

Site Search Summary

Cellco Partnership d/b/a Verizon Wireless
Glastonbury South 2 Facility
Dayton Road
Glastonbury, Connecticut

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 South Glastonbury provided below.

Site Search Process

To initiate its site selection process in an area where a coverage or capacity problem has been identified, Cellco first establishes a “site search ring” or “site search area.” In any search ring or 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 equipment at a location and elevation that satisfies its technical requirements.

Cellco has identified seven (7) telecommunications facilities all located within approximately four (4) miles of the proposed Glastonbury South 2 cell site. Cellco currently maintains a telecommunications facility at each of these locations. None of the existing facilities, however, can provide the coverage or capacity relief needed in the identified problem areas, along portions of Route 17, as well as local roads in the South Glastonbury area and the northern portions of the Town of Portland. (See Attachment 8).

Existing Telecommunication Facilities

	<u>Owner</u> <u>(Cellco Site Name)</u>	<u>Facility</u> <u>Height and Type</u>	<u>Location</u>	<u>Cellco</u> <u>Antenna Height</u>
1.	SBA (East Glastonbury 2)	180’ Monopole	175 Dickinson Road	168’
2.	Crown (East Glastonbury)	150’ Monopole	366 Three Mile Road	148’

	<u>Owner (Cellco Site Name)</u>	<u>Facility Height and Type</u>	<u>Location</u>	<u>Cellco Antenna Height</u>
3.	DF Group LLC (Rocky Hill North)	65' Rooftop	1344 Silas Deane Highway	65'
4.	Town of Rocky Hill (Rocky Hill East)	150' Monopole	699 Old Main Street	140'
5.	American Tower (Rocky Hill 4)	100' Monopole	2 West Street	90'
6.	Crown (Rocky Hill 2)	180' Monopole	1218 Cromwell Avenue	150'
7.	Crown (Portland)	160' Monopole	74 Goodrich Lane	160'

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

Identification of the Glastonbury South 2 Search Area

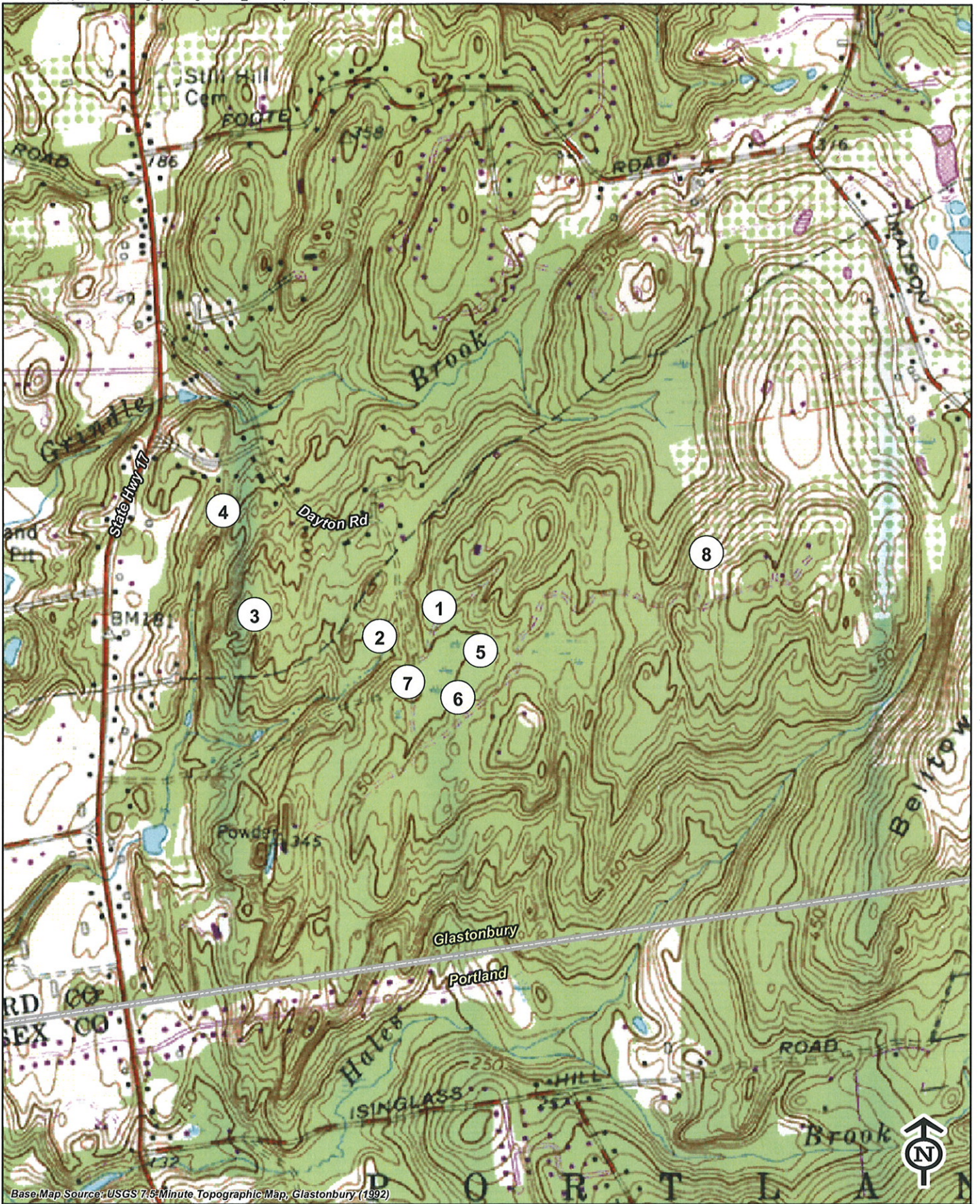
The purpose of the proposed Glastonbury South 2 Facility is to provide reliable PCS, cellular and eventually 700 MHz coverage to significant coverage gaps that have been identified along the southerly portions of Route 17, as well as local roads in South Glastonbury and northern Portland. These coverage gaps were identified using baseline drive data and Cellco's best server propagation modeling tool. This tool is fine-tuned regularly through the use of baseline drive data. The propagation modeling tool is used to produce the coverage plots included in the Council application.

