

Springwich Cellular Limited Partnership
227 Church Street
New Haven, Connecticut 06510
Phone (203) 771-7381



Peter J. Tyrrell
Senior Attorney

December 9, 1994

Mr. Mortimer A. Gelston, Chairman
Connecticut Siting Council
136 Main Street, Suite 401
New Britain, CT 06051

RECEIVED

DEC - 9 1994

**CONNECTICUT
SITING COUNCIL**

Dear Chairman Gelston:

Enclosed please find a Notice of Intent to Modify an Exempt Tower and Associated Equipment for facilities owned by Quinnipiac College at 275 Mount Carmel Avenue in Hamden, Connecticut.

The Springwich Cellular Limited Partnership (SCLP) proposes to add antennas to an existing guyed lattice style tower located on top of the Carl Hansen Student Center building and place an associated equipment cabinet inside the same building, to be used in providing cellular telecommunications services to the Quinnipiac College campus, including the July, 1995 Special Olympics Basketball event to be held at Quinnipiac College.

The attached pages detail the required information. As is shown in the attachment, the proposed addition will meet all the necessary criteria established in the Regulations of Connecticut State Agencies Section 16-50j-72(c), and Section 2 of Public Act 93-268, as amended, in Sections 6 and 7 of Public Act 94-242, and is thus an exempt facility pursuant to Section 16-50j-73.

Please record me as counsel for SCLP in this matter and in all correspondence from the Council.

Thank you for your cooperation.

Very truly yours,

A handwritten signature in blue ink that reads "Peter J. Tyrrell".

Copy to : Honorable Lillian D. Clayman, Major, Town of Hamden,
2372 Whitney Avenue, Hamden, CT 06518.

Mr. Joseph D. Rubertone, Director of Facilities, Quinnipiac College,
275 Mount Carmel Avenue, Hamden, CT 06518.

HAMDEN

Pursuant to Section 16-50i(a) (5) of the Connecticut General Statutes and Section 16-50j-72(c), as amended, of the Regulations of Connecticut State Agencies and Section 2 of Public Act 93-268, as amended, in Sections 6 and 7 of Public Act 94-242, for use of a non-facility tower where there would be no substantial environmental effect, the Springwich Cellular Limited Partnership (SCLP) hereby requests approval from the Connecticut Siting Council (Council) to modify an existing telecommunications facility by adding cellular service antennas to an existing 60 foot guyed lattice style roof-top tower and to install a self-contained base station equipment cabinet containing the associated radio equipment inside the same building, (Carl Hansen Student Center). The site is located at the Quinnipiac College campus, 275 Mount Carmel Avenue, Hamden, Connecticut. Exhibit A provides additional discussion of Public Acts 93-268 and 94-242 as they pertain to this Exempt Modification request. SCLP has received authorization from the site owner to apply for this approval, as shown on Exhibit B.

BACKGROUND

The proposed location is at the campus of Quinnipiac College. Quinnipiac College operates WQAQ, an FM radio station. The radio station tower is located on the roof of a two-story building, the Carl Hansen Student Center. The tower was constructed in 1973 and one four-bay antenna was installed to allow Quinnipiac College to broadcast to its radio station listeners.

DISCUSSION

SCLP proposes to add two 11 foot tall whip style cellular omnidirectional antennas at approximately the 20 foot level and 60 foot level of the 60 foot tower, in order to provide cellular coverage at the Quinnipiac College campus. This site will also provide coverage to the July, 1995 Special Olympics Basketball event to be held at the Quinnipiac College campus. One of the proposed additional antennas will extend approximately 11 feet above the height of the existing tower, as shown on Exhibit C. The antenna separation is required to avoid interference with the existing College radio station. The tower will support the addition of the two cellular antennas.

