County of Fairfax, Virginia

MEMORANDUM

DATE: November 6, 2006

TO: David Marshall, Chief
Facilities Planning Branch, PD, DPZ

FROM: Barbara A. Byron, Director
Zoning Evaluation Division, DPZ

SUBJECT: Proposed Clearwire Telecommunications Facility at 8661 Leesburg Pike
Tax Map 29-1 ((1)) 10D

This is in response to a request for a determination as to whether the telecommunications facility proposed by Clearwire US LLC at 8661 Leesburg Pike would be in substantial conformance with the proffers accepted by the Board of Supervisors in conjunction with the approval of Proffered Condition Amendment PCA 80-C-072, the development conditions imposed by the Board of Supervisors pursuant to Special Exception Amendment SEA 80-C-105 and the development conditions imposed by the Board of Zoning Appeals with Variance Amendment VCA 82-C-179. The approval of the above noted PCA, SEA and VC permitted a hotel/motel, conference center and restaurant/lounge use, the building setback from Ashgrove Lane and an increase in the maximum building height in the I-5 District. As described in the 2232 application submitted by Clearwire US LLC, four (4) panel antennas (each 35.8 inches high x 5.5 inches wide x 4.7 inches deep) and four (4) dish antennas (each 26.1 inch in diameter) are proposed to be mounted at a height of approximately 237 feet to an existing screening wall on the rooftop of the existing hotel building. An associated equipment cabinet measuring 30.091 inches high x 12.27 inches wide x 8.34 inches deep is proposed behind the screening wall. A copy of the 2232 application is attached, including illustrations that depict the proposed locations of the telecommunications equipment.

The Zoning Administration Division has determined that a telecommunications facility, as described above, is a permitted use pursuant to the provisions of Sect. 2-514 of the Zoning Ordinance provided that it is determined to be in substantial conformance with any applicable proffered condition amendment, special exception amendment and variance amendment. It is my determination that the proposed telecommunications facility would be in substantial conformance with PCA 80-C-072, SEA 80-C-105-2 and VCA 82-C-179. Please note that this proposal is subject to 2232 review requirements and that Clearwire's ability to proceed is dependent upon the pending 2232 application being approved by the Fairfax County Planning Commission. This determination has been made in my capacity as the duly authorized of the Zoning Administrator. If you have any questions regarding this memorandum, please call Carrie Lee at (703) 324-1290.

BAB/O:\clee01\Interpretations\Clearwire_8661 Leesburg Pk.doc

Attachments: A/S

cc: Catherine Hudgins, Hunter Mill District
Frank A. de la Fe, Planning Commissioner, Hunter Mill District
Diane E. Johnson-Quinn, Deputy Zoning Administrator, Permits Review Branch, ZAD, DPZ
Michelle Brickner, Assistant Director, Land Development Services, DPWES
Gregory S. Tully, 812 Oregon Avenue Suite E, Linthicum, MD 21090
Kevin Guinaw, Chief, Special Projects/Applications Management Branch, ZED, DPZ
File: PCA 80-C-072, SEA 80-C-105-2, VCA 82-C-179, ANT 0610 061, Imaging, Reading File

Department of Planning and Zoning
Zoning Evaluation Division
12055 Government Center Parkway, Suite 801
Fairfax, Virginia 22035-5509
Phone 703-324-1290
Fax 703-324-3924
www.fairfaxcounty.gov/dpz/

County of Fairfax, Virginia

MEMORANDUM

TO: Zoning Administration Division, DP&Z
Technology Infrastructure Division, DIT
Other: _____

DATE: 10/3/06

RECEIVED
Department of Planning & Zoning
OCT 0 6 2006
Zoning Evaluation Division

RECEIVED
Dept. of Planning & Zoning
OCT 0 4 2006
Zoning Administration Div
2006-0659

FROM: David B. Marshall, Chief
Facilities Planning Branch, DPZ

SUBJECT: Request for Review: 2232 Review Application

RE: Application Number: FS-H06-75 Tax Map: 29-1 ((1)) 10D

Attached for your review and comment is a 2232 Review application:

RECEIVED FROM: Clearwire

PROPOSED USE: 8 antennas on building rooftop

LOCATION OF USE: 8661 Leesburg Pike

Please send your comments to David Marshall by: 10/18/06 Additional comments:

****ZAD COMMENTS:**

Property is zoned I-5

_____ Proposed use is permitted by Zoning Ordinance and meets all zoning requirements.

_____ Proposed use does not meet all Zoning Ordinance requirements as follows:

[illegible] The height of the [illegible] [illegible] 219 [illegible] [illegible] and height [illegible] The total area within the screening wall must be included [illegible] a material or color which matches or blends with the structure on which they are mounted

Referred to ZED for the following: [illegible]

ZAD comments prepared by: _____ Date _____

****ZED COMMENTS:**

_____ Proposed use is in substantial accord with all development conditions and/or proffers.

_____ Proposed use is not in substantial accord with development conditions and proffers.

ZED comments prepared by: _____ Date: _____

Department of Planning and Zoning
Planning Division
12055 Government Center Parkway, Suite730
Fairfax, Virginia 22035-5509
Phone 703-324-1380
Fax 703-324-3056
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COUNTY OF FAIRFAX, VIRGINIA

APPLICATION FOR DETERMINATION PURSUANT TO SECTION 15.2–2232 OF THE CODE OF VIRGINIA

Application Number: FS-H06-75
(assigned by staff)

The application contains three parts: I. Application Summary; II. Statement of Justification; and III. Telecommunication Proposal Details.

(Please Type or Print All Requested Information)

PART I: APPLICATION SUMMARY

ADDRESS OF PROPOSED USE

Street Address 8661 Leesburg Pike

City/Town Vienna Zip Code 22182

APPLICANT(S)

Name of Applicant Clearwire US LLC

Street Address 5808 Lake Washington Blvd., Suite 100

City/Town Kirkland State WA Zip Code 98033

Telephone Number: Work (443) 992-3450 Fax (41) 636-5287

E-mail Address gtully@nbcllc.com

Name of Applicant's Agent/Contact (if applicable) Gregory S. Tully

Agent's Street Address 812 Oregon Ave., Suite E

City/Town Linthicum State MD Zip Code 21090

Telephone: Work (443) 992-3450 Fax (410) 636-5287

PROPOSED USE

Street Address 8661 Leesburg Pike

Fairfax Co. Tax Map and Parcel Number(s) 0291-01-0010D

Brief Description of Proposed Use

Telecommunication Facility

Total Area of Subject Parcel(s) 392,049 sf (acres or square feet)

Portion of Site Occupied by Proposed Use 49 sf (acres or square feet)

Fairfax County Supervisor District Hunter Mill

Planned Use of Subject Property (according to Fairfax County Comprehensive Plan)
Industrial

Zoning of Subject Property I-5

List all applicable Proffer Conditions, Development Plans, Special Exceptions, Special Permits or Variances previously approved and related to this site

PROPERTY OWNER(s) OF RECORD

Owner Tysons Corner Hotel Company LLC

Street Address 545 E John Carpenter Freeway, Suite 1300

City/Town Irving State TX Zip Code 75062

PART II, *entitled "Statement of Justification," pages 4 through 6, shall be completed by all applicants and included as part of the application.* ***PART III,*** *entitled "Telecommunication Proposal Details," pages 7 through 9, also shall be completed and included for all proposed telecommunication uses.*

Name of Applicant or Agent Gregory S. Tully

Signature of Applicant or Agent

Date 9/26/06

****

Submit completed application to:

Fairfax County
Department of Planning and Zoning, Planning Division
Herrity Building
12055 Government Center Parkway, Suite 730
Fairfax, Virginia 22035

Please do not staple, bind or hole-punch this application. Please provide at least one copy of all pages, including maps and drawings, on 8.5 x 11 inch paper.

****

FOR STAFF USE ONLY

Date application received: 9/27/06

By: DBM

Additional information requested to complete application:

Date application accepted: 10/2/06

By: DBM

Dish Antennas

Number and Type: Four (4) Andrew Valuline III Next Generation Antennas

Dimensions: Height NA Diameter 26.1"

Location / Placement: on existing monopole tower

Wattage: 30 watts

Material: Metal, Pre-Fab

Material of Antenna mounting: Metal

Height above grand:

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September 26, 2006

Mr. James P. Zook, Director
Fairfax County Office of Comprehensive Planning
12055 Government Center Parkway, Suite 730
Fairfax, Virginia 22035-5505

RE: Request for determination under Virginia Code sec. 15.2-2232
Clearwire US, LLC
Site 154
Tax Map No. 0291-01-0010D

Dear Mr. Zook:

Clearwire US, LLC ("Clearwire"), an FCC licensed broadband service provider, respectfully requests that the Planning Commission of Fairfax County, Virginia make a determination pursuant to sec. 15.2-2232 of the Code of Virginia that Clearwire's proposed rooftop telecommunication facility on an existing building rooftop is substantially in accord with the Fairfax County Comprehensive Land Use Plan, and find that, in accordance with Objective 45, the proposed facility is a feature shown of the Plan according to the "Administrative Review" guidelines. Clearwire's FCC license covers the Greater Washington areas, including Fairfax County and other areas of Northern Virginia.

