



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

13 July, 2000

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

RECEIVED

JUL 13 2000

CONNECTICUT
SITING COUNCIL

**Re: Request by VoiceStream Wireless for an Order
to Approve the Shared Use of a Tower Facility
52 New Britain Avenue, Rocky Hill, Connecticut**

Dear Chairman Gelston and Members of the Council:

Pursuant to Connecticut General Statutes §16-50aa, VoiceStream Wireless ("VoiceStream") hereby requests an order from the Connecticut Siting Council ("Council") to approve the proposed shared use by the Applicant of an existing tower located at 52 New Britain Avenue in Rocky Hill, Connecticut. The tower is owned and operated by AT&T Wireless Services, Inc. ("AT&T"). VoiceStream proposes to install antennas on the existing tower located within a leased compound area, and to locate the equipment associated with this facility near the base of the tower within the existing compound (see "Exhibit A"). The Applicant 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

In February, 2000, VoiceStream acquired from Omnipoint Communications, Inc. 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 provides PCS wireless telephone service in the State of Connecticut, which includes the area to be served by VoiceStream's proposed installation.

The tower at 52 New Britain Avenue in Rocky Hill is a 180-foot monopole (with antennas extended beyond) located within an equipment compound off New Britain Avenue. The tower currently holds the Town of Rocky Hill's antennas at the top as well as those of AT&T whose centerlines are 170 feet above ground level ("AGL"). Additional antennas are proposed for 150-foot AGL. VoiceStream proposes to install six (6) EMS RR 90-1702 DP antennas on the tower with centerlines at 160 feet AGL. The radio transmission equipment associated with these antennas, a Nortel S8000 cabinet, would be located near the base of the tower on an existing concrete pad. Exhibit B contains specifications for the proposed antennas and equipment cabinet.



VoiceStream and AT&T have agreed to the proposed shared use of this tower pursuant to mutually acceptable terms and conditions, and AT&T has authorized VoiceStream to act on its behalf to apply for all necessary local, state and federal permits, approvals, and authorizations that may be required for the proposed shared use of this facility.

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. Technical Feasibility The existing tower is structurally sound and capable of supporting the proposed VoiceStream antennas. A structural analysis of the tower with the proposed VoiceStream installation has been performed and is attached as Exhibit C. 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 New Britain Avenue in Rocky Hill. 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 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 Sprint compound area.
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), with the Town's and AT&T's antennas, would be 5.982% of the ANSI standard. These calculations are attached as Exhibit D.

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, and is environmentally feasible.

E. Economic Feasibility As previously mentioned, AT&T 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.

F. 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 an existing access drive off New Britain Avenue. VoiceStream is not aware of any other public safety concerns relative to the proposed sharing of the existing tower. In fact, the tower was initially approved by the relevant Rocky Hill land use agencies with an eye toward public health and safety concerns, and the provision of new or improved phone service through shared use of the existing tower will enhance the safety and welfare of area residents.

Conclusion

For the reasons discussed above, the proposed shared use of the existing tower facility at 52 New Britain Avenue in Rocky Hill, 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. The Applicant therefore requests that the Siting Council issue an order approving the proposed shared use.

Thank you for your consideration of this matter.

Sincerely,



J. Brendan Sharkey, Esq.
for VoiceStream Wireless, Inc.

enclosures

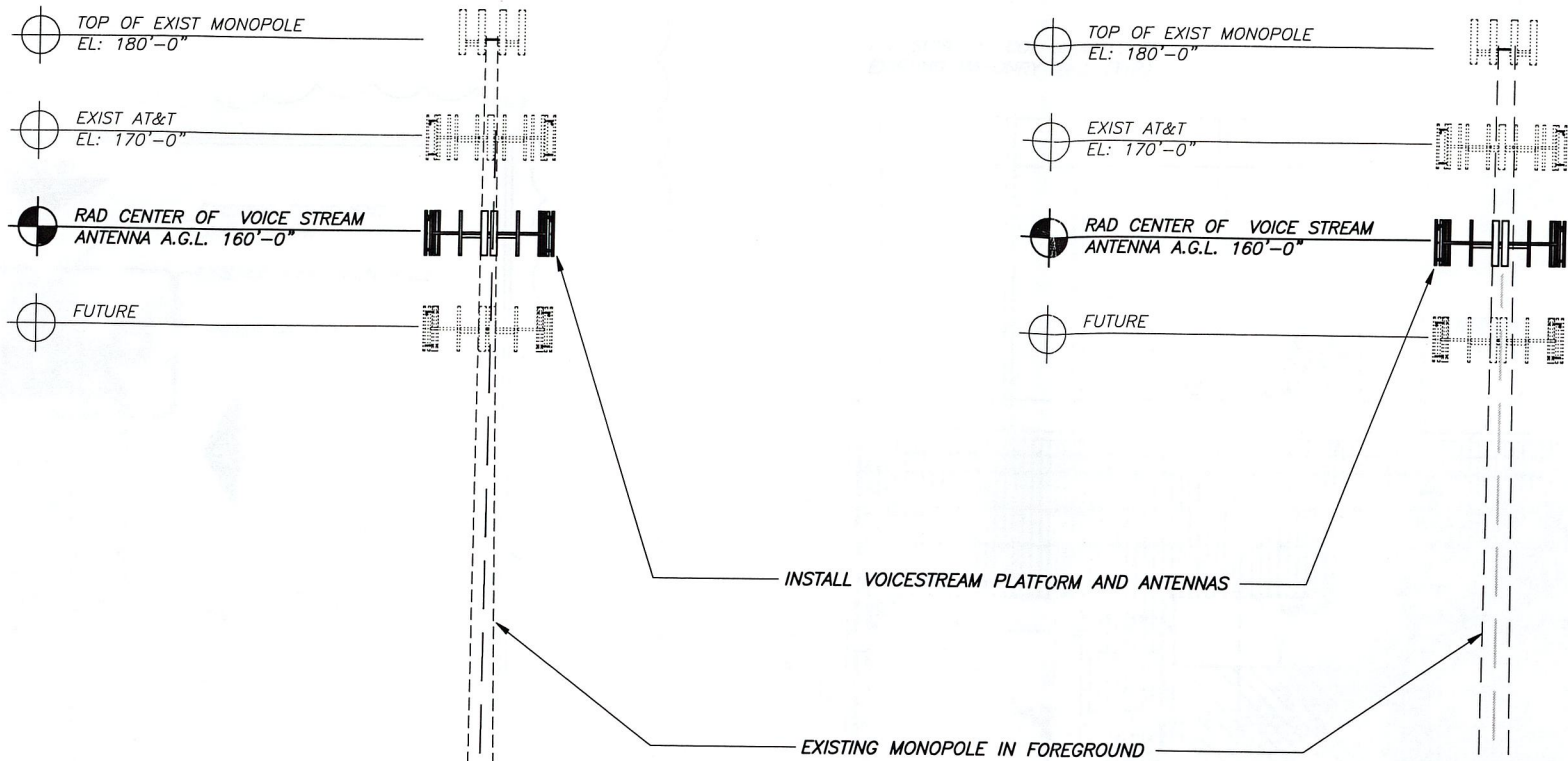
cc: Anthony Varricchio, Sr., First Selectman, Town of Rocky Hill