The cellular equipment to be used to operate these antennas will be contained within a weatherproof equipment cabinet called a self-contained base station (minicell). This cabinet has a height of approximately 7 feet, a width of approximately 2 feet and is approximately 2 foot deep. This equipment cabinet would be placed within a restricted area inside the Carl Hansen Student Center building. It will not be visible or accessible to Quinnipiac's students or faculty.

The power density in the radio and cellular frequency bands is set forth below. The levels shown indicate the total power density in milliwatts per square centimeter. Exhibit D details the method of power density calculations.

<u>Service</u>	<u>Power Density</u>	<u>Connecticut Standard</u>	<u>Percent of Standard</u>
FM Station	.0008	.2000	0.40
Cellular	.0114	.5867	1.94

The current Connecticut (and ANSI) power density level standards for non-ionizing radiation are shown above. The levels demonstrated in this case are well below the standard levels.

CONCLUSION

The proposed addition does not constitute a "modification" of an existing facility as defined in Connecticut General Statutes Section 16-50i(d). This is because there is no change in the tower's height. There is no extension of the boundaries of the site. There will be no increase in noise levels at the site's boundary by six decibels or more, and the total radio frequency electromagnetic radiation is not at or above the standard set forth in Section 22(a)-162 of the Connecticut General Statutes. This addition will not have a substantially adverse environmental effect. SCLP requests that the Council approve the use of this tower as indicated above and the installation of an associated equipment cabinet.

For the reasons discussed above, SCLP requests that the Council acknowledge that this Notice of Modification meets the Council's exemption criteria and goal of tower sharing whenever possible.

HAMDEN

Public Act 93-268 states in part that "The General Assembly finds that the sharing of towers for fair consideration whenever technically, legally, environmentally and economically feasible, and whenever such sharing meets public safety concerns, will avoid the unnecessary proliferation of towers and is in the public interest".

SCLP's use of the existing tower in Hamden directly addresses and supports the General Assembly's and the Connecticut Siting Council's goal of using existing towers whenever possible. Upon SCLP's showing, as stated below, that the above criteria have been met, the Council, pursuant to Public Act 94-242, is permitted to find that shared use is feasible and issue an order approving such shared use.

SCLP addresses the specific areas of concern as follows:

Fair Consideration - As shown on Exhibit B of our Exempt Modification filing, SCLP has entered into an agreement with Quinnipiac College for the use of their tower and building space. The parties have reached a mutually acceptable agreement through negotiations of a fair rental and lease term. Both parties are in agreement with this arrangement.

Technical - SCLP's engineers have reviewed and analyzed the Hamden site and determined that there is minimal probability for interference from or to other existing radio transmissions from this location. Under FCC regulations, if the last party attaching to a tower causes interference to others where none had existed before, it is the responsibility of that party to eliminate said interference. SCLP recognizes and supports such regulation, and agrees to comply with the FCC rules in this respect. SCLP has never been advised that it has caused interference to any AM, FM, two way radio or television reception from any of its sites.

Legal - Quinnipiac College's radio tower was constructed in 1973 so that they could operate WQAQ, an FM radio station on campus. The existing antenna located on the tower was installed in 1977.

SCLP has executed a lease with Quinnipiac College. This lease permits, upon the Council's approval, use of the existing tower and the Carl Hansen Student Center building as a cellular site location. Pursuant to Public Act 94-242, Section 6(c), the Council has been authorized by the Connecticut State Legislature to issue an order approving the shared use of an existing tower. This new authority compliments the Council's existing power to issue orders approving the construction of new towers if similar criteria are met. Similarly, the Council's new authority under Public Act 94-242, Section 7(A) is co-extensive with the Council's existing power pursuant to Connecticut General Statute 16-50x(a). Thus, the Council, whether ruling on applications for certificates or facilities or on requests for shared use of towers, may give such consideration to other state laws and municipal regulations as it deems appropriate. This new authority completes the bundle of jurisdiction needed to share towers and avoid their proliferation. The Council's order in this matter thus becomes the final step in the siting process as envisioned by the Legislature. The Council's order permits SCLP to obtain a building permit for the equipment cabinet at this location and to share the use of this tower.