APPLICANT:

Clearwire US, LLC ("Clearwire")
5808 Lake Washington Blvd., Suite 100
Kirkland, WA 98033
Tel: 443-992-3450
Fax: 410-636-5287

SITE LOCATION:

Address:	8661 Leesburg Pike
Tax Map #:	0291-01-0010D
Zoning District:	I-5
Use:	Commercial
Supervisor District:	Hunter Mill

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DESCRIPTION OF PROPOSED USE:

Clearwire proposes to install an unmanned wireless telecommunications link which will consist of four (4) panel antennas and four (4) dish antennas which will be flush-mounted to an existing screening wall on top of a 264-foot Sheraton Hotel building, owned by the Tysons Corner Hotel Company, and located at 8661 Leesburg Pike in Vienna, Virginia. The antennas will be mounted at a height of approximately 237 feet. In addition to antenna array, Clearwire will install one (1) proposed ancillary equipment cabinet, which is shown on the Clearwire US LLC engineering zoning drawings ("ZD's") prepared by Glock Smidt Engineering, Inc. ("GS"). This facility is sought to provide in-home residential broadband service penetration to the Vienna area.

The antennas will be flush-mounted at height of approximately 237 feet on the existing rooftop screening wall. The 30.091-inch by 12.27-inch by 8.34-inch (height by width by depth) ancillary equipment cabinet will behind the screening wall as shown on the ZD's so that it will not be visible from adjacent properties.

The facility will operate automatically and will not require personnel or hours of attendance. It will operate twenty-four (24) hours a day, three hundred and sixty-five days a year. Maintenance personnel will visit the site periodically and occasionally for repairs or modifications to the facility.

REQUIREMENT FOR PROPOSED USE:

The proposed facility is a vital component of Cleawire's area-wide wireless broadband network. Cleawire proposes to use this existing building to eliminate the need for a new telecommunications tower in this search area. This site is not only strategically superior to other sites in the area, but also makes use of an existing structure, which is a stated goal of the Fairfax County Comprehensive Land Use Plan and the Fairfax County Zoning Ordinance.

Broadband service providers must locate antenna sites according to a network design within relatively limited geographic parameters in order to provide uninterrupted coverage. When providers cannot locate a site within these geographic parameters, network users will be in an area where their wireless internet connection will be disrupted or will slow significantly. In addition, an incomplete system is inconsistent with Clearwire's legal requirements to provide coverage to a percentage of the population within specific time parameters as required by its FCC license.

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This site offers both an excellent land-use and visual solution to Clearwire's coverage objective within the narrow placement parameters of this particular search area. Clearwire's analysis of its network indicates that there are significant problems in the Vienna area of Fairfax County. As is referenced to under the Alternatives section, Clearwire is making use of this existing building to avoid constructing a new tower. Consequently, this facility will be the least disruptive means to provide the needed coverage and network capacity in the area.

ANTICIPATED IMPACTS ON ADJOINING PROPERTIES

The proposed facility will have no impact as to traffic, noise, light pollution, air quality, water quality, or radiation on the adjoining properties. As stated previously, this proposal will both make use of an existing building so that there will be little to no adverse visual impact on surrounding properties. In addition to being the best alternative to provide the needed coverage in this search area, the proposed collocation installation is an unobtrusive site to surrounding properties.

RELATIONSHIP OF THE PROPOSAL TO THE COMPREHENSIVE PLAN

The proposed facility is consistent with and furthers the transcendent goals of the Fairfax County Comprehensive Land Use Plan ("Plan") as well as the applicable objectives.

The location, character and extent of the application should be found to be in substantial accord with the Comprehensive Plan. In terms of location, property that contains existing vertical structures, such as buildings, is encouraged by the plan for new site development.

In addition, the extent of the proposed facility should be found to be in substantial accord with the plan as well. The proposed facility poses no encroachment on any existing easements or services, and the antenna mounting height is the minimum needed to serve the facility's goals for the applicant.

The instant application is also consistent with the objectives found under the Policy Plan of the Comprehensive Plan concerning "Mobile and Land-Based Telecommunication Services."

Policy j. ***Site proposed facilities to avoid areas of environmental sensitivity.***

(See description of compliance with Policy i.)

Furthermore, Clearwire would like to point out that the proposed facility should be found to be a feature shown of the Comprehensive Plan by demonstrating compliance with the "Administrative Review Guidelines" of the Comprehensive Plan, which state:

Objective 45: ***Consider the placement of antennas and their associated equipment to be a "feature shown" of the Comprehensive Plan requiring no further Planning Commission review when the placement of the antennas and the related equipment structures is in full compliance with all Fairfax County Zoning Ordinance provisions and the following applicable policies:***

Policy a. ***Locate telecommunication facilities on building surfaces (including water tanks or towers) in accordance with the following standards:***

- ***The antenna shall be placed directly in front of the building's or tank's surface, including surfaces of the penthouse and other structures on the building's roof, and be no greater than 72 inches in height, 24 inches in width, and 6 inches in depth, or, when a dish antenna, no more than 24 inches in diameter;***

  Clearwire will state definitively, for purposes of this application, that not only will the proposed antennas be flush to the existing screen wall on the building roof top, but the antenna dimensions will be 35.8 inches in height, 5.5 inches in width and 4.7 inches in depth, which is clearly within the parameters stated above (see antenna specifications).

- ***No part of the antenna shall extend above the surface of the building or tank on which it is placed and no part of the antenna's mounting shall extend more than 6 inches above the surface of the building on which it is placed;***

  Clearwire will submit that no part of the proposed antenna array will extend above the top of the screen wall on the building rooftop.

- ***The back of the antenna shall be no more than one foot horizontally from the surface on which it is placed;***

Clearwire will submit that the proposed antenna array will be set off the surface of the building penthouse no more than twelve (12) inches.

- ***The antenna and its mounting shall be of a color or finish that closely matches and blends with the surface on which they are placed;***

  As stated previously, Clearwire will state for the purposes of this application, that the antenna arrays will be painted a color to match the color of the existing screen wall.

- ***The equipment cabinet or shelter shall be either:***

  - ***located on the roof of the building immediately adjacent to its penthouse or other structure on the roof and it no greater than 500 square feet in area and 12 feet in height, and shall be screened by a material of the same, or visually the same, color or pattern and of an equal or lesser height than the adjacent rooftop structure;***

    Clearwire will state that the proposed equipment cabinet will be located behind the existing screen wall, and thus will not be visible. This structure, moreover, will be approximately 5 feet tall, which is well under the 15-foot penthouse height and also well under the 12-foot height restriction called for by this portion of the Comprehensive Plan.

Policy c. ***In determining that proposed telecommunication facilities are a feature shown of the Comprehensive Plan, ensure that the following general factors are met:***

- ***The proposed installation has no material adverse impact on the visual quality of character of the general area in which it is to be placed including any surrounding residential properties;***

  Clearwire submits that the nature of the rooftop proposal has no adverse impact on the visual quality of the general area.

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- ***The proposed installation is located and designed to blend with the structure on which it is placed such as flush-mounting antennas or screening the antennas and equipment as appropriate to the site;***

  The four (9) antennas on the building screen wall will be flush-mounted and the equipment cabinets will be placed behind the screen wall.

- ***Related equipment cabinets or shelters located on the ground or on a rooftop should be appropriately screened or placed to obscure their visibility from surrounding properties;***

  (See second bullet)

ALTERNATIVE SITES CONSIDERED FOR THIS PROPOSAL

Because Clearwire has chosen to make use of an existing tower to provide for their radio-frequency needs in this search area, it did not seem necessary to eliminate other existing structures.

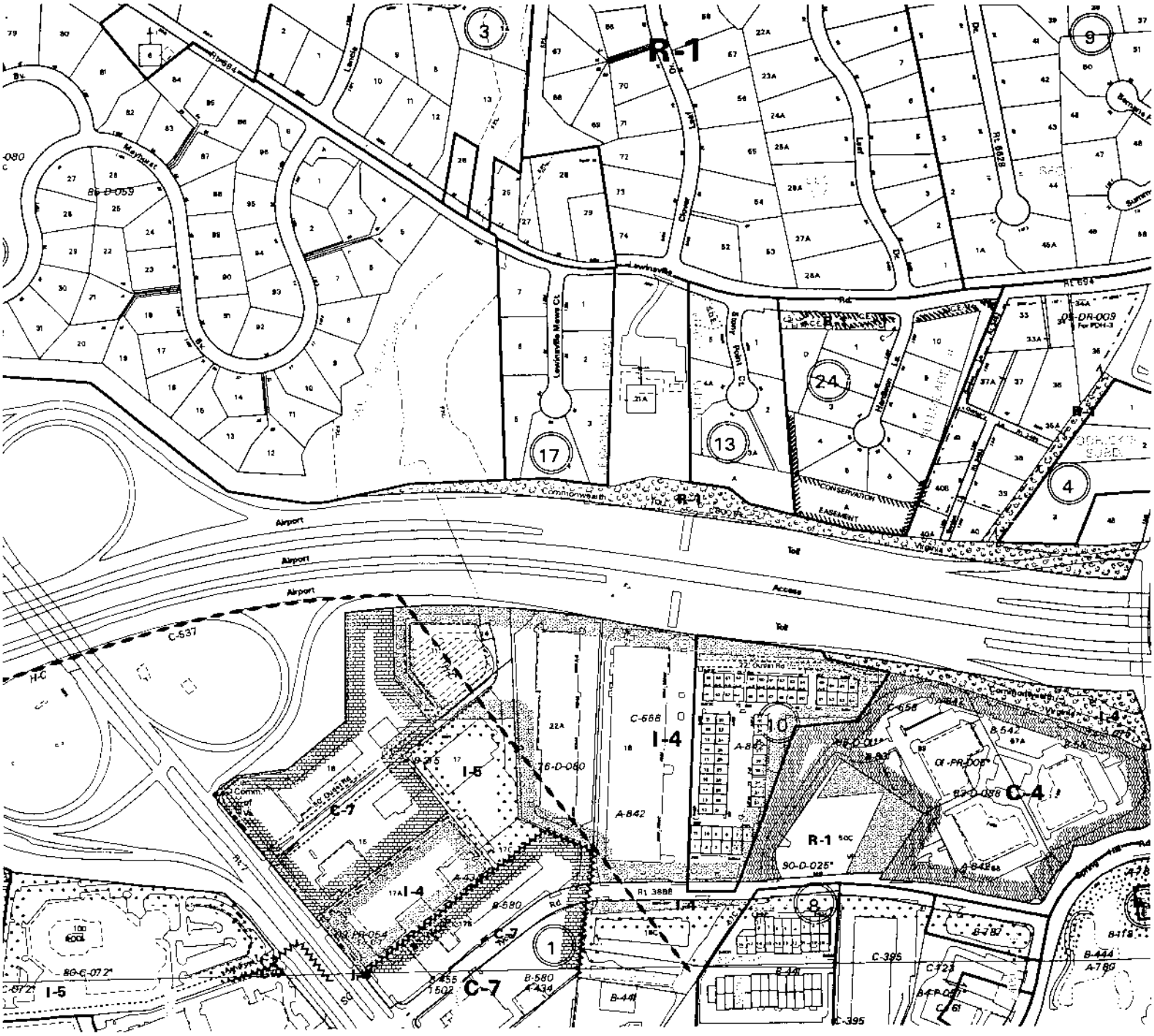
The applicant, Clearwire US, LLC, respectfully submits to the Planning Commission that the proposed facility is consistent with the Comprehensive Plan as to character, location and extent, and requests that the Planning Commission determine that the facility is a feature shown of the Comprehensive Plan.