Exhibit A

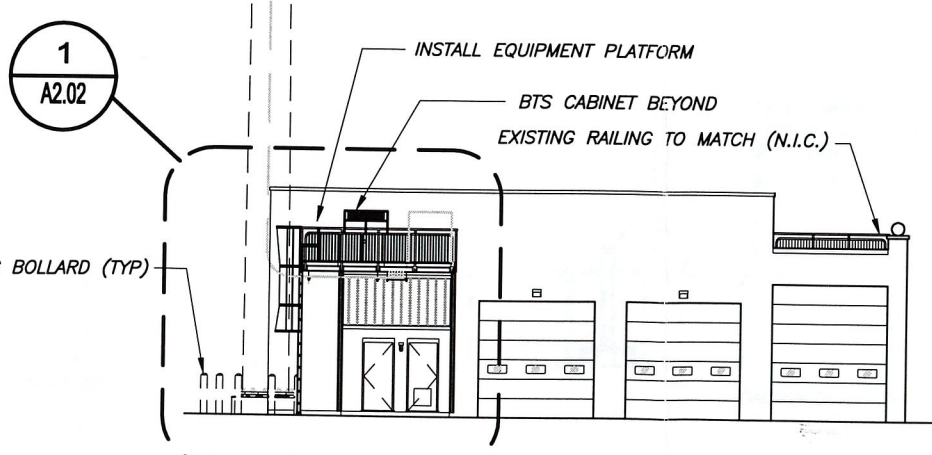
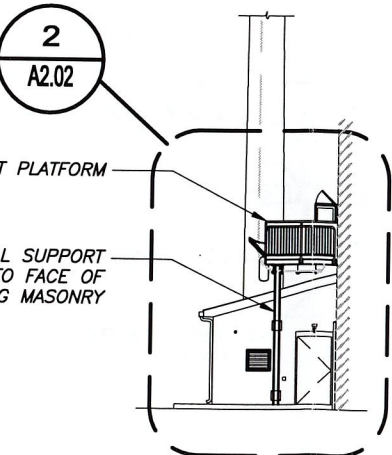
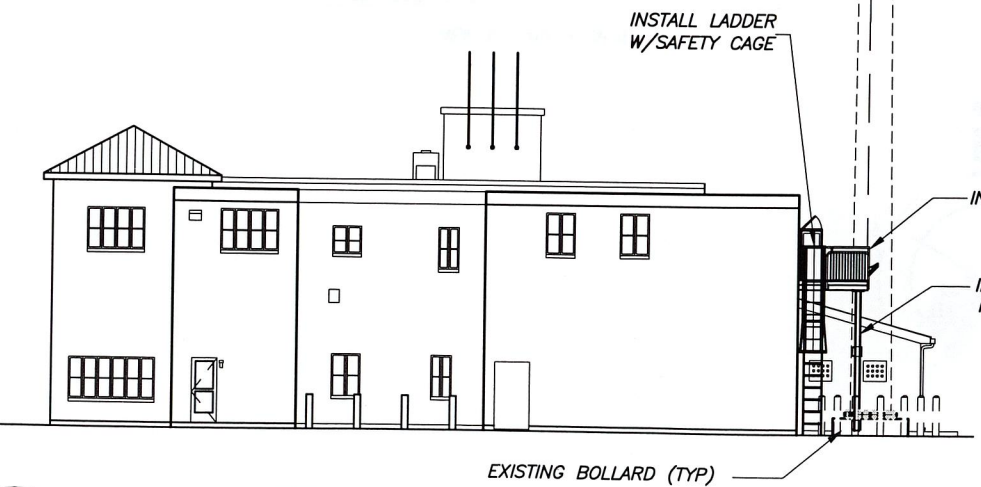
Design Drawings

