

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

June 5, 2002

Stephen J. Humes
LeBoeuf, Lamb, Greene & MacRae
Goodwin Square
225 Asylum Street
Hartford, CT 06103

RE: **TS-VOICESTREAM-040-020528** - VoiceStream Wireless Corporation request for an order to approve tower sharing at an existing telecommunications facility located at Floydville Road, East Granby, Connecticut.

Dear Attorney Humes:

At a public meeting held June 3, 2002, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures with the condition that the applicant file an updated power density calculation as soon as it is available. 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.

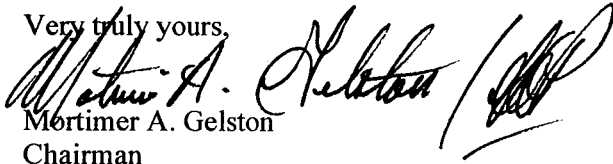
This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point 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.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated May 28, 2002.

Thank you for your attention and cooperation.

Very truly yours,



Mortimer A. Gelston
Chairman

MAG/DM/laf

c: Honorable David K. Kilbon, First Selectman, Town of East Granby
Richard A. Nelson, Zoning Enforcement Officer, Town of East Granby
Sheila R. Becker, SBA, Inc.
Sandy M. Carter, Verizon Wireless
Michele R. Briggs, SNET Mobility, LLC

TOWN OF EAST GRANBY

INCORPORATED 1858

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PLANNING and ENGINEERING
PO BOX 1858 9 CENTER ST
EAST GRANBY, CONNECTICUT 06026
PHONE: 1-860-653-3444 FAX 1-860-653-4017

JUN 06 2002

CONNECTICUT
SITING COUNCIL

June 4, 2002

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

Re: **Application of VoiceStream Wireless to Co-Locate on an Existing
Telecommunications Facility Located at 56 Floydville Rd., East Granby,
Connecticut.**

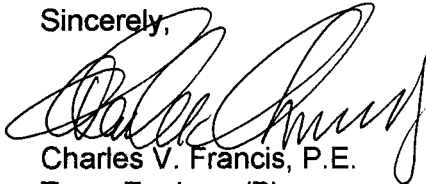
Dear Mr. Phelps:

The East Granby Planning & Zoning Commission approved the application of SBA Properties, Inc. on June 6, 2001 for the tower that is currently under construction. The tower was well sited by SBA and the Commission was aware of and supportive of future carrier antennas on the tower.

Since the proposal by VoiceStream is within the scope of the original TPZ approval we have no question or comments regarding the proposal except to point out that the building permit issued 9/21/01 limited the tower height to 80 feet pending SBA's furnishing satisfactory evidence of FAA acceptance of the full 120-foot tower height. Just recently has the FAA acceptance been submitted and the Building Official will be able to approve an amendment of the current building permit to allow completion of the tower to 120-foot level.

Thank you for giving the Town the opportunity to provide input.

Sincerely,



Charles V. Francis, P.E.
Town Engineer/Planner

Cc: David K. Kilbon, First Selectman
Rich Nelson, Building Official
Kurt Sheathelm; LeBoeuf, Lamb, Greene & MacRae, LLP
Goodwin Square, 225 Asylum St., Hartford, CT 06103



VOICESTREAM WIRELESS CORPORATION

100 Filley St, Bloomfield, CT 06002-1853

Phone: (860) 692-7100

Fax: (860) 692-7159

Technical Memo

To: Karina Hansen
From: Hassan Syed - Radio Frequency Engineer
cc: Mike Fulton
Subject: Power Density Report for CT11386G
Date: June 3, 2002

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the Voicestream Wireless Corporation PCS antenna installation on a Monopole at 56 Floydville Road, East Granby, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from several locations surrounding the transmitting location.

2. Discussion:

The following assumptions were used in the calculations:

- 1) The emissions from Voicestream Wireless transmitters are in the 1935-1945 MHz frequency band.
- 2) The antenna cluster consists of three sectors, with 4 antennas per sector.
- 3) The model number for each antenna is EMS RR90-17-02DP.
- 4) The antenna center line height is 107 ft.
- 5) The maximum transmit power from each sector is 3124.71 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
- 6) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
- 7) Power levels emitting from the antennas are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) The average ground level of the studied area does not significantly change with respect to the transmitting location

Equations given in "FCC OET Bulletin 65, Edition 97-01" were then used with the above information to perform the calculations

3. Conclusion:

Based on the above worst case assumptions, the power density calculation from the VoiceStream Wireless Corporation PCS antenna installation on a Monopole at 56 Floydville Road, East Granby, CT, is 0.0672 mW/cm². This value represents 6.72% of the Maximum Permissible Emission (MPE) standard of 1 milliwatt per square centimeter (mW/cm²) set forth in the FCC/ANSI/IEEE C95.1-1991. Furthermore, the proposed antenna location for VoiceStream Wireless will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area.

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New England Market

Connecticut

Worst Case Power Density

VoiceStream

Global Wireless by T-Mobile

Site: CT11386G
Site Address: 56 Floydville Road
Town: East Granby
Tower Height: 120 ft.
Tower Style: Monopole

Base Station TX output	16 W
Number of channels	8
Antenna Model	EMS RR90-17-02DP
Cable Size	1 5/8 in.
Cable Length	140 ft.
Antenna Height	107.0 ft.
Ground Reflection	1.6
Frequency	1935.0 MHz
Jumper & Connector loss	1.00 dB

Antenna Gain	16.5 dBi
Cable Loss per foot	0.0116 dB
Total Cable Loss	1.6240 dB
Total Attenuation	2.6240 dB
Total EIRP per Channel (In Watts)	55.92 dBm 390.59 W
Total EIRP per Sector (In Watts)	64.95 dBm 3124.71 W
nsg	13.8760

Power Density (S) = 0.067203 mW/cm²

Voicestream Worst Case % MPE = 6.7203%

Equation Used:

$$S = \frac{(1000)(grf)^2 (Power) 10^{(m/10)}}{4\pi (R)^2}$$

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

Co-Location Total

Carrier	% of Standard
Verizon	18.964
Cingular	
Sprint PCS	
AT&T Wireless	5.59883285
Nextel	

Total Excluding Voicestream 24.56283285

Voicestream 6.7203

Total % MPE for Site 31.2831%

Relative Gain Power Density

Antenna Relative Gain Factor	-3.7 dBi
Total Attenuation	2.6240 dB
Total EIRP per Channel (In Watts)	52.22 dBm 166.62 W
Total EIRP per Sector (In Watts)	61.25 dBm 1332.94 W
nsg	10.1760

Power Density (S) = 0.028667 mW/cm²

Voicestream Relative Gain % MPE = 2.8667%

LEBOEUF, LAMB, GREENE & MACRAE
L.L.P.

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May 28, 2002

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MAY 28 2002

**CONNECTICUT
SITING COUNCIL**

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

Re: Request by VoiceStream for an Order to Approve the Shared Use of a Tower Facility at Floydville Road, East Granby, Connecticut

Dear Chairman Gelston and Members of the Council:

Please be advised that LeBoeuf, Lamb, Greene & MacRae, L.L.P. represents Omnipoint Communications, Inc. ("VoiceStream"), a subsidiary of VoiceStream Wireless Corporation¹ in the above-referenced matter. Pursuant to Connecticut General Statutes §16-50aa, VoiceStream hereby requests an order from the Connecticut Siting Council ("Council") approving the proposed shared use by the applicant of an existing tower located at Floydville Road in East Granby, Connecticut. VoiceStream proposes to install antennas on the existing tower, and the equipment associated with this facility would be located near the base of the tower within and adjacent to the existing compound (see drawings Z-1 attached as Exhibit B). VoiceStream 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.

¹ The corporate structure of VoiceStream is as follows: Omnipoint Communications, Inc. ("Omnipoint") is a 95.4% subsidiary of Omnipoint Finance, LLC (hereinafter, "OF"). OF is a wholly owned subsidiary of Omnipoint Finance Holding, LLC (hereinafter, "OFH"). OFH is a subsidiary of Omnipoint Wireless Corporation (hereinafter "VS"), which owns all of the outstanding common shares of OFH. VS is a wholly owned subsidiary of T-Mobile International AG (hereinafter "T-Mobile"). T-Mobile is a wholly owned subsidiary of Deutsche Telekom AG (American Depositary Receipts traded in U.S. on the NYSE: DT).

Background

VoiceStream 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. VoiceStream 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 Floydville Road in East Granby is a 120 foot SBA monopole. The coordinates for the site are **41°-55'-43" N** and **72°-46'-34" W**. The tower is located between Routes 10 and 189 in the southwestern portion of East Granby, near its borders with Granby and Simsbury. The tower is owned by SBA. VoiceStream and the owner have agreed to mutually acceptable terms and conditions for the proposed shared use of this tower, and the owner has authorized VoiceStream 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. The tower is designed and built to hold multiple carrier antennas at five elevations above ground level ("AGL"). These elevations are listed on the first page of the structural analysis attached as Exhibit D and are also shown on the elevation drawing 3, Z-1, attached as part of Exhibit B.

VoiceStream proposes to install an antenna cluster comprised of three sectors, with 4 antennas per sector for a total of twelve antennas. The model number for each antenna is EMS RR90-17-02 DP. The proposed antennas would be mounted on a clamp-on three sector platform, set at the one hundred seven foot elevation AGL. The radio transmission equipment associated with these antennas, one Nortel S8000 BTS cabinet, would be located near the base of the tower on an existing ten foot by six twenty foot (10'-0" x 20'-0") concrete pad. The tower and all of the equipment for all existing and proposed carriers is within an existing seventy foot by seventy foot (70' x 70') fenced compound (shown on drawing 2, Z-1, attached as part of Exhibit B).

C.G.S. §16-50aa (c) (1) provides in pertinent part 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. Technical Feasibility - The existing tower and compound were designed to accommodate multiple carriers. A structural analysis of the tower with the proposed VoiceStream installation has been performed and is attached as Exhibit D. 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 at Floydville Road in East Granby. 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. Environmental Feasibility The proposed shared use would have minimal environmental effects, if any, for the following reasons:

1. The proposed installations (i.e., three sectors with four antennas per sector) 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 compound area. The tower is designed to accommodate multiple carriers
2. The proposed installations would not increase the noise levels at the existing facility by six decibels or more.
3. 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) will be 0.067203 mW/cm², which is 6.7203% of the Maximum Permissible Emission (MPE). These calculations are attached as Exhibit E.
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 periodic maintenance visits.

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

D. Economic Feasibility As previously mentioned, the owner and VoiceStream have entered into a mutual agreement to share the use of the existing tower on terms agreeable to the parties. The proposed tower sharing is therefore economically feasible.

E. Public Safety Concerns As stated above, the existing tower is structurally capable of supporting the proposed VoiceStream antennas. The tower stands on a compound accessible from Floydville Road. VoiceStream is not aware of any 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 will enhance the safety and welfare of area residents and the public.

Conclusion


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

Thank you for your consideration of this matter.

Respectfully submitted,

VOICESTREAM WIRELESS CORPORATION

By: _____

A handwritten signature in blue ink, appearing to read "Stephen J. Humes", is written over a horizontal line.

Its Counsel
Diane W. Whitney
Stephen J. Humes

Attachments

cc: David K. Kilbon, First Selectman, Town of East Granby

Exhibit A
Site Map
Floydville Road
East Granby, Connecticut

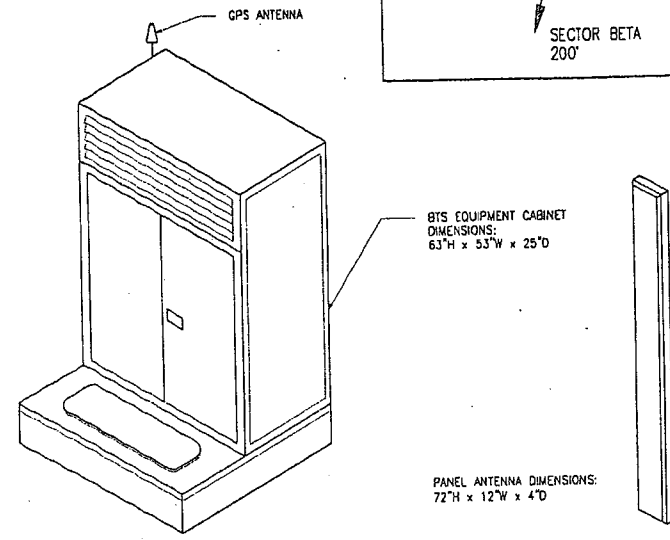
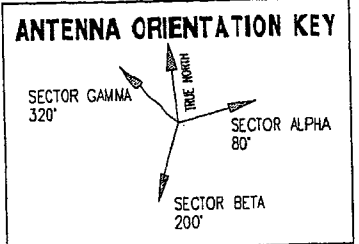


