

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS

# Connecticut Siting Council

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APPLICATION OF CELLCO PARTNERSHIP  
D/B/A VERIZON WIRELESS

PALMER POND FACILITY

DOCKET NO. \_\_\_\_\_

MAY 10, 2013



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## EXECUTIVE SUMMARY

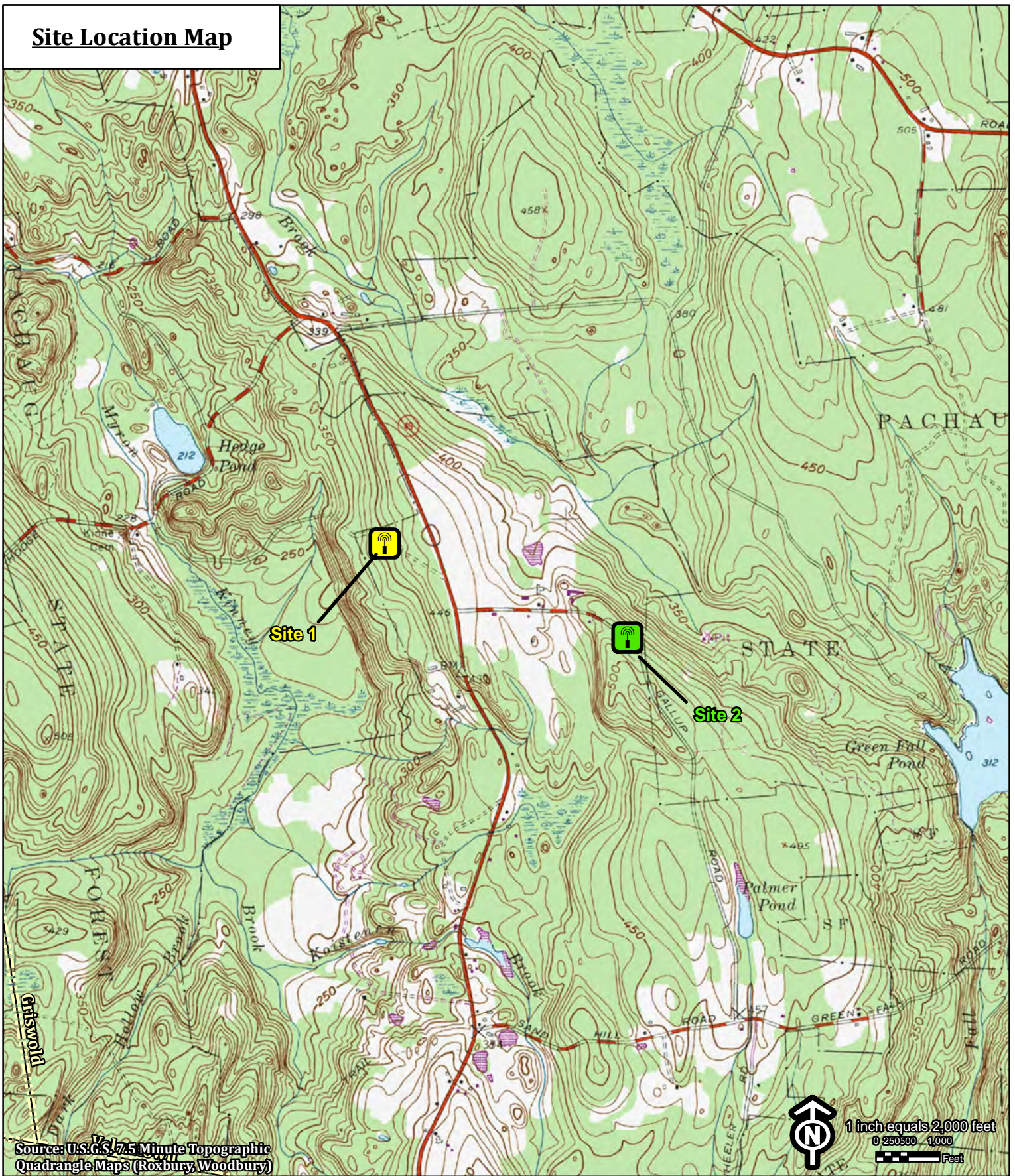
Cellco Partnership d/b/a Verizon Wireless (“Cellco”) (“Applicant”), proposes to construct a telecommunications tower and related facility (the “Palmer Pond Facility”) at one of two locations in the south-central portion of the Town of Voluntown. The Palmer Pond Facility will provide coverage and capacity relief to Cellco customers along significant portions of Route 49, as well as local roads and residential and commercial land uses in south-central Voluntown.

The first alternative site would be located on an approximately 30 acre parcel at 596 Pendleton Hill Road in Voluntown (“Site 1”). At Site 1, Cellco proposes the construction of a 130-foot telecommunications tower. Cellco would install fifteen (15) panel-type antennas at a centerline height of 130 feet above ground level. The top of Cellco’s antennas will extend to an overall height of approximately 133 feet above ground level (“AGL”). Cellco would also install a 12’ x 30’ shelter on the ground near the base of the tower to house its radio equipment and a diesel-fueled back-up generator. The tower and equipment shelter will be located within a 50’ x 50’ fenced compound. Vehicular access to Site 1 would extend from Pendleton Hill Road over an existing dirt and gravel driveway, a distance of approximately 1,085 feet to the Site 1 compound. Utilities would extend from existing service along Pendleton Hill Road.

The second alternative site would be located on an approximately 261 acre parcel at 53 Gallup Road (“Site 2”). At Site 2, Cellco proposes the construction of a 150-foot telecommunications tower. Cellco would install fifteen (15) panel-type antennas at a centerline height of 150 above ground level. The top of Cellco’s antennas would extend to an overall height of 153 feet AGL. Cellco would also install a 12’ x 30’ shelter on the ground near the base of the tower to house its radio equipment and a propane-fueled back-up generator. The tower,

equipment shelter and 1,000-gallon propane tank would be located within a 50' x 52' fenced compound area. Vehicular access to Site 2 would extend from Gallup Road over a new gravel driveway a distance of approximately 80 feet to the Site 2 compound. Utilities would also extend from existing service along Gallup Road.

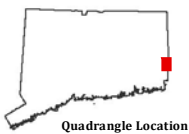
# Site Location Map



Source: U.S.G.S. 7.5 Minute Topographic  
Quadrangle Maps (Roxbury, Woodbury)

**Site 1 - 596 Pendleton Hill Road**  
**Site 2 - 53 Gallup Road**  
**Voluntown, Connecticut**

**Monday, April 22, 2013**



Quadrangle Location



# Site Aerial Map



Base Map Source: 2010 Bing Color Aerial Photograph with 1-foot Resolution

1 inch equals 667 feet  
0 125 250 500 Feet

### Legend

-  Site 1
-  Site 2

**Site 1 - 596 Pendleton Hill Road**  
**Site 2 - 53 Gallup Road**  
**Voluntown, Connecticut**

**Monday, April 22, 2013**







The first alternative cell site (“Site 1”) would be located in the northwest corner of an approximately 30 acre parcel at 596 Pendleton Hill Road in Voluntown. At Site 1, the Applicant would construct a 130-foot self-supporting monopole telecommunications tower. Cellco would install a total of fifteen (15) panel-type antennas (six (6) cellular (850 MHz) antennas; six (6) PCS (1900 MHz) antennas and three (3) LTE (700 MHz) antennas) with their centerline at the 130-foot level. The top of Cellco’s antennas would extend to an overall height of approximately 133 feet above ground level (“AGL”). Equipment associated with Cellco’s antennas would be located in a 12’ x 30’ shelter installed near the base of the tower within a 50’ x 50’ fenced compound. Vehicular access to Site 1 would extend from Pendleton Hill Road over an existing dirt and gravel driveway a distance of approximately 1,085 feet to the cell site. Utilities will extend underground from existing service along Pendleton Hill Road.

The proposed Site 1 Facility will provide reliable wireless service to a 4.9 mile portion of Route 49, and an overall area of 9.6 square miles at cellular frequencies; a 4.67 mile portion of Route 49, and an overall area of 9.53 square miles at PCS frequencies; and a 4.9 mile portion of Route 49, and an overall area of 9.9 square miles at 700 MHz frequencies.

The second alternative cell site (“Site 2”) would be located in the southeast corner of a 261 acre parcel at 53 Gallup Road. At Site 2, the Applicant would construct a 150-foot self-supporting monopole telecommunications tower. Cellco would install a total of fifteen (15) panel-type antennas (six (6) cellular (850 MHz) antennas; six (6) PCS (1900 MHz) antennas; and three (3) LTE (700 MHz) antennas) with a centerline at 150 feet AGL. The top of Cellco’s antennas would extend to an overall height of approximately 153 AGL. Equipment associated with Cellco’s antennas would be located in a 12’ x 30’ shelter installed near the base of the tower

within a 50' x 52' fenced compound. Vehicular and utility access to Site 2 would extend from Gallup Road a distance of approximately 80 feet to the cell site. Utilities would extend from existing service along Gallup Road.

The proposed Site 2 Facility will provide reliable wireless service to a 4.5 mile portion of Route 49, and an overall area of 9.36 square miles at cellular frequencies; a 4.2 mile portion of Route 49, and an overall area of 8.95 square miles at PCS frequencies; and a 4.5 mile portion of Route 49, and an overall area of 9.54 square miles at 700 MHz frequencies.

The towers and facility compound areas of both Site 1 and Site 2 would be designed to accommodate multiple carriers as well as state or local emergency services antennas and equipment. As of the date of this filing, Cellco has been notified that the Quinebaug Valley Emergency Service provider is interested in sharing either of the proposed alternate tower sites.

Cellco's equipment shelter would house radio and related equipment, including (a) receiving, transmitting, switching, processing and performance monitoring equipment; and (b) automatic heating and cooling equipment. A back-up generator would also be installed in a segregated generator room within the shelter for use during power outages and periodically for maintenance purposes.

The tower and equipment shelter would be enclosed by an 8-foot high security fence and gate. Cellco's equipment shelter would be equipped with a silent intrusion and system alarms and will be monitored on a 24-hour basis to receive and to respond to incoming alarms or other technical problems. The equipment building would remain unstaffed, except as required for maintenance. Once the cell site is operational, maintenance personnel will visit the cell site on a monthly basis. More frequent visits may be required if there are problems with the cell site

equipment.

The proposed Palmer Pond Facility would provide wireless telecommunications coverage and capacity relief along significant portions of Route 49, as well as local roads, residential areas and commercial areas in south-central Voluntown. These coverage gaps exist between Cellco's existing Griswold East and North Stonington East cell sites, approved Bailey Pond and Voluntown cell sites and soon to be established Wyassup Lake cell site in the area.

Cellco's existing Griswold East cell site consists of antennas at the 157-foot level of a 180-foot tower at 1439 Voluntown Road in Griswold. The Griswold East tower is located approximately 3.5 miles northwest of the proposed Palmer Pond Facility. Cellco's approved Bailey Pond cell site consists of antennas at the 153-foot level of an existing 180-foot tower at 497 Ekonk Hill Road in Voluntown. The Bailey Pond tower is located approximately 4.75 miles north of the proposed Palmer Pond Facility. Cellco's approved Voluntown cell site consists of antennas at the top of a 160-foot tower at 422 Rockville Road in Voluntown. The Voluntown tower is located approximately 2.25 miles east of the proposed Palmer Pond Facility. Cellco's existing North Stonington cell site consists of antennas at the 130-foot level of an existing 180-foot tower at 31F Clarks Falls Road in North Stonington. The North Stonington tower is located approximately 5.5 miles south of the Palmer Pond Facility. Cellco's Wyassup Lake cell site consists of antennas at the 177-foot level on an existing 190-foot tower at 177 Cossaduck Hill Road in North Stonington. The Wyassup Lake tower site is located 4.0 miles southwest of the Palmer Pond Facility.

Included in this Application, as Attachments 1 and 2 , are factual summaries and project plans for the Site 1 and Site 2 Facilities. These summaries, along with the other attachments

submitted as part of this Application, contain all of the site-specific information required by statute and the regulations of the Council.

**B. The Applicant**

Cellco is a Delaware Partnership with an administrative office located at 99 East River Drive, East Hartford, CT, 06108. Cellco is licensed by the Federal Communications Commission (“FCC”) to operate a wireless telecommunications system in the State of Connecticut within the meaning of C.G.S. Section 16-50i(a)(6). Cellco has extensive national experience in the development, construction and operation of wireless telecommunications systems and the provision of wireless telecommunications service to the public. Operation of the wireless telecommunications systems and related activities are Cellco’s sole business in the State of Connecticut.

Correspondence and/or communications regarding this Application may be addressed to:

Sandy Carter, Regulatory Manager  
Verizon Wireless  
99 East River Drive  
East Hartford, Connecticut 06108

A copy of all such correspondence or communications should also be sent to:

Robinson & Cole LLP  
280 Trumbull Street  
Hartford, Connecticut 06103-3597  
(860) 275-8200  
Attention: Kenneth C. Baldwin, Esq.

**C. Application Fee**

The estimated total construction cost for either the Site 1 Facility or Site 2 Facility would be less than \$5,000,000. Therefore, pursuant to Section 16-50v-1a(b) of the Regulations of Connecticut State Agencies, an application fee of \$1,250 accompanies this Application in the form

of a check payable to the Council.

## **II. SERVICE AND NOTICE REQUIRED BY C.G.S. SECTION 16-50(b)**

Copies of this Application have been sent by certified mail, return receipt requested, to municipal, regional, state and federal officials, pursuant to C.G.S. Section 16-50(b). A certificate of service, along with a list of the parties served with a copy of the Application, is included as Attachment 3.

Notice of Cellco's intent to submit this Application was published on May 6 and 7, 2013, by Cellco in the *Norwich Bulletin* pursuant to C.G.S. Section 16-50(b). A copy of the published legal notice is included as Attachment 4. A copy of an Affidavit of Publication will be forwarded to the Council as soon as it is available.

Attachment 5 contains a certification that notices were sent to each person appearing of record as an owner of property that may be considered to abut the land on which either the Site 1 and Site 2 Facilities would be located in accordance with C.G.S. Section 16-50(b), as well as a list of the property owners to whom such notice was sent and a sample notice letter.

## **III. REQUIRED INFORMATION: PROPOSED WIRELESS FACILITY**

The purpose of this section is to provide an overview and general description of the Site 1 and Site 2 Facilities proposed to be installed in Voluntown.

### **A. General Information**

Prior to the 1980's, mobile telephone service was characterized by insufficient frequency availability, inefficient use of available frequencies and poor quality of service. These limitations generally resulted in problems of congestion, blocking of transmissions, interference, lack of coverage and relatively high cost. Consequently, the FCC, in its Report and Order released May 4,

1981 in FCC Docket No. 79-318, recognized the public need for technical improvement, wide-area coverage, high quality service and a degree of competition in mobile telephone service.

More recently, the federal Telecommunications Act of 1996 (the “Act”) emphasized and expanded on these aspects of the FCC’s 1981 decision. Among other things, the Act recognized an important nationwide public need for high-quality wireless telecommunication services of all varieties. The Act also expressly promotes competition and seeks to reduce regulation in all aspects of the telecommunications industry in order to foster lower prices for consumers and to encourage the rapid deployment of new telecommunications technologies.

The proposed Palmer Pond Facility would be part of Cellco’s expanding wireless telecommunications network envisioned by the Act and has been developed to help meet these nationwide goals. In particular, Cellco’s system has been designed, and the cell sites proposed in this Application have been selected, so as to maximize the geographical coverage and quality of service while minimizing the total number of cell sites required.

Because the FCC and the United States Congress have determined that there is a pressing public need for high-quality wireless telecommunications service nationwide, the federal government has preempted the determination of public need by states and municipalities, including the Council, with respect to public need for the service to be provided by the proposed facility. In addition, the FCC has promulgated regulations containing technical standards for wireless systems, including design standards, in order to ensure the technical integrity of each system and nationwide compatibility among all systems. State and local regulation of these matters is likewise preempted. The FCC has also exercised its jurisdiction over and preempted state and local regulation with respect to radio frequency interference issues by establishing regulations in this area as well.

Pursuant to FCC authorizations, Cellco has constructed and currently operates a wireless system throughout Connecticut. This system, together with Cellco's system throughout its New England and nationwide markets, has been designed and constructed to operate as one integrated, contiguous system, consistent with Cellco's business policy of developing compatibility and continuity of service on a regional and national basis.

Recognizing the public safety benefits that enhanced wireless telecommunications networks can provide, the United States, Congress also enacted the Wireless Communications and Public Safety Act of 1999 to promote and enhance public safety by making 911 the universal emergency assistance number, furthering the deployment of wireless 911 capabilities and further encouraging the construction and operation of seamless, ubiquitous and reliable wireless networks. In 2004, Congress enacted the Enhanced 911 Act for the specific purpose of enhancing and promoting Homeland Security, public safety and citizen activated emergency response capabilities. These goals and other related responsibilities imposed on wireless service providers can only be satisfied if Cellco maintains a ubiquitous and reliable wireless network.

Included as Attachment 6 is a copy of the FCC's authorization issued to Cellco for its wireless service in New London County, Connecticut. The FCC's rules permit a licensee to modify its system, including the addition of new cell sites, without prior approval by the FCC, as long as the licensee's authorized service area is not enlarged. The Palmer Pond Facility would not enlarge Cellco's authorized service area.

**B. Public Need and System Design**

**1. Public Need**

As noted above, the Act has pre-empted any state or local determination of public need



for wireless services. In New London County, Cellco holds an FCC License to provide cellular, PCS, LTE and AWS services. Pursuant to its FCC Licenses, Cellco has developed and continues to develop a network of cell sites to serve the demand for wireless service in the area. Cellco's network currently provides coverage in Voluntown and the surrounding towns from its existing cell sites in the area. Plots showing coverage from Cellco's existing Griswold East and North Stonington East facilities, its approved Bailey Pond and Voluntown facilities and its proposed Wyassup Lake facility alone and together with the coverage from the Site 1 and Site 2 alternative facilities are included as Attachment 7.

**2. System Design and Equipment**

**a. System Design**

Cellco's wireless system in general and the proposed Palmer Pond Facility, in particular, have been designed and developed to allow Cellco to achieve and to maintain high quality, reliable wireless service without interruption from dropped calls and interference.

The system design provides for frequency reuse and hand-off, is capable of orderly expansion and is compatible with other wireless systems. The resulting quality of service compares favorably with the quality of service provided by conventional wireline telephone service. The wireless system is designed to assure a true cellular configuration of base transmitters and receivers in order to cover the proposed service area effectively while providing the highest quality of service possible. Cell site transmissions are carefully tailored to the FCC's technical standards with respect to coverage and interference and to minimize the amount of power that is transmitted.

Mobile telephone switching offices ("MTSOs") in Windsor and Wallingford are interconnected and operate Cellco's wireless systems in Connecticut as a single network, offering

the subscriber uninterrupted use of the system while traveling throughout the State. This network is further interconnected with the local exchange company ("LEC") and inter-lata (long distance) carrier networks.

Cellco has designed its wireless system in conformity with applicable standards and constraints for wireless systems. Cellco's system is also designed to minimize the need for additional cell sites in the absence of additional demand or unforeseen circumstances.

**b. Cellular System Equipment**

The key elements of the cellular system are the two MTSOs located in Windsor and Wallingford and the various connector cell sites around the state. Cellco's CDMA wireless networks are deployed on two platforms: the earlier AUTOPLEX system, using Series II base stations, and the newer FLEXENT CDMA system, using smaller, more compact modular base stations. Because the Series II base stations are no longer manufactured, the newer CDMA systems, using smaller, more compact modular base stations are used for all current installations.

The major electronic components of each cell site are radio frequency transmission and receiving equipment and cell site controller equipment. Cellco's cellular system uses Lucent Flexent® Modular Cell 4.0B cell site equipment to provide complete cell site control and performance monitoring. This equipment is capable of expanding in modules to meet system growth needs. The cell site equipment primarily provides for: message control on the calling channel; call setup and supervision; radio frequency equipment control; internal diagnostics; response to remote and local test commands; data from the mobile or portable unit in both directions and on all channels; scan receiver control; transmission of power control commands; rescanning of all timing; and commands and voice channel assignment. Additional information

with respect to the Lucent Flexent® Modular Cell 4.0B equipment is contained in Attachment 8.

### **3. Technological Alternatives**

Cellco submits that there are no equally effective technological alternatives to the proposal contained herein. In fact, Cellco's wireless system represents state-of-the-art technology offering high-quality service. Cellco is aware of no viable and currently available alternatives to its system design for carriers licensed by the FCC.

#### **C. Site Selection and Tower Sharing**

##### **1. Cell Site Selection**

Cellco's goal in selecting cell sites, like the ones described above, is to locate a facility in such a manner as to allow it to build and to operate a high-quality wireless system with the least environmental impact. Cellco has determined that the proposed Site 1 and Site 2 Facilities both satisfy this goal and that either site location would help resolve existing coverage problems and provide high-quality reliable wireless service primarily along portions of Route 49, as well as local roads in the area. The proposed Palmer Pond Facility will also provide for improved wireless service to significant portions of the Pachaug State Forest.

The methodology of cell site selection for a wireless system generally limits the search for possible locations to a specific site search area established by Cellco's Radio Frequency Engineers and network designers. In any search area, Cellco first examines the use of existing towers or other sufficiently tall structures that might help satisfy its coverage objectives. A list of existing towers or other non-tower structures considered is included in Attachment 9. Cellco currently shares or plans to share five (5) existing towers within approximately 5.5 miles of the Palmer Pond Facility location. These sites are identified on the coverage maps included in Attachment 7. These adjacent tower sites cannot, however, satisfy Cellco's coverage objectives for the Palmer Pond search area.

Cellco also regularly investigates the use of existing, non-tower structures in an area, when available, as an alternative to building a new tower. No existing non-tower structures of suitable height exist in the south-central Voluntown area where the Palmer Pond Facility would be located. Cellco initiated a site search process for the Palmer Pond cell site in May 2009, and identified the property at 596 Pendleton Hill Road and 53 Gallup Road as viable candidates for a cell site. Cellco determined that an antenna height of 130 feet at the Pendleton Hill Road site would satisfy its coverage objectives in the area. An antenna height of 150 feet, however, would be required at the Gallup Road location. The Site Search Summary (Attachment 9) together with the site information contained in Attachments 1 and 2 support Cellco's position that the sites selected represent the most feasible alternative of the sites investigated.

## **2. Tower Sharing**

The Applicant will design the approved facility tower and compound to be shared by a minimum of four (4) wireless carriers, and the Town, or local emergency service providers if a need exists. This type of tower sharing arrangement would reduce, if not eliminate, the need for these other carriers or municipal entities to develop a separate tower in this same area in the future. As of the date of this filing, no other carrier has yet expressed any interest in the Palmer Pond Facility. The Quinebaug Valley Emergency Services organization has expressed an interest in sharing the proposed Palmer Pond Facility tower to enhance its emergency service connections in the south-central Voluntown area.

### **D. Cell Site Information**

#### **1. Site Facilities**

At Site 1, Cellco would construct a new 130-foot tall monopole tower and install fifteen (15) panel-type directional antennas at the top of the tower. At Site 2, the Applicant would

construct a new 150-foot tall monopole tower and install fifteen (15) panel-type directional antennas at the top of the tower. Cellco would install a 12' x 30' single-story shelter near the base of either the Site 1 or Site 2 tower to house its receiving, transmitting, switching, processing and performance monitoring equipment and the required heating and cooling equipment. A back-up generator would also be installed in a segregated room inside Cellco's equipment shelter for use during power outages and periodically for maintenance purposes. Cellco proposes the use of a diesel-fueled generator at Site 1 and a propane-fueled generator at Site 2. The tower and equipment shelter would be surrounded by an 8-foot high security fence and gate. (See Attachments 1 and 2 – Project Plans).

The equipment shelter would be equipped with silent intrusion and systems alarms. Cellco personnel will be available on a 24-hour basis to receive and to respond to incoming alarms. The equipment building will remain unstaffed, except as required for periodic maintenance purposes.

## **2. Overall Costs and Benefits**

Aside from the limited visual impacts discussed further below, the Applicant believes that there are no significant costs attendant to the construction, maintenance, and operation of the proposed cell site. In fact, the public will benefit substantially from its increased ability to receive high-quality, reliable wireless service in the Town of Voluntown.<sup>1</sup> The Palmer Pond Facility would be a part of a communications system that addresses the public need identified by the FCC and the United States Congress for high-quality, competitive mobile and portable wireless service.

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<sup>1</sup> Businesses across the State have become more dependent on wireless services. The public safety benefits of wireless telephone service are illustrated by the Connecticut State Police Enhanced 911 emergency calling system. The E-911 emergency calling system is available statewide to all wireless telephone users. Numerous other emergency service organizations have turned to wireless telephone service for use during natural disasters and severe storms when wireline service is interrupted or unavailable.

Moreover, the proposed cell site would be part of a system designed to limit the need for additional cell sites in the future.

The overall costs to the Applicant for development of the proposed cell site are set forth in Section III.E. of the Application.

**3. Environmental Compatibility**

Pursuant to Section 16-50p of the General Statutes, in its review of the Application, the Council is required to find and to determine, among other things, the nature of the probable environmental impact, including a specification of every significant adverse effect, whether alone or cumulatively with other effects, on, and conflicting with the policies of the state concerning the natural environment, ecological balance, public health and safety, scenic, historic and recreational values, forests and parks, air and water purity and fish and wildlife.

**a. Primary Facility Impact is Visual**

The wireless system of which the proposed Palmer Pond Facility would be a part has been designed to meet the public need for high-quality, reliable wireless service while minimizing any potential adverse environmental impact. In part because there are few, if any other adverse impacts, the primary impact of facilities such as this is visual. This visual impact will vary from location to location around a proposed tower, depending upon factors such as vegetation, topography, the distance of nearby properties from the tower and the location of buildings and roadways in a “sight line” toward the tower. Similarly, visual impact of a tower facility can be further reduced through the proper use of alternative tower structures; so-called “stealth installations.” Where appropriate, telecommunications towers camouflaged as trees, for example, can help to further reduce visual impacts associated with these structures. Attachment 10 contains Visibility Analysis prepared by All-Points Technology Corporation for the Site 1 and Site 2 Facilities. The Visibility Analysis

assess the visual impact of the Site 1 and Site 2 towers on the surrounding areas and includes photosimulations for the Council's review and consideration.

**(1) Site 1 Visibility**

According to the Visibility Analysis for Site 1, areas where the tower would be visible above the tree canopy comprise approximately 153 acres or 1.9 percent of the 8,042 acre study area. Year-round visibility of the Site 1 tower generally occurs over open, undeveloped farm land. Areas where seasonal views are anticipated comprise approximately 140 additional acres, generally occurring over open farm land and low-lying marsh areas.

There are no residences within 1,000 feet of the Site 1 Facility. The closest off-site residence is located at 614 Pendleton Hill Road, approximately 1,167 feet to the south of Site 1.

**(2) Site 2 Visibility**

According to the Visibility Analysis for Site 2, areas where the tower would be visible above the tree canopy comprise approximately 267 acres or 3.32 percent of the 8,042 acre study area. Year-round visibility of the Site 2 generally occurs over open undeveloped farm land. Areas where seasonal views are anticipated comprise approximately 60 additional acres, a majority of which occurs over open farm land.

There are no residences within 1,000 feet of Site 2. The closest off-site residence is located at 53 Gallup Road, approximately 1,500 feet to the southwest of the Site 2 tower location.

Weather permitting, the Applicant will raise balloons with a diameter of at least three (3) feet at the Site 1 and Site 2 Facility locations on the day of the Council's hearing on this Application, or at a time otherwise specified by the Council.

**b. Environmental Reviews and Agency Comments**

Section 16-50j of the General Statutes requires the Council to consult with and to solicit comments on the Application from the Commissioners of the Departments of Energy and Environmental Protection, Public Health, Public Utility Regulatory Authority, Economic Development, and Transportation, the Council on Environmental Quality, and the Office of Policy and Management, Energy Division. In addition to the Council's solicitation of comments, Cellco, as a part of the National Environmental Policy Act ("NEPA") Checklist, solicits comments on the proposed Site 1 and Site 2 Facilities from the U.S. Department of the Interior, Fish and Wildlife Service ("USFWS"), Environmental and Geographic Information Center of the Connecticut Department of Energy Environmental Protection ("DEEP") and the Connecticut Historical Commission, State Historic Preservation Officer ("SHPO"). Information on the USFWS and DEEP reviews regarding impacts on known populations of Federal or State Endangered, Threatened or Special Concern Species occurring at the proposed site are included in Attachment 12.

**(1) USFWS Compliance Determination**

According to the USFWS Compliance Determination dated January 7, 2013, and the USFWS Compliance Determination for Site 1 and Site 2 dated May 2, 2013, no federally listed or proposed, threatened or endangered species or critical habitat are known to occur in Voluntown, Connecticut. The proposed development of either the Site 1 or Site 2 Facilities would not, therefore, have any adverse effect on federally-listed, endangered or threatened species. (*See* USFWS Compliance Determination – Attachment 11).



(2) **DEEP Natural Diversity Database Review**

According to DEEP records, a State threatened species, the *Pink Sallow Moth*, may occur in the vicinity of both the Site 1 and Site 2 Facility locations. The *Pink Sallow Moth* is a species associated with wetland habitats. DEEP recommends that if any wetland habitat will be impacted by development of either the Site 1 or Site 2 facility locations, that a *Pink Sallow Moth* study be conducted. As discussed in Section III.D.4.d. below, neither alternative cell site location will impact wetland areas or wetland habitat. (See NDDDB Compliance Determination – Attachment 12).

(3) **State Historic Preservation Officer**

There are no historic resources within one-half mile of either the Site 1 or Site 2 Facility locations. Regardless, Cellco has filed its request for State Historic Preservation Officer (“SHPO”) review of this tower proposal. A copy of the SHPO’s final comments on this proposal will be filed with the Council as soon as they are available.

c. **Non-Ionizing Radio Frequency Radiation**

The FCC has adopted a standard for exposure to Radio Frequency (“RF”) emissions from telecommunications facilities like those proposed in this Application. To ensure compliance with the applicable standards, Cellco has performed maximum power density calculations for the proposed cell site according to the methodology prescribed by the FCC Office of Engineering and Technology Bulletin No. 65, Edition 97-01 (August 1997) (“OET Bulletin 65”). The calculation is a conservative, worst-case approximation for RF power density levels at the closest accessible point to the antennas, in this case the base of the tower, and with all antennas transmitting simultaneously on all channels at full power. The calculations indicate that the maximum power density level for

Cellco's cellular, PCS and LTE antennas would be 18.18% of the Standard at Site 1 and 13.20% of the Standard at Site 2.

**d. Other Environmental Issues**

No sanitary facilities are required for either the Site 1 or Site 2 Facilities. The operations at the approved Palmer Pond Facility will not cause any significant air, water, noise or other environmental impacts, or hazard to human health.

Based on agency comments received and field investigations by the Cellco project team, the Applicant submits that both the proposed Site 1 and Site 2 Facilities will have no significant adverse effect on scenic, natural, historic or recreational features, and that none of the potential effects alone or cumulatively with other effects is sufficient reason to deny this Application.

**4. Consistency with Local Land Use Controls**

The Council Application Guide for Community Antenna Television and Telecommunication Facilities, as amended in July 2012, requires the inclusion of a narrative summary of the project's consistency with the Town's Plan of Conservation and Development (the "Plan") and Zoning Regulations, as well as a description of planned and existing uses of the site location and surrounding properties.

**a. Planned and Existing Land Uses**

The proposed Site 1 Facility would be located on an approximately 30 acre parcel owned by Benjamin Gallup and Byron D. Gallup. The proposed Site 2 Facility would be located on an approximately 261 acre parcel, also owned by Benjamin Gallup and Byron D. Gallup. Both parcels are zoned "Rural District" and are used for active agricultural purposes. A saw mill also operates in the southerly portion of the 596 Pendleton Hill Road parcel.

**b. Plan of Conservation and Development**

The Town of Voluntown Plan of Conservation & Development (Effective: January 1, 2010) (the “Plan”), does not identify telecommunications facilities as a land use consistent or inconsistent with the general planning and conservation principles or policies of the Town. The Plan recognizes that the Town is located in the Quinebaug and Shetucket Rivers National Heritage Area (“QSNHA”). This designation recognizes the unique historic and natural assets of the 25 towns within the corridor. Cellco submits that neither the Site 1 nor Site 2 facility towers would have a substantial adverse environmental effect on resources identified in the QSNHA. Four (4) copies of the Plan were filed, in bulk, with the Council.

**c. Zoning Regulations**

According to the Town’s Zoning Map, both the Site 1 and Site 2 parcels are located in the “Rural District” zone. Pursuant to Section 6.2.13 of the Voluntown Zoning Regulations, telecommunications towers are permitted in the Rural District subject to the approval of a Special Exception from the Planning and Zoning Commission. The Voluntown Zoning Regulations include location preferences for the placement of telecommunications facilities. (*See* Section 9.5.14.A). The preferences are, from most to least preferred, 1) on existing structures; 2) on existing or approved towers; 3) on new towers located on property occupied by other towers; and 4) on new towers. Towers in the Rural District must be set back from all property lines a distance equal to the height of the tower. Both the Site 1 and Site 2 towers satisfy this setback requirement.

**d. Inland Wetland and Watercourse Regulations**

The Voluntown Inland Wetlands and Watercourses Regulations (the “IWW Regulations”) define Regulated Activity as any operation within, or use of, a wetland or watercourse involving

removal or deposition of material, or any obstruction, construction, alteration or pollution of the land of such wetlands or watercourses. The IWW Regulations also establish an Upland Review area within 100 feet from the boundary of any wetland or watercourse. Four (4) copies of the Voluntown IWW Regulations were filed, in bulk, with the Council.

Dean Gustafson, Professional Soil Scientist with VHB, Inc., conducted a field investigation and completed a Wetlands Delineation Report and Wetlands Compliance Memorandum for development for both the Site 1 and Site 2 Facilities. The closest wetland area to Site 1 is located approximately 950 feet northwest of the Site 1 Facility compound. The closest wetland area to Site 2 is located approximately 160 feet to the northeast of the Site 2 Facility compound. In his NEPA Wetlands Compliance Memorandum, Mr. Gustafson concludes that neither the Site 1 nor the Site 2 Facilities will have an adverse impact on any area wetlands or watercourses.

Copies of the Site 1 and Site 2 Wetlands Delineation Reports are included in Attachment 13.

In accordance with the Connecticut Soil Erosion Control Guidelines, as established by the Council for Soil and Water Conservation, adequate and appropriate soil erosion and sedimentation control measures will be established and maintained throughout the cell site construction period. In addition, the Applicant will employ appropriate construction management practices to ensure that no pollutants would be discharged to any nearby watercourse or wetland areas or to area groundwater during the construction process. Four (4) copies of the Voluntown IWW Regulations were filed, in bulk, with the Council.

According to the Federal Emergency Management Agency Flood Insurance Rate Map (“FIRM”), Map Numbers 09011C0261G (Site 1) (Effective July 18, 2011) and 09011C0262 (Site 2) (Effective July 18, 2011), both alternative facilities would be located in Flood Zone X, an area outside the 500 year flood zone. A copy of the FIRM is also included in Attachment 14.

**5. Local Input**

Section 16-50I(e) of the Connecticut General Statutes, as amended, requires local input on matters before the Council. On February 6, 2013, Cellco representatives met with Voluntown’s First Selectman, Ronald Millovitsch, to commence the ninety (90) day municipal consultation process. Mr. Millovitsch received copies of technical information summarizing Cellco’s plans to establish a telecommunications facility as described above. At the request of the Town, Cellco representatives hosted a Public Information Meeting (“PIM”) at Voluntown Town Hall on March 12, 2013. At this meeting, Cellco discussed, in detail, the aspects of the proposed Palmer Pond Facility, the two alternative site locations being considered, the need for wireless service in Voluntown and the Connecticut Siting Council application process. Notice of the PIM was sent to the owners of property whose land abuts the property at 594 Pendleton Hill Road and 53 Gallup Road and was published in the *Norwich Bulletin*.

**6. Consultations With State and Federal Officials**

Attachment 11 and Section III.D. of the Application describes consultations with state and federal officials regarding the proposed Site 1 and Site 2 Facilities.

**a. Federal Communications Commission**

The FCC did not review this particular proposal. As discussed above, FCC approval is not required where the authorized service area is not enlarged.

**b. Federal Aviation Administration**

As it does with all of its tower applications, Cellco conducted on air-space analyses for the proposed Site 1 and Site 2 Facilities to determine if either proposed tower would constitute an obstruction or hazard to air navigation. These analyses have confirmed, pursuant to FAA standards and guidelines, that neither the Site 1 nor Site 2 towers would constitute an obstruction or hazard to air navigation. Therefore, no obstruction marking or lighting would be required. A copy of the TOWAIR Determination Results is included in Attachment 15.

**c. United States Fish and Wildlife Service**

*See* Section III.D.3.b.(1) above.

**d. Connecticut Department of Energy Environmental Protection**

**(1) Environmental and Geographic Information Center**

*See* Section III.D.3.b.(2) above.

**(2) Bureau of Air Management**

Pursuant to R.C.S.A. § 22a-174-3, the on-site emergency back-up generator proposed as a part of this Application will require the issuance of a permit from the DEEP Bureau of Air Management. As proposed, this emergency generator will be run only during the interruption of utility service to the cell site and periodically as required for maintenance purposes. Cellco will obtain the necessary permit prior to installing the generator at the Palmer Pond Facility.

**e. Connecticut State Historic Preservation Officer**

*See* Section III.D.3.b.(3) above.

**E. Estimated Cost and Schedule**

**1. Overall Estimated Costs**

The total estimated cost of construction for Site 1 is \$785,000. This estimate includes:

|     |  |           |
|-----|--|-----------|
| (1) | Cell site radio equipment of approximately   | \$450,000 |
| (2) | Tower, coax and antenna costs of approximately                                     | 130,000   |
| (3) | Power systems costs of approximately   | 20,000    |
| (4) | Equipment building costs of approximately  | 50,000    |
| (5) | Miscellaneous costs (including site preparation and installation) of approximately | 135,000   |

The total estimated cost of construction for Site 2 is \$725,000. This estimate includes:

|     |  |           |
|-----|--|-----------|
| (1) | Cell site radio equipment of approximately   | \$450,000 |
| (2) | Tower, coax and antenna costs of approximately                                     | 150,000   |
| (3) | Power systems costs of approximately   | 20,000    |
| (4) | Equipment building costs of approximately  | 50,000    |
| (5) | Miscellaneous costs (including site preparation and installation) of approximately | 55,000    |

**2. Overall Scheduling**

Site preparation and engineering would commence following Council approval of Cellco's Development and Maintenance ("D&M") Plan and are expected to be completed within two to four weeks. Due to the delivery schedules of the manufacturers, installation of the building and installation of the tower are expected to take an additional two weeks. Equipment installation is expected to take an additional two weeks after installation of the building and installation of the tower. Cell site integration and system testing is expected to require two weeks after equipment installation.

#### IV. CONCLUSION

Based on the facts contained in this Application, Cellco submits that the establishment of the Palmer Pond Facility, at either Site 1 or Site 2, will not have any substantial adverse environmental effects. A public need exists for high quality reliable wireless service in the Town of Voluntown and throughout New London County, as determined by the FCC and the United States Congress, and a competitive framework for providing such service has been established by the FCC and the Telecommunications Act of 1996. Cellco submits that the public need far outweighs any possible environmental effects resulting from the construction of the proposed cell site.

WHEREFORE, Cellco respectfully requests that the Council grant this Application for a Certificate of Environmental Compatibility and Public Need for the proposed Palmer Pond Facility.

Respectfully submitted,

CELLCO PARTNERSHIP D/B/A VERIZON  
WIRELESS

By: 

Kenneth C. Baldwin, Esq.  
Robinson & Cole LLP  
280 Trumbull Street  
Hartford, Connecticut 06103-3597  
(860) 275-8200  
Attorneys for the Applicant



# **PALMER POND**

**Site 1**  
**596 Pendleton Hill Road**  
**Voluntown, Connecticut**

Description of Proposed Cell Site

Cellco Partnership d/b/a Verizon Wireless  
99 East River Drive  
East Hartford, CT 06108

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| FACILITIES AND EQUIPMENT SPECIFICATION..... | 6           |
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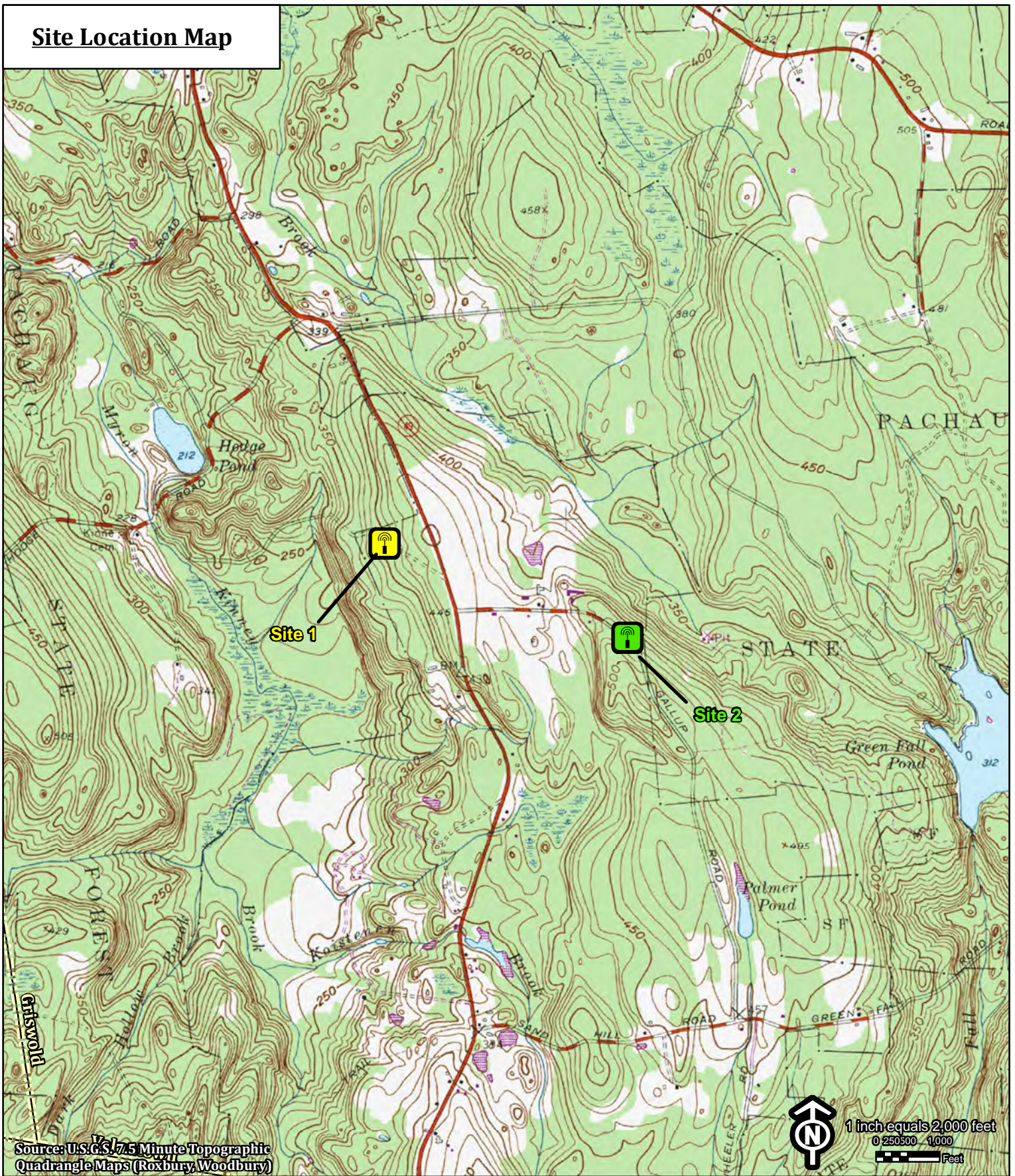
SITE NAME: SITE 1 – 596 PENDLETON HILL ROAD, VOLUNTOWN, CT

GENERAL CELL SITE DESCRIPTION

The proposed Palmer Pond Alternate Site No. 1 cell site would be located in the northwest portion of an approximately 30 acre parcel owned by Benjamin Gallup and Byron D. Gallup (the "Site 1 Facility"). The Site 1 Facility would consist of a 130-foot telecommunications tower and a 12' x 30' equipment shelter located near the base of the tower. The shelter would house Cellco's radio equipment and a diesel-fueled back-up generator. The tower and equipment shelter will be maintained within a 50' x 50' fenced compound within a larger leased area.

