



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

Web Site: www.state.ct.us/csc/index.htm

January 9, 2003

William Parker
RCR Development, LLC
1 Kalisa Way, Suite 308
Paramus, NJ 07652

RE: **EM-T-MOBILE-097-021224** - Omnipoint Facilities Networks 2, LLC a/k/a T-Mobile notice of intent to modify an existing telecommunications facility located at 201 South Main Street, Newtown, Connecticut.

Dear Mr. Parker:

At a public meeting held on January 8, 2003, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated December 23, 2002. 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. 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. 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,


Mortimer A. Gelston
Chairman

MAG/laf

c: Honorable Herbert C. Rosenthal, First Selectman, Town of Newtown
Gary Frenette, Zoning Enforcement Officer, Town of Newtown
Julie Donaldson Kohler, Esq., Hurwitz & Sagarin
Sandy M. Carter, Verizon Wireless



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

December 30, 2002

Honorable Herbert C. Rosenthal
First Selectman
Town of Newtown
Town Hall
45 Main Street
Newtown, CT 06470

RE: **EM-T-MOBILE-097-021224** - Omnipoint Facilities Networks 2, LLC a/k/a T-Mobile notice of intent to modify an existing telecommunications facility located at 201 South Main Street, Newtown, Connecticut.

Dear Mr. Rosenthal:

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 tentatively scheduled for January 8, 2003, at 1:30 p.m., in Hearing Room Two, Ten Franklin Square, New Britain, Connecticut.

Please call me or inform the Council if you have any questions or comments regarding this proposal.

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/laf

Enclosure: Notice of Intent

c: Gary Frenette, Zoning Enforcement Officer, Town of Newtown

RCR Development, LLC

1 Kalisa Way, Suite 308
Paramus, New Jersey 07652
O (201) 262-2229 F (201) 262-2126

December 23, 2002

RECEIVED

DEC 24 2002

**CONNECTICUT
SITING COUNCIL**

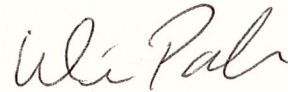
S. Derek Phelps
Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: T-Mobile notice of intent to modify an existing telecommunications facility located at 201 South Main Street, Newtown, CT.

Dear Mr. Phelps:

Enclosed please find the original T-Mobile Connecticut Siting Council Application for **CT-11-217A**, twenty copies of the application, a check in the amount of Five Hundred Dollars for the Connecticut Siting Council filing fee and a self-stamped address envelope. Please use the envelope to mail back a stamped copy of the application to our office.

Respectfully submitted,



William Parker

RCR Development, LLC

1 Kalisa Way, Suite 308
Paramus, New Jersey 07652
O (201) 262-2229 F (201) 262-2126

RECEIVED

DEC 24 2002

**CONNECTICUT
SITING COUNCIL**

December 23, 2002

S. Derek Phelps
Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: T-Mobile notice of intent to modify an existing telecommunications facility located at 201 South Main Street, Newtown, CT.

Dear Mr. Phelps:

Please be advised that Richard Connor Riley & Associates, L.L.C. is acting as agent for Omnipoint Facilities Networks 2, LLC, a subsidiary of T-Mobile International AG ("T-Mobile") in the above-referenced matter. T-Mobile hereby requests an order from the Connecticut Siting Council ("Council") to approve the proposed upgrade of existing equipment, currently approved for shared use by the applicant of an existing tower located at 201 Main Street, Newtown, CT. T-Mobile proposes to replace three existing antennas (one per sector) with twelve new antennas (four per sector) at the same elevation on the existing tower. Two new Nortel S12000 BTS cabinets will be added adjacent to the existing equipment (see "Exhibit A"). Please accept this letter as notification, pursuant to R.C.S.A. § 16-50J-73, of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50J-72(b)(2). In accordance with R.C.S.A. § 16-50J-73, a copy of this letter is being sent to the Honorable Herbert Rosenthal, First Selectman of the Town of Newtown.

Background

Effective as of the May 31, 2001 merger between Deutsche Telekom AG and T-Mobile, the corporate structure of T-Mobile has changed. T-Mobile holds the "A block" "Wideband PCS" license for the 2-GHz PCS frequencies for the greater New York City area, including the entire State of Connecticut. T-Mobile is licensed by the Federal Communications Commission (FCC) to provide PCS wireless telecommunications service in the State of Connecticut, which includes the area to be served by the proposed installation.

The tower at 201 South Main Street is a 150 foot tower located on a Georgia-Pacific Corporation site. The coordinates for the site are 41°-22'-41.4" N and 73°-16'-76.74" W. The surrounding land is owned by Georgia-Pacific Corporation. T-Mobile is the tower owner.

The compound layout of the tower site is shown in the attached Exhibit A. Currently, the tower holds other communication antennas operated by Sprint and Verizon. Existing antennas are shown on the elevation drawing LE-3 as part of Exhibit A. T-Mobile proposes to remove its current antennas with a RAD center elevation of approximately one hundred fifty foot (150') above ground level. T-Mobile

proposes to replace the three existing panel antennas with twelve new antennas mounted on existing mounts. The new antennas will be comprised of an antenna array of three sectors, with four antennas per sector at the same RAD center elevation of one hundred fifty foot (150') above ground level. The model number for each new antenna is EMS RR90-17-02 DP. The radio transmission equipment associated with these antennas will also be updated. As stated above, two new Nortel S12000 BTS cabinets mounted on an extension of the existing concrete pad as shown in Exhibit A. Location Base E-911 Equipment will also be installed. The actual location of that equipment is to be determined (see note 7 of LE-3 - 3rd page of Exhibit A). No changes will be made to the compound fence, nor will the size of the compound be affected. Exhibit B contains specifications for the proposed antennas and equipment cabinets.

The planned modifications to the Newtown facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not increase the height of the tower. T-Mobile's new antennas will be installed with a RAD elevation of approximately one hundred fifty foot (150') above ground level, the same height of its existing antennas. Also, there is no increase in the vertical dimensions of the new antennas. The tower drawing attached as LE-3 of Exhibit A confirms that the planned changes will not increase the overall height of the tower.
2. The installation of T-Mobile equipment, as reflected on the site plan attached as LE-2 of Exhibit A, will not require an extension of the site boundaries. T-Mobile's proposed equipment cabinets will be in addition to existing equipment and located entirely within the existing compound.
3. The proposed modification to the facility will not increase the noise levels at the existing facility by six decibels or more. T-Mobile's equipment is self-contained and requires no additional heating, ventilation or cooling equipment.
4. The operation of the additional antenna will not increase the total radio frequency (RF) power density, measured at the site boundary, to a level at or above the applicable standard. The "worst-case" RF power density calculations, for a point at the site boundary, are attached hereto as Exhibit D.

For the foregoing reasons, T-Mobile respectfully submits that the proposed addition of antennas and equipment at the Newtown facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Thank you for your consideration of this matter.

Respectfully submitted,
RICHARD CONNOR RILEY & ASSOCIATES AS AGENT FOR Omnipoint Facilities Networks 2, LLC.



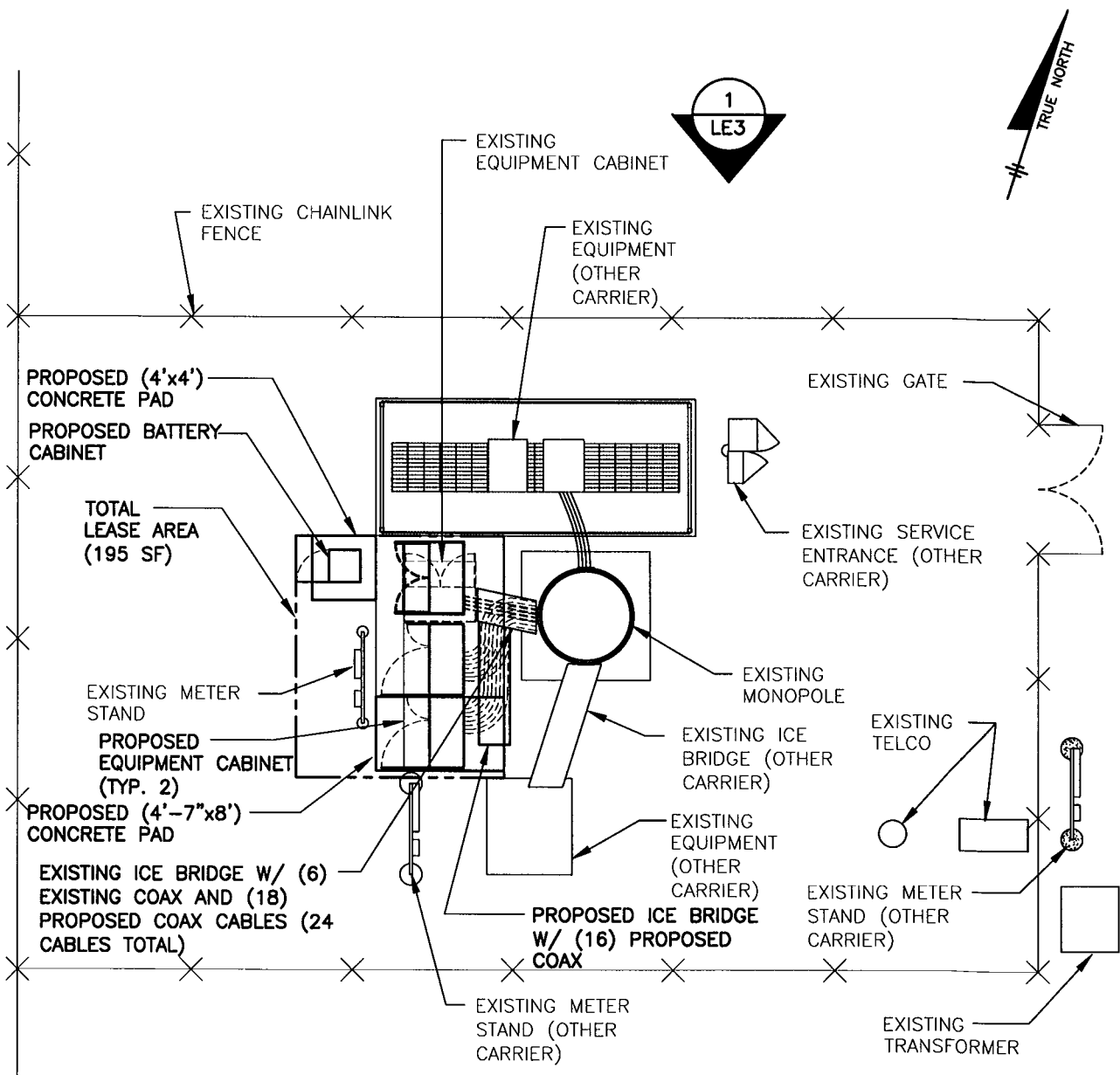
William Parker

Attachments

cc: Honorable Herbert Rosenthal, First Selectman, Town of Newtown
Thomas J. Paternoster, Chief Building Official, Town of Newtown