Cellco issued its Glastonbury South 2 search area on June 28, 2005. (See attached Search Area Map). As a matter of practice, Cellco's initial site search effort focuses on municipal or other quasi-public properties that might be available and appropriate locations for a telecommunications facility. If no public properties are available, Cellco investigates private land within or near the designated search area.

Sites Investigated By Cellco In South Glastonbury

In addition to the existing and approved communications facilities listed above, Cellco identified and investigated eight (8) sites in the South Glastonbury area. The locations of each of the sites listed below is illustrated on a U.S.G.S. Topographic Map attached to this summary. The sites investigated include:

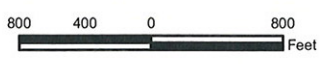
1. Schwager Property – 271 Dayton Road, South Glastonbury. This site was selected as Cellco's proposed Glastonbury South 2 cell site. The proposed cell site is located in the southerly portion of the 13.7 Schwager parcel. Access to the site will extend from Dayton Road along the landlord's existing driveway.
2. MCM Monopole – Lot W-7, Dayton Road, South Glastonbury. This site is a 39 acre vacant lot owned by Joseph L. A. Robert and Richard H. Hartley III. This is the site of the proposed MCM tower site. MCM is proposing the construction of a 160-foot monopole approximately 250 feet west of Dayton Road. Cellco's RF engineers have approved the use of the MCM tower site at the 160-foot level.
3. Carollo Property – 290 Main Street, South Glastonbury. This is a 10 acre parcel owned by Joseph and Christine Carollo. This site was rejected by Cellco due to an extensive wetlands crossing toward the back of the property. Cellco also evaluated candidate as a stealth silo up against bar in front of property, which would have avoided wetland crossing. Due to RF height requirement of 150 feet, the silo was ruled out.
4. Triblets Property – 352 Main Street, South Glastonbury. This site is 12.13 acres of raw land candidate owned by John W. and Beverley Triblets, Jr. Coverage from this site could not satisfy Cellco's objectives in the area and was rejected by Cellco's RF engineers.
5. Esposito Property – Lot E-9, Dayton Road, South Glastonbury. This site is a 40.53 acre vacant lot owned by Carmine J. and Deborah Esposito and is located to the south of the Schwager property. Cellco made numerous attempts to contact the owner, by phone and mail. The owner did not respond to Cellco's inquiries.
6. Bemer Property – Lot E-12, Dayton Road, South Glastonbury. This is a 16 acre vacant parcel owned by the Estate of Frances W. Bemer and Evenlyn Welch Walker, c/o Bruce Bemer, Executor. The owner was not interested in leasing space to Cellco.
7. Wasserman Property – Lot W-8, Dayton Road, South Glastonbury. This is a 10.48 acre vacant lot owned by Janice P. Wasserman. The owner was not interested in leasing space to Cellco.
8. Beckett Property – 295A Dayton Road, South Glastonbury. This is a 19 acre parcel owned by Patricia S. Beckett. This site was rejected by Cellco's RF engineers because it did not meet Cellco's coverage objectives in the area.