Exhibit B

Design Drawings

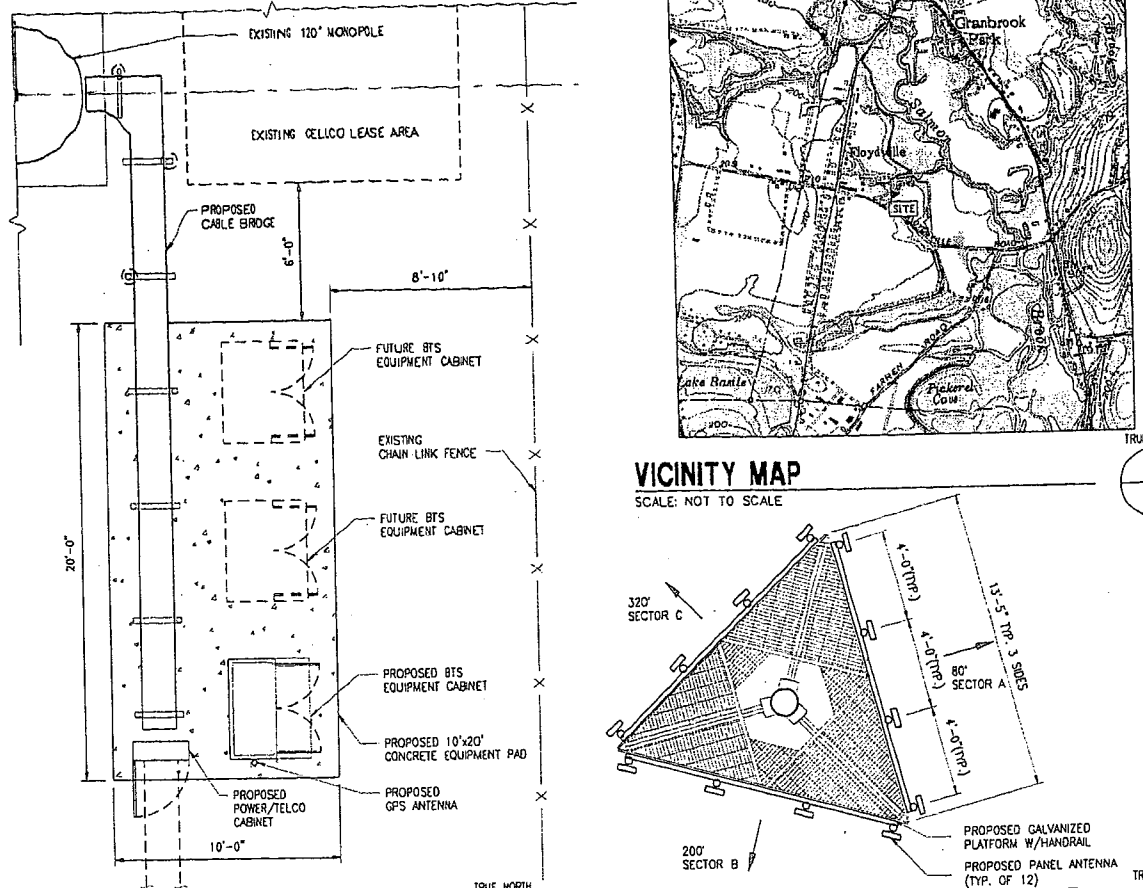
Floydville Road

East Granby, Connecticut

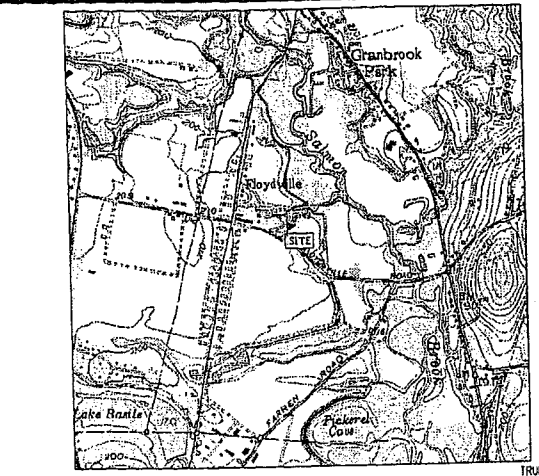


BTS EQUIPMENT CABINET
SCALE: NOT TO SCALE

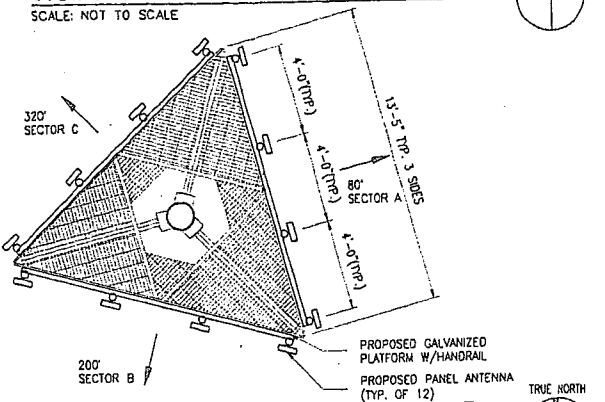
PANEL ANTENNA DETAIL
SCALE: NOT TO SCALE



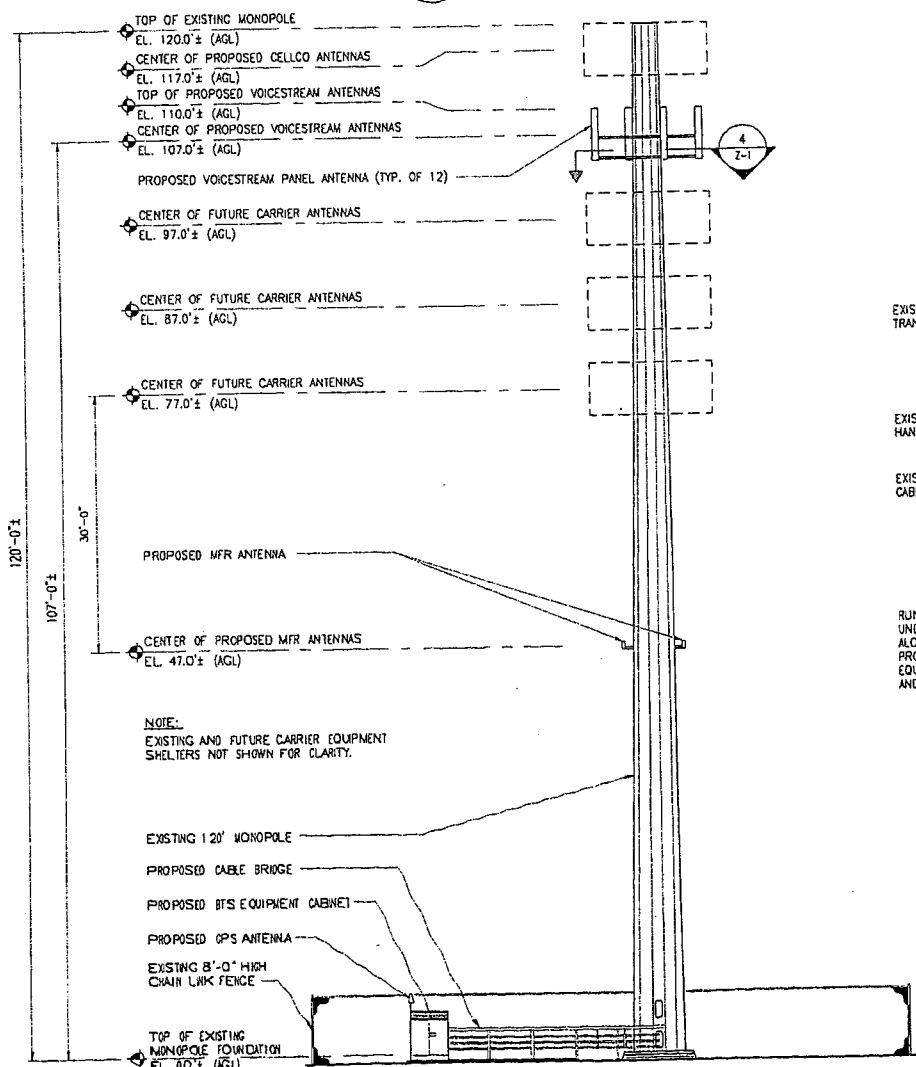
EQUIPMENT PLAN
SCALE: 1/4" = 1'-0"



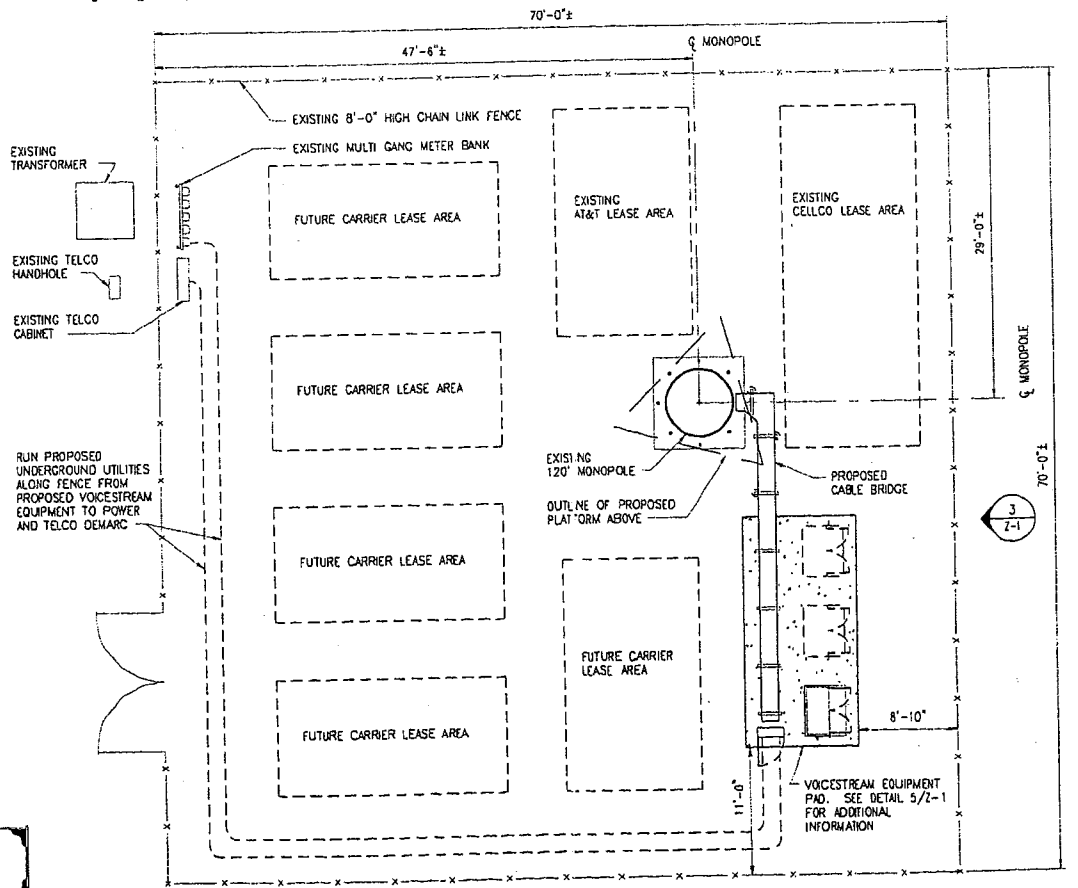
VICINITY MAP
SCALE: NOT TO SCALE



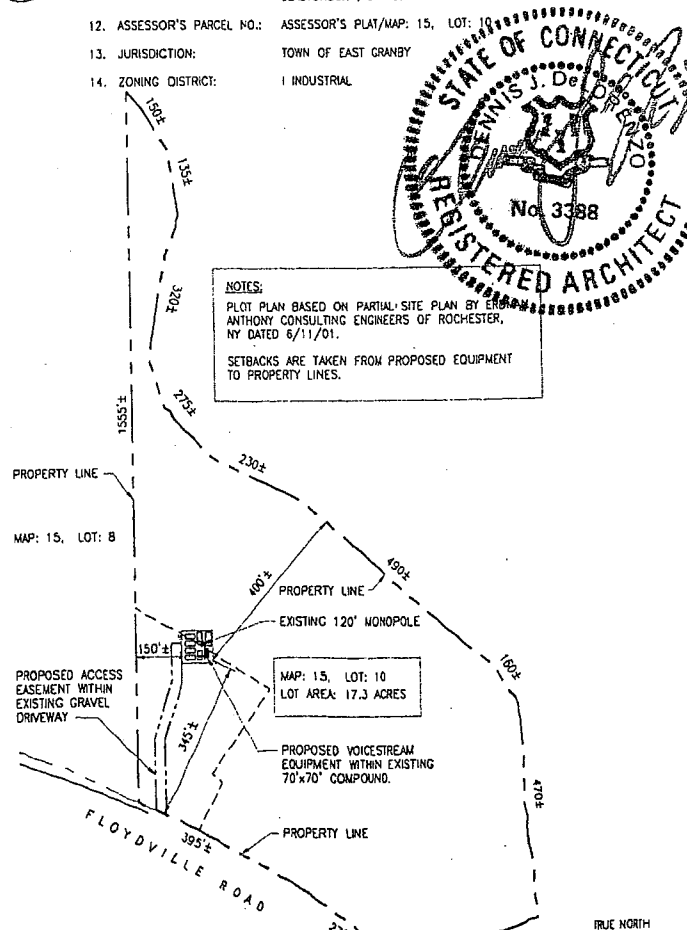
ANTENNA MOUNTING PLAN
SCALE: 1/4" = 1'-0"



ELEVATION
SCALE: 3/32" = 1'-0"



PARTIAL SITE/EQUIPMENT PLAN
SCALE: 1/8" = 1'-0"

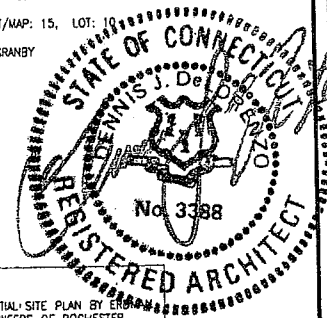


PLOT PLAN
SCALE: 1" = 200'-0"