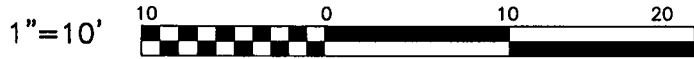
Exhibit A

Compound Layout



TOTAL LEASE AREA: 195 SF

OVERALL SITE PLAN
SCALE: 1"=10'



1. THE OWNER AND OMNIPPOINT HEREBY AGREE TO THE GENERAL CONCEPTUAL DESIGN DEPICTED ON THIS LEASE EXHIBIT. THE EXACT LOCATIONS OF EQUIPMENT, CABLES, UTILITIES, AND ANTENNAS ARE SUBJECT TO FINAL ENGINEERING DESIGN AND MAY VARY TO COMPLY WITH ALL APPLICABLE CODES.
2. THE INFORMATION SHOWN IS TAKEN FROM A TAPE SURVEY PERFORMED BY "PACIFIC 17" DURING THE SITE VISIT.
3. 24/7 ACCESS IS REQUIRED FOR OMNIPPOINT SERVICE TECHNICIAN.
4. ELECTRIC AND TELEPHONE SERVICES SHALL BE CONFIRMED PRIOR TO CONSTRUCTION DOCUMENT PHASE.
5. FUTURE GOVERNMENT MANDATES - NOTWITHSTANDING ANYTHING TO THE CONTRARY IN THE AGREEMENT, LESSEE SHALL ALSO HAVE THE RIGHT, AT ITS SOLE EXPENSE, TO ERECT AND MAINTAIN ON THE PREMISES, ANY EQUIPMENT OR SYSTEM THAT, IN THE FUTURE, MAY BE MANDATED BY ANY FEDERAL, STATE, COUNTY, OR MUNICIPAL AGENCY/DEPARTMENT, INCLUDING A LOCATION-BASED SYSTEM, WHICH MAY CONSIST OF, WITHOUT LIMITATION, ANTENNA(S), COAXIAL CABLES, BASE UNITS AND OTHER ASSOCIATED EQUIPMENT.
6. TRUE NORTH SHOWN FOR REPRESENTATION ONLY. CONTRACTOR SHALL VERIFY TRUE NORTH AND ESTABLISH ANTENNA ORIENTATIONS ACCORDINGLY.
7. LOCATION BASED SYSTEM (E-911 EQUIPMENT) TO BE INSTALLED - NOT DEPICTED

LANDLORD:
RR CELLCO PARTNERSHIP
D/B/A VERIZON

OWNER INITIALS:
DATE:

OCI INITIALS:
DATE:

APPLICANT/OWNER:
OMNIPPOINT COMMUNICATIONS INC.

AS AGENT FOR:
OMNIPPOINT FACILITIES NETWORK 2, LLC

LEASE EXHIBIT

SITE ADDRESS:
**NEWTOWN ROUTE 25
201 MAIN STREET
NEWTOWN, CT 06470**

ALCMA

AFL Telecommunications
Wireless Division
Pacific 17, Inc
2000 Romney Parkway, Suite 180
Cary, NC 27511-4596
Office (919) 442-0981
Fax (919) 442-0988

REV.	DATE	DESCRIPTION
1	11/12/02	RE-ISSUED FOR LEASE
0	10/9/02	ISSUED FOR LEASE
A	9/20/02	ISSUED FOR REVIEW

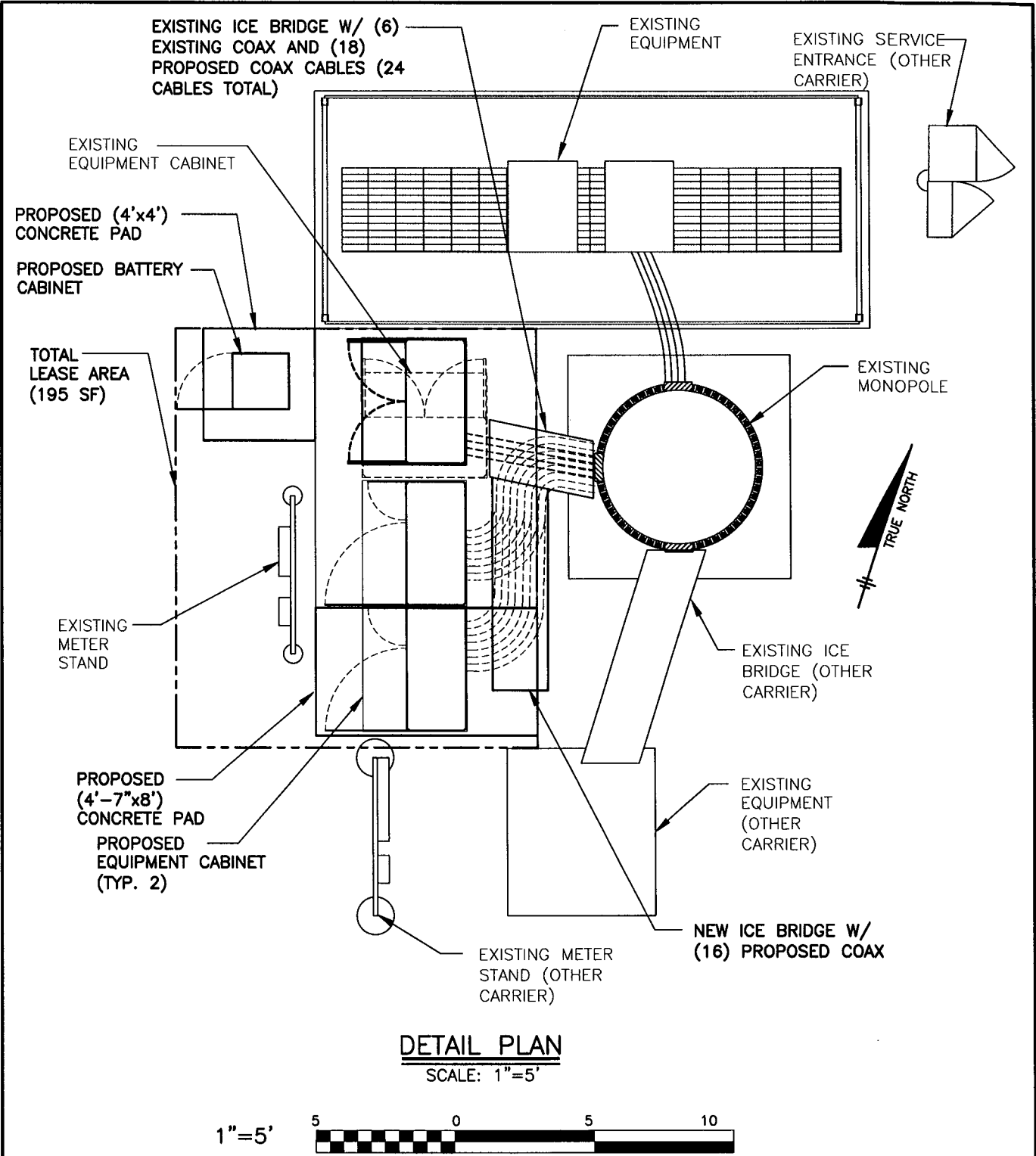
Scale: AS NOTED Date: 9/20/02

Job No. 1356-011 Dwn. By: JOH

Dwg. No.
LE-1

SITE ID NO.
CT-11-217A

Dwg. 1 OF 3



1. THE OWNER AND OMNIPPOINT HEREBY AGREE TO THE GENERAL CONCEPTUAL DESIGN DEPICTED ON THIS LEASE EXHIBIT. THE EXACT LOCATIONS OF EQUIPMENT, CABLES, UTILITIES, AND ANTENNAS ARE SUBJECT TO FINAL ENGINEERING DESIGN AND MAY VARY TO COMPLY WITH ALL APPLICABLE CODES.
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DATE:

APPLICANT/OWNER:
OMNIPPOINT
COMMUNICATIONS INC.