**52 New Britain Avenue
Rocky Hill, CT**

FRI, JUN 09, 2000 09:11 A TK H:\VOICESTREAM-OMNIPPOINT\ROCKY HILL\320354-427A\CAD\320354-427A-A2-01.DWG X-REFS, 320354-427A-BORDER.DWG



NOTE:
ALL NEW PLATFORM COMPONENTS SHALL
BE PAINTED TO MATCH EXISTING STANDING
SEAM ROOF.

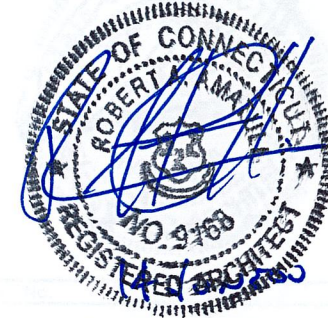


1 Site Elevation
A2.01 SCALE: 1"=20"

2 Site Elevation
A2.01 SCALE: 1"=20"

3 Site Elevation
A2.01 SCALE: 1"=20"

Carter Burgess
481 BUCKLAND ROAD, SUITE 201
SOUTH WINDSOR, CT 06074
TEL 860-648-5619 FAX 860-648-5665



Rev. No.	Date:

Client:
VoiceStream WIRELESS
100 FILLEY STREET
BLOOMFIELD, CT 06002
OMNIPPOINT
OmniPoint Communications Inc.
A subsidiary of VoiceStream Wireless Corporation

Client Approvals:		
Approved By:	Signature:	Date:
OWNER/SAC:		
RF ENGINEER:		
CONSTRUCTION:		

Drawing Title:
ELEVATIONS
Project Name:
**VOICESTREAM CO-LOCATE
52 NEW BRITAIN AVE.
ROCKY HILL, CT**

