

# *Proposed Wireless Telecommunications Facility*

Woodstock Relocation  
87 West Quasset Road  
Woodstock, Connecticut

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Prepared for



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Middletown, CT 06457

November 2010

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## Visual Resource Evaluation

Cellco Partnership, dba Verizon Wireless, seeks approval from the Connecticut Siting Council for a Certificate of Environmental Compatibility and Public Need for the construction of a wireless telecommunications facility ("Facility") to be located on property at 87 West Quasset Road (identified herein as the "host property"), in the Town of Woodstock, Connecticut. The tower will replace an existing 150-foot tall lattice tower in the southeast portion of the host property. Verizon Wireless whip antennas are currently located on the lattice tower at a centerline height of 134 feet above ground level (AGL). Verizon Wireless plans to establish a new telecommunications Facility on the property and remove all equipment from the existing tower site. This Visual Resource Evaluation was conducted to evaluate the visibility of the proposed Facility within a two-mile radius ("Study Area"). The Study Area also includes land located within the neighboring municipality of Pomfret, Connecticut to the south. Attachment A contains a map that depicts the location of the proposed Facility and the limits of the Study Area.

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## Project Introduction

The proposed Facility includes the installation of a 150-foot tall monopole tower with associated equipment shelter to be located at its base. Both the monopole and equipment shelter would be situated within a fence-enclosed compound. The proposed Facility would be located at a ground elevation of approximately 692 feet Above Mean Sea Level (AMSL). Access to the proposed Facility would follow an existing dirt path currently located on the host property (to be improved). A photograph of the proposed project area is included in Attachment A.

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## Site Description and Setting

Identified in the Town of Woodstock land records as Map 6393/Block 66/Lot 03, the host property consists of approximately 30 acres of land. The host property is currently occupied by an existing 150-foot tall lattice tower and associated ground equipment located approximately 695 feet to the southeast of the proposed project area. Land use within the general vicinity of the proposed Facility is mainly comprised of undeveloped woodlands, active agricultural land and low-density residential development. Segments of Route 169 and Route 171 are contained within the Study Area. In total, the Study Area features approximately 49 linear miles of roadways.

The topography within the Study Area is generally characterized by gently rolling hills with ground elevations that range from nearly 400 AMSL to just over 860 feet AMSL. The Study Area contains approximately 197 acres of surface water, including Wappaquasset Pond, a private water body located approximately 0.29-mile to the east/southeast of the proposed Facility. The tree cover within the Study Area consists mainly of mixed deciduous hardwood species that occupy approximately 5,257 acres of the 8,042-acre study area (65%). The

average tree canopy height throughout the Study Area was determined to be approximately 65 feet.



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## METHODOLOGY

To evaluate the visibility associated with the proposed Facility, VHB used the combination of a predictive computer model and in-field analysis. The predictive model provided a preliminary assessment of potential visibility throughout the entire study area, including private property and other areas inaccessible for direct observations. A "balloon float" and Study Area reconnaissance were subsequently conducted for field verification to back-check the initial computer modeling results, to obtain location and height representations, and to provide photographic documentation from publicly accessible areas. A description of the procedures used in the analysis is provided below.

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### Visibility Analysis

VHB uses ArcGIS® Spatial Analyst, a computer modeling tool developed by Environmental Systems Research Institute, Inc., to calculate the areas from which at least the top of the proposed Facility is expected to be visible. Project and Study Area-specific data were incorporated into the computer model, including Facility height, its ground elevation, underlying and surrounding topography and existing vegetation. Information used in the model included Connecticut LiDAR<sup>1</sup>-based digital elevation data and model and a digital forest (or tree canopy) layer developed for the Study Area. The LiDAR-based Digital Elevation Model (DEM) represents ten-foot spatial resolution elevation information for the state of Connecticut that was derived through the spatial interpolation of airborne LiDAR-based data collected in the year 2000 and has a horizontal resolution of ten (10) feet. The data was edited in 2007 and made available by the University of Connecticut through its Center for Land Use Education and Research (CLEAR). To create the forest layer, mature trees and woodland areas depicted on aerial photographs (ranging in dates from 2004 to 2008) were manually digitized (hand traced) in ArcGIS®, creating a geographic data layer for inclusion in the computer model. The black and white, digital aerial photographs, obtained from the Connecticut Department of Transportation, were flown in the spring of 2004 and selected for use in this analysis because of their image quality and depiction of pre-leaf emergence (i.e., "leaf-off") conditions. These photographs are half-foot pixel resolution. The more recent aerial photographs (2006 and 2008) were overlaid and evaluated to identify any new development resulting in the removal of trees.

Once the specific data layers were entered, the ArcGIS® Spatial Analyst Viewshed tool was applied to achieve an estimate of locations where the proposed Facility could be visible. First, only topography was used as a possible visual constraint; the tree canopy was omitted to evaluate potential visibility with no intervening vegetative screening. The initial omission of

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<sup>1</sup> LiDAR is an acronym for Light Detection and Ranging. It is a technology that utilized lasers to determine the distance to an object or surface. LiDAR is similar to radar, but incorporates laser pulses rather than sound waves. It measures the time delay between transmission and reflection of the laser pulse.

this data layer resulted in an excessively conservative prediction, but it provided an opportunity to identify areas within potential direct lines of sight of the Facility.

