

*Proposed Wireless
Telecommunications Facility*

North Bloomfield
Day Hill Road
Bloomfield, Connecticut

Prepared for



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

February 2011

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 off Day Hill Road in the Town of Bloomfield, Connecticut. 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 municipalities of Windsor, Connecticut to the north; East Granby to the north; and Simsbury, Connecticut to the west. 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 110-foot tall monopole tower with associated ground equipment to be located at its base. Both the monopole and ground equipment would be situated within a 47-foot by 76-foot fence-enclosed compound. The proposed Facility would be located at a ground elevation of approximately 180 feet Above Mean Sea Level (AMSL). Access to the Facility would be provided via a proposed, 12-foot wide gravel driveway that would extend to the proposed compound area in a southwesterly direction from Day Hill Road.

Site Description and Setting

The "host property" (identified in Town Assessor's records as Map 452/Lot 62) consists of approximately 10.8 acres of land that includes both wooded and open areas and is currently occupied by several abandoned green houses and barns. The proposed Facility would be located on the southern portion of the host property, roughly 750 feet south of Day Hill Road. Land uses within the general vicinity of the host property consist of mixed industrial/light manufacturing facilities, commercial establishments and medium-density residential development. In total, the Study Area features approximately 79 linear miles of roadways, including portions of Route 187 and Route 189.

The topography within the Study Area is generally characterized by gently rolling hills and the Talcott Mountain ridgeline, located roughly 1.75 miles to the west of the proposed host property, with ground elevations that range from approximately 109 feet AMSL to nearly 700 feet AMSL. The Study Area contains approximately 950 acres of surface water, which mainly includes portions of the Farmington River located approximately 1.09 miles to the northeast of the host property. The tree cover within the Study Area consists mainly of mixed deciduous hardwood species that occupy approximately 4,902 acres of the 8,042-acre study area (61%). The average tree canopy height throughout the Study Area was determined to be approximately 65 feet.

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.

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 LiDAR¹-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 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.

¹ 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.

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. In addition, VHB has determined that segments of the Metacomet Trail, part of the Connecticut Blue Blaze trail system, are contained within the western portion of the Study Area. This portion of the Metacomet Trail is therefore depicted on the attached viewshed map. Lastly, based on both a review of published information and discussions with municipal officials in Bloomfield, Windsor, East Granby and Simsbury it was determined that there are no locally- or state-designated scenic roadways located within the Study Area.

Balloon Float and Study Area Reconnaissance

On January 6, 2011 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 a yellow, five-foot diameter, helium-filled balloon at the proposed site location at a height of 110 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 30 degrees Fahrenheit with calm wind conditions and partly 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 and was not 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. The locations of the photos are described below:

| View | Location | Orientation | Dist. To Site | Visibility |
|------|------------------------------------------------------------|-------------|---------------|-------------|
| 1 | Day Hill Road | West | ± 0.97-Mile | Year-Round |
| 2 | Day Hill Road | West | ± 0.77-Mile | Year-Round |
| 3 | Blue Hills Avenue Extension | Southwest | ± 0.77-Mile | Year-Round |
| 4 | Waterside Crossing Approaching Blue Hills Avenue Extension | Southwest | ± 0.41-Mile | Year-Round |
| 5 | Route 189 (Tunxis Avenue) | Southeast | ± 0.34-Mile | Year-Round |
| 6 | Adjacent to #387 Route 189 (Tunxis Avenue) | Southeast | ± 0.18-Mile | Year-Round |
| 7 | Adjacent to #372 Route 189 (Tunxis Avenue) | East | ± 0.11-Mile | Seasonal |
| 8 | Adjacent to #368 Route 189 (Tunxis Avenue) | Northeast | ± 0.14-Mile | Year-Round |
| 9 | Adjacent to #6 McCormick Place | Northeast | ± 0.21-Mile | Year-Round |
| 10 | Adjacent to #10 McCormick Place | East | ± 0.18-Mile | Year-Round |
| 11 | Adjacent to #1 Boysen Drive | Northeast | ± 0.32-Mile | Year-Round |
| 12 | Lynn Circle west of Boysen Drive | Northeast | ± 0.38-Mile | Seasonal |
| 13 | Adjacent to #11 Boysen Drive | Northeast | ± 0.40-Mile | Seasonal |
| 14 | Adjacent to #16 Bear Ridge Drive | East | ± 0.29-Mile | Seasonal |
| 15 | Intersection of Harvest Lane and Habitat Lane | East | ± 0.46-Mile | Not Visible |
| 16 | Terry Plains Road | Northeast | ± 1.42-Miles | Year-Round |
| 17 | Terry Plains Road | Northeast | ± 1.60-Miles | Not Visible |
| 18 | Griffin Road South | Northwest | ± 0.50-Mile | Seasonal |
| 19 | Adjacent to #30 Griffin Road South | Northwest | ± 0.45-Mile | Year-Round |
| 20 | Day Hill Road | West | ± 0.34-Mile | Year-Round |
| 21 | Day Hill Road approaching host property | Southwest | ± 0.12-Mile | Year-Round |
| 22 | Adjacent to #98 Adams Road | Northwest | ± 0.11-Mile | Year-Round |
| 23 | Adjacent to #23 Edwards Way | Northwest | ± 0.30-Mile | Not Visible |
| 24 | Bloomfield Reservoir | Northeast | ± 1.18-Miles | Not 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."¹

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

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

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 project 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, photographs of existing conditions (depicting the balloon float), and the simulations are contained in Attachment A.

CONCLUSIONS

Based on this analysis, areas from where the proposed 110-foot tall Facility would be visible above the tree canopy comprise approximately 101 acres. As depicted on the attached viewshed map, the majority of year-round visibility associated with the proposed Facility would occur over several open commercial and agricultural parcels located within the general vicinity of the host property. The map also depicts smaller areas of potential year-round visibility to the northwest, southwest and southeast of the proposed Facility. VHB estimates that at least partial year-round views of the proposed Facility may be achieved from portions of approximately twelve (12) residential properties within the Study Area. The locations of these properties are provided in the table below. Overall, potential year-round views of the proposed Facility would be limited to the areas described above by a combination of the relatively low height of the monopole, and intervening topography and vegetation contained within the Study Area (including evergreen landscaping/specimen trees located within the general vicinity of the host property). No views of the proposed Facility are anticipated from the approximate 2.35-mile segment of the Metacomet Trail that traverses the western portion of the Study Area. Vistas along this stretch of the Metacomet Trail are generally oriented westward, away from the proposed Facility.

The viewshed map also depicts several additional areas where seasonal (i.e. during "leaf off" conditions) views are anticipated. These areas comprise approximately 33 acres and are located within the general vicinity of the proposed Facility. VHB estimates that limited seasonal views of the proposed Facility may be achieved from portions of approximately seventeen (17) additional residential properties located within the Study Area. The locations of these properties are provided in the table below.