Environmental - As this site utilizes an existing tower and requires only the installation of a 7'h x 2'w x 2'd equipment cabinet, SCLP's use of this location will cause minimal environmental impact. The equipment cabinet is called a self-contained base station and will be located inside the Carl Hansen Student Center building. The equipment cabinet will be located within a restricted area of the building and will not be visible or accessible to Quinnipiac's students or faculty. Cell sites are unmanned, do not require water or sanitary facilities, and do not increase vehicle traffic to the area. The only outside noise emitted from the site is the operating of the air conditioning unit required to keep the equipment cool. As the site operates electrically, it does not emit any air pollutants such as sulphur oxide, nitrous oxide, hydrocarbon or carbon monoxide commonly found as by-products of combustion. There will be approximately one week of construction activity at this site. After construction, only once a week visits by technicians for normal maintenance will occur, thus no significant traffic pattern changes will occur.

Economically Feasible - This location allows the installation of a cell site without the construction of a new tower, and thus provides a direct cost savings to SCLP. A fair rental rate has already been negotiated with the tower owner, as can be seen on Exhibit B of our filing.

Public Safety - The provision of new cellular service at the Quinnipiac College campus through the use of an existing transmitting facility can only improve the safety and welfare of the students, faculty and local residents. This is because the emergency use of cellular service enables police, fire, medical personnel, and Campus Security to be contacted quickly in the time of need. Cellular service has been invaluable in disaster relief efforts. Use of this tower will facilitate such relief if the need should unfortunately arise.

In consideration of the above facts, it is evident that SCLP fully supports the Connecticut Siting Council's and General Assembly's goal of shared use of towers whenever possible, and Council approval of SCLP's use of the Hamden site is clearly in the best interest of both the public and the State.

December 5, 1994

Ms. Michele G. Carlo
Staff Assistant-Real Estate
SNET Mobility, Inc.
555 Long Wharf Drive, 8th Floor
New Haven, Ct 06511


Dear Michele:

This will confirm that the Springwich Cellular Limited Partnership and Quinnipiac College have reached an agreement for the leasing of antenna space on Quinnipiac College's radio station tower, (WQAQ), and interior building space within the Carl Hansen Student Center for your associated radio equipment cabinet located at 275 Mount Carmel Avenue in Hamden, Connecticut.

This letter authorizes you to act for us and our behalf to apply for all necessary local, State and Federal permits, certificates and authorizations which may be required for your use of this location.

Please keep us informed of your progress in these matters. We look forward to having you as a tenant on our tower.

Very truly yours,


Joseph D. Rubertone,
Director of Facilities
Quinnipiac College

CELLULAR ANTENNA

EXHIBIT C
PAGE 1 OF 1

CARL HANSEN STUDENT CENTER

QUINNIPIAC'S

FOUR-BAY
ANTENNA

GUY WIRES
(TYP)