GENERAL NOTES

1. THE TYPE, DIMENSIONS, MOUNTING HARDWARE, AND POSITIONS OF ALL EQUIPMENT FOR THE VOICESTREAM INSTALLATION ARE SHOWN IN ILLUSTRATED FASHION. THESE DRAWINGS ARE NOT INTENDED FOR CONSTRUCTION. ACTUAL HARDWARE DETAILS AND FINAL LOCATIONS MAY DIFFER SLIGHTLY FROM WHAT IS SHOWN.
2. THE VOICESTREAM PCS EQUIPMENT CONSISTS OF AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSIBLE BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. THE VOICESTREAM BASE TRANSMISSION STATION (BTS) CABINET IS A WEATHER RESISTANT, RUST RESISTANT STEEL CABINET CONTAINING RECEIVERS, AMPLIFIERS, RADIOS, AND OTHER INTEGRATED ELECTRONIC CONTROL EQUIPMENT. THE BTS IS ENVIRONMENTALLY CONTROLLED BY A SELF-CONTAINED AC-POWERED HEATING AND COOLING SYSTEM USING CFC-FREE THERMAL TRANSFER COMPOUNDS. MANUFACTURER'S SPECIFICATIONS INDICATE THAT AT FULL LOAD CONDITIONS, MAXIMUM ACOUSTICAL NOISE LEVELS ARE 50 DB(A) AT A DISTANCE OF 3 METERS (10 FEET) AND 40 DB(A) AT A DISTANCE OF 9 METERS (30 FEET). BATTERY BACKUP FOR EMERGENCY STANDBY POWER IS CONTAINED WITHIN THE SEALED BTS CABINET AND CONSISTS OF FOUR 12-VOLT, CLOSED-CELL, DC BATTERIES. THE BATTERIES ARE LEAD-ACID RECHARGEABLE STANDBY INDUSTRIAL POWER CELLS MANUFACTURED TO MEET ENVIRONMENTAL QUALITY AND RUGGEDNESS STANDARDS OF THE INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA). THE BATTERY CHARGING SYSTEM IS COMPUTER CONTROLLED AND THE EQUIPMENT CABINET IS REMOTELY MONITORED AT VOICESTREAM'S EAST PROVIDENCE OFFICE 24 HOURS A DAY, 7 DAYS A WEEK FOR FAULTS AND ALARMS.
4. THE DESIGN OF THE ANTENNA MOUNTING HARDWARE WILL MEET THE ANSI/EIA/TIA-222-F STANDARDS FOR STRUCTURAL STEEL ANTENNA SUPPORTING STRUCTURES AND STEEL BUILDING CODE REQUIREMENTS. DETAILED CONSTRUCTION DRAWINGS AND STRUCTURAL CALCULATIONS WILL BE PREPARED BY A REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED WITH A BUILDING PERMIT APPLICATION FOR REVIEW AND APPROVAL BY THE LOCAL BUILDING CODE ENFORCEMENT OFFICIAL.
5. ONCE THE FACILITY BECOMES FULLY OPERATIONAL, NORMAL AND ROUTINE MAINTENANCE BY VOICESTREAM TECHNICIANS WILL BE PERFORMED ON A MONTHLY BASIS. THEREFORE, THE ESTIMATED VEHICLE TRIP GENERATION RATE IS TWO TRIPS PER MONTH. THE AVERAGE DAILY TRIP GENERATION RATE IS 0.07.
6. PAINT ANTENNAS, MOUNTING HARDWARE, COAXIAL CABLE AND EXPOSED VERTICAL CABLE TRAY TO MATCH EXISTING CONDITIONS.
7. PERMANENT STANDBY EMERGENCY POWER WILL NOT BE UTILIZED BY VOICESTREAM. IF NECESSARY, DURING AN EXTENDED POWER OUTAGE, A PORTABLE EMERGENCY GENERATOR WILL BE USED TO PROVIDE TEMPORARY EMERGENCY BACKUP POWER. THERE IS NO ON-SITE BULK STORAGE OF FLAMMABLE OR COMBUSTIBLE FUELS FOR OPERATING AN EMERGENCY GENERATOR FOR THE VOICESTREAM EQUIPMENT.
8. FCC MANDATE REQUIRES ENHANCED EMERGENCY (E911) POSITION LOCATION EQUIPMENT TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. IMPLEMENTATION OF E911 STANDARDS REQUIRES VOICESTREAM TO DEPLOY A MINIMUM OF 2 MEASUREMENT FUNCTION RECEIVER (MFR) ANTENNAS AND 1 GLOBAL POSITIONING SYSTEM (GPS) ANTENNA AND MAY BE SUBJECT TO CHANGE. VOICESTREAM RESERVES THE RIGHT TO CHANGE THE LOCATION AND CONFIGURATION OF THE E911 EQUIPMENT WITHOUT ANY UNREASONABLE RESTRICTIONS IMPOSED BY THE LANDLORD.
9. APPLICANT: OMNIPONT COMMUNICATIONS, INC.
100 FOLEY STREET
BLOOMFIELD, CT 06002
10. PROPERTY OWNER: D.J. PAINES & SONS
56 FLOYDVILLE ROAD
EAST GRANBY, CT 06026
11. STRUCTURE OWNER: SBA PROPERTIES, INC.
80 EASTERN BOULEVARD
GLASTONBURY, CT 06033
12. ASSESSOR'S PARCEL NO.: ASSESSOR'S PLAT/MAP: 15, LOT: 10
13. JURISDICTION: TOWN OF EAST GRANBY
14. ZONING DISTRICT: I INDUSTRIAL

NOTES:
PLOT PLAN BASED ON PARTIAL-SITE PLAN BY SBA AND ANTHONY CONSULTING ENGINEERS OF ROCHESTER, NY DATED 6/11/01.
SETBACKS ARE TAKEN FROM PROPOSED EQUIPMENT TO PROPERTY LINES.



VoiceStream
Global Wireless by T-Mobile
100 FOLEY STREET
BLOOMFIELD, CT 06002
OFFICE: (860)-794-4300
FAX: (860)-692-7159

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APPROVALS

LANDLORD _____
LEASING _____
R.F. _____
ZONING _____
CONSTRUCTION _____
A/E _____

PROJECT NO: 02125.13
DRAWN BY: MJE/JJT
CHECKED BY: DJD

SUBMITTALS

2	5/15/02	FOR ZONING REMSE
1	5/6/02	FOR ZONING FINAL
0	4/26/02	FOR ZONING REVIEW

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO VOICESTREAM IS STRICTLY PROHIBITED.

CT11-386G
EAST GRANBY
SBA TOWER
56 FLOYDVILLE ROAD
EAST GRANBY, CT 06026

SHEET TITLE
PLANS, ELEVATIONS,
DETAILS AND NOTES

SHEET NUMBER
Z-1

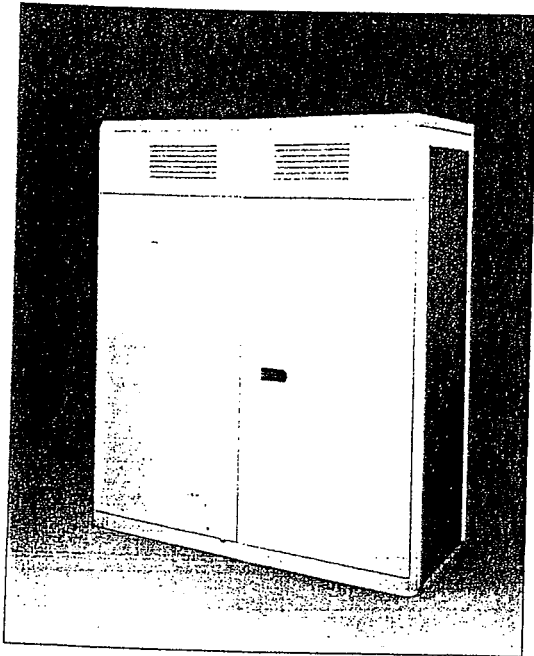
Exhibit C

Equipment Specifications

Floydville Road

East Granby, Connecticut

S8000 Outdoor Base Transceiver Station



Nortel's S8000 Outdoor Base Transceiver Station has been designed to meet the economic and performance requirements of network operators. Based on a highly integrated RF and digital design, the S8000 Outdoor Base Transceiver Station represents a major technology advancement and delivers all the benefits of a compact, modular, high quality and high performance product.

Nortel's S8000 Outdoor BTS: Radio Performance Leadership - Reduced Site Acquisition and Operating Costs

Installation

- The S8000 Outdoor Base Transceiver Station (BTS) offers compact packaging and requires minimal floor space, only .88 sq m (9.5 sq ft.). Front only access keeps total space required, including maintenance access, to only 1.8 sq m (19.4 sq ft.) per cabinet.

Transmission

- Integrated drop and insert connection to the Base Station Controller (BSC) and signaling concentration on the A-bis interface provide significant transmission cost reduction.
- Optional integrated digital microwave radio.

Maintenance

- Highly reliable technology, redundant architecture and integrated battery backup ensure high availability service.
- Front access and interconnections, as well as powerful fault detection, help reduce lifetime maintenance costs.

Industry leading performance

- New RF technology and advanced digital processing techniques provide very high receive sensitivity (-108 dBm guaranteed) and improved diversity gain (up to 6 dB). This provides higher resistance to interference, as well as, improved speech quality and cell coverage.
- Nortel's proven experience in frequency hopping, 1*3 frequency reuse, sophisticated microcellular handover algorithms and support of half-rate vocoders enables the operator to maximize use of available spectrum and deploy fewer cell sites.

Fast network deployment

- The S8000 BTS can be shipped fully equipped and tested, which provides fast network roll out to meet operator time to market requirements.

Modular and flexible configuration

- The S8000 supports eight transceivers (TRX) per cabinet in Omni and sectored configurations. The typical one cabinet S222 configuration may be expanded up to S332 or S422 without an additional cabinet.

Technical Data

• Frequency range		900 MHz GSM
		900 MHz GSM extended
		1800 MHz DCS
		1900 MHz PCS
• Receive sensitivity (guaranteed)		-108 dBm
• Dimensions	Height	1600 mm / 5 ft. 3 in.
	Width	1350 mm / 4 ft. 5 in.
	Depth	650 mm / 2 ft. 1 in.
• Weight	Fully equipped	600 kg / 1300 lbs.
• Capacity		8 TRX per cabinet
		up to 3 cabinets
• Configuration	Trisectorial	up to S888
	Omnidirectional	up to O16
• Amplifier output power		30 W (± 1.5 dB)
• Power control	Static	6 steps of 2 dB
	Dynamic	15 steps of 2 dB
• Frequency hopping		RF synthesized
		baseband
• Supported vocoders		Full rate
		Enhanced full rate
		Half rate
• Encryption algorithms		A5/1 A5/2
• Power supply		230V AC 50/60 Hz
• Power back-up		Integrated battery back-up plus optional battery cabinet allows provisioning up to 8 hours back-up time.
• Operating temperature range		-40°C to +50°C
		-40°F to +122°F

For more information,
please contact your local Nortel account representative.

In the USA:
Northern Telecom
2221 Lakeside Boulevard
Richardson TX 75082
USA
Telephone: 1-800-4 NORTEL
1-800-466-7838 or (214) 684-5935 --
<http://www.nortel.com/wireless>

In Canada:
Northern Telecom
2920 Matheson Boulevard East
Mississauga ON L4W 4M7
Canada
Telephone: 1-800-4 NORTEL

In the Caribbean and Latin America:
Northern Telecom (CALA) Corporation
1500 Concord Terrace
Sunrise FL 33323
USA
Telephone: (305) 851-8400

In Asia:
Northern Telecom (Asia) Limited
151 Lorong Chuan
#02-01 New Tech Park
Singapore 1955
Telephone: (65) 287-2877

Nortel China Ltd.
34th Floor, Central Plaza
18 Harbour Road, Wanchai
Hong Kong
Telephone (852) 2585 2888

In Europe:
Nortel Limited
Stafferton Way
Maidenhead
Berkshire SL6 1AY
England
Telephone: (44) (1628) 812000

Nortel Matra Cellular
BP 50
1 place des Frères Montgolfier
78042 Guyancourt Cedex
France
Telephone (33) (1) 34 52 52 52

Nortel Europe
12-12bis rue Jean Jaurès
92807 Puteaux
France
Telephone (33) (1) 46 96 15 15

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design as engineering or manufacturing
methods warrant.

NORTEL
NORTHERN TELECOM

3 CABINET DESCRIPTION

3.1 PHYSICAL CHARACTERISTICS

3.1.1 S8000 Outdoor BTS

3.1.1.1 BTS cabinet

Dimensions

The BTS S8000 Outdoor has the following dimensions:

- height: 160 cm (63 in.)
- width: 135 cm (52.8 in.)
- depth: 65 cm (25.6 in.)

Weight

The weight of the cabinet when empty, that is, without its battery, fan units or boards, is 164 kg (361 lb). Depending on the configuration, a fully equipped cabinet weighs approximately 480 kg (1056 lb) with ACU unit or 440 kg (968 lb) with DACS unit.

These weights do not include the plinth.

Operating temperature

To operate correctly, the BTS requires a temperature greater than -40°C (-40°F) and less than $+50^{\circ}\text{C}$ ($+122^{\circ}\text{F}$).