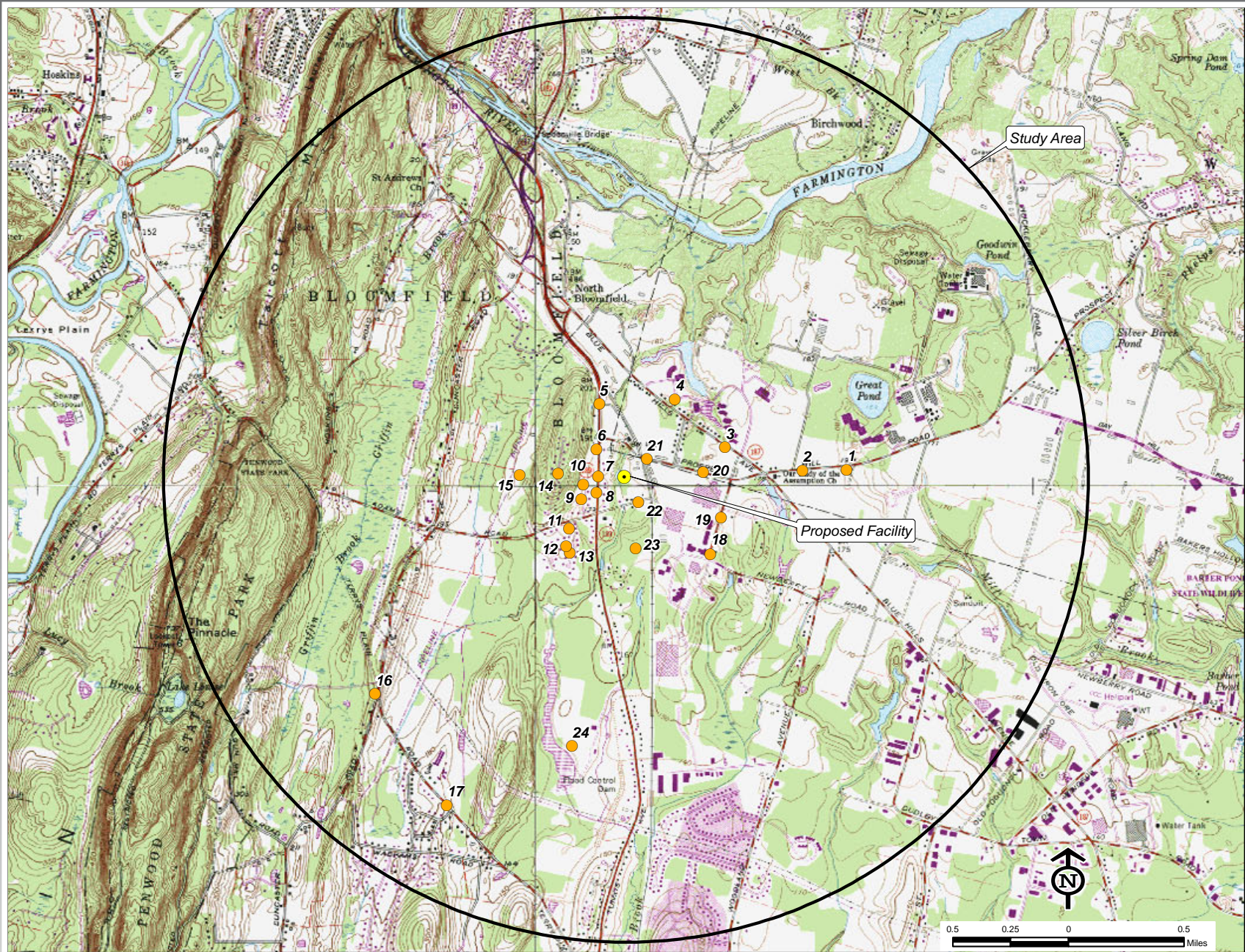
| Location | *Number of Residential Properties With Potential Year-Round Visibility (Leaf-On) | *Number of Residential Properties With Potential Seasonal Visibility (Leaf-Off) |
|---------------------------|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Route 189 (Tunxis Avenue) | 2 | 5 |
| McCormick Place | 3 | 2 |
| Bear Ridge Drive | - | 2 |
| Adams Road | 1 | 3 |
| Boysen Drive | 2 | 4 |
| Lynn Circle | - | 1 |
| Terry Plains Road | 2 | - |
| Duncaster Road | 2 | - |
| TOTAL: | 12 | 17 |

*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

Study Area Map, Balloon Float Photographs, and Photographic Simulations

Photolog Map



J:\41479.41\graphics\FIGURES\41479.41_Photosim

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|---------------|-------------|------------------|------------|
| 1 | DAY HILL ROAD | WEST | 0.97 MILE +/- | YEAR ROUND |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|---------------|-------------|------------------|------------|
| 1 | DAY HILL ROAD | WEST | 0.97 MILE +/- | YEAR ROUND |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|---------------|-------------|------------------|------------|
| 2 | DAY HILL ROAD | WEST | 0.77 MILE +/- | YEAR ROUND |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|---------------|-------------|------------------|------------|
| 2 | DAY HILL ROAD | WEST | 0.77 MILE +/- | YEAR ROUND |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|-----------------------------|-------------|------------------|------------|
| 3 | BLUE HILLS AVENUE EXTENSION | SOUTHWEST | 0.46 MILE +/- | YEAR ROUND |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|-----------------------------|-------------|------------------|------------|
| 3 | BLUE HILLS AVENUE EXTENSION | SOUTHWEST | 0.46 MILE +/- | YEAR ROUND |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|------------------------------------------------------------|-------------|------------------|------------|
| 4 | WATERSIDE CROSSING APPROACHING BLUE HILLS AVENUE EXTENSION | SOUTHWEST | 0.41 MILE +/- | YEAR ROUND |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|------------------------------------------------------------|-------------|------------------|------------|
| 4 | WATERSIDE CROSSING APPROACHING BLUE HILLS AVENUE EXTENSION | SOUTHWEST | 0.41 MILE +/- | YEAR ROUND |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|---------------------------|-------------|------------------|------------|
| 5 | ROUTE 189 (TUNXIS AVENUE) | SOUTHEAST | 0.34 MILE +/- | YEAR ROUND |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|---------------------------|-------------|------------------|------------|
| 5 | ROUTE 189 (TUNXIS AVENUE) | SOUTHEAST | 0.34 MILE +/- | YEAR ROUND |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|--------------------------------------------|-------------|------------------|------------|
| 6 | ADJACENT TO #387 ROUTE 189 (TUNXIS AVENUE) | SOUTHEAST | 0.18 MILE +/- | YEAR ROUND |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|--------------------------------------------|-------------|------------------|------------|
| 6 | ADJACENT TO #387 ROUTE 189 (TUNXIS AVENUE) | SOUTHEAST | 0.18 MILE +/- | YEAR ROUND |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|--------------------------------------------|-------------|------------------|------------|
| 7 | ADJACENT TO #372 ROUTE 189 (TUNXIS AVENUE) | EAST | 0.11 MILE +/- | SEASONAL |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|--------------------------------------------|-------------|------------------|------------|
| 7 | ADJACENT TO #372 ROUTE 189 (TUNXIS AVENUE) | EAST | 0.11 MILE +/- | SEASONAL |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|--------------------------------------------|-------------|------------------|------------|
| 8 | ADJACENT TO #368 ROUTE 189 (TUNXIS AVENUE) | NORTHEAST | 0.14 MILE +/- | YEAR ROUND |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|--------------------------------------------|-------------|------------------|------------|
| 8 | ADJACENT TO #368 ROUTE 189 (TUNXIS AVENUE) | NORTHEAST | 0.14 MILE +/- | YEAR ROUND |

Photographic Documentation



J:\41479.41\graphics\FIGURES\1479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|--------------------------------|-------------|------------------|------------|
| 9 | ADJACENT TO #6 McCORMICK PLACE | NORTHEAST | 0.21 MILE +/- | YEAR ROUND |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|--------------------------------|-------------|------------------|------------|
| 9 | ADJACENT TO #6 McCORMICK PLACE | NORTHEAST | 0.21 MILE +/- | YEAR ROUND |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|---------------------------------|-------------|------------------|------------|
| 10 | ADJACENT TO #10 McCORMICK PLACE | EAST | 0.18 MILE +/- | YEAR ROUND |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|---------------------------------|-------------|------------------|------------|
| 10 | ADJACENT TO #10 McCORMICK PLACE | EAST | 0.18 MILE +/- | YEAR ROUND |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|-----------------------------|-------------|------------------|------------|
| 11 | ADJACENT TO #1 BOYSEN DRIVE | NORTHEAST | 0.32 MILE +/- | YEAR ROUND |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|-----------------------------|-------------|------------------|------------|
| 11 | ADJACENT TO #1 BOYSEN DRIVE | NORTHEAST | 0.32 MILE +/- | YEAR ROUND |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|----------------------------------|-------------|------------------|------------|
| 12 | LYNN CIRCLE WEST OF BOYSEN DRIVE | NORTHEAST | 0.38 MILE +/- | SEASONAL |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|----------------------------------|-------------|------------------|------------|
| 12 | LYNN CIRCLE WEST OF BOYSEN DRIVE | NORTHEAST | 0.38 MILE +/- | SEASONAL |