Please contact me if you have any questions with reference to this submission.

Very Truly Yours,

Gregory S. Tully
Zoning Manager
Network Building & Consulting, LLC
Consultant for Clearwire US LLC

Exhibit A – Tax Map


R-1
I-4
C-7
C-4
I-5
Airport
Access
Toll
Lewinsville Rd
Lewinsville Meen Ct
Clover Leaf Rd
Maybeet
CONSERVATION EASEMENT
Commonwealth
Virginia
C-537
C-668
A-842
B-580
B-441
C-395
B-444
A-780
B-787
90-D-025
76-D-080
B-542
B-455
1502
A-434
B-441
R1 388B
22 Outside Rd
50 Outside Rd
Rt 7
Rt 694
Rt 6828
Rt 684
Rt 8
Rt 7
Rd
Ln
Dr
Pl
Ct
Blvd
Way
Hanson
Bluey Point Ct
Lewis
Clover
Maybeet
Rt 7
Rt 8
Rt 694
Rt 6828
Rt 684
Rt 7
Rt 8
Rt 7
Rt 8
Rt 7
Rt 8

PARID: 0291 01 0010D
TYSONS CORNER HOTEL

8661 LEESBURG PI

Owner

Name	TYSONS CORNER HOTEL, COMPANY LLC
Mailing Address	545 E JOHN CARPENTER FREEWAY SUITE 1300 CARE FELCOR LODGING TRUST INC IRVING TX 75062 3933
Book	11130
Page	0188

Parcel

Property Location	8661 LEESBURG PI
Parcel ID	0291 01 0010D
Tax District	100DE
District Name	HUNTER MILL DULLES RAIL EAST
Land Use Code	Hotel with restaurant & other comm
Land Area (acreage)	
Land Area (SQFT)	392,049
Zoning Description	I-5(Industrial General)
Utilities	

County Historic Overlay District	NO FOR FURTHER INFORMATION ABOUT HISTORIC OVERLAY DISTRICTS, CLICK HERE

Street/Road	
Site Description	

Legal Description

Legal Description	W ALVORD SHERMAN

Sales History

Date	Amount	Seller	Buyer
10/26/1999	$52,914,000		TYSONS CORNER HOTEL
10/22/1999	$52,914,000		

1 of 2

Sales

Date	10/26/1999
Amount	$52,914,000
Seller	
Buyer	TYSONS CORNER HOTEL
Notes	Valid and verified sale
Deed Book and Page	11130-0188

Values

Current Land	$8,740,000
Current Building	$63,190,190
Current Assessed Total	$71,930,190
Tax Exempt	NO
Note	

Values History

Tax Year	Land	Building	Assessed Total	Tax Exempt
2006	$8,740,000	$63,190,190	$71,930,190	NO
2005	$8,740,000	$47,580,500	$56,320,500	NO
2004	$6,992,000	$44,713,530	$51,705,530	NO

Exhibit B – Aerial Map

Send To Printer Back To TerraServer Change to 11x17 Print Size Show Grid Lines Change to Landscape

USGS **Tysons Corner, Virginia, United States** 20 Apr 1988

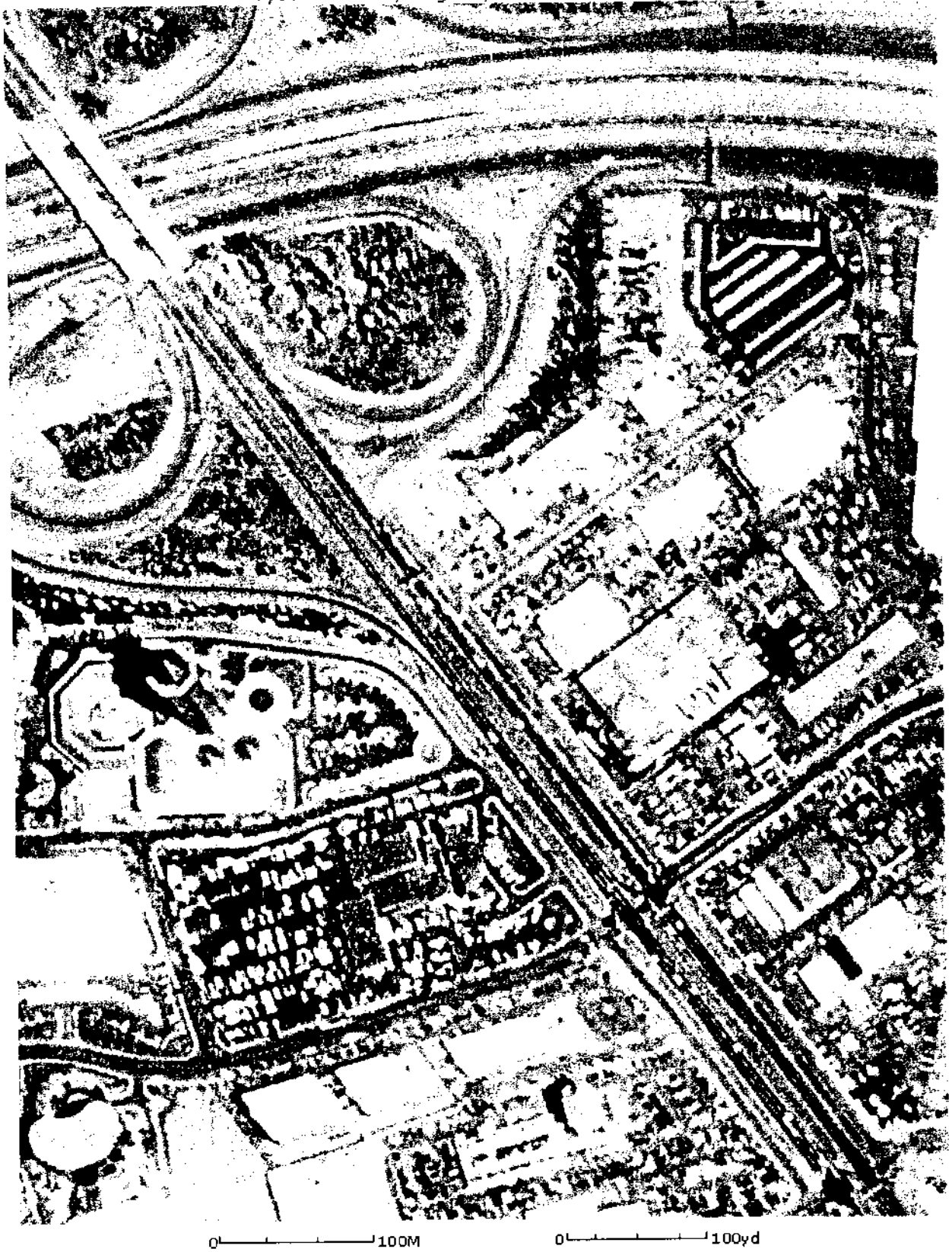


Image courtesy of the U.S. Geological Survey

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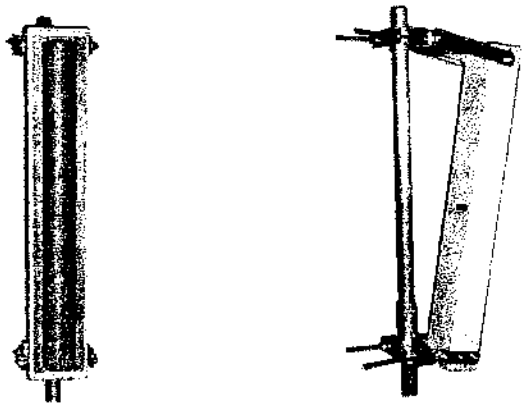
Exhibit C – Antenna Specifications

Stella Doradus Ireland Ltd.

2.6 GHz SD9890 Base Station Sector Antenna



The 26SD9890 is designed for gain, pattern, and cross pol properties to fit a range of RF systems, from single sites up to large scale cellular coverage.