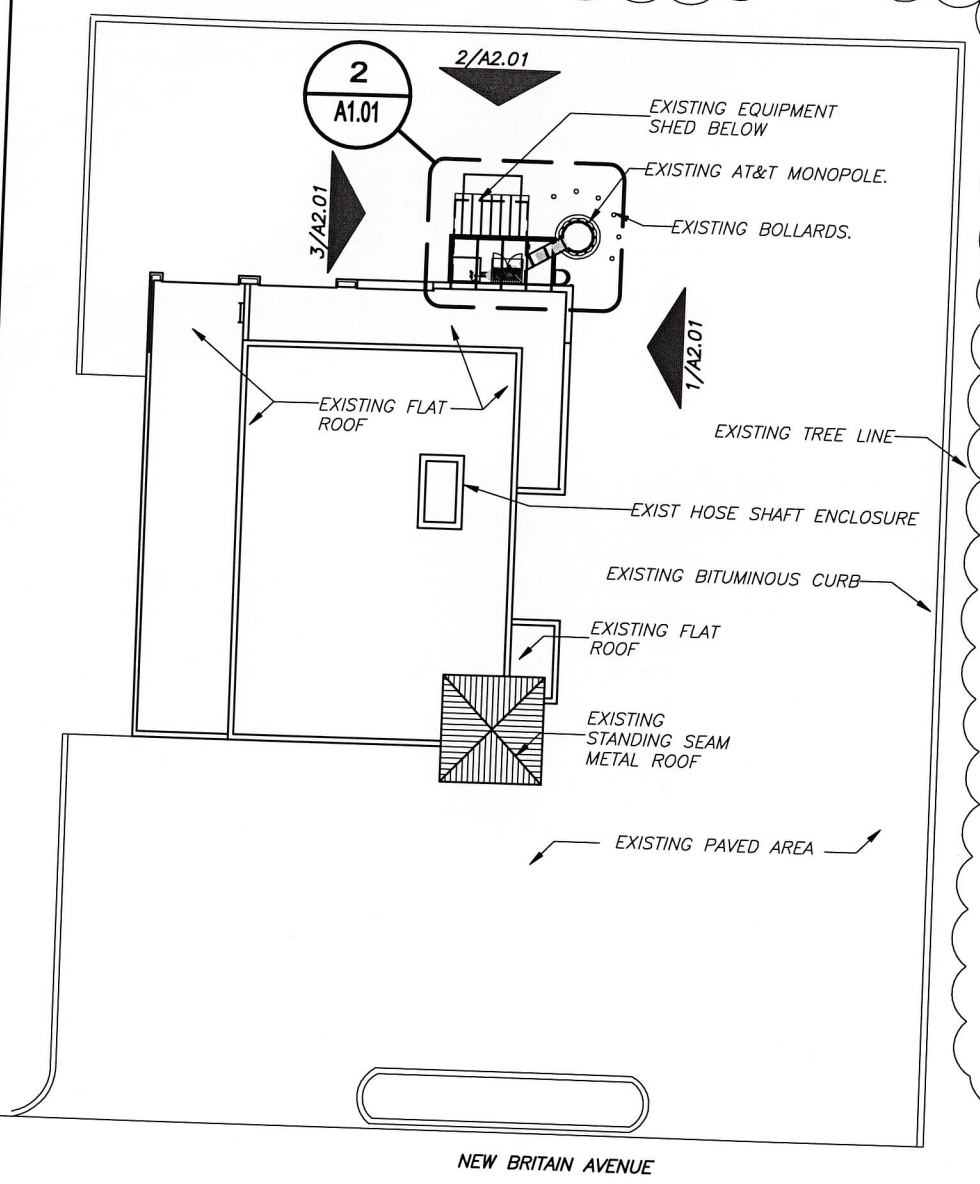
Client Site I.D.:
CT11-427A

Drawing No.
A2.01

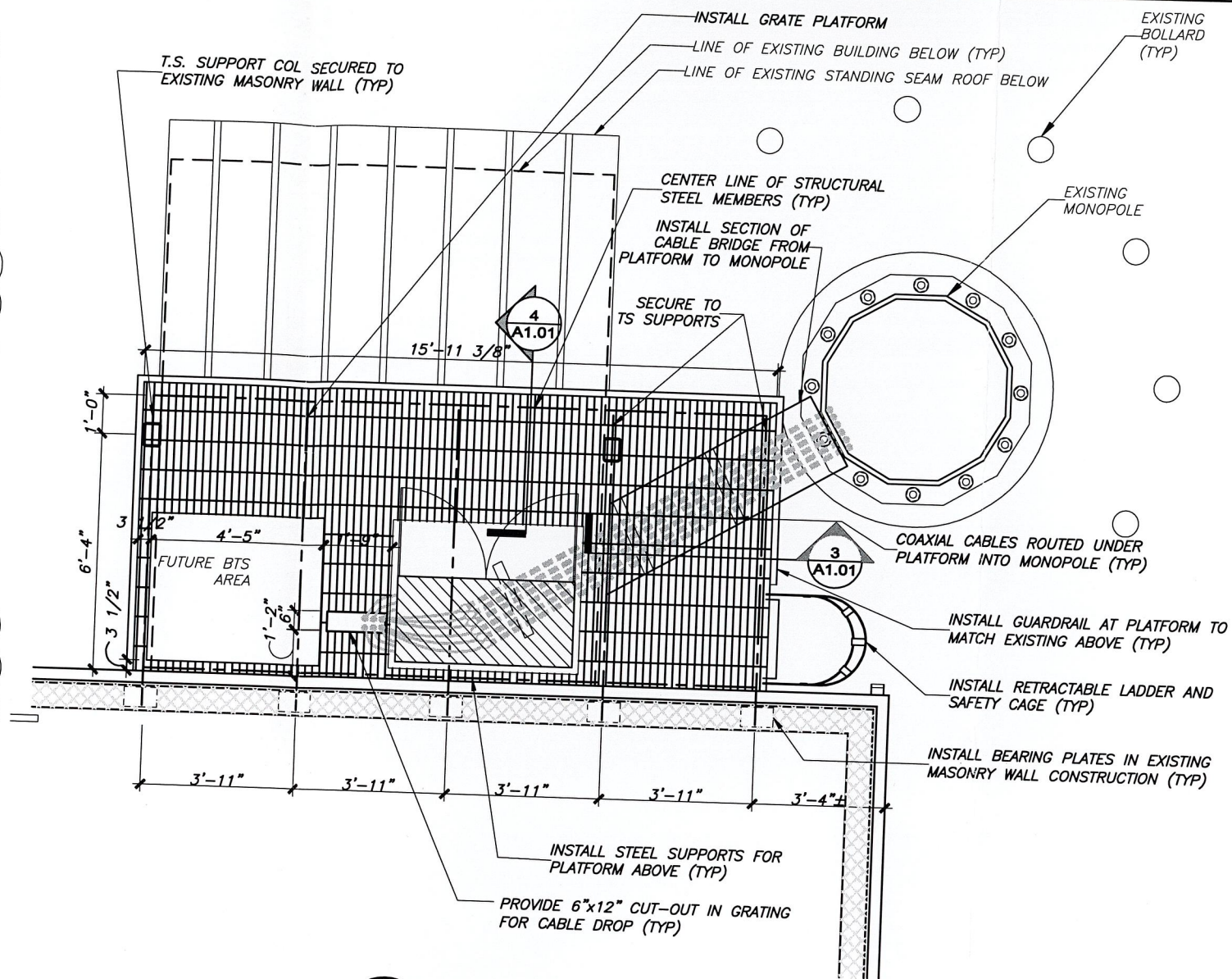
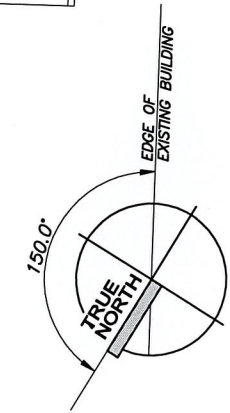
PM:	Drawn By:	Date:
KAM	DBK	5/5/00