Photographic Documentation



J:\41479.41\graphics\FIGURES\1479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|------------------------------|-------------|------------------|------------|
| 13 | ADJACENT TO #11 BOYSEN DRIVE | NORTHEAST | 0.40 MILE +/- | SEASONAL |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|------------------------------|-------------|------------------|------------|
| 13 | ADJACENT TO #11 BOYSEN DRIVE | NORTHEAST | 0.40 MILE +/- | SEASONAL |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|----------------------------------|-------------|------------------|------------|
| 14 | ADJACENT TO #16 BEAR RIDGE DRIVE | EAST | 0.29 MILE +/- | SEASONAL |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|----------------------------------|-------------|------------------|------------|
| 14 | ADJACENT TO #16 BEAR RIDGE DRIVE | EAST | 0.29 MILE +/- | SEASONAL |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|-----------------------------------------------|-------------|------------------|-------------|
| 15 | INTERSECTION OF HARVEST LANE AND HABITAT LANE | EAST | 0.46 MILE +/- | NOT VISIBLE |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|-------------------|-------------|------------------|------------|
| 16 | TERRY PLAINS ROAD | NORTHEAST | 1.42 MILES +/- | YEAR ROUND |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|-------------------|-------------|------------------|------------|
| 16 | TERRY PLAINS ROAD | NORTHEAST | 1.42 MILES +/- | YEAR ROUND |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|-------------------|-------------|------------------|-------------|
| 17 | TERRY PLAINS ROAD | NORTHEAST | 1.60 MILE +/- | NOT VISIBLE |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|--------------------|-------------|------------------|------------|
| 18 | GRIFFIN ROAD SOUTH | NORTHWEST | 0.50 MILE +/- | SEASONAL |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|--------------------|-------------|------------------|------------|
| 18 | GRIFFIN ROAD SOUTH | NORTHWEST | 0.50 MILE +/- | SEASONAL |

Photographic Documentation



J:\41479.41\graphics\FIGURES\1479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|------------------------------------|-------------|------------------|------------|
| 19 | ADJACENT TO #30 GRIFFIN ROAD SOUTH | NORTHWEST | 0.45 MILE +/- | YEAR ROUND |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|------------------------------------|-------------|------------------|------------|
| 19 | ADJACENT TO #30 GRIFFIN ROAD SOUTH | NORTHWEST | 0.45 MILE +/- | SEASONAL |

| Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|---------------|-------------|------------------|------------|
| 20 | DAY HILL ROAD | WEST | 0.34 MILE +/- | YEAR ROUND |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|---------------|-------------|------------------|------------|
| 20 | DAY HILL ROAD | WEST | 0.34 MILE +/- | YEAR ROUND |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|-----------------------------------------|-------------|------------------|------------|
| 21 | DAY HILL ROAD APPROACHING HOST PROPERTY | SOUTHWEST | 0.12 MILE +/- | YEAR ROUND |

Photographic Simulation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|-----------------------------------------|-------------|------------------|------------|
| 21 | DAY HILL ROAD APPROACHING HOST PROPERTY | SOUTHWEST | 0.12 MILE +/- | YEAR ROUND |

Photographic Documentation



J:\41479_41\graphics\FIGURES\41479_41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|----------------------------|-------------|------------------|------------|
| 22 | ADJACENT TO #98 ADAMS ROAD | NORTHWEST | 0.11 MILE +/- | YEAR ROUND |

Photographic Simulation



J:\41479_41\graphics\FIGURES\41479_41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|----------------------------|-------------|------------------|------------|
| 22 | ADJACENT TO #98 ADAMS ROAD | NORTHWEST | 0.11 MILE +/- | YEAR ROUND |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|-----------------------------|-------------|------------------|-------------|
| 23 | ADJACENT TO #23 EDWARDS WAY | NORTHWEST | 0.30 MILE +/- | NOT VISIBLE |

Photographic Documentation



J:\41479.41\graphics\FIGURES\41479.41_Photosim

| VIEW | LOCATION | ORIENTATION | DISTANCE TO SITE | VISIBILITY |
|------|----------------------|-------------|------------------|-------------|
| 24 | BLOOMFIELD RESERVOIR | NORTHEAST | 1.18 MILES +/- | NOT VISIBLE |

Attachment B

Viewshed Map



































Viewshed Analysis
Proposed Verizon Wireless
Telecommunications Facility
North Bloomfield
Day Hill Road
Bloomfield, Connecticut

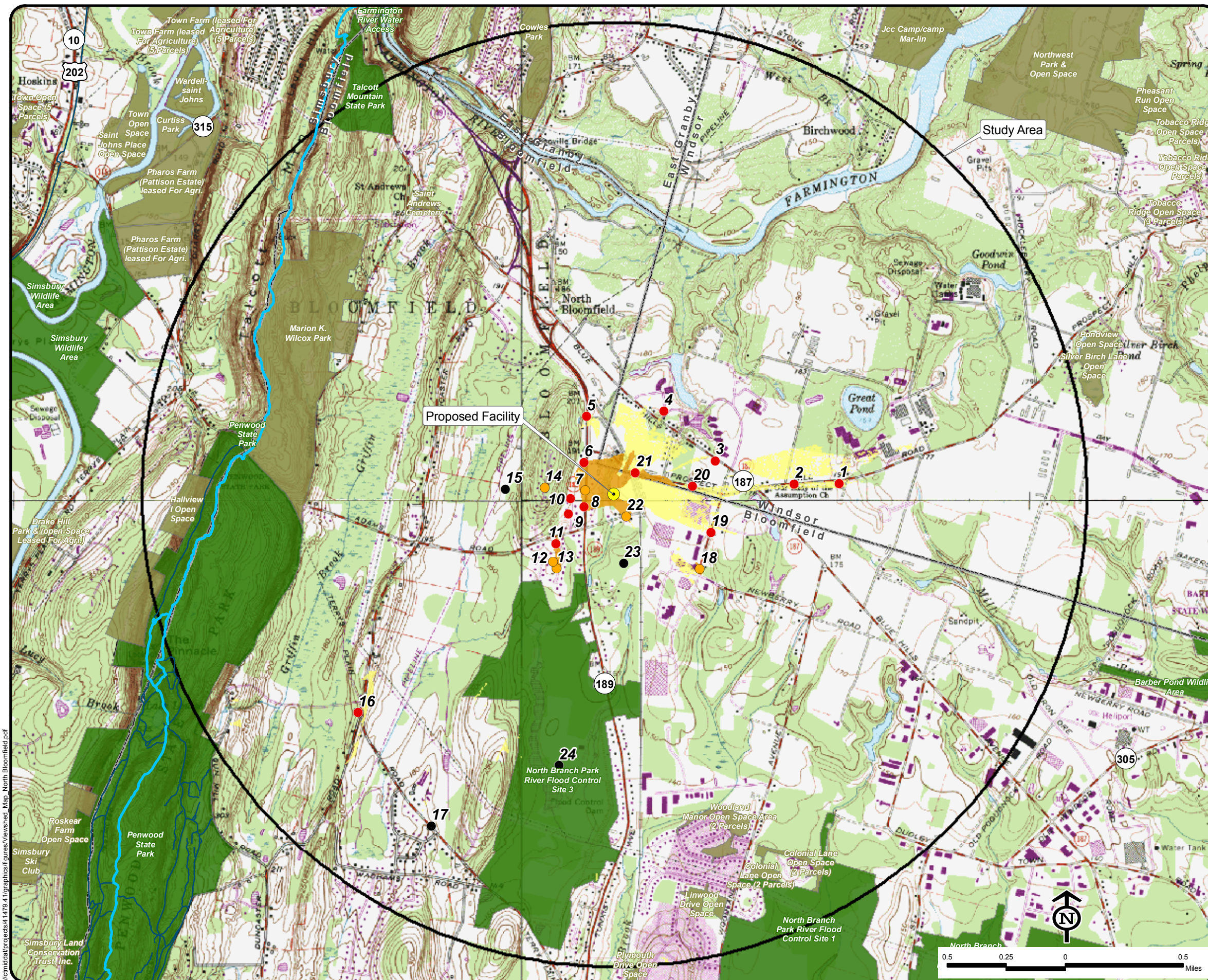
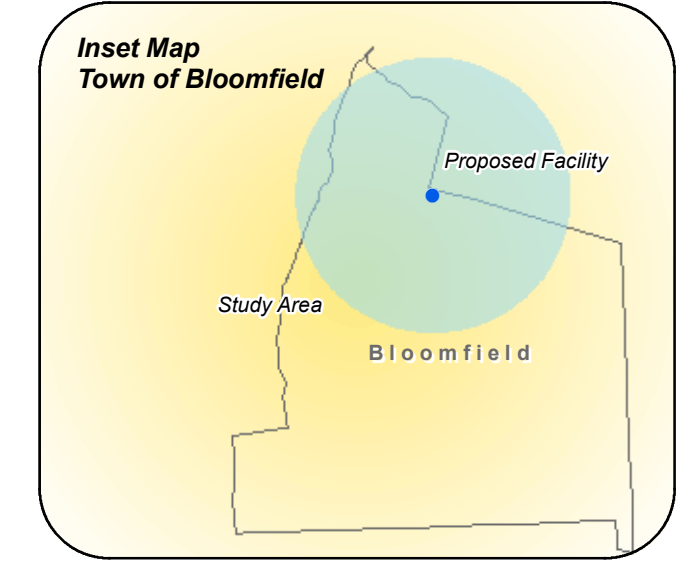
NOTE:
 - Viewshed analysis conducted using ESRI's Spatial Analyst.
 - Proposed Facility height is 110 feet.
 - Existing tree canopy height estimated at 65 feet.
 - Study Area is comprised of a two-mile radius surrounding the proposed facility and includes 8,042 acres of land.