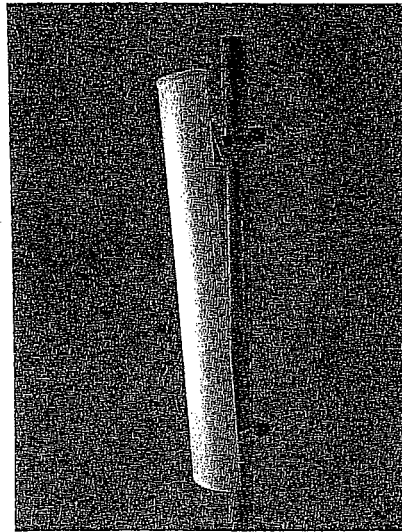
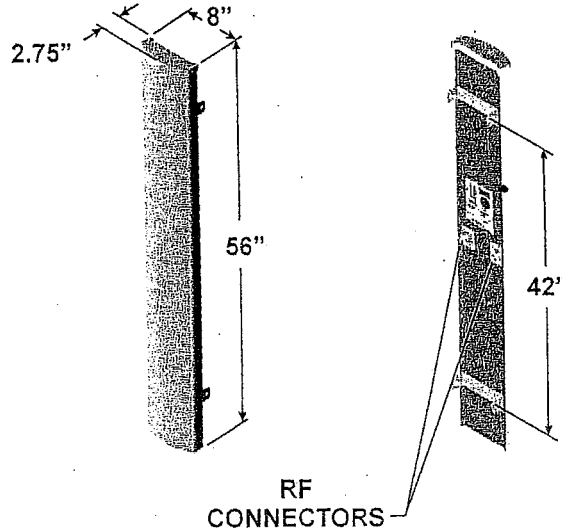
Consumption

BTS input voltage:

- GSM 900/1800
 - nominal voltage contained between 220V AC and 240V AC
 - minimum voltage: $220 - 10\% = 198\text{V AC}$
 - maximum voltage: $240 + 6\% = 254\text{V AC}$
- GSM 1900 (with DACS)
 - nominal voltage: 208V AC to 240V AC
 - minimum voltage: $208 - 10\% = 187\text{V AC}$
 - maximum voltage: $240 + 6\% = 254\text{V AC}$
- GSM 1900 (with ACU and/or the power system six-rectifier type)
 - nominal voltage: 240V AC
 - minimum voltage: $240 - 10\% = 187\text{V AC}$
 - maximum voltage: $240 + 6\% = 254\text{V AC}$

NON - PREMIUM
BTS ONLY

1850 MHz - 1990 MHz (P)



- 90° beamwidth
- 16.5 dBi gain
- ±45° DualPol™
- 56 inch

SPECIFICATIONS

Electrical		Mechanical	
Azimuth Beamwidth	90°	Dimensions (L x W x D)	56in x 8in x 2.75in (142 cm x 20.3 cm x 7.0 cm)
Elevation Beamwidth	6°	Rated Wind Velocity	150 mph (241 km/hr)
Gain	16.5 dBi (14.4 dBd)	Equivalent Flat Plate Area	3.1ft ² (.29 m ²)
Polarization	Slant, ±45°	Front Wind Load @ 100 mph (161 kph)	90 lbs (400 N)
Port-to-Port Isolation	≥ 30 dB	Side Wind Load @ 100 mph (161 kph)	31 lbs (139 N)
Front-to-Back Ratio	≥ 25 dB (≥ 30 dB Typ.)	Weight	18 lbs (8.2 kg)
Electrical Downtilt Options	0°, 2°, 4°, 6°	<p>Note: Patent Pending and US Patent number 5, 757, 246.</p> <p>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.</p>	
VSWR	1.35:1 Max		
Connectors	2; Type N or 7-16 DIN (female)		
Power Handling	250 Watts CW		
Passive Intermodulation	<-147 dBc (2 tone @ +43 dBm (20W) ea.)		
Lightning Protection	Chassis Ground		

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 represents a series of products. See mounting options section for specific model number.

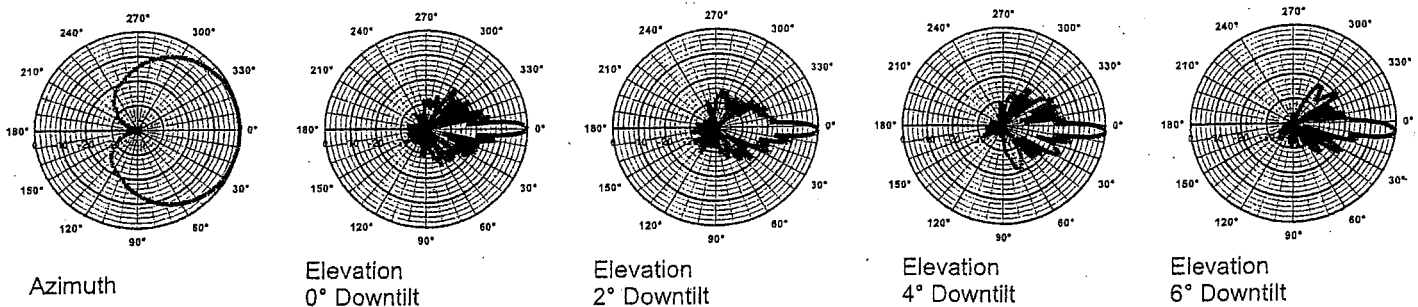


Exhibit D

Structural Analysis

Floydville Road

East Granby, Connecticut



May 15, 2002

Ms. Debra Overbey
Voicestream Wireless (Omnipoint Communications Inc.)
100 Filley Street
Bloomfield, CT 06002

Re: Site No.: CT11-386G
56 Floydville Road, East Granby, CT
W&M #02-125.11

Dear Debra:

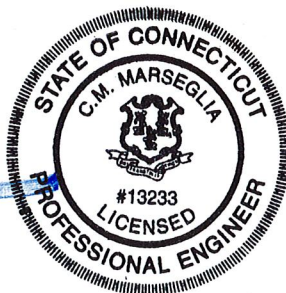
Per your request, the following is a Structural Opinion letter for the above mentioned site. I am familiar with the design and construction of wireless telecommunications facilities including monopoles and antenna attachments. I have reviewed the Tower calculations and drawings for the 120 foot monopole prepared by Pirod and have found that it was designed to accommodate an antenna loading including 5 clamp on three sector platform mounts at 77, 87, 97, 107 and 117 feet AGL. The Voicestream antenna configuration will consist of 12 panel type antennas on a clamp-on three-sector platform set at 107 feet AGL.

It is my conclusion based on the findings outlined above, that the existing monopole can safely accommodate the Voicestream antenna configuration.

Please do not hesitate to contact me with any questions or comments.

Very truly yours,

Chris Marseglia, PE
Vice President, Engineering



cc: M. Egan, W&M
B. Bakis, Voicestream

ORIGINAL

CT-11-386G

TOWER CALCULATIONS

EIA-Standard RS-222-F

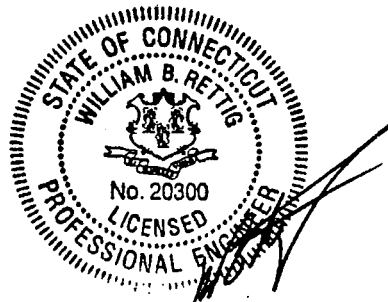
80 mph / 0.0 Ice

7 pages to follow

SBA Network Services, Inc.

Site: East Granby, Ct

PiRod Engineering File A-118,413-1



JUN 14 2001



PIROD INC.

P.O. BOX 128

• PLYMOUTH, INDIANA 46563-0128

• (219) 938-4221

Customer: SBA NETWORK SERVICES, INC. Site: EAST GRANBY, CT

Wind Velocity = 80.00 mph	Windspeed and Topload	Top Load Area = 4.51 sq-ft
Ice Load = 0.00 in	Moment Arm = 7.74 ft.	Analysis per: EIA/TIA-222-F
Simultaneous Ice Reduction = 0 %	Top Load Ca = 1.00 kips	Stress Increase = 1.33
Width at Top = 24.2500 in.	Top Load Wt. = 0.09 kips	Taper = 0.25 in./ft.
Chicago Building Code? (Yes or No): No		
OK - All Sections Match		

Section Number	Section Length (ft)	Wall Thickness (in.)	Section Straight or Tapered?	Overlap at Top? Yes or No.	Section Height		Cum Length (ft)	Discrete Appurtenances		Linear Appurtenances		Effective Length (ft.)	Overlap Length (in.)	Bottom F-F Diameter (in.)	Top F-F Diameter (in.)	Yield Strength (ksi)	Section Number
					From (ft)	To (ft)		Point Load Area (sq.ft.)	Point Load Weight (kips)	Linear App. Area (AaCa) (sq.ft.)	Linear App. Weight (kips)						
1	7.000	0.2600	Tapered	No	133.08	140.08	7.000	140.00	102.09	0.00	0.00	7.000	0.0000	26.0000	24.2600	65	1
2	2.500	0.3125	Tapered	YES	133.60	133.60	2.500	130.00	102.09	0.00	0.00	-0.417	35.0000	25.3125	24.6875	65	2
2	5.000	0.3125	Tapered	NO	118.50	128.50	7.500	120.00	102.09	1.87	0.00	0.0000	0.0000	26.5625	25.3125	65	2
2	10.000	0.3125	Tapered	NO	118.50	118.50	17.500	110.00	102.09	1.87	0.00	10.000	0.0000	29.0625	29.0625	65	2
2	10.000	0.3125	Tapered	NO	108.50	108.50	27.500	100.00	102.09	1.87	0.00	0.0000	0.0000	34.0625	31.5625	65	2
3	17.500	0.3750	Tapered	yes	84.83	98.50	17.500	90.00	102.09	1.87	0.00	13.667	46.0000	36.7500	32.3750	65	2
3	20.000	0.3750	Tapered	no	84.83	84.83	37.500	80.00	102.09	1.87	0.00	20.000	56.0000	41.7500	39.8750	65	3
4	37.500	0.3750	Tapered	yes	32.00	32.00	37.500	0.00	0.00	0.00	0.00	32.833	66.0000	48.0625	46.7500	65	4
5	37.500	0.3750	Tapered	YES	0.00	32.00	37.500	0.00	0.00	0.00	0.00	32.000	66.0000	56.1250	46.7500	65	4
Overall Height = 140.08 ft								Totals:		Totals:		Totals:		Totals:		Totals:	
								13.10	0.00	13.10	0.00	0.00	0.00	66.0000	32.000	46.7500	65

Section Number	Section Length (ft)	Bottom F-F Diameter (in.)	Wall Thickness (in.)	Yield Strength (ksi)	w (in.)	Section Weight (kips)	Bending Stress Ratio	Bending OK?	Shear Stress Ratio	Shear OK?	Cum Sway (deg)	Cum Deflection (in.)	Pt. Load Kz	Pt. Load qz	Steel Weight (kips)	Section Steel + Galv. Weight (kips)***					
																	Results Summary				
1	7.00	26.0000	0.2600	65	N/A	0.50	0.06	OKI	0.01	OKI	4.89	77.32	1.511	24.76	0.50	0.50					
2	2.50	25.3125	0.3125	65	N/A	0.21	0.05	OKI	0.01	OKI	4.87	77.32	1.000	16.38	0.21	0.21					
2	5.00	26.5625	0.3125	65	N/A	0.43	0.08	OKI	0.01	OKI	4.67	77.73	1.480	24.24	0.43	0.43					
2	10.00	29.0625	0.3125	65	N/A	0.93	0.19	OKI	0.01	OKI	4.52	72.85	1.448	23.69	0.83	0.83					
2	10.00	31.5625	0.3125	65	N/A	1.01	0.30	OKI	0.02	OKI	4.32	63.24	1.411	23.11	1.01	1.01					
3	13.87	36.7500	0.3750	65	N/A	1.10	0.41	OKI	0.02	OKI	4.05	45.17	1.373	22.49	1.10	1.10					
3	20.00	41.7500	0.3750	65	N/A	3.16	0.67	OKI	0.02	OKI	3.62	34.13	1.288	21.82	1.01	1.01					
4	32.83	49.0625	0.3750	65	N/A	6.70	0.84	OKI	0.02	OKI	2.89	20.35	1.000	16.38	0.70	0.70					
5	32.00	56.1250	0.3750	65	N/A	7.78	0.93	OKI	0.02	OKI	1.42	6.08	1.000	16.38	0.70	0.70					
Overall Height = 140.08 ft												13.10	0.00	13.10	0.00	0.00	0.00	66.0000	32.000	46.7500	65

Section Number	Bottom Height (ft)	Top Height (ft)	Mid-Height, z (ft)	Steel + 6% Galv. Weight/Foot (lb/ft)***	Ice Weight/Foot (lb/ft)	Face Area (sq-ft)	Section Kz	Section qz (psf)	C [Table 3]	CF ** Round	Pt. Load Kz	Pt. Load qz	Steel Weight (kips)	Section Steel + Galv. Weight (kips)***							
															Force Calculation Table						
1	133.08	140.08	136.58	71.61	0.0000	14.66	1.501	24.89	205.18	0.590	1.511	24.76	0.50	0.50							
2	133.60	133.60	133.29	83.11	0.0000	-0.87	1.490	24.41	203.45	0.590	1.000	16.38	0.50	0.50							
2	128.60	133.60	131.00	86.26	0.0000	10.81	1.483	24.29	210.58	0.590	1.480	24.24	0.21	0.21							
2	118.50	128.60	123.60	92.68	0.0000	23.18	1.458	23.89	223.69	0.590	1.448	24.24	0.43	0.43							
2	108.50	118.50	113.60	100.99	0.0000	25.28	1.423	23.32	241.09	0.590	1.411	23.69	0.83	0.83							
3	98.50	108.50	103.60	110.06	0.0000	27.34	1.388	22.71	257.65	0.590	1.411	23.11	1.01	1.01							
3	84.83	98.50	91.67	138.82	0.0000	39.36	1.339	21.94	266.62	0.590	1.373	22.49	1.01	1.01							
3	64.83	84.83	74.83	167.87	0.0000	65.42	1.264	20.70	284.13	0.590	1.332	21.82	1.01	1.01							
4	32.00	64.83	48.42	178.80	0.0000	121.41	1.116	18.28	312.49	0.590	1.288	21.10	0.70	0.70							
5	0.00	32.00	16.00	207.60	0.0000	137.17	1.000	16.38	342.92	0.590	1.000	16.38	0.70	0.70							
Cust Response Factor = 1.60												13.10	0.00	13.10	0.00	0.00	0.00	66.0000	32.000	46.7500	65

Reaction Summary			
Shear =	37.03 kips		
Moment =	3719.37 ft-kips		
Steel Weight =	24.26 kips		
Total Weight =	57.44 kips		

APPROVED BY *[Signature]* JUN 13 2001

Shear, Moment and Section Property Calculation and Summation Table.