The forest data layer was then overlaid and built into the DEM, using a conservative average tree canopy height of 50 feet, to establish a baseline assessment of intervening vegetation. The resultant preliminary viewshed map was used during the in-field activities (described further below) to compare the outcome of the initial computer modeling with observations of the balloon float to identify deviations. Information obtained from the field reconnaissance was ultimately incorporated into the model to refine the viewshed map.

The average tree canopy height, in this case 65 feet, was determined based on information collected in the field using a combination of a hand-held laser range finder and comparative observations. The revised average tree canopy height of 65 feet was then incorporated into the model and the results displayed on the viewshed map. The forested areas were overlaid on the DEM with a height of 65 feet added to the base elevation and the visibility within the Study Area calculated.

As a final step, the forested areas were extracted from the areas of visibility, using a conservative assumption that a person standing within the forest will not be able to view the proposed Facility beyond a distance of approximately 500 feet. Depending on the density of the intervening tree canopy and understory of the surrounding woodlands, it is assumed that some locations within this distance could provide visibility of at least portions of the proposed Facility at any time of the year. In "leaf-on" conditions, this distance may be overly conservative for most locations. However, for purposes of this analysis, it was reasoned that forested land beyond 500 feet of the proposed Facility would consist of light-impenetrable trees of a uniform height.

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

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### **Balloon Float and Study Area Reconnaissance**

On August 19, 2010 Vanasse Hangen Brustlin Inc., (VHB) conducted a balloon float 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 balloon at the proposed site location at a height of 150 feet. Once the balloon was secured, VHB staff conducted a drive-by reconnaissance along the public roads located within the Study Area, including nearby residential areas, 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 85 degrees Fahrenheit with calm wind conditions and mostly 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. The locations of the photos are described below:

View	Location	Orientation	Dist. To Site	Visibility
1	Intersection of Quasset Hill Road and West Quasset Road	Southwest	± 0.20-Mile	Year-Round
2	Adjacent to #80 West Quasset Road	Northwest	± 0.16-Mile	Year-Round
3	West Quasset Road	Northeast	± 0.77-Mile	Year-Round
4	Adjacent to #289 West Quasset Road	Northeast	± 0.80-Mile	Year-Round
5	Adjacent to #337 West Quasset Road	Northeast	± 0.80-Mile	Year-Round
6	West Quasset Road	Northeast	± 0.45-Mile	Year-Round
7	Adjacent to #485 West Quasset Road	Northeast	± 0.37-Mile	Year-Round
8	Adjacent to #114 New Sweden Road	Southeast	± 0.28-Mile	Year-Round
9	Route 171	Southeast	± 0.68-Mile	Year-Round
10	Old Hall Road	South	± 0.68-Mile	Year-Round
11	Meehan Road	Southeast	± 0.77-Mile	Year-Round
12	Meehan Road	Southeast	± 0.90-Mile	Year-Round
13	Adjacent to #29 Loyola Road	Northwest	± 0.58-Mile	Year-Round
14	Adjacent to #22 Shore Road	Northwest	± 0.56-Mile	Year-Round
15	Adjacent to #36 Shore Road	Northwest	± 0.50-Mile	Year-Round
16	Adjacent to #101 East Quasset Road	West	± 0.48-Mile	Year-Round
17	Adjacent to #149 East Quasset Road	Northwest	± 0.52-Mile	Year-Round
18	Adjacent to #191 East Quasset Road	Northwest	± 0.55-Mile	Year-Round
19	Adjacent to #21 Sheldon Street	Northwest	± 0.64-Mile	Year-Round
20	Quasset Road at Quasset Cemetery	Southwest	± 0.48-Mile	Non-Visible

Photographs of the balloon from the view points listed above were taken with a Nikon D-80 digital camera body and fixed Nikon 50 mm lens. "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."<sup>1</sup>

The locations of the photographic points were recorded in the field using a GPS-enabled tablet computer and subsequently plotted on the maps contained in the attachments to this document.

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

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## Photographic Simulation

Photographic simulations were generated for the representative locations where the balloon was visible during the in-field activities. The photographic simulations portray a scaled rendering of the proposed Facility from these locations, with four wireless service providers represented. Using field data, site plan information and 3-dimension (3D) modeling software, a spatially referenced model of the site area was generated. Geographic coordinates (latitude and longitude) were collected in the field for all of the photograph locations via GPS and later used to generate virtual camera positions within the spatial 3D model. Photo simulations were then created using a combination of renderings generated in the 3D model and photo rendering software programs. The balloon was included in the photographs to provide a visual marker and to cross-reference the height and proportions of the proposed Facility. A photolog map and the simulations are contained in Attachment A.

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## CONCLUSIONS

Based on this analysis, areas from where the proposed 150-foot tall tower would be visible above the tree canopy comprise approximately 179 acres. As depicted on the attached viewshed map, the majority of year-round visibility associated with the proposed tower would occur over open water on Wappaquasset Pond (private access), including its immediate eastern shoreline; open, undeveloped portions of the host property; and several agricultural fields located within the general vicinity of the host property (typically within one mile of the proposed Facility). Year-round views are also anticipated from select portions of West Quasset Road, Quasset Hill Road, East Quasset Road, Shore Drive, Meehan Road, Loyola Road and New Sweden Road. VHB estimates that at least partial year-round views of the proposed Facility may be achieved from portions of approximately 47 residential properties located within the Study Area. In general, as evidenced by the results of the balloon float and photographic simulations, potential views from many of these properties would be limited in their extent and mostly screened by the surrounding vegetation. The locations of these properties are identified in the table provided below.