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 Avon (1984), Hartford North (1992), Torrville (1984) and Windsor Locks (1984) 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 January, 2011

Legend

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
|  Proposed Tower Location |  CT DEP Property (CT DEP, May 2010) |
|  Balloon is not visible |  State Forest |
|  Balloon visible through trees |  State Park |
|  Balloon visible above trees |  DEP Owned Waterbody |
|  Seasonal Visibility (Approximately 33 acres) |  State Park Scenic Reserve |
|  Year-Round Visibility (Approximately 101 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) |
| |  Boat Launches (CT DEP, Dec 2009) |
| |  Metacomet Trail (CT Blue Blaze) |
| |  Penwood State Park Trails |
| |  Scenic Road (State and Local) |
| |  Town Line |



/c:\mtdataprojects\41479-4\graphics\figures\viewshed_Map_North Bloomfield.pdf

USFWS



Memorandum

To: Alexandria Carter
Verizon Wireless
99 East River Drive
East Hartford, CT 06108

Date: January 10, 2011

Project No.: 41479.41

From: Matthew Davison
Registered Soil Scientist
CT Certified Forester 193

Re: USFWS Compliance Determination
Proposed Verizon Wireless Facility
Day Hill Road
Bloomfield, CT

Project Site:

State: Connecticut

County: Hartford

Address: Day Hill Road, Bloomfield, CT

Latitude/Longitude Coordinates: N41°52'32.773" W72°44'31.075"

Size of Property: ±10.7 acres

Watershed: North Branch Park River (basin # 4404)

The following Site was evaluated with respect to possible federally-listed, threatened or endangered species in order to determine if the proposed communications facility would result in a potential adverse effect to federally-listed species. This evaluation was performed in accordance with the January 3, 2011 policy statement of the United States Department of the Interior Fish and Wildlife Service (USFWS) New England Field Office. A copy of this policy statement is enclosed for reference.

The following federally listed endangered and threatened species occur in Hartford County according to the USFWS January 3, 2011 policy.

| Common Name | Species | Status | County/General Distribution |
|--------------------|------------------------------|--------|-----------------------------|
| Dwarf Wedge Mussel | <i>Alasmidonta heterodon</i> | E | Hartford |

* Note: Bald Eagle was officially delisted in the lower 48 states from the List of Endangered and Threatened Wildlife (Federal Register, July 9, 2007).

Dwarf Wedge Mussel

Dwarf wedge mussel is a small (shell rarely exceeds 1.5 inches) freshwater mussel occurring on muddy sand, sand, and gravel bottoms in creeks and rivers of varying sizes, in areas of slow to moderate current and little silt deposition.¹ Its reproductive cycle is typical of other freshwater mussels and requires a host fish on which its larvae (glochidia) parasitize and metamorphose into juvenile mussels, at which time they drop to the stream bed.² The decline of dwarf wedge mussel may be the forerunner of a general decline in mussel species of the Atlantic slope drainages³. Factors that may be contributing to the decline of dwarf wedge mussel include: impoundment of waterways, siltation, pollution, land use changes and geographic isolation resulting in genetic bottlenecks⁴. Only one known population currently exists in Connecticut, in a one mile stretch of the Muddy Brook in Hartford County. This population is described as poor and is not reproducing.⁵

No direct impacts are proposed to the on-site wetland resource. This resource area consists of a seasonally saturated forested wetland with an associated intermittent watercourse which originates from a culvert outfall and flows south through the wetland interior. Flows terminate in a permanent pond that was created by damming the aforementioned watercourse. A stone dam and weir structure were observed on the south side of the pond. The pond is likely related to the historic use of this property for agricultural activities. Dwarf wedge mussel is known to occur in only one location in Connecticut (Muddy Brook). It is susceptible to siltation and pollutants and requires a host fish species to complete its reproductive cycle. The intermittent watercourse located on the subject property is a shallow system with a hydrology driven largely by stormwater events. Due to the shallow nature of this watercourse, as well as upstream and downstream impoundments, this portion of the system is unlikely to support a viable fish population. Based on the fact that no direct impacts are proposed to the on-site wetland resource or its associated intermittent watercourse, as well as the fact that the site watercourse is unlikely to support dwarf wedge mussel habitat, the proposed development will not result in an adverse impact to this listed species.

¹ United States, U.S. Fish and Wildlife Service, Northeast Region, Dwarf Wedge Mussel Recovery Plan (Hadley: Region Five, 1993), pg. 2.

² "Dwarf wedge mussel," 18 Dec. 2007 http://en.wikipedia.org/wiki/Dwarf_wedge_mussel.

³ United States, U.S. Fish and Wildlife Service, Northeast Region, Dwarf Wedge Mussel Recovery Plan (Hadley: Region Five, 1993), pg. 11.

⁴ United States, U.S. Fish and Wildlife Service, Northeast Region, Dwarf Wedge Mussel Recovery Plan (Hadley: Region Five, 1993), pgs. 11-19.

⁵ United States, U.S. Fish and Wildlife Service, Northeast Region, Dwarf Wedge Mussel Recovery Plan (Hadley: Region Five, 1993), pg. 20.