Cellco's antennas would be mounted with their centerline at the 130-foot level. The top of Cellco's antennas would extend above the top of the tower to an overall height of approximately 133 feet. Vehicular access to the site would extend from Pendleton Hill Road over an existing dirt driveway a distance of approximately 1,085 feet to the site compound. Utility service would extend underground from Pendleton Hill Road to the cell site.

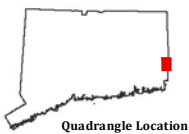
# Site Location Map



Source: U.S.G.S. 7.5 Minute Topographic  
Quadrangle Maps (Roxbury, Woodbury)

**Site 1 - 596 Pendleton Hill Road**  
**Site 2 - 53 Gallup Road**  
**Voluntown, Connecticut**

**Monday, April 22, 2013**



Quadrangle Location



# Site Aerial Map



Base Map Source: 2010 Bing Color Aerial Photograph with 1-foot Resolution

### Legend

-  Site 1
-  Site 2

**Site 1 - 596 Pendleton Hill Road**  
**Site 2 - 53 Gallup Road**  
**Voluntown, Connecticut**

**Monday, April 22, 2013**

1 inch equals 667 feet

0 125 250 500 Feet



  
**ALL-POINTS**  
TECHNOLOGY CORPORATION

## SITE EVALUATION REPORT

SITE NAME: SITE 1 – 596 PENDLETON HILL ROAD, VOLUNTOWN, CT

### I. TOWER LOCATION

- A. COORDINATES: 41°-32'-26.931" N 71°-50'-35.666" W
- B. GROUND ELEVATION: Approximately 400± feet AMSL
- C. USGS MAP: Voluntown, CT
- D. SITE ADDRESS: 596 Pendleton Hill Road, Voluntown, CT
- E. ZONING WITHIN 1/4 MILE OF SITE: Land within 1/4 mile of the cell site is in the Rural zone district.

### II. DESCRIPTION

- A. SITE SIZE: 100' x 100' Leased Area  
50' x 50' Fenced Compound
- B. LESSOR'S PARCEL: Approximately 30 acres
- C. TOWER TYPE/HEIGHT: 130' Monopole Tower  
133' Top of Antennas
- D. SITE TOPOGRAPHY AND SURFACE: Topography in the area of the site is generally flat. Minimal clearing and grading for construction of the site compound and northerly portion of the access drive will be required. No trees, 6" or greater diameter at breast height ("dbh") will need to be removed to construct the Site 1 Facility.
- E. SURROUNDING TERRAIN, VEGETATION, WETLANDS, OR WATER: The tower is located in the northwest portion of a 40 acre parcel used for agricultural purposes. The closest wetland area is located approximately 950 feet to the northwest of the Site 1 Facility compound.
- F. LAND USE WITHIN 1/4 MILE OF SITE: The Site 1 Facility is located on a 30 acre agricultural parcel. The property is surrounded by very low density residential areas, agricultural land and portions of the Pachaug State Forest. (See Aerial Photograph at p. 3).

III. FACILITIES

- A. POWER COMPANY: Connecticut Light and Power
- B. POWER PROXIMITY TO SITE: Approximately 1,085 feet along the proposed access road to Pendleton Hill Road to the east of the Site 1 Facility.
- C. TELEPHONE COMPANY: AT&T
- D. PHONE SERVICE PROXIMITY: Same as power
- E. VEHICLE ACCESS TO SITE: Vehicle access to the site would extend from Pendleton Hill Road over an existing gravel driveway a distance of 1,085 feet.
- F. CLEARING AND FILL REQUIRED: Minimal tree clearing and grading would be required for construction of the tower, site compound and access drive. Detailed construction plans would be developed if this location is approved by the Siting Council.

IV. LEGAL

- A. PURCHASE  LEASE
- B. OWNER: Benjamin Gallup and Byron D. Gallup
- C. ADDRESS: 596 Pendleton Hill Road, Voluntown, CT 06384
- D. DEED ON FILE AT: Town of Voluntown, CT Land Records





## ENVIRONMENTAL ASSESSMENT STATEMENT

SITE NAME: SITE 1 – 596 PENDLETON HILL ROAD, VOLUNTOWN, CT

### I. PHYSICAL IMPACT

#### A. WATER FLOW AND QUALITY

No water flow and/or water quality changes are anticipated as a result of the construction or operation of the facility. There are no lakes, ponds, rivers, streams, wetlands or other regulated bodies of water located in the area to be used for the access drive, tower or equipment shelter. The equipment used will not discharge any pollutants to area surface or groundwater systems. The closest wetland area is located approximately 950 feet to the northwest of the Site 1 Facility compound.

#### B. AIR QUALITY

Under ordinary operating conditions, the equipment that would be used at the site would emit no air pollutants of any kind. For limited periods during power outages and periodically for maintenance purposes, minor levels of emissions from the on-site generator would result.

Pursuant to R.C.S.A. § 22a-174-3, the on-site emergency back-up generator proposed as a part of this application would require the issuance of a Connecticut Department of Environmental Protection Air Bureau permit for potential emissions. Cellco would obtain this permit prior to installing the generator at the approved cell site.

#### C. LAND

Minimal clearing and grading of the tower compound and access drive will be required. The remaining land of the Lessor would remain unchanged by the construction and operation of the cell site.

#### D. NOISE

The equipment to be in operation at the site after construction would emit no noise of any kind, except for operation of the installed heating, air conditioning and ventilation systems and occasional operation of a back-up generator which would be run during power failures and periodically for maintenance purposes. Some noise is anticipated during cell site construction, which is expected to take approximately four to six weeks.

E. POWER DENSITY

The worst-case calculation of power density for Cellco's cellular, PCS and LTE antennas at the Site 1 Facility would be 18.18% of the Standard.

F. VISIBILITY

See Visibility Report included as Attachment 10.

# Cellco Partnership

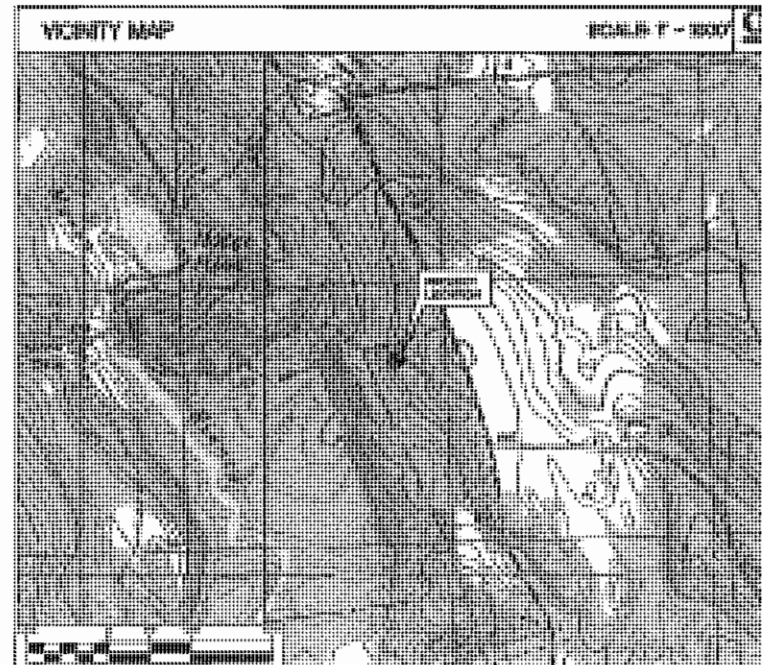
d.b.a. **verizon** wireless

## WIRELESS COMMUNICATIONS FACILITY PALMER POND PENDLETON HILL 596 PENDLETON HILL ROAD VOLUNTOWN, CT 06384

| SITE DIRECTIONS   |          |   |
|---|----------|---|
| FROM:   |          | TO:   |
| 09 EAST RIVER DRIVE<br>EAST HARTFORD, CONNECTICUT                                 |          | 596 PENDLETON HILL ROAD<br>VOLUNTOWN, CONNECTICUT |
| 1. Head Southwest on E RIVER DR toward PITKIN ST                                  | 0.9 mi.  |   |
| 2. Turn RIGHT merge onto CT-2 E toward NEWTCH                                     | 35.9 mi. |   |
| 3. Take exit 28N to merge onto I-395 N toward PROVIDENCE                          | 8.2 mi.  |   |
| 4. Take exit 05 for CT-164 toward CT-138/PRESTON CITY/PADHAUD                     | 0.2 mi.  |   |
| 5. Continue straight  | 0.4 mi.  |   |
| 6. Turn RIGHT at CT-138 E/VOLUNTOWN RD  | 0.0 mi.  |   |
| 7. Turn RIGHT toward CT-165 W/CT-49 S/BEACH DR/SHEPHERD TURNPIKE                  | 118 ft.  |   |
| 8. Turn RIGHT at CT-165 W/CT-49 S/BEACH DR/SHEPHERD TURNPIKE                      | 187 ft.  |   |
| 9. Take the 1st LEFT onto CT-4D S/PENDLETON HILL RD the site will be on the RIGHT | 2.7 mi.  |   |

| GENERAL NOTES  |
|--|
| 1. PROPOSED ANTENNA LOCATIONS AND HEIGHTS PROVIDED BY CELCO PARTNERSHIP. |

| SITE INFORMATION  |
|---|
| THE SCOPE OF WORK SHALL INCLUDE:  |
| 1. THE CONSTRUCTION OF A 60'x160' FENCED WIRELESS COMMUNICATIONS COMPOUND WITHIN A 100'x100' LEASE AREA.  |
| 2. A TOTAL OF (12) DIRECTIONAL PANEL ANTENNAS ARE PROPOSED TO BE MOUNTED AT A CENTERLINE ELEVATION OF 130'-0"± AGL ON A 130'-0"± PROPOSED STEEL MONOPOLE TOWER.   |
| 3. TOTAL ACCESS DRIVE LENGTH IS 1,085'± OFF OF PENDLETON HILL ROAD VIA AN EXISTING FARM ROAD.   |
| 4. POWER AND TELCO UTILITIES SHALL BE ROUTED UNDERGROUND FROM EXISTING RESPECTIVE DEMARCS TO THE PROPOSED UTILITY BACKBOARD LOCATED ADJACENT TO THE PROPOSED FENCED COMPOUND. FINAL DEMARC LOCATION AND UTILITY ROUTING TO PROPOSED BACKBOARD WILL BE VERIFIED/DETERMINED BY LOCAL UTILITY COMPANIES. UTILITIES WILL BE ROUTED UNDERGROUND FROM UTILITY BACKBOARD TO THE PROPOSED NOMINAL 12'x30' WIRELESS EQUIPMENT SHELTER LOCATED WITHIN FENCED COMPOUND AREA. |
| 5. FINAL DESIGN FOR TOWER AND ANTENNA MOUNTS SHALL BE INCLUDED IN THE D&M PLANS.  |
| 6. THE PROPOSED WIRELESS FACILITY INSTALLATION WILL BE DESIGNED IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2009 CONNECTICUT SUPPLEMENT.   |
| 7. THERE WILL NOT BE ANY LIGHTING UNLESS REQUIRED BY THE FCC OR THE FAA.  |
| 8. THERE WILL NOT BE ANY SIGNS OR ADVERTISING ON THE ANTENNAS OR EQUIPMENT.   |



| PROJECT SUMMARY    |   |
|--------------------|---|
| SITE NAME:         | PALMER POND   |
| SITE ADDRESS:      | 596 PENDLETON HILL ROAD<br>VOLUNTOWN, CONNECTICUT 06384   |
| PROPERTY OWNER:    | BENJAMIN GALLUP & VANNER BYRON<br>PO BOX 133<br>VOLUNTOWN, CONNECTICUT  |
| LESSEE/TEHANT:     | CELCO PARTNERSHIP<br>d.b.a. VERIZON WIRELESS<br>99 EAST RIVER DRIVE<br>EAST HARTFORD, CT 06108  |
| CONTACT PERSON:    | SAHDI CARTER<br>CELCO PARTNERSHIP<br>d.b.a. VERIZON WIRELESS<br>99 EAST RIVER DRIVE<br>EAST HARTFORD, CT 06108  |
| TOWER COORDINATES: | LATITUDE 41°-32'-26.931"<br>LONGITUDE 71°-50'-35.668"<br>PROPOSED GROUND ELEVATION: 400.70'± A.M.S.L.<br>COORDINATES AND GROUND ELEVATION BASED ON FAA A-A SURVEY CERTIFICATION AS PREPARED FOR VERIZON WIRELESS BY MARTINEZ COUCH AND ASSOCIATES DATED APRIL 4, 2013 |

| SHEET INDEX |  |          |
|-------------|--|----------|
| SHT. NO.    | DESCRIPTION                                    | REV. NO. |
| T-1         | TITLE SHEET                                    | 2        |
| C-1         | ABUTTERS MAP                                   | 1        |
| C-1A        | PARTIAL SITE PLAN                              | 2        |
| C-1B        | PARTIAL SITE PLAN                              | 1        |
| C-2         | COMPOUND PLAN AND ELEVATION                    | 1        |
| C-3         | SITE CONSTRUCTION, S&E CONTROL NOTES & DETAILS | 1        |
| C-4         | DRAINAGE CONTROL DETAILS                       | 1        |
| C-5         | SITE DETAILS AND NOTES                         | 1        |
| C-6         | SITE DETAILS AND SHELTER ELEVATIONS            | 1        |
| C-7         | SHELTER FOUND. PLAN, DETAILS AND NOTES         | 1        |

|                   |          |
|-------------------|----------|
| DESIGNED BY:      | HMR      |
| DRAWN BY:         | HMR      |
| CHECKED BY:       | DMD      |
| DATE:             | 04/05/13 |
| SCALE:            | AS NOTED |
| JOB NO.:          | 10092    |
| TITLE SHEET       |          |
| T-1               |          |
| Sheet No. 1 of 10 |          |

| NO. | DATE     | BY  | DESCRIPTION              |
|-----|----------|-----|--------------------------|
| 1   | 04/05/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 2   | 04/05/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 3   | 04/05/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 4   | 04/05/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 5   | 04/05/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 6   | 04/05/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 7   | 04/05/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 8   | 04/05/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 9   | 04/05/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 10  | 04/05/13 | HMR | ISSUED FOR CLIENT REVIEW |

Cellco Partnership  
d.b.a. Verizon Wireless

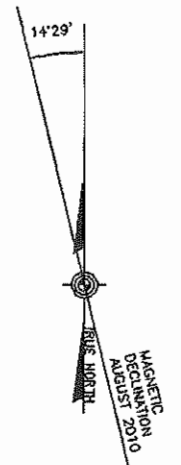
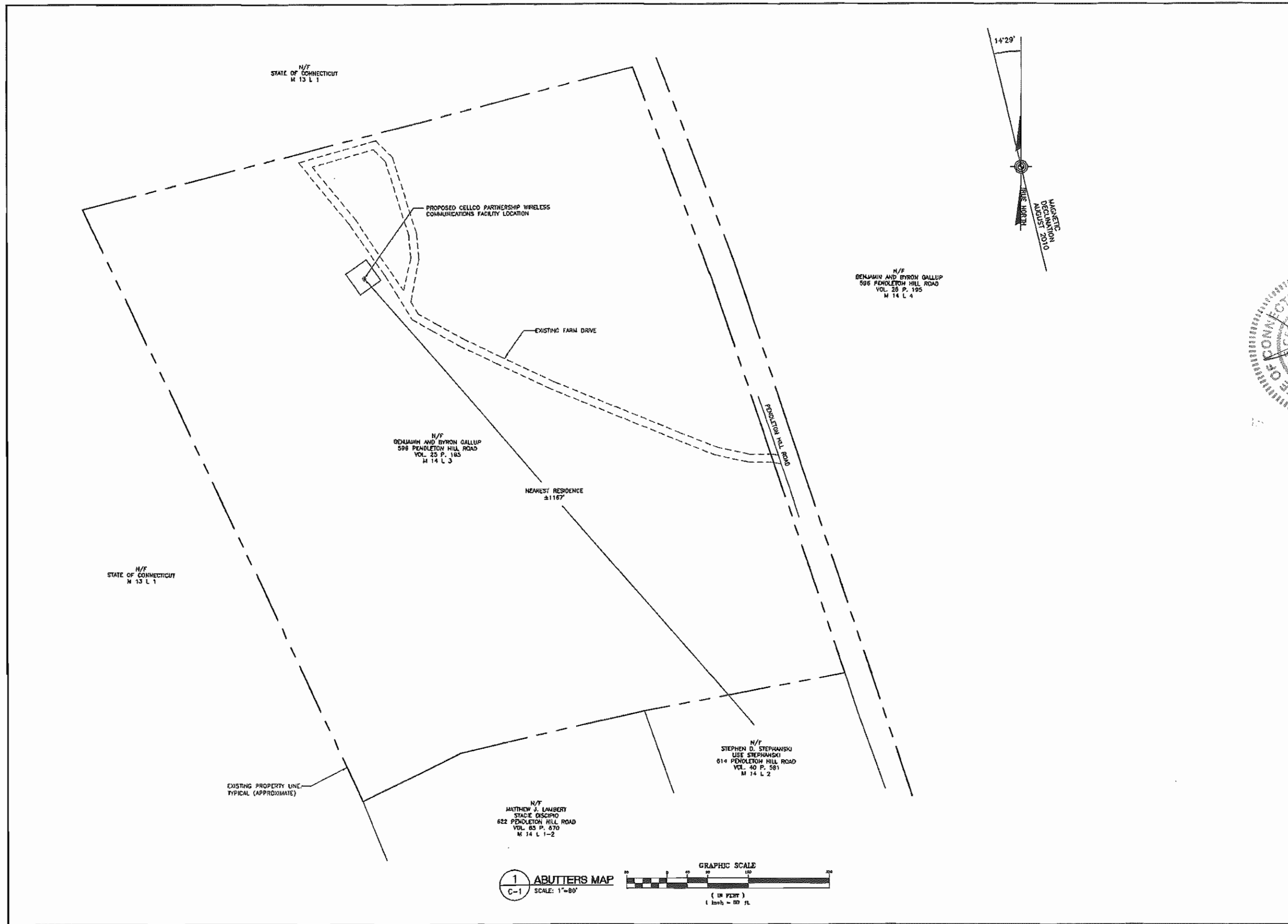
WIRELESS COMMUNICATIONS FACILITY  
**PALMER POND**  
596 PENDLETON HILL ROAD  
VOLUNTOWN, CT 06384

DATE: 04/05/13  
SCALE: AS NOTED  
JOB NO. 10092

TITLE SHEET

T-1

Sheet No. 1 of 10



|                   |          |
|-------------------|----------|
| DESIGNED BY:      | HMR      |
| DRAWN BY:         | HMR      |
| CHECKED BY:       | BMD      |
| DATE:             | 04/08/13 |
| SCALE:            | AS NOTED |
| JOB NO.:          | 10092    |
| ABUTTERS MAP      |          |
| C-1               |          |
| Sheet No. 2 of 10 |          |

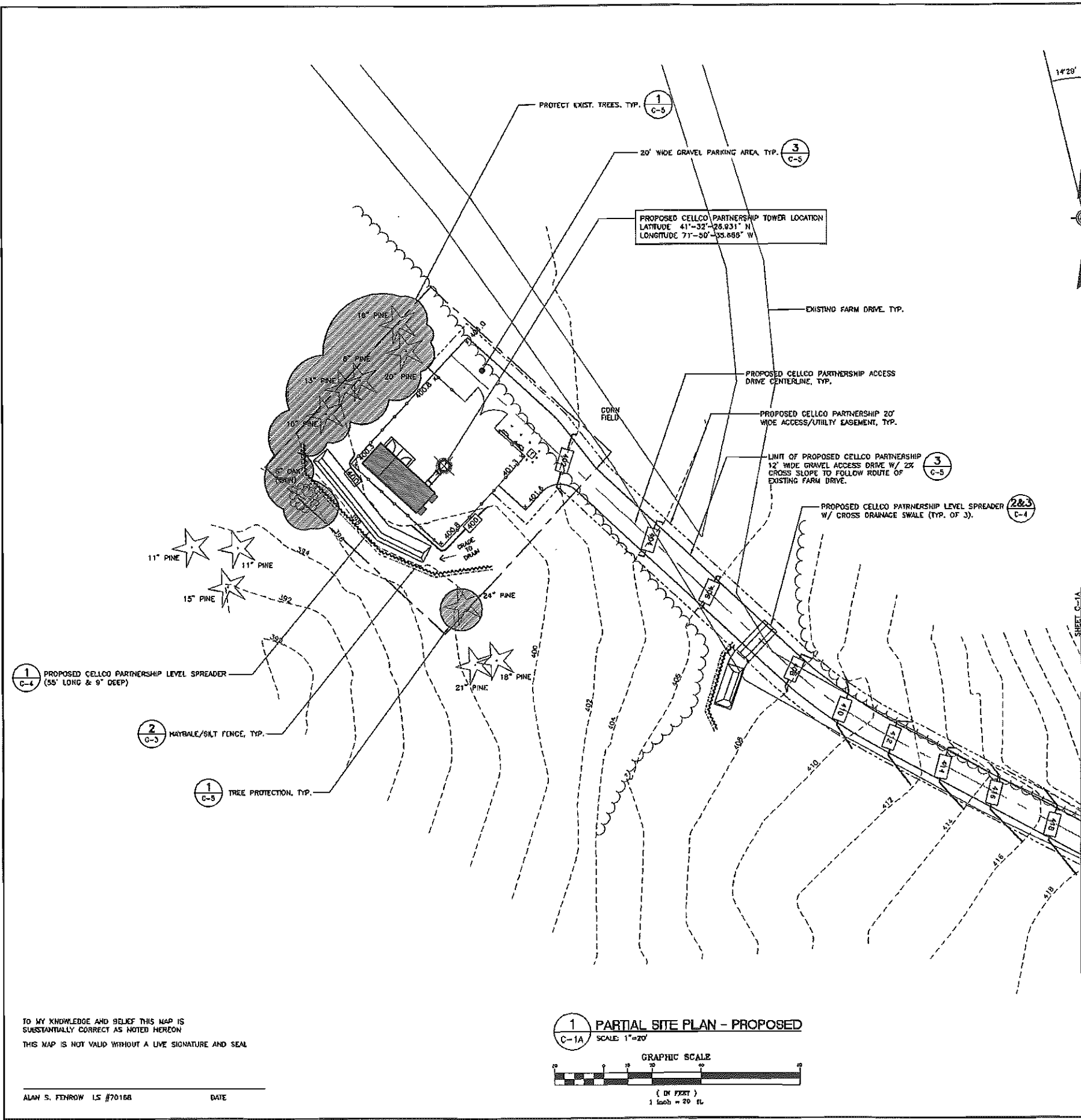
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| 3   | 0    | 04/08/13 | HMR |                          |
| 4   | 0    | 04/08/13 | HMR |                          |
| 5   | 0    | 04/08/13 | HMR |                          |
| 6   | 0    | 04/08/13 | HMR |                          |
| 7   | 0    | 04/08/13 | HMR |                          |
| 8   | 0    | 04/08/13 | HMR |                          |
| 9   | 0    | 04/08/13 | HMR |                          |
| 10  | 0    | 04/08/13 | HMR |                          |

**CELLCO PARTNERSHIP**  
 d.b.a. **Verizon Wireless**

**CENITEK**  
 COMMUNICATIONS FACILITY  
 1000 W. MAIN ST.  
 SUITE 100  
 BLOOMINGTON, CT 06033  
 www.Cenitek.com

**Cellco Partnership d/b/a Verizon Wireless**  
 WIRELESS COMMUNICATIONS FACILITY  
**PALMER POND**  
 596 PENDELETON HILL ROAD  
 VOLUNTOON, CT 06394



**SYMBOLS LEGEND**

|         |   |
|---------|---|
| ---     | PROPERTY LINE   |
| - - - - | EASEMENT LINE (PROPOSED)                                    |
| ---     | DRIVE (EXISTING)  |
| ---     | ACCESS DRIVE (PROPOSED)                                     |
| ---     | LEASE LINE (PROPOSED)                                       |
| ---     | CONTOUR LINE  |
| ---     | GRADING LINE  |
| ○       | UTILITY POLE  |
| ○       | EXISTING DECIDUOUS TREE                                     |
| ✕       | EXISTING CONIFEROUS TREE                                    |
| ✕       | EXISTING DECIDUOUS TREE TO BE REMOVED                       |
| ✕       | EXISTING CONIFEROUS TREE TO BE REMOVED                      |
| ○       | EXISTING DECIDUOUS TREE TO BE PROTECTED DURING CONSTRUCTION |
| ---     | SILTATION FENCE/ HAYBALES/ SILTATION FENCE "SANDWICH"       |
| ---     | FENCE LINE  |
| ✕       | SPOT ELEVATION (PROPOSED)                                   |
| ---     | LEASE AREA  |

**ESTIMATED TREE REMOVAL SUMMARY**

|  |            |
|--|------------|
| TREES PROPOSED TO BE REMOVED IN LOCATION ALONG PROPOSED CELCO PARTNERSHIP 20' WIDE ACCESS EASEMENT | = 0        |
| TREES PROPOSED TO BE REMOVED WITHIN AND AROUND THE PROPOSED CELCO PARTNERSHIP LEASE AREA           | = 0        |
| <b>TOTAL TREES PROPOSED TO BE REMOVED</b>  | <b>= 0</b> |

**SURVEY NOTES**

THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

THIS SURVEY DEPICTS EXISTING CONDITIONS FOR A PROPOSED TELECOMMUNICATIONS SITE.

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THIS SURVEY CONFORMS TO CLASS 0 HORIZONTAL ACCURACY STANDARDS AND CLASS 1-2 TOPOGRAPHIC ACCURACY STANDARDS.

COORDINATES DEPICTED HEREON REFER TO THE CONNECTICUT COORDINATE SYSTEM (NAD 83) ESTABLISHED WITH GPS UNDER THE GUIDELINES AND SPECIFICATIONS FOR GLOBAL NAVIGATION SATELLITE SYSTEM LAND SURVEYS IN CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON JUNE 26, 2008.

ELEVATIONS DEPICTED HEREON ARE BASED UPON CONNECTICUT GEODETIC SURVEY STATION 1465 NGVD 29 DATUM WITH ELEVATION = 285.492 FEET.

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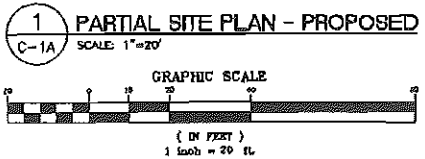
SUBJECT PARCEL AREA IS ±29.06 ACRES.

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TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON  
THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE AND SEAL

ALAN S. FENROW LS #70168 DATE



DESIGNED BY: HMR  
DRAWN BY: HMR  
CHECKED BY: DMD

| NO. | DATE     | BY  | DESCRIPTION                    |
|-----|----------|-----|--------------------------------|
| 1   | 04/05/13 | HMR | CSC - REVISED PARCEL ACROSSAGE |
| 2   | 07/12/13 | HMR | CSC - REVISED PARCEL ACROSSAGE |
| 3   | 07/12/13 | HMR | CSC - REVISED PARCEL ACROSSAGE |
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Cellco Partnership  
d.b.a. Verizon Wireless

CENTER eng'g  
d.b.a. Cellco

CELLCO PARTNERSHIP  
596 FENDLETON HILL ROAD  
VOLUNTOWN, CT 06884

DATE: 04/05/13  
SCALE: AS NOTED  
JOB NO. 10092

**PARTIAL SITE PLAN**

**C-1A**  
Sheet No. 3 of 10

|              |     |
|--------------|-----|
| DESIGNED BY: | HMR |
| DRAWN BY:    | HMR |
| CHECKED BY:  | DHB |

|         |          |
|---------|----------|
| DATE    | 04/05/13 |
| SCALE   | AS NOTED |
| JOB NO. | 10092    |

**PARTIAL SITE PLAN**

**C-1B**

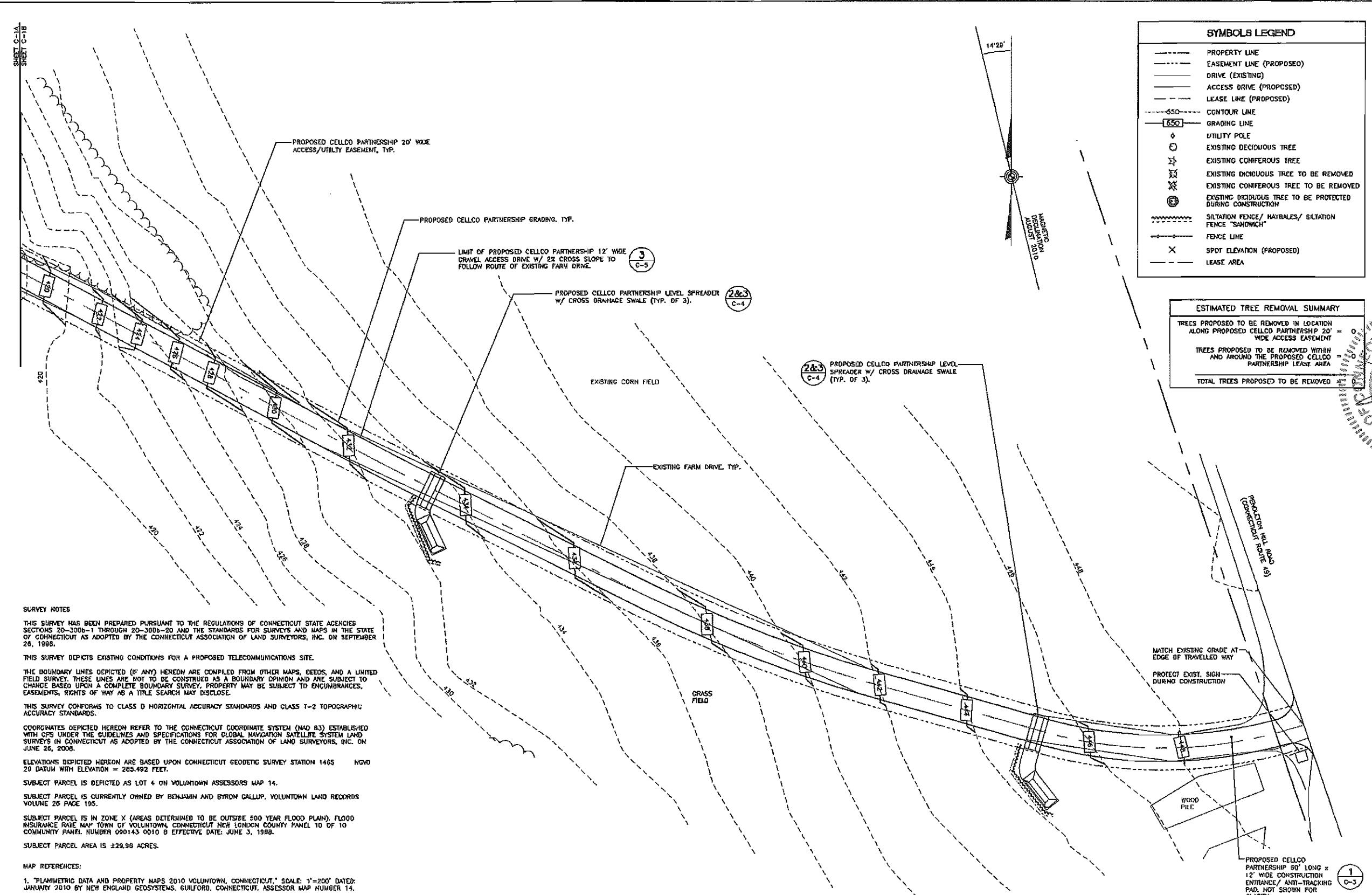
Sheet No. 4 of 10

**SYMBOLS LEGEND**

- PROPERTY LINE
- - - EASEMENT LINE (PROPOSED)
- DRIVE (EXISTING)
- ACCESS DRIVE (PROPOSED)
- LEASE LINE (PROPOSED)
- 550 --- CONTOUR LINE
- 650 --- GRADING LINE
- UTILITY POLE
- EXISTING DECIDUOUS TREE
- ★ EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE TO BE REMOVED
- ★ EXISTING CONIFEROUS TREE TO BE REMOVED
- EXISTING DECIDUOUS TREE TO BE PROTECTED DURING CONSTRUCTION
- SITUATION FENCE/ HAYBALES/ SITUATION FENCE "SANDWICH"
- FENCE LINE
- X SPOT ELEVATION (PROPOSED)
- - - LEASE AREA

**ESTIMATED TREE REMOVAL SUMMARY**

|  |          |
|--|----------|
| TREES PROPOSED TO BE REMOVED IN LOCATION ALONG PROPOSED CELCO PARTNERSHIP 20' WIDE ACCESS EASEMENT | 0        |
| TREES PROPOSED TO BE REMOVED WITHIN AND AROUND THE PROPOSED CELCO PARTNERSHIP LEASE AREA           | 0        |
| <b>TOTAL TREES PROPOSED TO BE REMOVED</b>  | <b>0</b> |



**SURVEY NOTES**

THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 25, 1988.

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COORDINATES DEPICTED HEREDON REFER TO THE CONNECTICUT COORDINATE SYSTEM (NAD 83) ESTABLISHED WITH GPS UNDER THE GUIDELINES AND SPECIFICATIONS FOR GLOBAL NAVIGATION SATELLITE SYSTEM LAND SURVEYS IN CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON JUNE 26, 2008.

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SUBJECT PARCEL IS DEPICTED AS LOT 4 ON VOLUNTOWN ASSESSORS MAP 14.

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SUBJECT PARCEL IS IN ZONE X (AREAS DETERMINED TO BE OUTSIDE 500 YEAR FLOOD PLAIN). FLOOD INSURANCE RATE MAP TOWN OF VOLUNTOWN, CONNECTICUT NEW LONDON COUNTY PANEL 10 OF 10 COMMUNITY PANEL NUMBER 090143 0010 B EFFECTIVE DATE: JUNE 3, 1988.

SUBJECT PARCEL AREA IS ±29.98 ACRES.

**MAP REFERENCES:**

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TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREDON

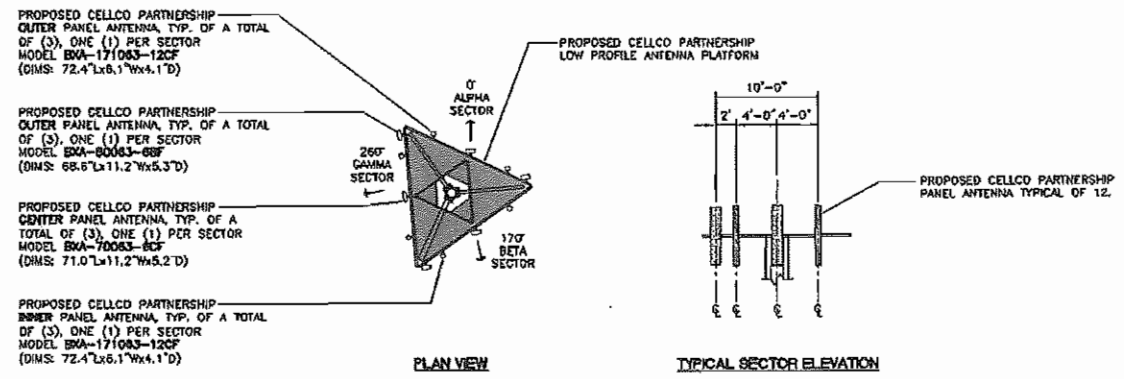
THIS MAP IS NOT VALID WITHOUT A LINE SIGNATURE AND SEAL

**1 PARTIAL SITE PLAN - PROPOSED**  
C-1B SCALE: 1"=20'

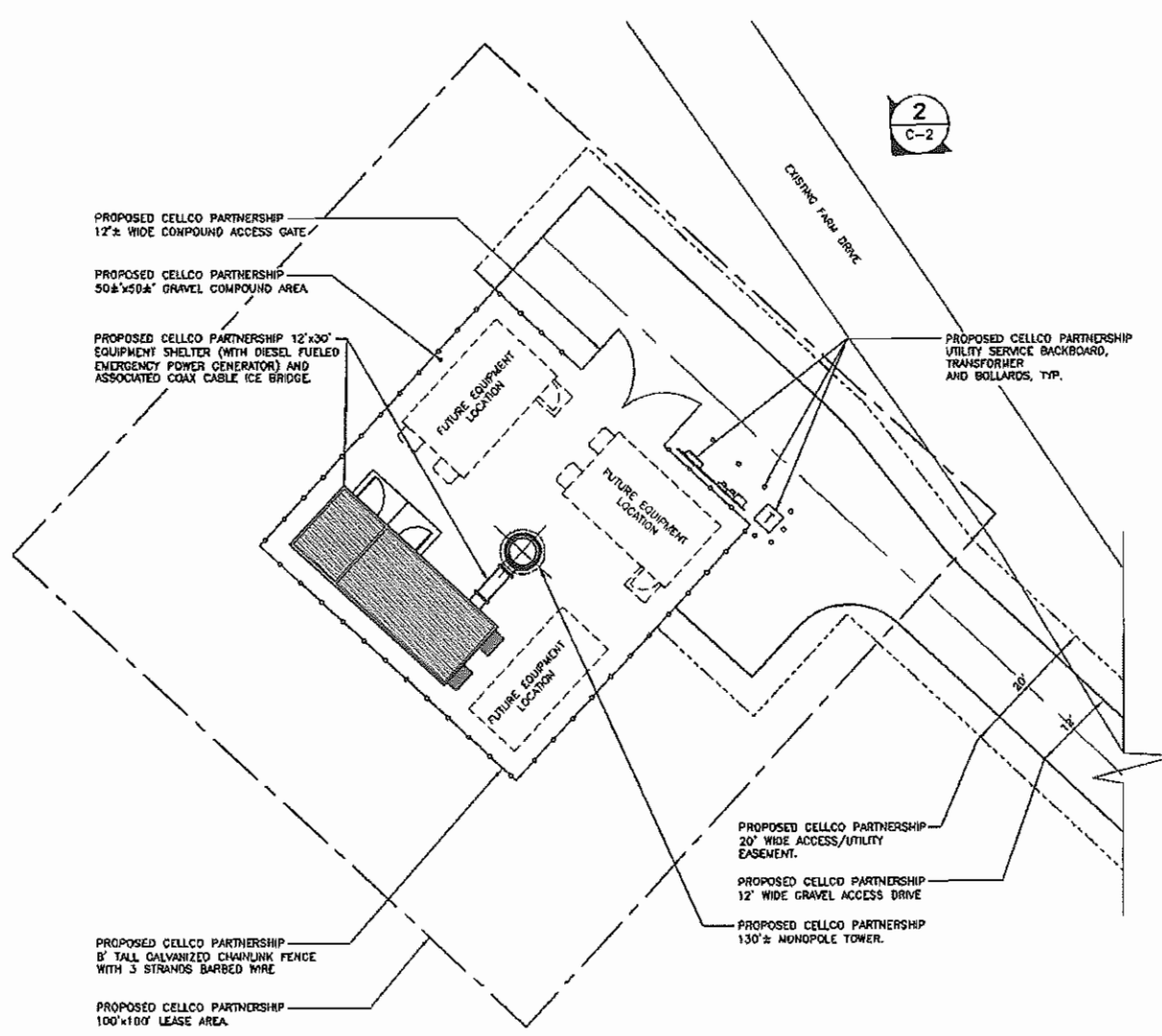
GRAPHIC SCALE

( IN FEET )  
1 inch = 20 ft.