It is also important to note that the existing 150-foot tall lattice tower is currently visible from a number of locations where the proposed Facility is expected to be visible, particularly along portions of Shore Road, East Quasset Road, and Loyola Road. Overall potential year-round views of the proposed Facility would be limited to the areas described above by a combination of the intervening topography and vegetation contained within the Study Area.

The viewshed map also depicts several additional areas where seasonal (i.e. during "leaf off" conditions) views are anticipated. These areas comprise approximately 205 acres and are located within the general vicinity of the proposed Facility (within 0.50-mile of the proposed Facility), including select portions of West Quasset Road, East Quasset Road, Shore Drive, Loyola Road and New Sweden Road. VHB estimates that limited seasonal views of the proposed Facility may be achieved from portions of approximately 15 additional residential properties within the Study Area, the locations of which are included in the table below.

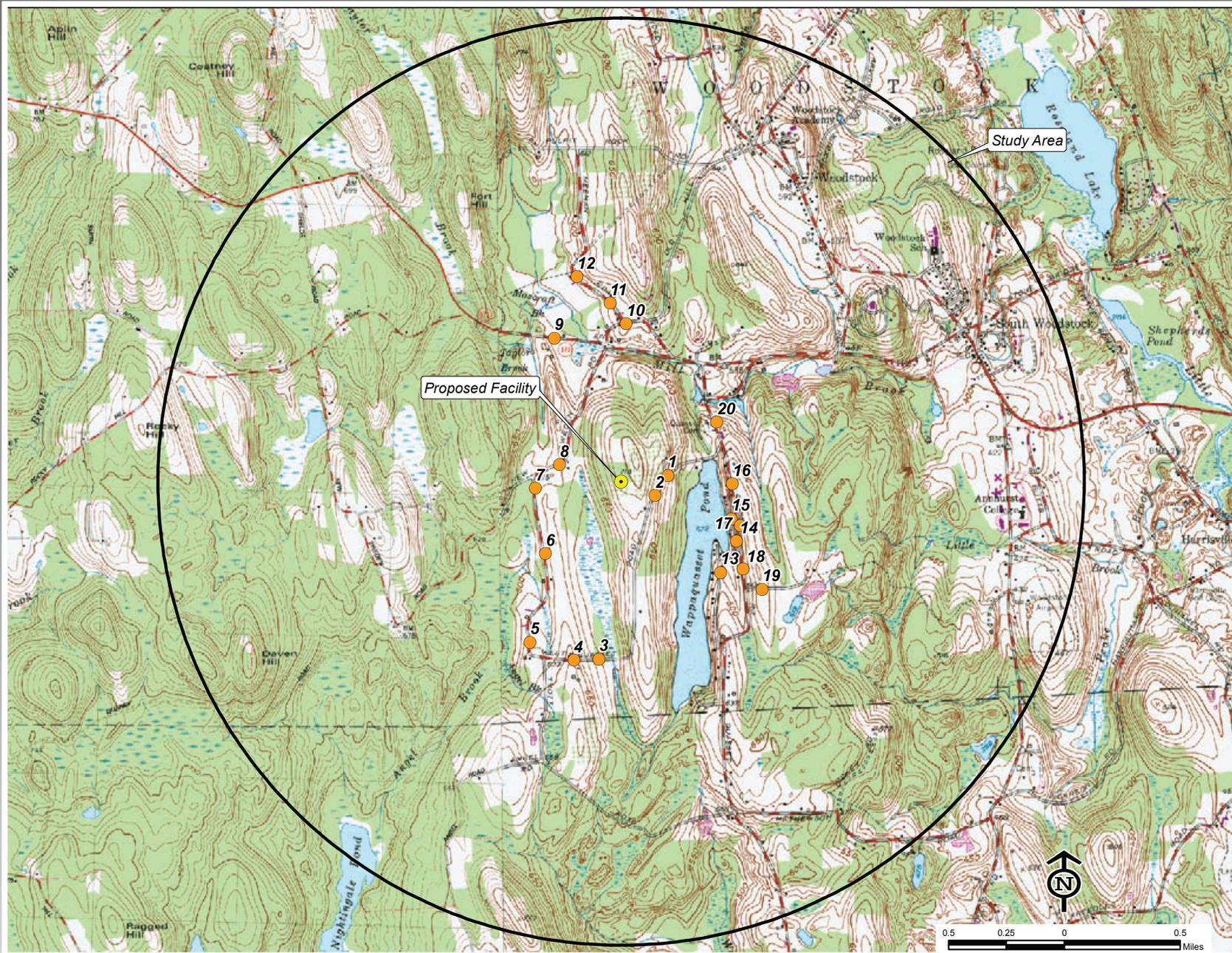
Location	*Number of Residential Properties With Potential Year-Round Visibility (Leaf-On)	*Number of Residential Properties With Potential Seasonal Visibility (Leaf-Off)
	West Quasset Road	5
Quasset Hill Road	1	-
East Quasset Road	9	5
Shore Drive	11	1
Meehan Road	4	-
Loyola Road	15	5
New Sweden Road	2	2
<b>TOTAL:</b>	<b>47</b>	<b>15</b>

\*Indicates potential year-round or seasonal visibility from portions of the properties listed in the table above. Potential visibility on a "residential property" does not necessarily mean that the property is developed with a home or views would be achieved from within residential dwellings, exterior decks, porches or patios that might be located on such properties. Further, it may be possible to view the Facility from within portions of the shaded areas indicating potential visibility, but not necessarily from all locations within those shaded areas.