AS AGENT FOR:
OMNIPPOINT FACILITIES NETWORK 2, LLC

LEASE EXHIBIT

SITE ADDRESS:
**NEWTOWN
ROUTE 25
201 MAIN STREET
NEWTOWN, CT 06470**

ALCOA

AFL Telecommunications
Wireless Services
Pacific 17, Inc
2000 Regency Parkway, Suite 150
Cary, NC 27511-6504
Office (919) 442-0981
Fax (919) 442-0988

REV.	DATE	DESCRIPTION
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0	10/9/02	ISSUED FOR LEASE
A	9/20/02	ISSUED FOR REVIEW

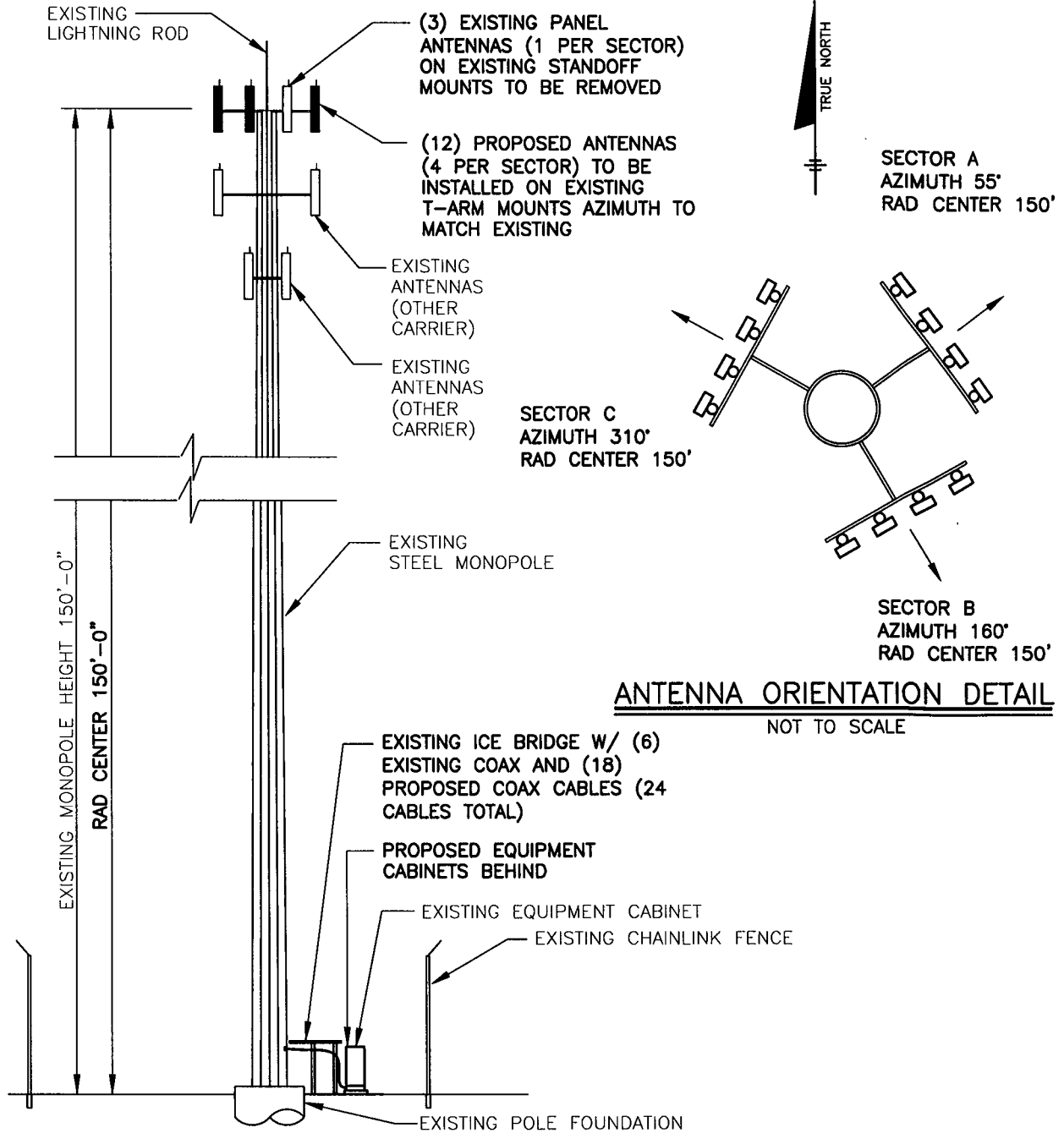
Scale: AS NOTED Date: 9/20/02

Job No. 1356-011 Dwn. By: JOH

Dwg. No.
LE-2

SITE ID NO.
CT-11-217A

Dwg. 2 OF 3



ELEVATION 1
NOT TO SCALE LE3

1. THE OWNER AND OMNIPPOINT HEREBY AGREE TO THE GENERAL CONCEPTUAL DESIGN DEPICTED ON THIS LEASE EXHIBIT. THE EXACT LOCATIONS OF EQUIPMENT, CABLES, UTILITIES, AND ANTENNAS ARE SUBJECT TO FINAL ENGINEERING DESIGN AND MAY VARY TO COMPLY WITH ALL APPLICABLE CODES.
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201 MAIN STREET
NEWTOWN, CT 06470**

ALDA

AFL Telecommunications
Wireless Services
Pacfile 17, Inc
2000 Regency Parkway, Suite 190
Cary, NC 27511-5008
Office (919) 442-0981
Fax (919) 442-0988

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0	10/9/02	ISSUED FOR LEASE
A	9/20/02	ISSUED FOR REVIEW

Scale: AS NOTED Date: 9/20/02

Job No. 1356-011 Dwn. By: JOH

Dwg. No.
LE-3

SITE ID NO.
CT-11-217A

Dwg. 3 OF 3

Exhibit B

Equipment Specifications



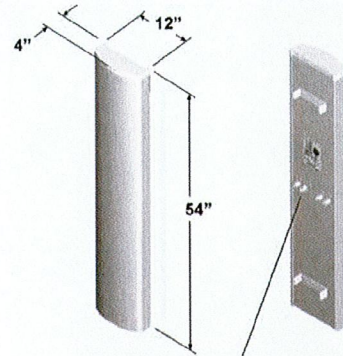
DR85-17-XXDPL2Q

Dual DualPol® Polarization
1850 MHz - 1990 MHz

OptiRange™
Suppressor™

Electrical Specifications

Azimuth Beamwidth (-3 dB)	88°
Elevation Beamwidth (-3 dB)	6.4°
Elevation Sidelobes (Upper)	≥ 14.5 dB
Gain	16.2 dBi (14.1 dBd)
Polarization	Quad Linear, Slant (± 45°)
Port-to-Port Isolation	≥ 30 dB
Front-to-Back Ratio	≥ 33 dB
Electrical Downtilt Options	2°, 4°, 6°
VSWR	1.35:1 Max
Connectors	4; 7-16 DIN (female)
Power Handling	250 Watts CW
Passive Intermodulation	≤ -150 dBc [2 x 20W (+ 43 dBm)]
Lightning Protection	Chassis Ground



RF CONNECTORS



Mechanical Specifications

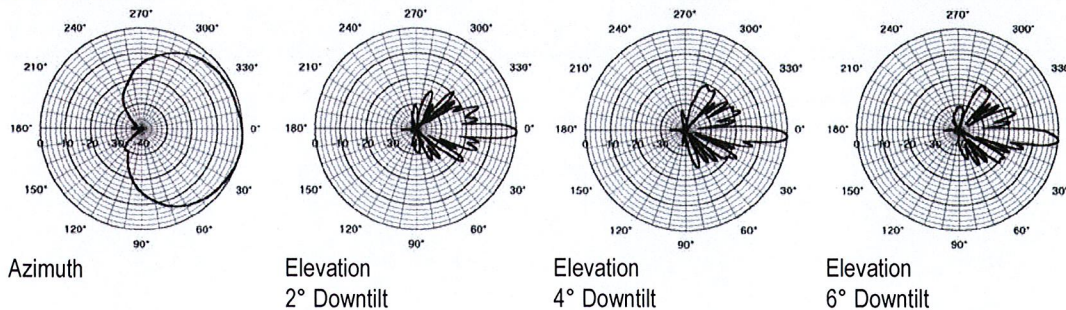
Dimensions (L x W x D)	54 in x 12 in x 4 in (137.2 cm x 30.5 cm x 10.2 cm)
Rated Wind Velocity	130 mph (209 km/hr)
Equivalent Flat Plate Area	4.5ft² (.42 m²)
Front Wind Load @ 100 mph (161 kph)	130 lbs (576 N)
Side Wind Load @ 100 mph (161 kph)	43 lbs (192 N)
Weight	24 lbs (11 kg)

Mounting Options

MTG-P00-10, MTG-S02-10, MTG-DXX-20*, MTG-CXX-10*, MTG-C02-10, MTG-TXX-10*

Note: *Model number shown represents a series of products. See Mounting Options section for specific model number.

Patterns



Revised 05/14/02

Nortel Networks

BTS S12000

As the mature GSM industry moves into the world of data, pressure has increased on capacity and so network enhancement and development costs are rising. The S12000 BTS is a product that should meet the needs of a mature GSM market by increasing site capacity and at the same time lowering the risks and the costs of introduction for existing S8000 customers. The S12000 BTS is aimed at offering high capacity in a cost effective unit, giving the right balance between product advancement, increased capacity and reduced costs.

The S12000 is built on an existing stable platform, the S8000, which is known for its quality and robustness. The reuse of a considerable amount of technology should help lower the risk and cost for the operators when introducing this new product into a mature network.

In the GSM voice and packet data environment, Nortel Networks offers an industry winning mix of quality, support and know-how only available from a company with a pedigree in carrier grade products covering voice and data.

The high capacity cell site

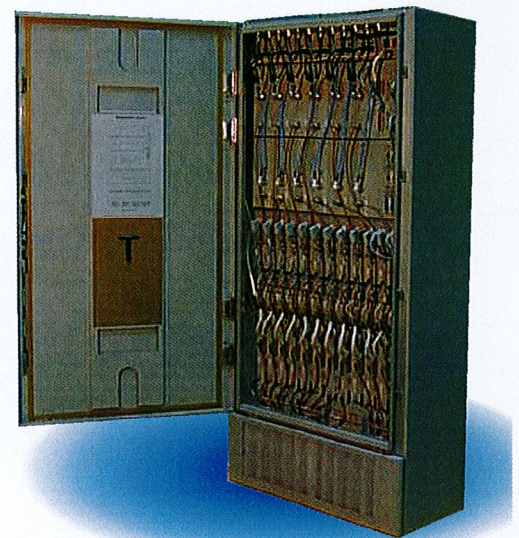
Pressure is building on GSM network capacity and spectrum efficiency. To address the growing needs of GSM capacity, Nortel Networks is introducing the S12000 BTS, which is an innovative development of the S8000 BTS. This innovative approach to network expansion and development is aimed at providing high capacity sites installed with low risk, reduced network impact and a lower cost of ownership.

