

100 Filley Street, Bloomfield, CT 06002 (860) 692-7154 phone (860) 692-7159 fax

25 October, 1999

Mortimer A. Gelston, Chairman Connecticut Siting Council 10 Franklin Square New Britain, CT 06051



Re: Request by Omnipoint Communications, Inc. for an Order

to Approve the Shared Use of a Tower Facility
15 North Granby Road, Granby, Connecticut

Dear Chairman Gelston and Members of the Council:

Pursuant to Connecticut General Statutes §16-50aa, Omnipoint Communications, Inc. ("Omnipoint") hereby requests an order from the Connecticut Siting Council ("Council") to approve the proposed shared use of an existing tower located at 15 North Granby Road in Granby, Connecticut. The tower is owned and operated by Nextel Communications, Inc. ("Nextel"). Omnipoint proposes to install antennas on the existing tower located within Nextel's leased compound area, and to install related equipment near the base of the tower within the existing compound (see "Exhibit A"). Omnipoint requests that the Council find that the proposed shared use of the tower satisfies the criteria stated in §16-50aa and issue an order approving the proposed use.

#### **Background**

Omnipoint 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 installations.

The Nextel tower at 15 North Granby Road in Granby is a 150-foot monopole located on an approximately 50'x 50', or 2,500 sq. ft. compound behind the Granby Town Hall and Police Headquarters. The coordinates of the tower location are 41-57-12 N and 72-47-38 W. Nextel Communications has installed antennas with centerlines at 150' above ground level ("AGL"). In addition, SNET has antennas mounted at the 140-foot level. Omnipoint and Nextel have agreed to mutually acceptable terms and conditions for the proposed shared use of this tower, and Nextel has authorized Omnipoint to act on its behalf to apply for all necessary local, state and federal permits, approvals, and authorizations which may be required for the proposed shared use of this facility.

As shown on the attached site plan drawings and tower elevations, Omnipoint proposes to install three EMS Dual-Pol Model RR 65 1802DP antennas with centerlines at 120' AGL. The radio



transmission equipment associated with these antennas, a Nortel S8000 cabinet, would be mounted at the base of the monopole.

C.G.S. §16-50aa (c) (1) provides that, upon written request for approval of a proposed shared use, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such shared use." The shared use of the tower satisfies those criteria as follows:

- **A.** <u>Technical Feasibility</u> The existing tower was designed to accommodate multiple carriers. As the attached structural analysis indicates, the tower is structurally sound and capable of supporting Omnipoint's antennas in addition to the existing antennas at the site (See "Exhibit B"). The proposed shared use of this tower therefore is technically feasible.
- **B.** Legal Feasibility Under C.G.S. § 16-50aa, the Council has been authorized to issue orders approving the proposed shared use of an existing tower facility such as the facility on North Granby Road in Granby. (Public Acts 93-268, Section 2; and 94-242, Section 6 (c)). This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. C.G.S. § 16-50x (a) vests exclusive jurisdiction over these facilities in the Council, which shall "give such consideration to other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing towers facilities. Under this statutory authority vested in the Council, an order by the Council approving the shared use would permit the applicant to obtain a building permit for the proposed installations.
- C. <u>Environmental Feasibility</u> The proposed shared use would have a minimal environmental effect, for the following reasons:
  - 1. The proposed installations would have an insignificant incremental visual impact, and would not cause any significant change or alteration in the physical or environmental characteristics of the existing site. In particular, the proposed installations would not increase the height of the existing tower, and would not extend the boundaries of the existing Nextel compound area.
  - 2. The proposed installations would not increase the noise levels at the existing facility by six decibels or more.
  - Operation of antennas at this site would not exceed the total radio frequency electromagnetic radiation power density level adopted by the American National Standards Institute ("ANSI"). The "worst-case" exposure calculated for operation of this facility (i.e., calculated at the base of the tower, which represents the closest publicly accessible point within the broadcast field of the antennas), with the Nextel, SNET and Omnipoint antennas, would be 10.84% of the ANSI standard). These calculations are attached as "Exhibit C."
  - 4. The proposed installations would not require any water or sanitary facilities, or generate air emissions or discharges to water or sanitary facilities, or generate air



emissions or discharges to water bodies. After construction is complete (approximately two weeks), the proposed installations would not generate any traffic other than for periodic maintenance visits.