**USFWS January 3, 2011
Telecommunications Policy Statement
and Federally-Listed Endangered and
Threatened Species in Connecticut
USFWS January 3, 2011
No Known Federally-Listed or
Endangered Species Letter**



United States Department of the Interior



FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
<http://www.fws.gov/newengland>

January 3, 2011

To Whom It May Concern:

The U.S. Fish and Wildlife Service's (Service) New England Field Office has determined that individual project review for certain types of activities associated with communication towers is **not required**. These comments are submitted in accordance with provisions of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Due to the rapid expansion of the telecommunication industry, we are receiving a growing number of requests for review of **existing** and **new** telecommunication facilities in relation to the presence of federally-listed or proposed, threatened or endangered species, critical habitat, wilderness areas and/or wildlife preserves. We have evaluated our review process for proposed communications towers and believe that individual correspondence with this office is not required for the following types of actions relative to **existing** facilities:

1. the re-licensing of existing telecommunication facilities;
2. audits of existing facilities associated with acquisition;
3. routine maintenance of existing tower sites, such as painting, antenna or panel replacement, upgrading of existing equipment, etc.;
4. co-location of new antenna facilities on/in existing structures;
5. repair or replacement of existing towers and/or equipment, provided such activities do not significantly increase the existing tower mass and height, or require the addition of guy wires.

In order to curtail the need to contact this office in the future for individual environmental review for **existing** communication towers or antenna facilities, please note that we are not aware of any federally-listed, threatened or endangered species that are being adversely affected by any existing communication tower or antenna facility in the following states: Vermont, New Hampshire, Rhode Island, Connecticut and Massachusetts. Furthermore, we are not aware of any **existing** telecommunication towers in federally-designated critical habitats, wilderness areas or wildlife preserves. Therefore, no further consultation with this office relative to the impact of the above referenced activities on federally-listed species is required.

January 3, 2011

Future Coordination with this Office Relative to New Telecommunication Facilities

We have determined that proposed projects are not likely to adversely affect any federally-listed or proposed species when the following steps are taken to evaluate new telecommunication facilities:

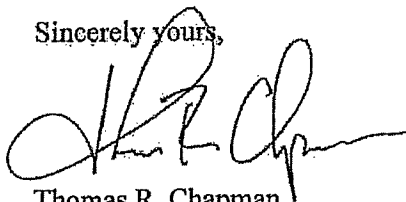
1. If the facility will be installed within or on an existing structure, such as in a church steeple or on the roof of an existing building, no further coordination with this office is necessary. Similarly, new antennas or towers in urban and other developed areas, in which no natural vegetation will be affected, do not require further review.
2. If the above criteria cannot be met, your review of our lists of threatened and endangered species locations within Vermont, New Hampshire, Rhode Island, Connecticut and Massachusetts may confirm that no federally-listed endangered or threatened species are known to occur in the town or county where the project is proposed.
3. If a listed species is present in the town or county where the project is proposed, further review of our lists of threatened and endangered species may allow you to conclude that suitable habitat for the species will not be affected. Based on past experiences, we anticipate that there will be few, if any, projects that are likely to impact piping plovers, roseate terns, bog turtles, Jesup's milk-vetch or other such species that are found on coastal beaches, riverine habitats or in wetlands because communication towers typically are not located in these habitats.

For projects that meet the above criteria, there is no need to contact this office for further project review. A copy of this letter should be retained in your file as the Service's determination that no listed species are present, or that listed species in the general area will not be affected. Due to the high workload associated with responding to many individual requests for threatened and endangered species information, we will no longer be providing response letters for activities that meet the above criteria. This correspondence and the species lists remain valid until January 1, 2012. Updated consultation letters and species lists are available on our website:

(<http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm>)

Thank you for your cooperation, and please contact Mr. Anthony Tur of this office at 603-223-2541 for further assistance.

Sincerely yours,



Thomas R. Chapman
Supervisor
New England Field Office



United States Department of the Interior



FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
<http://www.fws.gov/newengland>

January 3, 2011

To Whom It May Concern:

This project was reviewed for the presence of federally-listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

(<http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm>)

Based on the information currently available, no federally-listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service (Service) are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required.

This concludes the review of listed species and critical habitat in the project location(s) and environs referenced above. No further Endangered Species Act coordination of this type is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact Mr. Anthony Tur of this office at 603-223-2541 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

**FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES
IN CONNECTICUT**

| COUNTY | SPECIES | FEDERAL STATUS | GENERAL LOCATION/HABITAT | TOWNS |
|------------|-----------------------|----------------|---------------------------------------------------------------------------------|------------------------------------------------------------|
| Fairfield | Piping Plover | Threatened | Coastal Beaches | Westport, Bridgeport and Stratford |
| | Roseate Tern | Endangered | Coastal beaches, Islands and the Atlantic Ocean | Westport and Stratford |
| | Bog Turtle | Threatened | Wetlands | Ridgefield and Danbury. |
| Hartford | Dwarf wedgemussel | Endangered | Farmington and Podunk Rivers | South Windsor, East Granby, Simsbury, Avon and Bloomfield. |
| Litchfield | Small whorled Pogonia | Threatened | Forests with somewhat poorly drained soils and/or a seasonally high water table | Sharon. |
| | Bog Turtle | Threatened | Wetlands | Sharon and Salisbury. |
| Middlesex | Roseate Tern | Endangered | Coastal beaches, islands and the Atlantic Ocean | Westbrook and New London. |
| | Piping Plover | Threatened | Coastal Beaches | Clinton, Westbrook, Old Saybrook. |
| | Puritan Tiger Beetle | Threatened | Sandy beaches along the Connecticut River | Cromwell, Portland |
| New Haven | Bog Turtle | Threatened | Wetlands | Southbury |
| | Piping Plover | Threatened | Coastal Beaches | Milford, Madison and West Haven |
| | Roseate Tern | Endangered | Coastal beaches, Islands and the Atlantic Ocean | Branford, Guilford and Madison |
| | Indiana Bat | Endangered | Mines, Caves | |
| New London | Piping Plover | Threatened | Coastal Beaches | Old Lyme, Waterford, Groton and Stonington. |
| | Roseate Tern | Endangered | Coastal beaches, Islands and the Atlantic Ocean | East Lyme and Waterford. |
| | Small whorled Pogonia | Threatened | Forests with somewhat poorly drained soils and/or a seasonally high water table | Waterford |
| Tolland | None | | | |

-Eastern cougar, gray wolf, Indiana bat, Seabeach amaranth and American burying beetle are considered extirpated in Connecticut.

-There is no federally-designated Critical Habitat in Connecticut.

7/31/2008

CT DEP COMMENTS



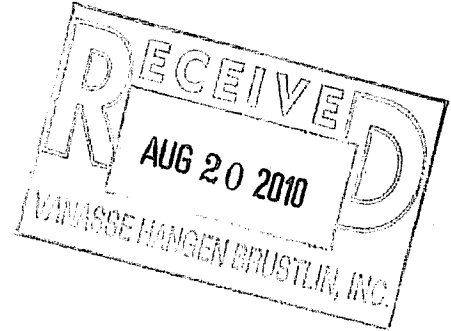
STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Bureau of Natural Resources
Wildlife Division
79 Elm Street, Sixth Floor
Hartford, CT 06106
Natural Diversity Data Base

August 18, 2010

Ms. Coreen Kelsey
Vanasse Hangen Brustlin, Inc.
54 Tuttle Place
Middletown, CT 06457



Re: Verizon Wireless Cell Tower (North Bloomfield) on Day Hill Road, Bloomfield, CT

Dear Ms. Kelsey:

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map you provided for Verizon Wireless Cell Tower (North Bloomfield) on Day Hill Road, Bloomfield, CT. According to our information, there are no extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur on this property.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Environmental Protection's Natural History Survey and cooperating units of DEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please contact me if you have further questions at (860) 424-3592. Thank you for consulting the Natural Diversity Data Base. Also be advised that this is a preliminary review and not a final determination. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEP for the proposed site.

