Slant ±45° Dual Polarized Panel 40° / 16.0 dBd
696-900 MHz

Mechanical specifications

Length	1804	mm	71.1	in
Width	600	mm	23.6	in
Depth	200	mm	7.9	in
Depth with z-bracket	240	mm	9.4	in
Weight [4]	17	kg	37.5	lbs
Wind Area Fore/Aft	1.08	m^2	11.7	ft^2
Wind Area Side	0.36	m^2	3.9	ft^2
Max Wind Survivability	>241	km/hr	>150	mph
Wind Load @ 100 mph (161 km/hr)				
Fore/Aft	1543	N	347	lbf
Side	545	N	123	lbf

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiber-glass radome.

Mounting & Downtilting

Mounting hardware attaches to pipe diameter Ø50-160 mm; Ø2.0-6.3 in.

Mounting Bracket Kit	TBD
Downtilt Bracket Kit	TBD

Electrical specifications

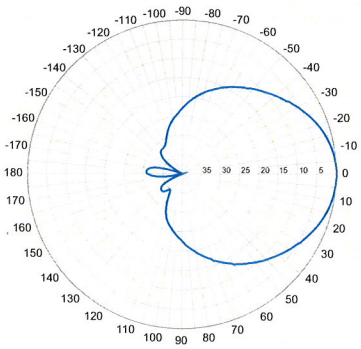
Frequency Range	696-900 MHz
Impedance	50Ω
Connector [3]	NE or E-DIN Female 2 ports / Center
VSWR [1]	≤ 1.35:1
Polarization	Slant ±45°
Isolation Between Ports [1]	< -27 dB
Gain [1]	16.0 dBd 18.0 dBi
Power Rating [2]	500 W
Half Power Angle [1]	
Horizontal Beamwidth	40°
Vertical Beamwidth	10°
Electrical downtilt [5]	0°
Null fill [1]	5%
Lightning protection	Direct ground

Patented Dipole Design: U.S. Patent No. 6,608,600 B2

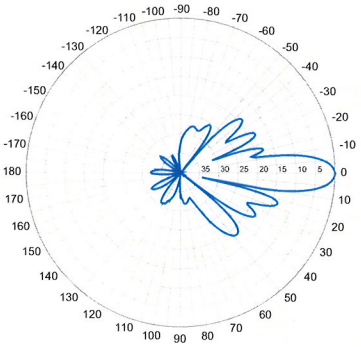
1) Typical values.
2) Power rating limited by connector only.
3) NE indicates an elongated N connector.
E-DIN indicates an elongated DIN connector.
4) Antenna weight does not include brackets.
5) Add'l downtilts may be available. Check website for details.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation-pattern[1]



Horizontal



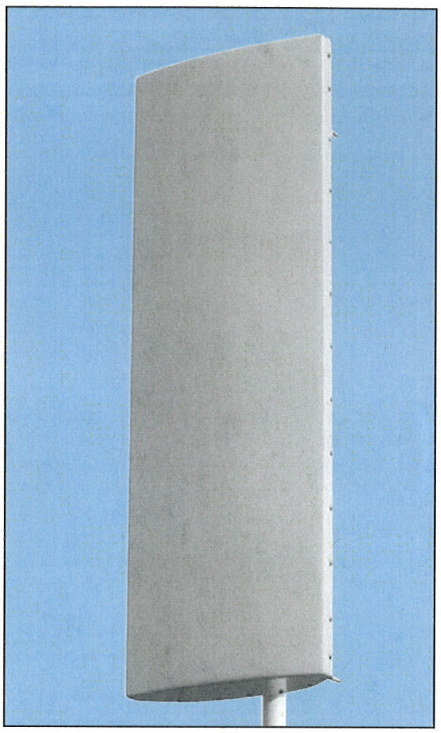
Vertical

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the front-to-back ratio.

BXA-70040/6CF __

When ordering replace "__" with connector type.



PRELIMINARY

Featuring our Exclusive 3T Technology™ Antenna Design:

- Watercut brass feedline assembly for consistent performance.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad band-width and superior performance.
- Air as insulation for virtually no internal signal loss.

Warranty:
This antenna is under a two-year limited warranty for repair or replacement.

Revision Date: 1/20/09

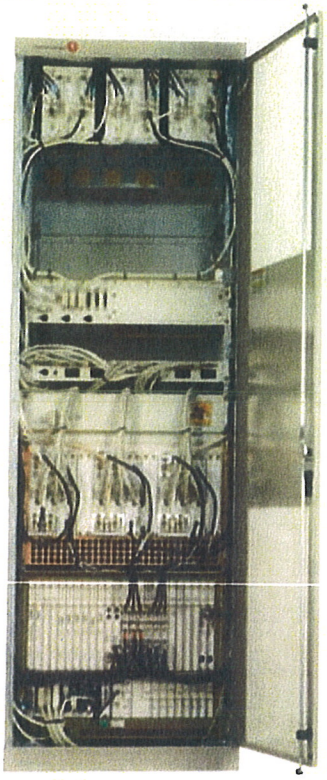
696-900 MHz

815.399.0001 • antel@antelinc.com • www.antelinc.com

Amphenol Antel, Inc. The Antenna Technology Company

Lucent CDMA Modular Cell 4.0B Indoor

For CDMA Networks



Lucent CDMA Modular Cell 4.0B is a high capacity base station equipped with the state-of-the-art technologies developed by Bell Labs. The product brings you outstanding carrier density and immediate OPEX savings. This indoor product can support up to 8 carriers/3 sectors per frame. It is twice the density of Modular Cell 4.0 (indoor). Modular Cell 4.0B offers full spectrum coverage in a single frame, dramatically simplifying growth patterns. As the leader in spread spectrum technology, Lucent Technologies continues to introduce innovations to the market: Multi-Carrier Radio (15MHz), Block Filters/Wideband Filters, and 40W Power Amplifier Modules are the latest assets integrated in the base station.

Features

The Modcell 4.0B indoor version offers a small footprint with exceptional carrier density in a standard ETSI cabinet.