## Attachment A

# Project Area Photograph, Study Area Map, Balloon Float Photographs, and Photographic Simulations

# Photolog Map



J:\1479.55\graphics\FIGURES\147955\_Photosim

# | Photographic Documentation



PROPOSED PROJECT AREA

J:\41479.55\graphics\FIGURES\4147955\_Photosim

# Photographic Documentation



J:\41479.55\graphics\FIGURES\4147955\_Photos\im

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	INTERSECTION OF QUASSET HILL ROAD AND WEST QUASSET ROAD	SOUTHWEST	0.20 MILE +/-	YEAR-ROUND

# Photographic Simulation



J:\41479.55\graphics\FIGURES\147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	INTERSECTION OF QUASSET HILL ROAD AND WEST QUASSET ROAD	SOUTHWEST	0.20 MILE +/-	YEAR-ROUND

# Photographic Documentation



J:\41479\_55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	ADJACENT TO #80 WEST QUASSET ROAD	NORTHWEST	0.16 MILE +/-	YEAR-ROUND

# Photographic Simulation



J:\41479-55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	ADJACENT TO #80 WEST QUASSET ROAD	NORTHWEST	0.16 MILE +/-	YEAR-ROUND

# Photographic Documentation



J:\41479.55\graphics\FIGURES\4147955\_Photos\im

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
<b>3</b>	WEST QUASSET ROAD	NORTHEAST	0.77 MILE +/-	YEAR-ROUND

# Photographic Simulation



J:\41479-55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
<b>3</b>	WEST QUASSET ROAD	NORTHEAST	0.77 MILE +/-	YEAR-ROUND

# Photographic Documentation



J:\41479.55\graphics\FIGURES\4147955\_Photos\m

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	ADJACENT TO #289 WEST QUASSET ROAD	NORTHEAST	0.80 MILE +/-	YEAR-ROUND

# Photographic Simulation



J:\41479.55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	ADJACENT TO #289 WEST QUASSET ROAD	NORTHEAST	0.80 MILE +/-	YEAR-ROUND

# Photographic Documentation



J:\41479.55\graphics\FIGURES\4147955\_Photos\in

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
5	ADJACENT TO #337 WEST QUASSET ROAD	NORTHEAST	0.80 MILE +/-	YEAR-ROUND

# Photographic Simulation



J:\41479.55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
5	ADJACENT TO #337 WEST QUASSET ROAD	NORTHEAST	0.80 MILE +/-	YEAR-ROUND

# Photographic Documentation



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VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	WEST QUASSET ROAD	NORTHEAST	0.45 MILE +/-	YEAR-ROUND

# Photographic Simulation



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VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	WEST QUASSET ROAD	NORTHEAST	0.45 MILE +/-	YEAR-ROUND

# Photographic Documentation



J:\41479.55\graphics\FIGURES\4147955\_Photos\im

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	ADJACENT TO #485 WEST QUASSET ROAD	NORTHEAST	0.37 MILE +/-	YEAR-ROUND

# Photographic Simulation



J:\41479-55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	ADJACENT TO #485 WEST QUASSET ROAD	NORTHEAST	0.37 MILE +/-	YEAR-ROUND

# Photographic Documentation



JA41479.55\graphics\FIGURES\4147955\_Photos\im

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
8	ADJACENT TO #114 NEW SWEDEN ROAD	SOUTHEAST	0.28 MILE +/-	YEAR-ROUND

# Photographic Simulation



JA41479-55\graphics\FIGURES\147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
8	ADJACENT TO #114 NEW SWEDEN ROAD	SOUTHEAST	0.28 MILE +/-	YEAR-ROUND

# Photographic Documentation



J:\41479\_55\graphics\FIGURES\4147955\_Photos\in

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	ROUTE 171	SOUTHEAST	0.68 MILE +/-	YEAR-ROUND

# Photographic Simulation



J:\41479-55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	ROUTE 171	SOUTHEAST	0.68 MILE +/-	YEAR-ROUND

# Photographic Documentation



J:\41479-55\graphics\FIGURES\4147955\_Photos\m

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10	OLD HALL ROAD	SOUTH	0.68 MILE +/-	YEAR-ROUND

# Photographic Simulation



J:\41479\_55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10	OLD HALL ROAD	SOUTH	0.68 MILE +/-	YEAR-ROUND

# Photographic Documentation



JA41479\_55\graphics\FIGURES\4147955\_Photos\m

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
11	MEEHAN ROAD	SOUTHEAST	0.77 MILE +/-	YEAR-ROUND

# Photographic Simulation



JA41479.55\graphics\FIGURES\147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
11	MEEHAN ROAD	SOUTHEAST	0.77 MILE +/-	YEAR-ROUND

# | Photographic Documentation



JA41479.55\graphics\FIGURES\147955\_Photos\m

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
12	MEEHAN ROAD	SOUTHEAST	0.90 MILE +/-	YEAR-ROUND

# Photographic Simulation



J:\41479.55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
12	MEEHAN ROAD	SOUTHEAST	0.90 MILE +/-	YEAR-ROUND

# Photographic Documentation



JA41479-55\graphics\FIGURES\4147955\_Photos\im

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
13	ADJACENT TO #29 LOYOLA ROAD	NORTHWEST	0.58 MILE +/-	YEAR-ROUND

# Photographic Simulation



J:\41479-55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
13	ADJACENT TO #29 LOYOLA ROAD	NORTHWEST	0.58 MILE +/-	YEAR-ROUND