The approach should bring protection for past investments and operational efficiency. New high capacity sites can now be added to the network or existing S8000 sites can be extended with the S12000 providing a single integrated high capacity BTS. A granularity of one carrier per TRX module adds to the flexibility of the S12000.

The S12000 could become a key component to the delivery of more capacity within a GSM/GPRS network and to drive down network costs. The S12000 offers nearly double the capacity of the S8000, thereby offering a more compact site and improved operational efficiency.

Lowering the cost of ownership and network introduction

It is not just the introduction of this evolution of a field proven and reliable technology that should reduce the cost of ownership but also the reduced spares holding and training requirements. By the design of the S12000, Nortel Networks has aimed to reduce the cost of introducing the S12000 into a mature GSM network. The S12000 should offer



the operator considerable savings in CAPEX and OPEX since all modules and skills are usable within the S8000 and S12000 BTS. The operator does not have to change the network Engineering and Operational procedures on the existing S8000 network.

Low introduction costs are invaluable when facing the financial pressures of network enhancements such as GPRS or new services such as UMTS. The use of the S12000 should put the operator in a position to make efficient use of all resources and reduce network complexity relieving pressure on investment and cash flow.

NORTEL
NETWORKS™

Modular and flexible

The S12000 supports twelve TRX per cabinet and offers cost effective configurations from 2 to 16 TRX per cell in a tri-sector configuration. A dual band configuration of 6 + 6 TRX can be supported in a single cabinet for all coupling configurations. The integrated extension of existing S8000 sites gives increasable flexibility and investment protection.

High Performance

The Nortel Networks family of BTS holds a high market position for reliability, operability and service quality. The BTS provides high quality voice and data services, high coverage and building penetration and smooth call handovers.

It possesses many advanced RF feature to improve spectral usage and optimisation and so increase available capacity. The planned introduction of AMR and EDGE capabilities in the near future should further enhance spectrum efficiency. These high performance qualities are extremely important with the introduction of GPRS services.

The high performance radio and advanced digital processing of the S12000 provide one of the highest receive sensitivity in the market today, offering -115 dBm guaranteed and without the need for masthead amplifiers (-117dBm typical). The high performance radio enhances the resistance to interference, improving voice quality, data throughput, cell

coverage and service availability. Nortel Networks experience in frequency hopping, fractional re-use, cell tiering and multi-layer management algorithms provide high spectrum efficiency which releases more capacity from a fixed allocation of spectrum.

Growing the business and ensuring success

The S12000 is future ready. The high capacity and flexibility, the introduction of AMR and EDGE, puts the operator in a position to meet the challenges and opportunities of GSM/GPRS. These advantages should enable the operator to capture new revenue, improve profitability and gain a better return on investment as the network develops and moves forward.

Technical Specifications

Frequency range		900 MHz GSM / 900 MHz Extended GSM 1800 MHz GSM and Dual Band GSM 900 / 1800 850 MHz GSM 1900 MHz GSM and Dual Band GSM 850 / 1900
Receive sensitivity	w/o diversity with diversity	-110 dBm guaranteed (w/o TMA) -115 dBm guaranteed (w/o TMA)
Dimensions	Height Width Depth	1950 mm 910 mm 450 mm
Weight	Empty cabinet Fully equipped	125 kg 345 kg
Capacity	Standard Optional	12 TRX per radio cabinet Up to 3 radio cabinets Up to 4 radio cabinets
Configuration	Monoband Trisectorial Dual Band Trisectorial Cell Splitting	Up to S16-16-16 (4 radio cabinets) S222_222 (1 radio cabinet) Mono-BCCCH dual band cells Cell splitting across radio cabinets
Amplifier output power	Standard Optional	30W (+/- 0.5 dB) 60W (+/- 0.5 dB)
Transmission coupling		All coupling configurations From Duplexers to 4 Ways Hybrid Coupling (H4D)
Power control	Static Dynamic	6 steps of 2 dB 15 steps of 2 dB
Frequency Hopping		RF Synthetised
Supported vocoders		Full Rate (FR) Enhanced Full Rate (EFR) Adaptive Multi-Rate - Full Rate (AMR FR) Adaptive Multi-Rate - Half Rate (AMR HR)
Encryption algorithms		A5/1 & A5/2
Power supply	Nominal	DC -48 V
Operational temperature range		-5°C to +45°C
Max acoustic noise		65 dB(A)
Backhaul	Standard Optional	6 E1 / T1 links 8 E1 / T1 links

In North America,
the Caribbean,
and Latin America :
Tel : 1-800-4-Nortel
or 1-506-674-5470

In Europe,
Middle East,
and Africa :
Tel : 00-800-8008-9009*
or +44 (0)20 8920 4618

In Asia :
Tel : 65-287-2877

for more information contact your Nortel
Networks account representative, or visit :
www.nortelnetworks.com/contact

* call are not from all European Countries.

www.nortelnetworks.com

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66185.13/02-02

NORTEL
NETWORKS™

Exhibit C

Structural Analysis

**AFL Telecommunications
Wireless Services
Pacific 17, Inc.
Structural Analysis
For
Omnipoint Communications, Inc.
Of
150 ft Monopole**

**Site Number: CT-11-217
Site Location: 201 S. Main Street
Newton, Connecticut
Date: November 5, 2002
1356.011**



AFL Telecommunications

**Wireless Services
Pacific 17, Inc**

485 North Keller Road, Suite 180
Maitland, Florida 32751
Office (407) 661-1765
Fax (407) 661-1766

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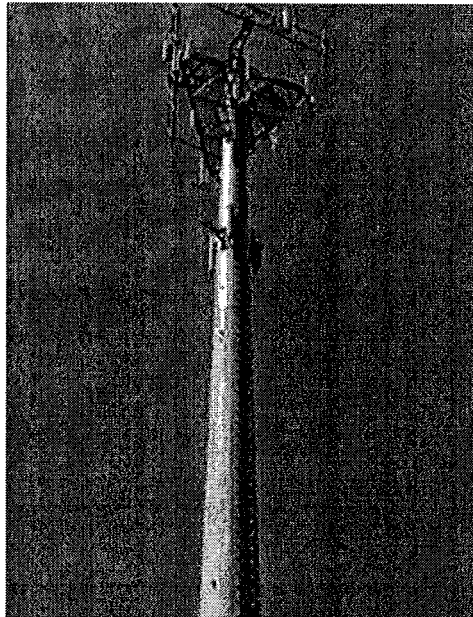
Appendix

- Monopole Analysis Output
- Appurtenance Loads
- Drawings
 - LE-1 Site Plan
 - LE-2 Detail Plan
 - LE-3 Elevation

INTRODUCTION

At the request of Omnipoint, Pacific 17 has performed a structural analysis on the telecommunication structure of site CT-11-217 in Newton, Connecticut. The analysis is based on information obtained from monopole manufacturer's drawing Pirod Inc (drawing # 151455-B) issued on 10/17/2000 and site photos.

At this site, AFL Telecommunications investigated the effects of adding (12) EMS RR65-19-00 panel antennas w/ (24) 1 5/8" dia. coax cables on the pole with a rad center of 150' AGL.



SITE LOCATION

This site is located at 201 South Main Street, Newton, Fairfield County, Connecticut. The basic wind speed prescribed by EIA 222-F is 85 mph with no ice and 74 mph with 1/2" of ice.

REPORT SUMMARY

This statement highlights the conclusion section. Additional information, assumptions and requirements are contained within this report and should be reviewed. Passed indicates modification is within allowable stress range. Failed indicates modification is outside allowable stress range and recommendations are contained within.

STRUCTURAL ANALYSIS: PASSED
FOUNDATION ANALYSIS: PASSED

ANALYSIS CRITERIA AND LOADING

The monopole is analyzed with the existing appurtenances along with the proposed configuration of antennas and coaxial cables. Its behavior was studied under the provisions of TIA/EIA-222-F with a wind speed of 85 mph with no radial ice (74 mph with ½" radial ice). The following table lists the appurtenance loading considered for the analysis:

Elevation (ft)	Antenna		Mounting		Coaxial Transmission Cables	
	Qty	Type	Qty	Type	Qty	Dia. (in.)
150	3	Existing panel antennas	3	T-frame mounts	3	1-5/8"
	12	Proposed Omnipoint EMS RR 65-1900		Shared same mount as existing panel antennas	24	1-5/8"
140	6	Existing panel antennas	1	Low profile platform	6	1-5/8"
130	3	Existing panel antennas		Flush mounted	3	1-5/8"

Since some of the mechanical and physical properties of the existing appurtenances were unavailable, the dimensions have been determined from pictures and measurements taken during site visits. Their weight was established from catalogs of manufacturers who developed similar mountings and antennas. If Omnipoint has more specific information about the existing appurtenances mounted on this tower, it should be forwarded to AFL Telecommunications for review.

METHOD OF ANALYSIS

The analysis was performed with the help of the software PLS Pole. A model of the structure was created with the information contained in pole manufacturer's drawing (drawing # 151455-B) issued on October 17, 2000 by Pirod, Inc. The model was analyzed under the provisions of EIA/TIA 222-F.

Allowable stresses were compared with the maximum stresses developed for each member and connection of the tower under extreme weather conditions. The proper material properties and end connectivity were assigned to each member to reflect the structural behavior of the tower. All coaxial transmission cables are considered inside the pole.