- Indoor Single Frame Configuration
- 1-8 carriers per frame at 3 sectors (will support up to 11 carriers with Auxiliary Amplifier Frame)
- Dual Band: one cell to the ECP & mobile
- Close Loop Gain Control
- Timing and Controller Redundancy
- Integrated Power option
- Support CDMA2000™1X, and EV-DO Rev.0, with future support to EV-DO Rev. A
- IP Backhaul and Ethernet Backhaul capable
- 6-Sector option ready
- Intelligent Antenna option ready

Benefits

- Optimized for highest carrier density, smooth growth in one frame
- Conserves indoor footprint, reducing hardware and floor space requirements
- Minimizes configuration complexity
- Software-Only Carrier Add at certain carrier counts
- Flexible channel growth planning
- Designed to use existing power supply
- Grow CDMA carriers on only 2 antennas/sector
- Multi-Carrier Radio (15MHz), Block Filters/ Wideband Filters, and 40W Power Amplifier Modules

Lucent Technologies
Bell Labs Innovations

Technical Specifications

Description	Specification
1. **Configurations**	
a. Sectors	3, 4 and 6
b. Carriers	1–8 per frame at 3 sectors (up to 11 with Auxiliary Amplifier Frame)
2. **CDMA Channel Card Capacity**	12 slots; CMU IVB capable
3. **T1, E1 Facilities**	Maximum of 20 per cabinet when equipped with URC-II's
4. **User Alarms**	7 Power Alarms, 25 User Alarms
5. **GPS Antenna**	Yes
6. **Air Interface Standards**	T1A/E1A 95-A plus TSB-74; T1A/E1A 95-B for 850 MHz; CDMA 2000
7. **Frequency Bands**	850MHz/1900 MHz; 300 to 2100 MHz capable
8. **Vocoder**	8 Kbps; 8 Kbps EVRC; 13 Kbps; SMV-ready
9. **Environmental Cabinet Housing**	Standard ETSI cabinet; UL50 compliant; zero rear clearance
10. **Cabinet Access**	Front Access
11. **Operating Temperature Range**	Range: -5 to +40°C (continuous)
12. **Dimensions**	600 mm W x 600 mm D x 1880 mm H (23.6 x 23.6 x 74) inches
13. **Estimated Installed Weight**	365 kg (785 lbs.) DC [8 carriers in one cabinet]
14. **Power Options**	Integrated Power, AC 120/240 Volt Input, -48V or +24 V DC Conversion Non-integrated Power requires either + 24 VDC Input or - 48 VDC Input
15. **Power Consumption**	
a. 3 Carrier/3 Sectors	2167 W
b. 6 Carrier/3 Sectors	5449 W
c. 11 Carrier/3 Sectors	10026 W
16. **RF Power (at J4)**	25 W per carrier (850) FCC Rated short-term average 20 W per carrier (850) FCC Rated long-term average 20 W per carrier (1900) FCC Rated short-term average 16 W per carrier (1900) FCC Rated long-term average
17. **Minimal Antenna Configuration**	2 antennas/sector
18. **Filter**	Block and Wide Band Dual Duplex
19. **Growth Frame**	PCS AUX Frame, Dual Band Growth Frame
20. **Operational Accessories**	Integrated Power
21. **Channel Elements**	Channel pooling across sectors or carriers

To learn more about our comprehensive portfolio, please contact your Lucent Technologies Sales Representative or visit our web site at http://www.lucent.com.

MOB-Mod4B-i 0106

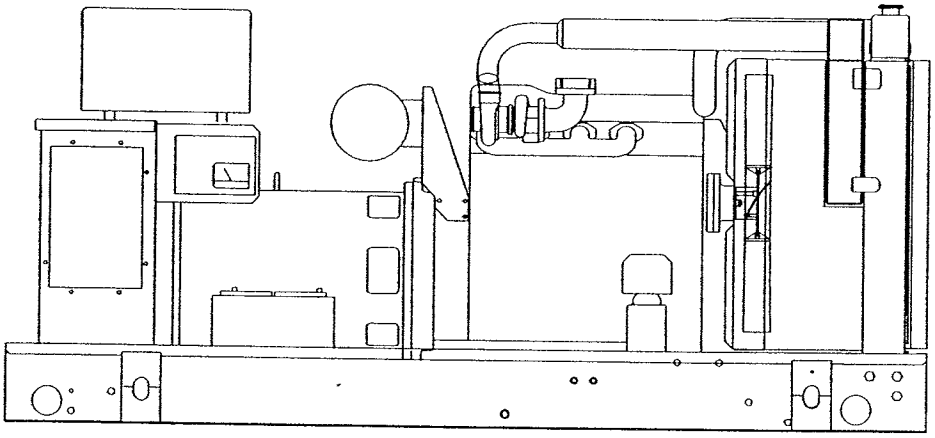
Lucent Technologies
Bell Labs Innovations

SD060

Liquid Cooled Diesel Engine Generator Sets

Continuous Standby Power Rating
60KW 60 Hz / 60KVA 50 Hz

Prime Power Rating
48KW 60 Hz /48KVA 50 Hz



Power Matched
GENERAC 3.9DTA ENGINE
Turbocharged

FEATURES

- **INNOVATIVE DESIGN & PROTOTYPE TESTING** are key components of GENERAC'S success in "IMPROVING POWER BY DESIGN." But it doesn't stop there. Total commitment to component testing, reliability testing, environmental testing, destruction and life testing, plus testing to applicable CSA, NEMA, EGSA, and other standards, allows you to choose GENERAC POWER SYSTEMS with the confidence that these systems will provide superior performance.

- **TEST CRITERIA:**
  - ✓ PROTOTYPE TESTED
  - ✓ SYSTEM TORSIONAL TESTED
  - ✓ ELECTRO-MAGNETIC INTERFERENCE
  - ✓ NEMA MG1-22 EVALUATION
  - ✓ MOTOR STARTING ABILITY
  - ✓ SHORT CIRCUIT TESTING
  - ✓ UL 2200 COMPLIANCE AVAILABLE

- **SOLID-STATE, FREQUENCY COMPENSATED VOLTAGE REGULATION.** This state-of-the-art power maximizing regulation system is standard on all Generac models. It provides optimized FAST RESPONSE to changing load conditions and MAXIMUM MOTOR STARTING CAPABILITY by electronically torque-matching the surge loads to the engine.

- **SINGLE SOURCE SERVICE RESPONSE** from Generac's dealer network provides parts and service know-how for the entire unit, from the engine to the smallest electronic component. You are never on your own when you own an GENERAC POWER SYSTEM.

- **ECONOMICAL DIESEL POWER.** Low cost operation due to modern diesel engine technology. Better fuel utilization plus lower cost per gallon provide real savings.

- **LONGER ENGINE LIFE.** Generac heavy-duty diesels provide long and reliable operating life.

- **GENERAC TRANSFER SWITCHES, SWITCHGEAR AND ACCESSORIES.** Long life and reliability is synonymous with GENERAC POWER SYSTEMS. One reason for this confidence is that the GENERAC product line includes its own transfer systems, accessories, switchgear and controls for total system compatibility.