Base Map Source: USGS 7.5 Minute Topographic Map, Glastonbury (1992)



Quadrangle Location



Vanasse Hangen Brustlin, Inc.

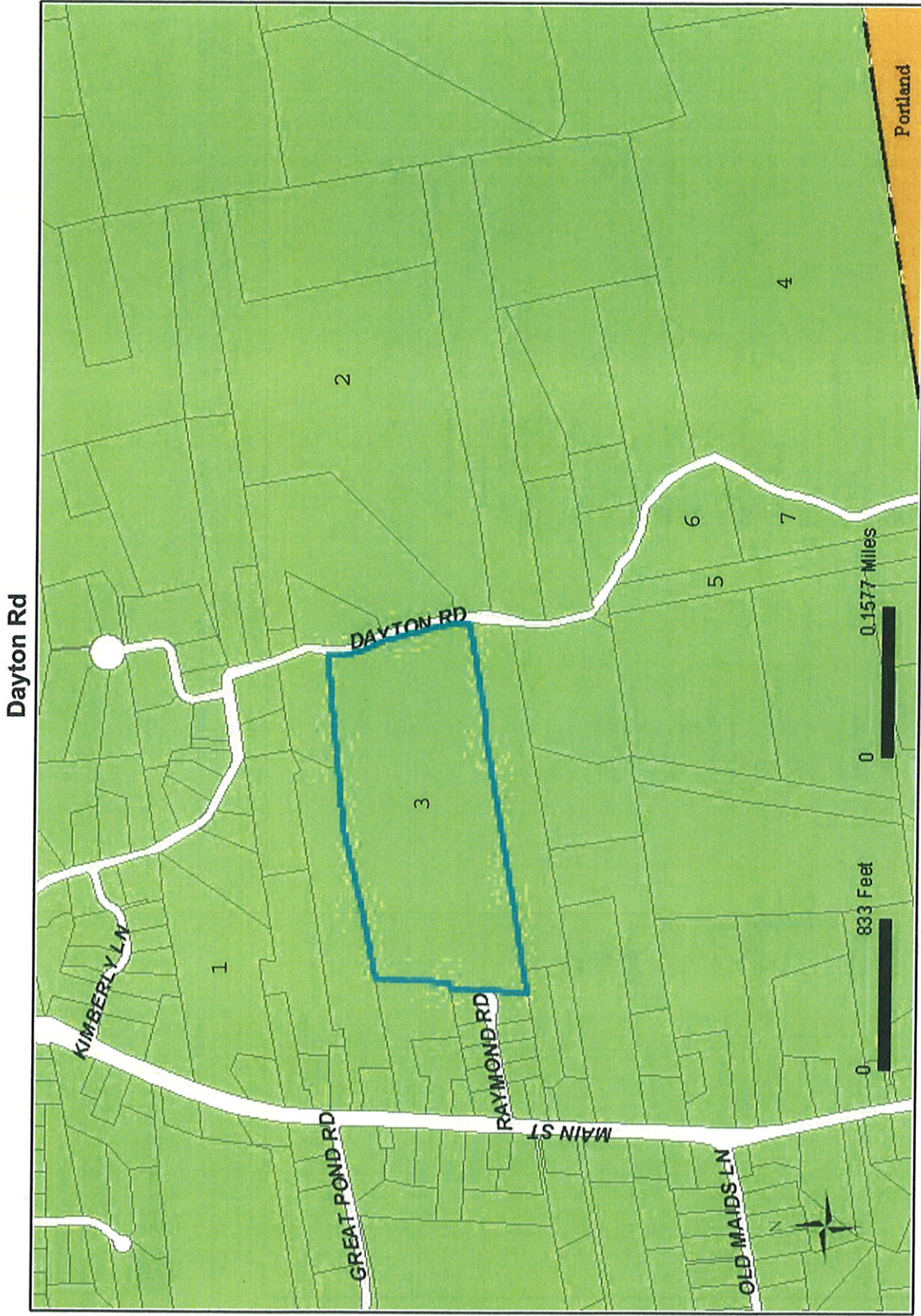
**Site Search Summary Map
 Proposed Verizon Wireless
 Telecommunications Facility
 271 Dayton Road
 Glastonbury, Connecticut**