RESULTS

A. Steel Members

The following represents the performance characteristics of the tower members under extreme wind loads. The capacities of the members and connections include the EIA allowable stress increase of 33% for wind load cases. The results of the analysis are confined in the output excerpt included in appendix A of this report. The value 1.00 represents full capacity used with no reserve.

ELEVATIONS	LOAD/CAPACITY
0'-32'	0.60
32'-65'	0.53
65'-98'	0.44
98'-133'	0.36
133'-150'	0.15

All structural members are within allowable capacity.

B. Foundations

The foundation design reactions obtained from this analysis are compared with the values provided by the manufacturer's design drawings. The following lists the magnitude of the reactions at the base of the tower.

REACTIONS	ANALYSIS	DESIGN
SHEAR	21.7 kips	21.9 kips
DOWNWARD	40.9 kips	37.4 kips
MOMENT	2040.6 kips-ft	2347 kips-ft

The magnitudes of the current shear and moment analysis reactions are equal or lesser than the original design base reactions values. The downward analysis reaction is larger than the downward design reaction by 9%. The amount of overstress is within the acceptable engineering tolerance. Therefore the existing foundation is judged to be adequate to withstand the proposed loadings

C. Tower Deflections

During extreme wind, the structure will undergo displacements that will affect the performance of the emitting equipment. They are presented for information only and should be forwarded to an RF Engineer.

85 mph with no ice

LOCATION	LATERAL (FT)	SWAY (DEGREE)
TOP OF TOWER/PROPOSED ANTENNA	4.4	0.00

D. Existing Mounting

The existing antenna T-frame mounting is judged adequate to support the new configuration of antennas. The existing mounting will accommodate a minimum of clear spacing of 36" between the antennas.

CONCLUSIONS:

The analysis of the telecommunication monopole located on Omnipoint site CT-11-217 in Newton, Connecticut was based on the tower configuration provided by Pirod, Inc (drawing # 151455-B) issued on 10/17/2000.

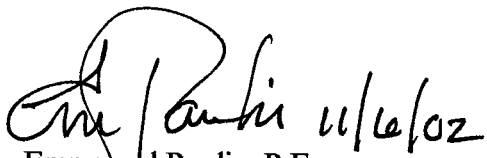
The results of this analysis are based on:

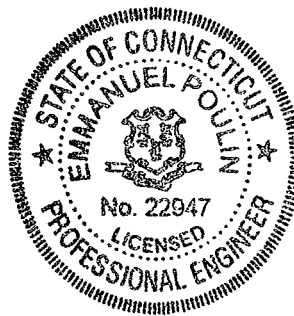
- The current antenna configuration as of July 2002. Future collocations foreseen by Omnipoint (other than the one listed in this report) or by other carriers have not been considered in this analysis.
- All structural members are assumed free of deficiencies.
- Proper tower alignment.
- The structure is plumb and its condition is essentially as erected.

The results of this report are conditional upon the placement of the (24) 1-5/8" dia. new coaxial transmission lines inside of the monopole. The results are also conditional upon the installation of the new Omnipoint antennas on the existing T-frame mounting with an effective wind area of no more than 72 ft² (including 1/2" of ice) per sector. Should either one of these conditions be violated, the results of this report will be null and void.

Consequently, Pacific 17 recommends the addition of (12) EMS RR65-19-00 panel antennas with (24) 1-5/8" internal coaxial transmission cables at 150 ft AGL on the #CT-11-217 telecommunication monopole located in Newton, Connecticut.

Pacific 17 is extremely pleased to support Omnipoint in its infrastructure development. If you have any question, contact us immediately at (407) 661-1765.


Emmanuel Poulin, P.E.
Engineering Manager
AFL Telecommunications



PROVISIONS OF ANALYSIS & DISCLAIMER

The analysis and the conclusions contained in this report are based only on information obtained from Omnipoint wireless and from site visits. No visual inspection of the roof structure was possible due to the restricted access on the floor below the roof of the building at the location of the platform. The engineer declines any responsibility for damages that were originated prior to modification of the platform frame.

In addition, it is assumed that the structure has been properly built and maintained, including, but not limited to the following:

- No significant deterioration or damage to any component.
- The condition of the building is essentially as originally erected.
- No loads exceeding the design capacity of the building are attached to the structure.

Furthermore, the information and conclusions contained in this report were determined by application of the industry standard engineering and analysis procedures and formulae. The engineer assumes no obligations to revise any of the information or conclusions contained in this report in the event that such engineering and analysis procedures and formulae are hereafter modified or revised.

Appendix

- **Monopole Analysis Output**
- **Appurtenance Loads**

Monopole Analysis Output

Project Name : VOICESTREAM NY-WESTON CT-11-118C
 Project Notes: COLLOCATION ANTENNAS
 Project File : r:\1356.000 voicestream new york\003 weston\engineering\pls pole
 model\weston ct-11-118c steel monopole model.pol
 Date run : 10:08:44 AM Tuesday, October 22, 2002
 by : PLS-POLE Version 5.30
 Licensed to : Pacific 17

Successfully performed nonlinear analysis

The model has 0 warnings.

Loads from file: r:\1356.000 voicestream new york\003 weston\engineering\pls pole
 model\weston ct-11-118c steel monopole loads.eia

*** Analysis Results:

Maximum element utilization is 120.71% for Foundation "POLE:g" in load case "74MPH WIND
 WITH ICE" NG

Maximum insulator utilization is 46.07% for Clamp "CANT1" in load case "74MPH WIND WITH
 ICE"

Summary of Joint Support Reactions For All Loadcases:

Long.	LoadCase		Joint	Long.	Tran.	Vert.	Shear	Tran.
Moment	Vert.	Bending	Label	Force	Force	Force	Force	Moment
(k)	(ft-k)	(ft-k)		(kips)	(kips)	(kips)	(kips)	(ft-k)
1648.09	-0.00	3428.34	POLE:g	-17.02	-17.65	73.40	24.52	3006.21
1325.95	-0.00	3092.31	POLE:g	-13.49	-16.24	84.50	21.11	2793.61

Summary of Tip Deflections For All Loadcases:

Note: postive tip load results in positive rotation

Tran.	LoadCase		Joint	Long.	Tran.	Vert.	Resultant	Long.
Rot.	Twist		Label	Defl.	Defl.	Defl.	Defl.	Rot.
(deg)	(deg)			(in)	(in)	(in)	(in)	(deg)
-3.36	0.01		POLE:t	28.69	73.48	-1.90	78.91	1.18
-3.14	0.01		POLE:t	23.35	68.50	-1.62	72.39	0.96

Tubes Summary:

Pole Label	Tube Num.	Weight (lbs)	Load Case	Maximum Usage %	Resultant Moment (ft-k)
POLE	1	1218	74MPH WIND WITH ICE	4.42	31.55
POLE	2	2622	85MPH WIND NO ICE	21.53	196.92
POLE	3	2869	85MPH WIND NO ICE	44.01	483.39
POLE	4	3116	85MPH WIND NO ICE	65.85	854.20
POLE	5	3363	85MPH WIND NO ICE	82.36	1241.78
POLE	6	3610	85MPH WIND NO ICE	95.13	1647.37
POLE	7	5155	85MPH WIND NO ICE	78.73	2072.03
POLE	8	6872	85MPH WIND NO ICE	67.54	2510.47
POLE	9	7284	85MPH WIND NO ICE	71.23	2962.54
POLE	10	9254	85MPH WIND NO ICE	61.66	3428.34

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress

Summary of Steel Pole Usages:

Steel Pole Label	Maximum Usage %	Load Case	Segment Number
POLE	95.13	85MPH WIND NO ICE	23

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
85MPH WIND NO ICE	104.86	POLE:g	Foundation NG
74MPH WIND WITH ICE	120.71	POLE:g	Foundation NG

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Segment Number
85MPH WIND NO ICE	95.13	POLE	23
74MPH WIND WITH ICE	88.15	POLE	23

*** Weight of structure (lbs):

Weight of Steel Poles: 45362.2
 Total: 45362.2

*** End of Report

Project Name : VOICESTREAM NY- CT-11-217
 Project Notes: COLLOCATION ANTENNAS
 Project File : r:\1356.000 voicestream new york\011\engineering\ct-11-217 150ft steel
 monopole model.pol
 Date run : 10:14:16 AM Tuesday, October 22, 2002
 by : PLS-POLE Version 5.30
 Licensed to : Pacific 17

Successfully performed nonlinear analysis

The model has 0 warnings.