The proposed use of this facility would therefore have a minimal environmental effect, and is environmentally feasible.

- **E.** <u>Economic Feasibility</u> As previously mentioned, Omnipoint has entered into an agreement with Nextel to share the use of the existing tower on terms agreeable to the parties. The proposed tower sharing is therefore economically feasible.
- **F.** Public Safety Concerns As stated above, the existing tower is structurally capable of supporting the proposed Omnipoint antennas. The tower stands within a compound located behind the Granby Town Hall and Police Headquarters. Omnipoint is not aware of any other public safety concerns relative to the proposed sharing of the existing tower. In fact, the provision of new or improved phone service through shared use of the existing tower is expected to enhance the safety and welfare of area residents and travelers.

#### **Conclusion**

For the reasons discussed above, the proposed shared use of the existing tower facility at North Granby Road in Granby, Connecticut satisfies the criteria stated in C.G.S. §16-50aa, and advances the General Assembly's and the Siting Council's goal of preventing the proliferation of towers in Connecticut. Omnipoint therefore requests that the Siting Council issue an order approving the proposed shared use.

Thank you for your consideration of this matter.

Very truly yours,

J. Brendan Sharkey, Esq.

for Omnipoint Communications, Inc.

Attachments

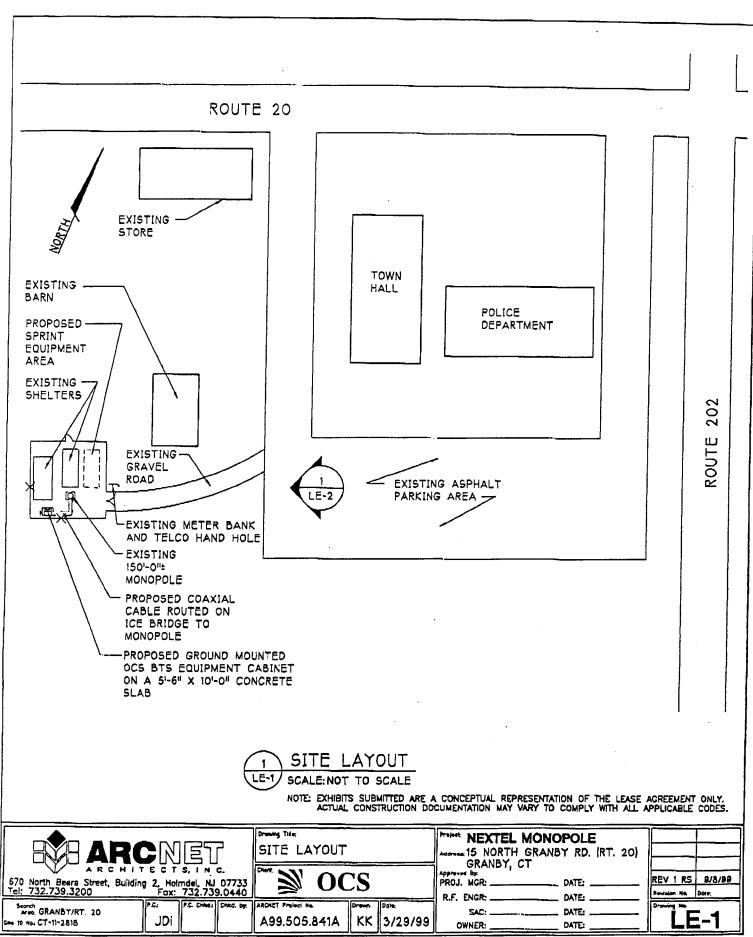
cc: William J. Simanski, Granby First Selectman