Section Number	Present Shear (kips)	PL Load Shear (kips)	Linear App. Shear (kips)	Previous Shear (kips)	Total Shear (kips)	Present Moment (ft-kips)	PL Load Moment (ft-kips)	Linear App. Moment (ft-kips)	Previous Moment (ft-kips)	Moment from Shear (ft-kips)	Total Moment (ft-kips)	Cumm. Weight (kips)
1	0.35	4.27	0.00	0.19	4.82	1.28	23.65	0.00	1.46	1.32	33.59	2.48
2	-0.02	0.00	0.00	4.82	4.80	0.00	-0.00	-0.00	33.59	-2.01	31.58	2.67
2	0.65	4.18	0.00	8.24	9.24	0.65	6.27	0.00	31.58	23.99	62.50	4.97
2	0.69	3.99	0.00	13.88	13.88	2.76	6.13	0.00	62.50	92.43	163.82	7.76
2	0.62	3.88	0.00	18.48	18.48	2.94	6.98	0.00	163.82	138.82	311.57	10.89
3	0.89	3.77	0.00	22.98	22.98	3.10	6.82	0.00	311.57	184.67	605.05	13.82
3	1.35	3.64	0.00	27.68	27.68	6.88	19.46	0.00	605.05	313.74	844.13	17.92
4	2.21	0.00	0.00	32.57	32.57	13.50	55.22	0.00	844.13	551.86	1464.51	22.85
6	2.24	0.00	0.00	34.79	34.79	36.33	-0.00	0.00	1464.51	1069.50	2570.34	28.65
				37.03	37.03	35.85	0.00	0.00	2570.34	1113.18	3719.37	37.44

* Shear Induced by Top Load for 1st Section

Determination of the Allowable Bending Stress

Section Number	Comp. Stress, f_c (ksi)	Round D/t lim 1 (ksi)	Round D/t lim 2 (ksi)	D/t lim 1 OK?	D/t lim 2 OK?	Round D/t lim 2	D/t lim 3	D/t lim 3 OK?	Compact or Noncompact	Allow. Bending Stress F_b , ksi
1	104.00	78.83	200.00	No	Yes	200.00	50.77	No	Noncompact	39.00
2	81.00	78.89	200.00	No	Yes	200.00	50.77	No	Noncompact	39.00
2	83.00	78.51	200.00	No	Yes	200.00	50.77	No	Noncompact	39.00
2	101.00	77.81	200.00	No	Yes	200.00	50.77	No	Noncompact	39.00
2	98.00	77.49	200.00	No	Yes	200.00	50.77	No	Noncompact	39.00
3	111.33	77.25	200.00	No	Yes	200.00	50.77	No	Noncompact	39.00
3	130.83	77.04	200.00	No	Yes	200.00	50.77	No	Noncompact	39.00
4	148.67	76.80	200.00	No	Yes	200.00	50.77	No	Noncompact	39.00

D/t Equations Used: (The D/t ratio must be less than the limits set below to qualify as compact.)

D/t lim 1: if not satisfied the section is Noncompact	D/t lim 2: if not satisfied, No Good	D/t lim 3: if not satisfied the section is Noncompact
$f_a/F_y \leq 0.16$	D/t lim 2 = 13000/F _y	D/t lim 3 = 3300/F _y
$f_a/F_y > 0.16$	D/t lim 2 = 2877/F _y - 0.6	D/t lim 3 = 3300/F _y

Maximum Stresses Induced per Section Compared to Allowable Stresses per AISC-ASD 9th Edition.

Section Number	Moment of Inertia (in. ⁴)	Section Modulus (cubic in.)	Bending Stress (ksi)	Bending Stress Ratio	Bending OK?	Area of Cross Section (sq. in.)	Shear Stress (ksi)	Shear Stress Ratio	Shear OK?
1	1716.47	130.98	3.08	0.08	OKI	20.38	0.236	0.01	OKI
2	1962.49	153.89	2.48	0.06	OKI	24.73	0.194	0.01	OKI
2	2271.80	169.76	4.42	0.08	OKI	28.44	0.356	0.01	OKI
2	2984.69	203.84	9.64	0.19	OKI	30.92	0.488	0.01	OKI
2	3852.78	241.03	16.51	0.30	OKI	33.39	0.688	0.02	OKI
2	4928.43	281.34	21.84	0.41	OKI	43.18	0.839	0.02	OKI
3	7263.85	391.77	25.86	0.60	OKI	49.12	0.683	0.02	OKI
3	10874.59	507.49	34.63	0.87	OKI	57.80	0.602	0.02	OKI
4	17393.22	703.64	43.94	0.84	OKI	68.19	0.559	0.02	OKI
5	26112.98	923.46	48.33	0.93	OKI	68.19	0.559	0.02	OKI

Section Number	Bottom					Top					Average over Length		
	Radius across flats (in.)	Flat Width (in.)	Peak Radius (in.)	Equivalent OD (in.)	Equivalent ID (in.)	Radius across flats (in.)	Flat Width (in.)	Peak Radius (in.)	Equivalent OD (in.)	Equivalent ID (in.)	Average Outside Diameter (in.)	Average Inside Diameter (in.)	Average Moment of Inertia (in. ⁴)
1	12.8750	4.5404	13.0736	26.1986	26.8986	12.0000	4.2318	12.1851	24.4351	23.9351	24.8169	1646.4785	
2	12.8000	4.4082	12.6928	26.5053	24.8803	12.1875	4.2980	12.3755	24.8755	24.2605	24.6654	1889.8213	
2	13.1260	4.6286	13.3278	28.7650	28.1400	12.6000	4.4082	12.6928	26.5053	24.8803	25.1352	2113.3728	
2	14.3760	5.0694	14.6988	28.2843	28.6893	13.1250	4.9288	13.3278	26.7650	26.1400	27.3998	2612.0061	
2	16.6250	6.9510	16.8660	31.8035	31.1785	14.3750	6.0694	14.5968	29.2843	28.6593	30.6439	3391.0266	
3	18.1875	6.4139	18.4681	34.3228	33.6978	16.6250	6.5102	16.8660	31.8035	31.1785	33.0632	4311.3226	
3	20.6876	7.2956	21.0066	42.0691	41.3191	18.1875	6.4139	18.4681	37.0306	36.2806	38.7959	6022.2081	
4	24.3438	8.5849	24.7193	48.4360	48.6880	19.6563	6.9319	19.9596	39.9507	39.2407	44.7144	8854.2776	
5	27.8760	9.8302	28.3050	56.5650	56.8080	23.1875	8.1772	23.8452	47.1077	46.3577	51.8314	12837.8183	

Section Number	Current Section Deflection due to:					Current Section Sway due to:					Summary of Deflection and Sway		
	Wind App. & Sec. (in.)	Moment (in.)	Load at Top (in.)	Point Load (in.)	Total (in.)	Wind App. & Sec. (rad)	Moment (rad)	Load at Top (rad)	Point Load (rad)	Total (rad)	Cumm. Def. of Sect. (in.)	Cumm. Sway at Top of Sect. (rad.)	Rot. (deg)
1	0.0006	0.0014	0.0008	0.0185	0.0213	0.0000	0.0000	0.0000	0.0003	0.0004	84.19	0.0818	4.69
2	0.0000	0.0001	-0.0000	0.0000	0.0001	-0.0000	-0.0000	0.0000	0.0000	-0.0000	77.32	0.0816	4.67
2	0.0001	0.0111	0.0068	0.0008	0.0175	0.0000	0.0004	0.0001	0.0000	0.0005	77.73	0.0816	4.67
2	0.0018	0.0713	0.0703	0.0010	0.1441	0.0000	0.0012	0.0009	0.0000	0.0021	72.85	0.0810	4.64
2	0.0013	0.1439	0.0613	0.0007	0.2273	0.0000	0.0024	0.0010	0.0000	0.0034	63.24	0.0789	4.62
2	0.0011	0.2153	0.0860	0.0008	0.3020	0.0000	0.0038	0.0011	0.0000	0.0047	63.97	0.0764	4.32
3	0.0027	0.4667	0.1933	0.0059	0.6686	0.0001	0.0057	0.0018	0.0000	0.0076	45.17	0.0708	4.05
3	0.0081	1.1361	0.4950	0.0421	1.6823	0.0001	0.0095	0.0031	0.0002	0.0128	34.13	0.0632	3.62
4	0.0464	3.6639	1.7838	0.0000	5.4932	0.0002	0.0186	0.0068	0.0000	0.0256	20.35	0.0504	2.89
5	0.0273	3.9082	1.1284	0.0000	6.0638	0.0001	0.0204	0.0044	0.0000	0.0248	8.06	0.0248	1.42

Modulus of Elasticity = 29,000 ksi

ANALYSIS ENTRY VALUES

HEIGHT # OF ANTS (ft)	ANTENNA MODEL	LOAD # OF TYPE MNTS	MOUNT DESCRIPTION	TOTAL AaCa (sqft)	HEIGHT (ft)	TOTAL AREA (sqft)	TOTAL WEIGHT (kips)	LINE SIZE (in)	SHELTERED LINE SIZE (in)
140.00	12 SECTORIZED DB896	G- 1	3WAY LP MOUNT (13')	88.26	140.00	88.26	1.564	28.20	
140.00	0 NONE	-P 4	N-PIPE 2.000" x 10.0"	0.53	140.00	0.53	0.102	0.00	
140.00	0 NONE	-P 8	N-PIPE 2.000" x 84.0"	13.30	140.00	13.30	0.205	0.00	
			Totals @ 140.00'	102.09	Totals	102.09	1.871	28.20	28.20
130.00	12 SECTORIZED DB896	G- 1	3WAY LP MOUNT (13')	88.26	130.00	88.26	1.564	28.20	
130.00	0 NONE	-P 4	N-PIPE 2.000" x 10.0"	0.53	130.00	0.53	0.102	0.00	
130.00	0 NONE	-P 8	N-PIPE 2.000" x 84.0"	13.30	130.00	13.30	0.205	0.00	
			Totals @ 130.00'	102.09	Totals	102.09	1.871	28.20	28.20
120.00	12 SECTORIZED DB896	G- 1	3WAY LP MOUNT (13')	88.26	120.00	88.26	1.564	28.20	
120.00	0 NONE	-P 4	N-PIPE 2.000" x 10.0"	0.53	120.00	0.53	0.102	0.00	
120.00	0 NONE	-P 8	N-PIPE 2.000" x 84.0"	13.30	120.00	13.30	0.205	0.00	
			Totals @ 120.00'	102.09	Totals	102.09	1.871	28.20	28.20
110.00	12 SECTORIZED DB896	G- 1	3WAY LP MOUNT (13')	88.26	110.00	88.26	1.564	28.20	
110.00	0 NONE	-P 4	N-PIPE 2.000" x 10.0"	0.53	110.00	0.53	0.102	0.00	
110.00	0 NONE	-P 8	N-PIPE 2.000" x 84.0"	13.30	110.00	13.30	0.205	0.00	
			Totals @ 110.00'	102.09	Totals	102.09	1.871	28.20	28.20
100.00	12 SECTORIZED DB896	G- 1	3WAY LP MOUNT (13')	88.26	100.00	88.26	1.564	28.20	
100.00	0 NONE	-P 4	N-PIPE 2.000" x 10.0"	0.53	100.00	0.53	0.102	0.00	
100.00	0 NONE	-P 8	N-PIPE 2.000" x 84.0"	13.30	100.00	13.30	0.205	0.00	
			Totals @ 100.00'	102.09	Totals	102.09	1.871	28.20	28.20
90.00	12 SECTORIZED DB896	G- 1	3WAY LP MOUNT (13')	88.26	90.00	88.26	1.564	28.20	
90.00	0 NONE	-P 4	N-PIPE 2.000" x 10.0"	0.53	90.00	0.53	0.102	0.00	
90.00	0 NONE	-P 8	N-PIPE 2.000" x 84.0"	13.30	90.00	13.30	0.205	0.00	
			Totals @ 90.00'	102.09	Totals	102.09	1.871	28.20	28.20
80.00	12 SECTORIZED DB896	G- 1	3WAY LP MOUNT (13')	88.26	80.00	88.26	1.564	28.20	
80.00	0 NONE	-P 4	N-PIPE 2.000" x 10.0"	0.53	80.00	0.53	0.102	0.00	
80.00	0 NONE	-P 8	N-PIPE 2.000" x 84.0"	13.30	80.00	13.30	0.205	0.00	
			Totals @ 80.00'	102.09	Totals	102.09	1.871	28.20	28.20

NOTES:

* Multiple Microwave dishes at same level have an area reduction applied to ANALYSIS ENTRY VALUES.
(25% for 2nd dish at a level, 35% for 3rd, 40% for 4th or more)

PIROD, INC.