Electrical Specifications

Gain	16 dBi
3 dB Beam Pattern	90° x 7°
Bandwidth	2.5- 2.7 GHz
VSWR	1.4 : 1
Front to Back Ratio	35 dB
Polarization	Vertical
Cross Pol. Discrimination	35 dB
Power Rating	25 W
Impedance	50 ohms
Connector	N female

Mechanical Specifications

Length	35.8 inches / 91 cm
Width	5.5 inches / 14 cm
Depth	4.7 inches / 12 cm
Weight	8.5 lbs / 3.9 kg
Adjustable Tilt Brackets	6.5 lbs / 3 kg
Windage (at 125 mph / 200 kph)	86 lbs / 382 newtons
Mounting Pipe Diameter	up to 3.5 inches / 9 cm
Materials	
Radiating Element	Beam forming PCB dipole array
Radome	Steel + ABS Grey
Adjustable Tilt Brackets	HDG steel + stainless steel bolts

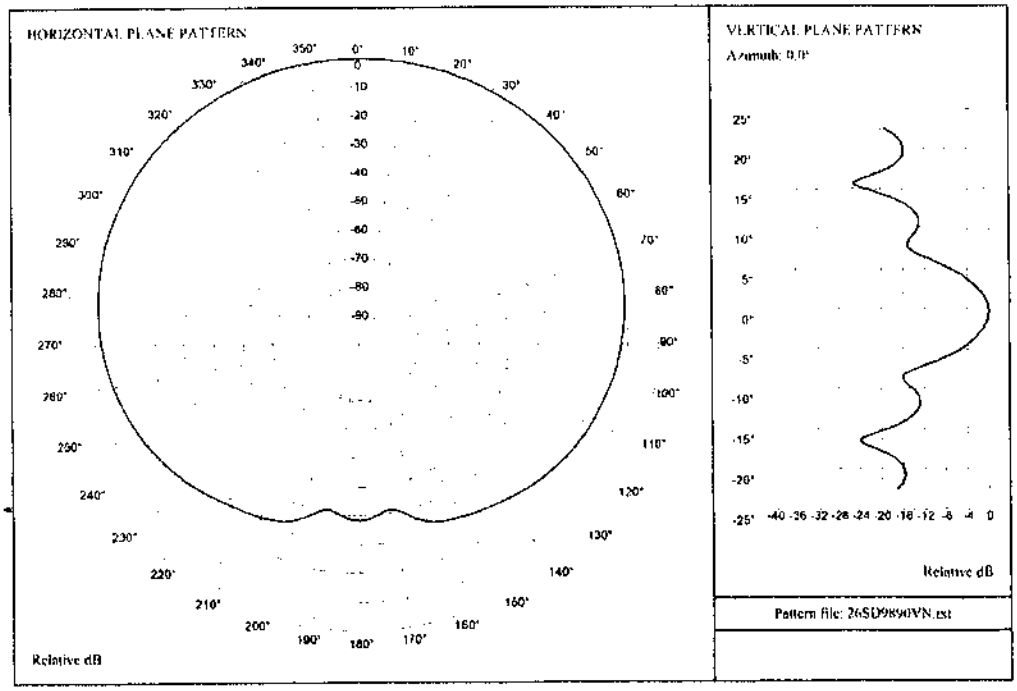
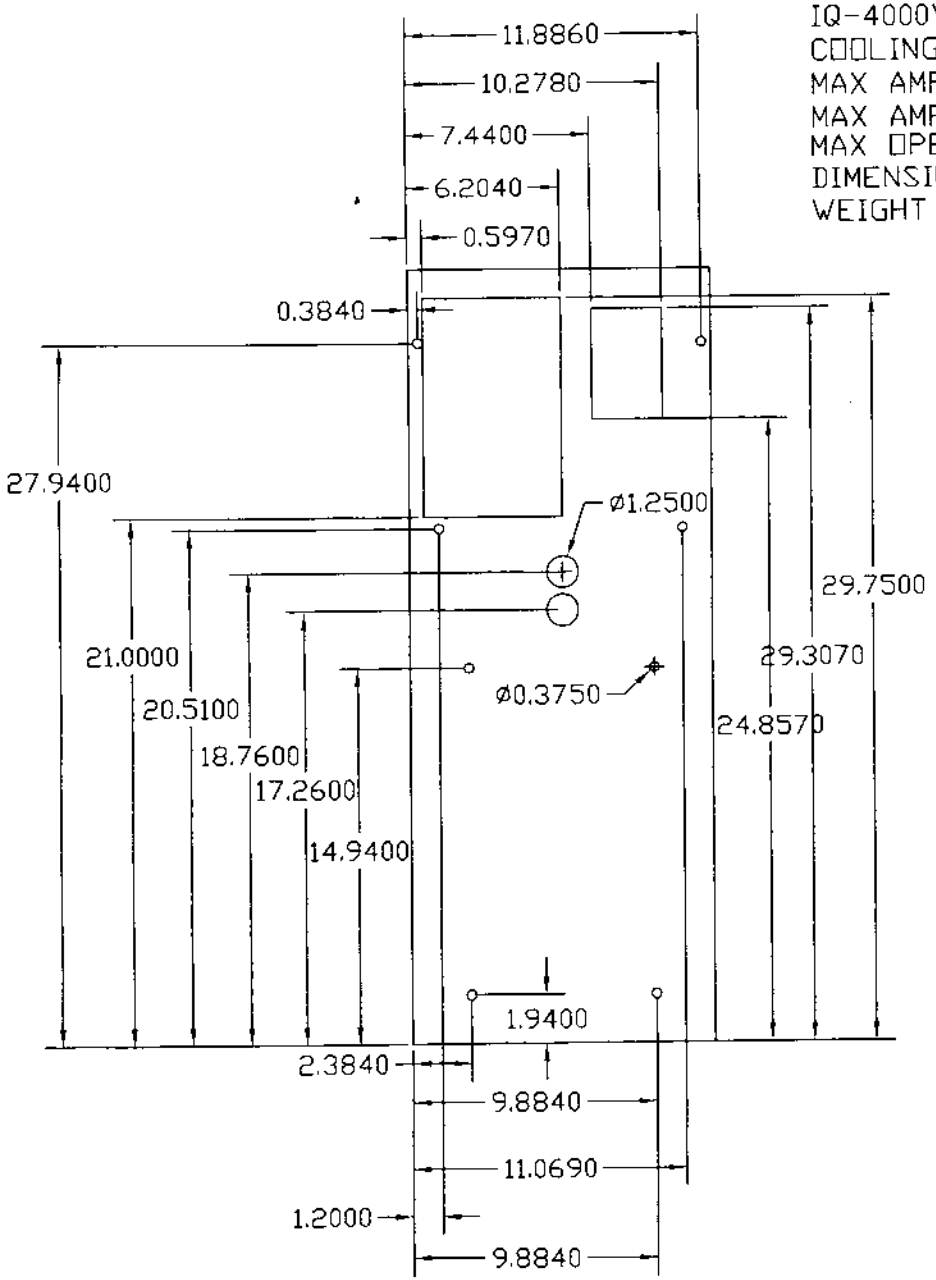
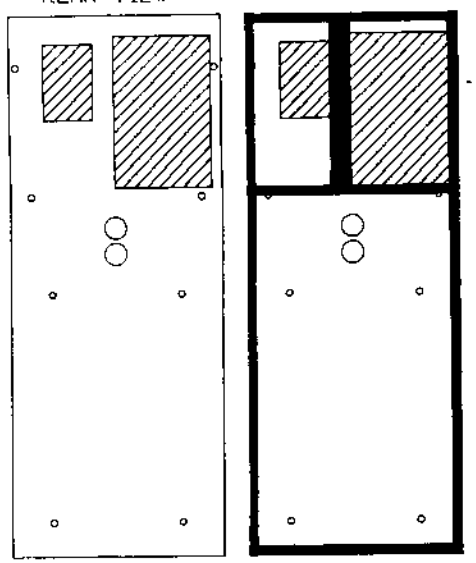
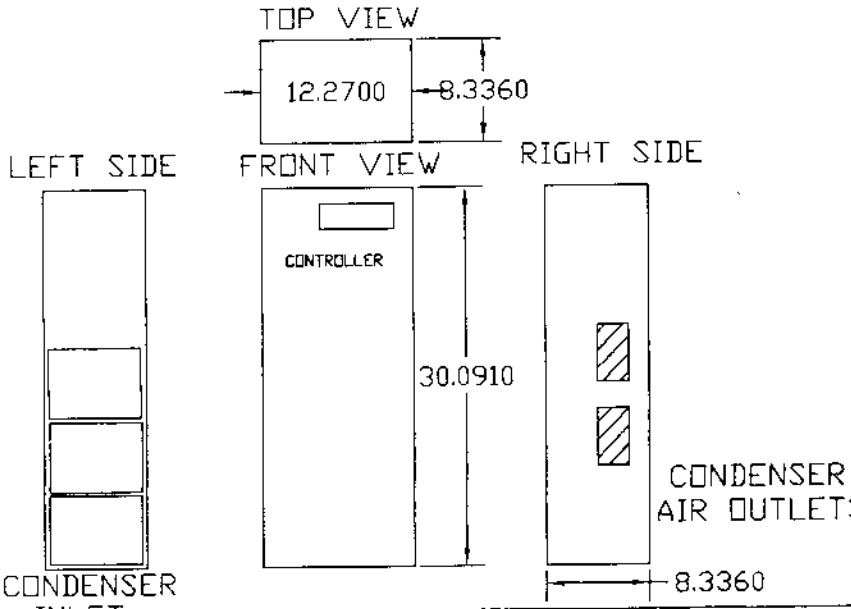


Exhibit D – Equipment Specifications

IQ-4000VS
COOLING CAP 4000BTUH @125'F
MAX AMPS 7.8 @120V 60HZ
MAX AMPS 4.2/4.6 @230/220 60/50HZ
MAX OPERATING TEMP 125'F
DIMENSIONS: 30.091H X 12.27W X 8.34D
WEIGHT 60 LBS







REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

DDB UNLIMITED
PO BOX 669 WYNNEWOOD, OK 73098

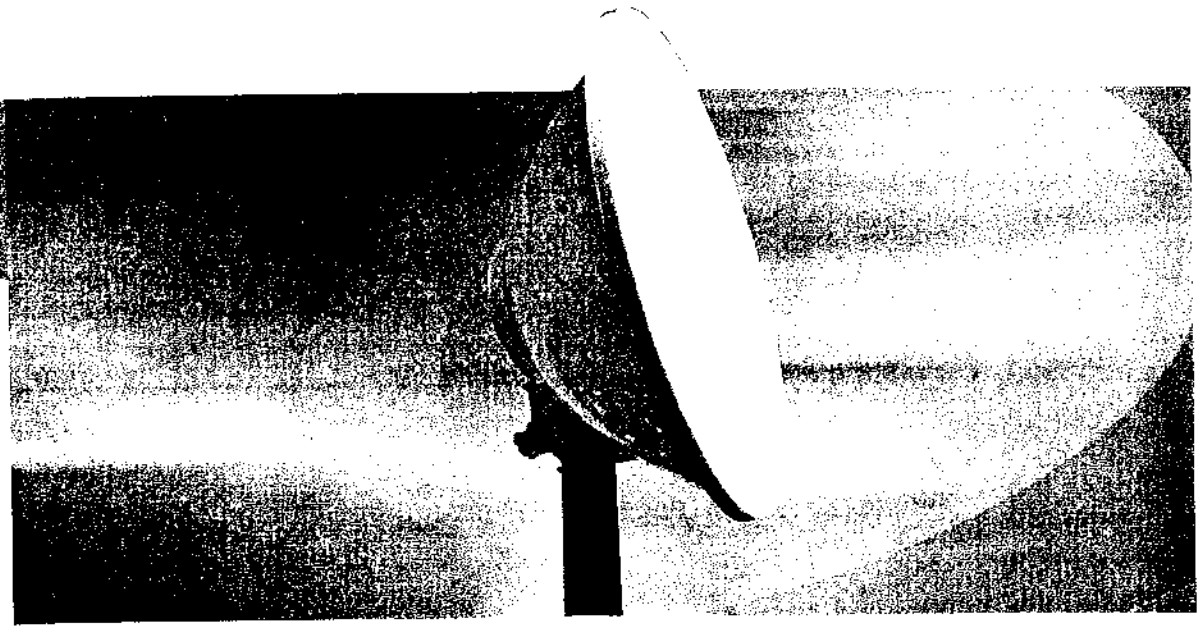
This drawing is the property of DDB Unlimited and is being provided for reference use only. Copyright 12000 - DDB Unlimited Inc. - All rights reserved

SIZE	FSCM NO.	DWG NO.	REV
		ac-40001-h/ac-400012-h	
SCALE 1:4	T Winters	SHEET	

Exhibit E – Dish Specifications

ANDREW®

PRODUCT SPECIFICATION



ValuLine® III Next Generation Antennas VHLP2

SPECIFICATIONS

	VHLP2-10	VHLP2-13	VHLP2-15	VHLP2-18	VHLP2-23	VHLP2-26	VHLP2-28	VHLP2-32	VHLP2-38
Frequency Band, GHz	10.5–10.7	12.70–13.25	14.25–15.35	17.7–19.7	21.2–23.6	24.25–26.5	27.5–29.5	31.8–33.4	37.0–40.0
Bottom Band Gain, dBi	34	35.6	36.5	38.3	39.8	40.8	41.8	43.4	44.6
Mid Band Gain, dBi	34.15	35.8	36.8	38.7	40.4	41.2	42.2	43.7	45.2
Top Band Gain, dBi	34.3	36	37.2	39.1	41.0	41.8	42.7	44.0	45.8
Beamwidth, degrees	3.5	2.7	2.5	2.1	1.7	2.5	1.3	1.0	0.9
Front/Back, dB	56	62	65	67	66	63	68	61	66
XPD, dB	30	30	30	30	30	30	30	30	30
Return Loss, dB	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7
Regulatory Compliance									
ETSI Class	R1 C2	R1 C3	R2 C3	R2 C3	R3 C3	R4 C2	R4 C2	R5 C3B	R5 C3B
FCC Part 101	CAT A	NA	NA	CAT A	CAT A	CAT A	NA	NA	CAT A
Brazil Anatel	CAT A	CAT B	CAT A	CAT A	CAT A	CAT A	CAT A	NA	CAT A
Canada SRSP	CAT A	CAT B	CAT A	Note 1	Note 2	NA	NA	NA	CAT A
Andrew RPE Number	7000	7004	7008	7012	7016	7020	7024	7028	7032

Note 1: Meets Canada SRSP 317.7, 318.5, 318.8
Note 2: Meets Canada SRSP 312.2A, 321.8A

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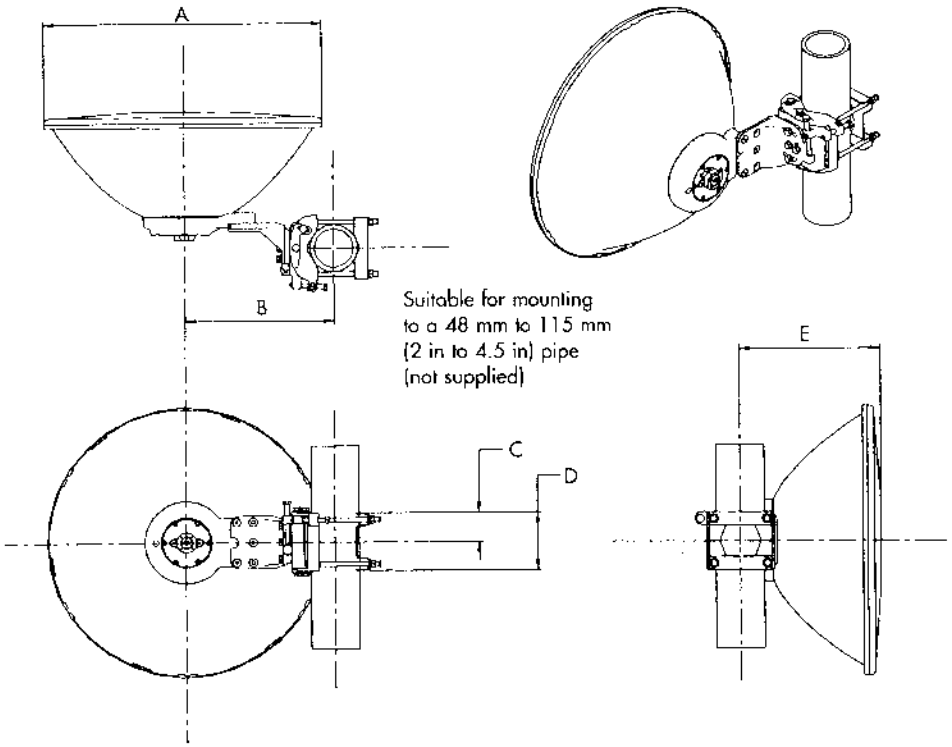
SPECIFICATIONS

ValuLine® III Next Generation Antennas—VHLP2



Antenna Dimensions, mm (in)

A	663 (26.1)
B	358 (14.1)
C	72 (2.8)
D	143 (5.6)
E	335 (13.2)

Antenna Fine Adjustment

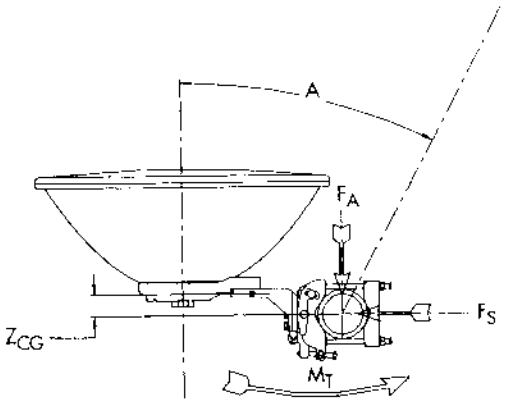
Fine Aximuth	±10°
Fine Elevation	±25°

SPECIFICATIONS

ValuLine® III Next Generation Antennas—VHLP2

Wind Loading

The axial, side, and twisting moment forces stated below are the maximum loads applied to the tower by the antenna at a survival windspeed of 250 km/h (155 mph). They are the result of wind from the most critical direction for each parameter. The individual maximums may not occur simultaneously. All forces are referenced to the antenna mounting pipe.



Axial force	F_A	1066 N (240 lb)
Side force	F_S	496 N (111 lb)
Moment	M_T	382 N·m (282 lb-ft)
Angle A for M_T maximum		0°
Z_{CG}* without ice, mm (in)		125 (4.9)
X_{CG} with 12 mm (1/2 in) radial ice, mm (in)		188 (7.4)

*Z_{CG} is the axial distance from the center of gravity to the mounting pipe.

Antenna Weights Including Mount

Antenna without ice, kg (lb)	14 (31)
Antenna with 12 mm (1/2 in) radial ice, kg (lb)	24.7 (54)

Antenna Packed Weights (Gross)

Weight, kg (lb)	14 (31)

Packed Antenna Dimensions (Single Unit Pack)

Dimensions, cm (in)	70 x 70 x 56 (27.5 x 27.5 x 22.0)

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Andrew Corporation
3 Westbrook Corporate Center
Suite 900
Westchester, IL 60154 US

Customer Support Center
From North America
Telephone: 1-800-255-1479
Fax: 1-800-349-5444
International
Telephone: +1-708-873-2307
Fax: +1-708-349-5444
Internet: www.andrew.com

All designs, specifications, and availabilities of products and services presented in this bulletin are subject to change without notice.