GENERAC®
POWER SYSTEMS, INC.

APPLICATION & ENGINEERING DATA

SD060

GENERATOR SPECIFICATIONS

TYPE	Four-pole, revolving field
ROTOR INSULATION	Class H
STATOR INSULATION	Class H
TOTAL HARMONIC DISTORTION	<3%
TELEPHONE INTERFERENCE FACTOR (TIF)	<50
ALTERNATOR	Self-ventilated and drip-proof
BEARINGS (PRE-LUBED & SEALED)	1
COUPLING	Direct, Flexible Disc
LOAD CAPACITY (STANDBY)	100%
LOAD CAPACITY (PRIME)	110%

NOTE: Emergency loading in compliance with NFPA 99, NFPA 110, paragraph 5-13.2.6. Generator rating and performance in accordance with ISO8528-5, BS5514, SAE J1349, ISO3046 and DIN6271 standards.

EXCITATION SYSTEM

☐ BRUSHLESS	Magnetically coupled DC current ✓
	Eight-pole exciter w/ battery-driven field boost ✓
	Mounted outboard of main bearing ✓
☐ PERMANENT MAGNET EXCITER	Eighteen pole exciter ✓
	Magnetically coupled DC current ✓
	Mounted outboard of main bearing ✓
REGULATION	Solid-state ✓
	±1% regulation ✓

GENERATOR FEATURES

- Four pole, revolving field generator is directly connected to the engine shaft through a heavy-duty, flexible disc for permanent alignment.
- Generator meets temperature rise standards for class "F" insulation as define by NEMA MG1-32.6 and NEMA1-1.65, while the insulation system meets the requirements for the higher class "H" rating.
- All models have passed a three-phase symmetrical short circuit test to assure system protection and reliability.
- Unit is tested with an oscillograph for motor-starting ability by measuring instantaneous voltage dip.
- All models utilize an advanced wire harness design for reliable interconnection within the circuitry.
- Magnetic circuit, including amortisseur windings, tooth and skewed stator design, provides a minimal level of waveform distortion and an electromagnetic interference level which meets accepted requirements for standard AM radio, TV, and marine radio telephone applications.
- Voltage waveform deviation, total harmonic content of the AC waveform, T.I.F. (Telephone Influence Factor) and non-linear loading have been evaluated to acceptable standards in accordance with NEMA MG1.
- Alternator is self-ventilated and drip-proof constructed.
- Fully life-tested protective systems, including "field circuit and thermal overload protection" and optional main-line circuit breakers are capable of handling full output capacity.
- System Torsional acceptability confirmed during Prototype Testing.

ENGINE SPECIFICATIONS

MAKE	GENERAC
MODEL	3.9DTA
CYLINDERS	4 in-line
DISPLACEMENT	3.9 Liter (238 cu.in.)
BORE	104 mm (4.09 in.)
STROKE	115 mm (4.52 in.)
COMPRESSION RATIO	16.5:1
INTAKE AIR	Turbocharged/Aftercooled
NUMBER OF MAIN BEARINGS	5
CONNECTING RODS	4-Drop Forged Steel
CYLINDER HEAD	Cast Iron Overhead Valve
PISTONS	4- Aluminum Alloy
CRANKSHAFT	Hardened, Steel

VALVE TRAIN

LIFTER TYPE	Solid
INTAKE VALVE MATERIAL	Special Heat Resistant Steel
EXHAUST VALVE MATERIAL	Special Heat Resistant Steel
HARDENED VALVE SEATS	Replaceable

ENGINE GOVERNOR

☐ MECHANICAL (Gear Driven)	Standard
FREQUENCY REGULATION, NO-LOAD TO FULL LOAD	5.0%
STEADY STATE REGULATION	±0.33%
☐ ELECTRONIC	Optional
FREQUENCY REGULATION, NO-LOAD TO FULL LOAD	0.5%
STEADY STATE REGULATION	±0.25%

LUBRICATION SYSTEM

TYPE OF OIL PUMP	Gear
OIL FILTER	Full flow, Cartridge
CRANKCASE CAPACITY	18 Litres (19 qts.)
OIL COOLER	Oil to water

COOLING SYSTEM

TYPE OF SYSTEM	Pressurized, Closed Recovery
WATER PUMP	Pre-Lubed, Self-Sealing
TYPE OF FAN	Pusher
NUMBER OF FAN BLADES	7
DIAMETER OF FAN	457 mm (18 in.)
COOLANT HEATER	120V, 1800 W

FUEL SYSTEM

FUEL	#2D Fuel (Min Cetane #40) (Fuel should conform to ASTM Spec.)
FUEL FILTER	Single Cartridge
FUEL INJECTION PUMP	Stanadyne
FUEL PUMP	Mechanical
INJECTORS	Multi-Hole, Nozzle Type
ENGINE TYPE	Direct Injection
FUEL LINE (Supply)	7.94 mm (0.31 in.)
FUEL RETURN LINE	6.35 mm (0.25 in.)
STARTING AID	Glow Plugs

ELECTRICAL SYSTEM

BATTERY CHARGE ALTERNATOR	30 Amps at 24 V
STARTER MOTOR	24 V
RECOMMENDED BATTERY	(2)—12 Volt, 90 A.H., 4DLT
GROUND POLARITY	Negative

Rating definitions - Standby: Applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. (All ratings in accordance with BS5514, ISO3046 and DIN6271). Prime (Unlimited Running Time): Applicable for supplying electric power in lieu of commercially purchased power. Prime power is the maximum power available at variable load. A 10% overload capacity is available for 1 hour in 12 hours. (All ratings in accordance with BS5514, ISO3046, ISO8528 and DIN6271).

GENERAC®
POWER SYSTEMS, INC.