CB Project No:
320354

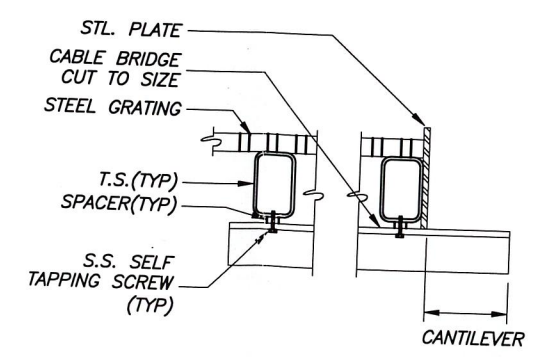
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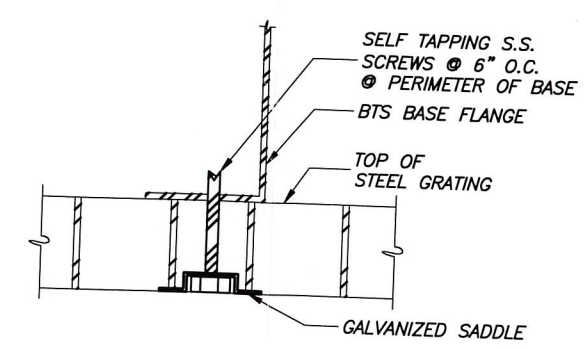
1
A1.01
Site Layout Diagram
SCALE: 1"=30"



2
A1.01
Platform Plan
SCALE: 3/16"=1'-0"



3
A1.01
Typical Cable Bridge Fastening Detail
N.T.S



4
A1.01
BTS Base Anchorage
N.T.S.

Carter Burgess
481 BUCKLAND ROAD, SUITE 201
SOUTH WINDSOR, CT 06074
TEL 860-648-5619 FAX 860-648-5665



Rev. No. _____ Date: _____

Client:
VoiceStream WIRELESS
100 FILLEY STREET
BLOOMFIELD, CT 06002
OMNIPONT
Omnipoint Communications Inc.
A subsidiary of VoiceStream Wireless Corporation

Client Approvals:
Approved By: _____ Signature: _____ Date: _____
OWNER/SAC: _____
RF ENGINEER: _____
CONSTRUCTION: _____

Drawing Title:
SITE LAYOUT DIAGRAM
Project Name:

VOICESTREAM CO-LOCATE
52 NEW BRITAIN AVE.
ROCKY HILL, CT

Client Site I.D.:
CT11-427A

Drawing No.
A1.01

PM: **KAM** Drawn By: **JJM** Date: **5/5/00**
CB Project No:
320354

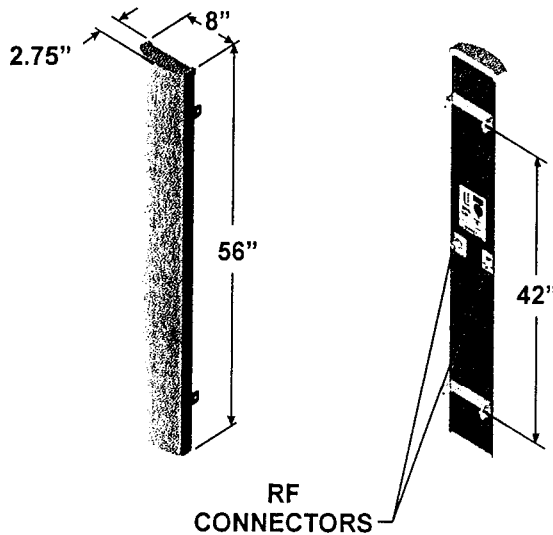
Exhibit B

Equipment Specifications

52 New Britain Avenue

Rocky Hill, CT

1850 MHz - 1990 MHz (P)



90° beamwidth

16.5 dBi gain

**±45°
DualPol™**

56 inch

SPECIFICATIONS

Electrical

Azimuth Beamwidth	90°
Elevation Beamwidth	6°
Gain	16.5 dBi (14.4 dBd)
Polarization	Slant, ±45°
Port-to-Port Isolation	≥ 30 dB
Front-to-Back Ratio	≥ 25 dB (≥ 30 dB Typ.)
Electrical Downtilt Options	0°, 2°, 4°, 6°
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

Mechanical

Dimensions (L x W x D)	56in x 8in x 2.75in (142 cm x 20.3 cm x 7.0 cm)
Rated Wind Velocity	150 mph (241 km/hr)
Equivalent Flat Plate Area	3.1ft ² (.29 m ²)
Front Wind Load @ 100 mph (161 kph)	90 lbs (400 N)
Side Wind Load @ 100 mph (161 kph)	31 lbs (139 N)
Weight	18 lbs (8.2 kg)

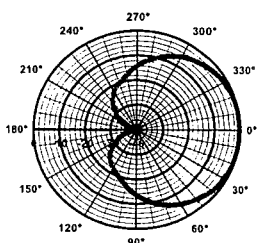
Note: Patent Pending and US Patent number 5, 757, 246.

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.

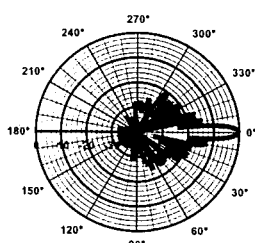
MOUNTING OPTIONS

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"

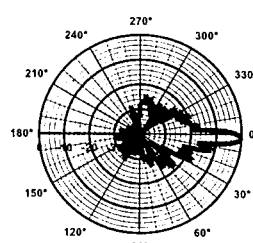
* Model number shown represents a series of products. See mounting options section for specific model number.