Sincerely,

Dawn M. McKay
Biologist/Environmental Analyst
Cc: NDDDB File # 17948

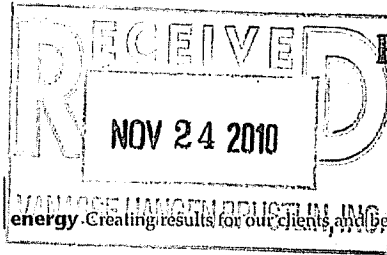
DMM/hpw

SHPO COMMENTS

Transportation
Land Development
Environmental
Services



imagination | innovation | energy. Creating results for our clients, and benefits for our communities



RECEIVED NOV 03 2010

November 2, 2010

Vanasse Hangen Brustlin, Inc.

Ref: 41479.41

Mr. Daniel Forrest
Commission on Culture & Tourism
State Historic Preservation Office
One Constitution Plaza, Second Floor
Hartford, CT 06103

NO EFFECT

Daniel Forrest DEPUTY SHPO

STATE HISTORIC PRESERVATION OFFICE

Re: Proposed Verizon Wireless Telecommunications Facility
North Bloomfield
Day Hill Road
Bloomfield, Connecticut 06002

Date 11-22-10 Project *no apparent*
eligible resources

Dear Mr. Forrest:

Vanasse Hangen Brustlin, Inc. (VHB) has been retained by Cellco Partnership d.b.a. Verizon Wireless to review environmental resource information outlined in 47 CFR Ch.1 § 1.1307 sections (a) and (b) for environmental consequences pursuant to the Federal Communications Commission ("FCC or Commission") requirements. VHB determines the presence of resources listed under the National Environmental Policy Act (NEPA) on or near sites where Verizon Wireless proposes to locate a facility. Results of this screening process for the above referenced proposed facility in Bloomfield are depicted on the enclosed Cultural Resources Screen map.

VHB understands that Verizon Wireless is proposing to construct a new wireless telecommunications facility on portions of property located off of Day Hill Road in Bloomfield, Connecticut. The proposed facility would consist of a 110± foot tall monopole tower within a 47' x 76' foot fenced-enclosed compound area. Verizon Wireless antennas would be attached to the monopole tower at a centerline height of 110 feet above ground level (AGL) (top of antenna height would be 113 feet AGL) and associated ground equipment would be installed near its base. The compound area would be developed for use by Verizon Wireless, as well as other future wireless service providers. The proposed 20' wide gravel access and utilities easement would initiate off of Day Hill Road and would extend in a southerly direction adjacent to the existing railroad tracks and then head west towards the proposed compound area. (See attached site plans for details.)

The Cultural Resources Screen did not reveal the existence of any historic resources listed or eligible for listing on the National Register of Historic Places or Indian religious sites at or within a 0.5-mile radius (the area of potential effects; APE) of the project area. As a result, it is VHB's opinion that no visual or direct effects exist within the APE.

A *Preliminary Archeological Assessment* prepared by Heritage Consultants, LLC dated August 19, 2010 was completed for the proposed project area. Heritage Consultants, LLC concluded that "Because modern landscape modifications in this region likely have destroyed any evidence of prehistoric or historic land use and its original natural characteristics, it is highly unlikely that significant intact cultural remains exist with the Areas of Potential Effect. Construction of the tower and its associated facilities will be confined to these areas that have been impacted by previous landuse activities. Therefore it is the professional opinion of Heritage Consultants, LLC that further archeological investigations of this proposed telecommunications tower are not warranted." A copy of this Assessment is attached for your review.

General Power Density

Site Name: North Bloomfield, CT
 Cumulative Power Density

| Operator | Operating Frequency (MHz) | Number of Trans. | ERP Per Trans. (watts) | Total ERP (watts) | Distance to Target (feet) | Calculated Power Density (mW/cm ²) | Maximum Permissible Exposure* (mW/cm ²) | Fraction of MPE (%) |
|--------------|---------------------------|------------------|------------------------|-------------------|---------------------------|------------------------------------------------|-----------------------------------------------------|---------------------|
| VZW PCS | 1970 | 3 | 538 | 1614 | 110 | 0.0480 | 1.0 | 4.80% |
| VZW Cellular | 869 | 9 | 432 | 3888 | 110 | 0.1156 | 0.579333 | 19.95% |
| VZW 700 | 757 | 1 | 879 | 762 | 110 | 0.0226 | 0.497333 | 4.55% |

Total Percentage of Maximum Permissible Exposure

29.30%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz

mW/cm² = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used.



Vanasse Hangen Brustlin, Inc.

54 Tuttle Place
Middletown, Connecticut 06457
860 632-1500
FAX 860 632-7879

Memorandum

To: Ms. Alexandria Carter
Verizon Wireless
99 East River Drive
East Hartford, CT 06108

Date: January 19, 2011

Project No.: 41479.41

From: Dean Gustafson
Professional Soil Scientist

Re: NEPA Wetland Compliance
North Bloomfield Facility
Day Hill Road
Bloomfield, Connecticut

Vanasse Hangen Brustlin, Inc. (VHB) previously completed on-site investigations to determine if wetlands and/or watercourses are located on the above-referenced Site.

The Site was inspected on August 5, 2010. The property is improved with three agricultural barn/garage structures and several abandoned greenhouses. Based on a review of plans prepared by Centek Engineering dated 07/26/10 (latest rev. 01/19/11), VHB understands that Verizon Wireless proposes to construct a wireless communications facility in the south central portion of the subject property in an existing cleared area immediately adjacent to several abandoned greenhouses. A wetland resource area, consisting of a seasonally saturated forested wetland with an associated intermittent watercourse flowing through the wetland interior and a man-made pond, is located west of the proposed compound. The nearest proposed disturbance associated with the facility is located approximately 100 feet away from near wetland flag WF 1-13. The proposed 12-foot wide gravel access drive is located approximately 145 feet east of the nearest wetland area (near WF 1-29). Although work is proposed in proximity to nearby wetland resource area, no direct impact to wetlands is proposed by the Verizon Wireless development. Existing mature vegetation that borders the wetland area will not be disturbed by the proposed development. With appropriate erosion and sedimentation controls maintained during construction, the project proposed by Verizon Wireless will not result in a likely adverse impact to wetland resources.

In addition, as no direct impact to federal wetlands is associated with Verizon Wireless' construction activities, **NO significant change in surface features** (e.g., wetland fill, deforestation or water diversion) will result in accordance with the National Environmental Policy Act Categorical Exclusion checklist.



WETLANDS DELINEATION REPORT

Vanasse Hangen Brustlin, Inc.

Date: October 5, 2010
Project No.: 41479.41
Prepared For: Ms. Alexandria Carter
Verizon Wireless
99 East River Drive
East Hartford, Connecticut 06108
Site Location: North Bloomfield
Day Hill Road
Bloomfield, Connecticut
Site Map: VHB Environmental Constraints Map
Inspection Date: August 5, 2010
Field Conditions: Weather: partly cloudy, 80's General Soil Moisture: moist
Snow Depth: 0 inches Frost Depth: 0 inches

Type of Wetlands Identified and Delineated:

- Connecticut Inland Wetlands and Watercourses
- Tidal Wetlands
- U.S. Army Corps of Engineers

Local Regulated Upland Review Areas: Wetlands: 100 feet Watercourses: 200 feet

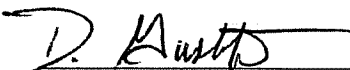
Field Numbering Sequence of Wetlands Boundary: Connecticut - WF 1-01 to 1-31

[as depicted on attached Environmental Constraints Map]

The classification systems of the National Cooperative Soil Survey, the U.S. Department of Agriculture, Natural Resources Conservation Service, County Soil Survey Identification Legend, Connecticut Department of Environmental Protection and United States Army Corps of Engineers New England District were used in this investigation.