Bulletin PA-101028.1-EN (7/06)

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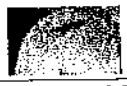
Refer to page 71 for Elliptical Waveguide ordering information

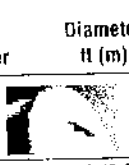
5.25 - 5.85 GHz

Antenna Inputs. All antenna VSWR values are specified with Type N Female connectors. Other optional inputs may result in equal or slightly VSWR. Contact Andrew for details.
Pressurization. Pressurization not required.

Type Number	Diameter ft (m)	RPE Number(s)	Regulatory Compliance U.S. FCC 101	74	78	ETSI Class	ETSI Gain	Gain, dBi Low	Mid-Band	Top	Beamwidth Degrees	Cross Pol. Disc., dB	F/B Ratio dB	VSWR max. (R.L., dB)
P, PX 	**Unlicensed Radios Including Spread Spectrum, NII, and ISM** – Single and Dual Polarized **Antenna Input:** Type N Female													
P2F-52	2 (0.6)	4528	–	–	–	–	–	29.0	29.2	29.9	5.4	30	43	1.50 (14.0)
PX2F-52	2 (0.6)	4740	–	–	–	–	–	29.0	29.2	29.9	5.4	30	43	1.50 (14.0)
P3F-52	3 (0.9)	4529	–	–	–	–	–	32.3	33.0	33.3	3.8	30	44	1.50 (14.0)
PX3F-52	3 (0.9)	4741	–	–	–	–	–	32.3	33.0	33.3	3.8	30	44	1.50 (14.0)

5.6 - 6.2 GHz *

Antenna Inputs. All antenna VSWR values are specified with CPR and PDR flanges. Other optional flanges may result in equal or slightly higher VSWR. Contact Andrew for details.
Pressurization. Feeds are pressurizable to 10 lb/in² (70 kPa).

Type Number	Diameter ft (m)	RPE Number(s)	Regulatory Compliance U.S. FCC 101	74	78	ETSI Class	ETSI Gain	Gain, dBi Low	Mid-Band	Top	Beamwidth Degrees	Cross Pol. Disc., dB	F/B Ratio dB	VSWR max. (R.L., dB)
UHX 	**Ultra High Performance Antennas** – Dual Polarization **Antenna Inputs:** CPR137G and PDR70													
UHX10-56	10 (3.0)	1636, 1637	A	–	–	3	2	42.5	42.9	43.3	1.1	36	72	1.06 (30.7)
UHX12-56	12 (3.7)	1638, 1639	A	–	–	3	2	44.0	44.5	44.9	0.9	36	73	1.06 (30.7)
HPX	**High Performance Antennas** – Dual Polarized **Antenna Inputs:** CPR137G and PDR70													
HPX8-56	8 (2.4)	1025	B	–	–	3	2	40.5	41.0	41.4	1.6	30	68	1.06 (30.7)
HPX10-56	10 (3.0)	1027	B	–	–	2	2	42.0	42.5	42.9	1.4	30	69	1.06 (30.7)
HPX12-56	12 (3.7)	1030	A	–	–	3	2	43.8	44.2	44.7	1.0	30	71	1.06 (30.7)

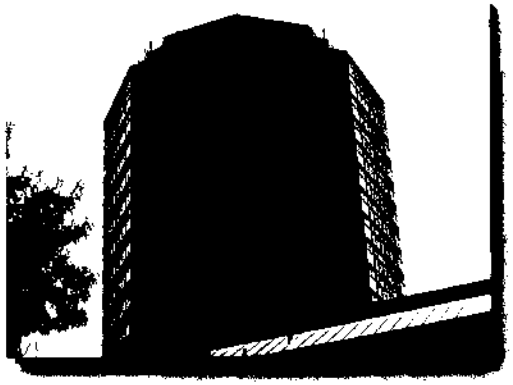
5.725 - 6.425 GHz

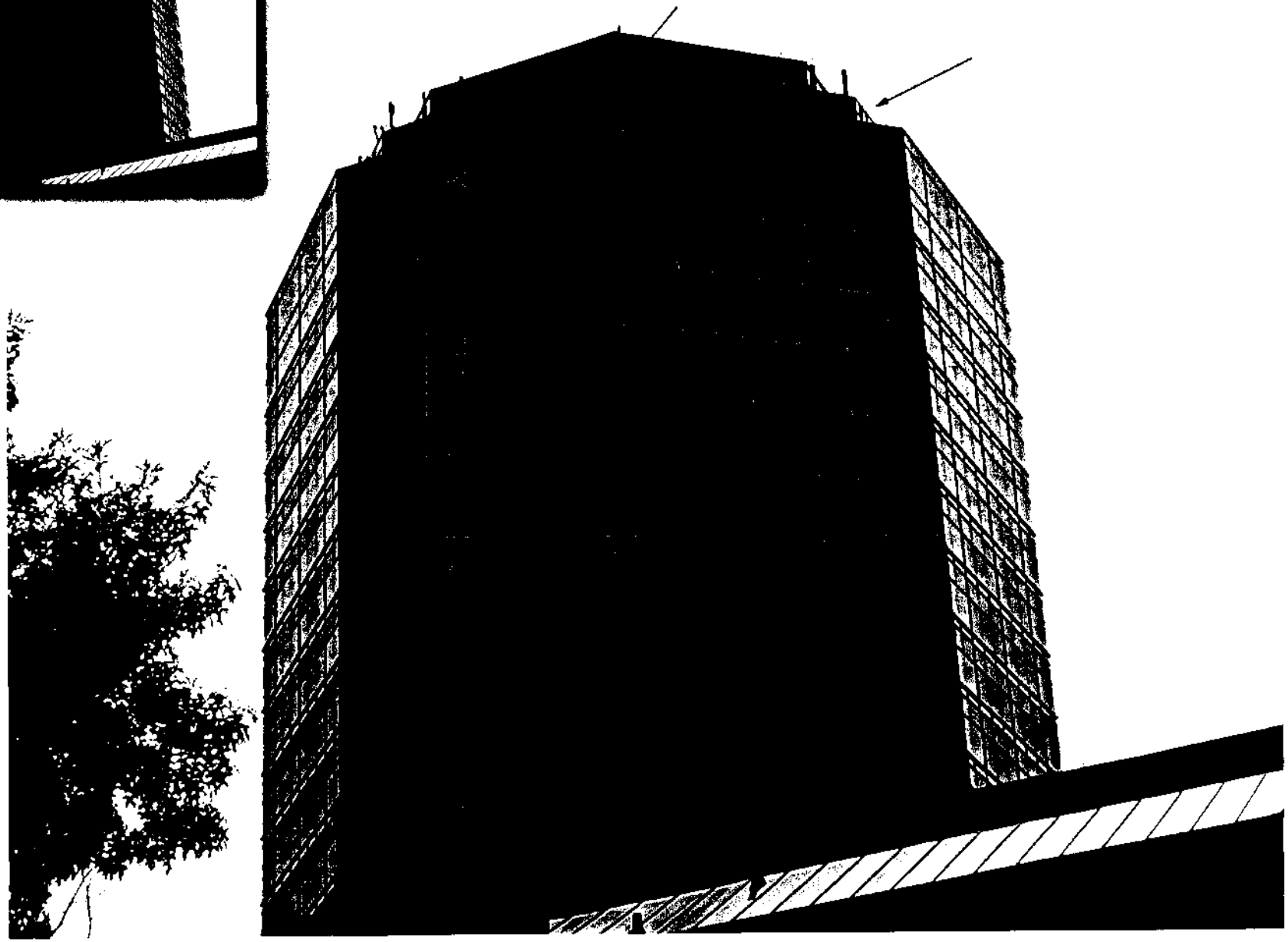
Antenna Inputs. All antenna VSWR values are specified with CPR and PDR flanges. Other optional flanges may result in equal or slightly higher VSWR. Contact Andrew for details.
Pressurization. Feeds are pressurizable to 10 lb/in² (70 kPa).

Type Number	Diameter ft (m)	RPE Number(s)	Regulatory Compliance U.S. FCC 101	74	78	ETSI Class	ETSI Gain	Gain, dBi Low	Mid-Band	Top	Beamwidth Degrees	Cross Pol. Disc., dB	F/B Ratio dB	VSWR max. (R.L., dB)
HP	**High Performance / Wide Band Antennas** – Single Polarization **Antenna Inputs:** CPR137G and PDR70													
HP4-57W	4 (1.2)	4269	–	–	–	1	2	34.6	35.0	35.4	2.9	30	52	1.10 (26.4)
HP6-57W	6 (1.8)	0817	–	–	–	–	–	38.0	38.5	39.0	2.0	30	60	1.06 (30.7)
HP8-57W	8 (2.4)	4273	B	–	–	2	2	40.7	41.2	41.7	1.6	30	64	1.06 (30.7)
HP10-57W	10 (3.0)	4275	A	–	–	2	2	42.5	42.9	43.4	1.3	30	65	1.06 (30.7)
HP12-57W	12 (3.7)	4277	A	–	–	2	2	44.2	44.6	45.0	1.0	30	70	1.06 (30.7)
HP15-57W	15 (4.6)	–	A	–	–	2	2	45.9	46.4	46.8	0.8	30	70	1.06 (30.7)
PL	**Standard/Wide Band Antennas** – Single Polarized Standard and Low VSWR **Antenna Inputs:** CPR137G, PDR70, and Type N Female													
P2-57W	2 (0.6)	2892	–	–	–	1	1	29.2	29.3	29.9	5.8	30	40	1.10 (26.4)
P4-57W	4 (1.2)	4268	–	–	–	–	–	34.6	35.0	35.4	2.9	30	40	1.10 (26.4)
PL6-57W	6 (1.8)	4270	B	–	–	1	2	38.0	38.5	39.0	2.0	30	45	1.06 (30.7)
PL8-57W	8 (2.4)	4272	B	–	–	1	2	40.7	41.2	41.7	1.6	30	47	1.06 (30.7)
PL10-57W	10 (3.0)	4274	B	–	–	1	2	42.5	42.9	43.4	1.3	30	50	1.06 (30.7)
PL12-57W	12 (3.7)	4276	B	–	–	1	2	44.2	44.6	45.0	1.0	30	51	1.06 (30.7)
PL15-57W	15 (4.6)	–	B	–	–	1	2	46.0	46.5	47.0	0.8	30	57	1.06 (30.7)

Reference ETSI Document EN300833 for 3 to 60 GHz.
*Multiband antennas are available in this frequency band. See pages 93-94.