ALAN S. FENROW LS #70168 DATE

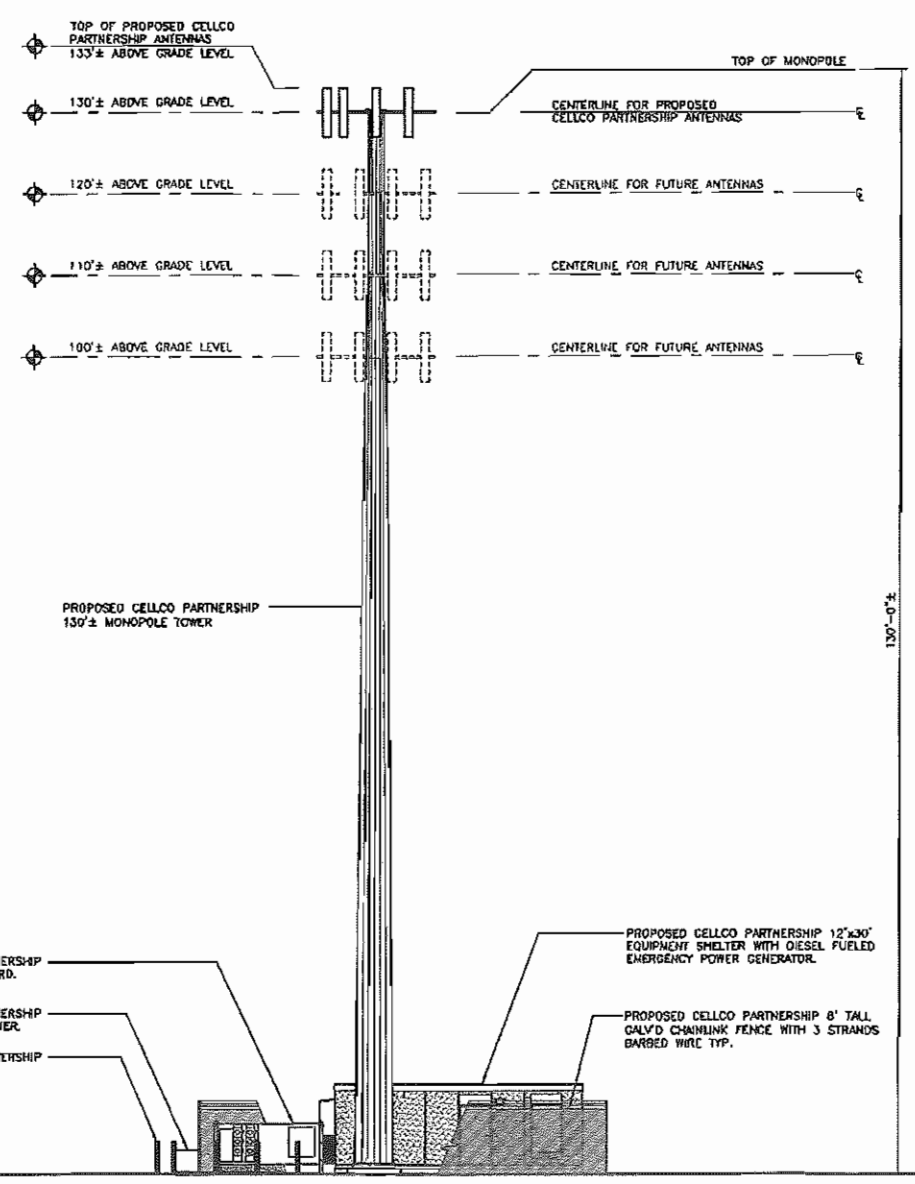


**3 ANTENNA MOUNTING CONFIGURATION**  
 NOT TO SCALE



**1 COMPOUND PLAN**  
 SCALE: 1" = 20'

**GRAPHIC SCALE**  
 ( IN FEET )  
 1 inch = 20 ft.



**2 NORTHEAST ELEVATION**  
 SCALE: 1" = 10'

**GRAPHIC SCALE**  
 ( IN FEET )  
 1 inch = 10 ft.

|  |          |
|--|----------|
| DESIGNED BY:   | HMR      |
| DRAWN BY:  | HMR      |
| CHECKED BY:  | END      |
| DATE:  | 04/05/13 |
| SCALE:   | AS NOTED |
| JOB NO.:   | 10092    |
| <b>Cellco Partnership d/b/a Verizon Wireless</b><br>WIRELESS COMMUNICATIONS FACILITY<br><b>PALMER POND</b><br>586 FENDLETON HILL ROAD<br>VOLUNTOON, CT 06884 |          |
| <b>C-2</b><br>Sheet No. 2 of 10  |          |













# **PALMER POND**

**Site 2  
53 Gallup Road  
Voluntown, Connecticut**

Description of Proposed Cell Site

Cellco Partnership d/b/a Verizon Wireless  
99 East River Drive  
East Hartford, CT 06108

## TABLE OF CONTENTS

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| GENERAL CELL SITE DESCRIPTION .....         | 1           |
| U.S.G.S. TOPOGRAPHIC MAP .....              | 2           |
| AERIAL PHOTOGRAPH .....                     | 3           |
| SITE EVALUATION REPORT .....                | 4           |
| FACILITIES AND EQUIPMENT SPECIFICATION..... | 6           |
| ENVIRONMENTAL ASSESSMENT STATEMENT.....     | 7           |

SITE NAME: SITE 2 – 53 GALLUP ROAD, VOLUNTOWN, CT

GENERAL CELL SITE DESCRIPTION

The proposed Palmer Pond Alternate Site No. 2 cell site would be located in the southeast portion of an approximately 261 acre parcel owned by Benjamin Gallup and Byron D. Gallup (the “Site 2 Facility”). The Site 2 Facility would consist of a 150-foot telecommunications tower and a 12’ x 30’ equipment shelter located near the base of the tower. The shelter would house Cellco’s radio equipment and a propane-fueled back-up generator. The tower, equipment shelter and 1,000 gallon propane tank will be maintained within a 50’ x 52’ fenced compound within a larger leased area.

Cellco’s antennas would be mounted with their centerline at the 150-foot level. The top of Cellco’s antennas would extend above the top of the tower to an overall height of approximately 163 feet. Vehicular access to the site would extend from Gallup Road over a new gravel dirt driveway a distance of approximately 80 feet to the site compound. Utility service would extend underground from Gallup Road to the cell site.

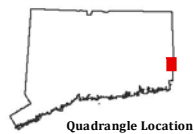
# Site Location Map



Source: U.S.G.S. 7.5 Minute Topographic  
Quadrangle Maps (Roxbury, Woodbury)

Site 1 - 596 Pendleton Hill Road  
Site 2 - 53 Gallup Road  
Voluntown, Connecticut

Monday, April 22, 2013



verizon wireless

ALL-POINTS  
TECHNOLOGY CORPORATION



# Site Aerial Map



Base Map Source: 2010 Bing Color Aerial Photograph with 1-foot Resolution

### Legend

-  Site 1
-  Site 2

**Site 1 - 596 Pendleton Hill Road**  
**Site 2 - 53 Gallup Road**  
**Voluntown, Connecticut**

**Monday, April 22, 2013**

1 inch equals 667 feet

0 125 250 500 Feet





## SITE EVALUATION REPORT

SITE NAME: SITE 2 – 53 GALLUP ROAD, VOLUNTOWN, CT

### I. TOWER LOCATION

- A. COORDINATES: 41°-32'-12.496" N 71°-49'-45.356" W
- B. GROUND ELEVATION: Approximately 458± feet AMSL
- C. USGS MAP: Voluntown, CT
- D. SITE ADDRESS: 53 Gallup Road, Voluntown, CT
- E. ZONING WITHIN 1/4 MILE OF SITE: Land within 1/4 mile of the cell site is in the Rural zone district.

### II. DESCRIPTION

- A. SITE SIZE: 100' x 100' Leased Area  
50' x 52' Fenced Compound
- B. LESSOR'S PARCEL: Approximately 261 acres
- C. TOWER TYPE/HEIGHT: 150' Monopole Tower  
153' Top of Antennas
- D. SITE TOPOGRAPHY AND SURFACE: Topography in the area of the site is generally flat. Clearing and grading for construction of the site compound and access drive will be required. Cellco anticipates the need to remove 29 trees, 6" or greater diameter at breast height ("dbh") to construct the Site 2 access driveway and facility compound.
- E. SURROUNDING TERRAIN, VEGETATION, WETLANDS, OR WATER: The tower is located in the southeast portion of a 200 acre parcel used for residential and agricultural purposes. The closest wetland area is located approximately 160 feet to the northeast of the Site 2 Facility compound.
- F. LAND USE WITHIN 1/4 MILE OF SITE: The Site 2 Facility is located on a 200 acre parcel used for agricultural and residential purposes. The property is surrounded by agricultural land, portions of the Pachaug State Forest and low density residential land uses. (See Aerial Photograph at p. 3).

III. FACILITIES

- A. POWER COMPANY: Connecticut Light and Power
- B. POWER PROXIMITY TO SITE: Approximately 80 feet along the proposed access road to Gallup Road to the east of the Site 2 Facility.
- C. TELEPHONE COMPANY: AT&T
- D. PHONE SERVICE PROXIMITY: Same as power
- E. VEHICLE ACCESS TO SITE: Vehicle access to the site would extend from Gallup Road over an existing gravel driveway a distance of 80 feet.
- F. CLEARING AND FILL REQUIRED: Tree clearing and grading would be required for construction of the tower, site compound and access drive. Detailed construction plans would be developed if this location is approved by the Siting Council.

IV. LEGAL

- A. PURCHASE [ ] LEASE [X]
- B. OWNER: Benjamin Gallup and Byron D. Gallup
- C. ADDRESS: 53 Gallup Road, Voluntown, CT 06384
- D. DEED ON FILE AT: Town of Voluntown, CT Land Records



## ENVIRONMENTAL ASSESSMENT STATEMENT

SITE NAME: SITE 2 – 53 GALLUP ROAD, VOLUNTOWN, CT

### I. PHYSICAL IMPACT

#### A. WATER FLOW AND QUALITY

No water flow and/or water quality changes are anticipated as a result of the construction or operation of the facility. There are no lakes, ponds, rivers, streams, wetlands or other regulated bodies of water located in the area to be used for the access drive, tower or equipment shelter. The equipment used will not discharge any pollutants to area surface or groundwater systems. The closest wetland area is located approximately 160 feet to the northeast of the Site 2 Facility compound.

#### B. AIR QUALITY

Under ordinary operating conditions, the equipment that would be used at the site would emit no air pollutants of any kind. For limited periods during power outages and periodically for maintenance purposes, minor levels of emissions from the on-site generator would result.

Pursuant to R.C.S.A. § 22a-174-3, the on-site emergency back-up generator proposed as a part of this application would require the issuance of a Connecticut Department of Environmental Protection Air Bureau permit for potential emissions. Cellco would obtain this permit prior to installing the generator at the approved cell site.

#### C. LAND

Clearing and grading of the tower compound and access drive will be required. The remaining land of the Lessor would remain unchanged by the construction and operation of the cell site.

#### D. NOISE

The equipment to be in operation at the site after construction would emit no noise of any kind, except for operation of the installed heating, air conditioning and ventilation systems and occasional operation of a back-up generator which would be run during power failures and periodically for maintenance purposes. Some noise is anticipated during cell site construction, which is expected to take approximately four to six weeks.

E. POWER DENSITY

The worst-case calculation of power density for Celco's cellular, PCS and LTE antennas at the Site 2 Facility would be 13.20% of the Standard.

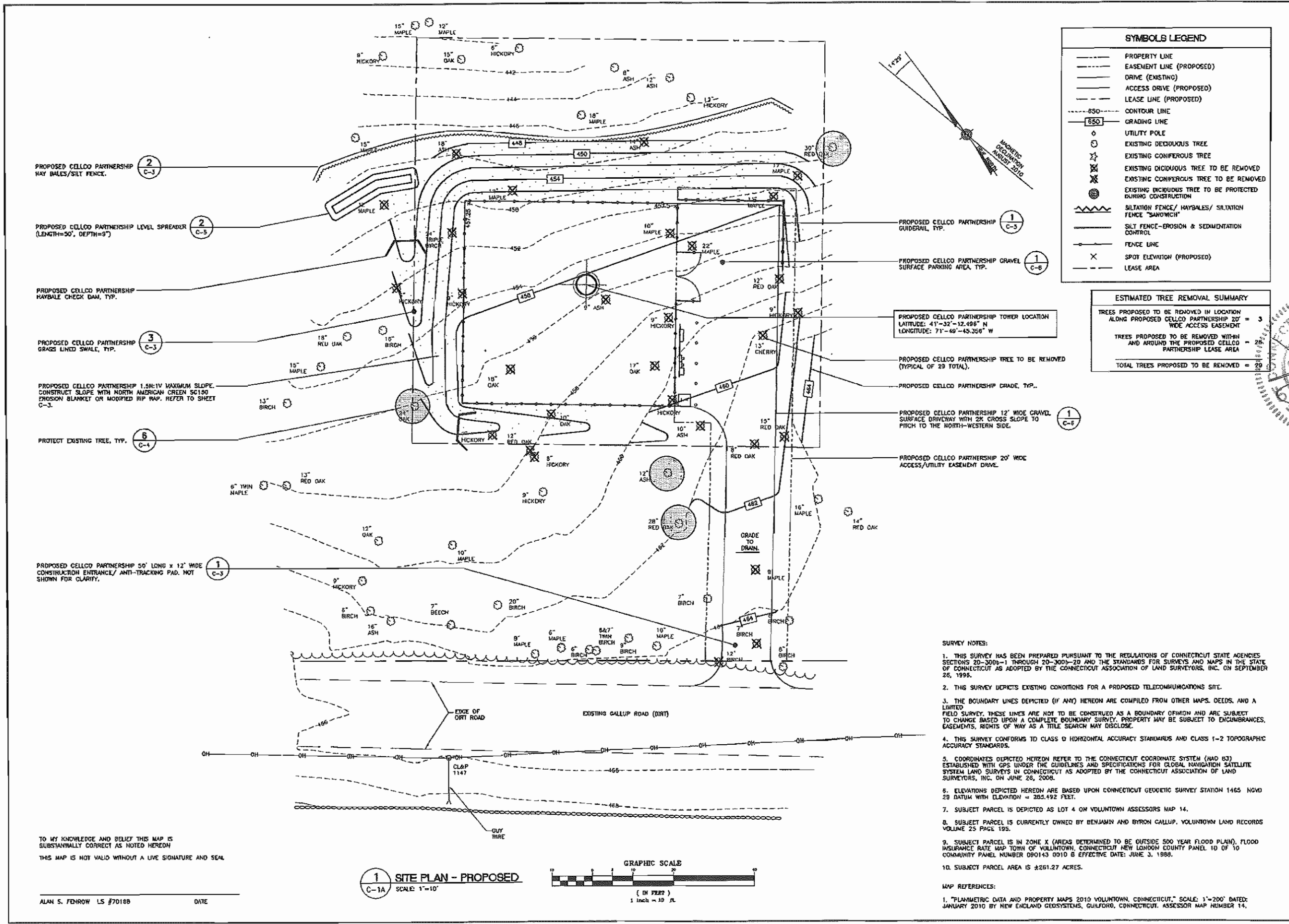
F. VISIBILITY

See Visibility Report included as Attachment 10.









**SYMBOLS LEGEND**

- PROPERTY LINE
- - - EASEMENT LINE (PROPOSED)
- DRIVE (EXISTING)
- ACCESS DRIVE (PROPOSED)
- - - LEASE LINE (PROPOSED)
- 550 --- CONTOUR LINE
- 550 --- GRADING LINE
- UTILITY POLE
- EXISTING DECIDUOUS TREE
- ⊗ EXISTING CONIFEROUS TREE
- ⊗ EXISTING DECIDUOUS TREE TO BE REMOVED
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- ~ SILTATION FENCE/ HAYBALES/ SILTATION FENCE "SANDWICH"
- SILT FENCE-EROSION & SEDIMENTATION CONTROL
- FENCE LINE
- ⊗ SPOT ELEVATION (PROPOSED)
- - - LEASE AREA

**ESTIMATED TREE REMOVAL SUMMARY**

TREES PROPOSED TO BE REMOVED IN LOCATION ALONG PROPOSED CELLCO PARTNERSHIP 20' WIDE ACCESS EASEMENT = 3

TREES PROPOSED TO BE REMOVED WITHIN AND AROUND THE PROPOSED CELLCO PARTNERSHIP LEASE AREA = 29

TOTAL TREES PROPOSED TO BE REMOVED = 32

PROPOSED CELLCO PARTNERSHIP TOWER LOCATION  
 LATITUDE: 41°-32'-12.496" N  
 LONGITUDE: 71°-49'-45.359" W

**SURVEY NOTES:**

- THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1995.
- THIS SURVEY DEPICTS EXISTING CONDITIONS FOR A PROPOSED TELECOMMUNICATIONS SITE.
- THE BOUNDARY LINES DEPICTED (IF ANY) HEREON ARE COMPILED FROM OTHER MAPS, DEEDS, AND A LIMITED FIELD SURVEY. THESE LINES ARE NOT TO BE CONSTRUED AS A BOUNDARY OPINION AND ARE SUBJECT TO CHANGE BASED UPON A COMPLETE BOUNDARY SURVEY. PROPERTY MAY BE SUBJECT TO ENCUMBRANCES, EASEMENTS, RIGHTS OF WAY AS A TITLE SEARCH MAY DISCLOSE.
- THIS SURVEY CONFORMS TO CLASS D HORIZONTAL ACCURACY STANDARDS AND CLASS 1-2 TOPOGRAPHIC ACCURACY STANDARDS.
- COORDINATES DEPICTED HEREON REFER TO THE CONNECTICUT COORDINATE SYSTEM (NAD 83) ESTABLISHED WITH GPS UNDER THE GUIDELINES AND SPECIFICATIONS FOR GLOBAL NAVIGATION SATELLITE SYSTEM LAND SURVEYS IN CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON JUNE 28, 2008.
- ELEVATIONS DEPICTED HEREON ARE BASED UPON CONNECTICUT GEODETIC SURVEY STATION 1465 NVD 29 DATUM WITH ELEVATION = 285.492 FEET.
- SUBJECT PARCEL IS DEPICTED AS LOT 4 ON VOLUNTOWN ASSESSORS MAP 14.
- SUBJECT PARCEL IS CURRENTLY OWNED BY BENJAMIN AND BYRON GALLUP, VOLUNTOWN LAND RECORDS VOLUME 25 PAGE 195.
- SUBJECT PARCEL IS IN ZONE X (AREAS DETERMINED TO BE OUTSIDE 500 YEAR FLOOD PLAN), FLOOD INSURANCE RATE MAP TOWN OF VOLUNTOWN, CONNECTICUT NEW LONDON COUNTY PANEL 10 OF 10 COMMUNITY PANEL NUMBER 090143 0010 & EFFECTIVE DATE: JUNE 3, 1989.
- SUBJECT PARCEL AREA IS ±261.27 ACRES.

**MAP REFERENCES:**

- "PLANIMETRIC DATA AND PROPERTY MAPS 2010 VOLUNTOWN, CONNECTICUT," SCALE: 1"=200' DATED: JANUARY 2010 BY NEW ENGLAND GEOSYSTEMS, GUILFORD, CONNECTICUT, ASSESSOR MAP NUMBER 14.

DESIGNED BY: HMR  
 DRAWN BY: HMR  
 CHECKED BY: DHD

| NO. | DATE     | BY  | REVISION                 |
|-----|----------|-----|--------------------------|
| 1   | 04/05/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 2   | 04/25/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 3   | 04/25/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 4   | 04/25/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 5   | 04/25/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 6   | 04/25/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 7   | 04/25/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 8   | 04/25/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 9   | 04/25/13 | HMR | ISSUED FOR CLIENT REVIEW |
| 10  | 04/25/13 | HMR | ISSUED FOR CLIENT REVIEW |

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**PALMER POND**  
 GALLUP FARM  
 65 GALLUP ROAD  
 VOLUNTOWN, CT 06984

DATE: 04/05/13  
 SCALE: AS NOTED  
 JOB NO. 10093

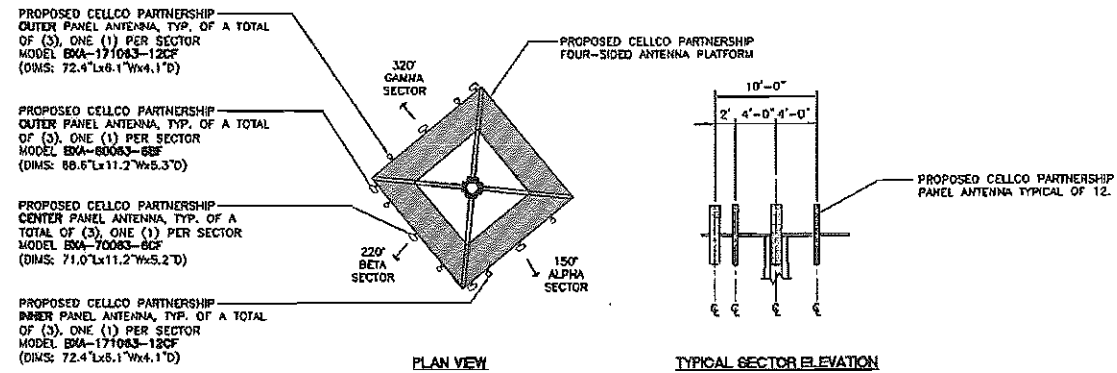
**SITE PLAN**

**C-1A**  
 Sheet No. 2 of 2

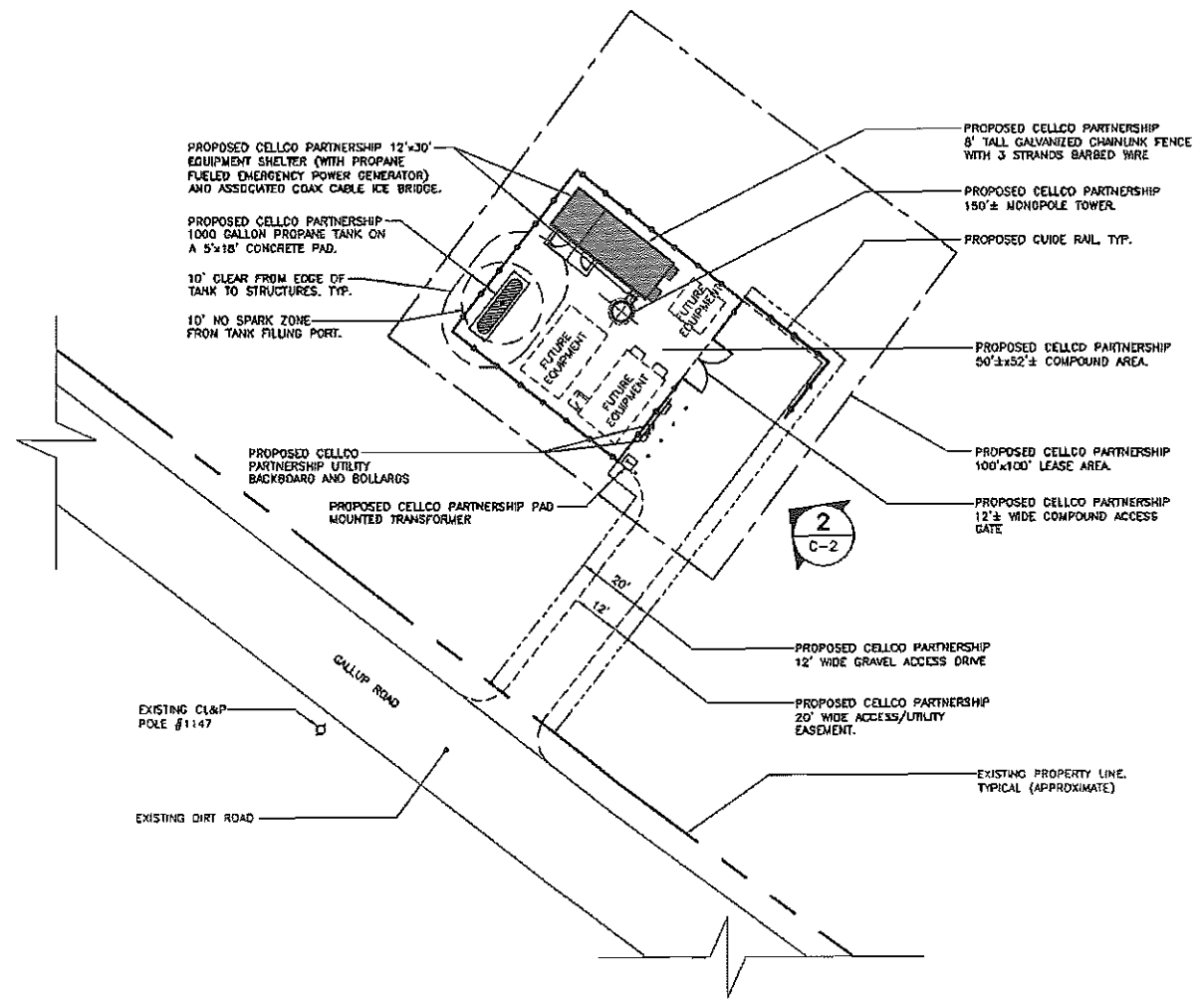
TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON. THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE AND SEAL.

ALAN S. FENROW LS #70188 DATE

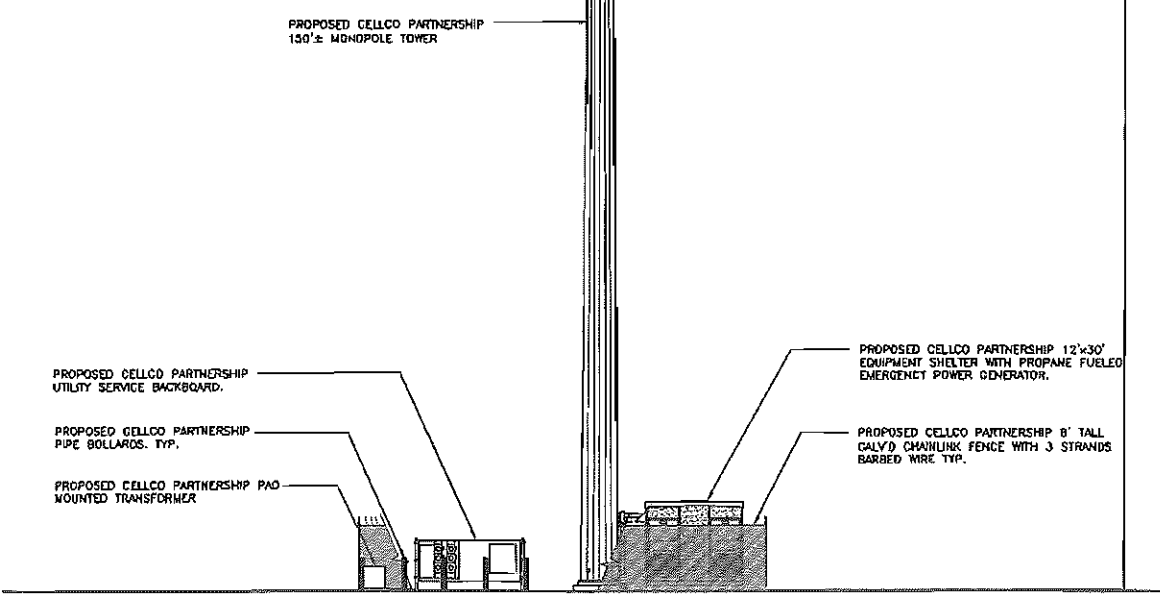
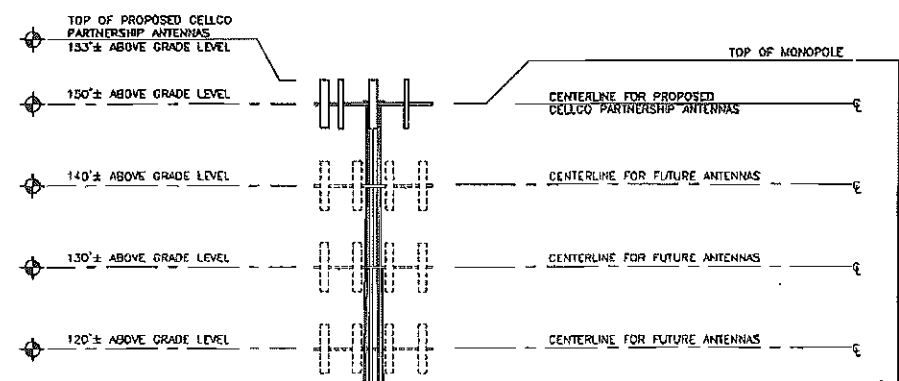
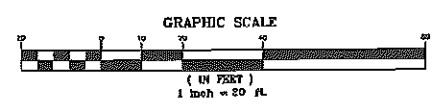




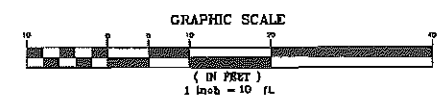
**3 ANTENNA MOUNTING CONFIGURATION**  
 NOT TO SCALE



**1 COMPOUND PLAN**  
 SCALE: 1" = 20'



**2 EAST ELEVATION**  
 SCALE: 1" = 10'



DESIGNED BY: HNR  
 DRAWN BY: HNR  
 CHECKED BY: EWD

| NO. | DATE     | BY  | DESCRIPTION              |
|-----|----------|-----|--------------------------|
| 1   | 04/05/13 | HNR | ISSUED FOR CLIENT REVIEW |
| 2   | 04/05/13 | HNR | ISSUED FOR CLIENT REVIEW |
| 3   | 04/05/13 | HNR | ISSUED FOR CLIENT REVIEW |
| 4   | 04/05/13 | HNR | ISSUED FOR CLIENT REVIEW |
| 5   | 04/05/13 | HNR | ISSUED FOR CLIENT REVIEW |
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| 10  | 04/05/13 | HNR | ISSUED FOR CLIENT REVIEW |

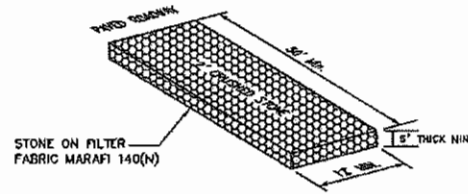
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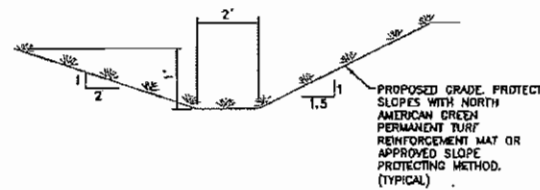
DATE: 04/05/13  
 SCALE: AS NOTED  
 JOB NO. 10093

**COMPOUND PLAN AND ELEVATION**

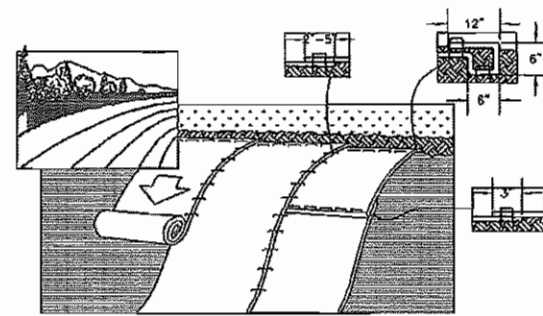
**C-2**  
 Sheet No. 1 of 2



**1 CONSTRUCTION ENTRANCE ANTI-TRACKING PAD**  
C-3 NOT TO SCALE



**3 TYPICAL SWALE SECTION**  
C-3 NOT TO SCALE



**4 REINFORCEMENT BLANKET INSTALLATION ON SLOPE**  
C-3 NOT TO SCALE

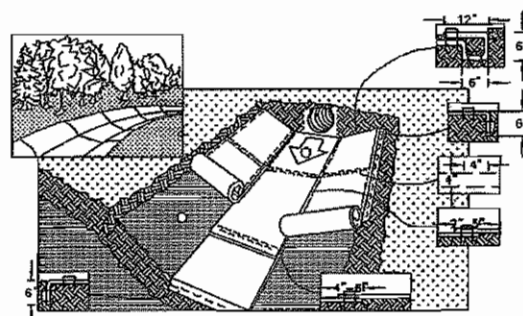
**GENERAL CONSTRUCTION / PRE-CONSTRUCTION NOTES**

- PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES, A MANDATORY ON-SITE PRE-CONSTRUCTION MEETING SHALL BE CONDUCTED WITH THE VERIZON WIRELESS CONSTRUCTION MANAGER, CONTRACTOR'S CONSTRUCTION MANAGER, THE PROJECT EROSION AND SEDIMENTATION CONTROL/ENVIRONMENTAL MONITOR AND THE ENGINEER OF RECORD.
- THE SOUTHERN PROPERTY LINE ADJACENT TO THE PROPOSED ACCESS DRIVE IS STAKED IN FIELD. THE CONTRACTOR SHALL MAINTAIN THE PROPERTY LINE STAKE LOCATIONS DURING THE ENTIRE PERIOD OF CONSTRUCTION. ALL CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED ON THE SUBJECT PROPERTY.

**GENERAL CONSTRUCTION SEQUENCE**

THIS IS A GENERAL CONSTRUCTION SEQUENCE OUTLINE SOME ITEMS OF WHICH MAY NOT APPLY TO PARTICULAR SITES.

- CUT AND STUMP AREAS OF PROPOSED CONSTRUCTION.
- INSTALL TEMPORARY SEGMENT AND EROSION CONTROL MEASURES AS REQUIRED.
- REMOVE AND STOCKPILE TOPSOIL. STOCKPILE SHALL BE SEED TO PREVENT EROSION.
- CONSTRUCT CLOSED DRAINAGE SYSTEM. PRECEPT CULVERT INLETS AND CATCH BASINS WITH SEDIMENTATION BARRIERS.
- CONSTRUCT ROADWAYS AND PERFORM SITE GRADING, PLACING HAY BALES AND SILTATION FENCES AS REQUIRED TO CONTROL SOIL EROSION.
- INSTALL UNDERGROUND UTILITIES.
- BEGIN TEMPORARY AND PERMANENT SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEED OR MULCHED IMMEDIATELY AFTER THEIR CONSTRUCTION. NO AREA SHALL BE LEFT UNSTABILIZED FOR A TIME PERIOD OF MORE THAN 30 DAYS.
- DAILY, OR AS REQUIRED, CONSTRUCT, INSPECT, AND IF NECESSARY, RECONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, SILT FENCES AND SEDIMENT TRAPS INCLUDING MULCHING AND SEEDING.
- BEGIN EXCAVATION FOR AND CONSTRUCTION OF TOWERS AND PLATFORMS.
- FINISH PAVING ALL ROADWAYS, DRIVES, AND PARKING AREAS.
- COMPLETE PERMANENT SEEDING AND LANDSCAPING.
- NO FLOW SHALL BE DIVERTED TO ANY WETLANDS UNTIL A HEALTHY STAND OF GRASS HAS BEEN ESTABLISHED IN REGARDED AREAS.
- AFTER GRASS HAS BEEN FULLY GERMINATED IN ALL SEEDED AREAS, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.



**5 REINFORCEMENT BLANKET INSTALLATION IN CHANNEL**  
C-3 NOT TO SCALE

**SOIL EROSION AND SEDIMENT CONTROL SEQUENCE**

- ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES, SUCH AS CONSTRUCTION ENTRANCE / ANTI TRACKING PAD, SILTATION FENCE, AND SILTATION FENCE / HAY BALE SHALL BE IN PLACE PRIOR TO ANY GRADING ACTIVITY. INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES. MEASURES SHALL BE LEFT IN PLACE AND MAINTAINED UNTIL CONSTRUCTION IS COMPLETED AND/OR AREA IS STABILIZED.
- THE ENTRANCE TO THE PROJECT SITE IS TO BE PROTECTED BY STONE ANTI TRACKING PAD OF ASTM C-33, SIZE NO. 2 OR 3, OR D.O.T. 2" CRUSHED GRAVEL. THE STONE ANTI TRACKING PAD IS TO BE MAINTAINED AT ALL TIMES DURING THE CONSTRUCTION PERIOD.
- THE ENTRANCE TO THE PROJECT SITE IS TO BE PROTECTED BY STONE ANTI TRACKING PAD OF ASTM C-33, SIZE NO. 2 OR 3, OR D.O.T. 2" CRUSHED GRAVEL. THE STONE ANTI TRACKING PAD IS TO BE MAINTAINED AT ALL TIMES DURING THE CONSTRUCTION PERIOD.
- LAND DISTURBANCE WILL BE KEPT TO A MINIMUM AND RESTABILIZATIONS WILL BE SCHEDULED AS SOON AS PRACTICAL.
- ALL SOIL EROSION AND SEDIMENT CONTROL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE CONNECTICUT GUIDELINES FOR EROSION AND SEDIMENT CONTROL INCLUDING THE LATEST DATE FROM THE COUNCIL ON SOIL AND WATER CONSERVATION.
- ANY ADDITIONAL EROSION/SEDIMENTATION CONTROL DEEMED NECESSARY BY TOWN STAFF DURING CONSTRUCTION, SHALL BE INSTALLED BY THE DEVELOPER. IN ADDITION, THE DEVELOPER SHALL BE RESPONSIBLE FOR THE REPAIR/REPLACEMENT/MAINTENANCE OF ALL EROSION CONTROL MEASURES UNTIL ALL DISTURBED AREAS ARE STABILIZED TO THE SATISFACTION OF THE TOWN STAFF.
- IN ALL AREAS, REMOVAL OF TREES, BUSHES AND OTHER VEGETATION AS WELL AS DISTURBANCE OF THE SOIL IS TO BE KEPT TO AN ABSOLUTE MINIMUM WHILE ALLOWING PROPER DEVELOPMENT OF THE SITE. DURING CONSTRUCTION, EXPOSE AS SMALL AN AREA OF SOIL AS POSSIBLE FOR AS SHORT A TIME AS POSSIBLE.
- SILTATION FENCE SHALL BE PLACED AS INDICATED BEFORE A CUT SLOPE HAS BEEN CREATED. SEDIMENT DEPOSITS SHOULD BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDES OF SILTATION FENCE. THIS MATERIAL IS TO BE SPREAD OR STABILIZED IN AREAS NOT SUBJECT TO EROSION, OR TO BE USED IN AREAS WHICH ARE NOT TO BE PAVED OR BUILT ON. SILTATION FENCE IS TO BE REPLACED AS NECESSARY TO PROVIDE PROPER FILTERING ACTION. THE FENCE IS TO REMAIN IN PLACE AND BE MAINTAINED TO INSURE EFFICIENT SILTATION CONTROL UNTIL ALL AREAS ABOVE THE EROSION CHECKS ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.
- SWALE DISCHARGE AREA WILL BE PROTECTED WITH RIP RAP SPLASH PAD/ ENERGY DISSIPATER.
- ALL FILL AREAS SHALL BE COMPACTED SUFFICIENTLY FOR THEIR INTENDED PURPOSE AND AS REQUIRED TO REDUCE SLIPPING, EROSION OR EXCESS SATURATION.
- THE SOIL SHALL NOT BE PLACED WHILE IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBGRADE IS EXCESSIVELY WET, OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING OR PROPOSED BODDING OR SEEDING.
- AFTER CONSTRUCTION IS COMPLETE AND GROUND IS STABLE, REMOVE SILTS IN THE RIP RAP ENERGY DISSIPATERS, REMOVE OTHER EROSION AND SEDIMENT DEVICES.

**CONSTRUCTION SPECIFICATIONS - SILT FENCE**

- THE GEOTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR SILT FENCES.
- THE FABRIC SHALL BE EMBEDDED A MINIMUM OF 8 INCHES INTO THE GROUND AND THE SOIL COMPACTED OVER THE EMBEDDED FABRIC.
- WOVEN WIRE FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES OR STAPLES.
- FILTER CLOTH SHALL BE FASTENED SECURELY TO THE WOVEN WIRE FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP, MID-SECTION AND BOTTOM.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 8 INCHES, FOLDED, AND STAPLED.
- FENCE POSTS SHALL BE A MINIMUM OF 36 INCHES LONG AND DRIVEN A MINIMUM OF 16 INCHES INTO THE GROUND. WOOD POSTS SHALL BE OF SOUND QUALITY HARDWOOD AND SHALL HAVE A MINIMUM CROSS SECTIONAL AREA OF 3.0 SQUARE INCHES.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED TO PREVENT BUILD UP IN THE SILT FENCE DUE TO DEPOSITION OF SEDIMENT.

**MAINTENANCE - SILT FENCE**

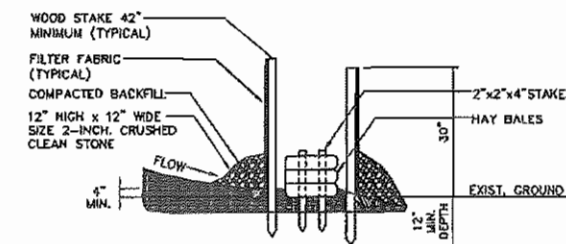
- SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.
- IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
- SEDIMENT SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACHED APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
- SEDIMENT DEPOSITS THAT ARE REMOVED OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

**NOTES:**

- SLOPE APPLICATIONS:
  - PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
  - BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLE/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
  - ROLL THE BLANKET DOWN OR HORIZONTALLY ACROSS THE SLOPE. BLANKET WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL ROLLED EROSION CONTROL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM(TM), STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
  - THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY A 2"- 5" OVERLAP DEPENDING ON BLANKET TYPE.
  - CONSECUTIVE ROLLED EROSION CONTROL BLANKET SPUCED DOWN THE SLOPE MUST BE PLACED END OVER END (SINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.
  - IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKET.
  - REFER TO MANUFACTURERS STAPLE GUIDE FOR CORRECT STAPLE PATTERN. MINIMUM 4 SPIKES PER ONE SQ. FT.
- THE CONTRACTOR SHALL MAINTAIN THE BLANKET UNTIL ALL WORK ON THE CONTRACT HAS BEEN COMPLETED AND ACCEPTED. MAINTENANCE SHALL CONSIST OF THE REPAIR OF AREAS WHERE DAMAGED BY ANY CAUSE. ALL DAMAGED AREAS SHALL BE REPAIRED TO REESTABLISH THE CONDITIONS AND GRADE OF THE SOIL PRIOR TO APPLICATION OF THE COVERING AND SHALL BE REFERTILIZED, RESEED, AND REMULCHED AS DIRECTED.

**NOTES:**

- CHANNEL APPLICATIONS:
  - PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
  - BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLE/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
  - ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM(TM), STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
  - PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"- 6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE BLANKETS.
  - FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
  - ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"- 5" AND STAPLED TO ENSURE PROPER SEAM ALIGNMENT. PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH(TM) ON THE BLANKET BEING OVERLAPPED.
  - THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
  - REFER TO MANUFACTURERS STAPLE GUIDE FOR CORRECT STAPLE PATTERN. MINIMUM 4 SPIKES PER ONE SQ. FT. THE CONTRACTOR SHALL MAINTAIN THE BLANKET UNTIL ALL WORK ON THE CONTRACT HAS BEEN COMPLETED AND ACCEPTED. MAINTENANCE SHALL CONSIST OF THE REPAIR OF AREAS WHERE DAMAGED BY ANY CAUSE. ALL DAMAGED AREAS SHALL BE REPAIRED TO REESTABLISH THE CONDITIONS AND GRADE OF THE SOIL PRIOR TO APPLICATION OF THE COVERING AND SHALL BE REFERTILIZED, RESEED, AND REMULCHED AS DIRECTED.



