 313
West Hartford, CT 06107-2431

RE: **EM-CING-064-043-155-094-060609** - New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 11 Mountain Road, Hartford; 2 Prestige Park Drive, East Hartford; 125 South Main Street, West Hartford; and 123 Costello Road, Newington, Connecticut.

Dear Mayor Slifka:

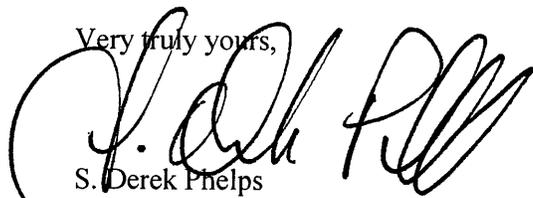
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If you have any questions or comments regarding this proposal, please call me or inform the council by June 20, 2006.

Thank you for your cooperation and consideration.

Very truly yours,



S. Derek Phelps
Executive Director

SDP/ap

Enclosure: Notice of Intent

c: Mila Limson, Town Planner, Town of West Hartford
Barry M. Feldman, Town Manager, Town of West Hartford