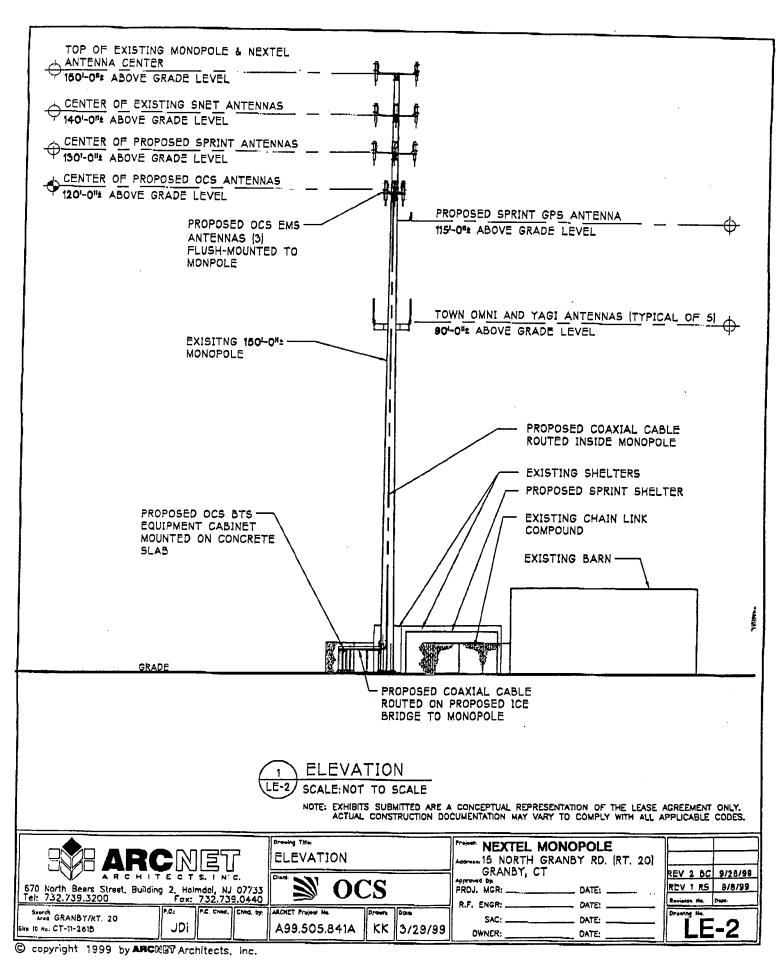
Ron Clark, Nextel Communications

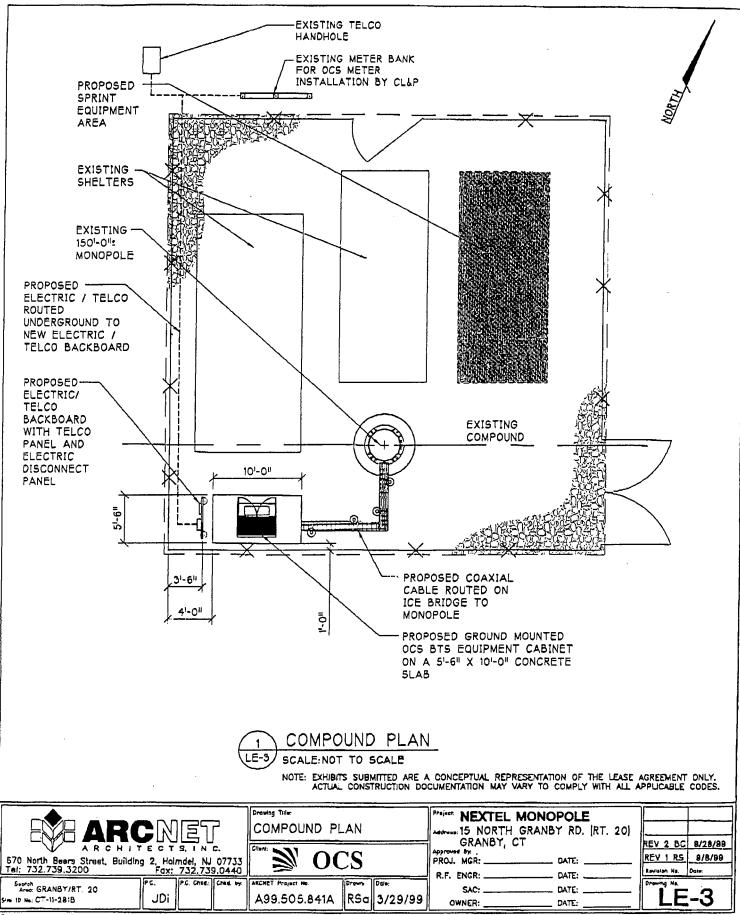


## Exhibit A

# Design Drawings & Equipment Specifications 15 North Granby Road Granby, CT



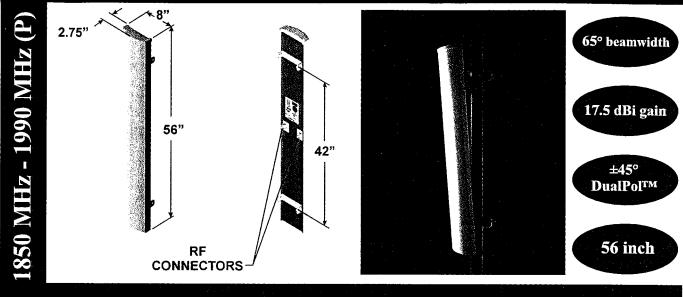




© copyright 1999 by ARCMAT Architects, Inc.



## RR65-18-XXXP



#### **SPECIFICATIONS**

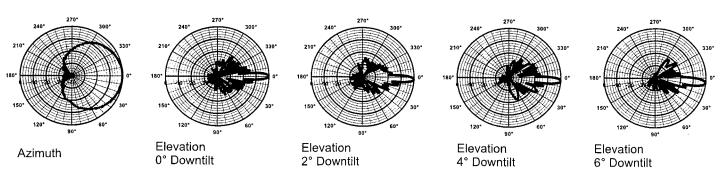
Ele	ectrical	Mechai	nical
Azimuth Beamwidth Elevation Beamwidth	65° 6°	Dimensions (L x W x D)	56in x 8in x 2.75in (142 cm x 20.3 cm x 7.0 cm)
Gain	17.5 dBi (15.4 dBd)	Rated Wind Velocity	150 mph (241 km/hr)
Polarization	Slant, ±45°	Equivalent Flat Plate Area	3.1ft (.29 m²)
Port-to-Port Isolation	≥ 30 dB	Front Wind Load @ 100 mph (161 kph)	90 lbs (400 N)
Front-to-Back Ratio	≥ 25 dB (≥ 30 dB Typ.)	Side Wind Load @ 100 mph (161 kph)	31 lbs (139 N)
Electrical Downtilt Options	0°, 2°, 4°, 6°	Weight	18 lbs (8.2 kg)
, VSWR	1.35:1 Max		
Connectors	2;Type N or 7-16 DIN (female)		
Power Handling	250 Watts CW	Note: Patent Pending and US Patent n	umber 5, 757, 246.