# Photographic Documentation



JA41479\_55\graphics\FIGURES\147955\_Photos\m

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
14	ADJACENT TO #22 SHORE ROAD	NORTHWEST	0.56 MILE +/-	YEAR-ROUND

# Photographic Simulation



J:\41479\_55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
14	ADJACENT TO #22 SHORE ROAD	NORTHWEST	0.56 MILE +/-	YEAR-ROUND

# Photographic Documentation



J:\41479-55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
15	ADJACENT TO #36 SHORE ROAD	NORTHWEST	0.50 MILE +/-	YEAR-ROUND

# Photographic Simulation



J:\41479-55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
15	ADJACENT TO #36 SHORE ROAD	NORTHWEST	0.50 MILE +/-	YEAR-ROUND

# Photographic Documentation



J:\41479\_55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
16	ADJACENT TO #101 EAST QUASSET ROAD	WEST	0.48 MILE +/-	YEAR-ROUND

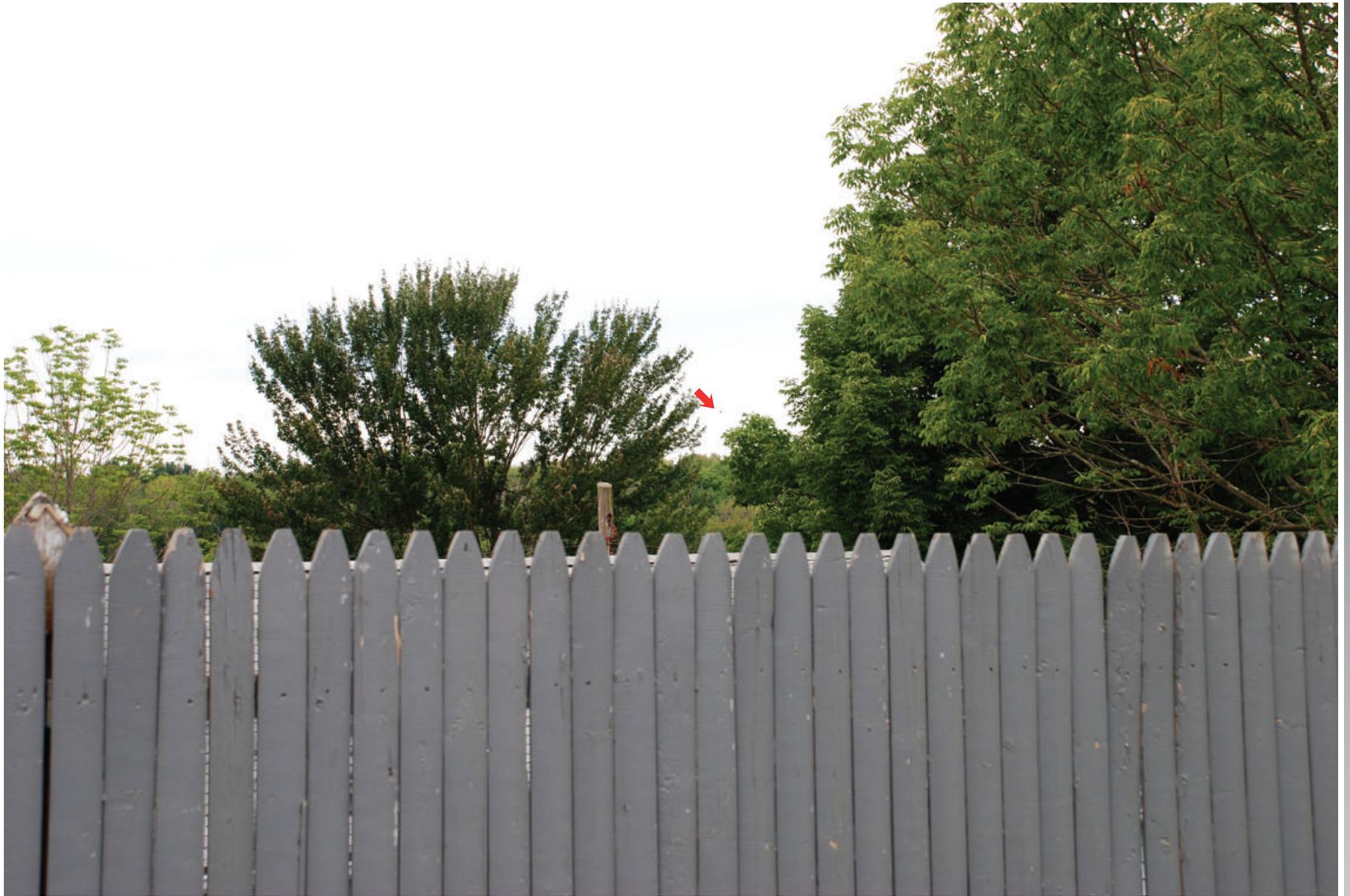
# Photographic Simulation



J:\41479-55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
16	ADJACENT TO #101 EAST QUASSET ROAD	WEST	0.48 MILE +/-	YEAR-ROUND