All established wetlands boundary lines are subject to change until officially adopted by local, state, or federal regulatory agencies.

The wetlands delineation was conducted and reviewed by:


for Matthew Davison
Registered Soil Scientist

Enclosures

Attachments



- Wetland Delineation Field Form
- Soil Map
- Soil Report
- VHB Environmental Constraints Map



Wetland Delineation Field Form

| | | | |
|------------------|------------------------------------------|-----------------|-----------------|
| Project Address: | Day Hill Road Bloomfield, Connecticut | Project Number: | 41479.41 |
| Inspection Date: | August 5, 2010 | Inspector: | Matthew Davison |
| Wetland I.D.: | Wetland 1 | | |

| | | |
|-------------------------------------------|-------------------------------------------------|-----------------------|
| Field Conditions: | Weather: partly cloudy, 80's | Snow Depth: 0 inches |
| | General Soil Moisture: moist | Frost Depth: 0 inches |
| Type of Wetland Delineation: | Connecticut <input checked="" type="checkbox"/> | |
| | ACOE <input type="checkbox"/> | |
| | Tidal <input type="checkbox"/> | |
| Field Numbering Sequence: WF 1-01 to 1-31 | | |

WETLAND HYDROLOGY:

NONTIDAL

| | | |
|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------|
| Regularly Flooded <input type="checkbox"/> | Irregularly Flooded <input type="checkbox"/> | Permanently Flooded <input checked="" type="checkbox"/> |
| Semipermanently Flooded <input type="checkbox"/> | Seasonally Flooded <input type="checkbox"/> | Temporarily Flooded <input type="checkbox"/> |
| Permanently Saturated <input type="checkbox"/> | Seasonally Saturated <input checked="" type="checkbox"/> | Seasonally Saturated - seepage <input type="checkbox"/> |
| Comments: Includes seasonally saturated forested wetland and intermittent watercourse which flow into a permanent pond. | | |

TIDAL

| | | |
|---------------------------------------------|----------------------------------------------|----------------------------------------------|
| Subtidal <input type="checkbox"/> | Regularly Flooded <input type="checkbox"/> | Irregularly Flooded <input type="checkbox"/> |
| Seasonally Flooded <input type="checkbox"/> | Temporarily Flooded <input type="checkbox"/> | |
| Comments: N/A | | |

WETLAND TYPE:

SYSTEM:

| | | |
|-------------------------------------------------------------------|-----------------------------------|------------------------------------------------|
| Estuarine <input type="checkbox"/> | Riverine <input type="checkbox"/> | Palustrine <input checked="" type="checkbox"/> |
| Lacustrine <input type="checkbox"/> | Marine <input type="checkbox"/> | |
| Comments: Palustrine Forested (PFO) and Open Water (POW) systems. | | |

CLASS:

| | | |
|-------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------|
| Emergent <input checked="" type="checkbox"/> | Scrub-shrub <input checked="" type="checkbox"/> | Forested <input checked="" type="checkbox"/> |
| Open Water <input checked="" type="checkbox"/> | Disturbed <input type="checkbox"/> | Wet Meadow <input type="checkbox"/> |
| Comments: Dominant classes are Palustrine Forested (PFO) and Open Water (POW) | | |

WATERCOURSE TYPE:

| | | |
|-------------------------------------------------|--------------------------------------------------|--------------------------------|
| Perennial <input type="checkbox"/> | Intermittent <input checked="" type="checkbox"/> | Tidal <input type="checkbox"/> |
| Comments: Drains from north to south into pond. | | |

SPECIAL AQUATIC HABITAT:

| | | |
|--------------------------------------|--------------------------------|--|
| Vernal Pool <input type="checkbox"/> | Other <input type="checkbox"/> | |
| Comments: N/A | | |

Wetland Delineation Field Form (Cont.)

MAPPED SOILS:

| SOIL SERIES (Map Unit Symbol) | WET | UP | NRCS MAPPED | FIELD IDD/ CONFIRMED |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Agawam fine sandy loam (29) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Udorthents-Urban land complex (306) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Walpole sandy loam (13) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Rippowam fine sandy loam (103) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Pootatuck fine sandy loam (102) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

DOMINANT PLANTS:

| | |
|---------------------------------------------------|---------------------------------------------------------|
| bush honeysuckle (<i>Lonicera spp.</i>) | skunk cabbage (<i>Symplocarpus foetidus</i>) |
| jewelweed (<i>Impatiens capensis</i>) | American elm (<i>Ulmus americana</i>) |
| red maple (<i>Acer rubrum</i>) | Virginia creeper (<i>Parthenocissus quinquefolia</i>) |
| multiflora rose (<i>Rosa multiflora</i>) | poison ivy (<i>Toxicodendron radicans</i>) |
| northern arrowwood (<i>Viburnum recognitum</i>) | hayscented fern (<i>Dennstaedtia</i>) |
| sensitive fern (<i>Onoclea sensibilis</i>) | |
| | |
| | |
| | |
| | |
| | |

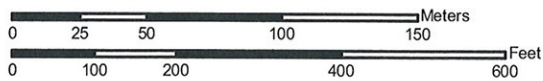
WETLAND NARRATIVE:

Wetland 1 consists of a seasonally saturated forested wetland with an associated intermittent watercourse which flows south through the interior. Flows terminate in a permanent pond that was created by damming the aforementioned watercourse. A stone dam and weir structure were observed on the south side of the pond. The pond is likely related to the historic use of this property for agricultural activities. A broad band of alluvial soils (Rippowam, Pootatuck) was observed northeast of the pond and included within the delineated wetland boundary.









































Soil Map—State of Connecticut
(North Bloomfield, Day Hill Road, Bloomfield, CT)



Map Scale: 1:2,660 if printed on A size (8.5" x 11") sheet.



MAP LEGEND

| | | | |
|---------------------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------|---------------------|
|  | Area of Interest (AOI) |  | Very Stony Spot |
|  | Area of Interest (AOI) |  | Wet Spot |
|  | Soils |  | Other |
|  | Soil Map Units | Special Line Features | |
|  | Special Point Features |  | Gully |
|  | Blowout |  | Short Steep Slope |
|  | Borrow Pit |  | Other |
|  | Clay Spot | Political Features | |
|  | Closed Depression |  | Cities |
|  | Gravel Pit | Water Features | |
|  | Gravelly Spot |  | Oceans |
|  | Landfill |  | Streams and Canals |
|  | Lava Flow | Transportation | |
|  | Marsh or swamp |  | Rails |
|  | Mine or Quarry |  | Interstate Highways |
|  | Miscellaneous Water |  | US Routes |
|  | Perennial Water |  | Major Roads |
|  | Rock Outcrop |  | Local Roads |
|  | Saline Spot | | |
|  | Sandy Spot | | |
|  | Severely Eroded Spot | | |
|  | Sinkhole | | |
|  | Slide or Slip | | |
|  | Sodic Spot | | |
|  | Spoil Area | | |
|  | Stony Spot | | |

MAP INFORMATION

Map Scale: 1:2,660 if printed on A size (8.5" x 11") sheet.
 The soil surveys that comprise your AOI were mapped at 1:12,000.
 Please rely on the bar scale on each map sheet for accurate map measurements.
 Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 18N NAD83
 This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.
 Soil Survey Area: State of Connecticut
 Survey Area Data: Version 6, Mar 22, 2007
 Date(s) aerial images were photographed: 8/13/2006
 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

| State of Connecticut (CT600) | | | |
|------------------------------------|------------------------------------------------|--------------|----------------|
| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
| 29A | Agawam fine sandy loam, 0 to 3 percent slopes | 3.3 | 12.0% |
| 29C | Agawam fine sandy loam, 8 to 15 percent slopes | 1.1 | 3.9% |
| 34A | Merrimac sandy loam, 0 to 3 percent slopes | 11.9 | 43.4% |
| 103 | Rippowam fine sandy loam | 2.7 | 9.8% |
| 306 | Udorthents-Urban land complex | 8.4 | 30.9% |
| Totals for Area of Interest | | 27.3 | 100.0% |