Passive Intermodulation <-147 dBc (2 tone @ +43 dBm {20W} ea.) Lightning Protection Chassis Ground

Values and patterns are representative and variations may occur. Specifications may change without notice due to continuous product enhancements. Digitized pattern data is available from the factory or via the web site www.emswireless.com and reflect all updates.

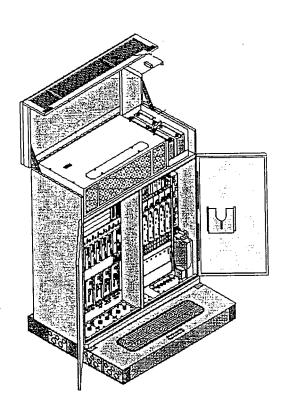
#### **MOUNTING OPTIONS**

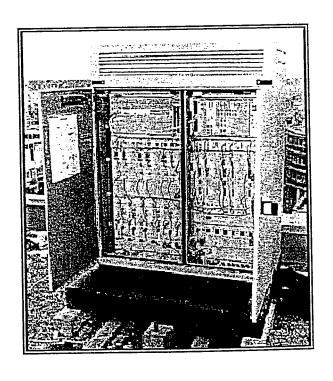
Model Number	Description	Comments
MTG-P00-10	Standard Mount (Supplied with antenna)	Mounts to Wall or 1.5 inch to 5.0 inch O.D. Pole (3.8 cm to 12.7 cm)
MTG-S02-10	Swivel Mount	Mounting kit providing azimuth adjustment.
MTG-DXX-20*	Mechanical Downtilt Kits	0° - 10° or 0° - 15° Mechanical Downtilt
MTG-CXX-10*	Cluster Mount Kits	3 antennas 120° apart or 2 antennas 180° apart
MTG-C02-10	U-Bolt Cluster Mount Kit	3 antennas 120° apart , 4.5" O.D. pole.
MTG-TXX-10*	Steel Band Mount	Pole diameters 7.5" - 45"
* Model number shown re	epresents a series of products. See mounting or	otions section for specific model number.