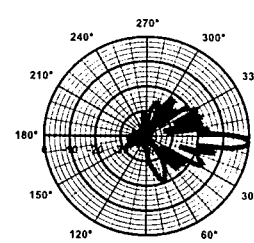
Azimuth



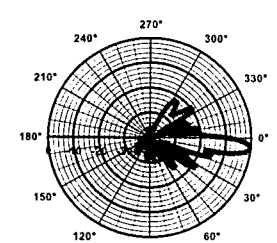
Elevation
0° Downtilt



Elevation
2° Downtilt



Elevation
4° Downtilt

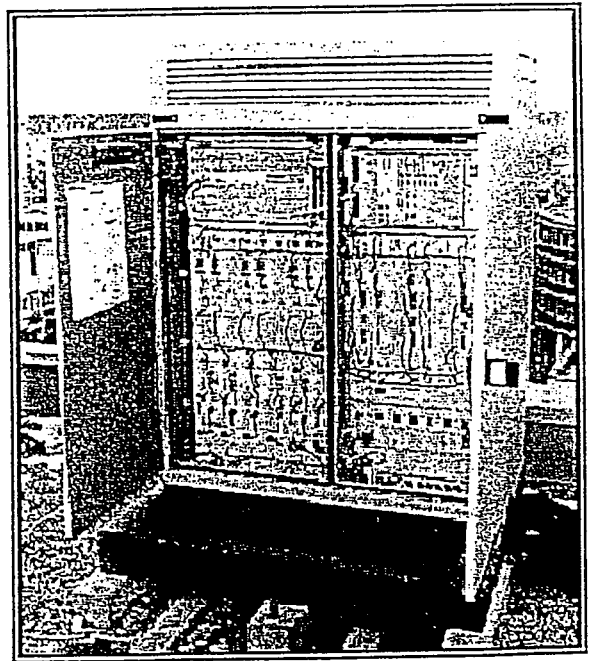
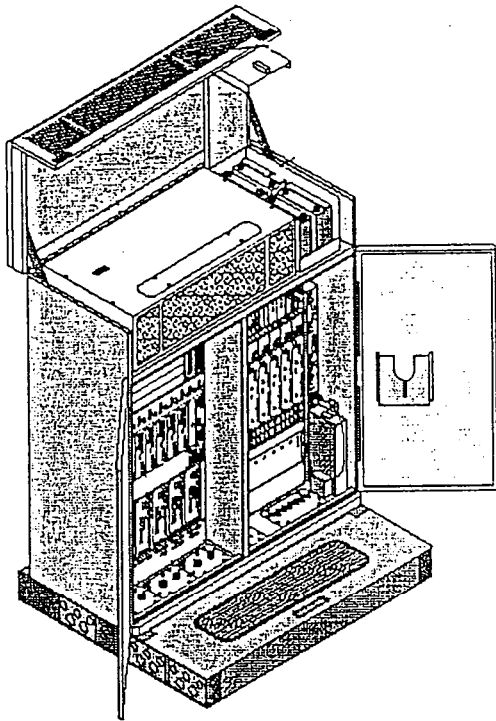