Printed by KWD on Mon, Jun 11, 2001 at 08:35 am. Values for MONOPOLE TOWERS under VERSION E with NO ICE. (v3.49)

HGHT (ft)	TYPE	QTY.	MANUFACTURER	MODEL	AREA Ea (sqft)	Ca	TOTAL CaAa (sqft)	WT Ea (kips)	LEN. (in)	LINE SIZE (in)	VER.
140.00	ANT	12	GENERAL	SECTORIZED DB896	6.05	1.0000	72.60	0.022	0.0	2.350	
140.00	MNT	1		3WAY LP MOUNT (13')	15.66		15.66	1.300			
140.00	MNT	4		N-PIPE 2.000" x 10.0"	0.13		0.53	0.026	84.0		
140.00	MNT	8		N-PIPE 2.000" x 84.0"	1.66		13.30	0.026	84.0		
130.00	ANT	12	GENERAL	SECTORIZED DB896	6.05	1.0000	72.60	0.022	0.0	2.350	
130.00	MNT	1		3WAY LP MOUNT (13')	15.66		15.66	1.300			
130.00	MNT	4		N-PIPE 2.000" x 10.0"	0.13		0.53	0.026	84.0		
130.00	MNT	8		N-PIPE 2.000" x 84.0"	1.66		13.30	0.026	84.0		
120.00	ANT	12	GENERAL	SECTORIZED DB896	6.05	1.0000	72.60	0.022	0.0	2.350	
120.00	MNT	1		3WAY LP MOUNT (13')	15.66		15.66	1.300			
120.00	MNT	4		N-PIPE 2.000" x 10.0"	0.13		0.53	0.026	84.0		
120.00	MNT	8		N-PIPE 2.000" x 84.0"	1.66		13.30	0.026	84.0		
110.00	ANT	12	GENERAL	SECTORIZED DB896	6.05	1.0000	72.60	0.022	0.0	2.350	
110.00	MNT	1		3WAY LP MOUNT (13')	15.66		15.66	1.300			
110.00	MNT	4		N-PIPE 2.000" x 10.0"	0.13		0.53	0.026	84.0		
110.00	MNT	8		N-PIPE 2.000" x 84.0"	1.66		13.30	0.026	84.0		
100.00	ANT	12	GENERAL	SECTORIZED DB896	6.05	1.0000	72.60	0.022	0.0	2.350	
100.00	MNT	1		3WAY LP MOUNT (13')	15.66		15.66	1.300			
100.00	MNT	4		N-PIPE 2.000" x 10.0"	0.13		0.53	0.026	84.0		
100.00	MNT	8		N-PIPE 2.000" x 84.0"	1.66		13.30	0.026	84.0		
90.00	ANT	12	GENERAL	SECTORIZED DB896	6.05	1.0000	72.60	0.022	0.0	2.350	
90.00	MNT	1		3WAY LP MOUNT (13')	15.66		15.66	1.300			
90.00	MNT	4		N-PIPE 2.000" x 10.0"	0.13		0.53	0.026	84.0		
90.00	MNT	8		N-PIPE 2.000" x 84.0"	1.66		13.30	0.026	84.0		
80.00	ANT	12	GENERAL	SECTORIZED DB896	6.05	1.0000	72.60	0.022	0.0	2.350	
80.00	MNT	1		3WAY LP MOUNT (13')	15.66		15.66	1.300			
80.00	MNT	4		N-PIPE 2.000" x 10.0"	0.13		0.53	0.026	84.0		
80.00	MNT	8		N-PIPE 2.000" x 84.0"	1.66		13.30	0.026	84.0		
80.00	ANT	12	GENERAL	SECTORIZED DB896	6.05	1.0000	72.60	0.022	0.0	2.350	
80.00	MNT	1		3WAY LP MOUNT (13')	15.66		15.66	1.300			
80.00	MNT	4		N-PIPE 2.000" x 10.0"	0.13		0.53	0.026	84.0		
80.00	MNT	8		N-PIPE 2.000" x 84.0"	1.66		13.30	0.026	84.0		

TOP LOAD EQUIVALENT

NO ICE

	PAT/Part	Quantity	Area (sq ft)	Arm (ft)	Moment (sq ft * ft)	Weight (kips)	Length (ft)
Top Loads	-	-	0.00	0.00	0.00	0.000	0.00
	-	-	0.00	0.00	0.00	0.000	0.00
	-	-	0.00	0.00	0.00	0.000	0.00
Beacon	-	0	0.00	0.00	0.00	0.000	0.00
Beacon Extender	0	-	0.00	0.00	0.00	0.000	0.00
Lightning Rod Extender	806022	-	4.51	7.74	34.94	0.090	15.00
SU Top Interface	NONE	-	0.00	0.00	0.00	0.000	0.00
TOTAL			4.51	7.74	34.94	0.090	

TOWER ANALYSIS ENTRIES

<p>Self Supporting & Guyed Towers & Tapered Pole</p> <p>Area: 4.51 sq ft Arm: 7.74 ft Weight: 0.090 kips</p>	<p>Monopole</p> <p><u>Top Load</u> Area: 4.37 sq ft Arm: 8.00 ft Weight: 0.090 kips</p> <p><u>Point Load at top of Steel</u> Area: 0.14 sq ft Weight: 0.000 kips</p>
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1/2" ICE

	PAT/Part	Quantity	Area (sq ft)	Arm (ft)	Moment (sq ft * ft)	Weight (kips)	Length (ft)
Top Loads	-	-	0.00	0.00	0.00	0.000	0.00
	-	-	0.00	0.00	0.00	0.000	0.00
	-	-	0.00	0.00	0.00	0.000	0.00
Beacon	-	0	0.00	0.00	0.00	0.000	0.00
Beacon Extender	0	-	0.00	0.00	0.00	0.000	0.00
Lightning Rod Extender	806022	-	6.41	7.74	49.66	0.123	15.00
SU Top Interface	NONE	-	0.00	0.00	0.00	0.000	0.00
TOTAL			6.41	7.74	49.66	0.123	

TOWER ANALYSIS ENTRIES

<p>Self Supporting & Guyed Towers & Tapered Pole</p> <p>Area: 6.41 sq ft Arm: 7.74 ft Weight: 0.123 kips</p>	<p>Monopole</p> <p><u>Top Load</u> Area: 6.21 sq ft Arm: 8.00 ft Weight: 0.123 kips</p> <p><u>Point Load at top of Steel</u> Area: 0.21 sq ft Weight: 0.000 kips</p>
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1" ICE

	PAT/Part	Quantity	Area (sq ft)	Arm (ft)	Moment (sq ft * ft)	Weight (kips)	Length (ft)
Top Loads	-	-	0.00	0.00	0.00	0.000	0.00
	-	-	0.00	0.00	0.00	0.000	0.00
	-	-	0.00	0.00	0.00	0.000	0.00
Beacon	-	0	0.00	0.00	0.00	0.000	0.00
Beacon Extender	0	-	0.00	0.00	0.00	0.000	0.00
Lightning Rod Extender	806022	-	8.21	7.74	63.54	0.168	15.00
SU Top Interface	NONE	-	0.00	0.00	0.00	0.000	0.00
TOTAL			8.21	7.74	63.54	0.168	

TOWER ANALYSIS ENTRIES

<p>Self Supporting & Guyed Towers & Tapered Pole</p> <p>Area: 8.21 sq ft Arm: 7.74 ft Weight: 0.168 kips</p>	<p>Monopole</p> <p><u>Top Load</u> Area: 7.94 sq ft Arm: 8.00 ft Weight: 0.168 kips</p> <p><u>Point Load at top of Steel</u> Area: 0.26 sq ft Weight: 0.000 kips</p>
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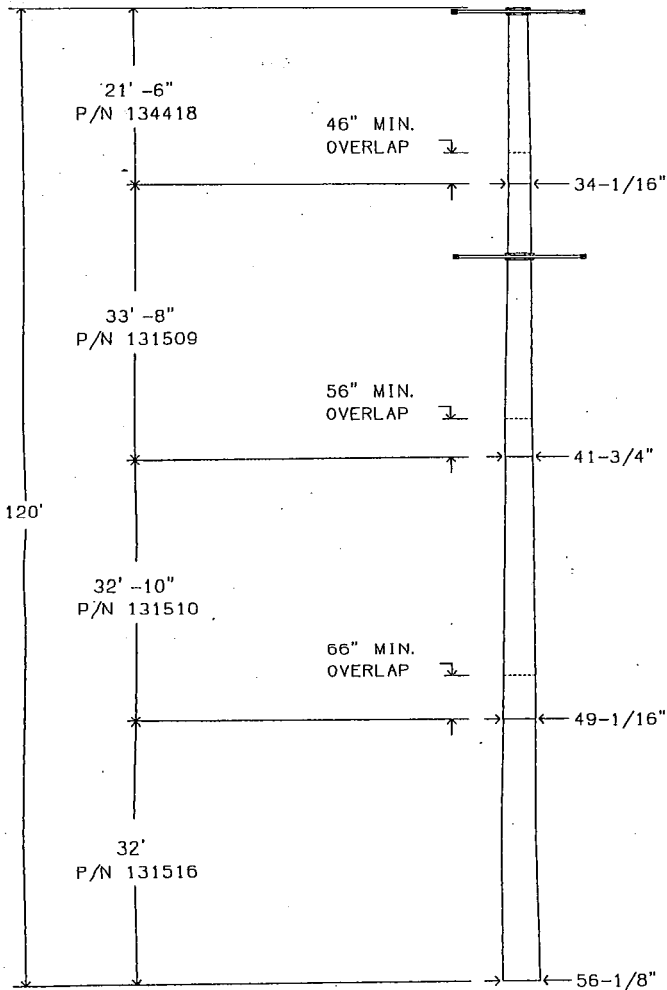
COPY

CT-11-386G

TAPERED POLE SECTION DATA

SECTION				
LENGTH	PART#	SIZE	WALL	WT. *
21'-6"	134418	34"	.3125"	2390#
37'-6"	131509	42"	.3750"	5875#
37'-6"	131510	49"	.3750"	7040#
37'-6"	131516	56"	.3750"	8155#

*THE WEIGHTS LISTED ARE THEORETICAL. THE ACTUAL WEIGHTS WILL VARY. ALL WEIGHTS SHOULD BE CONFIRMED IN THE FIELD PRIOR TO ERECTION.



CLAMP-ON PLATFORM TO BE PLACED AT 120' (C/L). SEE DWG # 135949-B FOR INSTALLATION DETAILS.

CLAMP-ON PLATFORM TO BE PLACED AT 90' (C/L). SEE DWG # 135949-B FOR INSTALLATION DETAILS.

SEE PAGE 2 OF THIS DRAWING FOR OPENING INFORMATION.

SEE PAGE 4 OF THIS DRAWING FOR CONNECTION BOLT TIGHTENING SPECIFICATIONS.

SEE PAGE 9 OF THIS DRAWING FOR BASE SECTION INSTALL.

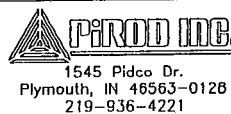
REMOVABLE CLIMBING RUNGS
ATTN FABRICATION: SEE BILL OF MATERIAL
FOR THE FLANGE AND GUSSETS TO BE WELDED
AT THE 120' ELEVATION.



SBA NETWORK SERVICES, INC.
EAST GRANBY, CT
TP 56 X 120' (EXT140')

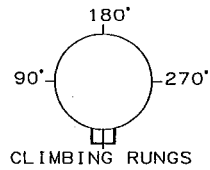
REV	DESCRIPTION OF REVISIONS	INI	DATE
D	REVISED FOUNDATION PER TOWER CHANGE	WRH	06/13/2001
C	UPDATED ALL PAGES	KWD	06/11/2001
B	MODEL CHANGE, NEW REACTIONS	KWD	06/11/2001
A	ADDED FOUNDATION PER SOIL REPORT	WRH	05/25/2001

APPROVED/ENG.	WRH	06/13/2001
APPROVED/FOUND.	N/A	
DRAWN BY	WRH	

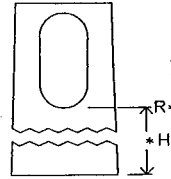


OPENINGS & BRACKETS WELDED TO POLE

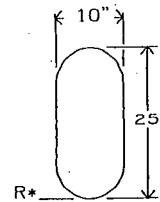
NOMINAL HT AGL	HEIGHT *H	TYP	DESCRIPTION	ANGL	ASSEMBLY DRAWING#
119' -7"	21' -1"	13	SAFETY CLIMB BRACKET	0°	
115'	16' -6"	22	4" X 16" RECT TUBULAR PORTHOLE	60°	
115'	16' -6"	22	4" X 16" RECT TUBULAR PORTHOLE	180°	
115'	16' -6"	22	4" X 16" RECT TUBULAR PORTHOLE	300°	
113'	14' -6"	19	PAD EYES FOR FUTURE PLATFORM	SEE>	121975-B
107' -9"	9' -3"	22	4" X 16" RECT TUBULAR PORTHOLE	60°	
107' -9"	9' -3"	22	4" X 16" RECT TUBULAR PORTHOLE	180°	
107' -9"	9' -3"	22	4" X 16" RECT TUBULAR PORTHOLE	300°	
105' -9"	7' -3"	19	PAD EYES FOR FUTURE PLATFORM	SEE>	121975-B
95' -9"	30' -11"	22	4" X 16" RECT TUBULAR PORTHOLE	60°	
95' -9"	30' -11"	22	4" X 16" RECT TUBULAR PORTHOLE	180°	
95' -9"	30' -11"	22	4" X 16" RECT TUBULAR PORTHOLE	300°	
93' -9"	28' -11"	19	PAD EYES FOR FUTURE PLATFORM	SEE>	121975-B
87' -9"	22' -11"	22	4" X 16" RECT TUBULAR PORTHOLE	60°	
87' -9"	22' -11"	22	4" X 16" RECT TUBULAR PORTHOLE	180°	
87' -9"	22' -11"	22	4" X 16" RECT TUBULAR PORTHOLE	300°	
85' -9"	20' -11"	19	PAD EYES FOR FUTURE PLATFORM	SEE>	121975-B
77' -9"	12' -11"	22	4" X 16" RECT TUBULAR PORTHOLE	60°	
77' -9"	12' -11"	22	4" X 16" RECT TUBULAR PORTHOLE	180°	
77' -9"	12' -11"	22	4" X 16" RECT TUBULAR PORTHOLE	300°	
75' -9"	10' -11"	19	PAD EYES FOR FUTURE PLATFORM	SEE>	121975-B
9' -6"	9' -6"	13	SAFETY CLIMB BRACKET	0°	
7' -4"	7' -4"	2	10" X 25" OVAL PORTHOLE	90°	
7' -4"	7' -4"	2	10" X 25" OVAL PORTHOLE	180°	
7' -4"	7' -4"	2	10" X 25" OVAL PORTHOLE	270°	
6' -9"	6' -9"	7	GROUNDING PLATE	90°	
6' -9"	6' -9"	7	GROUNDING PLATE	180°	
6' -9"	6' -9"	7	GROUNDING PLATE	270°	
1' -6"	1' -6"	2	10" X 25" OVAL PORTHOLE	90°	
1' -6"	1' -6"	2	10" X 25" OVAL PORTHOLE	180°	
1' -6"	1' -6"	2	10" X 25" OVAL PORTHOLE	270°	
1' -3"	1' -3"	18	GROUNDING ANGLES (3)	SEE>	131093-B
1'	1'	7	GROUNDING PLATE	90°	
1'	1'	7	GROUNDING PLATE	180°	
1'	1'	7	GROUNDING PLATE	270°	



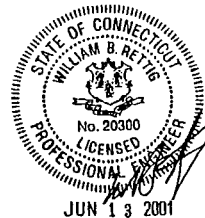
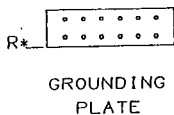
THE ANGLE TO THE OPENING IS MEASURED CLOCKWISE FROM THE CENTER-LINE OF THE CLIMBING RUNGS WHEN LOOKING DOWN.