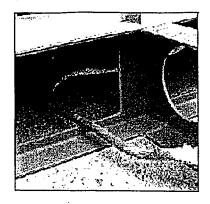


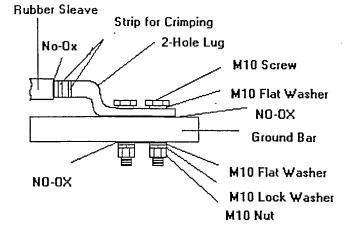
## NETWORKS

# S8000 BTS Site Specifications









Apply a light coating of No Oxidation (NO-OX) to the ground bar area.

#### **Dimensions, Weights & Clearances**

**BTS** 

Weight: 915 pounds

Dimensions: 53.2"W x 26"D x 63"H

Clearances while transporting in building:

Door Access:

Height: 6.6 feet Width 3 feet

Corridor Access:

Height: 6.6 feet

Width: 3.6 feet (straight), 6.6 feet (right angle)

Clearances when installed:

Above: 28 inches for opening of hood Rear: 8 inches for installation of outer skin Sides: 8 inches for adjustment of door hinges

Front: 54 inches to open door and technician access

#### Plinth

Weight:

87 pounds

Dimensions:

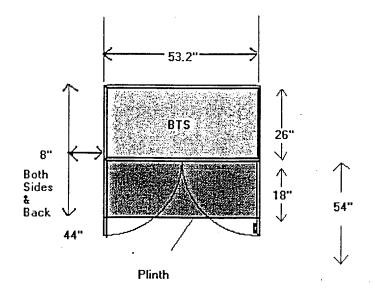
53.2"W x 44"D x 10.2"H

#### Floor Characteristics

Minimum Floor Resistance: 123 pounds/foot<sup>2</sup>

Flatness:

1/4 inch over 78 inches



#### **Electrical Specifications**

#### **Split Single-Phase**

3 wires plus ground

L1: Black 6 gauge L2: Red 6 gauge

Neutral: White 6 gauge

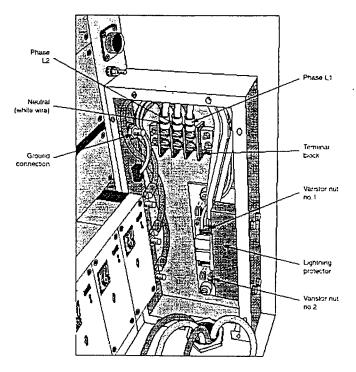
Ground: Yellow/Green 6 gauge

Maximum distance between AC box and BTS: 105 feet

187 ~ 254 VAC between L1 and L2

99 ~ 127 VAC between Neutral and L1 or L2

45 ~ 65 Hertz



AC connection to BTS located at the front, lower, right-hand side of BTS

#### Circuit Breaker in AC Box

Up to 4 transmitters

30 A, bipolar, C curve

5 or more transmitters

40A, bipolar, C curve

#### BTS to Ground connection

Minimum 2 AWG, run in most direct route as possible towards true earth, minimizing bends. No bend shall be less than 90 degrees.



### **Exhibit B**

## Structural Analysis 15 North Granby Road Granby, CT



September 21, 1999

ArcNet 100 Filley Street Bloomfield, CT 06002

ATTN: Joe DiBernardo

RE: Co-location Analysis of Existing 150' Monopole for Revised Antenna Load

Site: CT-11-281-B

Location:

Granby, Connecticut

Client:

Omnipoint

Pole Manufacturer:

EEI

Pole Material:

Steel

Pole Cross-Section:

12-sided

(PJF Project Number 31299-009; ArcNet Project Number A99.506-841A)

#### Dear Mr. DiBernardo:

Per your request, PAUL J. FORD AND COMPANY analyzed the above referenced pole for Omnipoint. The pole was analyzed for the following antenna loads per the <u>Structural Standards for Steel Antenna Towers and Antenna Supporting Structures</u>, TIA/EIA-222-F, 1996:

#### Proposed Omnipoint Co-location Antenna Load:

1. (3) EMS RR90-17-02DP panel antennas flush mounted to the pole, Centerline elevation of 120'-0"