SD060

OPERATING DATA

		STANDBY		PRIME	
		SD060		SD060	
GENERATOR OUTPUT VOLTAGE/KW-60Hz			Rated AMP		Rated AMP
120/240V, 1-phase, 1.0 pf		60	250	48	200
120/208V, 3-phase, 0.8 pf	NOTE: Consult your Generac dealer for additional voltages.	60	208	48	166
120/240V, 3-phase, 0.8 pf		60	180	48	144
277/480V, 3-phase, 0.8 pf		60	90	48	72
600V, 3-phase, 0.8 pf		60	72	48	58
GENERATOR OUTPUT VOLTAGE/KVA-50Hz			Rated AMP		Rated AMP
110/220V, 1-phase, 1.0 pf		48	218	38	172
115/200V, 3-phase, 0.8 pf	NOTE: Consult your Generac dealer for additional voltage	60	173	48	138
100/200V, 3-phase, 0.8 pf		60	173	48	138
231/400V, 3-phase, 0.8 pf		60	87	48	69
480V, 3-phase, 0.8 pf		60	72	48	58
MOTOR STARTING KVA					
Maximum at 35% instantaneous voltage dip		120/208/240V	277/480V	120/208/240V	277/480V
with standard alternator; 50/60 Hz		100/120	117/141	100/120	117/141
with optional alternator; 50/60 Hz		234/281	276/331	234/281	276/331
FUEL					
Fuel consumption—60 Hz	Load	100%	80%	100%	80%
	gal./hr.	4.3	3.6	3.6	3.0
	liters/hr.	16.3	13.5	13.6	11.3
Fuel consumption—50 Hz	gal./hr.	3.6	3.0	3.0	2.5
	liters/hr.	13.5	11.2	11.3	9.3
Fuel pump lift					
COOLING					
Coolant capacity	System - lit. (US gal.)		15.9 (4.2)		15.9 (4.2)
	Engine - lit. (US gal.)		6.4 (1.7)		6.4 (1.7)
	Radiator - lit. (US gal.)		9.5 (2.5)		9.5 (2.5)
Coolant flow/min.	60 Hz - lit. (US gal.)		128 (34)		128 (34)
	50 Hz - lit. (US gal.)		107 (28)		107 (28)
Heat rejection to coolant 60 Hz full load	BTU/hr.		170,900		136,700
Heat rejection to coolant 50 Hz full load	BTU/hr.		142,400		113,900
Inlet air to radiator	60 Hz - m^3/min. (cfm)		204 (7,200)		204 (7,200)
	50 Hz - m^3/min. (cfm)		170 (6004)		170 (6004)
Max. air temperature to radiator	°C (°F)		54.4 (130)		54.4 (130)
Max. ambient temperature	°C (°F)		48.9 (120)		48.9 (120)
COMBUSTION AIR REQUIREMENTS					
Flow at rated power	60 Hz - cfm		209		168
	50 Hz - m^3/min.		4.7		3.8
EXHAUST					
Exhaust flow at rated output	60 Hz - m^3/min. (cfm)		15.5 (549)		12.4 (439)
	50 Hz - m^3/min. (cfm)		12.3 (434)		10 (353)
Max recommended back pressure	"Hg		1.5		1.5
Exhaust temperature 60 Hz (full load)	°C (°F)		524 (975)		459 (858)
Exhaust outlet size			3"		3"
ENGINE					
Rated RPM	60 Hz		1800		1800
	50 Hz		1500		1500
HP at rated KW	60 Hz		92		74
	50 Hz		73		59
Piston speed	60 Hz - m/min. (ft./min.)		414 (1358)		414 (1358)
	50 Hz - m/min. (ft./min.)		345 (1132)		345 (1132)
BMEP	60 Hz - psi		170		138
	50 Hz - psi		161		130
DERATION FACTORS					
Temperature					
5% for every 10°C above - °C			25		25
2.77% for every 10°F above - °F			77		77
Altitude					
1.1% for every 100 m above - m			1829		1829
3.5% for every 1000 ft. above - ft.			6000		6000

STANDARD ENGINE & SAFETY FEATURES

SD060

- High Coolant Temperature Automatic Shutdown
- Low Coolant Level Automatic Shutdown
- Low Oil Pressure Automatic Shutdown
- Overspeed Automatic Shutdown (Solid-state)
- Crank Limiter (Solid-state)
- Oil Drain Extension
- Radiator Drain Extension
- Factory-Installed Cool Flow Radiator
- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Rubber-Booted Engine Electrical Connections
- Secondary Fuel Filter
- Fuel Lockoff Solenoid
- Stainless Steel Flexible Exhaust Connection
- Battery Charge Alternator
- Battery Cables
- Battery Tray
- Vibration Isolation of Unit to Mounting Base
- 12 Volt, Solenoid-activated Starter Motor
- Air Cleaner
- Fan Guard
- Control Console
- Radiator Duct Adapter

OPTIONS

OPTIONAL COOLING SYSTEM ACCESSORIES
- O Coolant Heater 120V

OPTIONAL FUEL ACCESSORIES
- O Flexible Fuel Lines
- O UL Listed Fuel Tanks
- O Base Tank Low Fuel Alarm
- O Primary Fuel Filter
- O Primary Fuel Filter with Heater

OPTIONAL EXHAUST ACCESSORIES
- O Critical Exhaust Silencer

OPTIONAL ELECTRICAL ACCESSORIES
- O Battery, 12 Volt, 135 A.H., 4DLT
- O 2A Battery Charger
- O 10A Dual Rate Battery Charger
- O Battery Heater

OPTIONAL ALTERNATOR ACCESSORIES
- O Alternator Upsizing
- O Alternator Strip Heater
- O Alternator Tropicalization
- O Voltage Changeover Switch
- O Main Line Circuit Breaker

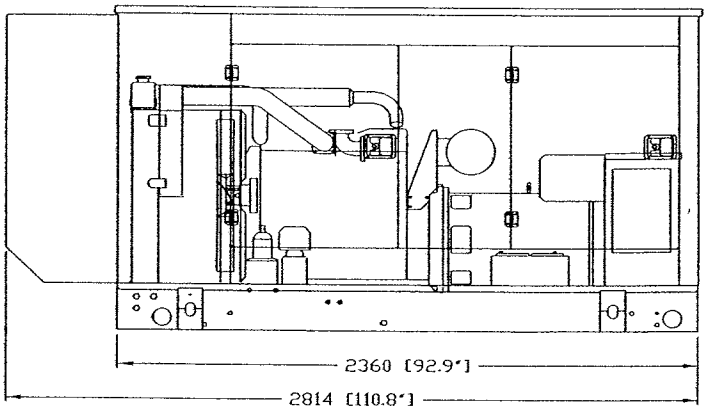
CONTROL CONSOLE OPTIONS
- O Analog Control "C" Panel (Bulletin 0151160SBY)
- O Analog/Digital Control "E" Panel (Bulletin 0161310SBY)