Sites Investigated By MCM In South Glastonbury

As discussed in the Application narrative, MCM conducted its own site search process for a suitable tower location in South Glastonbury. Each of the sites investigated by MCM is identified on a map attached to this summary. The sites investigated by MCM include:

1. Triblets Property – 352 Main Street, South Glastonbury. This site is 12.13 acres of developed land with a single family residence owned by John W. and Beverley Triblets. The property owner expressed interest in MCM's inquiry, but the portion of the property identified by the landowner was not developable due to access limitations and wetlands.
2. Esposito Property – Lot W0009, Dayton Road, South Glastonbury. This site is a 40 acre parcel of undeveloped land within the target area owned by Carmine J. and Deborah Esposito. The property owner did not respond to certified letter inquiry.
3. Joseph Property – Dayton Road, South Glastonbury. This site is a 39 acre parcel of undeveloped land owned by Robert Joseph. The property owner is currently under contract with MCM for a proposed telecommunications facility.
4. Beck Property (Double I, LLC) – Dayton Road, South Glastonbury. This site is a 78.41 acre parcel of undeveloped land owned by Bruce Beck (Double I, LLC). The property owner expressed an interest in MCM's inquiry and requested an evaluation of the property listed as candidate #5 below.
5. Eldergill Property (Double I, LLC) – Dayton Road, South Glastonbury. This site is a 4.7 acre parcel of undeveloped land owned by Kathleen Eldergill (Double I, LLC). The property owner expressed an interest in MCM's inquiry. The property was field evaluated but was not developable.
6. Double I, LLC – Dayton Road, South Glastonbury. This site is a 4 acre parcel of undeveloped land owned by Double I, LLC. The property owner expressed an interest in MCM's inquiry and requested an evaluation of the property listed as candidate #5 above.
7. Double I, LLC – Dayton Road, South Glastonbury. This site is an 8.5 acre parcel of undeveloped land owned by Double I, LLC. The property owner expressed an interest in MCM's inquiry and requested an evaluation of the property listed as candidate #5 above.



See page 2 for Legend and Disclaimer



Glastonbury, CT

*Proposed Wireless
Telecommunications Facility*

Glastonbury South 2
271 Dayton Road
Glastonbury, Connecticut

Prepared for



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

August 2009

Visual Resource Evaluation

Celco Partnership dba Verizon Wireless seeks approval from the Connecticut Siting Council for a Certificate of Environmental Compatibility and Public Need for the construction of a wireless telecommunications facility ("Facility") to be located on property at 271 Dayton Road (identified herein as the "host property"), in the Town of Glastonbury, Connecticut. This Visual Resource Evaluation was conducted to evaluate the visibility of the proposed Facility within a two-mile radius ("Study Area"). Attachment A contains a map that depicts the location of the proposed Facility and the limits of the Study Area.

Project Introduction

The proposed Facility includes the installation of a 117-foot tall monopine tower (designed to resemble an evergreen tree) with associated ground equipment to be located at its base. Both the proposed monopine and ground equipment would be situated within a fence-enclosed compound. The proposed Facility is located at a ground elevation of 371.4 feet Above Mean Sea Level (AMSL). Access to the Facility would mostly utilize an existing driveway that is currently located on the host property. A proposed 12-foot wide gravel spur would then extend approximately 100 feet in a northwesterly direction from the existing driveway to provide direct vehicular access to the proposed compound area.

Site Description and Setting

Identified in the Town of Glastonbury land records as Map E13/Block 1680/Lot E0008, the host property consists of approximately 13.7 acres of mostly wooded land and is currently occupied by a single family residential structure. The proposed Facility is situated on an undeveloped portion of the host property, roughly 290 feet east of Dayton Road. Attachment A includes a photograph of the proposed project area. Land use within the general vicinity of the proposed Facility is mainly comprised of low-density residential development, and undeveloped woodlands. Segments of Route 17 and the Route 160 are contained within the Study Area. In total, the Study Area features approximately 53 linear miles of roadways.