Elevation
6° Downtilt



S8000 BTS

Site Specifications



Electrical Specifications

Split Single-Phase

3 wires plus ground

L1: Black 6 gauge

L2: Red 6 gauge

Neutral: White 6 gauge

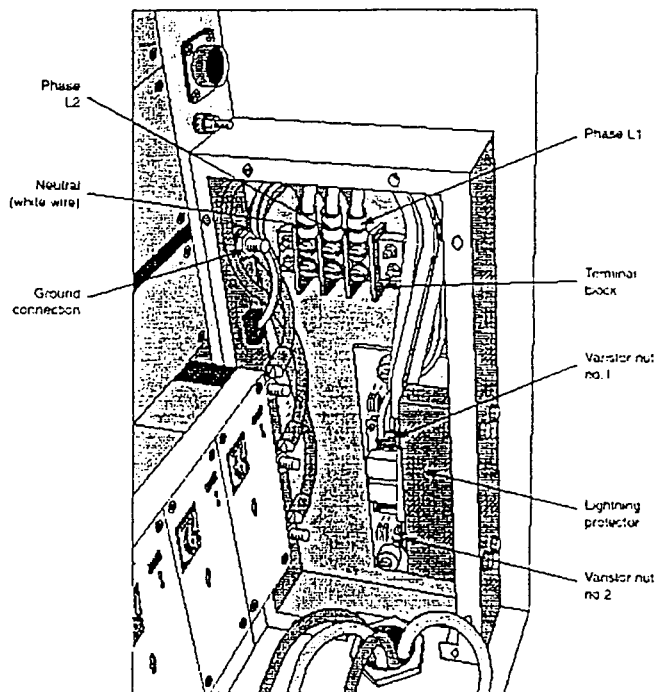
Ground: Yellow/Green 6 gauge

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

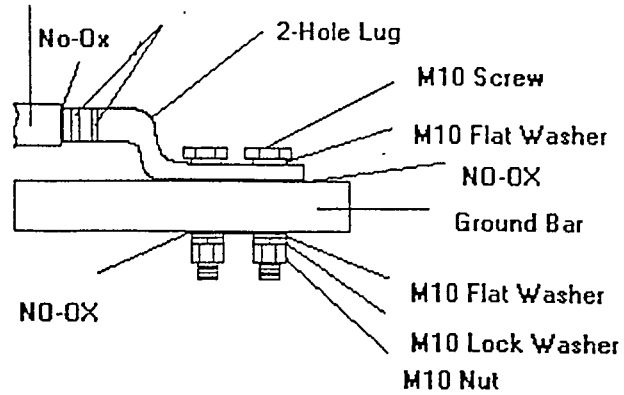
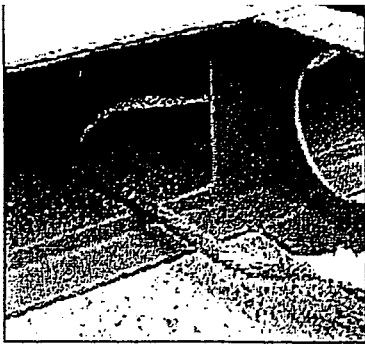
30 A, bipolar, C curve

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.



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/foot²

Flatness:

¼ inch over 78 inches

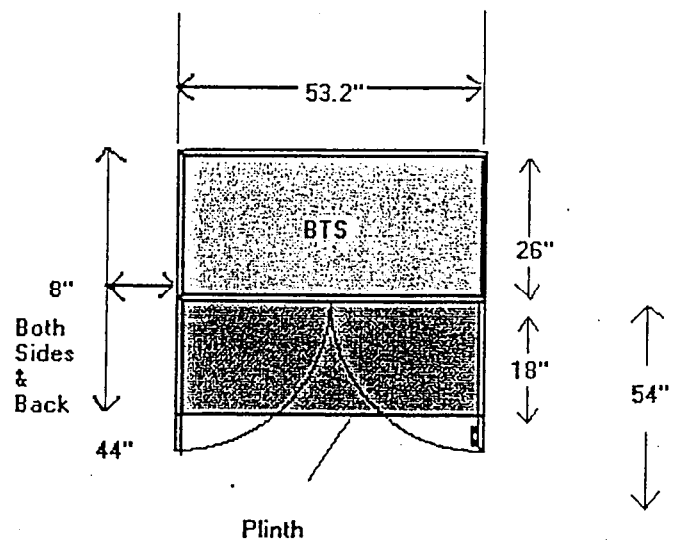
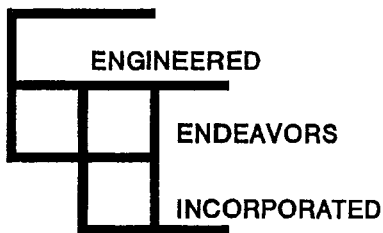


Exhibit C

Structural Analysis

52 New Britain Avenue

Rocky Hill, CT



Mr. Kemp Morhardt

May 4, 2000

Carter & Burgess.
481 Buckland Road, Ste. 201
So. Windsor, CT 06704

Reference: 180-ft monopole in Rocky Hills, CT. EEI Project No. 6985. (EEI design No. 5554)
Carter & Burgess Job No. 320354.

Engineered Endeavors Incorporated (EEI) has reviewed the structural stability of the referenced above monopole and foundation for a co-location at 160-ft above ground level. The monopole was reviewed for the following antenna loading:

Third party loading: (6) Cellwave antennas on a T-standard platform @180'
(12) Allgon 7184.15 antennas on a standard platform @170'
(12) Allgon 7184.15 antennas on a standard platform @150'

Proposed VoiceStream co-location: (6) EMS RR90-17 antennas @ 160' on a low profile platform

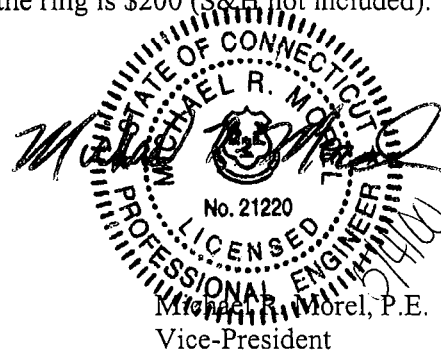
The information on co-location at 160' was provided by Mr. Kemp Morhardt w/Carter & Burgess, Inc. The third party antenna loading was provided by URS Greiner in August of 1999, and EEI assumes that these particular antennas are installed or will be installed on the monopole.

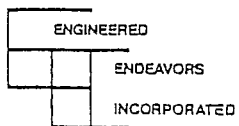
Based on the information provided to us, EEI considers that both the monopole and foundation are capable of supporting the full design load as stated above. EEI assumes that the antenna information, as described above is correct, and both the monopole and foundation have been constructed in accordance with the design drawings and specifications.

An additional cable entry port 9"x24" can be installed at the proposed elevation of 25' A.G.L. The opening shall be reinforced with a reinforcing ring as shown on the attached sketch. EEI can provide a ring (part 78824) and a manual for field installation upon request. The cost of the ring is \$200 (S&H not included).

Sincerely,
Engineered Endeavors, Inc.