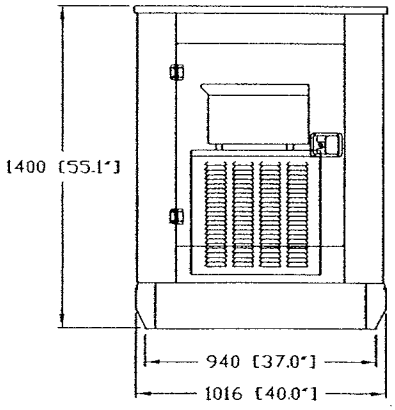
ADDITIONAL OPTIONAL EQUIPMENT
- O Automatic Transfer Switch
- O Isochronous Governor
- O 3 Light Remote Annunciator
- O 5 Light Remote Annunciator
- O 20 Light Remote Annunciator
- O Remote Relay Panels
- O Unit Vibration Isolators (Pad/Spring)
- O Oil Make-Up System
- O Oil Heater
- O 5 Year Warranties
- O Export Boxing
- O GenLink® Communications Software

OPTIONAL ENCLOSURE
- O Weather Protective
- O Sound Attenuated
- O Aluminum and Stainless Steel
- O Enclosed Muffler

Distributed by:

Design and specifications subject to change without notice. Dimensions shown are approximate. Contact your Generac dealer for certified drawings. DO NOT USE THESE DIMENSIONS FOR INSTALLATION PURPOSES.





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262/544-4811 • FAX 262/544-4851

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Site Search Summary
(East Woodstock)

Section 16-50j-74(j) of the Regulations of Connecticut State Agencies requires the submission of a statement that describes "the narrowing process by which other possible sites were considered and eliminated." In accordance with this requirement, descriptions of the general site search process, the identification of the applicable search area and the alternative locations considered for development of the proposed telecommunications facility in the northeast portion of Woodstock ("East Woodstock Facility") are provided below.

Site Search Process

To initiate its site selection process in an area where a coverage or capacity problem has been identified, Cellco first establishes a "site search ring" or "site search area." In any search ring or area, Cellco seeks to avoid the unnecessary proliferation of towers and to reduce the potential adverse environmental effects of the cell site, while at the same time maximizing the quality of service provided from a particular facility. These objectives are achieved by initially locating existing towers and other sufficiently tall structures within and near the site search area. If any are found, they are evaluated to determine whether they are capable of supporting Cellco's telecommunications equipment at a location and elevation that satisfies its technical requirements.

There are six (6) existing telecommunications towers and one recently approved tower site within approximately six (6) miles of the proposed East Woodstock Facility location. None of these existing facilities, listed below and identified on the coverage plots included in Attachment 7 of this Application, can provide the coverage and/or capacity relief needed in the problem areas identified along Routes 197 and 169 as well as local roads in the northeast portion of Woodstock.

OWNER	TYPE	LOCATION	CELLCO ANTENNA HEIGHT
George Davis (Woodstock North)	180' Lattice	1825 Route 198 Woodstock, CT	177'
TeleMedia Charter Communications	80' Guyed-Lattice	Perrin Road Woodstock, CT	N/A
American Tower Corp. (Woodstock)	150' Lattice	87 West Quasset Road Woodstock, CT	134'
MCF Communications (Coatney Hill)	190' Monopole	215 Coatney Hill Road Woodstock, CT	167'
Cellco (Woodstock NW)	140' Monopole	Sherman Road Woodstock, CT	140'

OWNER	TYPE	LOCATION	CELLCO ANTENNA HEIGHT
Quinebaug Fire Department (Quinebaug)	130' Monopole	720 Quinebaug Road Thompson, CT	112'

If existing towers or structures are not available or technically feasible, other locations are investigated where the construction of a new tower is required to provide adequate elevation to satisfy Cellco's requirements. The list of available locations may be further reduced if, after preliminary negotiations, the property owners withdraw a site from further consideration. From among the remaining locations, the proposed sites are selected by eliminating those that have greater potential for adverse environmental effects and fewer benefits to the public (i.e., those requiring taller towers, possibly with lights; those with substantial adverse impacts on densely populated residential areas; and those with limited ability to share space with other public or private telecommunications entities). It should be noted that in any given site search, the weight afforded to factors considered in the selection process will vary depending upon the availability and nature of sites within the search area.

Identification of the East Woodstock Search Area

The purpose of the proposed East Woodstock Facility is to provide reliable cellular, PCS and LTE coverage to significant existing coverage gaps that have been identified along Routes 197 and 169, as well as local roads in the northwest portion of Woodstock. The proposed East Woodstock Facility will also provide some limited capacity relief in Woodstock by off-loading calls from Cellco's existing and proposed adjacent cell sites, Coatney Hill, Woodstock North and Quinebaug. The coverage gaps referenced above were identified using best server propagation modeling tools. The East Woodstock search area was issued in October 2006. A copy of the search area map is attached to this site search summary.

The descriptions of the individual sites investigated, which are set forth below, include sites both inside and outside the East Woodstock search area that were analyzed and found to be technically unworkable or otherwise unavailable. This is due either to the topography in the area or the overall distance from the investigated site to the search area.

Sites Investigated in the East Woodstock Area

In addition to the existing communications facilities listed above, Cellco identified and investigated several sites and an existing structure in Woodstock. These sites are described below.

Sites Investigated

1. Rich Property – 445 Prospect Street – Following its initial site search effort, Cellco was contacted by Frederick Rich about the use of his property. Following its real estate due diligence process, Cellco entered into a lease agreement for the use of a portion of a 44 acre parcel located at 445 Prospect Street in East Woodstock.

2. Sherman Property/Prospect Street – Cellco investigated the use of a parcel east of Prospect Street and south of Childome Road. Once this site was identified as a possible alternative cell site location, Cellco representatives received immediate feedback from the Town's Historic Properties Commission and First Selectman. This location was identified as a part of East Woodstock's "significant historic landscape". After further evaluation and discussions with the First Selectman, this site was eliminated as a candidate.

3. 102 Lyon Hill Road – Cellco investigated a parcel off Lyon Hill Road in Woodstock. The property owner was not interested in leasing space to Cellco.

4. 209 Prospect Street – Cellco explored the use of the property at 209 Prospect Street. The property owner did not respond to Cellco's inquiries.

5. 543 Route 197 – Cellco explored the use of the property at 543 Route 197. The property owner did not respond to Cellco's inquiries.

6. 17 Rose Lane – Cellco explored the use of the property at 17 Rose Lane. The property owner did not respond to Cellco's inquiries.

7. Prospect Street – Cellco explored the use of the property off Prospect Street. The property owner did not respond to Cellco's inquiries.

8. 136 Woodstock Road – Cellco explored the use of the property at 136 Woodstock Road. The property owner did not respond to Cellco's inquiries.

9. 22 Woodstock Road – Cellco explored the use of the property at 22 Woodstock Road. The property owner did not respond to Cellco's inquiries.