Map Unit Description (Brief)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the selected area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit. A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The "Map Unit Description (Brief)" report gives a brief, general description of the major soils that occur in a map unit. Descriptions of nonsoil (miscellaneous areas) and minor map unit components may or may not be included. This description is written by the local soil scientists responsible for the respective soil survey area data. A more detailed description can be generated by the "Map Unit Description" report.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief)

State of Connecticut

Description Category: SOI

Map Unit: 29A—Agawam fine sandy loam, 0 to 3 percent slopes

Agawam Fine Sandy Loam, 0 To 3 Percent Slopes This map unit is in the Connecticut Valley New England and Eastern New York Upland, Southern Part Major Land Resource Area. The mean annual precipitation is 32 to 50 inches (813 to 1270 millimeters) and the average annual air temperature is 45 to 50 degrees F. (7 to 10 degrees C.) This map unit is 80 percent Agawam soils. 20 percent minor components. Agawam soils This component occurs on valley and outwash plain terrace landforms. The parent material consists of eolian deposits over glaciofluvial deposits derived from schist, granite, and gneiss. The slope ranges from 0 to 3 percent and the runoff class is negligible. The depth to a restrictive feature is greater than 60 inches. The drainage class is well drained. The slowest permeability within 60 inches is about 1.98 in/hr (moderately rapid), with about 4.8 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 1 Typical Profile: 0 to 8 inches; fine sandy loam 8 to 14 inches; fine sandy loam 14 to 24 inches; fine sandy loam 24 to 60 inches; stratified very gravelly coarse sand to fine sand

Map Unit: 29C—Agawam fine sandy loam, 8 to 15 percent slopes

Agawam Fine Sandy Loam, 8 To 15 Percent Slopes This map unit is in the New England and Eastern New York Upland, Southern Part Connecticut Valley Major Land Resource Area. The mean annual precipitation is 32 to 50 inches (813 to 1270 millimeters) and the average annual air temperature is 45 to 50 degrees F. (7 to 10 degrees C.) This map unit is 80 percent Agawam soils. 20 percent minor components. Agawam soils This component occurs on valley and outwash plain terrace landforms. The parent material consists of eolian deposits over glaciofluvial deposits derived from schist, granite, and gneiss. The slope ranges from 8 to 15 percent and the runoff class is low. The depth to a restrictive feature is greater than 60 inches. The drainage class is well drained. The slowest permeability within 60 inches is about 1.98 in/hr (moderately rapid), with about 4.8 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 3e Typical Profile: 0 to 8 inches; fine sandy loam 8 to 14 inches; fine sandy loam 14 to 24 inches; fine sandy loam 24 to 60 inches; stratified very gravelly coarse sand to fine sand

Map Unit: 34A—Merrimac sandy loam, 0 to 3 percent slopes

Merrimac Sandy Loam, 0 To 3 Percent Slopes This map unit is in the New England and Eastern New York Upland, Southern Part Connecticut Valley Major Land Resource Area. The mean annual precipitation is 32 to 50 inches (813 to 1270 millimeters) and the average annual air temperature is 45 to 52 degrees F. (7 to 11 degrees C.) This map unit is 80 percent Merrimac soils. 20 percent minor components. Merrimac soils This component occurs on valley outwash plain, terrace, and kame landforms. The parent material consists of sandy glaciofluvial deposits derived from schist, granite, and gneiss. The slope ranges from 0 to 3 percent and the runoff class is very low. The depth to a restrictive feature is greater than 60 inches. The drainage class is somewhat excessively drained. The lowest permeability within 60 inches is about 1.98 in/hr (moderately rapid), with about 4.0 inches (moderate) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is greater than 6 feet. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 1 Typical Profile: 0 to 9 inches; sandy loam 9 to 16 inches; sandy loam 16 to 24 inches; gravelly sandy loam 24 to 60 inches; stratified very gravelly coarse sand to gravelly sand

Map Unit: 103—Rippowam fine sandy loam

Rippowam Fine Sandy Loam This map unit is in the New England and Eastern New York Upland, Southern Part Connecticut Valley Major Land Resource Area. The mean annual precipitation is 35 to 50 inches (889 to 1270 millimeters) and the average annual air temperature is 45 to 54 degrees F. (7 to 12 degrees C.) This map unit is 80 percent Rippowam soils. 20 percent minor components. Rippowam soils This component occurs on depression and flood plain landforms. The parent material consists of alluvium. The slope ranges from 0 to 3 percent and the runoff class is very low. The depth to a restrictive feature is greater than 60 inches. The drainage class is poorly drained. The slowest permeability within 60 inches is about 0.57 in/hr (moderate), with about 6.2 inches (high) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.5 LEP (low). The flooding frequency for this component is frequent. The ponding hazard is none. The minimum depth to a seasonal water table, when present, is about 9 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 4w Typical Profile: 0 to 5 inches; fine sandy loam 5 to 12 inches; fine sandy loam 12 to 19 inches; fine sandy loam 19 to 24 inches; sandy loam 24 to 27 inches; sandy loam 27 to 31 inches; loamy sand 31 to 65 inches; stratified very gravelly coarse sand to loamy fine sand

Map Unit: 306—Udorthents-Urban land complex

Udorthents-Urban Land Complex This map unit is in the New England and Eastern New York Upland, Southern Part Connecticut Valley Major Land Resource Area. The mean annual precipitation is 32 to 50 inches (813 to 1270 millimeters) and the average annual air temperature is 45 to 55 degrees F. (7 to 13 degrees C.) This map unit is 50 percent Udorthents soils, 35 percent Urban Land. 15 percent minor components. Udorthents soils This component occurs on cut (road, railroad, etc.), railroad bed, road bed, spoil pile, urban land, fill, and spoil pile landforms. The slope ranges from 0 to 25 percent and the runoff class is medium. The depth to a restrictive feature varies, but is commonly greater than 60 inches. The drainage class is typically well drained. The slowest permeability within 60 inches is about 0.00 in/hr (very slow), with about 9.0 inches (high) available water capacity. The weighted average shrink-swell potential in 10 to 60 inches is about 1.4 LEP (low). The flooding frequency for this component is none. The ponding hazard is none. The minimum depth to a seasonal water table is greater than 60 inches. The maximum calcium carbonate within 40 inches is none. The maximum amount of salinity in any layer is about 0 mmhos/cm (nonsaline). The Nonirrigated Land Capability Class is 3e Typical Profile: 0 to 5 inches; loam 5 to 21 inches; gravelly loam 21 to 80 inches; very gravelly sandy loam Urban Land Urban land is land mostly covered by streets, parking lots, buildings, and other structures of urban areas. The slope ranges from 0 to 35 percent and the runoff class is very high. The Nonirrigated Land Capability Class is 8

Data Source Information

Soil Survey Area: State of Connecticut
Survey Area Data: Version 6, Mar 22, 2007



Base Map Source: 2004 aerial photograph with 0.5-foot resolution.

Legend

-  Approximate Tower Location
-  Subject Property
-  Proposed Access
-  Delineated Wetlands
-  Natural Diversity Database (08/10)*

*none in mapped area



Vanasse Hangen Brustlin, Inc.

**Environmental Constraints Map
 Proposed Verizon Wireless
 Telecommunications Facility
 North Bloomfield
 Day Hill Road
 Bloomfield, Connecticut**