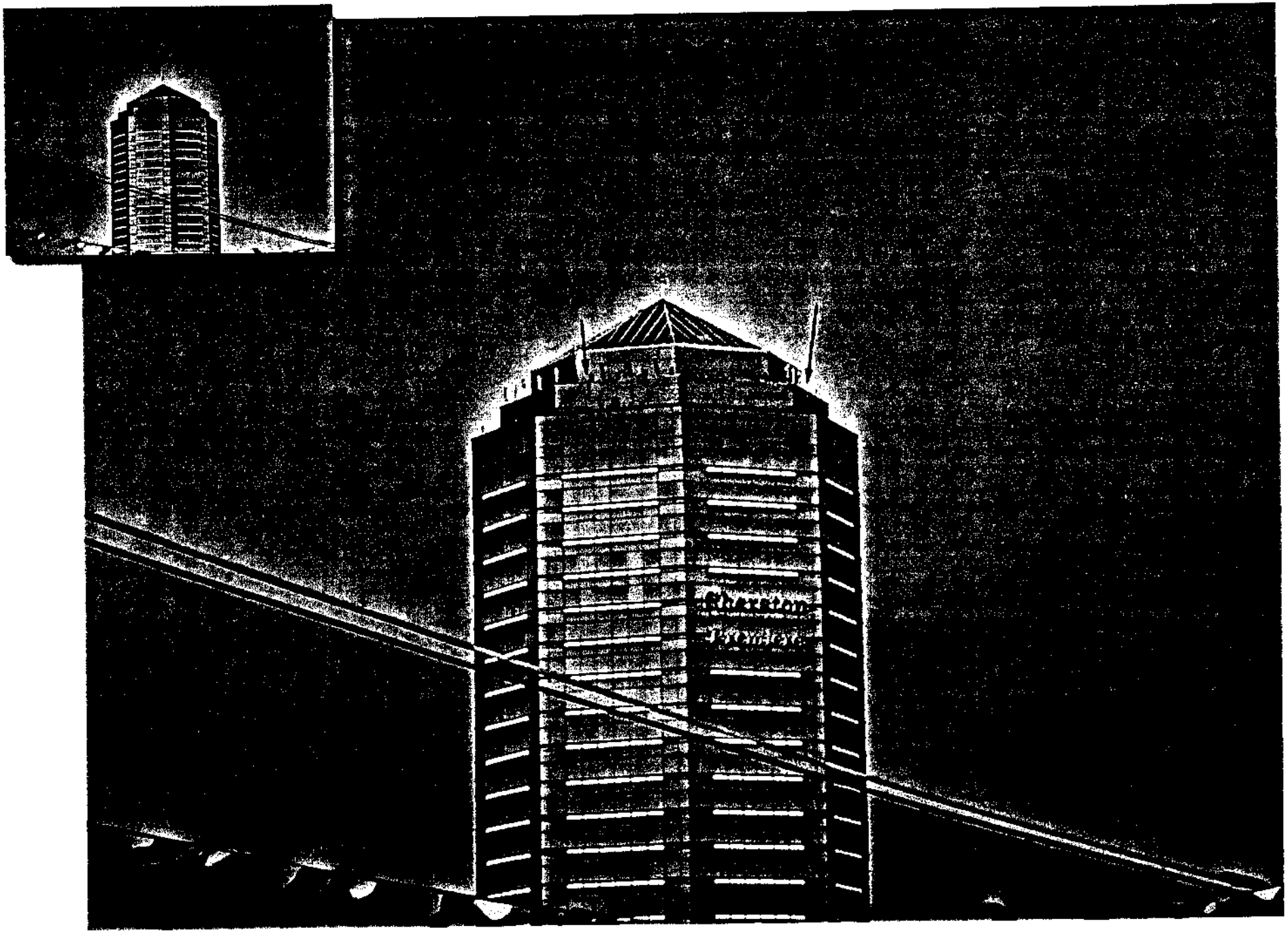
Exhibit F – Photo Simulations





Clearwire- VA-WSH #154

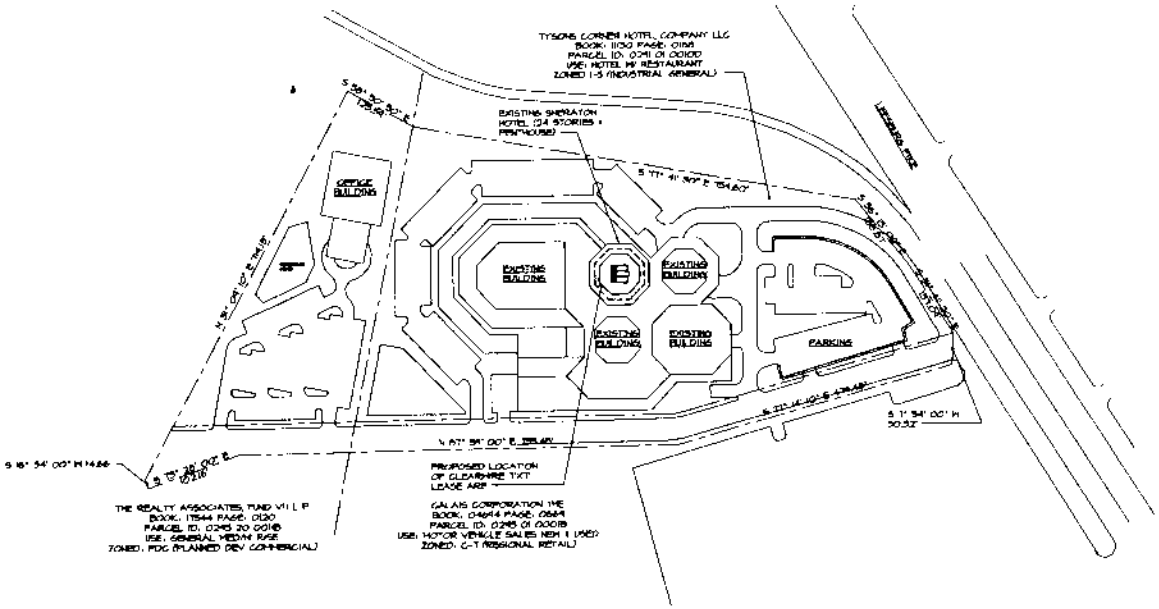
8661 Leesburg Pike, Vienna, VA 22182



Clearwire- VA-WSH #154

8661 Leesburg Pike, Vienna, VA 22182

Exhibit G – Engineering Drawings



SITE PLAN

SCALE: 1" = 100'

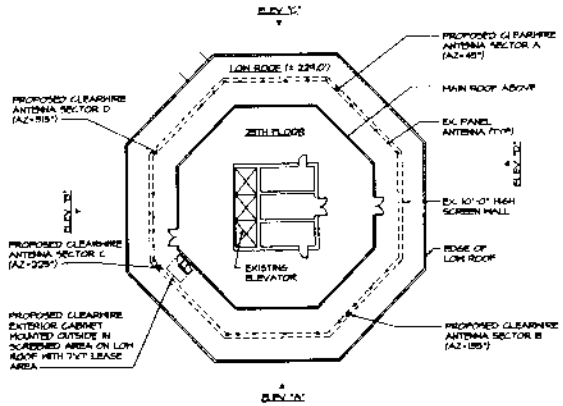
VICINITY PLAN

SITE NOTES

1. APPLICANT: CLEARWIRE LLC
   5000 LAKE WASHINGTON BLVD. SUITE 500
   KIRKLAND, WA 98033
   ATTN: GREG TULLOY
2. PROPERTY OWNER: TYSON CORNER HOTEL COMPANY LLC
   545 EAST JOHN CARPENTER FREEWAY
   SUITE 1500 CARE PELLOR LOCKING TRUST INC.
   IRVING, TEXAS 75062
3. SITE DATA: TAX DISTRICT: 0000
   PARCEL ID: 024 01 0010D
   DISTRICT NAME: WATER MILL DULLES RAIL EAST
   BOOK: 11050 PAGE: 0186
   ADDRESS: 8661 LEESBURG PIKE
   VIENNA, VA 22182
4. CURRENT ZONING: I-5 (INDUSTRIAL GENERAL)
5. HORIZONTAL CONTROL SHOWN HEREON IS BASED ON A SURVEY CONDUCTED BY LBG/M ARCHITECTS, ENGINEERS AND PLANNERS, JOB NO. 608

   LATITUDE: N 38° 55' 49.59"
   LONGITUDE: W -77° 14' 57.12"