10. 442 Route 197 – Cellco explored the use of the property at 442 Route 197. The property owner did not respond to Cellco's inquiries.

11. 492 Route 197 – Cellco explored the use of the property at 492 Route 197. The property owner did not respond to Cellco's inquiries.

12. 112 Woodstock Road – Cellco explored the use of the property at 112 Woodstock Road. The property owner was not interested in leasing space to Cellco.

13. 114 Prospect Street – Cellco investigated the use of the property at 114 Prospect Street. The area of the property offered for use by the landowner maintains significant wetland areas. For this reason, the site was rejected.

14. 530 Route 197 – Cellco explored the use of the property at 530 Route 197. The area offered for leasing would involve a significant stream crossing and impact to wetlands on the property. For these reasons, the site was rejected.

15. 119 Prospect Street – Cellco explored the use of the property at 119 Prospect Street. The property owner did not respond to Cellco's inquiries.

16. 480 Route 197 – Cellco explored the use of the property at 480 Route 197. Cellco and the property owner could not agree on a suitable location for the cell site and access driveway.

17. 529 Prospect Street – Cellco explored the use of the 200 acre property to the north of the Rich property. This site was rejected by Cellco's RF engineers.

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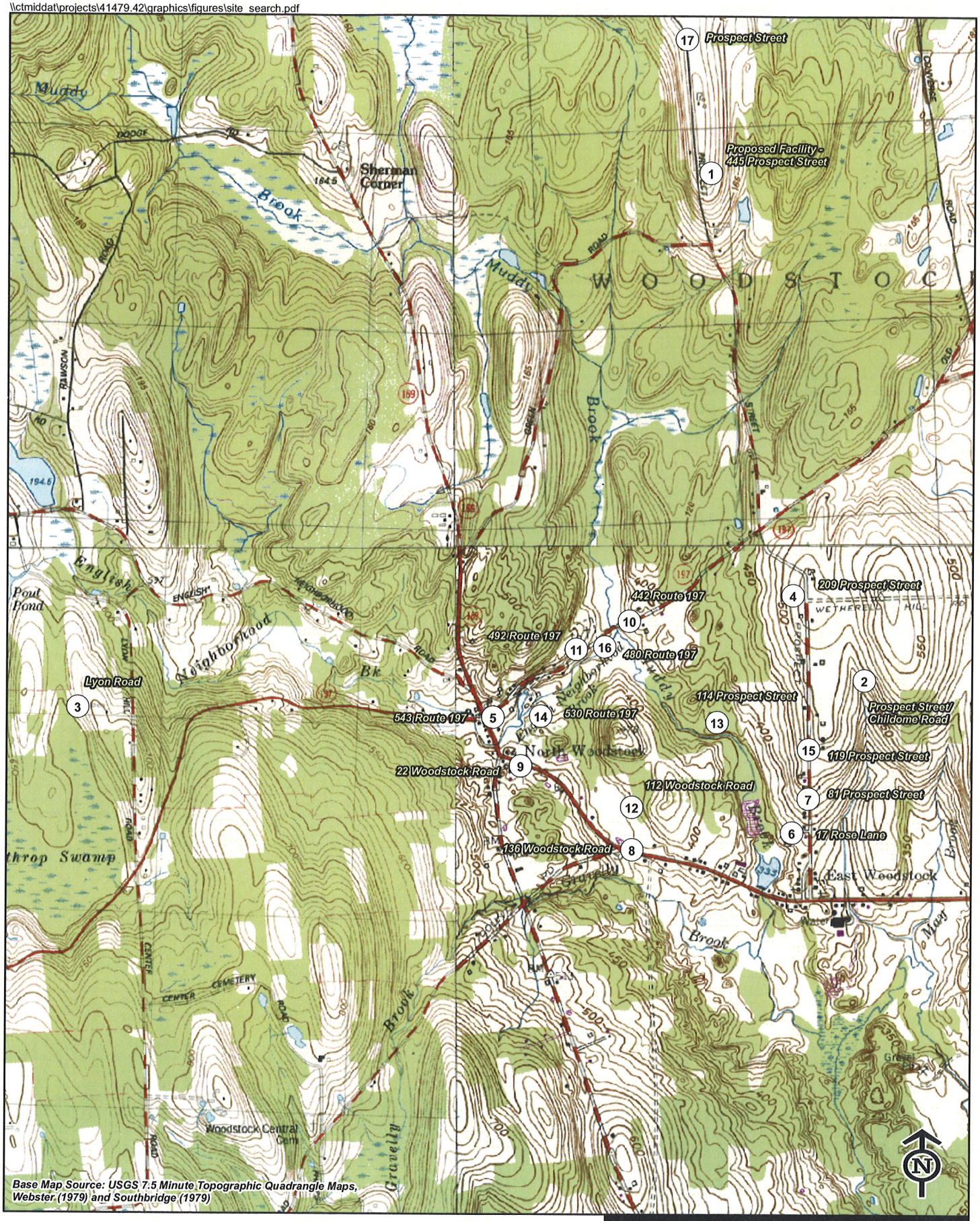