CELLULAR
ANTENNA

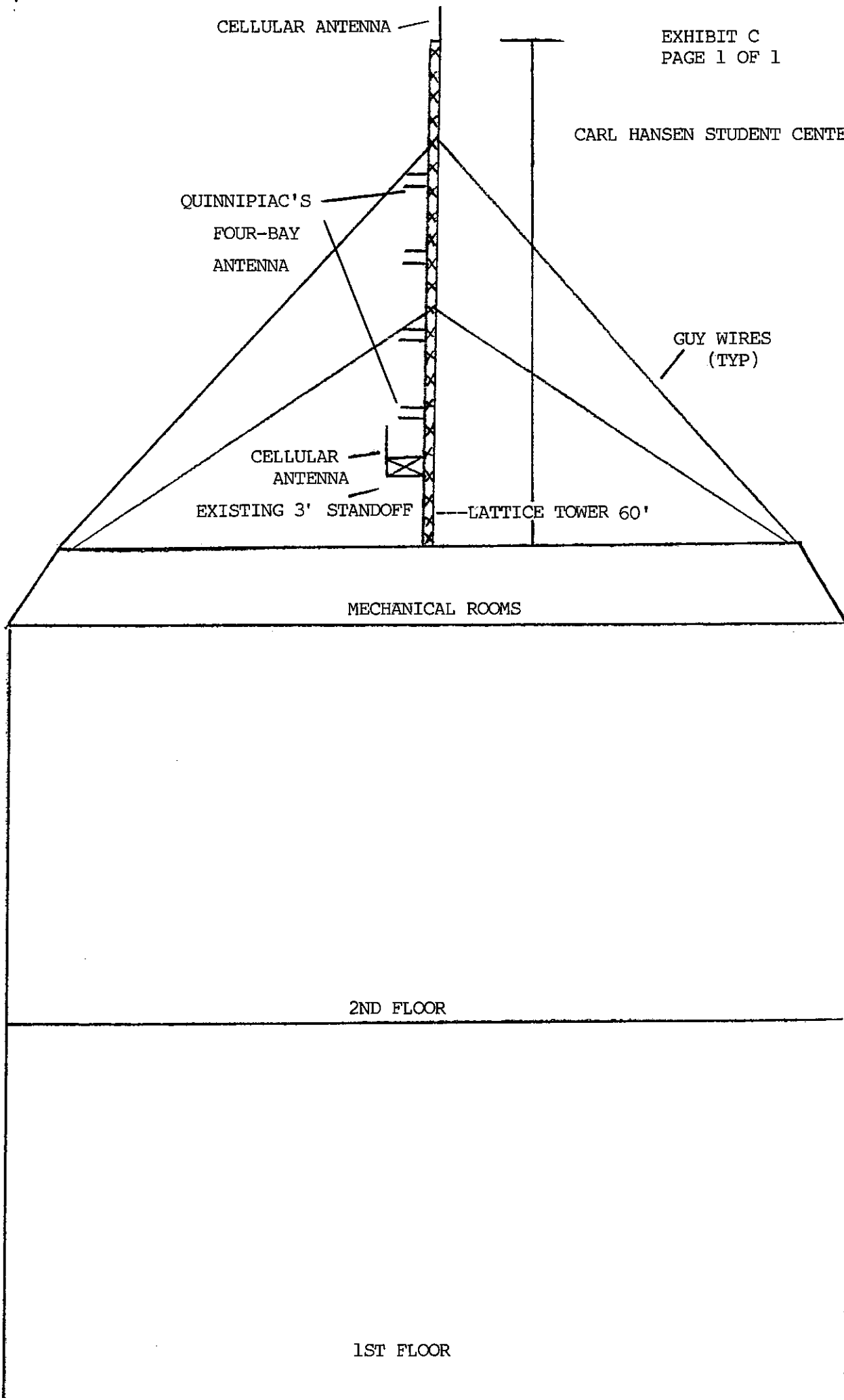
EXISTING 3' STANDOFF

LATTICE TOWER 60'

MECHANICAL ROOMS

2ND FLOOR

1ST FLOOR



HAMDEN

All power density figures are calculated following the IEEE C95.1-1991 standard.

The following three assumptions are applied for a worst-case approximation where the specific make and model of the antenna are unknown, and thus the antenna transmission pattern (main beam and secondary lobes) cannot be determined:

- 1) All antennas are omni-directional in both the horizontal and vertical plane.
- 2) All transmitters are activated simultaneously at full power.
- 3) There is 100% ground reflection of the signal, which results in doubling the signal strength and increasing the power density by a factor of four.

When the specific antenna type and transmission pattern are known, as in the case with the cellular antennas to be used in Hamden, SCLP uses a method of calculation which considers the type of antenna and the power that is emitted from the nearest lobe instead of the main horizontal beam. This results in a more realistic representation of the antennas radiating pattern and its orientation relative to a specific target location.