* THE HEIGHT IN THE TABLE IS THE DISTANCE FROM THE BASE OF THE CURRENT POLE SECTION TO THE OPENING REFERENCE (R*) AS SHOWN ON PAGES 2 - 3 OF THIS DRAWING.



TYPE 2 OPENING



				SBA NETWORK SERVICES, INC. EAST GRANBY, CT TP 56 X 120' (EXT140')	
APPROVED/ENG.		WRH	05/13/2001		
APPROVED/FOUND.		N/A			
C	UPDATED ALL PAGES	KWD	06/11/2001		
B	MODEL CHANGE, NEW REACTIONS	KWD	06/11/2001		
REV	DESCRIPTION OF REVISIONS	INI	DATE	DRAWN BY	KWD
From: F1002439.DFT - 06/11/2001 09:00				ENG. FILE NO.	A-118413-1
Printed from: 1560832C.DWG - 06/11/2001 09:23 @ 06/13/2001 15:28				ARCHIVE	F-1002439
				DRAWING NO.	156083-B
				PAGE	2 OF 9

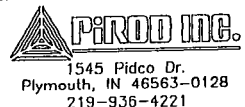


GENERAL NOTES

1. TOWER DESIGN CONFORMS TO STANDARD EIA/TIA-222-F FOR 80 MPH BASIC WIND SPEED WITH NO ICE. TOWER DESIGN CONFORMS TO STANDARD EIA/TIA-222-F FOR 80 MPH BASIC WIND SPEED WITH .5" RADIAL ICE WITH LOAD DUE TO WIND REDUCED BY 25% WHEN CONSIDERED SIMULTANEOUSLY WITH ICE.
2. NO TWIST AND SWAY LIMITATIONS SPECIFIED OR USED FOR THIS TOWER.
3. MATERIAL: (A) SOLID RODS CONFORM TO ASTM A-572 GRADE 50 REQUIREMENTS.
 (B) ANGLES CONFORM TO ASTM A-36 REQUIREMENTS.
 (C) PIPE CONFORMS TO ASTM A500 GRADE B REQUIREMENTS.
 (D) BASE FLANGE AND GUSSETS CONFORM TO ASTM A-572 GRADE 50 REQUIREMENTS. ALL OTHER PLATE CONFORMS TO ASTM A-36 REQUIREMENTS.
 (E) TAPERED POLES CONFORM TO ASTM A-572 GRADE 65 REQUIREMENTS.
 (F) ANCHOR BOLTS CONFORM TO ASTM A-687 REQUIREMENTS (Fu=150 KSI AND Fy=105 KSI).
4. BASE REACTIONS PER EIA/TIA-222-F FOR 80 MPH BASIC WIND SPEED WITH NO ICE.
 TOTAL WEIGHT= 37.4 KIPS.
 MOMENT= 3719.4 KIP-FT.
 MAXIMUM SHEAR= 37.0 KIPS TOTAL.
5. BASE REACTIONS PER EIA/TIA-222-F FOR 80 MPH BASIC WIND SPEED WITH 0.50" RADIAL ICE:
 TOTAL WEIGHT= 49.0 KIPS.
 MOMENT= 3128.9 KIP-FT.
 MAXIMUM SHEAR= 30.9 KIPS TOTAL.
6. FINISH: ALL BOLTS ARE GALVANIZED IN ACCORDANCE WITH ASTM A-153 (HOT DIPPED) OR ASTM B-695 CLASS 50 (MECHANICAL). ALL OTHER STRUCTURAL MATERIALS ARE GALVANIZED IN ACCORDANCE WITH ASTM-123. HOT DIPPED GALVANIZED AFTER FABRICATION.
7. ANTENNAS: FUTURE LOADING:
 140' (12) DECIBEL DB896 USING 1-5/8" LINES MOUTED ON A LOW PROFILE PLATFORM.
 130' (12) DECIBEL DB896 USING 1-5/8" LINES MOUTED ON A LOW PROFILE PLATFORM.
 INITIAL LOADING:
 120' (12) DECIBEL DB896 USING 1-5/8" LINES MOUTED ON A LOW PROFILE PLATFORM.
 110' (12) DECIBEL DB896 USING 1-5/8" LINES MOUTED ON A LOW PROFILE PLATFORM.
 100' (12) DECIBEL DB896 USING 1-5/8" LINES MOUTED ON A LOW PROFILE PLATFORM.
 90' (12) DECIBEL DB896 USING 1-5/8" LINES MOUTED ON A LOW PROFILE PLATFORM.
 80' (12) DECIBEL DB896 USING 1-5/8" LINES MOUTED ON A LOW PROFILE PLATFORM.
8. INSTALL BASE SECTION WITH MINIMUM OF 2" CLEARANCE ABOVE CONCRETE. SEE BASE SECTION PLACEMENT PAGE OF THIS DRAWING FOR MORE INFORMATION.
9. MIN. WELDS 5/16" UNLESS OTHERWISE SPECIFIED. ALL WELDING TO CONFORM TO AWS D1.1 SPECIFICATIONS.
10. ALL BOLTS MUST BE IN PLACE WITH JAM NUTS PRIOR TO ERECTION OF THE STRUCTURE. ALL BOLTS AND NUTS MUST BE IN PLACE AND TIGHTENED BEFORE THE ADJOINING SECTION(S) ARE PLACED.
11. ALL STRUCTURAL BOLTS ARE TO BE TIGHTENED TO A SNUG TIGHT CONDITION AS DEFINED BY AISC SPECIFICATION UNLESS OTHERWISE NOTED. A MORE QUANTITATIVE ALTERNATIVE APPROACH TO ACHIEVING A SNUG TIGHT CONDITION IS TO TIGHTEN USING THE TORQUE VALUES FROM DRAWING 123107-A.
12. EIA GROUNDING FOR TOWER.
13. OUTSIDE CLIMB RUNGS WITH SAFETY CLIMB.
14. THE TOWER AND FOUNDATION ARE FOR A 56 X 140' TAPERED POLE.



				SBA NETWORK SERVICES, INC. EAST GRANBY, CT TP 56 X 120' (EXT140')	
				APPROVED/ENG.	WRH 06/13/2001
				APPROVED/FOUND.	N/A
				DRAWN BY	KWD
				ENG. FILE NO.	A-118413-1
				ARCHIVE	F-1002439
				DRAWING NO.	156083-B
				PAGE	4 OF 9
C	UPDATED ALL PAGES	KWD	06/11/2001		
B	MODEL CHANGE, NEW REACTIONS	KWD	06/11/2001		
REV	DESCRIPTION OF REVISIONS	INI	DATE		
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Printed from: 1560834C.DWG - 06/11/2001 09:23 @ 06/13/2001 15:28					



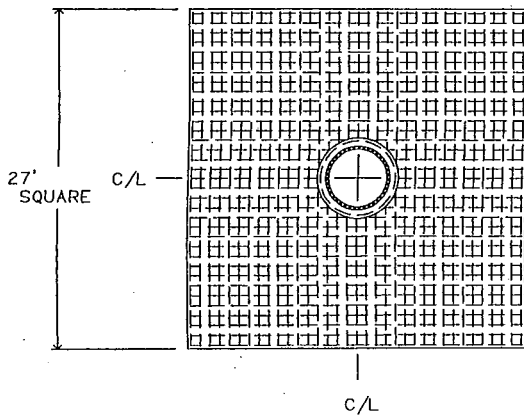
FOUNDATION NOTES

1. SOIL AS PER REPORT BY JAWORSKI GEOTECH, INC., DATED: 5/11/01 (FILE: 00729G)
2. CONCRETE TO BE 4000 PSI @ 28 DAYS. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI-318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH FREE OF WATER AND ALL FOREIGN OBJECTS AND MATERIALS. A MINIMUM OF THREE INCHES OF CONCRETE SHALL COVER ALL REINFORCEMENT. WELDING OF REBAR NOT PERMITTED.
3. A COLD JOINT IS PERMISSIBLE UPON CONSULTATION WITH PIROD. ALL COLD JOINTS SHALL BE COATED WITH BONDING AGENTS PRIOR TO SECOND POUR.
4. ALL FILL SHOULD BE PLACED IN LOOSE LEVEL LIFTS OF NO MORE THAN 8" THICK. FILL MATERIALS SHOULD BE CLEAN AND FREE OF ORGANIC AND FROZEN MATERIALS OR ANY OTHER DELETERIOUS MATERIALS. COMPACT FILL TO 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D1557.
5. GROUTING OF POLE BASE IS OPTIONAL. IF GROUT IS USED, DRAINAGE MUST BE PROVIDED FROM THE INTERIOR OF THE POLE. REFER TO DRAWING # 118492-B FOR BASE SECTION INSTALLATION.
6. BENDING, STRAIGHTENING OR REALIGNING (HOT OR COLD) OF THE ANCHOR BOLTS BY ANY METHOD IS PROHIBITED.
7. CROWN TOP OF FOUNDATION FOR PROPER DRAINAGE.
8. INSTALL BASE SECTION WITH MINIMUM OF 2" CLEARANCE ABOVE CONCRETE. SEE PAGE 9 OF THIS DRAWING FOR MORE INFORMATION.



				SBA NETWORK SERVICES, INC. EAST GRANBY, CT TP 56 X 120' (EXT140')	
D	REVISED FOUNDATION PER TOWER CHANGE	WRH	06/13/2001		
C	UPDATED ALL PAGES	KWD	06/11/2001	APPROVED/ENG.	WRH 06/13/2001
B	MODEL CHANGE, NEW REACTIONS	KWD	06/11/2001	APPROVED/FOUND.	WRH 06/13/2001
A	ADDED FOUNDATION PER SOIL REPORT	WRH	05/25/2001		
REV	DESCRIPTION OF REVISIONS	INI	DATE	DRAWN BY	WRH
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Printed from: 1560835D.DWG - 06/13/2001 15:05 @ 06/13/2001 15:28				DRAWING NO. 156083-B	
				 1545 Pidco Dr. Plymouth, IN 46563-0128 219-936-4221	
				ARCHIVE F-1002439 PAGE 5 OF 9	

6' -6" ROUND PIER,
CENTERED AROUND THE CIR-
CULAR REBAR CAGE.



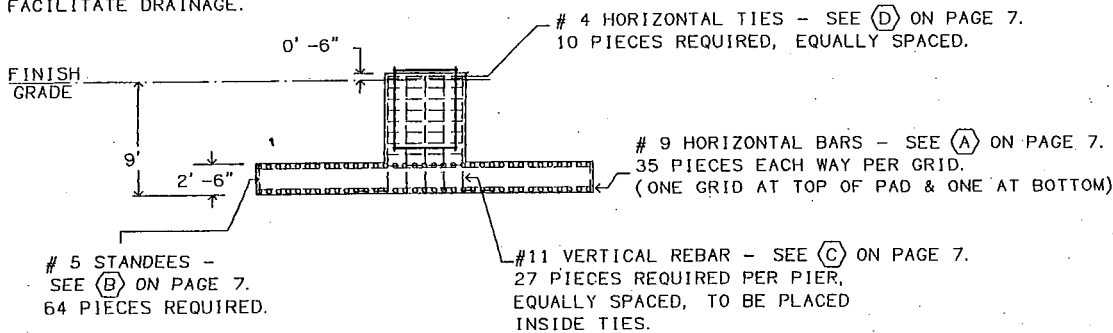
BASE FLANGE MUST BE CENTERED IN PIER
WITHIN +/- 10% OF PIER DIAMETER.

ALL REBAR REQUIRES MINIMUM OF
3" CONCRETE COVERAGE.

FOR ANCHOR STEEL IDENTIFICATION AND
PLACEMENT INFORMATION, SEE PAGE 8.

FOR BASE SECTION INSTALLATION, SEE
PAGE 9 OF THIS DRAWING

GROUTING OF POLE BASE IS OPTIONAL.
IF GROUT IS USED, DRAINAGE MUST BE
PROVIDED FROM THE INTERIOR OF POLE.
CROWN TOP OF FOUNDATION TO
FACILITATE DRAINAGE.