The topography within the Study Area is characterized by the Connecticut River (in the western portion of the Study Area) and its associated river valley with gently rolling hills located to the east and west of the river and extended ridgelines located further to the east, nearly two miles from the proposed Facility. Ground elevations within the Study Area range from approximately two feet AMSL to approximately 735 feet AMSL. The Study Area contains approximately 239 acres of surface water, which mainly includes portions of the Connecticut River. The tree cover within the Study Area consists mainly of mixed deciduous hardwood species interspersed with stands of mature evergreen species. The tree canopy occupies approximately 4,497 acres of the 8,042-acre study area (56%). During the in-field activities associated with this analysis, an infrared laser range finder was used to determine the average tree canopy height throughout the Study Area. Numerous trees were selected for measurement and the average tree canopy was determined to be 65 feet.

METHODOLOGY

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

Visibility Analysis

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

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

Also included on the map is a data layer, obtained from the State of Connecticut Department of Environmental Protection ("CTDEP"), which depicts various land and water resources such as parks and forests, recreational facilities, dedicated open space, CTDEP boat launches and other categories. Lastly, based on both a review of published information and discussions with municipal officials in Glastonbury it was determined that the portion of Route 160 contained within the Study Area is a state-designated scenic roadway and is therefore depicted as such on the attached viewshed map.

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

Balloon Float and Study Area Reconnaissance

On July 8, 2009 Vanasse Hangen Brustlin Inc., (VHB) conducted a balloon float at the proposed Facility location to further evaluate the potential viewshed within the Study Area. The balloon float consisted of raising and maintaining an approximate four-foot diameter, helium-filled weather balloon at the proposed site location at a height of 117 feet. Once the balloon was secured, VHB staff conducted a drive-by reconnaissance along the roads located within the Study Area with an emphasis on nearby residential areas and other potential sensitive receptors in order to evaluate the results of the preliminary viewshed map and to document where the balloon was, and was not, visible above and/or through the tree canopy. During the balloon float, the temperature was approximately 75 degrees Fahrenheit with calm wind conditions and sunny skies.

Photographic Documentation

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

1. View from Old Maids Lane adjacent to house #199.
2. View from Old Maids Land adjacent to house #112.
3. View from Bluff Point Road adjacent to house #131.
4. View from Bluff Point Road adjacent to house #172.
5. View from Belltown Road adjacent to house #168.
6. View from Crystal Ridge adjacent to house #73.

7. View from Taylor Town Road south of Bluff Point Road.
8. View from Great Pond Road adjacent to house #293.
9. View from Main Street across from the Wells-Shipman-Ward House.
10. View from Glastonbury Hunt Lane adjacent to house #44.
11. View from Dayton Road at existing natural gas right-of-way.
12. View from Main Street.
13. View from Great Pond Road at Route 17.
14. View from Overlook Court at Route 17.

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

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

Photographic Simulation

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

CONCLUSIONS

Based on this analysis, areas from where the proposed 117-foot tall Facility would be visible above the tree canopy comprise approximately 140 acres, or just under two percent of the 8,042-acre Study Area. As depicted on the viewshed map (provided in Attachment B), potential year-round visibility associated with the proposed monopine would generally be limited to distant views (in excess of one mile) from select locations to the northwest and southwest of the proposed Facility. Specifically, this includes portions of Bluff Point Road, Old Maids Lane and Taylor Town Road where an absence of mature vegetative screening and relatively flat terrain allow for a direct line of site to the proposed Facility. The map also depicts an area of potential visibility over an agricultural field located approximately 0.65-mile to the northeast of the proposed Facility. Overall however, potential year-round visibility would be minimized by the intervening topography and the extent of vegetative

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

cover contained within the Study Area. VHB estimates that portions of approximately 47 residential properties may have at least partial year-round views of the proposed Facility. This includes approximately 27 residences along Bluff Point Road; eight residences along Taylor Town Road, 10 residences along Old Maids Lane and two residences located along Glastonbury Hunt Lane.

The viewshed map also depicts several additional areas where seasonal (i.e. during “leaf off” conditions) views are anticipated. These areas comprise approximately 15 acres and are located within the general vicinity of the proposed Facility, mainly on the host property and its immediate surroundings. VHB estimates that limited seasonal views of the proposed Facility may be achieved from portions of approximately three residential properties located along Dayton Road.