   GROUND ELEVATION: 611' AGL
   EXISTING STRUCTURE HEIGHT: 264' AGL
   PROPOSED CLEARWIRE RAD CENTER: 245.0' AGL
   TOTAL ELEVATION ABOVE GROUND LEVEL: 875'
6. THE PROPOSED WORK WILL INCLUDE THE INSTALLATION OF A 30"x30"x60" EQUIPMENT CABINET MOUNTED TO THE EXTERIOR WALL ON LOW ROOF AND SUPPORT ADDITIONAL ANTENNAS ON THE EXISTING SCREEN WALL. ALL WORK IS DONE ON LOW ROOF
7. NO WATER OR SANITARY UTILITIES ARE REQUIRED FOR THE OPERATION OF THIS EQUIPMENT
8. TOTAL DISTURBED AREA: 0 SQUARE FEET
9. STORM WATER MANAGEMENT NOTE: NO ADDITIONAL STORM WATER MANAGEMENT IS REQUIRED FOR THIS SITE.
10. THE PROPOSED ANTENNAS WILL BE FOUR (4) STELLA DORADUS MODEL 2060DM40 (95.8"x9.5"x4.5") AND FOUR (4) ANDREWS HIGRPHAVE DISHES MODEL PSF-82 (28.1"x0.2")
11. THIS PLAN PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT. PLAN IS SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD
12. THE COMMUNICATION CABINET SHALL BE UNMANNED, WITH INFREQUENT VISITS (FOUR OR FEWER PER YEAR) BY MAINTENANCE PERSONNEL.
13. ALL CLEARWIRE ANTENNA SECTORS SHALL NOT EXCEED A MOUNTING HEIGHT OF 12" BETWEEN TOP OF SCREEN WALL AND BOTTOM OF ANTENNA.
14. ALL CLEARWIRE ANTENNAS AND MICROWAVE DISHES SHALL BE PAINTED TO MATCH EXISTING BUILDING EXTERIOR FINISH.



PART PLAN - 25TH FLOOR

SCALE: 1" = 20'

ROOF COVERAGE CALC.	
EXISTING MAIN ROOF AREA:	4040 SQFT
EXISTING MAIN ROOF COVERED:	0 SQFT = 100%
EXISTING LOW ROOF AREA:	5240 SQFT
EXISTING MAIN ROOF COVERED:	100 SQFT = 1.9%
PROPOSED CLEARWIRE EQUIPMENT:	1 SQFT = .0019
TOTAL LOW ROOF COVERAGE:	101 SQFT = 2.1% OF ROOF COVERED

0 100 200 300
SCALE: 1"=100'-0"

0 20 40 60
SCALE: 1"=20'-0"

GSE
GLOCK SHIRE ENGINEERING INC

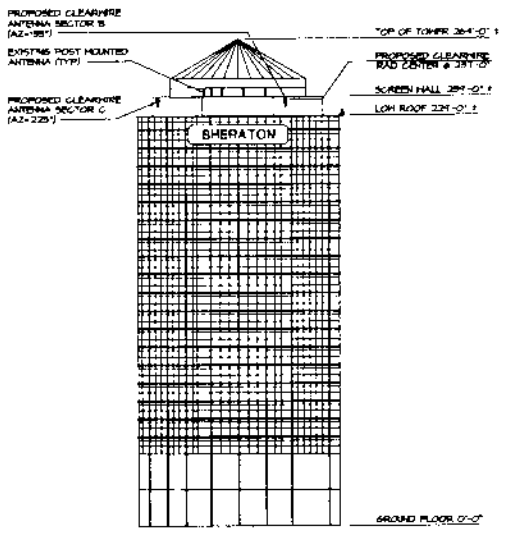
clear
wireless broadband

CLEARWIRE - VA-WSH #154
8661 LEESBURG PIKE
VIENNA, VIRGINIA 22182
(FAIRFAX CO., VA.)

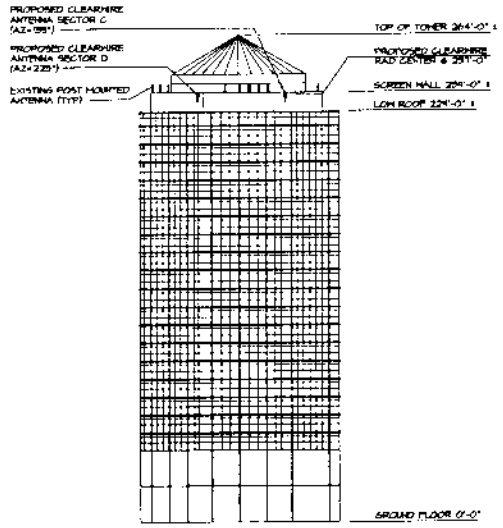
REVISIONS:		
NO.	DESCRIPTION	DATE
1	ZONING SUBMISSION	8/25/06
2	ZONING REVISION	8/17/06

LAST REV.:
PROJECT NO: 060500
DATE: AUGUST 11, 2006
SCALE: AS NOTED
TITLE: SITE PLAN AND NOTES
SHEET: ZD-1

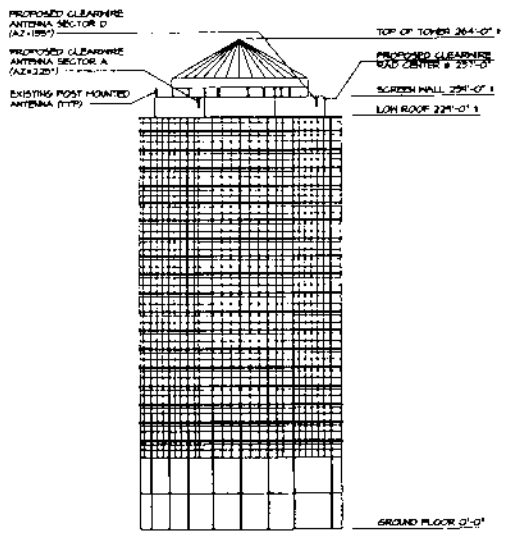
GSE# 060500



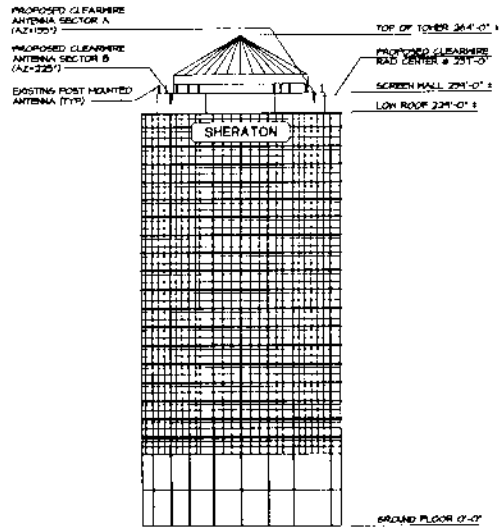
BUILDING ELEVATION "A"
SCALE: 1" = 50'-0"



BUILDING ELEVATION "B"
SCALE: 1" = 50'-0"



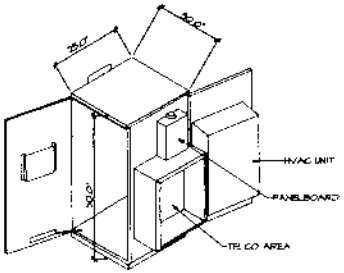
BUILDING ELEVATION "C"
SCALE: 1" = 50'-0"



BUILDING ELEVATION "D"
SCALE: 1" = 50'-0"

GENERAL NOTES

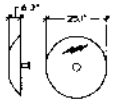
1. CONTRACTOR SHALL NOTIFY "MISS UTILITY" (1-800-552-7001) 48 HOURS PRIOR TO DOING ANY EXCAVATION IN THIS AREA. CONTRACTOR SHALL CONTACT A SUBSURFACE UTILITY LOCATOR FOR LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL VERIFY EXISTING UTILITY LOCATIONS BY TEST PIT AS NECESSARY. LOCATION OF UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE AND FOR PLANNING PURPOSES ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AMERIPS TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. DAMAGE TO UTILITIES OR PROPERTY OF OTHER BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED TO PRECONSTRUCTION CONDITIONS BY THE CONTRACTOR.
2. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ALL STATE AND LOCAL CODES AND ORDINANCES, THE LATEST EDITION THEREOF.
3. ANY PERMITS WHICH MUST BE OBTAINED SHALL BE THE CONTRACTOR'S RESPONSIBILITY. CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FOR THIS PROJECT FROM ALL APPLICABLE GOVERNMENTAL AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADHERING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
4. CONTRACTOR SHALL COORDINATE ALL UTILITY CONNECTIONS WITH APPROPRIATE UTILITY OWNERS.
5. THESE PLANS ARE NOT FOR RECORDATION OR CONVEYANCE.
6. EXISTING PAVEMENT AND OTHER SURFACES DISTURBED BY CONTRACTOR (WHICH ARE NOT TO BE REMOVED) SHALL BE REPAIRED TO PRECONSTRUCTION CONDITIONS BY THE CONTRACTOR.



DETAIL- CLEARWIRE CABINET
NO SCALE

STELLA DORADUS 24BC9840

DETAIL- PANEL ANTENNA
NO SCALE



ANDREW P2F-62

DETAIL- MICROWAVE ANTENNA
NO SCALE

0 30 60 90
SCALE: 1"=30'-0"

GSE
GLOCK SCHOTT ENGINEERING, INC.
1574 B. LAUREL STREET ROAD
FOREST HILL, MARYLAND 21050
PHONE: 410.893.9000
FAX: 410.893.9009
WWW.GSEC.COM

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VIENNA, VIRGINIA 22182
(FAIRFAX CO., VA.)

REVISIONS:		
NO.	DESCRIPTION	DATE