#### Existing Antenna Loads:

- 1. (12) Swedcom ALP-9011-N panel antennas and a 15' omni antenna on a top mounted 10'-8" low profile platform
- 2. (12) Allgon 7120.16 panel antennas on a 10'-8" low profile platform, Centerline elevation of 140'-0"
- 3. (9) DB978H panel antennas on a 10'-8" low profile platform, Centerline elevation of 130'-0"
- 4. GPS antenna w/mount, Centerline elevation of 115'-0"
- 5. (1) Yagi antenna, (1) Cellwave PD201 antenna and (3) DB201antennas on six foot straight arm mounts, mount elevation of 90'-0"

#### Antenna Feed Lines:

- 1. The 1 5/8" coaxial cable for the proposed EMS antennas will be run on the inside of the pole.
- 2. For all other existing antennas, a worst case scenario of 1 5/8" coaxial cable run on the inside of the pole was used.

September 21, 1999

ArcNet Page 2 of 2

ATTN: Joe DiBernardo

RE:

Co-location Analysis of Existing 150' Monopole for Revised Antenna Load

Site:

CT-11-281-B

Location:

Granby, Connecticut

(PJF Project Number 31299-009; ArcNet Project Number A99.506-841A)

Our analysis shows that the above referenced pole has a wind rating of 80 mph (no ice) and 69 mph plus ½" radial ice when loaded as shown above. This meets the TIA/EIA-222-F 1996 minimum basic wind speed recommendation for Hartford County of 80 mph and 69 mph plus ½" radial ice. Therefore, the pole has sufficient capacity to carry both the existing and proposed antenna loads at the TIA/EIA-222-F 1996 minimum recommended wind speed.

The foundation design was analyzed for the pole base reactions resulting from the TIA/EIA specified design wind acting on the pole shaft and on the existing/proposed antenna load. The foundation analysis was performed using the assumed soil parameters shown on the foundation drawing. The foundation is capable of carrying the pole base reactions that result from the TIA/EIA specified design wind acting on the pole shaft and on the existing/proposed antenna load.

It is our understanding that it may be necessary to install hand hole frames at the base of the pole and at an approximate elevation of 120'-0". If the hand holes are designed correctly and installed correctly, the load carrying capacity of the pole will be unaffected by this modification.

As is our standard practice, we are providing you with an analysis package for the monopole site referenced above. To document the physical configuration of the monopole that has been analyzed, we have included a monopole drawing on letter size paper showing the size, shape, and material specification of the pole shaft. Also included in the package are the foundation drawing and computer calculations from our analysis.

We appreciate this opportunity to be of service. If you have any questions or comments, please contact Rich Hoffman at (614) 221-6679.

Sincerely,

PAUL J. FORD AND COMPANY

Richard W. Hoffman, P.E.

Project Engineer

e-mail: rhoffman@pjfweb.com

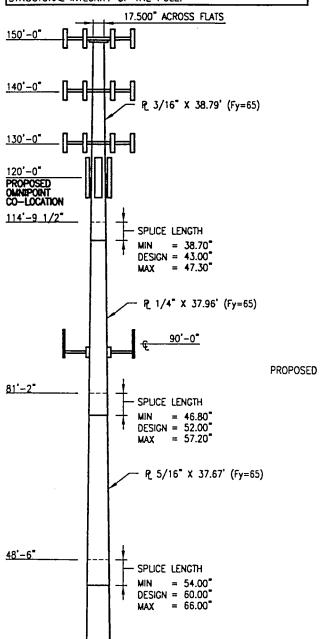
C:\MSOFFICE\WINWORD\LETTERS\AN99009

Kevin P. Bauman, P.E. Project Manager

Connecticut Professional Engineer e-mail: kbauman@pjfweb.com

670 N. BEERS ST HOLMDEL, NJ 07733 PH: (732) 739-3200 FAX: (732) 739-0440 PAUL J. FORD AND COMPANY HAS BEEN PROVIDED WITH THE

ORIGINAL EEI POLE DRAWINGS, DATED 6-26-1998. IF EXISTING CONDITIONS ARE NOT AS REPRESENTED ON THESE SKETCHES, PJF SHOULD BE CONTACTED IMMEDIATELY TO RE-EVALUATE THE STRUCTURAL INTEGRITY OF THE POLE.