**2 SILTATION FENCE/HAY BALE SILTATION FENCE 'SANDWICH' EROSION CONTROL**  
C-3 NOT TO SCALE

|              |     |
|--------------|-----|
| DESIGNED BY: | HMR |
| DRAWN BY:    | HMR |
| CHECKED BY:  | DND |

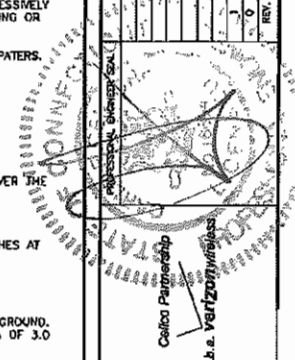
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| DATE:    | 04/05/13 |
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| JOB NO.: | 10093    |

**SITE CONSTRUCTION S&E CONTROL NOTES & DETAILS**

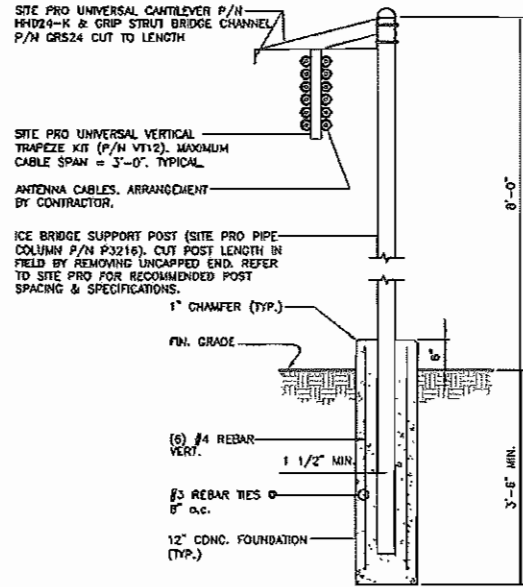
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Sheet No. 5 of 9

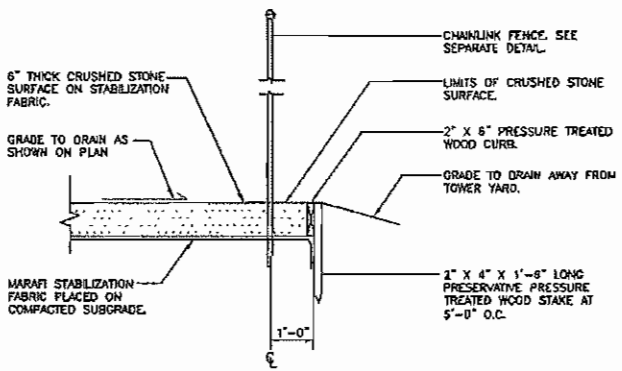


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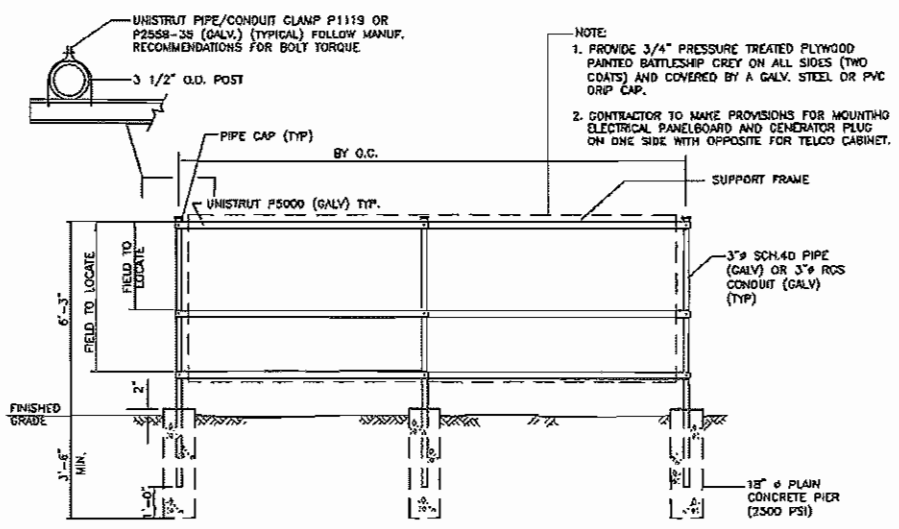
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**PALMER POND**  
 GALLUP FARM  
 53 GALLUP ROAD  
 VOLUNTOWN, CT 06884



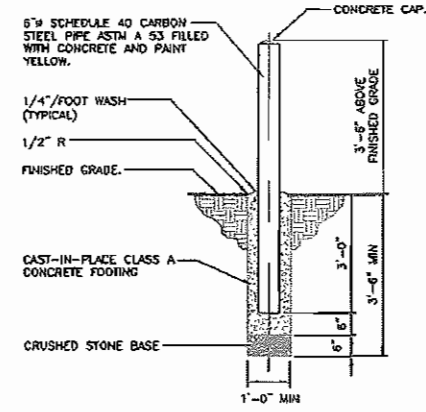
**1 ICE BRIDGE DETAIL**  
C-4 NOT TO SCALE



**5 COMPOUND SURFACING DETAIL**  
C-4 NOT TO SCALE

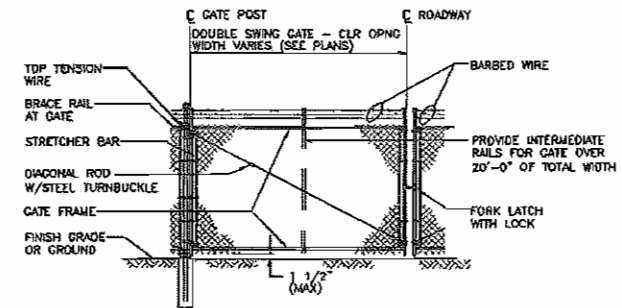


**3 UTILITY SUPPORT FRAME (TYP)**  
C-4 NOT TO SCALE

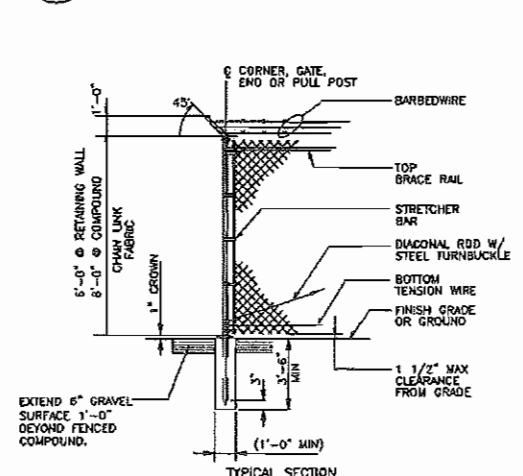


**2 BOLLARD DETAIL**  
C-4 NOT TO SCALE

- WOVEN WIRE FENCE NOTES**
- GATE POST, CORNER, TERMINAL OR PULL POST 2 1/2" SCHEDULE 40 FOR GATE WIDTHS UP THRU 6 FEET OR 12 FEET FOR DOUBLE SWING GATE PER ASTM-F1083.
  - LINE POST: 2" SCHEDULE 40 PIPE PER ASTM-F1083.
  - GATE FRAME: 1 1/2" SCHEDULE 40 PIPE PER ASTM-F1083.
  - TOP RAIL & BRACE RAIL: 1 1/2" SCHEDULE 40 PIPE PER ASTM-F1083.
  - FABRIC: 12 GA. CORE WIRE SIZE 2" MESH, CONFORMING TO ASTM-A392.
  - THE WIRE: MINIMUM 11 GA. GALVANIZED STEEL AT POSTS AND RAILS A SINGLE WRAP OF FABRIC TIE AND AT TENSION WIRE BY HOG RINGS SPACED MAX 24" INTERVALS.
  - TENSION WIRE: 7 GA. GALVANIZED STEEL.
  - BARBED WIRE: DOUBLE STRAND 12-1/2" O.D. TWISTED WIRE TO MATCH W/FABRIC 14 GA., 4 PT. BARBS SPACED ON APPROXIMATELY 5" CENTERS.
  - GATE LATCH: DROP DOWN LOCKABLE FORK LATCH AND LOCK, KEYS ALIKE FOR ALL SITES IN A GIVEN MTA.
  - LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPLIED WITH IF REQUIRED.
  - COMPOUND FENCE HEIGHT = 8' VERTICAL + 1' BARBED WIRE VERTICAL DIMENSION.
  - SAFETY FENCE HEIGHT = 8' VERTICAL DIMENSION (NO BARBED WIRE REQUIRED).

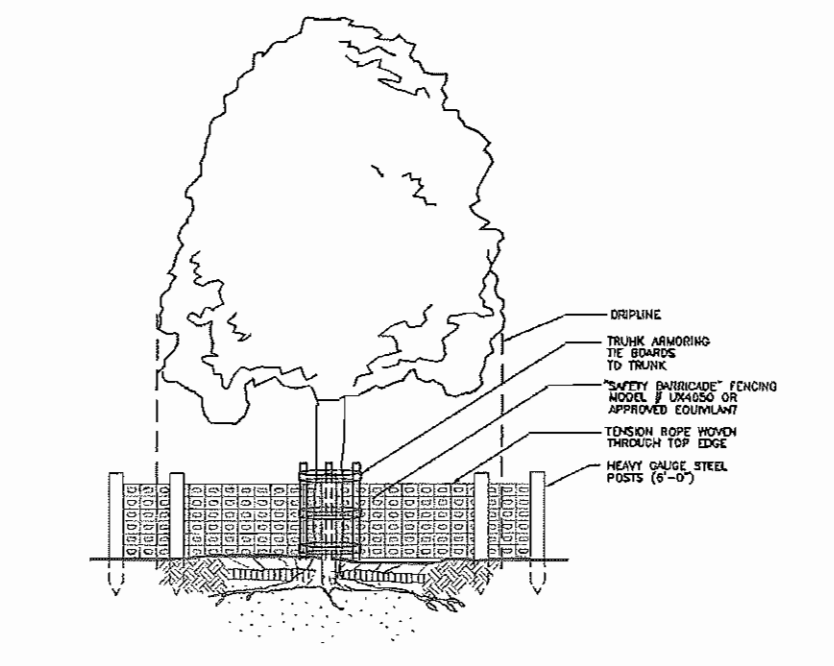
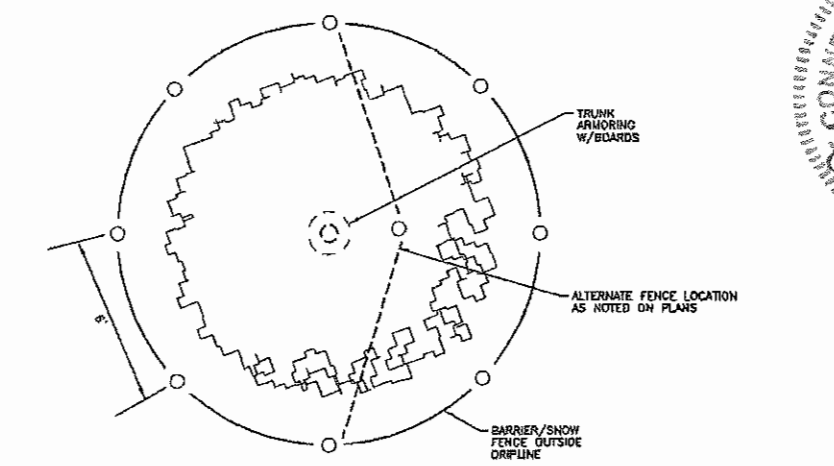


**4A WOVEN WIRE SWING GATE-DOUBLE**  
C-4 NOT TO SCALE



**4 WOVEN WIRE FENCE DETAIL**  
C-4 NOT TO SCALE

- TREE PROTECTION NOTES**
- ALL TREES SHOWN TO BE RETAINED WITHIN THE LIMITS OF CONSTRUCTION ON THE PLANS, SHALL BE PROTECTED DURING CONSTRUCTION WITH FENCING.
  - TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING, OR GRADING) AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
  - FENCES SHALL COMPLETELY SURROUND THE TREE OR CLUSTERS OF TREES, LOCATED AT THE OUTERMOST LIMITS OF THE TREE BRANCHES (DRIPLINE) OR CRITICAL ROOT ZONE, WHICHEVER IS GREATER, AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
    - SOIL COMPACTION IN CRITICAL ROOT ZONE AREA RESULTING FROM STORAGE OF EQUIPMENT OR MATERIAL
    - CRITICAL ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES OR TRENCHING
    - WOUNDS TO EXPOSED ROOTS, TRUNK, OR LIMBS BY MECHANICAL EQUIPMENT
    - OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CONCRETE TRUCK CLEANING, AND FIRES.
  - WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE THAT IS CLOSER THAN 5 FEET TO A TREE TRUNK, THE TRUNK SHALL BE PROTECTED BY STRAPPED-ON PLANKING TO A HEIGHT OF 8 FEET (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCING PROVIDED.
  - WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN AREAS OF UNPROTECTED ROOT ZONES UNDER THE DRIPLINE OR CRITICAL ROOT ZONE WHICHEVER IS GREATER, THOSE AREAS SHOULD BE COVERED WITH 4 INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION.
  - ALL GRADING WITHIN CRITICAL ROOT ZONE AREAS SHALL BE DONE BY HAND OR WITH SMALL EQUIPMENT TO MINIMIZE ROOT DAMAGE. PRIOR TO GRADING, RELOCATE PROTECTIVE FENCING TO 2 FEET BEHIND THE GRADE CHANGE AREA.
  - ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL AND BACKFILLED WITH GOOD QUALITY TOP SOIL WITHIN TWO DAYS. IF EXPOSED ROOT AREAS CANNOT BE BACKFILLED WITHIN 2 DAYS, AN ORGANIC MATERIAL WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION SHALL BE PLACED TO COVER THE ROOTS UNTIL BACKFILL CAN OCCUR.
  - PRIOR TO EXCAVATION OR GRADE CUTTING WITHIN TREE DRIPLINES, A CLEAN CUT SHALL BE MADE WITH A ROCK SAW OR SIMILAR EQUIPMENT, IN A LOCATION AND TO A DEPTH APPROVED BY THE FORESTRY MANAGER, TO MINIMIZE DAMAGE TO REMAINING ROOTS.
  - TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES WILL BE WATERED DEEPLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER, TREE CROWNS ARE TO BE SPRAYED WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON LEAVES.
  - NO LANDSCAPE TOPSOIL DRESSING GREATER THAN FOUR (4) INCHES SHALL BE PERMITTED WITHIN THE DRIPLINE OR CRITICAL ROOT ZONE OF TREES, WHICHEVER IS GREATER. NO TOPSOIL IS PERMITTED ON ROOT FLARES OF ANY TREE.



**6 TREE PROTECTION DETAIL**  
C-4 NOT TO SCALE

DESIGNED BY: HWR  
 DRAWN BY: HWR  
 CHECKED BY: DMD

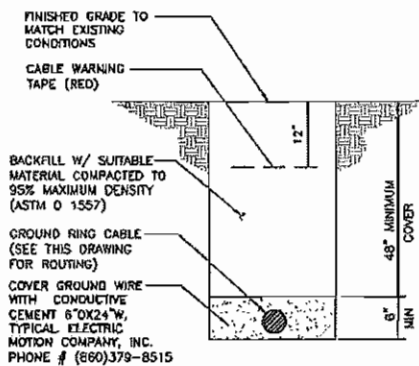
|         |          |
|---------|----------|
| DATE    | 04/05/13 |
| SCALE   | AS NOTED |
| JOB NO. | 10083    |

SITE DETAILS  
**C-4**  
 Sheet No. 6 of 9

Celco Partnership d/b/a Verizon Wireless  
 WIRELESS COMMUNICATIONS FACILITY  
**PALMER POND**  
 GALLUP FARM  
 55 GALLUP ROAD  
 VOLUNTOWN, CT 06384

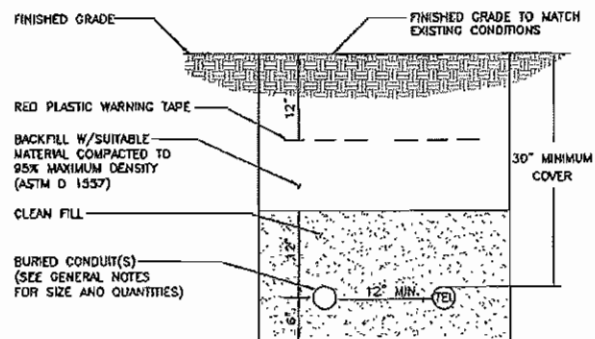
CENTER engineering  
 CONSULTING SOLUTIONS  
 (203) 458-0000  
 (203) 458-0001 Fax  
 1000 Main Street  
 Bristol, CT 06033  
 www.centereng.com





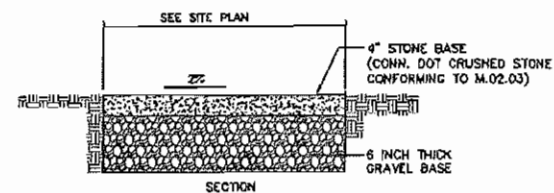
- NOTES:**
- BACK FILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION.
  - WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.

**7 TYPICAL BURIAL GROUND CABLE DETAIL**  
C-6 NOT TO SCALE

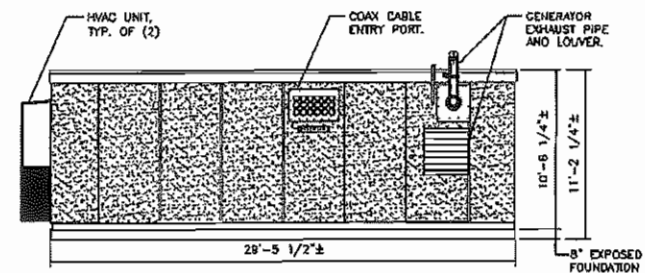


- NOTES:**
- THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION.
  - WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.

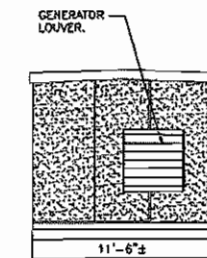
**6 TYPICAL ELECTRICAL/TEL TRENCH DETAIL**  
C-6 NOT TO SCALE



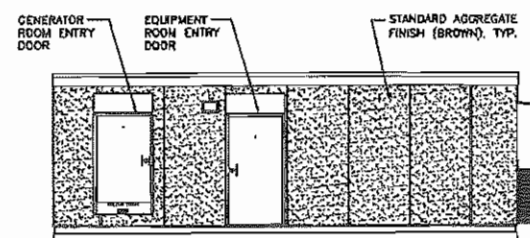
**1 GRAVEL SURFACE PARKING AREA AND ACCESS DRIVE**  
C-6 NOT TO SCALE



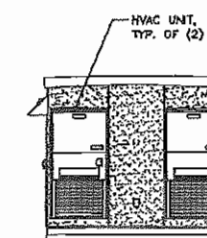
**3 NORTHERN SHELTER ELEVATION**  
C-6 SCALE: 3/16" = 1'-0"



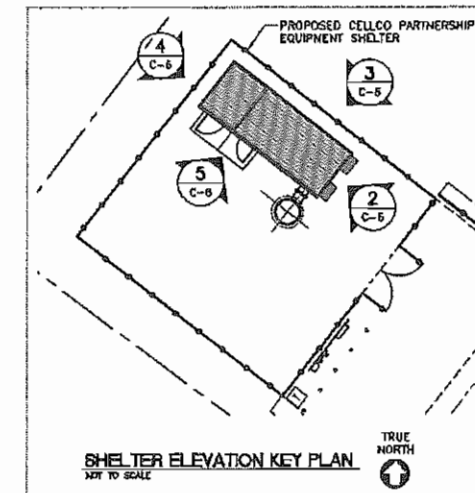
**4 WESTERN SHELTER ELEVATION**  
C-6 SCALE: 3/16" = 1'-0"



**5 SOUTHERN SHELTER ELEVATION**  
C-6 SCALE: 3/16" = 1'-0"



**2 EASTERN SHELTER ELEVATION**  
C-6 SCALE: 3/16" = 1'-0"



|                                     |          |
|-------------------------------------|----------|
| DESIGNED BY:                        | IMR      |
| DRAWN BY:                           | IMR      |
| CHECKED BY:                         | DND      |
| DATE:                               | 04/05/13 |
| SCALE:                              | AS NOTED |
| JOB NO.:                            | 10083    |
| SITE DETAILS AND SHELTER ELEVATIONS |          |
| <b>C-6</b>                          |          |
| Sheet No. 8 of 9                    |          |

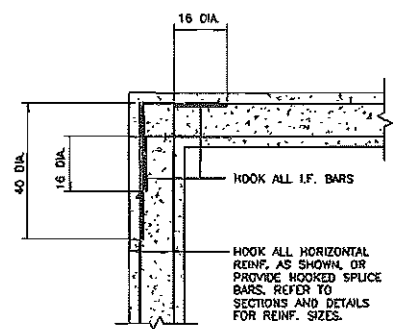
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|-----|----------|------|-----|---------|--------------------------|
| 1   | 04/05/13 |      | IMR | DND     | ISSUED FOR CLIENT REVIEW |
| 2   | 04/05/13 |      | IMR | DND     |                          |
| 3   | 04/05/13 |      | IMR | DND     |                          |
| 4   | 04/05/13 |      | IMR | DND     |                          |
| 5   | 04/05/13 |      | IMR | DND     |                          |
| 6   | 04/05/13 |      | IMR | DND     |                          |
| 7   | 04/05/13 |      | IMR | DND     |                          |

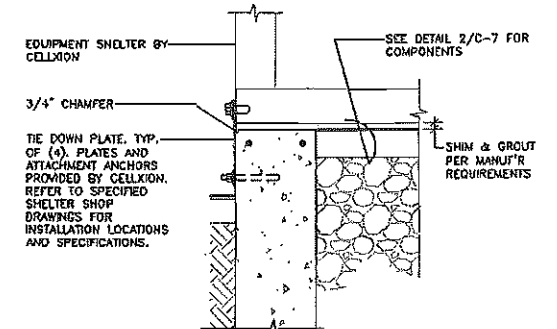
**Celco Partnership**  
d.b.a. Verizon Wireless

**CENEX** engineering  
Contractors in Solutions  
2031 484-0880  
2000 Main Street  
Meriden, CT 06450  
www.Cenex.com

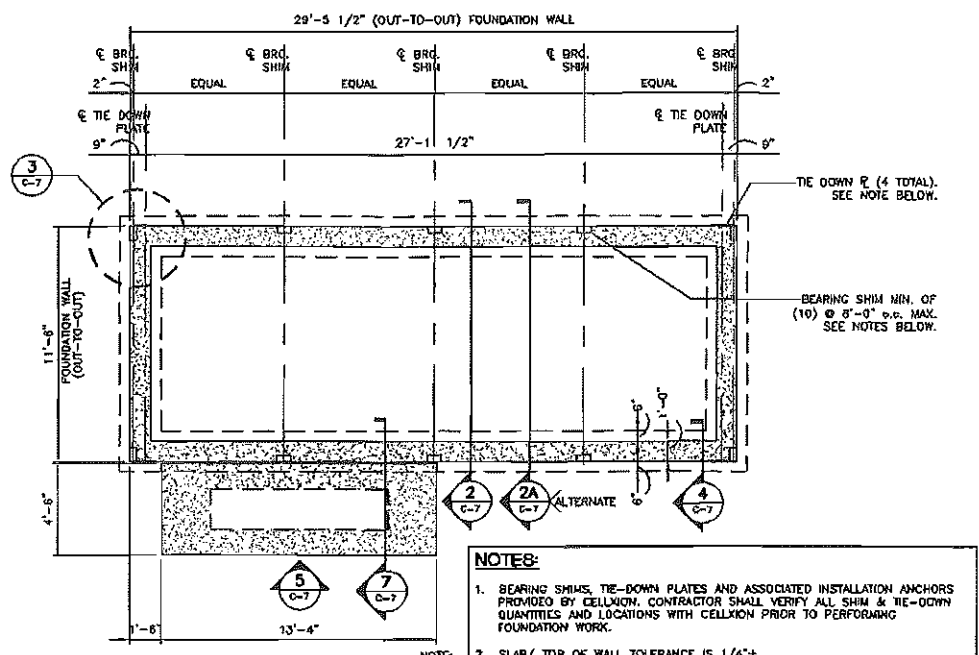
**Palmer Pond Wireless Communications Facility**  
**PALMER POND**  
GALLUP FARM  
50 GALLUP ROAD  
VOLUNTOWN, CT 06684



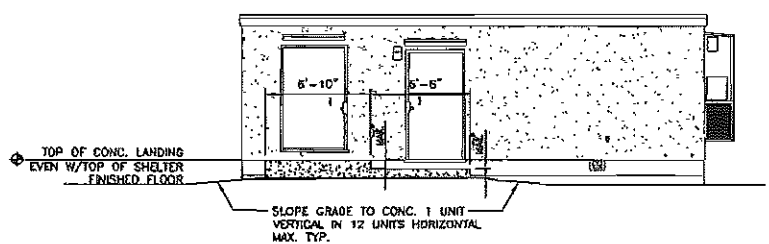
3 PLAN DETAIL  
C-7 NOT TO SCALE



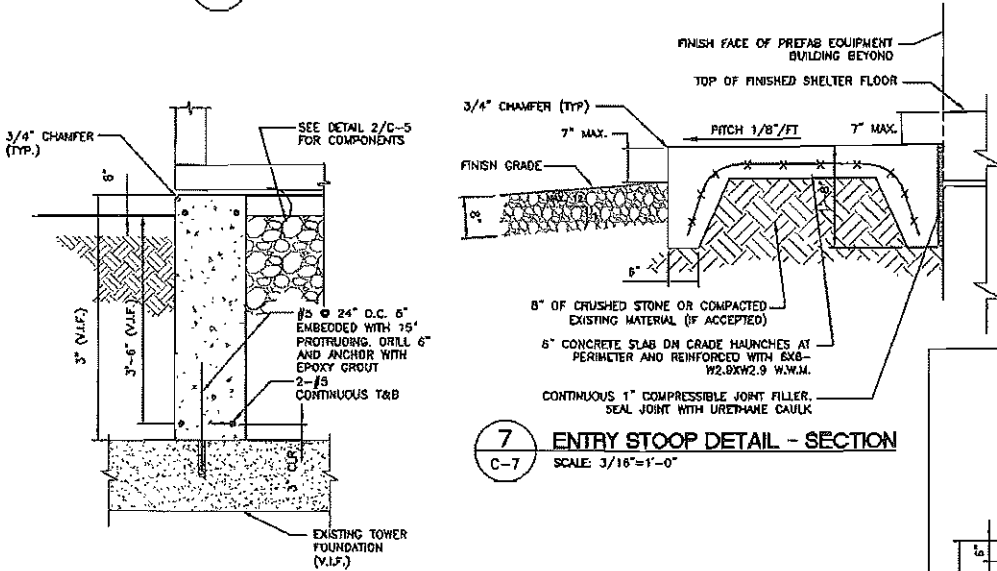
4 BUILDING TIE DOWN  
C-7 SCALE: 1"=1'-0"



1 FOUNDATION PLAN  
C-7 SCALE: 1/4"=1'-0"



5 ENTRY STOOP DETAIL - ELEVATION  
C-7 SCALE: 3/16"=1'-0"

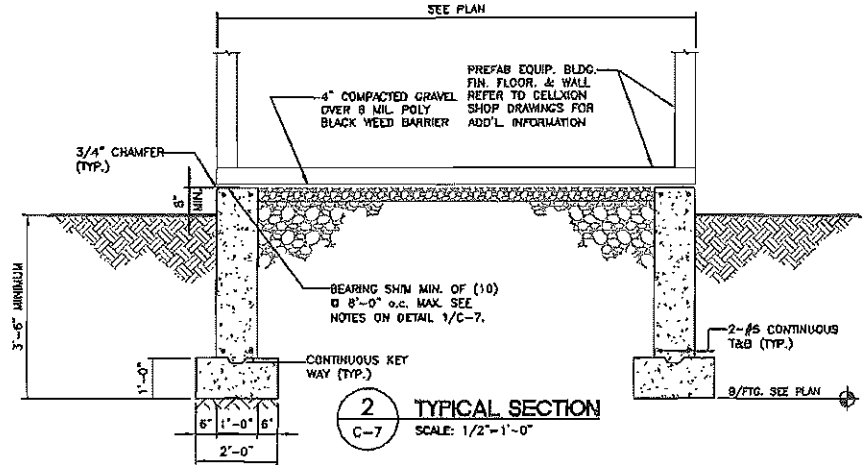


7 ENTRY STOOP DETAIL - SECTION  
C-7 SCALE: 3/16"=1'-0"

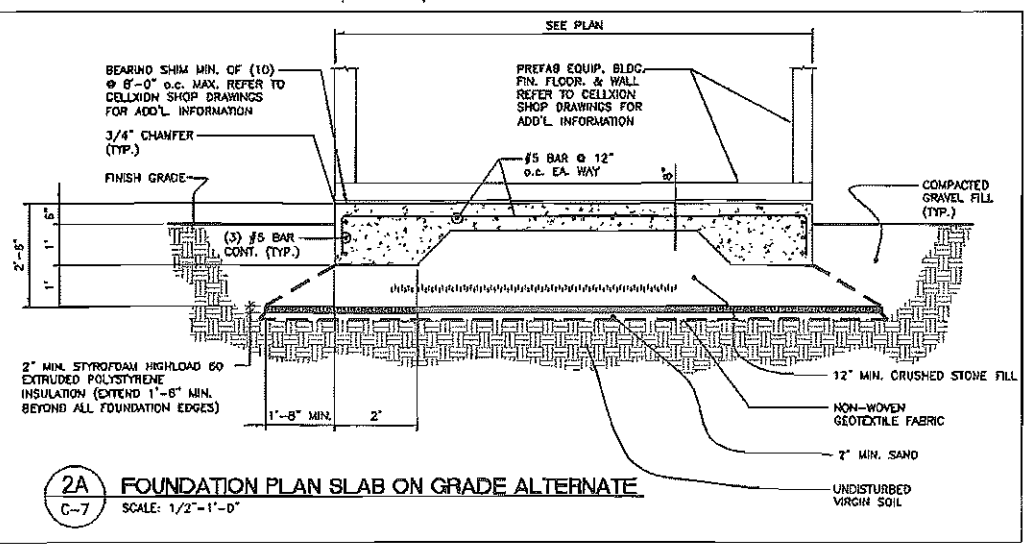
6 FOUNDATION OVER TOWER FOUNDATION  
C-7 SCALE: 3/4"=1'-0"

EQUIPMENT SHELTER BY CELLXION. VERIFY ALL SHELTER DIMENSIONS, EQUIPMENT DIMENSIONS, EQUIPMENT LOCATIONS AND UTILITY OPENINGS WITH BUILDING SHOP DRAWINGS PRIOR TO COMMENCEMENT OF WORK.

1 FOUNDATION PLAN  
C-7 SCALE: 1/4"=1'-0"



2 TYPICAL SECTION  
C-7 SCALE: 1/2"=1'-0"



2A FOUNDATION PLAN SLAB ON GRADE ALTERNATE  
C-7 SCALE: 1/2"=1'-0"

**FOUNDATION NOTES:**

- IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
- DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST THE PRE MANUFACTURED EQUIPMENT BUILDING SHOP DRAWINGS.
- THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
- REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

**SITE NOTES:**

- THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
- ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRELUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- ALL RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED OFF SITE AND BE LEGALLY DISPOSED, AT NO ADDITIONAL COST.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE EQUIPMENT AND TOWER AREAS.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
- THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
- IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.
- DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST THE PRE MANUFACTURED EQUIPMENT BUILDING SHOP DRAWINGS.
- THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.

**COMPACTED GRAVEL FILL:**

- COMPACTED GRAVEL FILL SHALL BE FURNISHED AND PLACED AS A FOUNDATION FOR STRUCTURES, WHERE SHOWN ON THE CONTRACT DRAWINGS OR DIRECTED BY THE ENGINEER.
- GRAVEL SHALL CONFORM TO THE REQUIREMENTS OF ARTICLE M.02.02 OF THE CONNECTICUT D.O.T. STANDARD SPECIFICATIONS. ADJUSTURES AND SURFACE PROTECTIVE MATERIALS USED TO PREVENT THE GRAVEL FROM FREEZING MUST MEET THE APPROVAL OF THE ENGINEER. THE LARGEST STONE SIZE SHALL BE 3-1/2 INCHES.
- SAMPLES OF THE MATERIAL TO BE USED SHALL BE DELIVERED TO THE JOB SITE 5 DAYS PRIOR TO ITS INTENDED USE SO IT MAY BE TESTED FOR APPROVAL.
- IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

**CONCRETE AND REINFORCING STEEL NOTES:**

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318.
- ALL CONCRETE SHALL BE NORMAL WEIGHT, 6% AIR ENTRAINMENT WITH A MAXIMUM SLUMP OF 4", AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- REINFORCING STEEL SHALL CONFORM TO ASTM A618, GRADE 60, DEFORMED BARS. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC. SPLICES SHALL BE CLASS "T" AND ALL HOOKS SHALL BE STANDARD UNLESS OTHERWISE INDICATED.
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS OTHERWISE NOTED ON THE DRAWINGS:  
 CONCRETE CAST AGAINST EARTH.....3 IN.  
 CONCRETE EXPOSED TO EARTH OR WEATHER:  
 #5 AND LARGER.....2 IN.  
 #5 AND SMALLER & W/WF.....1 1/2 IN.  
 CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:  
 SLAB AND WALL.....3/4 IN.  
 BEAMS AND COLUMNS.....1 1/2 IN.
- ALL EXPOSED EDGES OF CONCRETE TO RECEIVE A 3/4" CHAMFER IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- CONCRETE EQUIPMENT PAD TO RECEIVE A BRUSHED FINISH.
- INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT DURING DRILLING WITHOUT PRIOR REVIEW BY THE ENGINEER.

DESIGNED BY: HMR  
 DRAWN BY: HMR  
 CHECKED BY: BMD

DATE: 04/05/13  
 SCALE: AS NOTED  
 JOB NO. 10093

Palmer Pond  
 Shelter Found.  
 Plan, Details  
 and Notes

C-7  
 Sheet No. 9 of 9

**CERTIFICATION OF SERVICE**

I hereby certify that on this 10<sup>th</sup> day of May, 2013, copies of the Application and attachments were sent first class mail, postage prepaid, to the following:

**STATE OFFICIALS:**

The Honorable George Jepsen  
Attorney General  
Office of the Attorney General  
55 Elm Street  
Hartford, CT 06106

Reuben F. Bradford, Commissioner  
Department of Emergency Services and Public Protection  
Emergency Management and Homeland Security Division  
25 Sigourney Street, 6<sup>th</sup> Floor  
Hartford, CT 06106-5042

Daniel C. Esty, Commissioner  
Department of Energy and Environmental Protection  
79 Elm Street  
Hartford, CT 06106

Jewel Mullen, M.D., M.P.H., M.P.A., Commissioner  
Department of Public Health  
410 Capitol Avenue  
P.O. Box 340308, MS 13COM  
Hartford, CT 06134-0308

Karl J. Wagener, Executive Director  
Council on Environmental Quality  
79 Elm Street  
P.O. Box 5066  
Hartford, CT 06106

Arthur House, Chairman  
Public Utilities Regulatory Authority  
Ten Franklin Square  
New Britain, CT 06051

Benjamin Barnes, Secretary  
Office of Policy and Management  
450 Capitol Avenue  
Hartford, CT 06106



Catherine Smith, Commissioner  
Department of Economic and Community Development  
505 Hudson Street  
Hartford, CT 06106

James P. Redeker, Commissioner  
Department of Transportation  
P.O. Box 317546  
2800 Berlin Turnpike  
Newington, CT 06131-7546

David Bahlman, Division Director  
Deputy State Historic Preservation Officer  
Connecticut Commission on Culture & Tourism  
Historic Preservation and Museum Division  
One Constitution Plaza, 2<sup>nd</sup> Floor  
Hartford, CT 06103

Steven K. Reviczky, Commissioner  
Department of Agriculture  
165 Capital Avenue  
Hartford, CT 06106

**VOLUNTOWN TOWN OFFICIALS:**

Ronald Millovitsch  
First Selectman  
Town of Voluntown  
115 Main Street  
Voluntown, CT 06384

The Honorable Steven T. Mikutel  
Representative – 45<sup>th</sup> District  
152 Bethel Road  
Griswold, CT 06351

The Honorable Andrew Maynard  
Senator – 18<sup>th</sup> District  
Legislative Office Building  
Room 3000  
Hartford, CT 06106-1591

Cheryl A. Sadowski  
Town Clerk  
Town of Voluntown  
115 Main Street  
Voluntown, CT 06384

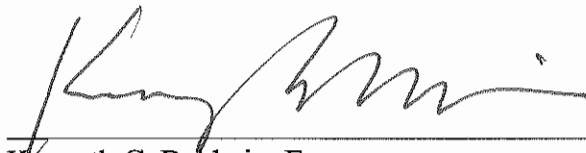
Albert R. Dawley, Chairman  
Planning and Zoning Commission  
Town of Voluntown  
115 Main Street  
Voluntown, CT 06384

Thomas M. Sweet, Chairman  
Inland Wetlands Commission  
Town of Voluntown  
115 Main Street  
Voluntown, CT 06384

Southeast Connecticut Council of Governments  
5 Connecticut Avenue  
Norwich, CT 06360

**FEDERAL AGENCY:**

Federal Communications Commission  
445 12<sup>th</sup> Street SW  
Washington, DC 20554



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Kenneth C. Baldwin, Esq.  
Robinson & Cole LLP  
280 Trumbull Street  
Hartford, CT 06103  
Telephone: (860) 275-8200  
Attorneys for Cellco Partnership d/b/a Verizon Wireless

## LEGAL NOTICE

Notice is hereby given, pursuant to Section 16-50(b) of the Connecticut General Statutes and Regulations pertaining thereto, of an Application to be submitted to the Connecticut Siting Council ("Council") on or about May 10, 2013, by Cellco Partnership d/b/a Verizon Wireless ("Cellco" or the "Applicant"). The Application proposes the installation of a wireless telecommunications facility at one of two locations in the Town of Voluntown, Connecticut. The Site 1 location would consist of a 50' x 50' compound area within a 30 acre parcel at 596 Pendleton Hill Road. At this site, Cellco proposes to construct a 130-foot monopole tower. Access to Site 1 will extend from Pendleton Hill Road. The Site 2 location would consist of a 50' x 52' compound area within a 261 acre parcel at 53 Gallup Road. At this site, Cellco proposes to construct a 150-foot monopole tower. Cellco will also install a new 12' x 30' shelter located near the base of the approved tower to house its radio equipment and back-up generator. The location and other features of the proposed facility are subject to change under provisions of Connecticut General Statutes § 16-50g et. seq.

On the day of the Siting Council public hearing on this proposal, Cellco will fly a balloon at the height of each of the proposed towers described above. Interested parties and residents of the Town of Voluntown are invited to review the Application during normal business hours on or after May 13, 2013, at any of the following offices:

Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

Cellco Partnership d/b/a Verizon Wireless  
99 East River Drive  
East Hartford, CT 06108

Town Clerk  
Town of Voluntown  
Town Hall  
115 Main Street  
Voluntown, CT 06384

or the offices of the undersigned. All inquiries should be addressed to the Connecticut Siting Council or to the undersigned.

CELLCO PARTNERSHIP d/b/a VERIZON  
WIRELESS

Kenneth C. Baldwin, Esq.  
Robinson & Cole LLP  
280 Trumbull Street  
Hartford, CT 06103-3597  
(860) 275-8200  
Its Attorneys

KENNETH C. BALDWIN

280 Trumbull Street  
Hartford, CT 06103-3597  
Main (860) 275-8200  
Fax (860) 275-8299  
kbaldwin@rc.com  
Direct (860) 275-8345

Also admitted in Massachusetts

May 6, 2013

**Via Certified Mail Return Receipt Requested**

«Name\_and\_Address»

**Re: Cellco Partnership d/b/a Verizon Wireless  
Proposed Telecommunications Facility  
Voluntown, Connecticut**

Dear «Salutation»:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) will be submitting an application to the Connecticut Siting Council (“Council”) on or about May 10, 2013, for approval of the construction of a telecommunications facility at one of two locations in the Town of Voluntown, Connecticut.

The Site 1 facility location would consist of a new 130-foot tower in the northwest portion of an approximately 30 acre parcel at 596 Pendleton Hill Road in Voluntown. Cellco’s radio equipment and a diesel-fueled back-up generator would be installed inside a 12’ x 30’ shelter located at the base of the tower. Access to the Site 1 facility would extend directly from Pendleton Hill Road along an existing dirt driveway a distance of approximately 1,085 feet to the cell site.

The Site 2 facility location would consist of a new 150-foot tower in the southeast portion of an approximately 261 acre parcel at 53 Gallup Road. Cellco’s radio equipment and propane-fueled back-up generator would be installed inside a 12’ x 30’ shelter located at the base of the tower. A 1,000 gallon propane tank would be installed in the facility compound. Access to the Site 2 facility would extend directly from Gallup Road over a new gravel driveway, a distance of approximately 80 feet.

May 6, 2013

Page 2

Site plan drawings for the Site 1 and Site 2 facilities are attached for your review. The location and other features of the proposed facilities are subject to change under the provisions of Connecticut General Statutes § 16-50g et seq.

State law provides that owners of record of property which abuts a parcel on which a facility is proposed to be located must receive notice of the submission of this application. This notice is directed to you either because you may be an abutting land owner or as a courtesy notice.

If you have any questions concerning the application, please direct them to either the Connecticut Siting Council or me. My address and telephone number are listed above. The Siting Council may be reached at its New Britain, Connecticut office at (860) 827-2935.

Very truly yours,

A handwritten signature in black ink, appearing to read "Kenneth C. Baldwin", with a long horizontal flourish extending to the right.