Loads from file: r:\1356.000 voicestream new york\011\engineering\ct-11-217 150ft steel monopole loads.eia

*** Analysis Results:

Maximum element utilization is 109.16% for Foundation "POLE:g" in load case "74MPH WIND NO ICE" NG

Maximum insulator utilization is 65.41% for Clamp "CANT1" in load case "85MPH WIND NO ICE"

Summary of Joint Support Reactions For All Loadcases:

Long.	LoadCase		Joint	Long.	Tran.	Vert.	Shear	Tran.
	Vert.	Bending						
Moment	Moment	Moment	Label	Force	Force	Force	Force	Moment
k)	(ft-k)	(ft-k)		(kips)	(kips)	(kips)	(kips)	(ft-k)

1428.18	85MPH WIND NO ICE	0.00	POLE:g	-19.33	-9.78	35.34	21.66	1457.53 -
1124.93	74MPH WIND NO ICE	-0.00	POLE:g	-15.09	-8.69	40.83	17.41	1302.14 -
		1720.76						

Summary of Tip Deflections For All Loadcases:

Note: positive tip load results in positive rotation

Tran.	Twist	LoadCase	Joint	Long.	Tran.	Vert.	Resultant	Long.
Rot.				(in)	(in)	(in)	(in)	(deg)
(deg)	(deg)							

-2.62	85MPH WIND NO ICE	0.02	POLE:t	28.74	44.22	-1.03	52.75	1.39
-2.34	74MPH WIND NO ICE	0.01	POLE:t	22.77	39.53	-0.78	45.63	1.11

Tubes Summary:

Pole Label	Tube Num.	Weight (lbs)	Load Case	Maximum Usage %	Resultant Moment (ft-k)
POLE	1	1254	85MPH WIND NO ICE	14.56	90.44
POLE	2	4054	85MPH WIND NO ICE	36.40	447.62
POLE	3	5866	85MPH WIND NO ICE	44.20	924.24
POLE	4	6831	85MPH WIND NO ICE	53.13	1391.55
POLE	5	7766	85MPH WIND NO ICE	60.11	2040.61

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress

Summary of Steel Pole Usages:

Steel Pole Label	Maximum Usage %	Load Case	Segment Number
POLE	60.11	85MPH WIND NO ICE	35

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
85MPH WIND NO ICE	94.50	POLE:g	Foundation
74MPH WIND NO ICE	109.16	POLE:g	Foundation NG

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Segment Number
85MPH WIND NO ICE	60.11	POLE	35
74MPH WIND NO ICE	51.04	POLE	35

*** Weight of structure (lbs):

Weight of Steel Poles: 25770.9
 Total: 25770.9

*** End of Report

Appurtenance Loads



APPURTENANCE DESIGN DATA

LOCATION: NEWTON, CONNECTICUT

10/23/02
1308,011

NAME: RSL
CHECKED: EP

MANUFACTURER: PIROD

CODE: TIA/EIA-222-F

150 FT. TELECOMMUNICATION STRUCTURE

73.8 MPH WIND VELOCITY (FOR FAIRFIELD COUNTY)
0.50 INCH RADIAL ICE
STEEL MONOPOLE

MISC. APPURTENANCES																	
APT. TYPE	ELEV. A.G.L. ft.	QUANTITY	DIAMETER (inch)	AREA (ft. ²)	TOTAL AREA (ft. ²)	C _d	K _z	q _z	F _{front} kips	F _s kips	F _E kips	WL lb./ft.	WL kips	FORCE 0° X	FORCE 90° X	FORCE 90° Y	FORCE 0° Y
(3) T-ARM ANTENNA MOUNT	150	3		60.00	60.00	1.69	1.541	21.373	2.167	2.167			1.850				
(3) EXISTING PANEL ANTENNA	150	3		18.19	18.19	1.69	1.541	21.373	0.657	0.657			0.158				
(12) PROPOSED EMS RR 85-19-00 ANTENNAS	150	12		72.75	72.75	1.69	1.541	21.373	2.628	2.628			0.624				
									Sub Total	5.452			2.430	5.452	2.728	4.722	5.452
(1) LOW PROFILE PLATFORM	140	1		53.00	53.00	1.69	1.511	20.956	1.877	1.877			3.200				
(6) EXISTING PANEL ANTENNA	140	6		25.72	25.72	1.69	1.511	20.956	0.911	0.911			0.212				
									Sub Total	2.788			3.412	2.788	1.394	2.415	2.788
(3) EXISTING PANEL ANTENNAS	130	3		12.88	12.88	1.69	1.480	20.517	0.448	0.448			0.108				



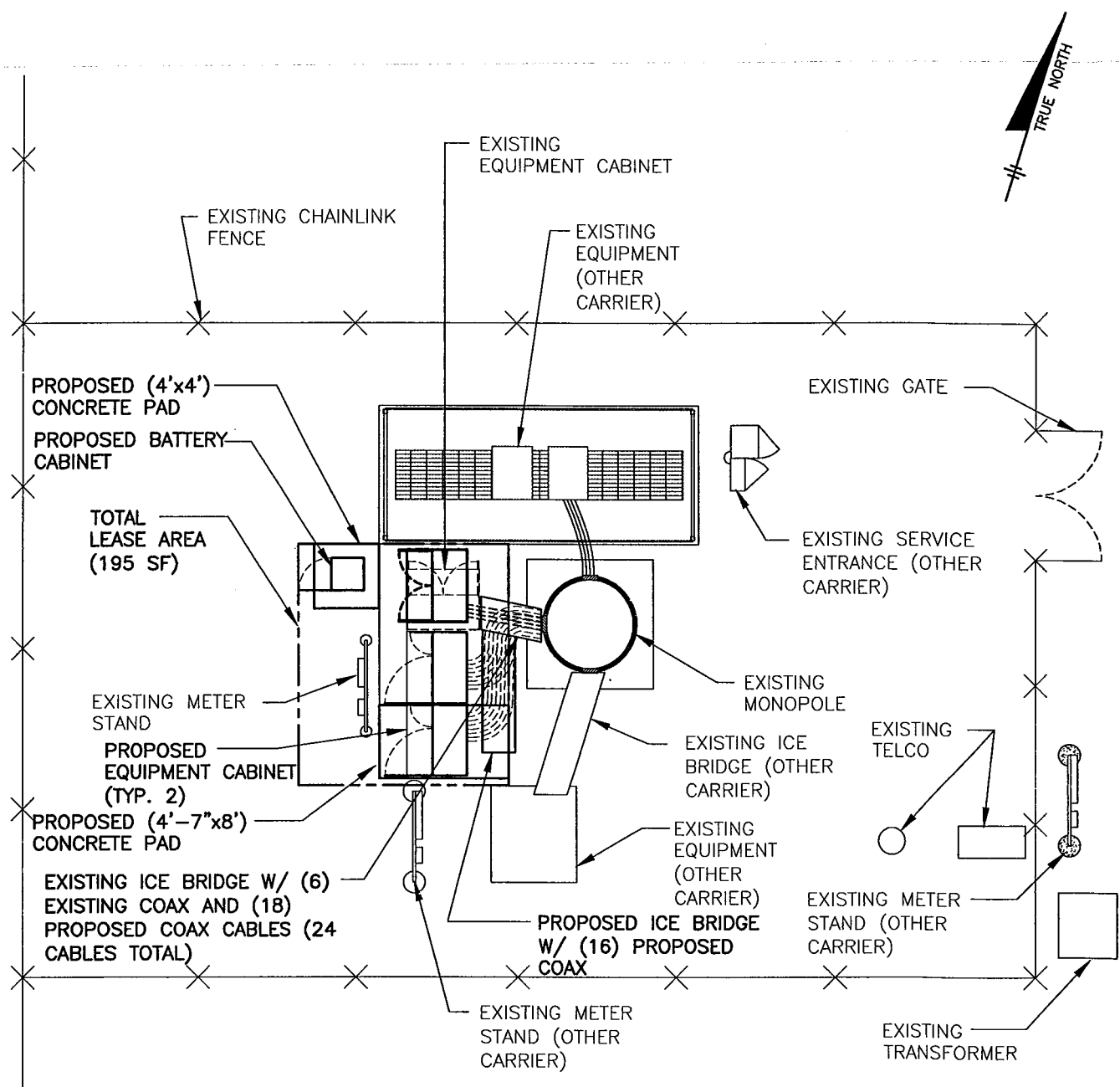
CODE: TIA/EIA-222-F

150 FT. TELECOMMUNICATION STRUCTURE

85 MPH WIND VELOCITY (FOR FAIRFIELD COUNTY)
0 RICH RADIAL ICE
STEEL MONOPOLE

MISC. APPURTENANCES																	
APT. TYPE	ELEV. A.G.L. ft.	QUANTITY	DIAMETER (inch)	AREA (ft. ²)	TOTAL AREA (ft. ²)	G _H	K _Z	G _Z	F _{wind} kips	F _v kips	F _e kips	WL lb./ft.	WL kips	FORCE 0° X	FORCE 60° X	FORCE 60° Y	FORCE 90° Y
(3) T-ARM ANTENNA MOUNT	150	3		51.90	51.90	1.89	1.541	28.507	2.500	2.500			1.200				
(3) EXISTING PANEL ANTENNA	150	3		15.71	15.71	1.89	1.541	28.507	0.757	0.757			0.069				
(12) PROPOSED EMS RR85-1900 ANTENNA	150	12		62.85	62.85	1.89	1.541	28.507	3.028	3.028			0.278				
									Sub Total	0.285			1.545	0.285	3.143	5.443	0.285
(1) LOW PROFILE PLATFORM	140	1		42.00	42.00	1.89	1.511	27.951	1.984	1.984			2.500				
(6) EXISTING PANEL ANTENNA	140	6		21.52	21.52	1.89	1.511	27.951	1.017	1.017			0.092				
									Sub Total	3.000			2.592	3.000	1.500	2.598	3.000
(3) EXISTING PANEL ANTENNA	130	3		10.78	10.78	1.89	1.480	27.365	0.498	0.498			0.048				

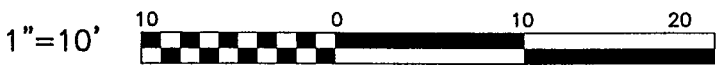
Drawings



TOTAL LEASE AREA: 195 SF

OVERALL SITE PLAN

SCALE: 1"=10'