	JOE	BDATA
Page 1 o	f 2	Job No. 31299-009
Ву	RWH	Design No. <b>ARCNET NO. A99.506-841A</b> Date 09-21-1999
Chk'd By	RWH	Rev. No. Rev. Date
Pole	EXISTING 150' POLE	
Site	CT-11-281-B; GRANE	BY, CONNECTICUT
Owner	NEXTEL COMMUNICATIO	
Ref. No.	EEI DRAWING NO. GS5	1005 (EEI PROJECT NO. 3934)
Design	MINIMUM REQUIRED WI 1/2" RADIAL ICE -	ND VELOCITY = 80 MPH / 69 MPH + ACCORDING TO TIA/EIA-222-F 1996

CASE 1 80 MPH WITH NO ICE	DESIGN WIND
CASE 2 69 MPH WITH 1/2" RADIAL ICE	REDUCED WIND WITH ICE
CASE 3 50 MPH WITH NO ICE	OPERATIONAL WIND

	LE SPECIFICATIONS
	12-SIDED POLYGON
	0.180000 IN/FT
Shaft Steel:	ASTM A572 GRADE 65
Base PL Steel:	ASTM A871 (60 KSI)
Anchor Bolts:	2 1/4"ø x 10'-6" LONG #18J ASTM A615 GRADE 75
	#18J ASTM A615 GRADE 75

		ANTENNA LIST
No.	Elev.	Description
1-12	TOP	(12) SWEDCOM ALP-9011-N PANEL ANTENNA
13	TOP	(1) OMNI ANTENNA (15' LONG)
-	TOP	10'-8" LOW PROFILE PLATFORM
14-25	140.00	(12) ALLGON 7120.16 PANEL ANTENNAS
-	140.00	10'-8" LOW PROFILE PLATFORM
26-34	130.00	(9) DB978H PCS
-	130.00	10'-8" LOW PROFILE PLATFORM
35-37	120.00	(3) EMS RR90-17-02DP PCS PANEL (W/FLUSH-MOUNT)
-	115.00	GPS ANTENNA W/ MOUNT
38	95.00	(1) YAGI ANTENNA (ASSUMED COAO = 5 SO. FT.)
39	94.00	(1) CELWAVE PD201
40-42	93.25	(3) DB201
	90.00	(4) 6-FT SIDE ARM MOUNTS

STEP BOLTS FULL HEIGHT FROM 9'-6" ABOVE BASE PLATE. ANTENNA FEED LINES RUN INSIDE OF POLE.

80 M	PH WIND	50 M	PH WIND
Lateral Deflection (Inches)	Rotation (sway) (degrees)	Lateral Deflection (Inches)	Rotation (sway) (degrees)
139.9	8.276	54.5	3.232
	Lateral Deflection (Inches)	Lateral Rotation Deflection (sway) (Inches) (degrees)	Lateral Rotation Lateral Deflection (sway) Deflection (Inches) (degrees) (Inches)

	S H /	AFT SEC	TION	DATA	
Shaft Section	Section Length	Plate Thickness	Lap Splice		cross Flats hes)
566001	(feet)	(in.)	(in.)	<b>Ф</b> Тор	<b>ወ</b> Bottom
1 2 3 4	38.79 37.96 37.67 48.50	0.1875 0.2500 0.3125 0.3750	43.00 52.00 60.00	17.500 23.462 29.015 34.270	24.482 30.295 35.795 43.000
NOTE:	DIMENSIONS	SHOWN DO NO	T INCLUDE	GALVANIZING	TOLERANCES

UNFACTORED BASE REACTIONS

SOIONALES

SSSIONAL NO.

MOMENT = 2141 ft-kips SHEAR = 22 kips AXIAL = 22 kips

BASE № 1 3/4" X 57.000" ROUND W/(12) 2.25" ANCHOR BOLTS ON 51.000" B.C.