Kenneth C. Baldwin

KCB/kmd  
Attachment



ABUTTERS MAP

DATE: 01/26/13  
 SCALE: AS NOTED  
 JOB NO.: 10093

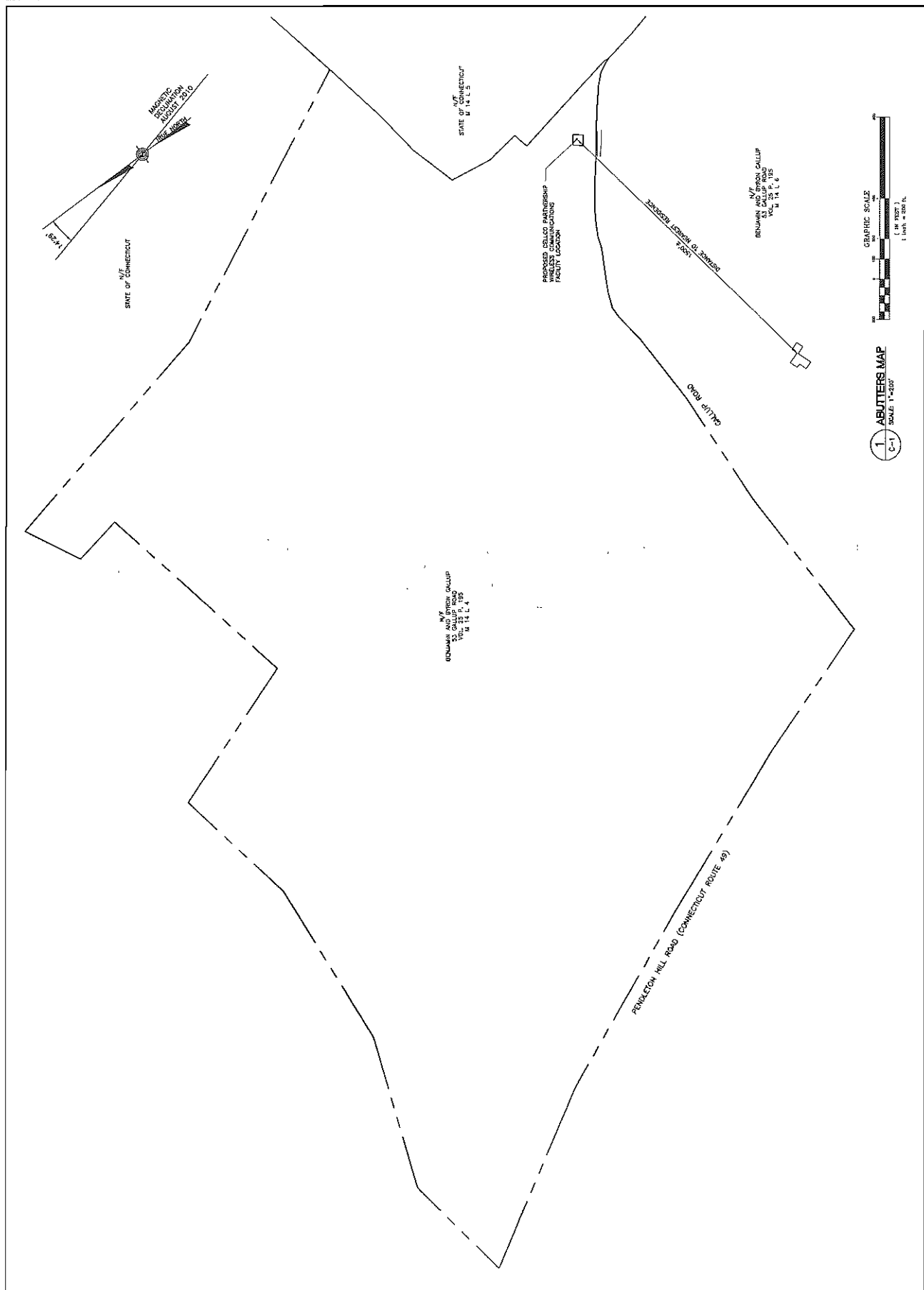
**Palmer Pond**  
 WIRELESS COMMUNICATIONS FACILITY  
 53 GALLUP ROAD  
 GALLUP FARM  
 VOLUNTOON CT 06364

**GENIEK**  
 CONSULTING ENGINEERS  
 42 Litchfield Road  
 Shelton, CT 06484  
 www.geniek.com

**Cellco Partnership d/b/a Verizon Wireless**  
 d/b/a Verizon Wireless  
 Celco Partnership

PROJECT: PALMER POND  
 PROJECT MANAGER: [Name]

| REV | DATE     | BY  | CHKD | DESCRIPTION              |
|-----|----------|-----|------|--------------------------|
| 0   | 01/26/13 | MMH | MMH  | ISSUED FOR PERMIT REVIEW |



**1** ABUTTERS MAP  
 C-1 SCALE 1"=200'



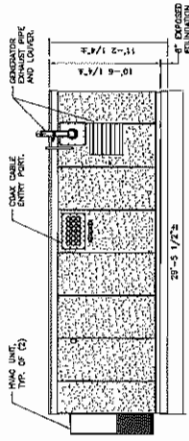
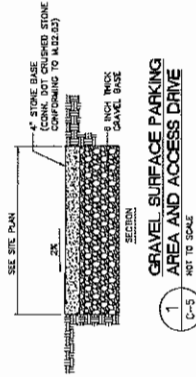
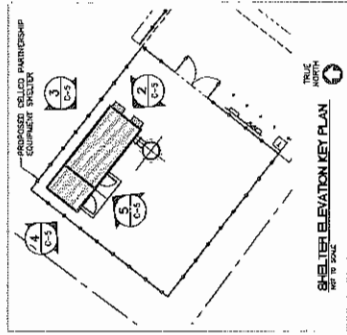




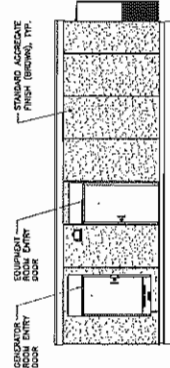




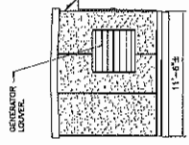
|  |                 |   |     |
|--|-----------------|---|-----|
| DATE: 04/05/13   | SCALE: AS NOTED | <b>C-5</b><br>SHEET NO. 1 of 2<br>SITE DETAILS AND SHELTER ELEVATIONS |     |
| JOB NO.: 10883   | AS NOTED        |   |     |
| <b>Palmer Pond</b><br>WIRELESS COMMUNICATIONS FACILITY<br>83 GALLUP ROAD<br>VOLUNTOON, CT 06394  |                 |   |     |
| Celco Partnership d/b/a Verizon Wireless<br>CENTER<br>1000 Main Street<br>06183<br>860-969-8888<br>1000 Main Street<br>06183<br>860-969-8888 |                 |   |     |
| d.b.a. VertzonTechnik<br>Color: Freywerk<br>VertzonTechnik   |                 |   |     |
| PROFESSIONAL ENGINEER SEAL   | DESCRIPTION     |   |     |
| DATE   | BY              | NO.   |     |
| 04/05/13   | MM              | 000   |     |
| REV.   | DATE            | BY  | NO. |
| 0  | 04/05/13        | MM  | 000 |
| 000 - REVISION FOR CLIENT REVIEW<br>000 - REVISION FOR CLIENT REVIEW   |                 |   |     |



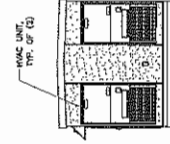
**3**  
NORTHERN SHELTER ELEVATION  
SCALE: 3/16" = 1'-0"



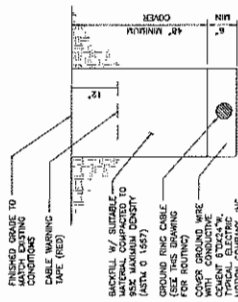
**5**  
SOUTHERN SHELTER ELEVATION  
SCALE: 3/16" = 1'-0"



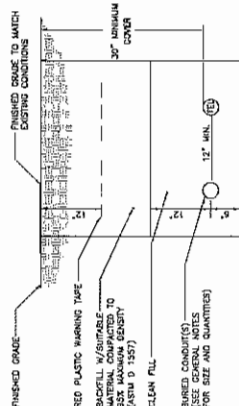
**4**  
WESTERN SHELTER ELEVATION  
SCALE: 3/16" = 1'-0"



**2**  
EASTERN SHELTER ELEVATION  
SCALE: 3/16" = 1'-0"



**7**  
TYPICAL BURIAL GROUND CABLE DETAIL  
NOT TO SCALE



**6**  
TYPICAL ELECTRICAL/TEL TRENCH DETAIL  
NOT TO SCALE

- NOTES:**
- THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL BE COMPACTED TO 95% RELATIVE DENSITY. ALL OTHER FILL SHALL BE COMPACTED TO 90% RELATIVE DENSITY. ALL DEBERS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION SHALL BE REMOVED FROM THE TRENCH.
  - WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL MAKE AND MAINTAIN EXISTING UTILITIES.

- INDEX:**
- PROVEN MATERIAL, LOOSE DIBS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION.
  - WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL MAKE AND MAINTAIN EXISTING UTILITIES.

FINISHED GRADE TO MATCH EXISTING CONDITIONS  
RED PLASTIC WARNING TAPE  
BACKFILL (AS APPLICABLE TO BOX) MAXIMUM DENSITY (ASTM D 1587)  
CLEAN FILL  
BURIED CONDUIT(S) (SEE GENERAL NOTES FOR SIZE AND QUANTITIES)  
11" MIN. COVER  
30" MINIMUM COVER

FINISHED GRADE TO MATCH EXISTING CONDITIONS  
RED PLASTIC WARNING TAPE  
BACKFILL (AS APPLICABLE TO BOX) MAXIMUM DENSITY (ASTM D 1587)  
CLEAN FILL  
BURIED CONDUIT(S) (SEE GENERAL NOTES FOR SIZE AND QUANTITIES)  
11" MIN. COVER  
30" MINIMUM COVER

FINISHED GRADE TO MATCH EXISTING CONDITIONS  
RED PLASTIC WARNING TAPE  
BACKFILL (AS APPLICABLE TO BOX) MAXIMUM DENSITY (ASTM D 1587)  
CLEAN FILL  
BURIED CONDUIT(S) (SEE GENERAL NOTES FOR SIZE AND QUANTITIES)  
11" MIN. COVER  
30" MINIMUM COVER

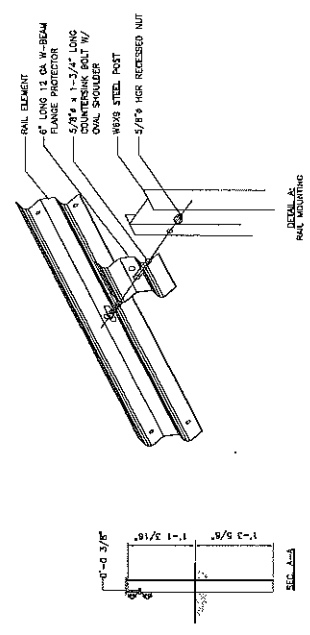
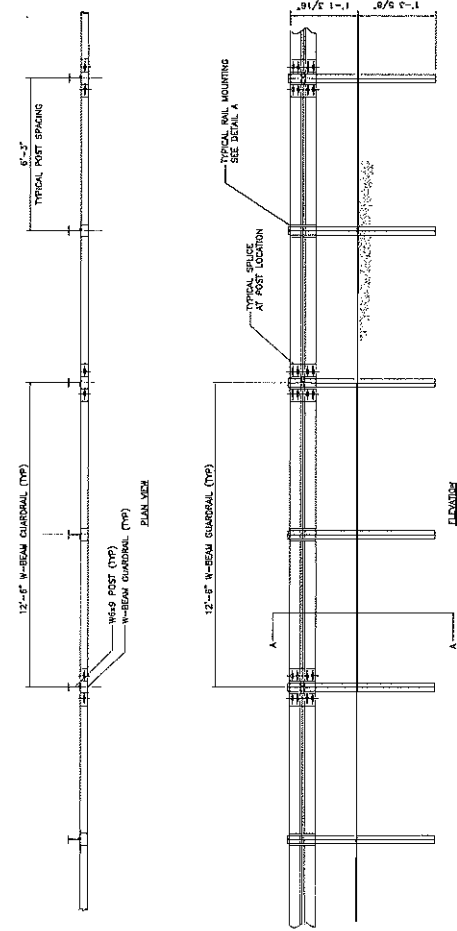
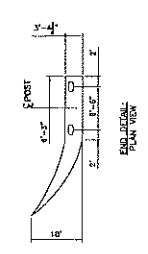
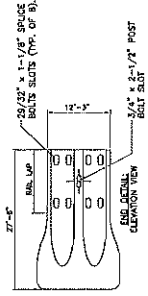
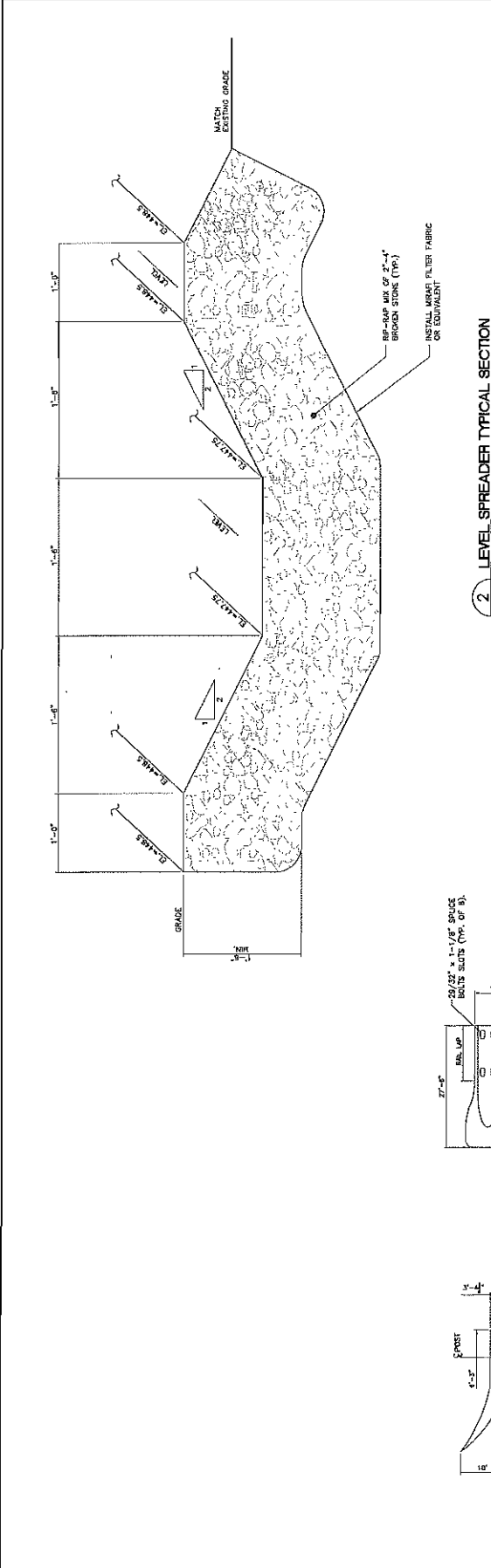


Cellco Partnership d/b/a Verizon Wireless  
PALMER POND  
PALMER COMMUNICATIONS FACILITY  
53 GALLUP ROAD  
GALLUP FARM  
VOLUME CT 08384

ENTER  
100 Main Street  
08045  
Palmer, MA  
www.enter.com

d/b/a Verizon Wireless  
Cellco Partnership

| REV. | DATE     | BY  | CHK'D | REASON                         |
|------|----------|-----|-------|--------------------------------|
| 0    | 06/05/12 | MMB | MDP   | CSC - ISSUED FOR CLIENT REVIEW |
|      |          |     |       |                                |
|      |          |     |       |                                |
|      |          |     |       |                                |
|      |          |     |       |                                |
|      |          |     |       |                                |
|      |          |     |       |                                |
|      |          |     |       |                                |
|      |          |     |       |                                |
|      |          |     |       |                                |

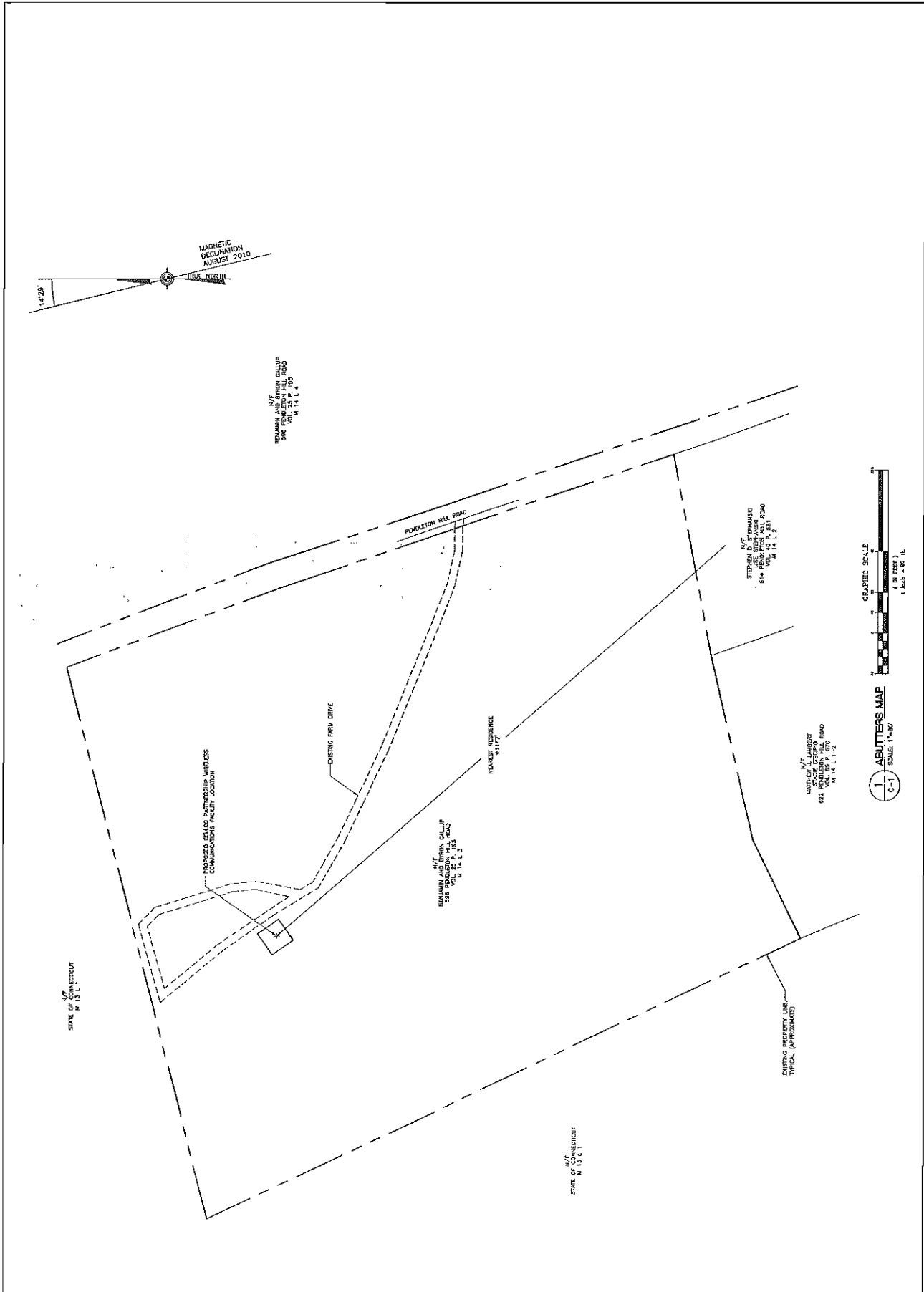


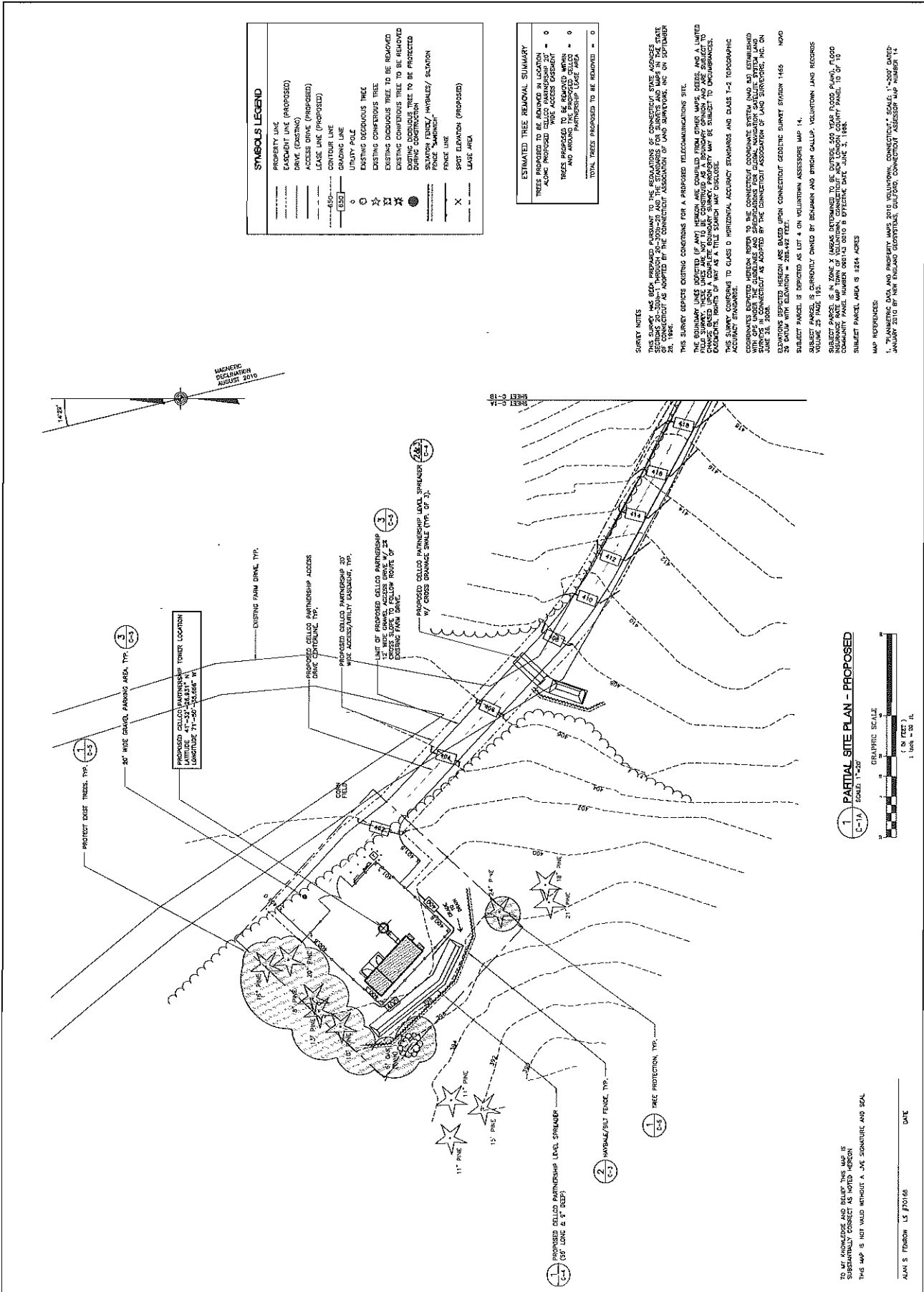
1 TYPICAL GUARDRAIL DETAILS NOT TO SCALE





|  |   |  |   |  |   |
|--|---|--|---|--|---|
| 596 PENLINGTON HILL ROAD<br>VOLUNTTOWN, CT 06384<br><b>PALMER POND</b><br>WIRELESS COMMUNICATIONS FACILITY |   | CENTER<br>1000 CENTER STREET<br>WASHINGTON, CT 06097 | Celco Partnership d/b/a Verizon Wireless<br>222 ANSON DRIVE<br>2ND FLOOR<br>BRIDGEVILLE, CT 06405 | DATE: 07/26/12<br>SCALE: AS NOTED<br>JOB NO: 10092 | ABUTTERS MAP<br>C-1<br>SHEET NO. 2 OF 2 |
| REVISIONS<br>NO. DATE BY DESCRIPTION   | 1 04/05/12 HWT EMD CEG - REVISION FOR CLARIFICATION | NATIONAL DESIGN SEAL                                 |   |  |   |
| DRAWN BY: [ ]<br>CHECKED BY: [ ]<br>DATE: [ ]  | PROJECT: [ ]  |  |   |  |   |





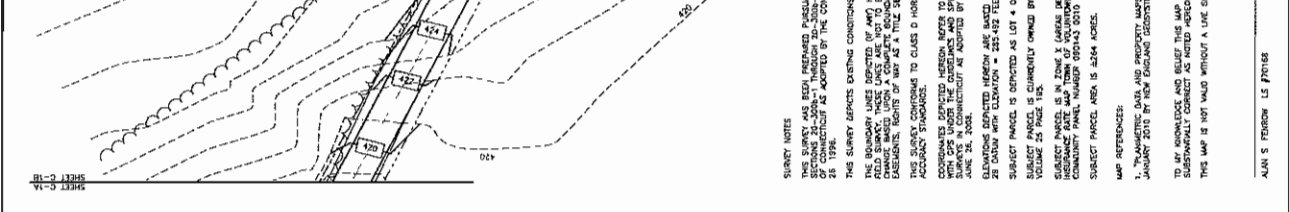
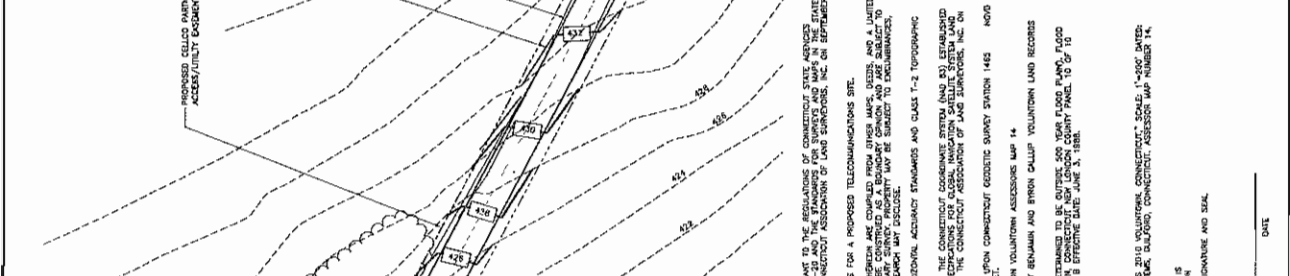
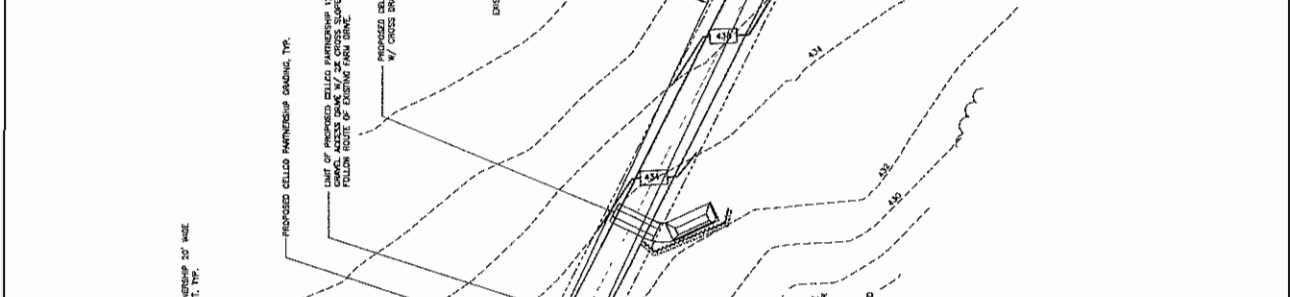
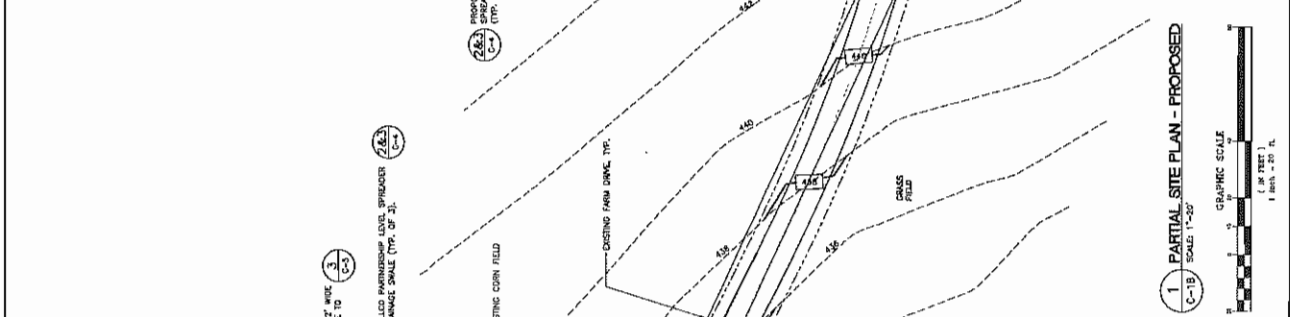
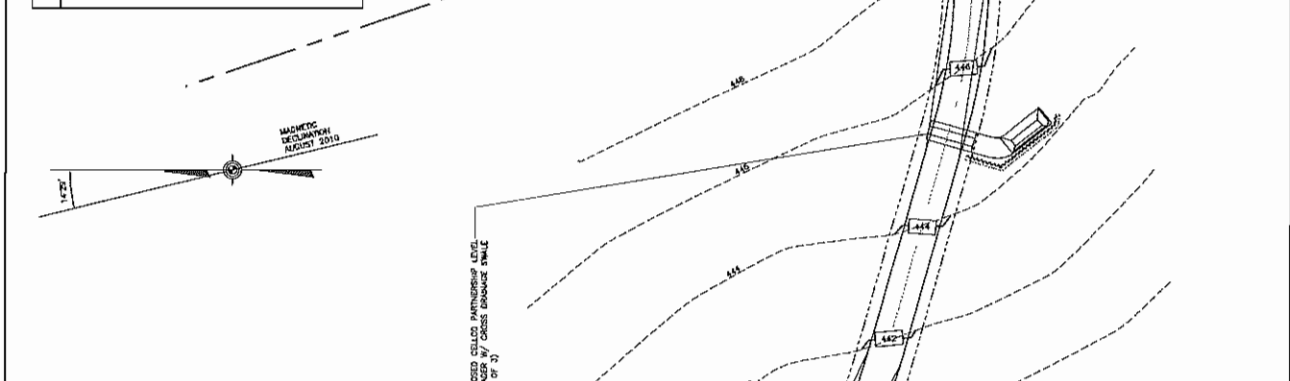
| DATE     | BY | SCALE    |
|----------|----|----------|
| 04/22/13 | JK | AS NOTED |

| NO. | DATE     | DESCRIPTION      |
|-----|----------|------------------|
| 1   | 04/22/13 | ISSUE FOR PERMIT |

| NO. | DATE     | DESCRIPTION      |
|-----|----------|------------------|
| 1   | 04/22/13 | ISSUE FOR PERMIT |



**SYMBOLS LEGEND**  
 PROPERTY LINE (PROPOSED)  
 EXISTING PROPERTY LINE  
 DRIVE (EXISTING)  
 ACCESS DRIVE (PROPOSED)  
 LEASE LINE (PROPOSED)  
 CONTOUR LINE  
 GRAVING LINE  
 UTILITY POLE  
 EXISTING DECADUOUS TREE  
 EXISTING CONIFEROUS TREE TO BE REMOVED  
 EXISTING CONIFEROUS TREE TO BE PROTECTED  
 EXISTING CONIFEROUS TREE TO BE PROTECTED DURING CONSTRUCTION  
 SEVERAL POLES/ ANTIWINDS/ SILICON  
 FORCE LINE  
 SHUT DOWN (PROPOSED)  
 LEASE AREA  
 ESTIMATED TREE REMOVAL SUMMARY  
 TREES PROPOSED TO BE REMOVED IN LOCATION ALONG PROPOSED CELLCO PARTNERSHIP 20' WIDE ACCESS EASEMENT = 0  
 TREES PROPOSED TO BE REMOVED IN LOCATION ALONG PROPOSED CELLCO PARTNERSHIP 20' WIDE ACCESS EASEMENT AND ADJACENT PARTNERSHIP LEASE AREA = 0  
 TOTAL TREES PROPOSED TO BE REMOVED = 0

**1 PARTIAL SITE PLAN - PROPOSED**  
 SCALE: 1" = 20'  
 GRAPHIC SCALE  
 1" = 20'  
 1" = 20'

**SURVEY NOTES**  
 THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE SERVICES SECTION 36-209a-1 THROUGH 36-209a-20 AND THE STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 25, 1998.  
 THIS SURVEY REFLECTS EXISTING CONDITIONS FOR A PROPOSED TELECOMMUNICATIONS SITE.  
 THE BOUNDARY LINES INDICATED BY THIS SURVEY ARE BASED ON FIELD MEASUREMENTS AND A LIMITED FIELD SURVEY. THESE LINES ARE NOT TO BE CONSIDERED AS A BOUNDARY OPINION AND ARE SUBJECT TO FURTHER SURVEY. THE BOUNDARY LINES INDICATED BY THIS SURVEY MAY BE SUBJECT TO ENCUMBRANCES, EASEMENTS, RIGHTS OF WAY AS A TITLE SEARCH MAY DISCLOSE.  
 THIS SURVEY CONFORMS TO CLASS D SURVEYING ACCURACY STANDARDS AND CLASS 1-2 TOPOGRAPHIC ACCURACY STANDARDS.  
 COORDINATES SHOWN REFER TO THE CONNECTICUT COORDINATE SYSTEM (NAD 83) ESTABLISHED BY THE CONNECTICUT DEPARTMENT OF CONSTRUCTION AND THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON JUNE 24, 2008.  
 ELEVATIONS SHOWN REFER TO THE CONNECTICUT GEODETIC DATUM 1463. NAVD 83 ELEVATIONS WERE OBTAINED FROM THE CONNECTICUT STATE SERVICES SECTION 36-209a-1 THROUGH 36-209a-20.  
 SUBJECT PARCEL IS DEPICTED AS LOT # 4 ON VOLUNTOWN ACCESSORS MAP 14.  
 SUBJECT PARCEL IS CURRENTLY OWNED BY BENJAMIN AND BIRON GALLUP VOLUNTOWN LAND RECORDS VOLUME 25 PAGE 115.  
 SUBJECT PARCEL IS IN ZONE X (AREAS UNDETERMINED TO BE OUTSIDE 500 YEAR FLOOD PLAIN FLOOD HAZARD) MAP TOWN OF VOLUNTOWN CONNECTICUT-NEW LONDON COUNTY PANEL 10 OF 10.  
 SUBJECT PARCEL NUMBER 00043 0010 IS EFFECTIVE DATE JUNE 3, 1988.  
 SUBJECT PARCEL AREA IS 2.64 ACRES.  
 MAP REFERENCED:  
 1. "METRIC DATA AND PROPERTY MAPS 2010 VOLUNTOWN, CONNECTICUT", SCALE: 1"=500', DATED JANUARY 2010 BY NEW ENGLAND GEODETIC, DALLARD, CONNECTICUT, ASSessor MAP NUMBER 14.  
 TO MY KNOWLEDGE AND BELIEF THIS MAP IS ACCURATE AND COMPLETE AS SHOWN HEREON.  
 THIS MAP IS NOT VALID WITHOUT A LICENSE AND SEAL.

ALAN S. FENNER L.S. 670148  
 DATE





**DRAINAGE CONTROL DETAILS**

DATE: 04/20/13  
 SCALE: AS NOTED  
 JOB NO.: 10022

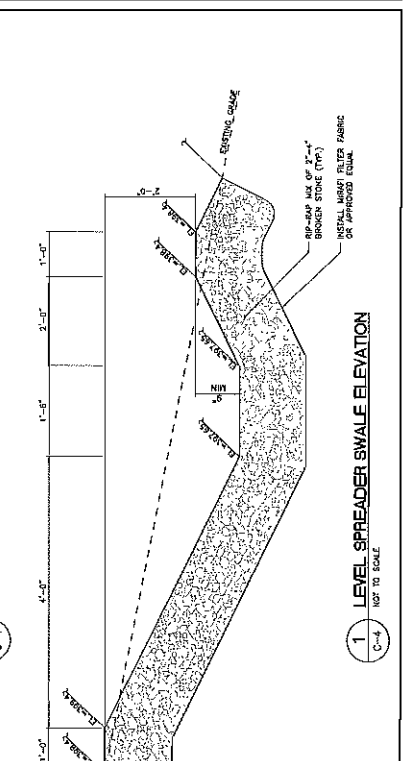
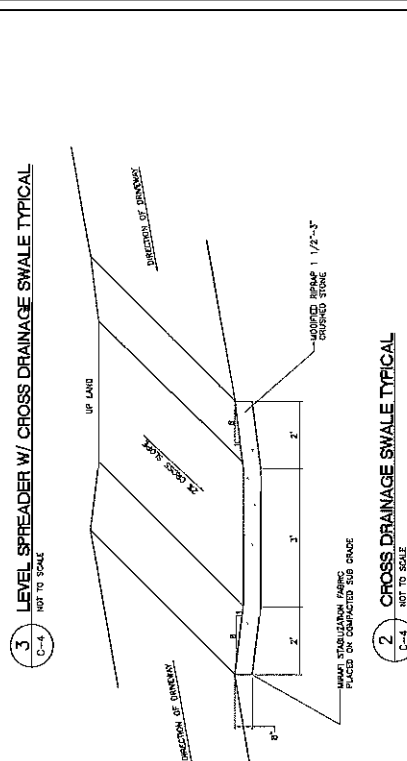
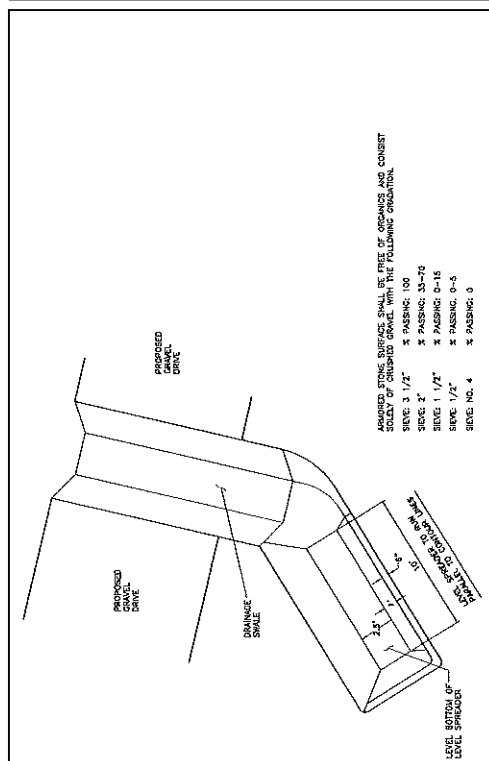
**Palmer Pond**  
 KINETIC CONSTRUCTION PARTNERSHIP  
 596 PENNINGTON HILL ROAD  
 VOLLINGTON CT 06384

**CENTEK**  
 CONSTRUCTION ENGINEERS  
 431 North Broadway Road  
 BRYANT CT 06038

**d/b/a. Vortzon/Wireless**  
 Celco Partnership

PROFESSIONAL ENGINEER SEAL

| NO. | DATE     | DESCRIPTION              |
|-----|----------|--------------------------|
| 1   | 04/20/13 | ISSUED FOR PERMIT REVIEW |
| 2   |          |                          |
| 3   |          |                          |
| 4   |          |                          |
| 5   |          |                          |
| 6   |          |                          |
| 7   |          |                          |
| 8   |          |                          |
| 9   |          |                          |
| 10  |          |                          |











**ADJACENT PROPERTY OWNERS**

SITE NAME: PALMER POND (SITE 1)

OWNER NAME: BENJAMIN GALLUP AND BYRON D. GALLUP

OWNER ADDRESS: 596 PENDLETON HILL ROAD, VOLUNTOWN, CONNECTICUT

ASSESSOR'S REFERENCE: MAP: 14 LOT: 596

THE FOLLOWING INFORMATION WAS COLLECTED FROM THE TAX ASSESSOR'S RECORDS AND LAND RECORDS OF VOLUNTOWN TOWN HALL. THE INFORMATION IS CURRENT AS OF FEBRUARY 20, 2013.

THE PARCEL IS ZONED RURAL DISTRICT.

**596 PENDLETON HILL ROAD**

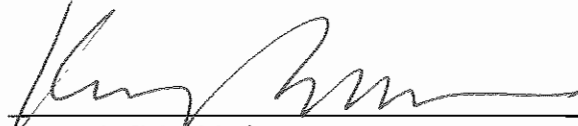
|    | <b><u>Map/Lot</u></b> | <b><u>Property Address</u></b> | <b><u>Property Owner</u></b>   |
|----|-----------------------|--------------------------------|--|
| 1. | 14/4                  | 53 Gallup Road                 | Benjamin Gallup and Byron D. Gallup<br>53 Gallup Road<br>Voluntown, CT 06384       |
| 2. | 14/2                  | 614 Pendleton Hill Road        | Stephen Stephanski<br>614 Pendleton Hill Road<br>Voluntown, CT 06384               |
| 3. | 14/1-2                | 622 Pendleton Hill Road        | Matthew J. and Stacie A. Lambert<br>622 Pendleton Hill Road<br>Voluntown, CT 06384 |
| 4. | 13/1                  | Hodge Pond Road                | State of Connecticut DEEP<br>165 Capitol Avenue<br>Hartford, CT 06106              |

**CERTIFICATION OF SERVICE**

I hereby certify that a copy of the foregoing letter was sent by certified mail, return receipt requested, to each of the parties on the attached list of abutting landowners.

5-6-13

\_\_\_\_\_  
Date



\_\_\_\_\_  
Kenneth C. Baldwin, Esq.  
Robinson & Cole LLP  
280 Trumbull Street  
Hartford, CT 06103

Attorneys for CELLCO PARTNERSHIP d/b/a  
VERIZON WIRELESS

**ADJACENT PROPERTY OWNERS**

SITE NAME: PALMER POND (SITE 2)

OWNER NAME: BENJAMIN GALLUP AND BYRON D. GALLUP

OWNER ADDRESS: 53 GALLUP ROAD, VOLUNTOWN, CONNECTICUT

ASSESSOR'S REFERENCE: MAP: 14 LOT: 53

THE FOLLOWING INFORMATION WAS COLLECTED FROM THE TAX ASSESSOR'S RECORDS AND LAND RECORDS OF VOLUNTOWN TOWN HALL. THE INFORMATION IS CURRENT AS OF FEBRUARY 20, 2013.

THE PARCEL IS ZONED RURAL DISTRICT.

**53 GALLUP ROAD**

|    | <b><u>Map/Lot</u></b> | <b><u>Property Address</u></b> | <b><u>Property Owner</u></b>   |
|----|-----------------------|--------------------------------|--|
| 1. | 14/3                  | 596 Pendleton Hill Road        | Benjamin Gallup and Byron D. Gallup<br>53 Gallup Road<br>Voluntown, CT 06384 |
| 2. | 14/2                  | 614 Pendleton Hill Road        | Stephen Stephanski<br>614 Pendleton Hill Road<br>Voluntown, CT 06384         |
| 3. | 14/1-1                | 620 Pendleton Hill Road        | Jose T. Vincent<br>620 Pendleton Hill Road<br>Voluntown, CT 06384            |
| 4. | 14/6                  | 54 Gallup Road                 | Benjamin Gallup and Byron D. Gallup<br>53 Gallup Road<br>Voluntown, CT 06384 |
| 5. | 14/5                  | Gallup Road                    | State of Connecticut DEEP<br>165 Capitol Avenue<br>Hartford, CT 06106        |
| 6. | 20/1                  | Tarklin Hill Road              | State of Connecticut DEEP<br>165 Capitol Avenue<br>Hartford, CT 06106        |

|     | <u>Map/Lot</u> | <u>Property Address</u> | <u>Property Owner</u>   |
|-----|----------------|-------------------------|---|
| 7.  | 19/2           | Fish Hill Road          | State of Connecticut DEEP<br>165 Capitol Avenue<br>Hartford, CT 06106               |
| 8.  | 13/1           | Hodge Pond Road         | State of Connecticut DEEP<br>165 Capitol Avenue<br>Hartford, CT 06106               |
| 9.  | 18/1*          | 446 Pendleton Hill Road | Bryan K. and Michelle Weisbrod<br>446 Pendleton Hill Road<br>Voluntown, CT 06384    |
| 10. | 18/1*          | 450 Pendleton Hill Road | Stephen J. and Denise A. Luft<br>22 MicMac Trail<br>Voluntown, CT 06384             |
| 11. | 18/1*          | 456 Pendleton Hill Road | Lloyd and Tammy Van Lanen<br>456 Pendleton Hill Road<br>Voluntown, CT 06384         |
| 12. | 18/1*          | 460 Pendleton Hill Road | Irving L. and Franca M. Beauchamp<br>460 Pendleton Hill Road<br>Voluntown, CT 06384 |
| 13. | 18/1*          | 466 Pendleton Hill Road | Wayne A. and Katherine R. Quinn<br>466 Pendleton Hill Road<br>Voluntown, CT 06384   |

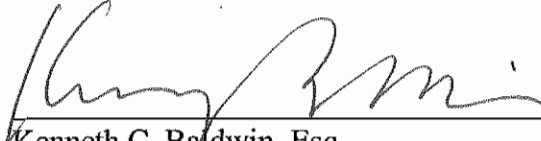
\*Parcels referenced as Map 18/Lot 1 are a part of a recent subdivision. The Town of Voluntown Assessor's maps have not yet been updated to provide each subdivided parcel with a separate lot reference.