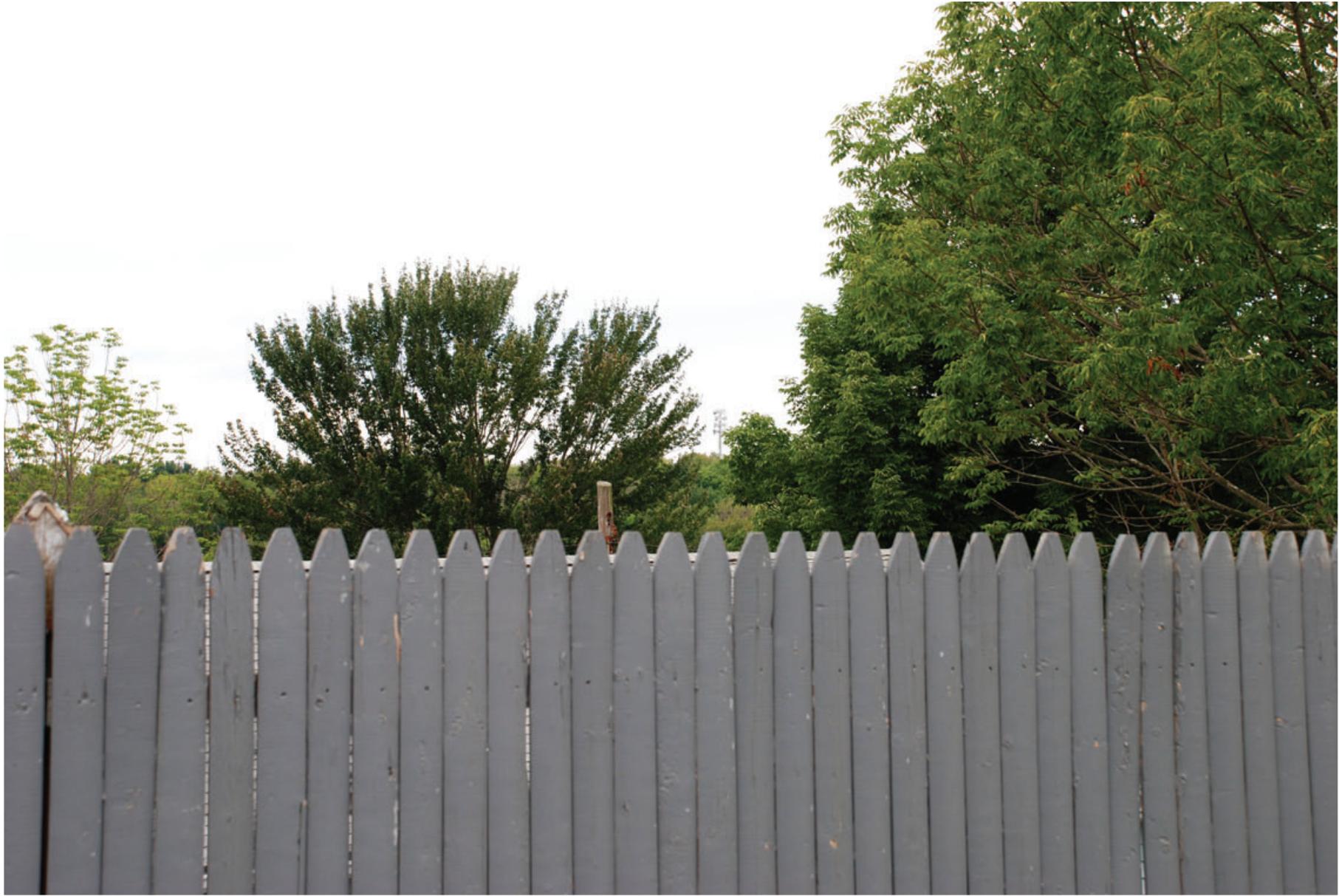
# Photographic Documentation



J:\41479-55\graphics\FIGURES\4147955\_Photos\in

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
17	ADJACENT TO #149 EAST QUASSET ROAD	NORTHWEST	0.52 MILE +/-	YEAR-ROUND

# Photographic Simulation



J:\41479-55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
17	ADJACENT TO #149 EAST QUASSET ROAD	NORTHWEST	0.52 MILE +/-	YEAR-ROUND

# Photographic Documentation



J:\41479.55\graphics\FIGURES\4147955\_Photos\in

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
18	ADJACENT TO #191 EAST QUASSET ROAD	NORTHWEST	0.55 MILE +/-	YEAR-ROUND

# Photographic Simulation



J:\41479\_55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
18	ADJACENT TO #191 EAST QUASSET ROAD	NORTHWEST	0.55 MILE +/-	YEAR-ROUND

# Photographic Documentation



J:\41479-55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
19	ADJACENT TO #21 SHELDON STREET	NORTHWEST	0.64 MILE +/-	YEAR-ROUND