The formula for power density is:

$$S = \text{EIRP} / \pi R^2$$

where: S = power density.

EIRP = equivalent (or effective) isotropic radiated power.

R = distance to the center of radiation (antenna).

The cellular power density calculation is based on fifty-six channels emitting 100 Watts ERP each.

Since power density is expressed in milliwatts per square centimeter, the following conversions must be made:

- 1 foot = 30.48 centimeters
- 1 Watt = 1,000 milliwatts (abbreviated as mW)
- 1 Watt ERP = 1.64 Watts EIRP (this is the gain of a half-wave dipole relative to an isotropic radiator)

At this location, SCLP will be using the cellular omnidirectional Antenna Specialist ASP 952 antenna. The gain of the lobe nearest to the target location is 13.5 dB down from the main horizontal lobe or main beam (see attached sketch). While the main horizontal lobe emits the full 100 Watts ERP, the nearest secondary lobe emits only 4.467 Watts ERP. 4.467 Watts equals 4467 milliwatts, and is used in the power density formula.

Based on the location and orientation of the cellular antenna (60 feet above the tower base), the nearest lobe is directed at a point 71 feet away from the base of the tower. This location is 110.75 feet away from the antenna, or 3376 centimeters (R).

Substituting all these values into the power density formula, we get:

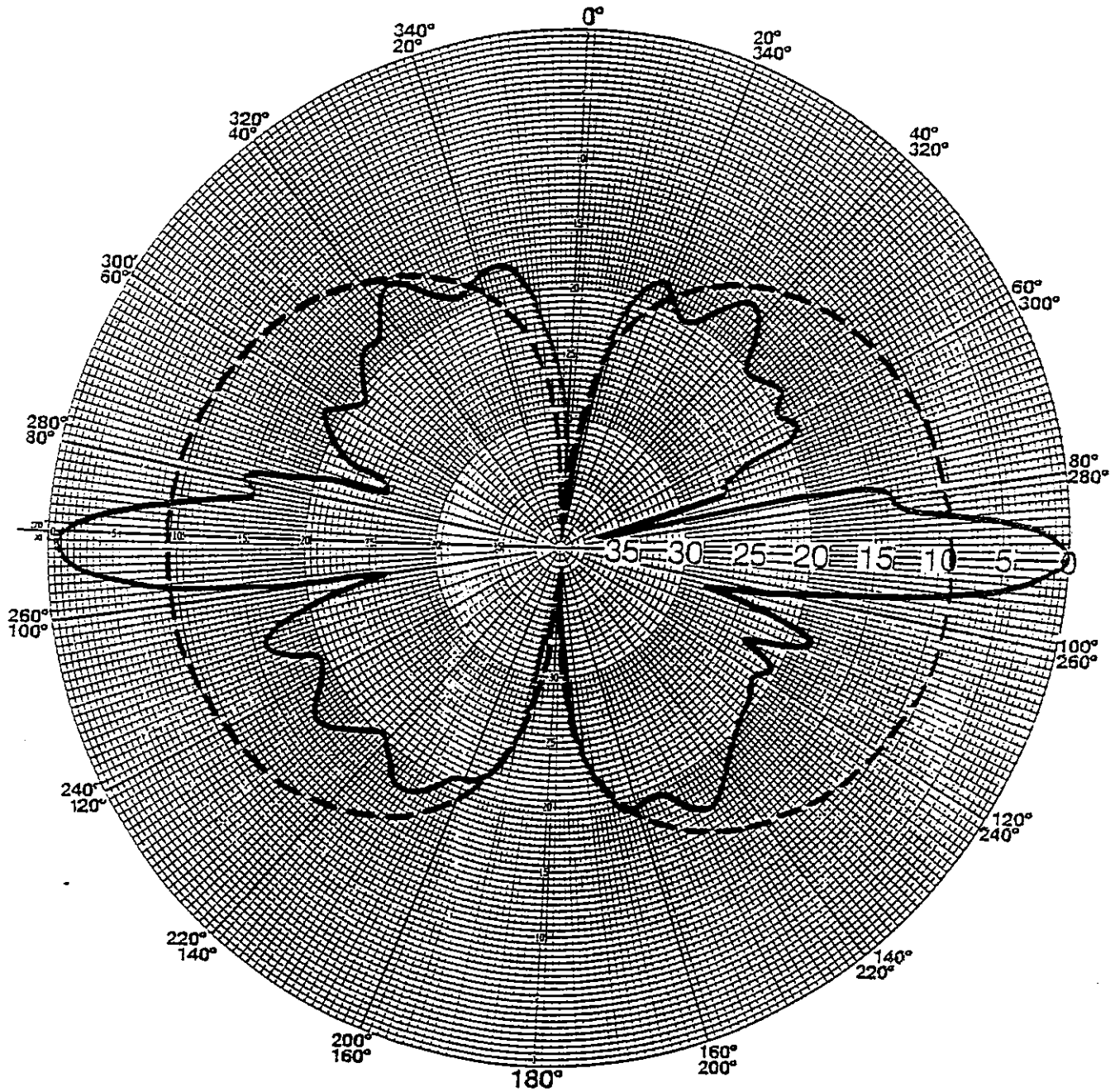
$$S = ((1.64)(56)(4467))/((\pi)(3376)^2) = 0.0114 \text{ mW/cm}^2, \text{ or } .78 \% \text{ of the ANSI and Connecticut Standard.}$$