1. THE OWNER AND OMNIPPOINT HEREBY AGREE TO THE GENERAL CONCEPTUAL DESIGN DEPICTED ON THIS LEASE EXHIBIT. THE EXACT LOCATIONS OF EQUIPMENT, CABLES, UTILITIES, AND ANTENNAS ARE SUBJECT TO FINAL ENGINEERING DESIGN AND MAY VARY TO COMPLY WITH ALL APPLICABLE CODES.
2. THE INFORMATION SHOWN IS TAKEN FROM A TAPE SURVEY PERFORMED BY "PACIFIC 17" DURING THE SITE VISIT.
3. 24/7 ACCESS IS REQUIRED FOR OMNIPPOINT SERVICE TECHNICIAN.
4. ELECTRIC AND TELEPHONE SERVICES SHALL BE CONFIRMED PRIOR TO CONSTRUCTION DOCUMENT PHASE.
5. FUTURE GOVERNMENT MANDATES - NOTWITHSTANDING ANYTHING TO THE CONTRARY IN THE AGREEMENT, LESSEE SHALL ALSO HAVE THE RIGHT, AT ITS SOLE EXPENSE, TO ERRECT AND MAINTAIN ON THE PREMISES, ANY EQUIPMENT OR SYSTEM THAT, IN THE FUTURE, MAY BE MANDATED BY ANY FEDERAL, STATE, COUNTY, OR MUNICIPAL AGENCY/DEPARTMENT, INCLUDING A LOCATION-BASED SYSTEM, WHICH MAY CONSIST OF, WITHOUT LIMITATION, ANTENNA(S), COAXIAL CABLES, BASE UNITS AND OTHER ASSOCIATED EQUIPMENT.
6. TRUE NORTH SHOWN FOR REPRESENTATION ONLY. CONTRACTOR SHALL VERIFY TRUE NORTH AND ESTABLISH ANTENNA ORIENTATIONS ACCORDINGLY.
7. LOCATION BASED SYSTEM (E-911 EQUIPMENT) TO BE INSTALLED - NOT DEPICTED

LANDLORD:
RR CELLCO PARTNERSHIP
D/B/A VERIZON

OWNER INITIALS:
DATE:

OCI INITIALS:
DATE:

APPLICANT/OWNER:
OMNIPPOINT COMMUNICATIONS INC.
AS AGENT FOR:
OMNIPPOINT FACILITIES NETWORK 2, LLC

LEASE EXHIBIT
SITE ADDRESS:
**NEWTOWN ROUTE 25
201 MAIN STREET
NEWTOWN, CT 06470**

ALODA
AFL Telecommunications
Wireless Services
Pacific 17, Inc.
2000 Regency Parkway, Suite 160
Cary, NC 27511-8566
Office (919) 462-0901
Fax (919) 462-0988

REV.	DATE	DESCRIPTION
0	10/9/02	ISSUED FOR LEASE
A	9/20/02	ISSUED FOR REVIEW

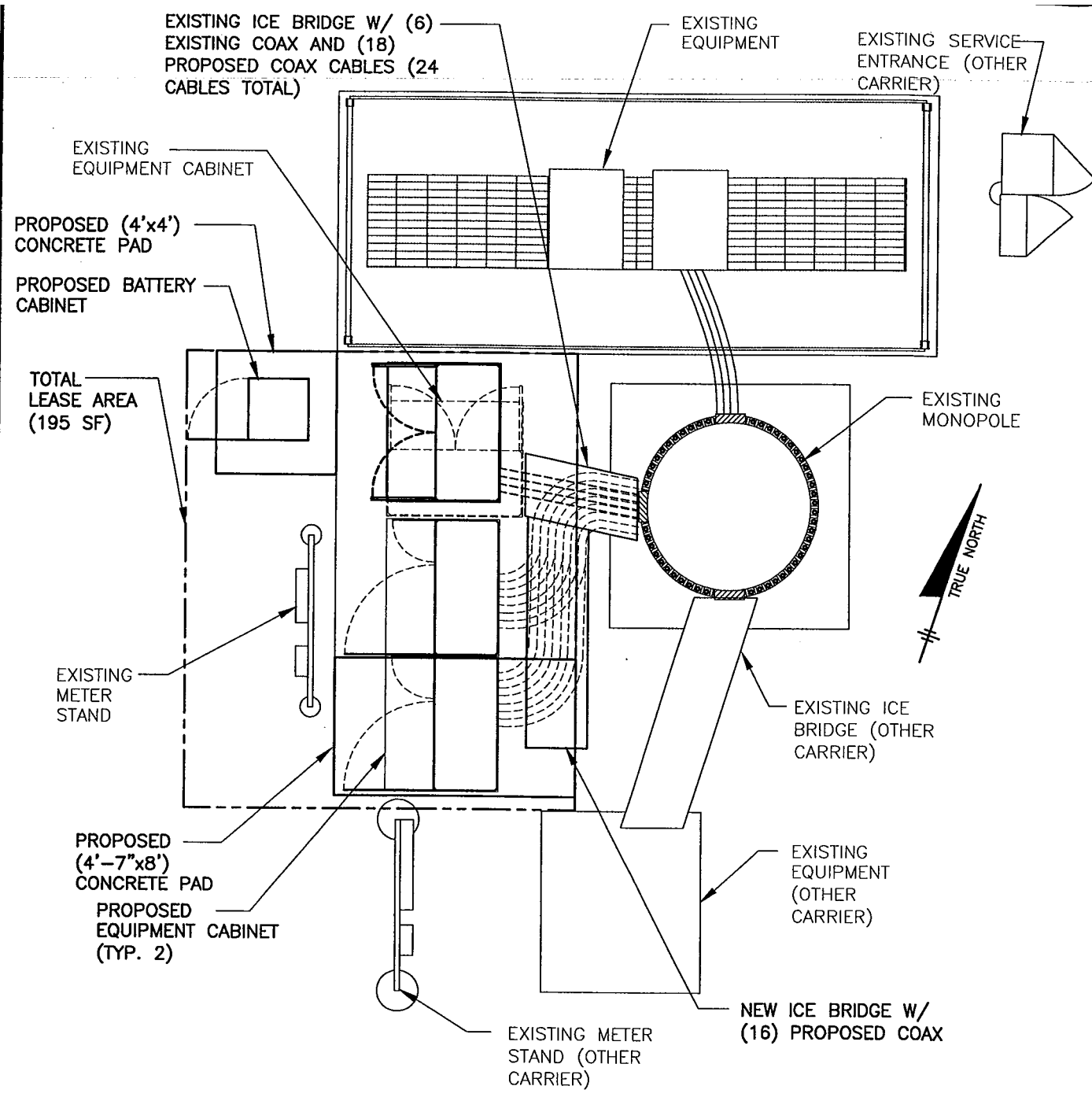
Scale: AS NOTED Date: 9/20/02
Job No. 1356-011 Dwn. By: JOH

Dwg. No.
LE-1

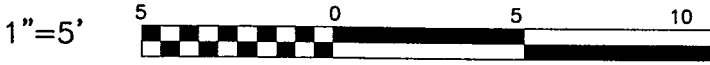
SITE ID NO.
CT-11-217A

Dwg. 1 OF 3

I:\ENGINEERING\PROJECTS\1356 VOICESTREAM\1356-011 NEWTOWN ROUTE 25\6 DRAWINGS\LEASE EXHIB



DETAIL PLAN
SCALE: 1"=5'



1. THE OWNER AND OMNIPPOINT HEREBY AGREE TO THE GENERAL CONCEPTUAL DESIGN DEPICTED ON THIS LEASE EXHIBIT. THE EXACT LOCATIONS OF EQUIPMENT, CABLES, UTILITIES, AND ANTENNAS ARE SUBJECT TO FINAL ENGINEERING DESIGN AND MAY VARY TO COMPLY WITH ALL APPLICABLE CODES.
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7. LOCATION BASED SYSTEM (E-911 EQUIPMENT) TO BE INSTALLED - NOT DEPICTED

LANDLORD:
RR CELCO PARTNERSHIP
D/B/A VERIZON

OWNER INITIALS:
DATE:

OCI INITIALS:
DATE:

APPLICANT/OWNER:
OMNIPPOINT
COMMUNICATIONS INC.

AS AGENT FOR:
OMNIPPOINT FACILITIES NETWORK 2, LLC

LEASE EXHIBIT

SITE ADDRESS:
**NEWTOWN
ROUTE 25
201 MAIN STREET
NEWTOWN, CT 06470**

ALCADA

AFL Telecommunications
Wireless Services
Pacific 17, Inc
2000 Regency Parkway, Suite 100
Cary, NC 27511-8598
Office (919) 462-0961
Fax (919) 462-0968