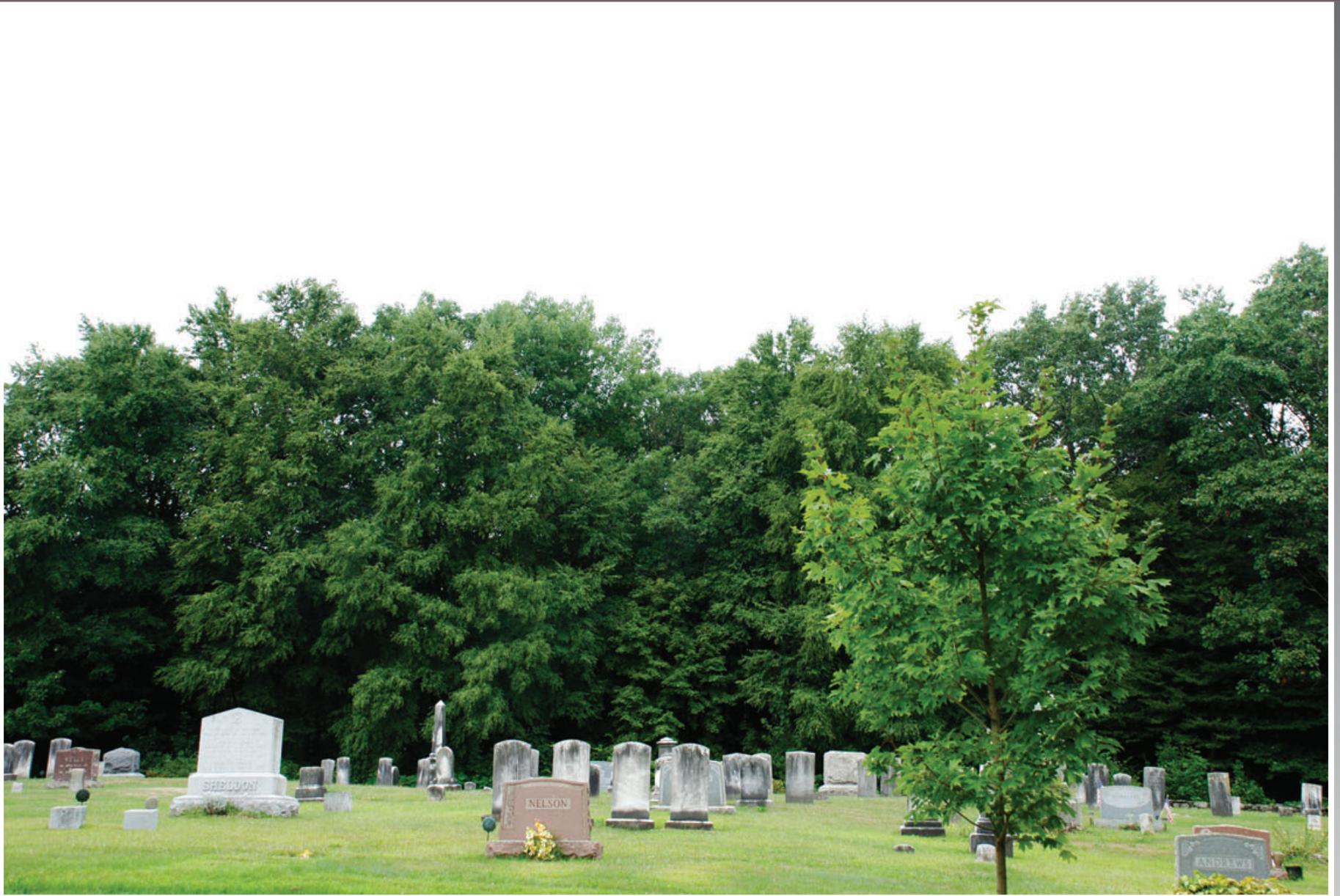
# Photographic Simulation



J:\41479-55\graphics\FIGURES\4147955\_Photosim

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
19	ADJACENT TO #21 SHELDON STREET	NORTHWEST	0.64 MILE +/-	YEAR-ROUND

# Photographic Documentation



JA41479.55\graphics\FIGURES\147955\_Photos\im

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
20	QUASSET ROAD AT QUASSET CEMETERY	SOUTHWEST	0.48 MILE +/-	NON-VISIBLE

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# Attachment B

## Viewshed Map

Viewshed Analysis  
Proposed Verizon Wireless  
Telecommunications Facility  
Woodstock Relocation  
87 West Quasset Road  
Woodstock, Connecticut

**NOTE:**

- Viewshed analysis conducted using ESRI's Spatial Analyst.
- Proposed Facility height is 150 feet.
- Existing tree canopy height estimated at 65 feet.
- Study Area is comprised of a two-mile radius surrounding the proposed facility and includes 8,042 acres of land.