1,000 500 0 1,000
Feet

Quadrangle Location

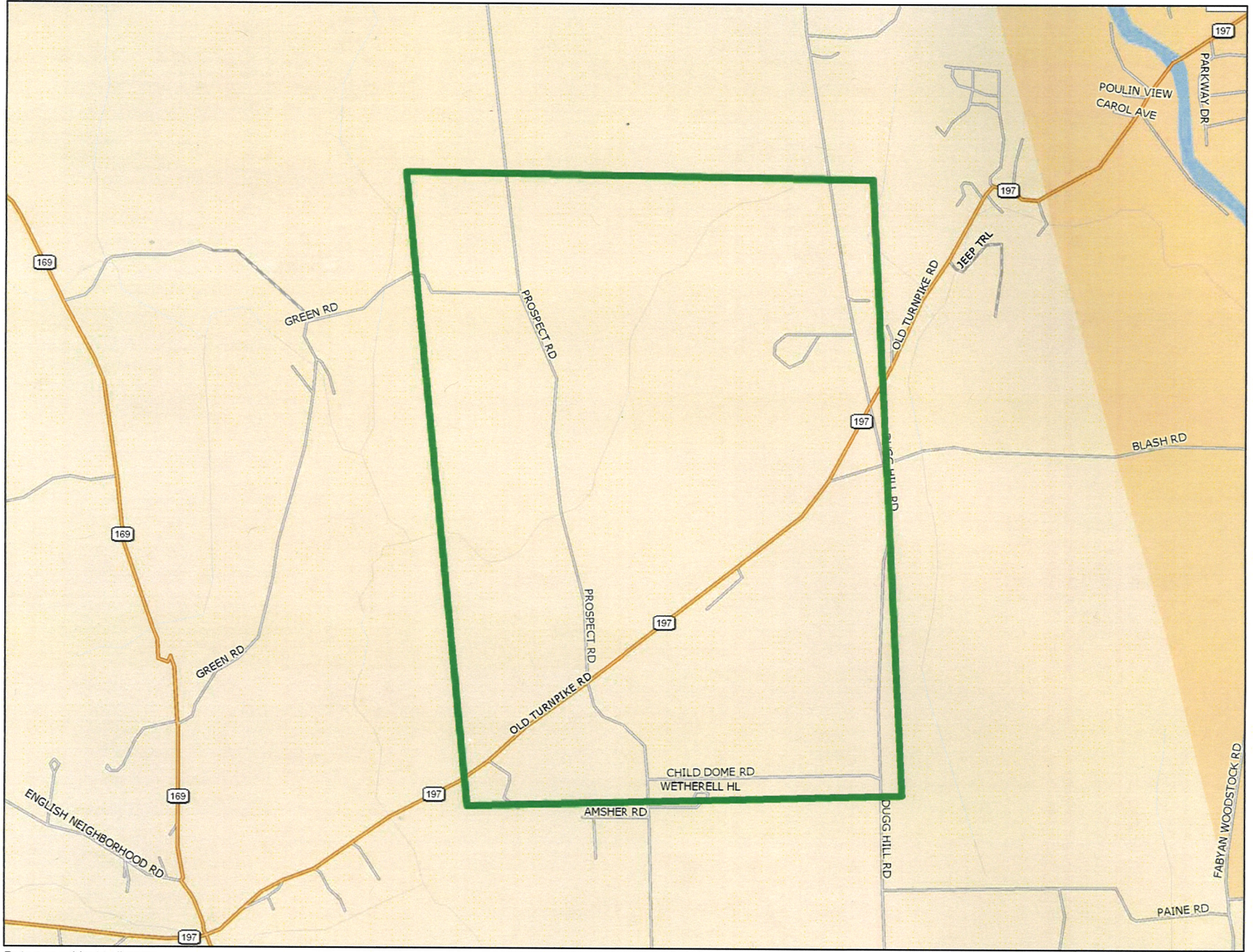
Vanasse Hangen Brustlin, Inc.

Site Search Summary Map
Proposed Verizon Wireless
Telecommunications Facility
East Woodstock
445 Prospect Street
Woodstock, Connecticut

verizonwireless

DeLORME

DeLorme Street Atlas USA® 2009



TN

MN (14.6°W)

Scale 1 : 19,200

0 400 800 1200 1600 2000 ft

0 160 320 480 640 800 m

1" = 1,600.0 ft

Data Zoom 13-4

Visual Resource Evaluation Report

Proposed Wireless Telecommunications Facility

Woodstock East
445 Prospect Street
Woodstock, Connecticut

Prepared for 

Prepared by **_VHB_/Vanasse Hangen Brustlin, Inc.**
54 Tuttle Place
Middletown, CT 06457

November 2009

Visual Resource Evaluation

Cellco Partnership dba Verizon Wireless seeks approval from the Connecticut Siting Council for a Certificate of Environmental Compatibility and Public Need for the construction of a wireless telecommunications facility ("Facility") to be located on property at 445 Prospect Street (identified herein as the "host property"), in the Town of Woodstock, Connecticut. This Visual Resource Evaluation was conducted to evaluate the visibility of the proposed Facility within a two-mile radius ("Study Area"). Attachment A contains a map that depicts the location of the proposed Facility and the limits of the Study Area. The Study Area also contains land located within the neighboring municipalities of Southbridge and Dudley, Massachusetts to the north and Thompson, Connecticut to the east.

Project Introduction

The proposed Facility includes the installation of a 130-foot tall monopole tower with associated ground equipment to be located at its base. Both the proposed monopole and ground equipment would be situated within a 50- by 75-foot fence-enclosed compound. The proposed Facility is located at a ground elevation of approximately 594 feet Above Mean Sea Level (AMSL). Access to the Facility would be provided via a proposed 12-foot wide gravel driveway that would extend to the proposed compound area in an easterly direction from Prospect Street.

Site Description and Setting

Identified in the Town of Woodstock land records as Map 5703/Block 05/Lot 06, the host property consists of approximately 44.20 acres of mostly open, agricultural land and is currently occupied by a single family residential structure and several associated outbuildings in the northern portion of the parcel. The proposed Facility would be situated in the northwestern portion of the host property, in an area that is currently utilized as a corn field. Attachment A includes a photograph of the proposed project area. Land use within the general vicinity of the proposed Facility is mainly comprised of active agricultural land, low-density residential development, and undeveloped woodlands. Segments of Route 169, Route 197, Route 31 (MA) and Route 131 (MA) are contained within the Study Area. In total, the Study Area features approximately 46 linear miles of roadways.

The topography within the Study Area is characterized by rolling hills with ground elevations that range from approximately 360 feet AMSL to approximately 760 feet AMSL. The Study Area contains approximately 110 acres of surface water, which mainly includes portions of Morse Pond located approximately 1.50-miles to the northwest of the proposed Facility and the Quinebaug River which traverses the eastern third of the Study Area. The tree cover within the Study Area consists mainly of mixed deciduous hardwood species. The tree canopy occupies approximately 5,238 acres of the 8,042-acre study area (65%). During the in-field activities associated with this analysis, an infrared laser range finder was used to determine the average tree canopy height throughout the Study Area. Numerous trees were selected for measurement and the average tree canopy was determined to be 65 feet.

■

METHODOLOGY

In order to better represent the visibility associated with the Facility, VHB uses a two-fold approach incorporating both a predictive computer model and in-field analysis. The predictive model is employed to assess potential visibility throughout the entire Study Area, including private property and/or otherwise inaccessible areas for field verification. A "balloon float" and Study Area drive-through reconnaissance are also conducted to obtain locational and height representations, back-check the initial computer model results and provide photographic documentation from publicly accessible areas. Results of both activities are analyzed and incorporated into the final viewshed map. A description of the methodologies used in the analysis is provided below.