0'-0"

I/FDN

43.000" ACROSS FLATS

R 3/8" X 48.50' (Fy=65)

## ARCNET

670 N. BEERS ST PH: (732) 739-3200 BLDG.2

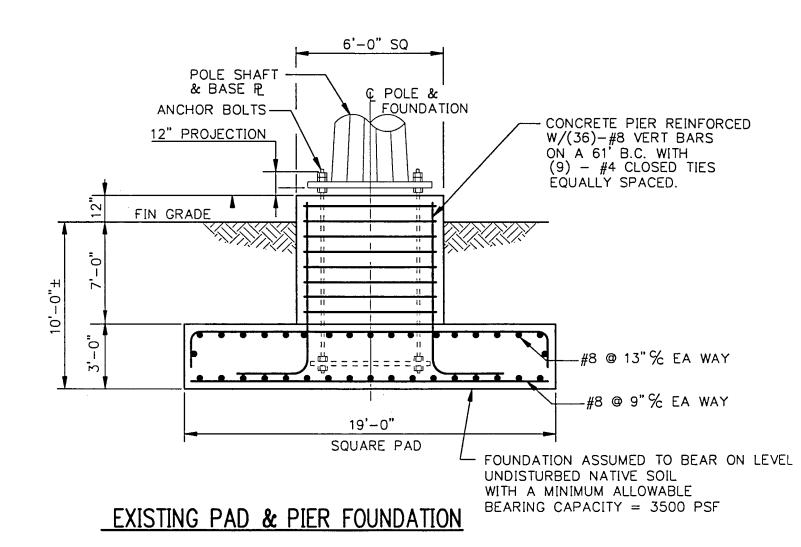
HOLMDEL, NJ 07733 FAX: (732) 739-0440

Pole	150 FT MONOPOLE
Location	GRANBY, CONNECTICUT
Site	CT-11-281-B
Owner	NEXTEL COMMUNICATIONS
 Desian	80 MPH / 69 MPH + 1/2" RADIAL ICE



Page	2	Of	2
Ву	RWH	Job No	31299-009
Revision No.	****	Date	9-21-1999

According to TIA/EIA-222-F 1996



#### NOTES:

- 1. ALL STRUCTURAL CONCRETE ASSUMED TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF AT LEAST 4000 PSI AT 28 DAYS.
- 2. REINFORCING STEEL ASSUMED TO CONFORM TO ASTM A615 (GRADE 60).
- 3. SEE PAGE 1 FOR ANCHOR BOLT QUANTITY, SIZE, LENGTH, AND BOLT CIRCLE.
- 4. FOUNDATION ANALYSIS BASED UPON ASSUMED SOIL PROPERTIES AS FOLLOWS: SOIL UNIT WEIGHT: 100 POUNDS PER CUBIC FOOT ALLOWABLE BEARING PRESSURE: 3500 POUNDS PER SQUARE FOOT

GROUNDWATER IS LOCATED BELOW FOUNDATION DEPTH.

5. THE EXISTING FOUNDATION IS ASSUMED TO HAVE BEEN BUILT AS SHOWN ON THE ORIGINAL DESIGN DRAWINGS BY ENGINEERED ENDEAVORS INC. JOB # 3934, DRAWING NO. F3934-150. IF EXISTING CONDITIONS ARE NOT AS SHOWN HERE, PJF SHOULD BE SO THAT THE ANALYSIS CAN BE REVISED.



### **Exhibit C**

## Power Density Calculations 15 North Granby Road Granby, CT

Region 11 - Connecticut	cticut		
Power Density Calculation - Worst Case	ation - Worst Cas	Se	
Base Station TX output	20 W	43	43.01
Number of channels	2		
Antenna Model	EMS: RR-65-18/ RV-65-18	/-65-18 ◀	
Antanna Gain	17.5 dBi		
Cable Size	1 5/8"	1	
Cable Length	130 ft		
Jumper & Connector loss	1 dB		
Cable Loss per foot	0.0116		
Total Cable Loss	1.508 dB		
Total Attenuation	2.508 dB		
Total EIRP per channel	58.00 dB	631.29	W
Total EIRP per sector	61.01 dB	1262.58	\$
Ground Reflection	1.6		
Frequency	1930 MHz		
Antenna Height	120 ft	3657.6	cm
nsg	14.992		
Power Density (S) =	0.019236 mW / cm <sup>2</sup>	cm²	
= 34M %	1.9236%		

Equation Used:

$$S = \frac{(1000 (grf)^2 (Powe) * 10^{(nsg10)}}{4\pi (R)^2}$$

SCLP MPE 6.3870%

NEXTEL MPE 2.5340%

OMNIPOINT MPE 1.9236%

TOTAL MPE 10.8446%

Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997