CERTIFICATION OF SERVICE

I hereby certify that a copy of the foregoing letter was sent by certified mail, return receipt requested, to each of the parties on the attached list of abutting landowners.

5-6-13

\_\_\_\_\_  
Date



\_\_\_\_\_  
Kenneth C. Baldwin, Esq.  
Robinson & Cole LLP  
280 Trumbull Street  
Hartford, CT 06103

Attorneys for CELLCO PARTNERSHIP d/b/a  
VERIZON WIRELESS

ULS License

**Cellular License - KNKA745 - Cellco Partnership**

**PA** This license has pending applications: 0003322914

|           |         |               |               |
|-----------|---------|---------------|---------------|
| Call Sign | KNKA745 | Radio Service | CL - Cellular |
| Status    | Active  | Auth Type     | Regular       |

**Market**

|           |                                 |               |   |
|-----------|---------------------------------|---------------|---|
| Market    | CMA154 - New London-Norwich, CT | Channel Block | A |
| Submarket | 0                               | Phase         | 2 |

**Dates**

|           |            |              |            |
|-----------|------------|--------------|------------|
| Grant     | 02/05/2008 | Expiration   | 01/22/2018 |
| Effective | 02/05/2008 | Cancellation |            |

**Five Year Buildout Date**

06/21/1993

**Control Points**

1 20 West Dove Rd., TARRANT, Southlake, TX  
P: (800)264-6620

**Licensee**

|     |            |      |                     |
|-----|------------|------|---------------------|
| FRN | 0003290673 | Type | General Partnership |
|-----|------------|------|---------------------|

**Licensee**

|   |  |
|---|--|
| Cellco Partnership<br>1120 Sanctuary Pkwy, #150 GASA5REG<br>Alpharetta, GA 30004<br>ATTN Regulatory | P:(770)797-1070<br>F:(770)797-1036<br>E:Network.Regulatory@VerizonWireless.com |
|---|--|

**Contact**

|  |  |
|--|--|
| Verizon Wireless<br>Sonya R Dutton<br>1120 Sanctuary Pkwy #150 GASA5REG<br>Alpharetta, GA 30004<br>ATTN Network Regulatory | P:(770)797-1070<br>F:(770)797-1036<br>E:Network.Regulatory@VerizonWireless.com |
|--|--|

**Ownership and Qualifications**

|                    |                |                |     |
|--------------------|----------------|----------------|-----|
| Radio Service Type | Mobile         |                |     |
| Regulatory Status  | Common Carrier | Interconnected | Yes |

**Alien Ownership**

|   |     |
|---|-----|
| Is the applicant a foreign government or the representative of any foreign government?  | No  |
| Is the applicant an alien or the representative of an alien?  | No  |
| Is the applicant a corporation organized under the laws of any foreign government?  | No  |
| Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country? | No  |
| Is the applicant directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or  | Yes |

voted by aliens, their representatives, or by a foreign government or representative thereof, or by any corporation organized under the laws of a foreign country?

If the answer to the above question is 'Yes', has the applicant received a ruling(s) under Section 310(b)(4) of the Communications Act with respect to the same radio service involved in this application? **Yes**

**Basic Qualifications**

The Applicant answered "No" to each of the Basic Qualification questions.

**Demographics**

Race

Ethnicity

Gender



ULS License

## Cellular License - KNKA745 - Cellco Partnership - Frequencies

Call Sign      KNKA745      Radio Service    CL - Cellular

▶ [Return to Main](#)

### A Block

824.04 - 834.99 paired with 869.04 - 879.99

845.01 - 846.48 paired with 890.01 - 891.48

ULS License

**PCS Broadband License - KNLH263 - Cellco Partnership**

|               |                                 |                              |   |
|---------------|---------------------------------|------------------------------|---|
| Call Sign     | KNLH263                         | Radio Service                | CW - PCS Broadband  |
| Status        | Active                          | Auth Type                    | Regular   |
| <b>Market</b> |                                 |                              |   |
| Market        | BTA319 - New London-Norwich, CT | Channel Block                | F   |
| Submarket     | 0                               | Associated Frequencies (MHz) | 001890.00000000-001895.00000000-001970.00000000-001975.00000000 |

**Dates**

|           |            |              |            |
|-----------|------------|--------------|------------|
| Grant     | 07/23/2007 | Expiration   | 06/27/2017 |
| Effective | 07/23/2007 | Cancellation |            |

**Buildout Deadlines**

|     |            |     |  |
|-----|------------|-----|--|
| 1st | 06/27/2002 | 2nd |  |
|-----|------------|-----|--|

**Notification Dates**

|     |            |     |  |
|-----|------------|-----|--|
| 1st | 05/29/2002 | 2nd |  |
|-----|------------|-----|--|

**Licensee**

|     |            |      |               |
|-----|------------|------|---------------|
| FRN | 0003290673 | Type | Joint Venture |
|-----|------------|------|---------------|

**Licensee**

|   |  |
|---|--|
| Cellco Partnership<br>1120 Sanctuary Pkwy, #150 GASASREG<br>Alpharetta, GA 30004<br>ATTN Regulatory | P:(770)797-1070<br>F:(770)797-1036<br>E:Network.Regulatory@VerizonWireless.com |
|---|--|

**Contact**

|   |  |
|---|--|
| Verizon Wireless<br>Sonya R Dutton<br>1120 Sanctuary Pkwy, #150 GASASREG<br>Alpharetta, GA 30004<br>ATTN Regulatory | P:(770)797-1070<br>F:(770)797-1036<br>E:Network.Regulatory@VerizonWireless.com |
|---|--|

**Ownership and Qualifications**

|                    |                                   |
|--------------------|-----------------------------------|
| Radio Service Type | Mobile                            |
| Regulatory Status  | Common Carrier Interconnected Yes |

**Alien Ownership**

|  |    |
|--|----|
| Is the applicant a foreign government or the representative of any foreign government? | No |
| Is the applicant an alien or the representative of an alien?                           | No |
| Is the applicant a corporation organized under the laws of any foreign government?     | No |

Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country? **No**

Is the applicant directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof, or by any corporation organized under the laws of a foreign country? **Yes**

If the answer to the above question is 'Yes', has the applicant received a ruling(s) under Section 310(b)(4) of the Communications Act with respect to the same radio service involved in this application?

**Basic Qualifications**

The Applicant answered "No" to each of the Basic Qualification questions.

**Tribal Land Bidding Credits**

This license did not have tribal land bidding credits.

**Demographics**

Race

Ethnicity

Gender

REFERENCE COPY

This is not an official FCC license. It is a record of public information contained in the FCC's licensing database on the date that this reference copy was generated. In cases where FCC rules require the presentation, posting, or display of an FCC license, this document may not be used in place of an official FCC license.



Federal Communications Commission  
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY  
CELLCO PARTNERSHIP  
1120 SANCTUARY PKWY #150 - GASA5REG  
ALPHARETTA, GA 30004

|  |                           |
|--|---------------------------|
| Call Sign<br>WQJQ689                               | File Number<br>0003382444 |
| Radio Service<br>WU - 700 MHz Upper Band (Block C) |                           |

FCC Registration Number (FRN): 0003290673

|                                  |                                  |                               |                          |
|----------------------------------|----------------------------------|-------------------------------|--------------------------|
| Grant Date<br>11-26-2008         | Effective Date<br>11-26-2008     | Expiration Date<br>02-17-2019 | Print Date<br>12-03-2008 |
| Market Number<br>REA001          | Channel Block<br>C               | Sub-Market Designator<br>0    |                          |
| Market Name<br>Northeast         |                                  |                               |                          |
| 1st Build-out Date<br>02-17-2013 | 2nd Build-out Date<br>02-17-2019 | 3rd Build-out Date            | 4th Build-out Date       |

Waivers/Conditions:

If the facilities authorized herein are used to provide broadcast operations, whether exclusively or in combination with other services, the licensee must seek renewal of the license either within eight years from the commencement of the broadcast service or within the term of the license had the broadcast service not been provided, whichever period is shorter in length. See 47 CFR §27.13(b).

This authorization is conditioned upon compliance with section 27.16 of the Commission's rules.

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

To view the geographic areas associated with the license, go to the Universal Licensing System (ULS) homepage at <http://wireless.fcc.gov/uls> and select "License Search". Follow the instructions on how to search for license information.

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**Federal Communications Commission**  
**Wireless Telecommunications Bureau**

**RADIO STATION AUTHORIZATION**

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY  
 CELLCO PARTNERSHIP  
 1120 SANCTUARY PKWY #150 - GASASREG  
 ALPHARETTA, GA 30004

|  |                                  |
|--|----------------------------------|
| <b>Call Sign</b><br>WQJQ696                                      | <b>File Number</b><br>0003382435 |
| <b>Radio Service</b><br>WY - 700 MHz Lower Band (Blocks A, B, E) |                                  |

FCC Registration Number (FRN): 0003290673

|  |   |                                      |                                 |
|--|---|--------------------------------------|---------------------------------|
| <b>Grant Date</b><br>11-26-2008                  | <b>Effective Date</b><br>11-26-2008     | <b>Expiration Date</b><br>02-17-2019 | <b>Print Date</b><br>12-03-2008 |
| <b>Market Number</b><br>BEA010                   | <b>Channel Block</b>                    | <b>Sub-Market Designator</b><br>0    |                                 |
| <b>Market Name</b><br>New York-New Jer.-Long Isl |   |                                      |                                 |
| <b>1st Build-out Date</b><br>02-17-2013          | <b>2nd Build-out Date</b><br>02-17-2019 | <b>3rd Build-out Date</b>            | <b>4th Build-out Date</b>       |

**Waivers/Conditions:**

If the facilities authorized herein are used to provide broadcast operations, whether exclusively or in combination with other services, the licensee must seek renewal of the license either within eight years from the commencement of the broadcast service or within the term of the license had the broadcast service not been provided, whichever period is shorter in length. See 47 CFR §27.13(b).

**Conditions:**

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

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**Federal Communications Commission  
Wireless Telecommunications Bureau**

**RADIO STATION AUTHORIZATION**

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY  
CELLCO PARTNERSHIP  
1120 SANCTUARY PKWY, #150 GASA5REG  
ALPHARETTA, GA 30009-7630

|  |                                  |
|--|----------------------------------|
| <b>Call Sign</b><br>WQGA715  | <b>File Number</b><br>0005272585 |
| <b>Radio Service</b><br>AW - AWS, 1710-1755/2110-2155 MHz<br>bands |                                  |

FCC Registration Number (FRN): 0003290673

|                                 |                                     |                                      |                                 |
|---------------------------------|-------------------------------------|--------------------------------------|---------------------------------|
| <b>Grant Date</b><br>11-29-2006 | <b>Effective Date</b><br>08-23-2012 | <b>Expiration Date</b><br>11-29-2021 | <b>Print Date</b><br>10-02-2012 |
| <b>Market Number</b><br>REA001  | <b>Channel Block</b><br>F           | <b>Sub-Market Designator</b><br>1    |                                 |
| <b>Market Name</b><br>Northeast |                                     |                                      |                                 |
| <b>1st Build-out Date</b>       | <b>2nd Build-out Date</b>           | <b>3rd Build-out Date</b>            | <b>4th Build-out Date</b>       |

**Waivers/Conditions:**

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations. See, e.g., FCC and NTIA Coordination Procedures in the 1710-1755 MHz Band, Public Notice, FCC 06-50, WTB Docket No. 02-353, rel. April 20, 2006.

AWS operations must not cause harmful interference across the Canadian or Mexican Border. The authority granted herein is subject to future international agreements with Canada or Mexico, as applicable.

**Conditions:**

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at <http://wireless.fcc.gov/uls/index.htm?job=home> and select "License Search". Follow the instructions on how to search for license information.

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**Federal Communications Commission  
Wireless Telecommunications Bureau**

**RADIO STATION AUTHORIZATION**

LICENSEE: CELLCO PARTNERSHIP

ATTN: LICENSING MANAGER  
CELLCO PARTNERSHIP  
1120 SANCTUARY PKWY, STE 150 GASA5REG  
ALPHARETTA, GA 30009

|  |                                   |
|--|-----------------------------------|
| <b>Call Sign</b><br>WQGA906  | <b>File Number</b><br>50000AWAA12 |
| <b>Radio Service</b><br>AW - AWS, 1710-1755/2110-2155 MHz<br>bands |                                   |

FCC Registration Number (FRN): 0003290673

|  |                                     |                                      |                                 |
|--|-------------------------------------|--------------------------------------|---------------------------------|
| <b>Grant Date</b><br>11-29-2006                      | <b>Effective Date</b><br>08-23-2012 | <b>Expiration Date</b><br>11-29-2021 | <b>Print Date</b><br>10-02-2012 |
| <b>Market Number</b><br>BEA010                       | <b>Channel Block</b><br>B           | <b>Sub-Market Designator</b><br>15   |                                 |
| <b>Market Name</b><br>New York-No. New Jer.-Long Isl |                                     |                                      |                                 |
| <b>1st Build-out Date</b>                            | <b>2nd Build-out Date</b>           | <b>3rd Build-out Date</b>            | <b>4th Build-out Date</b>       |

**Waivers/Conditions:**

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations. See, e.g., FCC and NTIA Coordination Procedures in the 1710-1755 MHz Band, Public Notice, FCC 06-50, WTB Docket No. 02-353, rel. April 20, 2006.

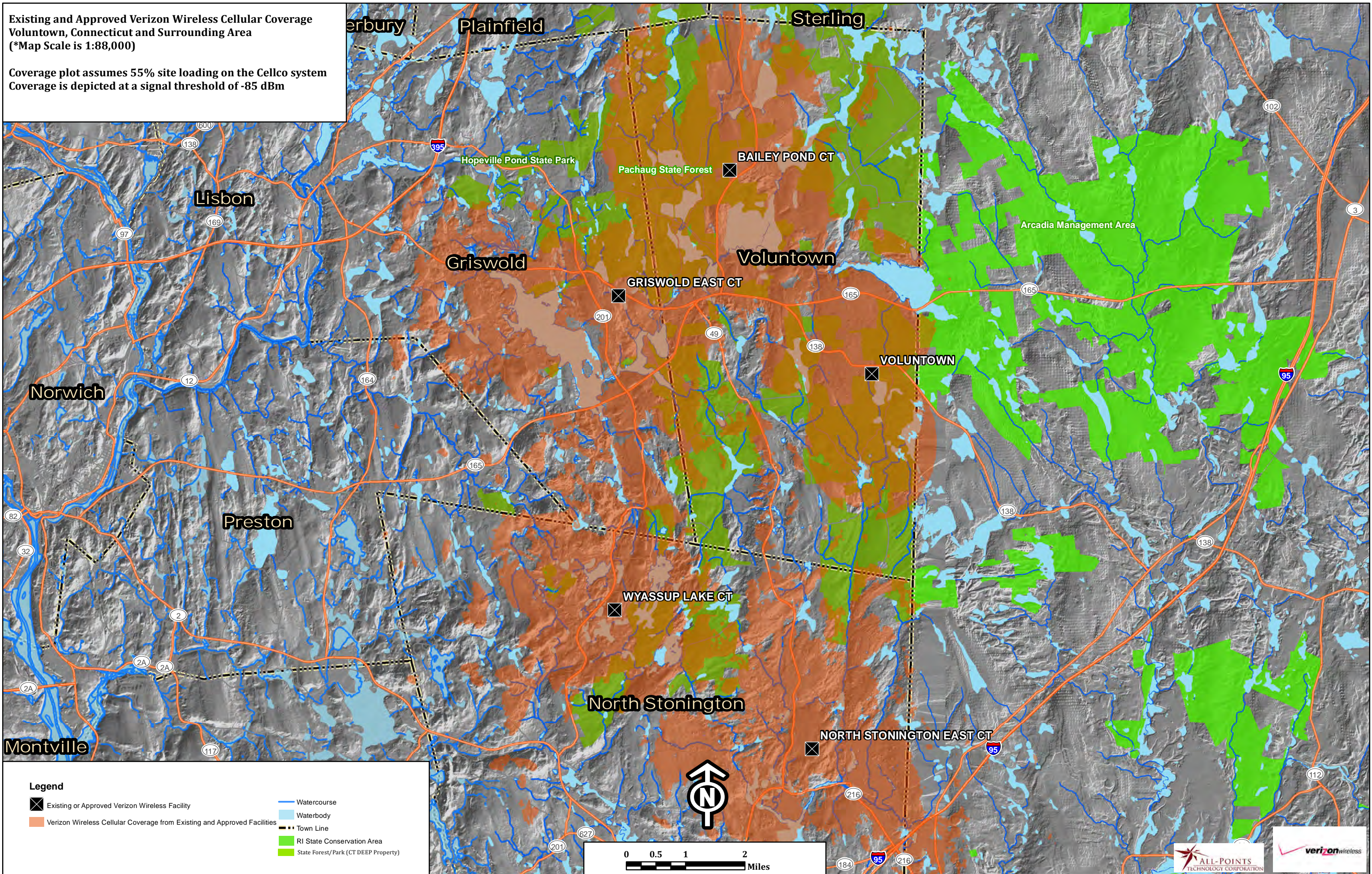
**Conditions:**

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.








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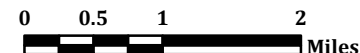
**Existing and Approved Verizon Wireless Cellular Coverage  
Voluntown, Connecticut and Surrounding Area  
(\*Map Scale is 1:88,000)**

Coverage plot assumes 55% site loading on the Cellco system  
Coverage is depicted at a signal threshold of -85 dBm



**Legend**

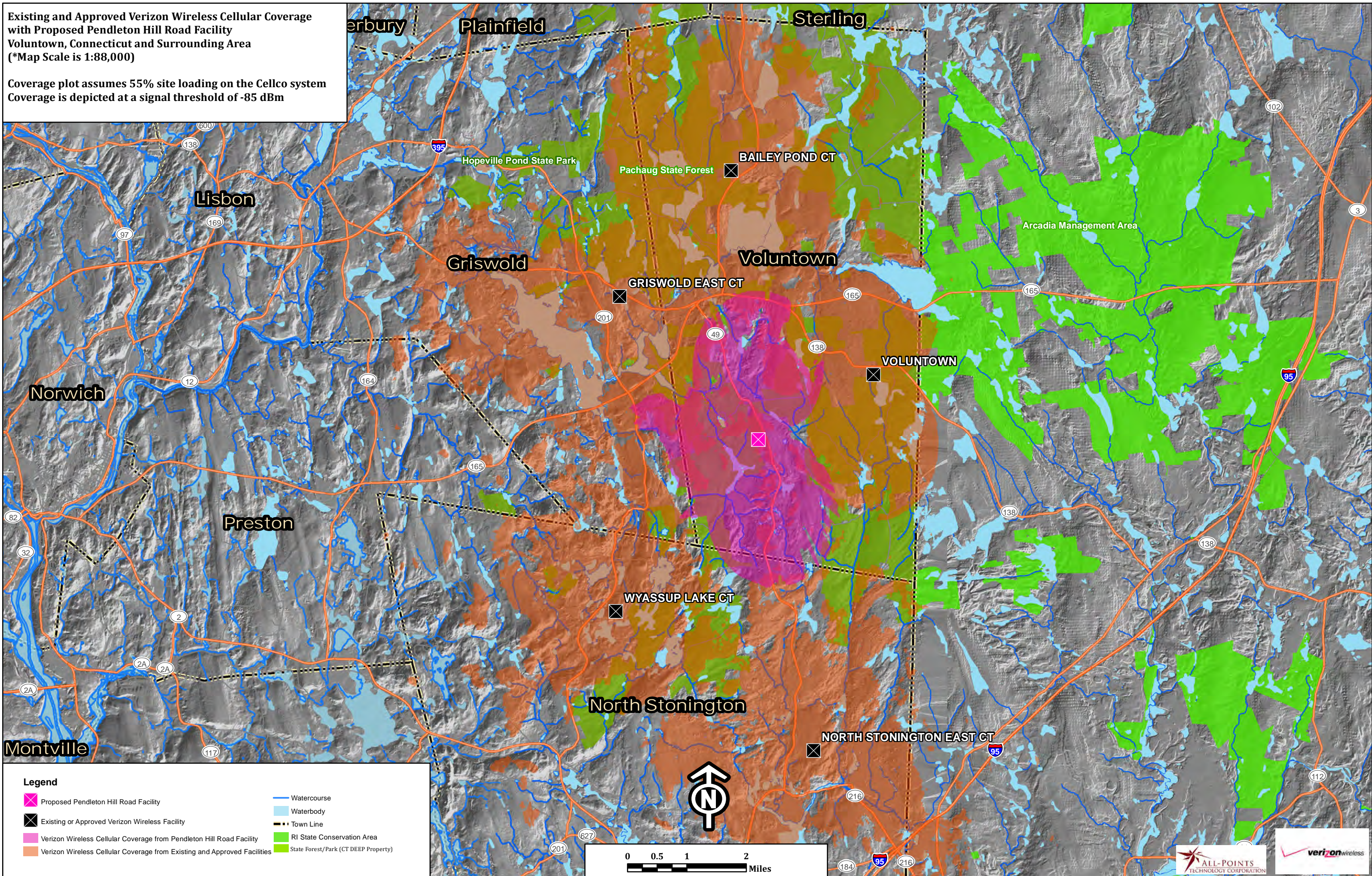
-  Existing or Approved Verizon Wireless Facility
-  Verizon Wireless Cellular Coverage from Existing and Approved Facilities
-  Watercourse
-  Waterbody
-  Town Line
-  RI State Conservation Area
-  State Forest/Park (CT DEEP Property)





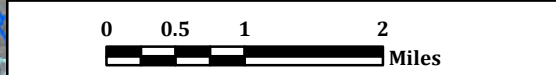
Existing and Approved Verizon Wireless Cellular Coverage with Proposed Pendleton Hill Road Facility  
 Voluntown, Connecticut and Surrounding Area  
 (\*Map Scale is 1:88,000)

Coverage plot assumes 55% site loading on the Cellco system  
 Coverage is depicted at a signal threshold of -85 dBm



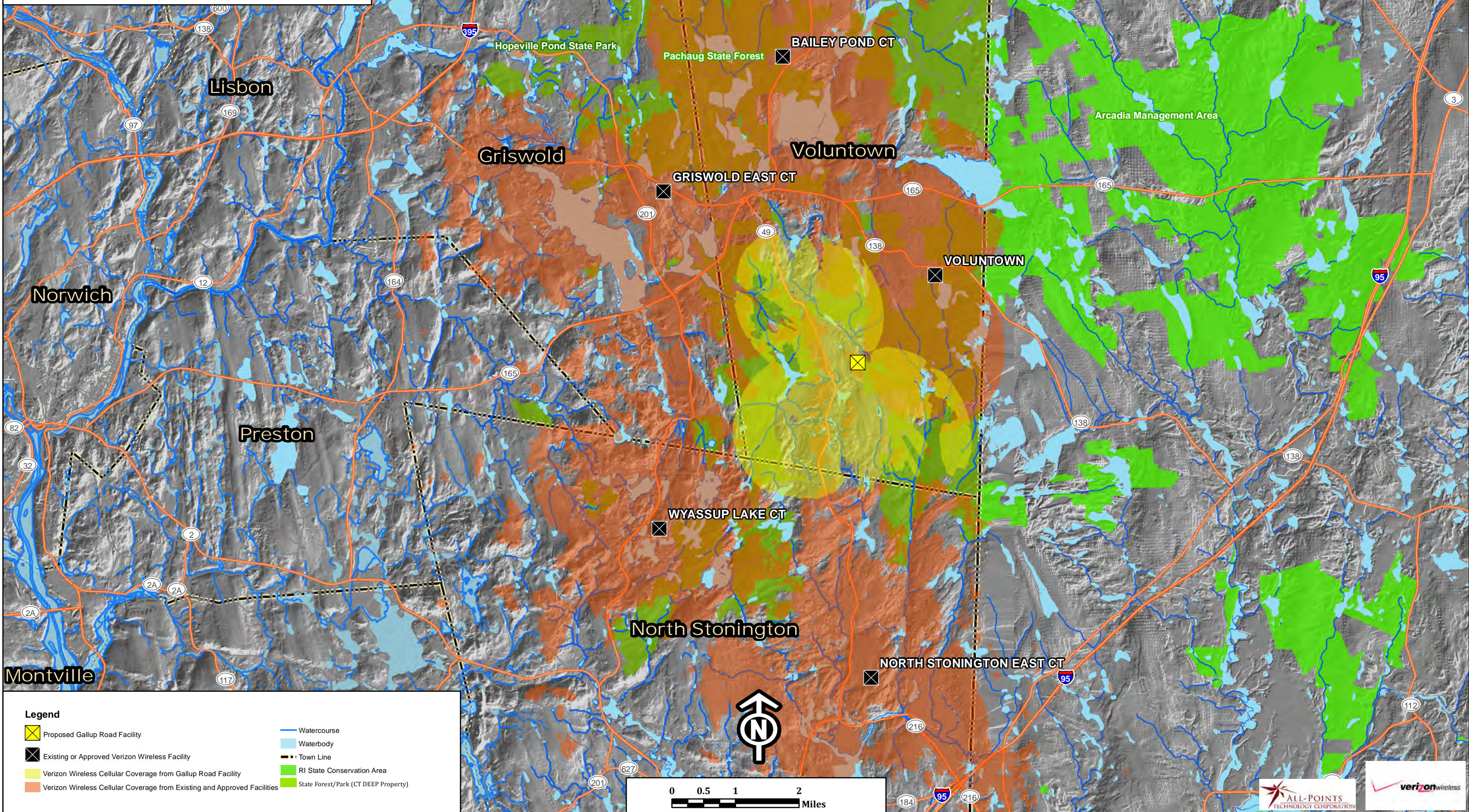
**Legend**

|  |  |  |                                      |
|--|--|--|--------------------------------------|
|  | Proposed Pendleton Hill Road Facility                                    |  | Watercourse                          |
|  | Existing or Approved Verizon Wireless Facility                           |  | Waterbody                            |
|  | Verizon Wireless Cellular Coverage from Pendleton Hill Road Facility     |  | Town Line                            |
|  | Verizon Wireless Cellular Coverage from Existing and Approved Facilities |  | RI State Conservation Area           |
|  |  |  | State Forest/Park (CT DEEP Property) |












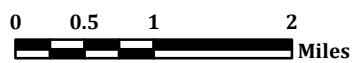
**Existing and Approved Verizon Wireless Cellular Coverage with Proposed Gallup Road Facility  
Voluntown, Connecticut and Surrounding Area  
(\*Map Scale is 1:88,000)**

Coverage plot assumes 55% site loading on the Cellco system  
Coverage is depicted at a signal threshold of -85 dBm



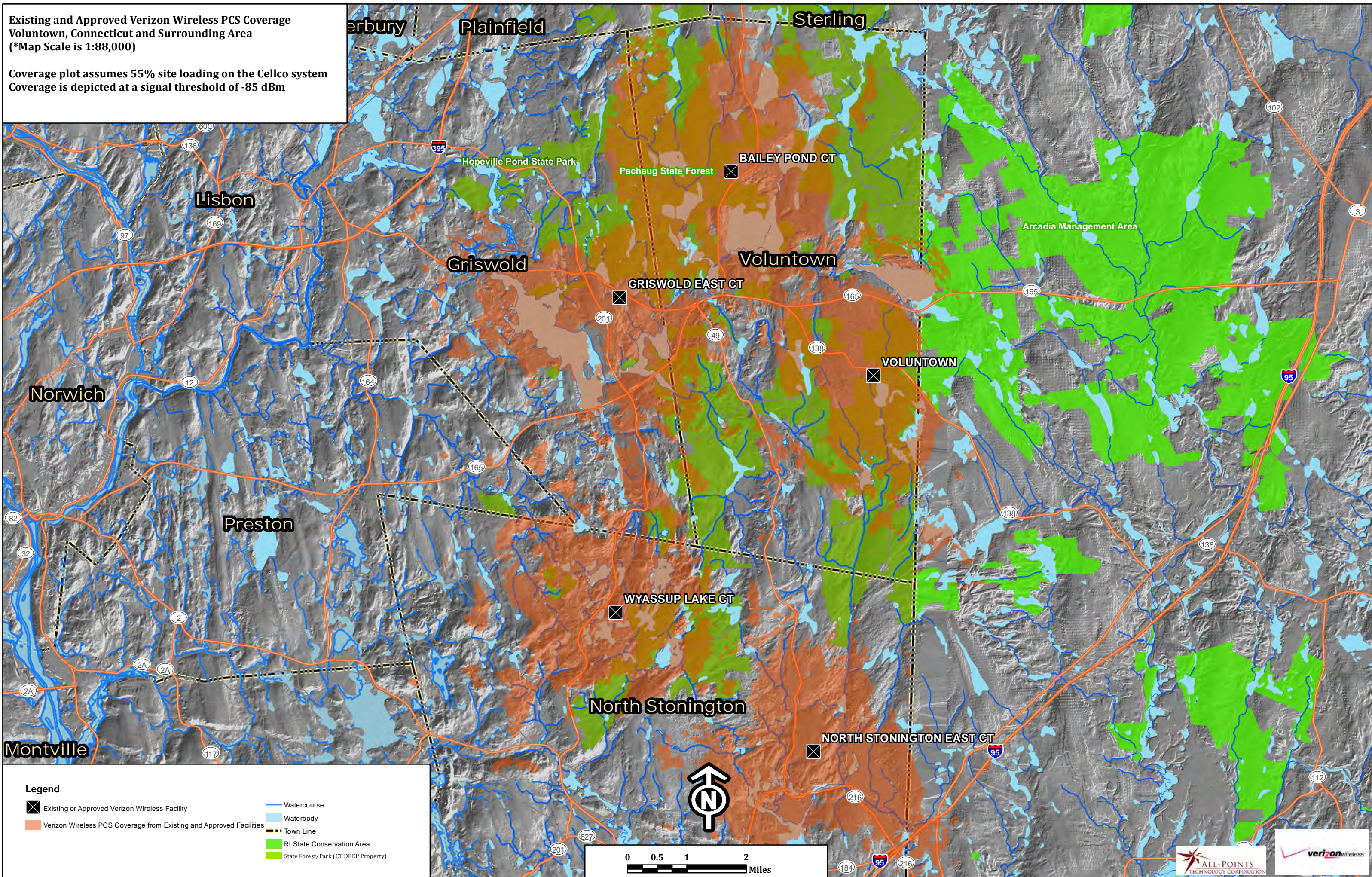
**Legend**

-  Proposed Gallup Road Facility
-  Existing or Approved Verizon Wireless Facility
-  Verizon Wireless Cellular Coverage from Gallup Road Facility
-  Verizon Wireless Cellular Coverage from Existing and Approved Facilities
-  Watercourse
-  Waterbody
-  Town Line
-  RI State Conservation Area
-  State Forest/Park (CT DEEP Property)










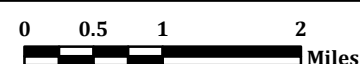
**Existing and Approved Verizon Wireless PCS Coverage  
Voluntown, Connecticut and Surrounding Area  
(\*Map Scale is 1:88,000)**

Coverage plot assumes 55% site loading on the Cellco system  
Coverage is depicted at a signal threshold of -85 dBm



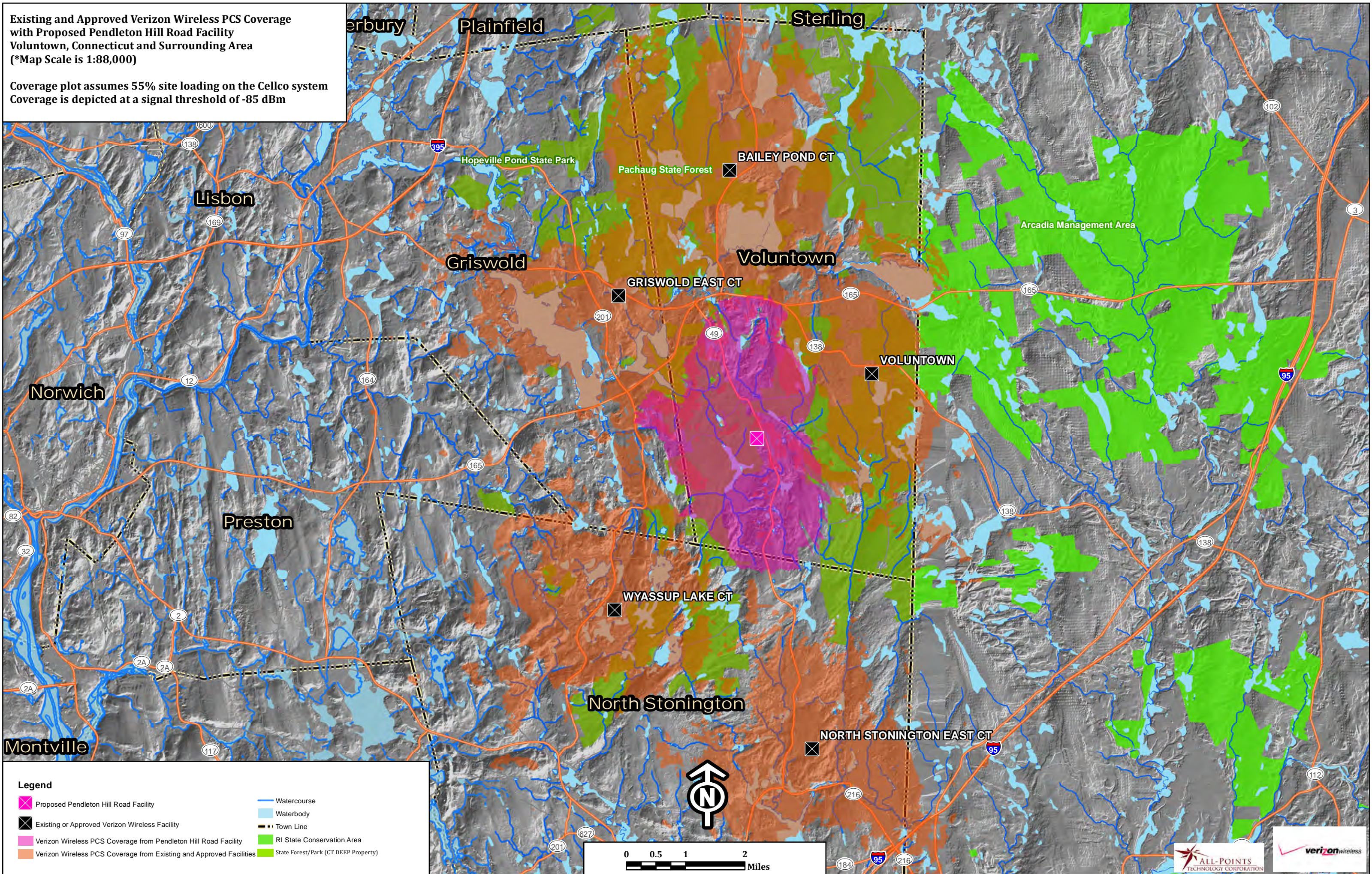
**Legend**

-  Existing or Approved Verizon Wireless Facility
-  Verizon Wireless PCS Coverage from Existing and Approved Facilities
-  Watercourse
-  Waterbody
-  Town Line
-  RI State Conservation Area
-  State Forest/Park (CT DEEP Property)



**Existing and Approved Verizon Wireless PCS Coverage  
with Proposed Pendleton Hill Road Facility  
Voluntown, Connecticut and Surrounding Area  
(\*Map Scale is 1:88,000)**

Coverage plot assumes 55% site loading on the Cellco system  
Coverage is depicted at a signal threshold of -85 dBm



**Legend**

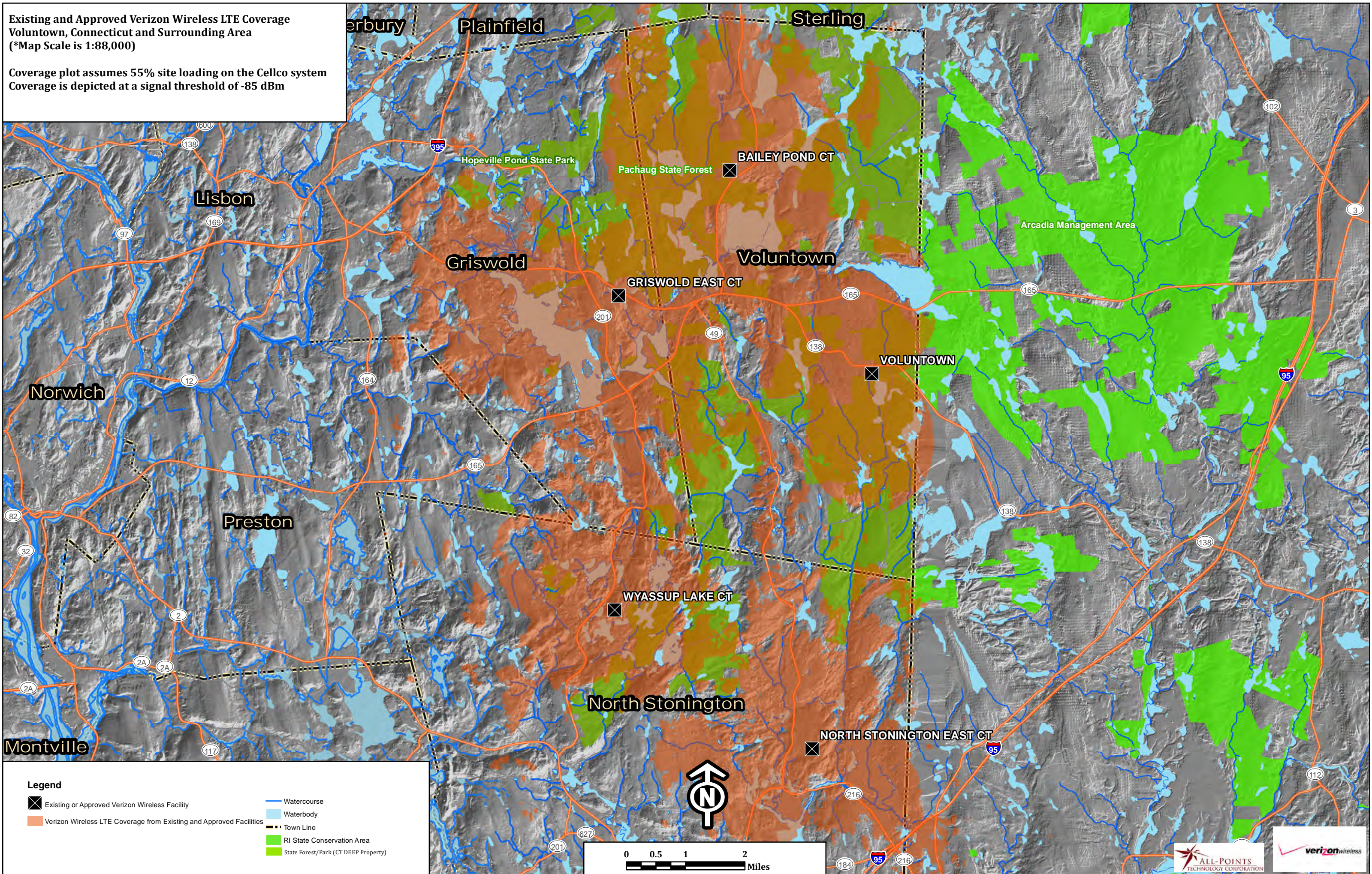
|  |   |  |                                      |
|--|---|--|--------------------------------------|
|  | Proposed Pendleton Hill Road Facility                               |  | Watercourse                          |
|  | Existing or Approved Verizon Wireless Facility                      |  | Waterbody                            |
|  | Verizon Wireless PCS Coverage from Pendleton Hill Road Facility     |  | Town Line                            |
|  | Verizon Wireless PCS Coverage from Existing and Approved Facilities |  | RI State Conservation Area           |
|  |   |  | State Forest/Park (CT DEEP Property) |





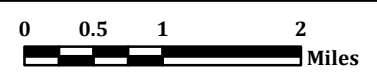
**Existing and Approved Verizon Wireless LTE Coverage  
Voluntown, Connecticut and Surrounding Area  
(\*Map Scale is 1:88,000)**

Coverage plot assumes 55% site loading on the Cellco system  
Coverage is depicted at a signal threshold of -85 dBm