Visibility Analysis

Using ESRI's ArcView® Spatial Analyst, a computer modeling tool, the areas from where the top of the Facility is expected to be visible are calculated. This is based on information entered into the computer model, including Facility height, its ground elevation, the surrounding topography and existing vegetation. Data incorporated into the predictive model includes a digital elevation model (DEM) and a digital forest layer for the Study Area. The DEM was derived from the Connecticut LiDAR-based digital elevation data. The LiDAR data was produced by the University Of Connecticut Center for Land Use Education and Research (CLEAR) in 2007 and has a horizontal resolution of 10 feet. In order to create the forest layer, digital aerial photographs of the Study Area are incorporated into the computer model. The mature trees and woodland areas depicted on the aerial photos are manually traced in ArcView® GIS and then converted into a geographic data layer. The aerial photographs were produced in 2006 and have a pixel resolution of one foot.

Once the data are entered, a series of constraints are applied to the computer model to achieve an estimate of where the Facility will be visible. Initially, only topography was used as a visual constraint; the tree canopy is omitted to evaluate all areas of potential visibility without any vegetative screening. Although this is an overly conservative prediction, the initial omission of these layers assists in the evaluation of potential seasonal visibility of the proposed Facility. The average height of the tree canopy was determined in the field using a laser range finder. The average tree canopy height is incorporated into the final viewshed map; in this case, 65 feet was identified as the average tree canopy height. The forested areas within the Study Area were then overlaid on the DEM with a height of 65 feet added and the visibility calculated. As a final step, the forested areas are extracted from the areas of visibility, with the assumption that a person standing among the trees will not be able to view the Facility beyond a distance of approximately 500 feet. Depending on the density of the vegetation in these areas, it is assumed that some locations within this range will provide visibility of at least portions of the Facility based on where one is standing.

Also included on the map is a data layer, obtained from the State of Connecticut Department of Environmental Protection ("CTDEP"), which depicts various land and water resources such as parks and forests, recreational facilities, dedicated open space, CTDEP boat launches and other categories. Lastly, based on both a review of published information and discussions with municipal officials in Woodstock it was determined that the segment of Route 169 contained within the Study Area is a state-designated scenic roadway and is therefore depicted as such on the attached viewshed map.

A preliminary viewshed map (using a conservative tree height of 50 feet) was used during the in-field activity to assist in determining if significant land use changes have occurred since the aerial photographs used in this analysis were produced and to compare the results of the computer model with observations of the balloon float. Information obtained during the reconnaissance was then incorporated into the final visibility map.

Balloon Float and Study Area Reconnaissance

On October 2, 2009 Vanasse Hangen Brustlin Inc., (VHB) conducted a balloon float at the proposed Facility location to further evaluate the potential viewshed within the Study Area. The balloon float consisted of raising and maintaining an approximate five-foot diameter, helium-filled balloon at the proposed site location at a height of 130 feet. Once the balloon was secured, VHB staff conducted a drive-by reconnaissance along the roads located within the Study Area with an emphasis on nearby residential areas and other potential sensitive receptors in order to evaluate the results of the preliminary viewshed map and to document where the balloon was, and was not, visible above and/or through the tree canopy. During the balloon float, the temperature was approximately 70 degrees Fahrenheit with calm wind conditions and sunny skies.

Photographic Documentation

During the balloon float, VHB personnel drove the public road system within the Study Area to inventory those areas where the balloon was visible. The balloon was photographed from a number of different vantage points to document the actual view towards the proposed Facility. Several locations where the balloon was not visible are also included in order to provide documentation from select areas. The locations of the photos are described below:

1. View from Curtiss Road.
2. View from Prospect Street Adjacent to house #506.
3. View from Prospect Street Adjacent to house #529.
4. View from Green Road west of Prospect Street.
5. View from Prospect Street at host property.
6. View from Paine Road.

7. View from Child Dome Road.
8. View from Prospect Street adjacent to house #209.
9. View from Chandler School Road adjacent to house #121.
10. View from Blacknor Road adjacent to house #54.
11. View from Chandler School Road.
12. View from Converse Road adjacent to house #780.
13. View from Curtiss Road at Roberts Road.
14. View from Route 169.
15. View from Prospect Street south of Green Road.

Photographs of the balloon from the view points listed above were taken with a Nikon D-80 digital camera body and Nikon 18 to 135 mm zoom lens. For the purposes of this report, the lens was set to 50mm. "The lens that most closely approximates the view of the unaided human eye is known as the normal focal-length lens. For the 35 mm camera format, which gives a 24x36 mm image, the normal focal length is about 50 mm.[1]"

The locations of the photographic points are recorded in the field using a hand-held GPS receiver and are subsequently plotted on the maps contained in the attachments to this document.

Photographic Simulation

Photographic simulations were generated for the ten representative locations where the balloon was visible during the in-field activities. The photographic simulations represent a scaled depiction of the proposed Facility from these locations. The height of the Facility is determined based on the location of the balloon in the photograph and a proportional monopine image is simulated into the photographs. A photolog map and the simulations are contained in Attachment A.

CONCLUSIONS

Based on this analysis, areas from where the proposed 130-foot tall Facility would be visible above the tree canopy comprise approximately 167 acres, or just over two percent of the 8,042-acre Study Area. As depicted on the viewshed map (provided in Attachment B), most of the potential year-round visibility associated with the proposed monopole occurs on the host property and its immediate vicinity where the land use generally consists of open fields with minimal vegetative screening. This also includes select portions of Prospect Street, Green Road, Curtiss Road and Blacknor Road. Other areas of potential year-round visibility are located further from the proposed Facility and include portions of Chandler School Road, Childome Road and Paine Road to the southeast of the proposed Facility. Similarly, these areas are also mainly open and undeveloped. Overall however, potential year-round visibility would be minimized by the rolling topography and the extent of vegetative cover

[1] Warren, Bruce. *Photography*, West Publishing Company, Eagan, MN, c. 1993, (page 70).

contained within the Study Area. In addition to the host property, VHB estimates that portions of approximately 11 residential properties may have at least partial year-round views of the proposed Facility. This includes approximately four residences located along Prospect Street; three residences along Paine Road; two residences along Green Road; one residence along Dugg Hill Road and one residence located along Chandler School Road. No views are anticipated from Route 169, a state designated scenic roadway.

The viewshed map also depicts several additional areas where seasonal (i.e. during "leaf off" conditions) views are anticipated. These areas comprise approximately 102 acres and are located within the general vicinity of the proposed Facility, including the host property and areas north of Curtiss Road and south of Green Road. VHB estimates that limited seasonal views of the proposed Facility may be achieved from portions of approximately five additional residential properties located along Prospect Street and Curtiss Road.

Attachment A

Study Area Map, Photographic Documentation of the Proposed Project Area, Balloon Float Photographs, and Photographic Simulations