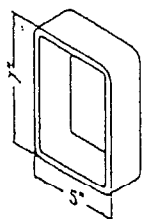
Boris S. Fayman, P.E.
Project Engineer





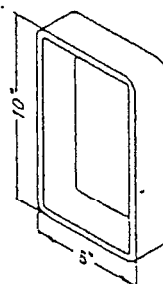
The Experienced Point of View

Reinforcement Rings



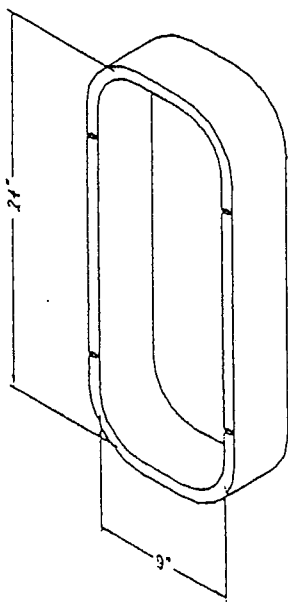
5" x 7" Handhole

Part # - T4600378



6" x 10" Handhole

Part # - T4601113



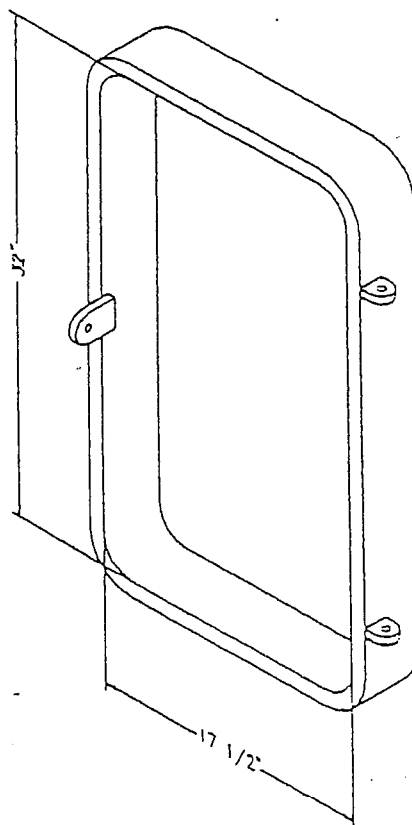
9" x 24" Access Port

Cover Plate Removed for Clarity

Part Numbers

Reinforcing Ring - 78824

Cover Plate - 78834



17 1/2" x 32" Manway

Manway Door Removed for Clarity

Part Numbers

Reinforcing Ring - WA10854

Cover Plate - K10446

Installation Procedural Manual Supplied with Purchase of Reinforcement Rings

Exhibit D

Power Density Calculations

52 New Britain Avenue

Rocky Hill, CT

Technical Memo

To: Brendan Sharkey
From: Haider Syed (Radio Engineering Consultant)
cc: Mike Fulton
Subject: Power Density Report for CT11427
Date: 7/7/2000

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the proposed VoiceStream Wireless PCS antenna for installation on Tower at 52 New Britain Ave, Rocky Hills CT. This study incorporates the most conservative considerations 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 the Voicestream transmitters are in the 1930-1945 MHz frequency band.
- 2) The antenna cluster consists of three sectors, with up to four antennas per sector. The model number for each antenna is EMS RR90 17 02 DP
- 3) The antenna height is 160 feet centerline.
- 4) The maximum transmit power from each sector is 3575.36 Watts Effective Isotropic Radiated Power (EIRP) assuming eight channel capacity.
- 5) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
- 6) 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.
- 7) 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 worse case assumptions, the power density calculations from the proposed VoiceStream Wireless, PCS antenna for installation on Tower at 52 New Britain Ave, Rocky Hills CT is 0.03064 mw/cm^2 . This value represents only 3.0641% of the Maximum Permissible Emission (MPE) standard of 1000 microwatts per square centimeter ($\mu\text{w/cm}^2$) set forth in the FCC/ANSI/IEEE C95.1-1991. The combined Power Density with AT&T Wireless, Rocky Hills Fire and Police will be 5.982 % of the standard. Details are shown in the attachment. Furthermore, the proposed antenna location for VoiceStream Wireless will not interfere with existing public safety telecommunications, AM band and FM band radio broadcast, TV, Police Communication, HAM Radio communications and other signals in the area.

Worst Case Power Density for installation on Tower at 52 New Britain Ave, Rocky Hills CT

Region 11 - Connecticut

Power Density Calculation - Worst Case

Base Station TX output	20 W	43.01 dBm
MAX Number of channels	3	
Antenna Model	EMS: RR-90-17/ RV-90-17	
Antenna Gain	16.5 dBi	
Cable Size	1 5/8"	
Cable Length	130 ft	
Jumper & Connector loss	1.5 dB	
Cable Loss per foot	0.0116 dB	
Total Cable Loss	1.508 dB	
Total Attenuation	3.008 dB	
Total EIRP per channel	56.50 dB	446.92 W
Total EIRP per sector	65.53 dB	3575.35 W
Ground Reflection	1.5	
Frequency	1900 MHz	
Antenna Height	160 ft	4876.8 cm
nsg	13.492	
Power Density (S) =	0.0306408224235716 mW / cm ²	
% MPE =	3.0641	

%MPE for AT&T = 0.9091

%MPE for Police = 1.0040

%MPE for Fire = 1.0048

Total %MPE with Voicestream = 5.982

*Equation Used:

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

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

A black and white photograph showing a tall, slender antenna tower rising from a dark, silhouetted building in the foreground. The tower is topped with a complex array of antennas. Several horizontal power lines stretch across the middle of the frame. The background is a bright, cloudy sky. The image has a grainy, high-contrast quality.

Voicestream. 52 New Britain Ave. Rocky Hill