The power density at the nearest occupied area of the Hamden site (approximately 20 feet from the tower) is actually lower as it is within the "null" between the main beam and secondary antenna lobe.

Because cellular power density in the accessible immediate vicinity is the highest where the nearest secondary lobe is directed (at 71 feet from the tower base), power density for the other antenna on the tower has also been calculated at a distance of 71 feet from the tower base, using the three worst-case assumptions listed above. Those calculations yield the following:

Service	Power Density	Standard	Percent
FM Station	0.0008	0.2000	0.40
Cellular	0.0114	0.5867	1.94

ASP-952 VERTICAL RADIATION PATTERN



----- Dipole Reference



December 9, 1994

Peter J. Tyrrell
Senior Attorney

The Honorable Lillian D. Clayman, Mayor
Town of Hamden
2372 Whitney Avenue
Hamden, CT 06518

Dear Mayor Clayman:

The Springwich Cellular Limited Partnership plans to install cellular antennas and related cellular equipment at the existing radio station tower site owned by Quinnipiac College at 275 Mount Carmel Avenue in Hamden, Connecticut. This location will be used to provide cellular coverage to the Quinnipiac College campus and to the July, 1995 Special Olympics Basketball event to be held at the Quinnipiac College campus in Hamden.

As required by Section 16-50j-73 of the Regulations of State Agencies (RSA), please accept this letter and the attached package to the Connecticut Siting Council (Council) as Notice of Intent of our exempt modification to an existing tower pursuant to RSA Section 16-50j-72(c), and Section 2 of Public Act 93-268, as amended, in Sections 6 and 7 of Public Act 94-242.

Public Act 93-268, as amended, authorizes the Council to grant approval, among other items, for the use of towers not originally certificated by them and the addition of associated equipment enclosures. This avoids a lengthy hearing process for the Town and the proliferation of additional towers by making available numerous towers not previously available for use.

The attached package fully sets forth the Springwich proposal. However, if you have any questions or require further information on these plans or the Siting Council's procedures, please feel free to contact me, or Mr. Joel M. Rinebold, Executive Director, Connecticut Siting Council, at 827-7682.

Very truly yours,

A handwritten signature in cursive script that reads 'Peter J. Tyrrell'.

Copy to: Mr. Joseph D. Rubertone, Director of Facilities,
Quinnipiac College, 275 Mount Carmel Avenue,
Hamden, CT 06518.