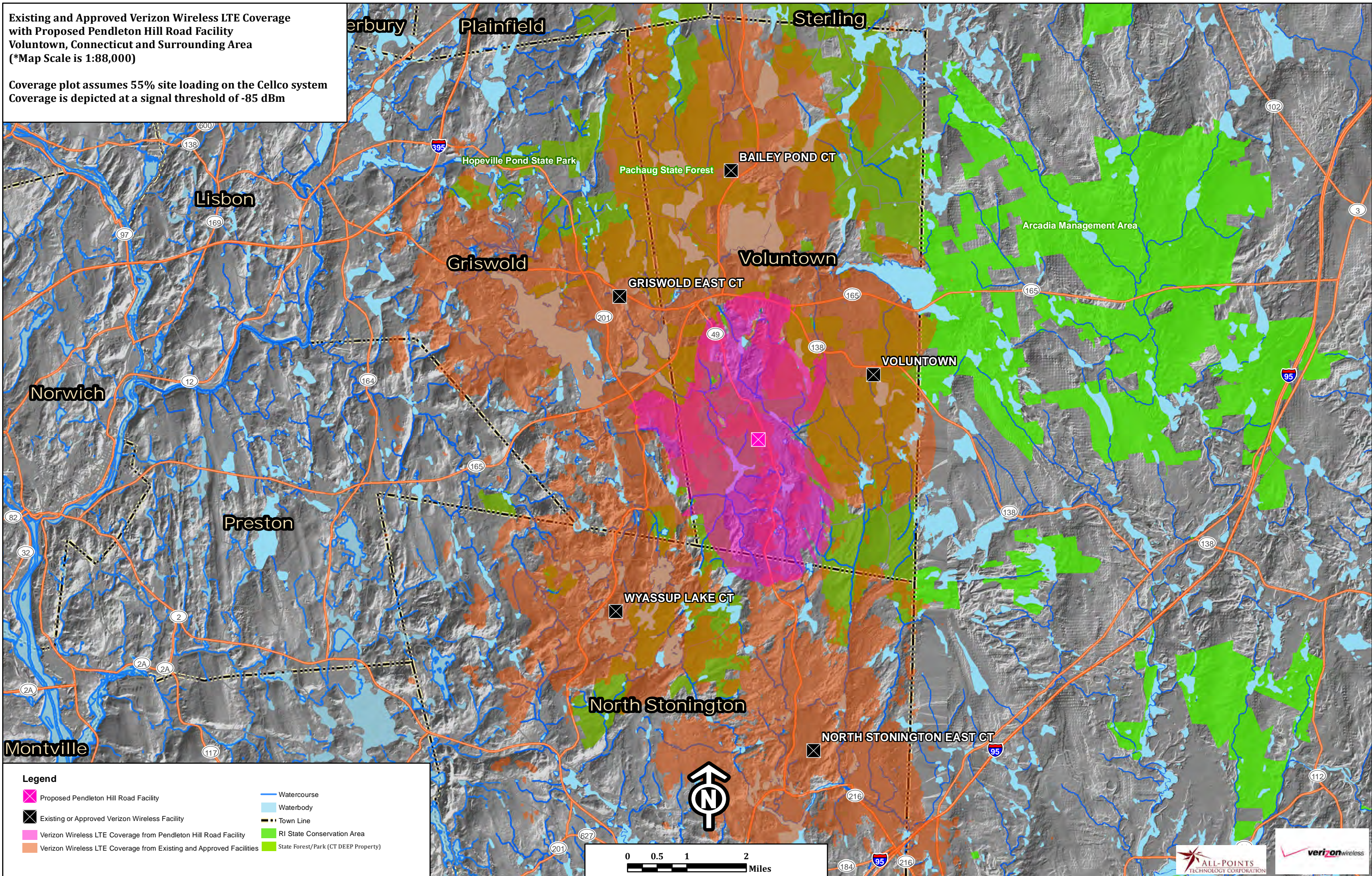
**Legend**

- Existing or Approved Verizon Wireless Facility
- Verizon Wireless LTE Coverage from Existing and Approved Facilities
- Watercourse
- Waterbody
- Town Line
- RI State Conservation Area
- State Forest/Park (CT DEEP Property)












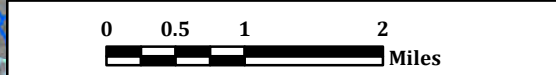
Existing and Approved Verizon Wireless LTE Coverage with Proposed Pendleton Hill Road Facility  
 Voluntown, Connecticut and Surrounding Area  
 (\*Map Scale is 1:88,000)

Coverage plot assumes 55% site loading on the Cellco system  
 Coverage is depicted at a signal threshold of -85 dBm



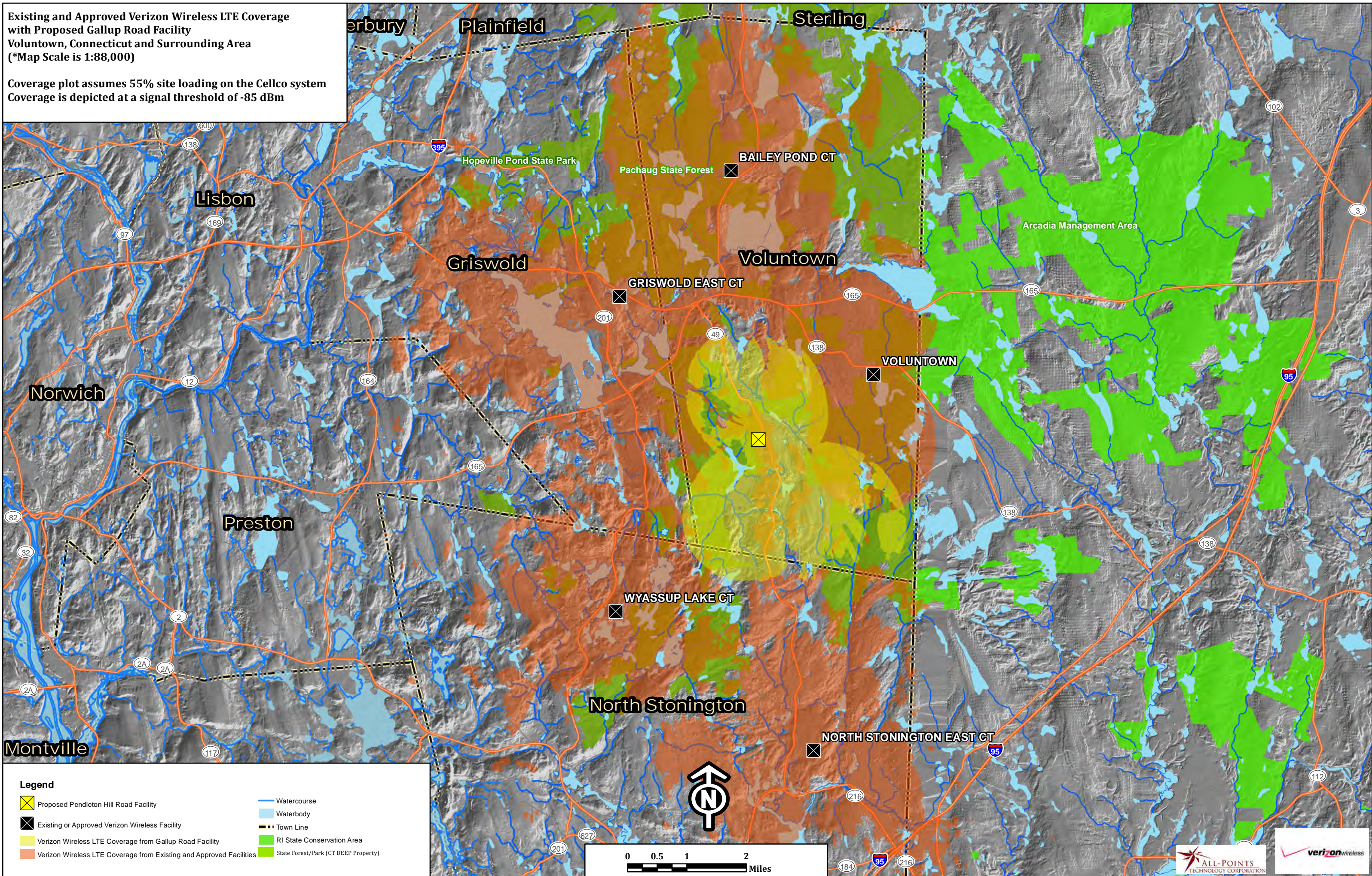
**Legend**

-  Proposed Pendleton Hill Road Facility
-  Existing or Approved Verizon Wireless Facility
-  Verizon Wireless LTE Coverage from Pendleton Hill Road Facility
-  Verizon Wireless LTE Coverage from Existing and Approved Facilities
-  Watercourse
-  Waterbody
-  Town Line
-  RI State Conservation Area
-  State Forest/Park (CT DEEP Property)



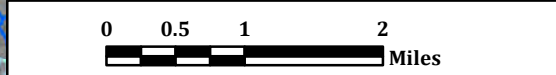
Existing and Approved Verizon Wireless LTE Coverage with Proposed Gallup Road Facility  
 Voluntown, Connecticut and Surrounding Area  
 (\*Map Scale is 1:88,000)

Coverage plot assumes 55% site loading on the Cellco system  
 Coverage is depicted at a signal threshold of -85 dBm



**Legend**

|  |   |  |                                      |
|--|---|--|--------------------------------------|
|  | Proposed Pendleton Hill Road Facility                               |  | Watercourse                          |
|  | Existing or Approved Verizon Wireless Facility                      |  | Waterbody                            |
|  | Verizon Wireless LTE Coverage from Gallup Road Facility             |  | Town Line                            |
|  | Verizon Wireless LTE Coverage from Existing and Approved Facilities |  | RI State Conservation Area           |
|  |   |  | State Forest/Park (CT DEEP Property) |





# BXA-80063-6CF-EDIN-X

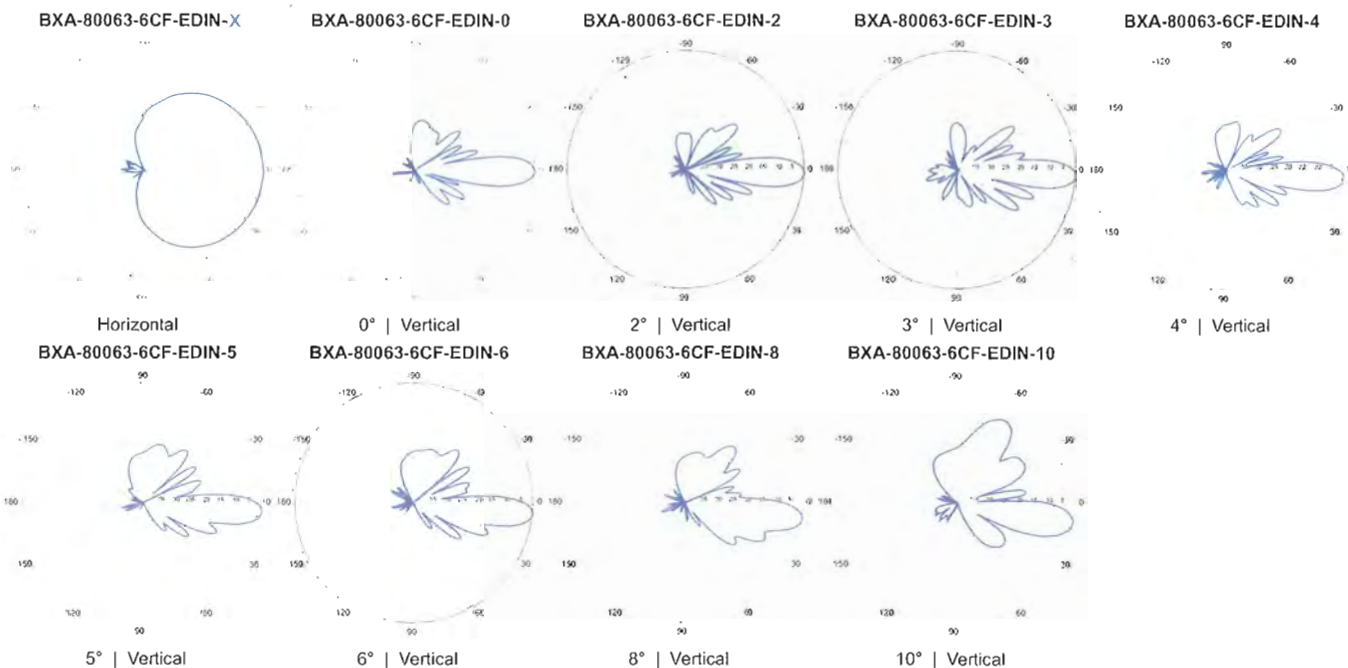
X-Pol | FET Panel | 63° | 14.5 dBd

Replace "X" with desired electrical downtilt

Antenna is also available with NE connector(s)  
Replace "EDIN" with "NE" in the model number  
when ordering



| Electrical Characteristics              |   |                    |
|---|---|--------------------|
| Frequency bands                         | 806-900 MHz*  |                    |
| *Optional frequency band for IDEN       | 806-941 MHz (specify when ordering)   |                    |
| Polarization                            | ±45°  |                    |
| Horizontal beamwidth                    | 63°   |                    |
| Vertical beamwidth                      | 11°   |                    |
| Gain                                    | 14.5 dBd (16.6 dBi)   |                    |
| Electrical downtilt (X)                 | 0, 2, 3, 4, 5, 6, 8, 10   |                    |
| Impedance                               | 50Ω   |                    |
| VSWR                                    | ≤1.4:1  |                    |
| Upper sidelobe suppression (0°)         | -18.2 dB  |                    |
| Front-to-back ratio (+/-30°)            | -36.3 dB  |                    |
| Null fill                               | 5% (-26.02 dB)  |                    |
| Isolation between ports                 | < -25 dB  |                    |
| Input power with EDIN connectors        | 500 W   |                    |
| Input power with NE connectors          | 300 W   |                    |
| Lightning protection                    | Direct Ground   |                    |
| Connector(s)                            | 2 Ports / EDIN or NE / Female / Center (Back)   |                    |
| Mechanical Characteristics              |   |                    |
| Dimensions Length x Width x Depth       | 1804 x 285 x 132 mm      71.0 x 11.2 x 5.2 in   |                    |
| Depth with z-brackets                   | 172 mm      6.8 in  |                    |
| Weight without mounting brackets        | 7.9 kg      17 lbs  |                    |
| Survival wind speed                     | > 201 km/hr      > 125 mph  |                    |
| Wind area                               | Front: 0.51 m <sup>2</sup> Side: 0.24 m <sup>2</sup> Front: 5.5 ft <sup>2</sup> Side: 2.6 ft <sup>2</sup> |                    |
| Wind load @ 161 km/hr (100 mph)         | Front: 759 N    Side: 391 N      Front: 169 lbf    Side: 89 lbf   |                    |
| Mounting Options                        |   |                    |
| Part Number                             | Fits Pipe Diameter  | Weight             |
| 3-Point Mounting & Downtilt Bracket Kit | 36210008      40-115 mm 1.57-4.5 in   | 6.9 kg    15.2 lbs |
| Concealment Configurations              | For concealment configurations, order BXA-80063-6CF-EDIN-X-FP   |                    |



Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

## BXA-171063-12CF-EDIN-X

X-Pol | FET Panel | 63° | 19.0 dBi

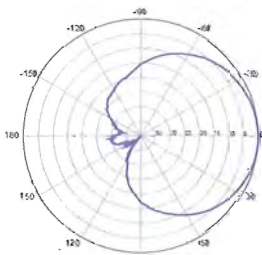
Replace "X" with desired electrical downtilt.

Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

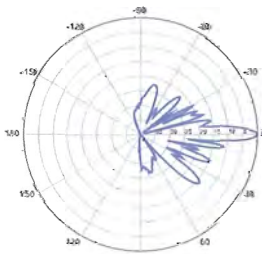
| Electrical Characteristics              |  | 1710-2170 MHz   |                     |            |              |
|---|--|---|---------------------|------------|--------------|
| Frequency bands                         | 1710-1880 MHz  | 1850-1990 MHz   | 1920-2170 MHz       |            |              |
| Polarization                            | ±45°   | ±45°  | ±45°                |            |              |
| Horizontal beamwidth                    | 68°  | 65°   | 60°                 |            |              |
| Vertical beamwidth                      | 4.5°   | 4.5°  | 4.5°                |            |              |
| Gain                                    | 16.1 dBd / 18.2 dBi                                  | 16.5 dBd / 18.6 dBi   | 16.9 dBd / 19.0 dBi |            |              |
| Electrical downtilt (X)                 | 0, 2, 5  |   |                     |            |              |
| Impedance                               | 50Ω  |   |                     |            |              |
| VSWR                                    | ≤1.5:1   |   |                     |            |              |
| First upper sidelobe                    | < -17 dB   |   |                     |            |              |
| Front-to-back ratio                     | > 30 dB  |   |                     |            |              |
| In-band isolation                       | > 28 dB  |   |                     |            |              |
| IM3 (20W carrier)                       | < -150 dBc   |   |                     |            |              |
| Input power                             | 300 W  |   |                     |            |              |
| Lightning protection                    | Direct Ground  |   |                     |            |              |
| Connector(s)                            | 2 Ports / EDIN or NE / Female / Center (Back)        |   |                     |            |              |
| Operating temperature                   | -40° to +60° C / -40° to +140° F                     |   |                     |            |              |
| Mechanical Characteristics              |  |   |                     |            |              |
| Dimensions Length x Width x Depth       | 1842 x 154 x 105 mm                                  | 72.5 x 6.1 x 4.1 in   |                     |            |              |
| Depth with z-brackets                   | 133 mm   | 5.2 in  |                     |            |              |
| Weight without mounting brackets        | 5.8 kg   | 12.8 lbs  |                     |            |              |
| Survival wind speed                     | > 201 km/hr  |   | > 125 mph           |            |              |
| Wind area                               | Front: 0.28 m <sup>2</sup> Side: 0.19 m <sup>2</sup> | Front: 3.1 ft <sup>2</sup> Side: 2.1 ft <sup>2</sup>            |                     |            |              |
| Wind load @ 161 km/hr (100 mph)         | Front: 460 N Side: 304 N                             | Front: 103 lbf Side: 68 lbf                                     |                     |            |              |
| Mounting Options                        |  | Part Number   | Fits Pipe Diameter  |            | Weight       |
| 2-Point Mounting Bracket Kit            |  | 26799997  | 50-102 mm           | 2.0-4.0 in | 2.3 kg 5 lbs |
| 2-Point Mounting & Downtilt Bracket Kit |  | 26799999  | 50-102 mm           | 2.0-4.0 in | 3.6 kg 8 lbs |
| Concealment Configurations              |  | For concealment configurations, order BXA-171063-12CF-EDIN-X-FP |                     |            |              |



BXA-171063-12CF-EDIN-X

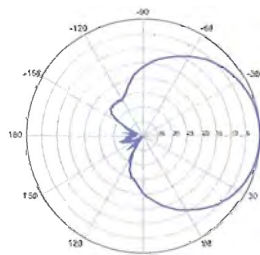


Horizontal | 1710-1880 MHz  
BXA-171063-12CF-EDIN-0

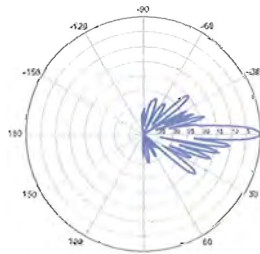


0° | Vertical | 1710-1880 MHz

BXA-171063-12CF-EDIN-X

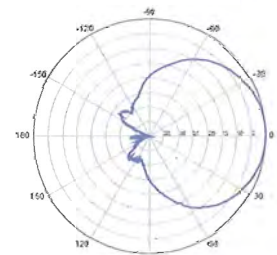


Horizontal | 1850-1990 MHz  
BXA-171063-12CF-EDIN-0

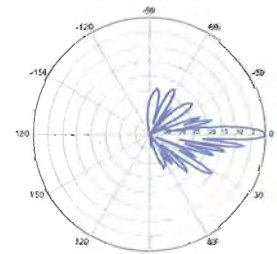


0° | Vertical | 1850-1990 MHz

BXA-171063-12CF-EDIN-X



Horizontal | 1920-2170 MHz  
BXA-171063-12CF-EDIN-0



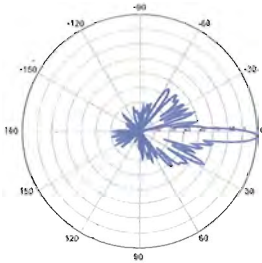
0° | Vertical | 1920-2170 MHz

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# BXA-171063-12CF-EDIN-X

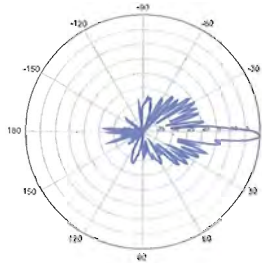
X-Pol | FET Panel | 63° | 19.0 dBi

**BXA-171063-12CF-EDIN-2**



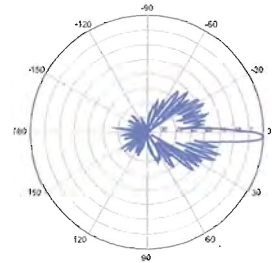
2° | Vertical | 1710-1880 MHz

**BXA-171063-12CF-EDIN-2**



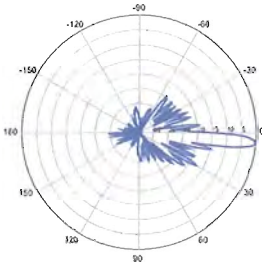
2° | Vertical | 1850-1990 MHz

**BXA-171063-12CF-EDIN-2**



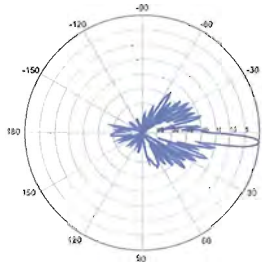
2° | Vertical | 1920-2170 MHz

**BXA-171063-12CF-EDIN-5**



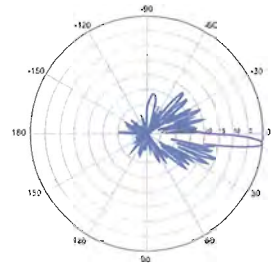
5° | Vertical | 1710-1880 MHz

**BXA-171063-12CF-EDIN-5**



5° | Vertical | 1850-1990 MHz

**BXA-171063-12CF-EDIN-5**



5° | Vertical | 1920-2170 MHz

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# BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

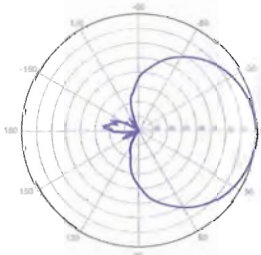
Replace "X" with desired electrical downtilt.

Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.



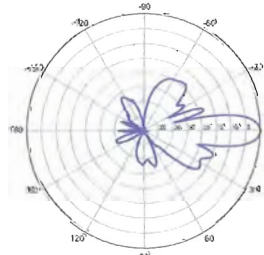
| Electrical Characteristics              |  | 696-900 MHz   |                       |                 |
|---|--|---|-----------------------|-----------------|
| Frequency bands                         | 696-806 MHz  | 806-900 MHz   |                       |                 |
| Polarization                            | ±45°   |   |                       |                 |
| Horizontal beamwidth                    | 65°  | 63°   |                       |                 |
| Vertical beamwidth                      | 13°  | 11°   |                       |                 |
| Gain                                    | 14.0 dBd (16.1 dBi)                                  | 14.5 dBd (16.6 dBi)   |                       |                 |
| Electrical downtilt (X)                 | 0, 2, 3, 4, 5, 6, 8, 10                              |   |                       |                 |
| Impedance                               | 50Ω  |   |                       |                 |
| VSWR                                    | ≤1.35:1  |   |                       |                 |
| Upper sidelobe suppression (0°)         | -18.3 dB   | -18.2 dB  |                       |                 |
| Front-to-back ratio (+/-30°)            | -33.4 dB   | -36.3 dB  |                       |                 |
| Null fill                               | 5% (-26.02 dB)                                       |   |                       |                 |
| Isolation between ports                 | < -25 dB   |   |                       |                 |
| Input power with EDIN connectors        | 500 W  |   |                       |                 |
| Input power with NE connectors          | 300 W  |   |                       |                 |
| Lightning protection                    | Direct Ground  |   |                       |                 |
| Connector(s)                            | 2 Ports / EDIN or NE / Female / Center (Back)        |   |                       |                 |
| Mechanical Characteristics              |  |   |                       |                 |
| Dimensions Length x Width x Depth       | 1804 x 285 x 132 mm                                  | 71.0 x 11.2 x 5.2 in  |                       |                 |
| Depth with z-brackets                   | 172 mm   | 6.8 in  |                       |                 |
| Weight without mounting brackets        | 7.9 kg   | 17 lbs  |                       |                 |
| Survival wind speed                     | > 201 km/hr  |   | > 125 mph             |                 |
| Wind area                               | Front: 0.51 m <sup>2</sup> Side: 0.24 m <sup>2</sup> | Front: 5.5 ft <sup>2</sup> Side: 2.6 ft <sup>2</sup>          |                       |                 |
| Wind load @ 161 km/hr (100 mph)         | Front: 759 N Side: 391 N                             | Front: 169 lbf Side: 89 lbf                                   |                       |                 |
| Mounting Options                        |  | Part Number   | Fits Pipe Diameter    | Weight          |
| 3-Point Mounting & Downtilt Bracket Kit |  | 36210008  | 40-115 mm 1.57-4.5 in | 6.9 kg 15.2 lbs |
| Concealment Configurations              |  | For concealment configurations, order BXA-70063-6CF-EDIN-X-FP |                       |                 |

BXA-70063-6CF-EDIN-X



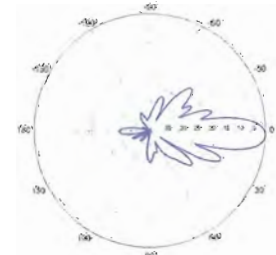
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

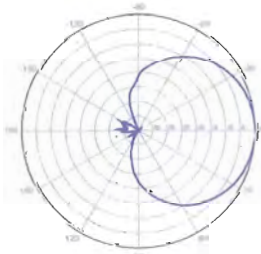


0° | Vertical | 750 MHz

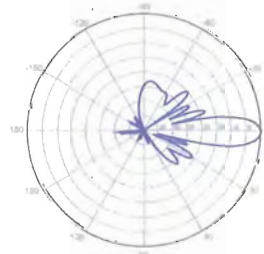
BXA-70063-6CF-EDIN-2



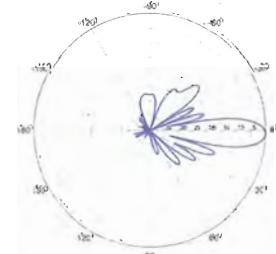
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz



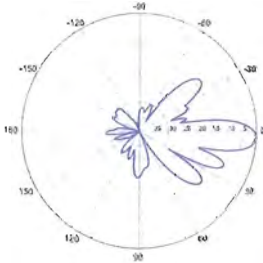
2° | Vertical | 850 MHz

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**BXA-70063-6CF-EDIN-X**

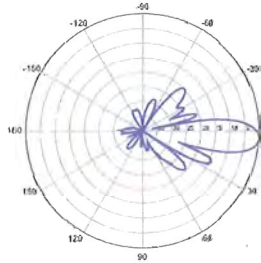
X-Pol | FET Panel | 63° | 14.5 dBd

**BXA-70063-6CF-EDIN-3**



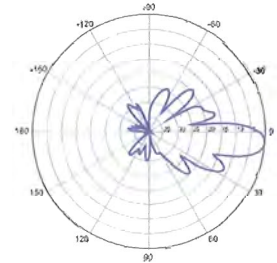
3° | Vertical | 750 MHz

**BXA-70063-6CF-EDIN-4**

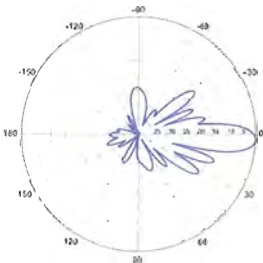


4° | Vertical | 750 MHz

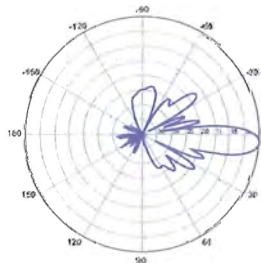
**BXA-70063-6CF-EDIN-5**



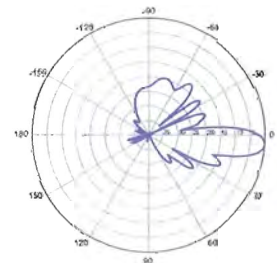
5° | Vertical | 750 MHz



3° | Vertical | 850 MHz

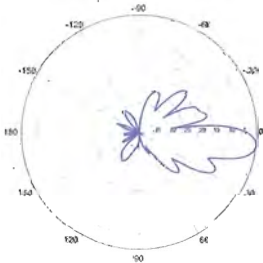


4° | Vertical | 850 MHz



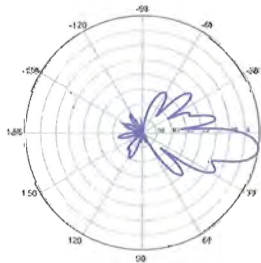
5° | Vertical | 850 MHz

**BXA-70063-6CF-EDIN-6**



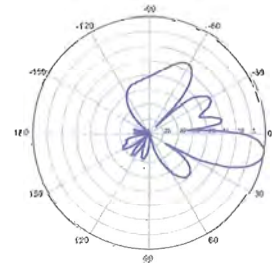
6° | Vertical | 750 MHz

**BXA-70063-6CF-EDIN-8**

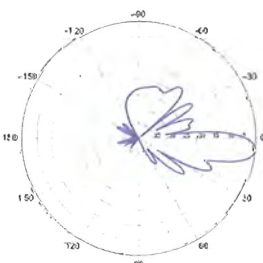


8° | Vertical | 750 MHz

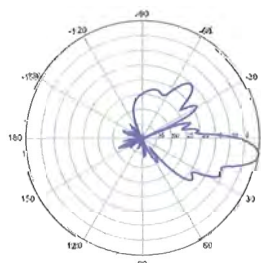
**BXA-70063-6CF-EDIN-10**



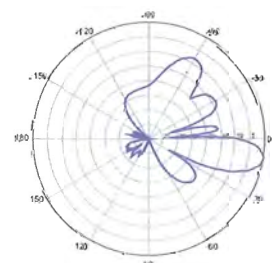
10° | Vertical | 750 MHz



6° | Vertical | 850 MHz



8° | Vertical | 850 MHz



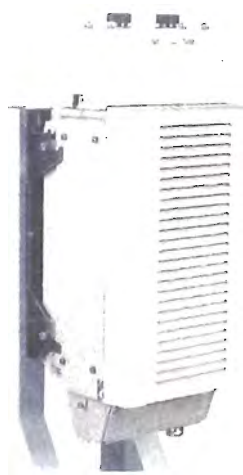
10° | Vertical | 850 MHz

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## Alcatel-Lucent RRH2x40-AWS

### REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-AWS is a high-power, small form-factor Remote Radio Head (RRH) operating in the AWS frequency band (1700/2100MHz - 3GPP Band 4). The Alcatel-Lucent RRH2x40-AWS is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.



A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-AWS is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent RRH2x40-AWS has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to four-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 20 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-AWS is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low

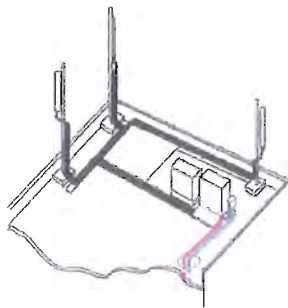
capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

#### Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-AWS is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-AWS is compact and weighs less than 20 kg (44 lb), eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day — a fraction of the time required for a traditional BTS.

## Excellent RF performance

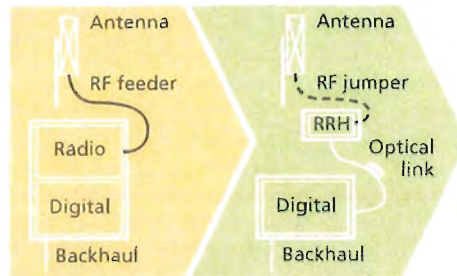
Because of its small size and weight, the Alcatel-Lucent RRH2x40-AWS can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-AWS where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent RRH2x40-AWS provides more RF power while at the same time consuming less electricity.



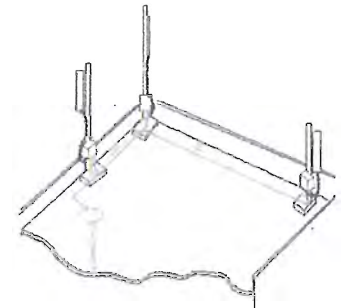
Macro

## Features

- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless)
- Noise-free
- Best-in-class power efficiency, with significantly reduced energy consumption



RRH for space-constrained cell sites



Distributed

## Benefits

- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning

## Technical specifications

### Physical dimensions

- Height: 620 mm (24.4 in.)
- Width: 270 mm (10.63 in.)
- Depth: 170mm (6.7 in.)
- Weight (without mounting kit): less than 20 kg (44 lb)

### Power

- Power supply: -48VDC

### Operating environment

- Outdoor temperature range:
  - With solar load: -40°C to +50°C (-40°F to +122°F)
  - Without solar load: -40°C to +55°C (-40°F to +131°F)

- Passive convection cooling (no fans)
- Enclosure protection
  - IP65 (International Protection rating)

### RF characteristics

- Frequency band: 1700/2100 MHz (AWS); 3GPP Band 4
- Bandwidth: up to 20 MHz
- RF output power at antenna port: 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way with optional Rx Diversity module
- Noise figure: below 2.0 dB typical
- Antenna Line Device features
  - TMA and Remote electrical tilt (RET) support via AISG v2.0

### Optical characteristics

#### Type/number of fibers

- Single-mode variant
  - One Single Mode Single Fiber per RRH2x, carrying UL and DL using CWDM
  - Single mode dual fiber (SM/DF)
- Multi-mode variant
  - Two Multi-mode fibers per RRH2x: one carrying UL, the other carrying DL

### Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

### Digital Ports and Alarms

- Two optical ports to support daisy-chaining
- Six external alarms

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## Alcatel-Lucent RRH2x40-07-U

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-07-U is a high-power, small form-factor Remote Radio Head (RRH) operating in the North American Digital Dividend / 700MHz frequency band (3GPP Band 13). The Alcatel-Lucent RRH2x40-07-U is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.



A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-07-U is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent RRH2x40-07-U has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to two-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 10 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-07-U is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low

capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-07-U installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

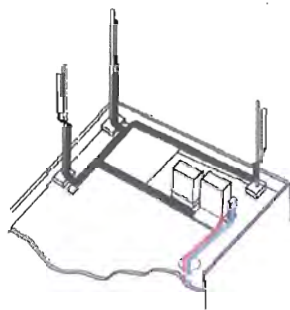
### Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-07-U is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-07-U is compact and weighs less than 23 kg (50 lb), eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day — a fraction of the time required for a traditional BTS.



## Excellent RF performance

Because of its small size and weight, the Alcatel-Lucent RRH2x40-07-U can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-07-U where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent RRH2x40-07-U provides more RF power while at the same time consuming less electricity.



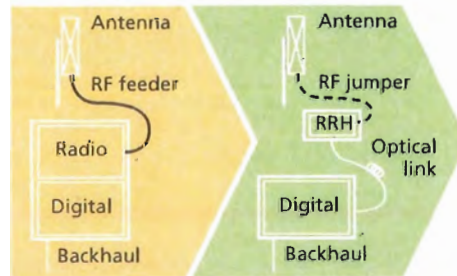
Macro

## Features

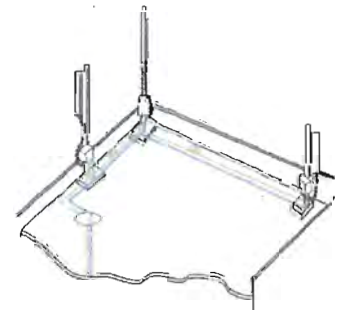
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless), noise-free, and heaterless unit
- Best-in-class power efficiency, with significantly reduced energy consumption

## Benefits

- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



RRH for space-constrained cell sites



Distributed

## Technical specifications

### Physical dimensions

- Height: 390 mm (15.4 in.)
- Width: 380 mm (15 in.)
- Depth: 210 mm (8.2 in.)
- Weight (without mounting kit): less than 23 kg (50 lb)

### Power

- Power supply: -48V

### Operating environment

- Outdoor temperature range:
  - With solar load: -40°C to +50°C (-40°F to +122°F)
  - Without solar load: -40°C to +55°C (-40°F to +131°F)
- Passive convection cooling (no fans)

- Enclosure protection
  - IP65 (International Protection rating)

### RF characteristics

- Frequency band: 700 MHz; 3GPP Band 13
- Bandwidth: up to 10 MHz
- RF output power at antenna port:
  - 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way
- Noise figure: below 2.5 dB typical
- ALD features
  - TMA
  - Remote electrical tilt (RET) support (AISG v2.0)

### Optical characteristics

#### Type/number of fibers

- Up to 3.12 Gb/s line bit rate
- Single-mode variant
  - One SM fiber (9/125 μm) per RRH2x, carrying UL and DL using CWDM (at 1550/1310 nm)
- Multi-mode variant
  - Two MM fibers (50/125 μm) per RRH2x: one carrying UL, the other carrying DL (at 850 nm)

### Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

### Alarms and ports

- Six external alarms
- Two optical ports to support daisy-chaining

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**HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber**

**Product Description**

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

**Features/Benefits**

- Aluminum corrugated armor with outstanding bending characteristics - minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding - Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design - Decreases tower loading
- Robust cabling - Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH - Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable - Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket - Ensures long-lasting cable protection



Figure 1: HYBRIFLEX Series

**Technical Specifications**

|                        |                                |           |             |
|------------------------|--------------------------------|-----------|-------------|
| <b>Structure</b>       |                                |           |             |
| Outer Conductor Armor: | Corrugated Aluminum            | [mm (in)] | 46.5 (1.83) |
| Jacket:                | Polyethylene, PE               | [mm (in)] | 50.3 (1.98) |
| UV-Protection:         | Individual and External Jacket |           | Yes         |

|  |  |                |                        |
|--|--|----------------|------------------------|
| <b>Mechanical Properties</b>             |  |                |                        |
| Weight, Approximate                      |  | [kg/m (lb/ft)] | 1.9 (1.30)             |
| Minimum Bending Radius, Single Bending   |  | [mm (in)]      | 200 (8)                |
| Minimum Bending Radius, Repeated Bending |  | [mm (in)]      | 500 (20)               |
| Recommended/Maximum Clamp Spacing        |  | [m (ft)]       | 1.0 / 1.2 (3.25 / 4.0) |

|  |  |                   |             |
|--|--|-------------------|-------------|
| <b>Electrical Properties</b>             |  |                   |             |
| DC-Resistance Outer Conductor Armor      |  | [Ω/km (Ω/1000ft)] | 068 (0.205) |
| DC-Resistance Power Cable, 8.4mm² (8AWG) |  | [Ω/km (Ω/1000ft)] | 2.1 (0.307) |

|                                       |  |           |                                   |
|---------------------------------------|--|-----------|-----------------------------------|
| <b>Fiber Optic Properties</b>         |  |           |                                   |
| Version                               |  |           | Single-mode OM3                   |
| Quantity, Fiber Count                 |  |           | 16 (8 pairs)                      |
| Core/Clad                             |  | [μm]      | 50/125                            |
| Primary Coating (Acrylate)            |  | [μm]      | 245                               |
| Buffer Diameter, Nominal              |  | [μm]      | 900                               |
| Secondary Protection, Jacket, Nominal |  | [mm (in)] | 2.0 (0.08)                        |
| Minimum Bending Radius                |  | [mm (in)] | 104 (4.1)                         |
| Insertion Loss @ wavelength 850nm     |  | dB/km     | 3.0                               |
| Insertion Loss @ wavelength 1310nm    |  | dB/km     | 1.0                               |
| Standards (Meets or exceeds)          |  |           | UL94-V0, UL1666<br>RoHS Compliant |

|                                  |  |            |  |
|----------------------------------|--|------------|--|
| <b>DC Power Cable Properties</b> |  |            |  |
| Size (Power)                     |  | [mm (AWG)] | 8.4 (8)  |
| Quantity, Wire Count (Power)     |  |            | 16 (8 pairs)   |
| Size (Alarm)                     |  | [mm (AWG)] | 0.8 (18)   |
| Quantity, Wire Count (Alarm)     |  |            | 4 (2 pairs)  |
| Type                             |  |            | UV protected   |
| Strands                          |  |            | 19   |
| Primary Jacket Diameter, Nominal |  | [mm (in)]  | 6.8 (0.27)   |
| Standards (Meets or exceeds)     |  |            | NFPA 130, ICEA S-95-658<br>UL Type XHHW-2, UL 44<br>UL-LS Limited Smoke, UL VW-1<br>IEEE-383 (1974), IEEE 1202/FT4<br>RoHS Compliant |

|                          |  |           |                         |
|--------------------------|--|-----------|-------------------------|
| <b>Environment</b>       |  |           |                         |
| Installation Temperature |  | [°C (°F)] | -40 to +65 (-40 to 149) |
| Operation Temperature    |  | [°C (°F)] | -40 to +65 (-40 to 149) |

► This data is provisional and subject to change.

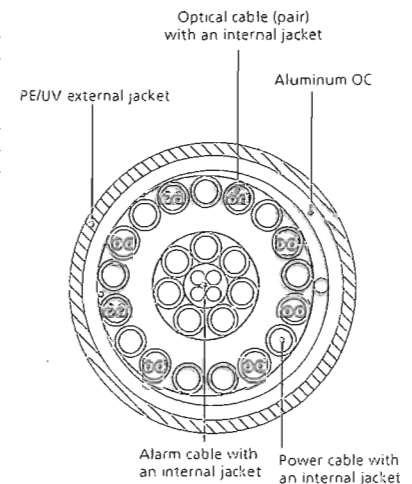


Figure 2: Construction Detail

All information contained in the present datasheet is subject to confirmation at time of ordering.