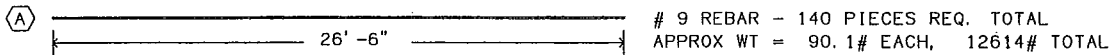
TOWER FOUNDATION

76.1 CUBIC YARDS CONCRETE REQUIRED
FOR INSTALLATION SPECIFICATIONS AND
ADDITIONAL INFORMATION, SEE PAGE 5
OF THIS DRAWING.

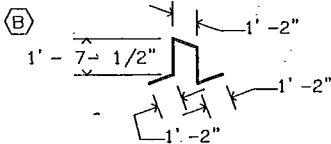


				SBA NETWORK SERVICES, INC. EAST GRANBY, CT TP 56 X 120' (EXT140')	
D	REVISED FOUNDATION PER TOWER CHANGE	WRH	06/13/2001	APPROVED/ENG.	WRH 06/13/2001
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				DRAWING NO.	156083-B
				PAGE	6 OF 9

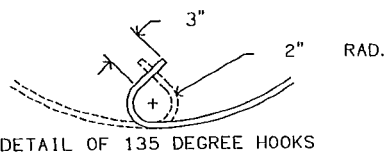
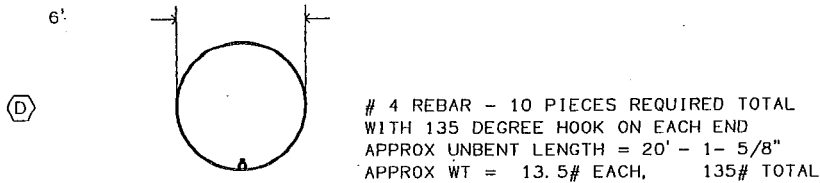
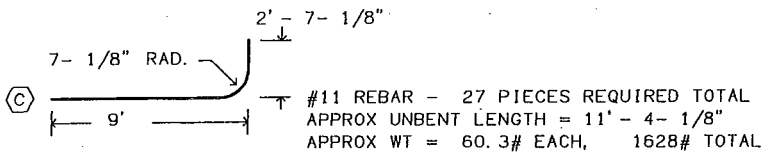




REBAR SUPPORTS MAY CONSIST OF ANY ACCEPTABLE MEANS OF SECURELY SUPPORTING THE TOP REINFORCEMENT GRID ABOVE THE BOTTOM REINFORCEMENT GRID WHILE MAINTAINING A SEPARATION OF 2' (OUTSIDE REBAR TO OUTSIDE REBAR).



5 REBAR - 64 PIECES REQUIRED TOTAL
TYPE 26 STANDEE PLACED BETWEEN REBAR GRIDS ON NOMINAL 4' SPACING THROUGHOUT
APPROX UNBENT LENGTH = 6'-10-1/8"
APPROX WT = 7.1# EACH, 454# TOTAL



PLACE REBAR RINGS SO THAT HOOKS ON ADJACENT RINGS ARE 180 DEGREES APART AND HOOKS ENCIRCLE A VERTICAL BAR. PLACE ONE RING AT TOP OF PAD AND TWO RINGS AT TOP OF PIER REBAR. EQUALLY SPACE REMAINING RINGS ALONG PIER.

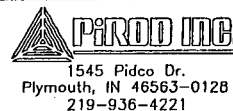
REBAR DETAIL

TOTAL APPROX REBAR WEIGHT = 14831#
REINFORCING BAR TO CONFORM TO
ASTM A615 GRADE 60 SPECIFICATIONS.

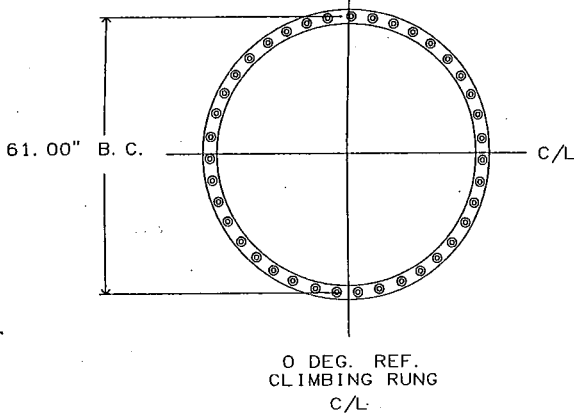


SBA NETWORK SERVICES, INC.
EAST GRANBY, CT
TP 56 X 120' (EXT140')

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B	MODEL CHANGE, NEW REACTIONS	KWD	06/11/2001	APPROVED/FOUND.	WRH 06/13/2001
A	ADDED FOUNDATION PER SOIL REPORT	WRH	05/25/2001		

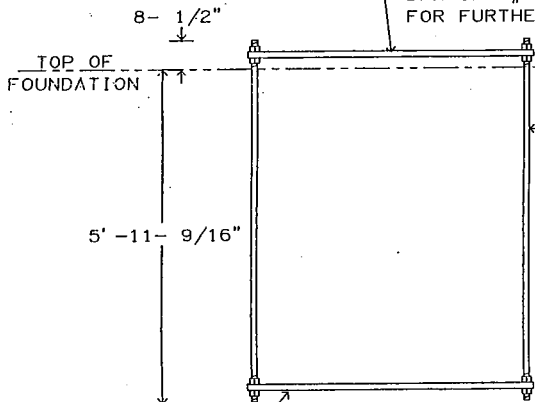


BASE FLANGE MUST BE CENTERED IN PIER
WITHIN +/- 10% OF PIER DIAMETER.



GROUTING OF POLE BASE IS OPTIONAL.
IF GROUT IS USED, DRAINAGE MUST BE
PROVIDED FROM THE INTERIOR OF POLE.

FOUNDATION PLATE P/N 133118 MUST BE SECURELY
DOUBLE-NUTTED TO ANCHOR BOLTS DURING CONCRETE
INSTALLATION AND MUST BE LEVEL +/- 1/8".
PLACE BASE FLANGE AS DEPICTED ABOVE. REMOVE
FOUNDATION PLATE PRIOR TO TOWER PLACEMENT. SEE
DRAWING #118492-B AND PAGE 9 OF THIS DRAWING
FOR FURTHER DETAILS OF BASE SECTION PLACEMENT.



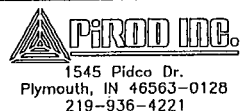
ANCHOR BOLT P/N 109881 - 39 REQUIRED
DIAMETER= 1.25" COLOR CODE= PINK/WHITE
INSTALL WITH 8.5" OF THREADS EXPOSED.
BENDING, STRAIGHTENING OR REALIGNING
(HOT OR COLD) OF THE ANCHOR BOLTS BY
ANY METHOD IS PROHIBITED.

PLATE P/N 133118 SECURELY DOUBLE-NUTTED TO ANCHOR
BOLTS USED AS EMBEDMENT PLATE IN CONCRETE.

TOWER ANCHOR STEEL PLACEMENT



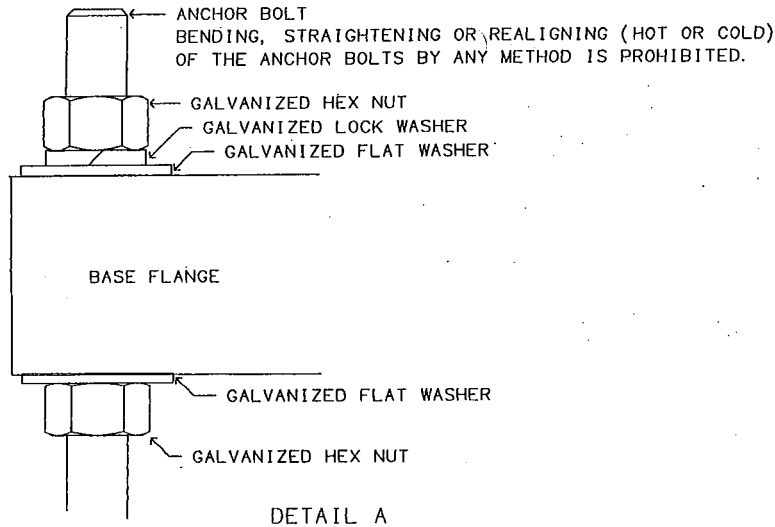
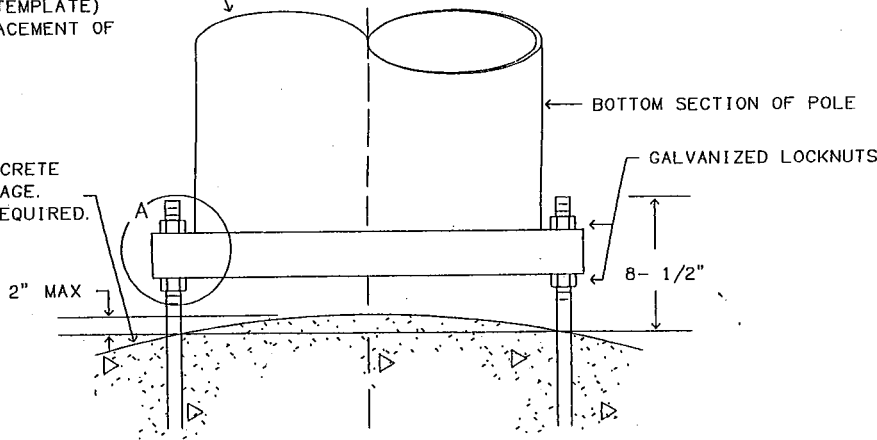
				SBA NETWORK SERVICES, INC. EAST GRANBY, CT TP 56 X 120' (EXT140')	
D	REVISED FOUNDATION PER TOWER CHANGE	WRH	06/13/2001	APPROVED/ENG.	WRH 06/13/2001
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Printed from: 1560838D.DWG - 06/13/2001 15:06 @ 06/13/2001 15:28				ARCHIVE	F-1002439
				DRAWING NO.	156083-B
				PAGE	8 OF 9



NOTE: REMOVE FOUNDATION PLATE (TOP TEMPLATE) PRIOR TO PLACEMENT OF TOWER.

LEVEL AND PLUMB BASE SECTION PRIOR TO ERECTING REMAINDER OF POLE.

CROWN TOP OF CONCRETE FOR PROPER DRAINAGE. NO GROUTING IS REQUIRED.



DETAIL A

TOWER BASE SECTION PLACEMENT



SBA NETWORK SERVICES, INC.
EAST GRANBY, CT
TP 56 X 120' (EXT140')

D	REVISED FOUNDATION PER TOWER CHANGE	WRH	06/13/2001		
C	UPDATED ALL PAGES	KWD	06/11/2001	APPROVED/ENG.	WRH 06/13/2001
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REV	DESCRIPTION OF REVISIONS	INI	DATE	DRAWN BY	WRH



1545 Pideo Dr.
Plymouth, IN 46563-0128
219-936-4221

Exhibit E

Power Density Calculations

Floydville Road

East Granby, Connecticut



VOICESTREAM WIRELESS CORPORATION
100 Filley St, Bloomfield, CT 06002-1853
Phone: (860) 692-7100
Fax: (860) 692-7159

Technical Memo

To: Karina Hansen
From: Hassan Syed - Radio Frequency Engineer
cc: Mike Fulton
Subject: Power Density Report for CT11386G
Date: May 20, 2002

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the Voicestream Wireless Corporation PCS antenna installation on a Monopole at 56 Floydville Road, East Granby, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from several locations surrounding the transmitting location.

2. Discussion:

The following assumptions were used in the calculations:

- 1) The emissions from Voicestream Wireless transmitters are in the 1935-1945 MHz frequency band.
- 2) The antenna cluster consists of three sectors, with 4 antennas per sector.
- 3) The model number for each antenna is EMS RR90-17-02DP.
- 4) The antenna center line height is 107 ft.
- 5) The maximum transmit power from each sector is 3124.71 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
- 6) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
- 7) Power levels emitting from the antennas are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) The average ground level of the studied area does not significantly change with respect to the transmitting location

Equations given in "FCC OET Bulletin 65, Edition 97-01" were then used with the above information to perform the calculations

3. Conclusion:

Based on the above worst case assumptions, the power density calculation from the VoiceStream Wireless Corporation PCS antenna installation on a Monopole at 56 Floydville Road, East Granby, CT, is 0.0672 mW/cm². This value represents 6.72% of the Maximum Permissible Emission (MPE) standard of 1 milliwatt per square centimeter (mW/cm²) set forth in the FCC/ANSI/IEEE C95.1-1991. Furthermore, the proposed antenna location for VoiceStream Wireless will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area.

New England Market

Connecticut

Worst Case Power Density



Global Wireless by T-Mobile

Site:	CT11386G
Site Address:	56 Floydville Road
Town:	East Granby
Tower Height:	120 ft.
Tower Style:	Monopole
Base Station TX output	16 W
Number of channels	8
Antenna Model	EMS RR90-17-02DP
Cable Size	1 5/8 in.
Cable Length	140 ft.
Antenna Height	107.0 ft.
Ground Reflection	1.6
Frequency	1935.0 MHz
Jumper & Connector loss	1.00 dB
Antenna Gain	16.5 dBi
Cable Loss per foot	0.0116 dB
Total Cable Loss	1.6240 dB
Total Attenuation	2.6240 dB
Total EIRP per Channel	55.92 dBm
(In Watts)	390.59 W
Total EIRP per Sector	64.95 dBm
(In Watts)	3124.71 W
nsg	13.8760
Power Density (S) =	0.067203 mW/cm²
Voicestream Worst Case % MPE =	6.7203%

Equation Used :

$$S = \frac{(1000(\text{grf})^2 (\text{Power}) * 10^{(\text{ns g}10)})}{4 \pi (R)^2}$$

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