**DATA SOURCES:**

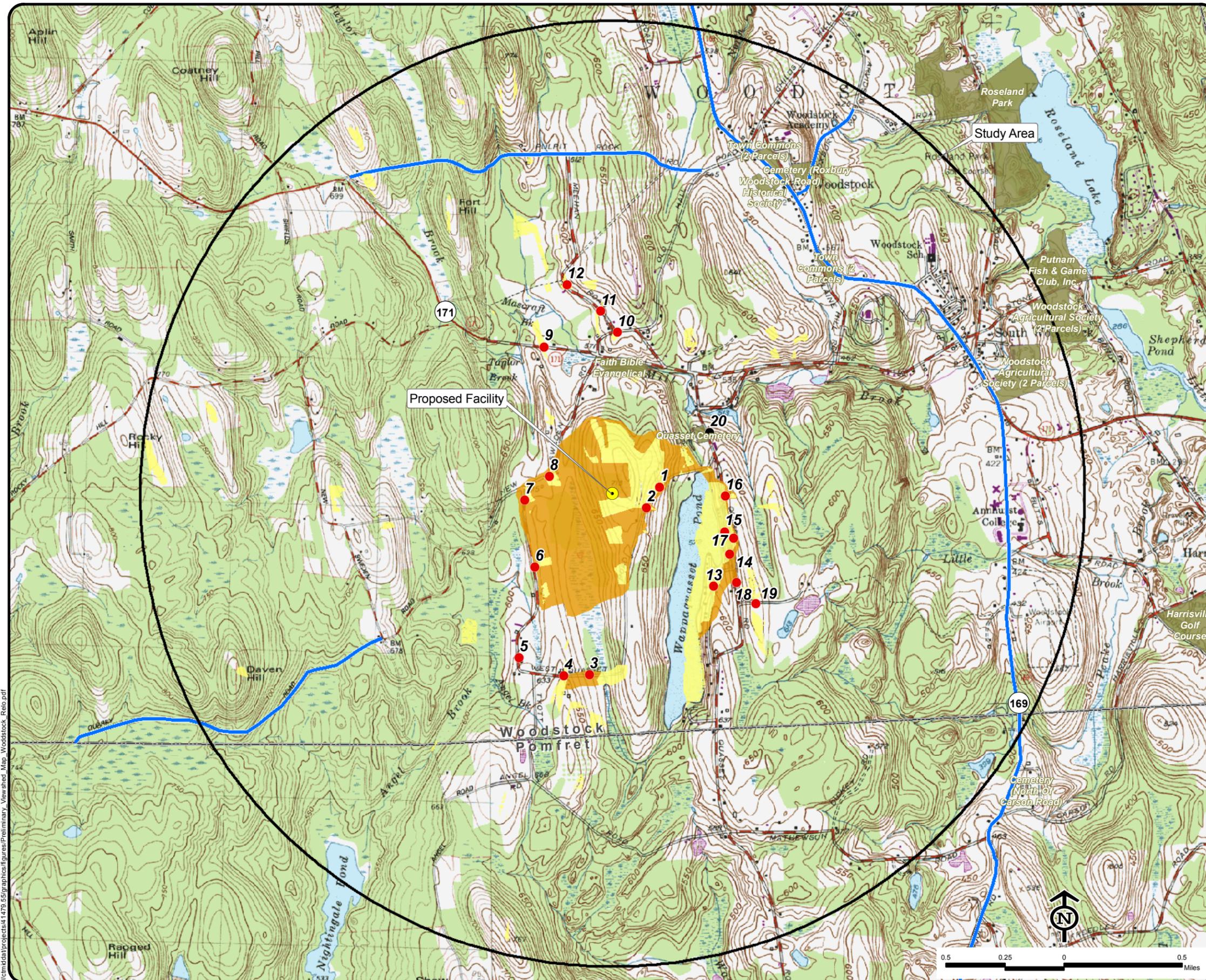
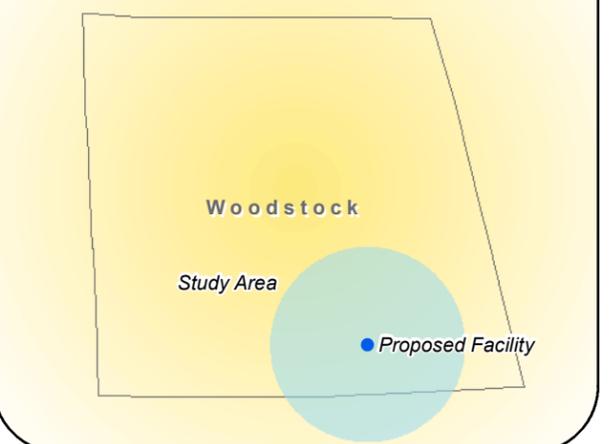
- Digital elevation model (DEM) derived from Connecticut LiDAR-based Digital Elevation Data (collected in 2000) with a 10-foot spatial resolution produced by the University of Connecticut and the Center for Land Use Education and Research (CLEAR); 2007
- Forest areas derived from 2008 digital orthophotos with 1-meter pixel resolution; digitized by VHB, 2010
- Base map comprised of Putnam (1970) and Eastford (1983) USGS Quadrangle Maps
- Municipal and Private Open Space data layer provided by CT DEP, 1997
- Federal Open Space data layer provided by CT DEP, 2004
- CT DEP Property data layer provided by CT DEP, April 2010
- CT DEP boat launches data layer provided by CT DEP, Dec 2009
- Scenic Roads layer derived from available State and Local listings

Map Compiled October, 2010

**Legend**

- |   |   |
|---|---|
|  Proposed Tower Location                                     |  CT DEP Property (CT DEP, May 2010)  |
| Photographs - August 19, 2010   |  State Forest                        |
|  Balloon is not visible                                      |  State Park                          |
|  Balloon visible above trees                               |  DEP Owned Waterbody               |
|  Seasonal Visibility (Approximately 205 acres)             |  State Park Scenic Reserve         |
|  Year-Round Visibility (Approximately 179 acres)           |  Historic Preserve                 |
|  Protected Municipal and Private Open Space (CT DEP, 1997) |  Natural Area Preserve             |
|  Cemetery  |  Fish Hatchery                     |
|  Preservation  |  Flood Control                     |
|  Conservation  |  Other                             |
|  Existing Preserved Open Space                             |  State Park Trail                  |
|  Recreation  |  Water Access                      |
|  General Recreation  |  Wildlife Area                     |
|  School  |  Wildlife Sanctuary                |
|  Uncategorized   |  Federal Open Space (CT DEP, 2004) |
|  Scenic Road (State and Local)                             |  Boat Launches (CT DEP, Dec 2009)  |
|  Town Line   |  Scenic Road (State and Local)     |
|   |  Town Line                         |

**Inset Map**  
**Town of Woodstock**



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