REV.	DATE	DESCRIPTION
0	10/9/02	ISSUED FOR LEASE
A	9/20/02	ISSUED FOR REVIEW

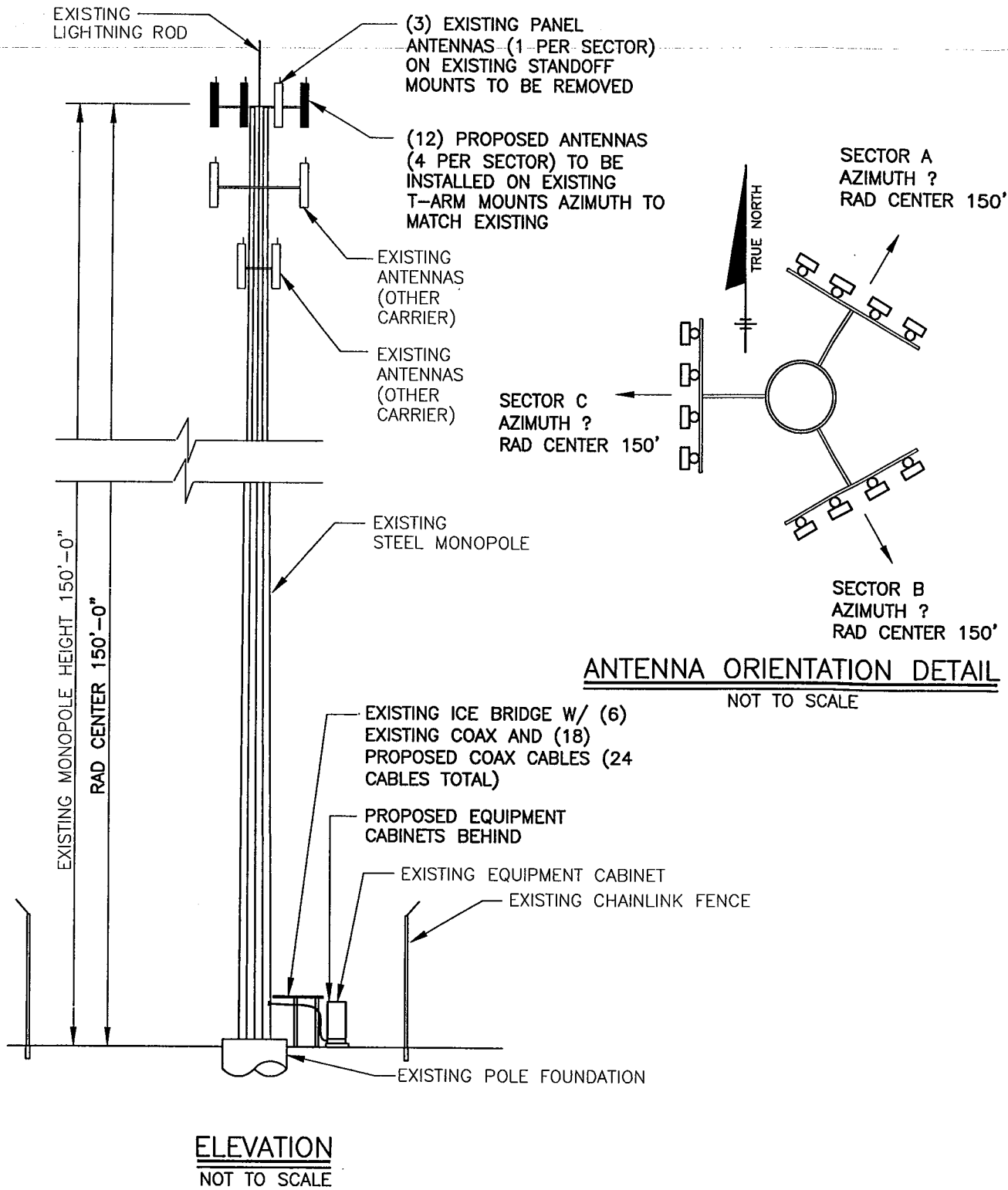
Scale: AS NOTED Date: 9/20/02

Job No. 1356-011 Dwn. By: JOH

Dwg. No.
LE-2

SITE ID NO.
CT-11-217A

Dwg. 2 OF 3



1. THE OWNER AND OMNIPPOINT HEREBY AGREE TO THE GENERAL CONCEPTUAL DESIGN DEPICTED ON THIS LEASE EXHIBIT. THE EXACT LOCATIONS OF EQUIPMENT, CABLES, UTILITIES, AND ANTENNAS ARE SUBJECT TO FINAL ENGINEERING DESIGN AND MAY VARY TO COMPLY WITH ALL APPLICABLE CODES.
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LANDLORD:
RR CELLCO PARTNERSHIP
D/B/A VERIZON

OWNER INITIALS:
DATE:

OCI INITIALS:
DATE:

APPLICANT/OWNER:
OMNIPPOINT
COMMUNICATIONS INC.

AS AGENT FOR:
OMNIPPOINT FACILITIES NETWORK 2, LLC

LEASE EXHIBIT

SITE ADDRESS:
**NEWTOWN
ROUTE 25
201 MAIN STREET
NEWTOWN, CT 06470**

ALCMA

AFL Telecommunications
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Pacific 17, Inc.
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Office (919) 482-0981
Fax (919) 482-0988

REV.	DATE	DESCRIPTION
0	10/9/02	ISSUED FOR LEASE
A	9/20/02	ISSUED FOR REVIEW

Scale: AS NOTED Date: 9/20/02

Job No. 1356-011 Dwn. By: JOH

Dwg. No.
LE-3

SITE ID NO.
CT-11-217A

Dwg. 3 OF 3

Exhibit D

Power Density Calculations

An Analysis of the Radio Frequency
Environment in the Vicinity of a
Proposed Omnipoint Communications
Expansion Installation

CT-11-217A
201 Main Street
Newtown, CT

Prepared for
Omnipoint Communications

Prepared by
PierCon Solutions, LLC
December 11, 2002

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6.0 REFERENCES8

1.0 INTRODUCTION

This report is an analysis of the radio frequency (RF) environment surrounding an existing monopole at 201 Main Street, Newtown, CT. The analysis includes contributions from the existing wireless carriers and the proposed expansion of Omnipoint's communications facility. Measurements taken from the latest FCC compliance statement for the 201 Main Street site, Engineering data collected by PierCon Solutions and analytical techniques defined by the Federal Communication Commission's Office of Engineering and Technology Bulletin 65 (OET65) were utilized in calculating the RF fields associated with the proposed expansion. Worst-case assumptions were used in the Omnipoint calculations and actual levels will be significantly lower than the corresponding analytical values.

The results of this analysis indicate that the cumulative level of RF energy that the public may be exposed to is below the Federal Communications Commission (FCC) standards for continuous exposure in all normally accessible areas. Specifically, the worst-case power density from the wireless facility at 6 feet above ground level (AGL) is 5.3497% of the maximum permissible exposure limit for the general public. Therefore, the resulting calculations at street level are more than 18 times below the FCC limit for continuous exposure to the general public.

2.0 TECHNICAL DATA

The existing Omnipoint communications facility will be expanded to 12 antennas, 4 per sector, with a total of 12 channels per sector. The site is presently configured with 2 channels per sector. The technical parameters utilized in the analytical study are identified in the tables to follow:

Omnipoint Radio Parameters (Expansion)	
Frequency	1930 MHz
Antenna Centerline Height (AGL)	150 feet
Antenna Type	Directional
Antenna Manufacturer	EMS
Antenna Model	DR85-17-00DPL2Q
Antenna Length	54 inches
Antenna Gain	16.2 dBi
Antenna Tilt	0°
Transmit Power / Channel	20 Watts
Total RF Channels Before Expansion	2
Total RF Channels After Expansion	12
Total Loss	4.5 dB
Ground Reflection Factor	.64

Measurements from Latest FCC Compliance Statement:	
Total % MPE of Existing Installations including present Omnipoint installation	
Total % of FCC Standard	0.22%

3.0 MATHEMATICAL ANALYSIS

The FCC's Office of Engineering and Technology Bulletin 65 (OET65) defines the appropriate formulas for calculating power density exposure levels. The area of interest in relation to the subject site occurs at ground or street level. This area occurs in the far field of the antenna. Therefore, the far-field formula is utilized for the calculations.

The following FCC-defined far-field formula was utilized in calculating the power density levels:

$$S = (1.64) (GRF) (\text{Number of Channels}) (\text{power W/Channel}) / \pi R^2$$

Where: S = power density in mW/cm²
 GRF = ground reflection factor (0.64)
 R = distance from antenna to street or ground level

The FCC mandates that the calculations make conservative assumptions to insure that the calculations result in worst-case results. Transmitters are assumed to operate continuously and at maximum power whereas in reality transmitters operate intermittently. Additionally, these calculations assume that the point of interest is in the main beam of the antenna, where the gain of the antenna is at a maximum. In reality, the point of interest is rarely in the main beam of the antenna.

The table below indicates the maximum power density levels and maximum % MPE for the general population from the expanded Omnipoint facility, with 10 channels added to the present configuration of 2 channels, calculated at 6' above ground level (AGL), along with the measurements from the existing installations.

Calculations	Maximum Power Density at 6' Above Ground Level (mW/cm ²)	Maximum Permissible Exposure Level at 6' Above Ground
Omnipoint Expanded Facility with 10 additional channels	0.051297	5.1297%
Existing Installations including present Omnipoint installation		0.22%
Total of FCC limit for maximum exposure		5.3497%

4.0 CONCLUSION

This report represents PierCon Solutions' analysis of the RF environment in the vicinity of an Omnipoint Communications expansion facility on an existing monopole at 201 Main Street, Newtown, CT. The analysis includes calculated data for the expanded Omnipoint facility along with measurements from the existing installations. Worst-case assumptions were utilized to assure safe side estimates. The calculated data was referenced against the applicable standard depending upon location and access.

The results of the analysis indicate that the maximum level to which the public may be exposed to is below all applicable health and safety limits. Specifically, in all normally accessible areas, the maximum level will be 5.3497% or more than 18 times below the safety criteria for continuous exposure of the general public as defined by the FCC.

Based upon the measurements and calculations provided herein, it is the opinion of PierCon Solutions that the subject site will be in full compliance with the FCC regulations as well as the Connecticut Siting Council, ANSI, IEEE and the NCRP.

5.0 TABLE OF MPE EXPOSURE LIMITS

Table 1. LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

NOTE 1: *Occupational/controlled* limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: *General population/uncontrolled* exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

6.0 REFERENCES

- [1] FCC OET Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", Edition 97-01, August 1997.
- [2] FCC 47 CFR 1.1307 Parts 1, 2, 15, 24 and 97.
- [3] FCC OET Bulletin 56, "Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Electromagnetic Fields", Fourth Edition, August 1999.
- [4] FCC 47 CFR 1.1310 "Practice and procedure, Radiofrequency radiation exposure limits"
- [5] NARDA "Non-Ionizing Radiation Handbook"
- [6] Rutgers University, "Management of Electromagnetic Energy Hazards", October 1993.
- [7] Telecommunications Act of 1996
- [8] *Report and Order*, ET Docket 93-62, FCC 96-326, adopted August 1, 1996, 61 Federal Register 41,006 (1996), 11 FCC Record 15,123 (1997).
- [9] "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," NCRP Report No. 86 (1986), National Council on Radiation Protection and Measurements (NCRP), Bethesda, MD.
- [10] ANSI/IEEE C95.1-1992, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz." Copyright 1992, The Institute of Electrical and Electronics Engineers, Inc., New York, NY.