# 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



## Technical Specifications

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

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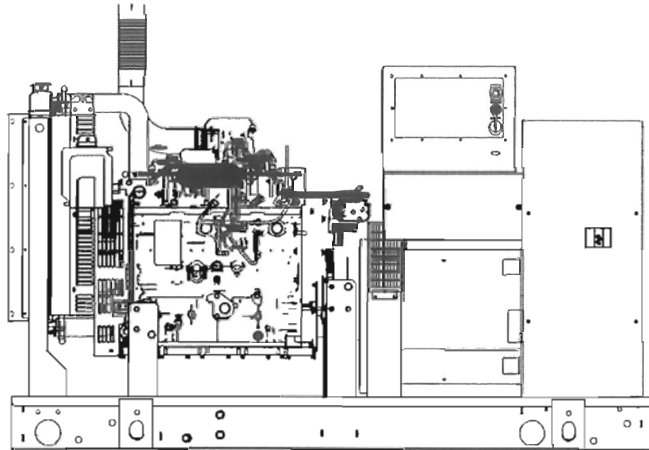
# SD050

## Industrial Diesel Generator Set

EPA Certified Stationary Emergency

Standby Power Rating  
63kVA 48kW 60Hz

Prime Power Rating  
56kVA 45kW 60 Hz

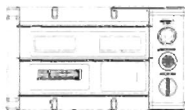
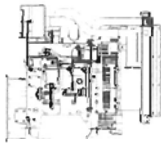
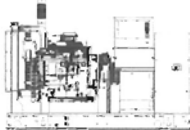


Generator image used for illustration purposes only

\*EPA Certified Prime ratings are not available in the U.S. or its Territories for engine model year 2011 and beyond

### features

### benefits



#### Generator Set

- PROTOTYPE & TORSIONALLY TESTED
- UL2200 TESTED
- RHINOCOAT PAINT SYSTEM
- WIDE RANGE OF ENCLOSURES AND TANKS
- PROVIDES A PROVEN UNIT
- ENSURES A QUALITY PRODUCT
- IMPROVES RESISTANCE TO ELEMENTS
- PROVIDES A SINGLE SOURCE SOLUTION

#### Engine

- EPA COMPLIANT
- INDUSTRIAL TESTED, GENERAC APPROVED
- POWER-MATCHED OUTPUT
- INDUSTRIAL GRADE
- ENVIRONMENTALLY FRIENDLY
- ENSURES INDUSTRIAL STANDARDS
- ENGINEERED FOR PERFORMANCE
- IMPROVES LONGEVITY AND RELIABILITY

#### Alternator

- TWO-THIRDS PITCH
- LAYER WOUND ROTOR & STATOR
- CLASS H MATERIALS
- DIGITAL 3-PHASE VOLTAGE CONTROL
- ELIMINATES HARMFUL 3RD HARMONIC
- IMPROVES COOLING
- HEAT TOLERANT DESIGN
- FAST AND ACCURATE RESPONSE

#### Controls

- ENCAPSULATED BOARD W/ SEALED HARNESS
- 4-20mA VOLTAGE-TO-CURRENT SENSORS
- SURFACE-MOUNT TECHNOLOGY
- ADVANCED DIAGNOSTICS & COMMUNICATIONS
- EASY, AFFORDABLE REPLACEMENT
- NOISE RESISTANT 24/7 MONITORING
- PROVIDES VIBRATION RESISTANCE
- HARDENED RELIABILITY

## SD050

## application and engineering data

## ENGINE SPECIFICATIONS

General

|                            |                          |
|----------------------------|--------------------------|
| Make                       | Iveco / FPT              |
| EPA Emissions Compliance   | Stationary Emergency     |
| EPA Emissions Reference    | See Emissions Data Sheet |
| Cylinder #                 | 4                        |
| Type                       | Diesel                   |
| Displacement - L (cu. in.) | 4.5 (274)                |
| Bore - mm (in.)            | 105 (4.1)                |
| Stroke - mm (in.)          | 132 (5.2)                |
| Compression Ratio          | 17.5:1                   |
| Intake Air Method          | Turbocharged             |
| Cylinder Head Type         | 2 Valve                  |
| Piston Type                | Aluminum                 |
| Crankshaft Type            | Forged Steel             |
| Engine Block Type          | Cast Iron / Wet Sleeve   |

Engine Governing

|                                     |                        |
|-------------------------------------|------------------------|
| Governor                            | Electronic Isochronous |
| Frequency Regulation (Steady State) | ± 0.25%                |

Lubrication System

|                              |             |
|------------------------------|-------------|
| Oil Pump Type                | Gear Oil    |
| Filter Type                  | Full Flow   |
| Crankcase Capacity - L (qts) | 13.6 (14.4) |

Cooling System

|                                 |                         |
|---------------------------------|-------------------------|
| Cooling System Type             | Closed                  |
| Water Pump                      | Belt Driven Centrifugal |
| Fan Type                        | Pusher                  |
| Fan Speed (rpm)                 | 2538                    |
| Fan Diameter (in.)              | 18                      |
| Coolant Heater Wattage          | 1500                    |
| Coolant Heater Standard Voltage | 120VAC                  |

Fuel System

|                          |                              |
|--------------------------|------------------------------|
| Fuel Type                | Ultra Low Sulfur Diesel Fuel |
| Fuel Specifications      | ASTM                         |
| Fuel Filtering (microns) | 5                            |
| Fuel Inject Pump Make    | Stanadyne                    |
| Fuel Pump Type           | Engine Driven Gear           |
| Injector Type            | Mechanical                   |
| Fuel Supply Line - (in.) | ½" NPT                       |
| Fuel Return Line - (in.) | ¼" NPT                       |

Engine Electrical System

|                             |           |
|-----------------------------|-----------|
| System Voltage              | 12VDC     |
| Battery Charging Alternator | Std       |
| Battery Size (at 0°C)       | 92SCCA    |
| Battery Group               | 31        |
| Battery Voltage             | (1) 12VDC |
| Ground Polarity             | Negative  |

## ALTERNATOR SPECIFICATIONS

|                                     |                        |
|-------------------------------------|------------------------|
| Standard Model                      | 390                    |
| Poles                               | 4                      |
| Field Type                          | Revolving              |
| Insulation Class - Rotor            | H                      |
| Insulation Class - Stator           | H                      |
| Total Harmonic Distortion           | < 5%                   |
| Telephone Interference Factor (TIF) | < 50                   |
| Standard Excitation                 | Synchronous Brushless  |
| Bearings                            | One-Pre Lubed & Sealed |
| Coupling                            | Direct, Flexible Disc  |
| Load Capacity - Standby             | 100%                   |
| Prototype Short Circuit Test        | Yes                    |

|                                    |         |
|------------------------------------|---------|
| Voltage Regulator Type             | Digital |
| Number of Sensed Phases            | 3       |
| Regulation Accuracy (Steady State) | ± 0.25% |

## CODES AND STANDARDS COMPLIANCE (WHERE APPLICABLE)

|             |                     |
|-------------|---------------------|
| NFPA 99     | BS5514              |
| NFPA 110    | SAE J1349           |
| ISO 8528-5  | DIN6271             |
| ISO 1708A.5 | IEEE C62.41 TESTING |
| ISO 3046    | NEMA ICS 1          |

## Rating Definitions:

Standby – Applicable for a varying emergency load for the duration of a utility power outage with no overload capability. (Max. load factor = 70%)

Prime – Applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. (Max. load factor = 80%) A 10% overload capacity is available for 1 out of every 12 hours.

# SD050

## operating data (60Hz)

### POWER RATINGS (kW)

|                                | STANDBY |           | PRIME |           |
|--------------------------------|---------|-----------|-------|-----------|
| Single-Phase 120/240VAC @1.0pf | 48 kW   | Amps: 208 | 45 kW | Amps: 188 |
| Three-Phase 120/208VAC @0.8pf  | 50 kW   | Amps: 174 | 45 kW | Amps: 156 |
| Three-Phase 120/240VAC @0.8pf  | 50 kW   | Amps: 151 | 45 kW | Amps: 135 |
| Three-Phase 277/480VAC @0.8pf  | 50 kW   | Amps: 75  | 45 kW | Amps: 68  |

### STARTING CAPABILITIES (sKVA)

|            |    | sKVA vs. Voltage Dip |     |     |     |     |     |            |     |     |     |     |     |
|------------|----|----------------------|-----|-----|-----|-----|-----|------------|-----|-----|-----|-----|-----|
|            |    | 480VAC               |     |     |     |     |     | 208/240VAC |     |     |     |     |     |
| Alternator | kW | 10%                  | 15% | 20% | 25% | 30% | 35% | 10%        | 15% | 20% | 25% | 30% | 35% |
| Standard   | 60 | 42                   | 63  | 83  | 104 | 125 | 146 | 32         | 47  | 62  | 78  | 94  | 110 |

### FUEL

|  |          | Fuel Consumption Rates* |      |       |              |      |       |
|--|----------|-------------------------|------|-------|--------------|------|-------|
|  |          | STANDBY                 |      |       | PRIME        |      |       |
|  |          | Percent Load            | gph  | lph   | Percent Load | gph  | lph   |
| Fuel Pump Lift - in (mm)                   | 36 (900) | 25%                     | 1.15 | 4.35  | 25%          | 1.06 | 4.01  |
|  |          | 50%                     | 2.25 | 8.52  | 50%          | 2.07 | 7.84  |
|  |          | 75%                     | 3.21 | 12.15 | 75%          | 2.95 | 11.17 |
|  |          | 100%                    | 4.15 | 15.75 | 100%         | 3.83 | 14.50 |
| Total Fuel Pump Flow (Combustion + Return) | 13.6 gph |                         |      |       |              |      |       |

\* Refer to "Emissions Data Sheet" for maximum fuel flow for EPA and SCAQMD permitting purposes.

### COOLING

|                                    |                           | STANDBY      | PRIME        |
|------------------------------------|---------------------------|--------------|--------------|
| Coolant Flow per Minute            | gpm (lpm)                 | 32.7 (123.8) | 32.7 (123.8) |
| Heat Rejection to Coolant          | BTU/hr                    | 121,000      | 108,900      |
| Inlet Air                          | cfm (m <sup>3</sup> /min) | 6,360 (180)  | 6,360 (180)  |
| Max. Operating Radiator Air Temp   | F° (C°)                   | 122 (50)     | 122 (50)     |
| Max. Operating Ambient Temperature | F° (C°)                   | 104 (40)     | 104 (40)     |
| Coolant System Capacity            | gal (L)                   | (4.5) 17.44  | (4.5) 17.44  |
| Maximum Radiator Backpressure      | in H <sub>2</sub> O       | 1.5          | 1.5          |

### COMBUSTION AIR REQUIREMENTS

|                     |                           | STANDBY    | PRIME      |
|---------------------|---------------------------|------------|------------|
| Flow at Rated Power | cfm (m <sup>3</sup> /min) | 205 (5.80) | 189 (5.35) |

### ENGINE

|                          |                | STANDBY    | PRIME      |
|--------------------------|----------------|------------|------------|
| Rated Engine Speed       | rpm            | 1800       | 1800       |
| Horsepower at Rated kW** | hp             | 80         | 72         |
| Piston Speed             | ft/min (m/min) | 1559 (475) | 1559 (475) |
| BMEP                     | psi            | 128.5      | 115.6      |

\*\* Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

### EXHAUST

|                                   |                           | STANDBY    | PRIME      |
|-----------------------------------|---------------------------|------------|------------|
| Exhaust Flow (Rated Output)       | cfm (m <sup>3</sup> /min) | 497 (14.1) | 467 (13.2) |
| Max. Backpressure (Post Silencer) | inHg (Kpa)                | 1.5 (5.1)  | 1.5 (5.1)  |
| Exhaust Temp (Rated Output)       | °F (°C)                   | 850 (454)  | 800 (427)  |
| Exhaust Outlet Size (Open Set)    | NPT (male)                | 3.0        | 3.0        |

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

# SD050

## standard features and options



### GENERATOR SET

- Genset Vibration Isolation Std
- IBC Seismic Certified/Seismic Rated Vibration Isolators Opt
- Extended warranty Opt
- Gen-Link Communications Software Opt
- Steel Enclosure Opt
- Aluminum Enclosure Opt
- Enclosure Lighting Kits Opt

### ENGINE SYSTEM

#### General

- Oil Drain Extension Std
- Oil Make-Up System Opt
- Oil Heater Opt
- Air cleaner Std
- Fan guard Std
- Radiator duct adapter Std
- Stainless steel flexible exhaust connection Std
- Industrial Exhaust Silencer Opt
- Critical Exhaust Silencer Opt

#### Fuel System

- Fuel lockoff solenoid Std
- Secondary fuel filter Std
- Flexible fuel lines Opt
- Primary fuel filter Opt
- Single Wall Tank (Export Only) -
- UL 142 Fuel Tank Opt

#### Cooling System

- 120VAC Coolant Heater Std
- 208VAC Coolant Heater Opt
- 240VAC Coolant Heater Opt
- Other Coolant Heater -
- Closed Coolant Recovery System Std
- UV/Ozone resistant hoses Std
- Factory-Installed Radiator Std
- Radiator Drain Extension Std

#### Engine Electrical System

- Battery charging alternator Std
- Battery cables Std
- Battery tray Std
- Battery box Std
- Battery heater Opt
- Solenoid activated starter motor Std
- 2.5A UL battery charger Opt
- 10A UL float/equalize battery charger Std
- Rubber-booted engine electrical connections Std

#### Alternator System

- UL2200 GENprotect™ Std
- Main Line Circuit Breaker Std
- 2nd Circuit Breaker Opt
- 3rd Circuit Breaker -
- Alternator Upsizing Std
- Anti-Condensation Heater Opt
- Tropical coating Opt
- Permanent Magnet Generator Opt

### CONTROL SYSTEM

#### Control Panel

- Digital H Control Panel - Dual 4x20 Display Std
- Digital G-100 Control Panel - Touchscreen na
- Digital G-200 Paralleling Control Panel - Touchscreen na
- Programmable Crank Limiter Std
- 21-Light Remote Annunciator Std
- Remote Relay Panel (8 or 16) Std
- 7-Day Programmable Exerciser Std
- Special Applications Programmable PLC Std
- RS-232 Std
- RS-485 Std
- All-Phase Sensing DVR Std
- Full System Status Std
- Utility Monitoring (Req. H-Transfer Switch) Std
- 2-Wire Start Compatible Std
- Power Output (kW) Std
- Power Factor Std
- Reactive Power Std
- All phase AC Voltage Std
- All phase Currents Std
- Oil Pressure Std
- Coolant Temperature Std
- Coolant Level Std
- Oil Temperature Std
- Fuel Pressure -
- Engine Speed Std
- Battery Voltage Std
- Frequency Std
- Date/Time Fault History (Event Log) Std
- Low-Speed Exercise -
- Isochronous Governor Control Std
- 40deg C - 70deg C Operation Std
- Waterproof Plug-In Connectors Std
- Audible Alarms and Shutdowns Std
- Not in Auto (Flashing Light) Std
- Auto/Off/Manual Switch Std
- E-Stop (Red Mushroom-Type) Std
- Remote E-Stop (Break Glass-Type, Surface Mount) Opt
- Remote E-Stop (Red Mushroom-Type, Surface Mount) Opt
- Remote E-Stop (Red Mushroom-Type, Flush Mount) Opt
- NFPA 110 Level I and II (Programmable) Std
- Remote Communication - RS232 Std
- Remote Communication - Modem Opt
- Remote Communication - Ethernet Opt
- 10A Run Relay Opt

#### Alarms (Programmable Tolerances, Pre-Alarms and Shutdowns)

- Low Fuel Std
- Oil Pressure (Pre-programmed Low Pressure Shutdown) Std
- Coolant Temperature (Pre-programmed High Temp Shutdown) Std
- Coolant Level (Pre-programmed Low Level Shutdown) Std
- Oil Temperature Opt
- Engine Speed (Pre-programmed Overspeed Shutdown) Std
- Voltage (Pre-programmed Overvoltage Shutdown) Std
- Battery Voltage Std

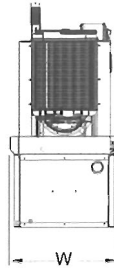
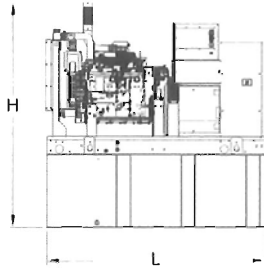
#### Other Options

- 
- 
-



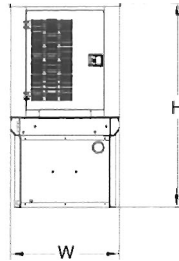
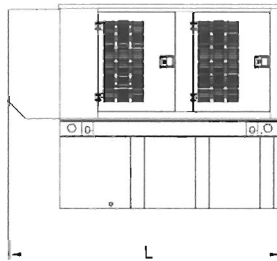
# SD050

# dimensions, weights and sound levels



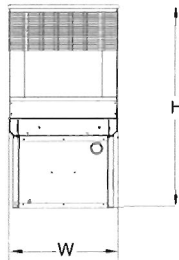
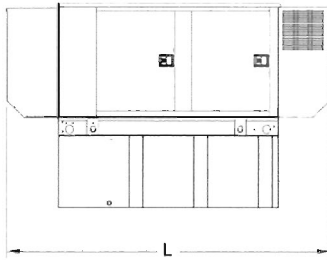
### OPEN SET

| RUN TIME HOURS | USABLE CAPACITY (GAL) | L   | W  | H  | WT   | dBA* |
|----------------|-----------------------|-----|----|----|------|------|
| NO TANK        | -                     | 76  | 37 | 53 | 1996 | 83   |
| 13             | 54                    | 76  | 37 | 66 | 2476 |      |
| 32             | 132                   | 76  | 37 | 78 | 2706 |      |
| 51             | 211                   | 76  | 37 | 90 | 2915 |      |
| 72             | 300                   | 93  | 37 | 94 | 2978 |      |
| 122            | 510                   | 117 | 47 | 96 | 3361 |      |



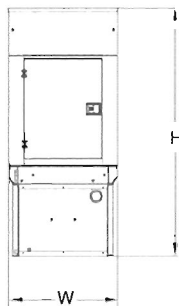
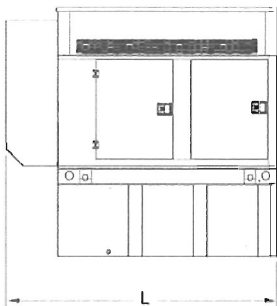
### STANDARD ENCLOSURE

| RUN TIME HOURS | USABLE CAPACITY (GAL) | L   | W  | H  | WT   | dBA* |
|----------------|-----------------------|-----|----|----|------|------|
| NO TANK        | -                     | 95  | 38 | 50 | 2298 | 78   |
| 13             | 54                    | 95  | 38 | 63 | 2778 |      |
| 32             | 132                   | 95  | 38 | 75 | 3008 |      |
| 51             | 211                   | 95  | 38 | 87 | 3217 |      |
| 72             | 300                   | 95  | 38 | 91 | 3280 |      |
| 122            | 510                   | 117 | 47 | 93 | 3663 |      |



### LEVEL 1 SOUND ENCLOSURE

| RUN TIME HOURS | USABLE CAPACITY (GAL) | L   | W  | H  | WT   | dBA* |
|----------------|-----------------------|-----|----|----|------|------|
| NO TANK        | -                     | 112 | 38 | 50 | 2451 | 70   |
| 13             | 54                    | 112 | 38 | 63 | 2931 |      |
| 32             | 132                   | 112 | 38 | 75 | 3161 |      |
| 51             | 211                   | 112 | 38 | 87 | 3370 |      |
| 72             | 300                   | 112 | 38 | 91 | 3433 |      |
| 122            | 510                   | 135 | 47 | 93 | 3816 |      |



### LEVEL 2 SOUND ENCLOSURE

| RUN TIME HOURS | USABLE CAPACITY (GAL) | L   | W  | H   | WT   | dBA* |
|----------------|-----------------------|-----|----|-----|------|------|
| NO TANK        | -                     | 95  | 38 | 62  | 2456 | 65   |
| 32             | 132                   | 95  | 38 | 87  | 3166 |      |
| 51             | 211                   | 95  | 38 | 99  | 3375 |      |
| 72             | 300                   | 95  | 38 | 103 | 3438 |      |
| 122            | 510                   | 117 | 47 | 105 | 3821 |      |

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

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# SG050

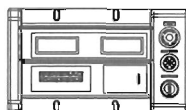
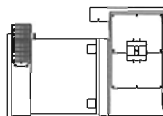
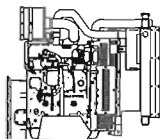
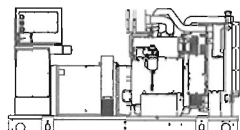
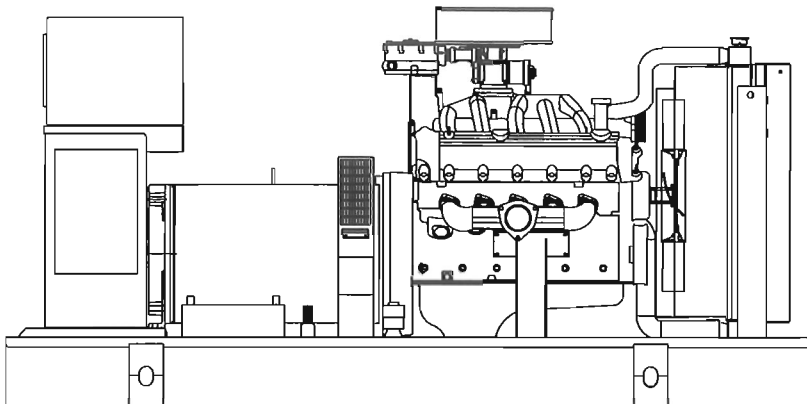
## Industrial Gaseous Generator Set

EPA NSPS Emission Regulations  
US EPA SI Stationary Emission Regulation 40CFR, Part 60, Subpart JJJJ

SG050 50kW

1 of 5

Standby Power Rating  
**50kW 60 Hz**



### features

### benefits

#### Generator Set

- PROTOTYPE & TORSIONALLY TESTED
  - UL2200 TESTED
  - RHINO-COAT PAINT SYSTEM
  - WIDE RANGE OF ENCLOSURES AND TANKS
- ▶ PROVIDES A PROVEN UNIT
  - ▶ ENSURES A QUALITY PRODUCT
  - ▶ IMPROVES RESISTANCE TO ELEMENTS
  - ▶ PROVIDES A SINGLE SOURCE SOLUTION

#### Engine

- EPA COMPLIANT
  - INDUSTRIAL TESTED, GENERAC APPROVED
  - POWER-MATCHED OUTPUT
  - INDUSTRIAL GRADE
- ▶ ENVIRONMENTALLY FRIENDLY
  - ▶ ENSURES INDUSTRIAL STANDARDS
  - ▶ ENGINEERED FOR PERFORMANCE
  - ▶ IMPROVES LONGEVITY AND RELIABILITY

#### Alternator

- TWO-THIRDS PITCH
  - LAYER WOUND ROTOR & STATOR
  - CLASS H MATERIALS
  - DIGITAL 3-PHASE VOLTAGE CONTROL
- ▶ ELIMINATES HARMFUL 3RD HARMONIC
  - ▶ IMPROVES COOLING
  - ▶ HEAT TOLERANT DESIGN
  - ▶ FAST AND ACCURATE RESPONSE

#### Controls

- ENCAPSULATED BOARD W/ SEALED HARNESS
  - 4-20mA VOLTAGE-TO-CURRENT SENSORS
  - SURFACE-MOUNT TECHNOLOGY
  - ADVANCED DIAGNOSTICS & COMMUNICATIONS
- ▶ EASY, AFFORDABLE REPLACEMENT
  - ▶ NOISE RESISTANT 24/7 MONITORING
  - ▶ PROVIDES VIBRATION RESISTANCE
  - ▶ HARDENED RELIABILITY

### primary codes and standards



# SG050

## application and engineering data

### ENGINE SPECIFICATIONS

#### General

|                                |                          |          |
|--------------------------------|--------------------------|----------|
| Make                           | Generac                  |          |
| EPA Emissions Compliance       | Stationary Emergency     |          |
| EPA Emissions Engine Reference | See Emissions Data Sheet |          |
| Cylinder #                     | 10                       |          |
| Type                           | V                        |          |
| Displacement - L (Cu. in.)     | 6.8                      | (414.96) |
| Bore - mm (in.)                | 90.17                    | (3.55)   |
| Stroke - mm (in.)              | 105.92                   | (4.17)   |
| Compression Ratio              | 9:1                      |          |
| Intake Air Method              | Naturally Aspirated      |          |
| Number of Main Bearings        | 7                        |          |
| Connecting Rods                | Forged                   |          |
| Cylinder Head                  | Aluminum                 |          |
| Cylinder Liners                | No                       |          |
| Ignition                       | High Energy              |          |
| Pistons                        | Alum Alloy               |          |
| Crankshaft                     | Steel                    |          |
| Lifter Type                    | Overhd Cam               |          |
| Intake Valve Material          | Steel Alloy              |          |
| Exhaust Valve Material         | Steel Alloy              |          |
| Hardened Valve Seats           | Yes                      |          |

#### Lubrication System

|                              |                             |     |
|------------------------------|-----------------------------|-----|
| Oil Pump Type                | Gear                        |     |
| Oil Filter Type              | Full-flow spin-on cartridge |     |
| Crankcase Capacity - L (qts) | 5.7                         | (6) |

#### Cooling System

|                                 |            |      |
|---------------------------------|------------|------|
| Cooling System Type             | Closed     |      |
| Water Pump Flow                 | 38 gal/min |      |
| Fan Type                        | Pusher     |      |
| Fan Speed                       | 0          |      |
| Fan Diameter mm (in.)           | 558.8      | (22) |
| Coolant Heater Wattage          | 1500       |      |
| Coolant Heater Standard Voltage | 120V       |      |
| Coolant Flow - gal/min          | 39         |      |

#### Fuel System

|                          |                              |  |
|--------------------------|------------------------------|--|
| Fuel Type                | gas, propane vapor, liquid p |  |
| Carburetor               | Down Draft                   |  |
| Secondary Fuel Regulator | Standard                     |  |
| Fuel Shut Off Solenoid   | Standard                     |  |
| Operating Fuel Pressure  | 11" - 14" H2O                |  |

#### Engine Electrical System

|                                    |          |  |
|------------------------------------|----------|--|
| System Voltage                     | 12VDC    |  |
| Battery Charging Alternator (Amps) | 30       |  |
| Battery Size                       | 525CCA   |  |
| Battery Group                      | 24F      |  |
| Battery Voltage                    | 12VDC    |  |
| Ground Polarity                    | Negative |  |

### ALTERNATOR SPECIFICATIONS

|                                     |                  |  |
|-------------------------------------|------------------|--|
| Standard Model                      | 390              |  |
| Poles                               | 4                |  |
| Field Type                          | Revolving        |  |
| Insulation Class - Rotor            | H                |  |
| Insulation Class - Stator           | H                |  |
| Total Harmonic Distortion           | <3.5%            |  |
| Telephone Interference Factor (TIF) | <50              |  |
| Standard Excitation                 | PMG or Brushless |  |
| Bearings                            | Sealed Ball      |  |
| Coupling                            | Direct           |  |
| Load Capacity - Standby             | 100%             |  |
| Prototype Short Circuit Test        | Yes              |  |

|                                    |              |  |
|------------------------------------|--------------|--|
| Voltage Regulator Type             | Full Digital |  |
| Number of Sensed Phases            | 3            |  |
| Regulation Accuracy (Steady State) | +/- 0.25%    |  |

#### Engine Governing

|                                     |            |  |
|-------------------------------------|------------|--|
| Governor                            | Electronic |  |
| Frequency Regulation (Steady State) | +/- 0.25%  |  |

### CODES AND STANDARDS COMPLIANCE (WHERE APPLICABLE)

- NFPA 99
- NFPA 110
- ISO 8528-5
- ISO 1708A.5
- ISO 3046
- BS5514
- SAE J1349
- DIN6271
- IEEE C62.41 TESTING
- NEMA ICS 1

#### Rating Definitions:

Standby – Applicable for a varying emergency load for the duration of a utility power outage with no overload capability. (Max. load factor = 70%)

Prime – Applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. (Max. load factor = 80%) A 10% overload capacity is available for 1 out of every 12 hours.

# SG050

## operating data (60Hz)

### POWER RATINGS (kW)

Single-Phase 120/240VAC @1.0pf  
 Three-Phase 120/208VAC @0.8pf  
 Three-Phase 120/240VAC @0.8pf  
 Three-Phase 277/480VAC @0.8pf  
 Three-Phase 346/600VAC @0.8pf

| Natural Gas |           |
|-------------|-----------|
| 50          | Amps: 208 |
| 50          | Amps: 173 |
| 50          | Amps: 150 |
| 50          | Amps: 75  |
| 50          | Amps: 60  |

| Propane Vapor |           |
|---------------|-----------|
| 50            | Amps: 208 |
| 50            | Amps: 173 |
| 50            | Amps: 150 |
| 50            | Amps: 75  |
| 50            | Amps: 60  |

### STARTING CAPABILITIES (sKVA)

|             |    | sKVA vs. Voltage Dip |     |     |     |     |     |            |     |     |     |     |     |
|-------------|----|----------------------|-----|-----|-----|-----|-----|------------|-----|-----|-----|-----|-----|
|             |    | 480VAC               |     |     |     |     |     | 208/240VAC |     |     |     |     |     |
| Alternator* | kW | 10%                  | 15% | 20% | 25% | 30% | 35% | 10%        | 15% | 20% | 25% | 30% | 35% |
| Standard    | 50 | 34                   | 52  | 69  | 86  | 103 | 120 | 26         | 39  | 52  | 65  | 77  | 90  |
| Upsize 1    | 0  |                      |     |     |     |     |     |            |     |     |     |     |     |
| Upsize 2    | 0  |                      |     |     |     |     |     |            |     |     |     |     |     |

\*All Generac industrial alternators utilize Class H insulation materials. Standard alternator provides less than or equal to Class B temperature rise. Upsize 1 provides less than or equal to Class B temperature rise. Upsize 2 provides less than or equal

### FUEL

#### Fuel Consumption Rates

| Natural Gas  |          |              |          | Propane Vapor |  |  |  |
|--------------|----------|--------------|----------|---------------|--|--|--|
| Percent Load | cu ft/hr | Percent Load | cu ft/hr |               |  |  |  |
| 25%          | 258      | 25%          | 107      |               |  |  |  |
| 50%          | 425      | 50%          | 176      |               |  |  |  |
| 75%          | 592      | 75%          | 245      |               |  |  |  |
| 100%*        | 760      | 100%         | 315      |               |  |  |  |

### COOLING

| STANDBY                                      |             |              |
|--|-------------|--------------|
| Air Flow (inlet air combustion and radiator) | m3/hr (cfm) | 158.57(5600) |
| System Coolant Capacity                      | Liters(Gal) | 23.85(6.3)   |
| Heat Rejection to Coolant                    | BTU/hr      | 182,000      |
| Max. Operating Air Temp on Radiator          | °F (°C)     | 140(60)      |
| Max. Ambient Temperature                     | °F (°C)     | 122(50)      |
| Coolant System Capacity                      | Liters(Gal) | 23.85(6.3)   |
| Maximum Radiator Backpressure                |             | 0.074(0.25)  |

### COMBUSTION AIR REQUIREMENTS

| STANDBY                    |         |
|----------------------------|---------|
| Intake Flow at Rated Power | cfm 160 |

### EXHAUST

| STANDBY                               |             |              |
|---------------------------------------|-------------|--------------|
| Exhaust Flow (Rated Output)           | m3/hr (cfm) | 12.88(455)   |
| Maximum Recommended Back Pressure     | inHg (Kpa)  | 0.074(0.25)  |
| Exhaust Temp (Rated Output)           | °F (°C)     | 1000(537.78) |
| Exhaust Outlet Size - N.P.T. (female) | mm (in)     | 64(2.5)      |

### ENGINE

| STANDBY                  |     |                 |
|--------------------------|-----|-----------------|
| Rated Engine Speed       | rpm | 1800            |
| Horsepower at Rated kW** | hp  | 80              |
| Temperature Deration     |     | Consult Factory |
| Altitude Deration        |     | Consult Factory |

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

**SG050**

**standard features and options**

**GENERATOR SET**



|                                   |     |
|-----------------------------------|-----|
| Genset Vibration Isolation        | Std |
| Seismic Rated Vibration Isolators | Opt |
| Extended warranty                 | Std |
| Gen-Link Communications Software  | Opt |
| Steel Enclosure (Enclosed Models) | Std |
| Remote Emergency Shutdown         | Opt |
| Factory Testing                   | Std |
| Padlockable Doors                 | Opt |

**ENGINE SYSTEM**



General

|   |     |
|---|-----|
| Oil Drain Extension                         | Std |
| Air Cleaner                                 | Std |
| Industrial Exhaust Silencer (Open Sets)     | Std |
| Critical Exhaust Silencer (Enclosed Sets)   | Std |
| Stainless steel flexible exhaust connection | Std |

Fuel System

|                             |     |
|-----------------------------|-----|
| Fuel Lockoff Solenoid       | Std |
| Secondary Fuel Regulator    | Std |
| Flexible Fuel Lines         | Opt |
| LP Liquid Withdrawal        | Opt |
| Automatic Gaseous Dual Fuel | Opt |

Cooling System

|  |     |
|--|-----|
| 120VAC Coolant Heater (3-wire connection cord) | Std |
| 208VAC Coolant Heater                          | Opt |
| 50%/50% Propylene Glycol Coolant               | Std |
| Level 1 Guarding (Open Sets)                   | Std |
| Closed Coolant Recovery System                 | Std |
| UV/Ozone resistant hoses                       | Std |
| Factory-Installed Radiator                     | Std |
| Radiator Drain Extension                       | Std |
| Fan guard                                      | Std |
| Radiator duct adapter (Open Sets)              | Std |

Engine Electrical System

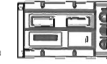
|  |     |
|--|-----|
| Battery charging alternator                          | Std |
| Battery cables                                       | Std |
| Battery tray   | Std |
| Battery box  | Opt |
| 75W 120VAC Battery heater                            | Opt |
| Solenoid activated starter motor                     | Std |
| 2A 120VAC battery charger                            | Std |
| 10A UL float/equalize battery charger w/ 3-wire cord | Std |
| Rubber-booted engine electrical connections          | Std |
| GFCI Convenience Outlet                              | Opt |
| Battery heater                                       | Opt |

**ALTERNATOR SYSTEM**



|   |     |
|---|-----|
| UL2200 GENprotect™                        | Std |
| 100% Rated 200A Main Line Circuit Breaker | Std |
| 2nd Circuit Breaker                       | -   |
| 3rd Circuit Breaker                       | -   |
| Alternator Upsizing                       | Opt |
| Anti-Condensation Heater                  | Opt |
| Tropical coating                          | Opt |

**CONTROL SYSTEM**



Control Panel

|   |     |
|---|-----|
| Digital H Control Panel - Dual 4x20 Display           | Std |
| Digital G-100 Control Panel - Touchscreen             | -   |
| Digital G-200 Paralleling Control Panel - Touchscreen | -   |
| Programmable Crank Limiter                            | Std |
| 21-Light Remote Annunciator                           | Std |
| Remote Relay Panel (8 function)                       | Std |
| 7-Day Programmable Exerciser                          | Std |
| Special Applications Programmable PLC                 | Std |
| RS-232  | Std |
| RS-485  | Std |
| All-Phase Sensing DVR                                 | Std |
| Full System Status                                    | Std |
| Utility Monitoring (Req. H-Transfer Switch)           | Std |
| 2-Wire Start Compatible                               | Std |
| Power Output (kW)                                     | Std |
| Power Factor  | Std |
| Reactive Power  | Std |
| All phase AC Voltage                                  | Std |
| All phase Currents                                    | Std |
| Oil Pressure  | Std |
| Coolant Temperature                                   | Std |
| Coolant Level   | Std |
| Oil Temperature                                       | -   |
| Fuel Pressure   | Std |
| Engine Speed  | Std |
| Battery Voltage                                       | Std |
| Frequency   | Std |
| Date/Time Fault History (Event Log)                   | Std |
| UL2200 GENprotect™                                    | Std |
| Low-Speed Exercise                                    | -   |
| Isochronous Governor Control                          | Std |
| -40deg C - 70deg C Operation                          | Std |
| Waterproof Plug-In Connectors                         | Std |
| Audible Alarms and Shutdowns                          | Std |
| Not in Auto (Flashing Light)                          | Std |
| On/Off/Manual Switch                                  | Std |
| E-Stop (Red Mushroom-Type)                            | Std |
| Remote E-Stop (Break Glass-Type, Surface Mount)       | -   |
| Remote E-Stop (Red Mushroom-Type, Surface Mount)      | -   |
| Remote E-Stop (Red Mushroom-Type, Flush Mount)        | -   |
| NFPA 110 Level I and II (Programmable)                | Std |
| Remote Communication - RS232                          | Std |
| Remote Communication - Modem                          | -   |
| Remote Communication - Ethernet                       | -   |
| 10A Run Relay   | -   |
| Autosynchronizer for paralleling                      | -   |
| Isochronous Load Sharing Module                       | -   |
| Reverse Power Protection Relay                        | -   |
| Dead Bus Sensing                                      | -   |
| Sync Check Relay                                      | -   |

Alarms (Programmable Tolerances, Pre-Alarms and Shutdowns)

|  |     |
|--|-----|
| Oil Pressure (Pre-programmed Low Pressure Shutdown)  | Std |
| Coolant Temperature (Pre-programmed High Temp Shutdo | Std |
| Coolant Level (Pre-programmed Low Level Shutdown)    | Std |
| Fuel Pressure  | Std |
| Engine Speed (Pre-programmed Overspeed Shutdown)     | Std |
| Voltage (Pre-programmed Overvoltage Shutdown)        | Std |
| Battery Voltage                                      | Std |

Other Options

|  |   |
|--|---|
| Single Side Service                            | - |
| HUIO Control Module for additional digital I/O | - |

**dimensions, weights and sound levels**

**OPEN SET (includes exhaust flex)**

| L     | W     | H     | WT   | dBa* |
|-------|-------|-------|------|------|
| 85.12 | 39.99 | 53.66 | 1930 | 84.1 |

**WEATHERPROOF ENCLOSURE**

| L      | W     | H     | WT   | dBa* |
|--------|-------|-------|------|------|
| 111.42 | 39.99 | 53.66 | 2529 | 76.5 |

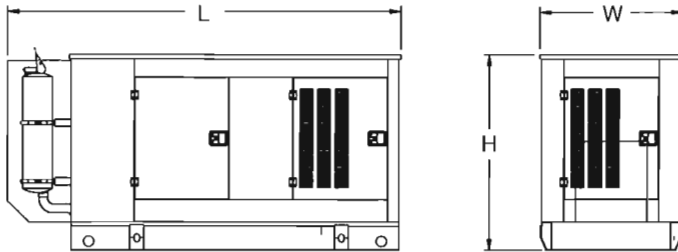
**LEVEL 1 SOUND ENCLOSURE**

| L      | W     | H     | WT   | dBa* |
|--------|-------|-------|------|------|
| 128.74 | 39.99 | 53.66 | 2644 | 73   |

**LEVEL 2 SOUND ENCLOSURE**

**TANK SIZE**

| L | W | H | WT | dBa* |
|---|---|---|----|------|
| 0 | 0 | 0 | 0  | 0    |



\*Weights consider steel enclosure. Sound levels measured at 23ft (7m) and does not account for ambient site conditions.

| YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER |
|---|
|   |

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

Cellco Partnership d/b/a Verizon Wireless  
Palmer Pond Facility  
Voluntown, Connecticut

Site Search Summary

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 Voluntown are provided below.

Site Search Process

To initiate its site selection process in an area where wireless service problems have been identified, Cellco first establishes a “site search ring” or “site search area”. In any search ring or search 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 antennas and related equipment at a location and elevation that satisfies its technical requirements.

Within approximately five (5) miles of the two Palmer Pond alternative site locations under consideration, Cellco maintains three (3) existing or approved telecommunications facilities (Griswold East; Bailey Pond; and Voluntown) and has identified two other existing tower sites (Wyassup Lake and North Stonington East) that Cellco has identified as future facility locations. None of these existing or approved facilities can, however, provide the service needed in the identified problem areas in south-central portions of Voluntown.

Existing, Approved and Proposed Telecommunication Facilities

|    | <u>Owner</u><br><u>(Cellco Site Name)</u> | <u>Facility</u><br><u>Height and Type</u> | <u>Location</u>                       | <u>Cellco</u><br><u>Antenna Height</u> |
|----|---|---|---------------------------------------|--|
| 1. | Crown Castle<br>(Griswold East)           | 180’<br>(Monopole)                        | 1439 Voluntown Road,<br>Griswold, CT  | 157’<br>(Existing)                     |
| 2. | SBA<br>(Bailey Pond)                      | 180’<br>(Monopole)                        | 497 Ekonk Hill Road,<br>Voluntown, CT | 153’<br>(Existing)                     |
| 3. | Verizon Wireless<br>(Voluntown)           | 160’<br>(Monopole)                        | 422 Rockville Road,<br>Voluntown, CT  | 160’<br>(Approved)                     |

|    | <u>Owner<br/>(Cellco Site Name)</u>     | <u>Facility<br/>Height and Type</u> | <u>Location</u>                                  | <u>Cellco<br/>Antenna Height</u> |
|----|---|-------------------------------------|--|----------------------------------|
| 4. | Crown Castle<br>(North Stonington East) | 150'<br>(Monopole)                  | 31F Clarks Falls Road,<br>North Stonington CT    | 130'<br>(Proposed)               |
| 5. | SBA<br>(Wyassup Lake)                   | 190'<br>(Monopole)                  | 177 Cossaduck Hill Road,<br>North Stonington, CT | 177'<br>(Proposed)               |

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 satisfy Cellco's wireless service needs. 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 environmental impacts, or in densely populated residential areas; and those with limited ability to share space with other public or private telecommunications service providers). 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 Palmer Pond Search Area

The purpose of the proposed Palmer Pond Facility is to provide reliable PCS, cellular, LTE and AWS service to significant gaps in service along State Route 49 and local roads, in south-central portions of Voluntown. These coverage gaps were identified using system performance data including, but not limited to, dropped calls and ineffective attempt data, baseline drive data and Cellco's best server propagation modeling tool.

Cellco issued its Palmer Pond search area in May of 2009. (See attached Search Area Map). Cellco's initial site search effort included public and/or private lands within or near a designated search area.

#### Sites Investigated

Cellco identified and investigated a total of eleven (11) sites in south-central Voluntown. A listing of the sites investigated is provided below.

1. **Gallop Property – 596 Pendleton Hill Road, Voluntown, CT** – Cellco entered into a lease agreement with the property owner for a new tower site in the northwest corner of this approximately 30 acre parcel.
2. **Gallop Property – 53 Gallop Road, Voluntown, CT** – Cellco entered into a lease with the property owner for a new tower site in the southeast portion of this approximately 261 acre parcel.



3. **Gallop Property – 860 Pendleton Hill Road, Voluntown, CT** – This location was rejected by Cellco’s RF engineers. A tower at this site could not satisfy Cellco’s coverage objectives in south-central Voluntown.
4. **Groton Sportsmen Club Property – 110 Wheeler Road, Voluntown, CT** – This location was rejected by Cellco’s RF engineers. A new tower at this site could not satisfy Cellco’s coverage objectives in south-central Voluntown.
5. **Groton Sportsmen Club Property – 237 Tom Wheeler Road, North Stonington, CT** – This location was rejected by Cellco’s RF engineers. A new tower at this site could not satisfy Cellco’s coverage objectives in south-central Voluntown.
6. **SBA Tower – 2172 Glasgo Road, Griswold, CT** – This location was rejected by Cellco’s RF engineers. A new tower at this site could not satisfy Cellco’s coverage objectives in south-central Voluntown.
7. **First Baptist Church – 793 Pendelton Hill Road, North Stonington, CT** – Cellco explored use of the First Baptist Church steeple. Cellco could not, however, satisfy its objectives from this location. The site was, therefore, rejected.
8. **Agricultural Silos – 969 Pendleton Hill Road, Voluntown, CT** – Cellco explored the use of the existing agricultural silo at 969 Pendleton Hill Road. Cellco could not satisfy its objective from this location. The site was, therefore, rejected.
9. **SBA Proposed Tower Site – 207 Coal Pit Hill Road, North Stonington, CT** – This is an approved, but not yet constructed, tower site. The SBA tower site would not, however, satisfy Cellco’s coverage objective in its Palmer Pond search area.
10. **Turco Property – 249 Sand Hill Road, Voluntown, CT** – The property owner was not interested in leasing space to Cellco for a tower site.
11. **Palmer Property – 167 Sand Hill Road, Voluntown, CT** – According to the property owner, the development rights for this parcel were sold to the State of Connecticut Department of Agriculture. Cellco could not, therefore, lease the parcel for use as a tower site.

