ALL-POINTS
TECHNOLOGY CORPORATION

PROPOSED
TELECOMMUNICATIONS FACILITTY

FARMINGTON
199 BRICKYARD ROAD
FARMINGTON, CT 06032

Prepared for:

Tower Holdings, LLC
199 Brickyard Road
Farmington, CT 06032

Prepared by:

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OCTOBER 2014

Project Introduction

Tower Holdings, LLC ("Tower Holdings") proposes to construct and operate a wireless telecommunications facility ("Facility") on a portion of the property located at 199 Brickyard Road in North Farmington, Connecticut (referred herein as the "Host Property"). All-Points Technology Corporation, P.C. ("APT") prepared this Visibility Analysis to evaluate views associated with the proposed Facility within a two mile radius of the proposed Facility location ("Study Area"). In addition to the Town of Farmington, a portion of the neighboring municipality of Avon is also located within the Study Area. The Town boundary is located over 2,500 feet from the location of the proposed Facility.

Site Description and Setting

The Host Property is located east of Brickyard Road in the north central portion of Farmington and is currently developed with a commercial office building and materials storage yard used by Tower Holdings' affiliate Northeast Towers, Inc.

The proposed Facility would be located in the eastern part of the storage yard at a ground elevation of approximately 241 feet above mean sea level ("AMSL"). The Facility would include a 180-foot tall self-support lattice tower surrounded by an irregularly-shaped 3,600± square foot, fence-enclosed compound area. Several wireless telecommunications service providers currently plan to use the Facility, including: AT&T, which would affix its antennas to a center line height of 140 feet above ground level ("AGL"); Dunning Sand & Gravel at 160 feet AGL; radio station WBMW at 175 feet AGL; and, Marcus Communications, LLC at 170 feet AGL. Adequate vertical space would remain to accommodate future commercial service providers in the future. The Facility would also be used as a training tower for limited durations and during that time of the year when the leaves are on the trees. The gravel-base compound would include sufficient space for multiple equipment shelters/cabinets, emergency power generator(s), and associated utility backboard and demark equipment. Access would follow the existing drive that serves the Host Property.

Land use within the Study Area is a mix of commercial, recreational and residential development with large tracts of wooded areas and the Farmington River and East Branch riparian corridors. The topography within the Study Area is characterized by rolling hills with ground elevations that range from approximately 160 feet AMSL to 430 feet AMSL. The tree cover within the Study Area (consisting primarily of mixed deciduous hardwoods) occupies approximately 3,310 acres of the 8,042-acre study area (±41%). The average tree canopy is estimated to be approximately 60 feet.

Methodology

APT used the combination of a predictive computer model and in-field analysis to evaluate the visibility associated with the proposed Facility on both a quantitative and qualitative basis. The predictive model provides a measurable assessment of potential visibility throughout the entire Study Area including private properties and other areas inaccessible for direct observations. The in-field analyses included a reconnaissance of the Study Area to record existing conditions, verify results of the model, inventory visible and nonvisible locations, and provide photographic documentation from publicly accessible areas. A description of the procedures used in the analysis is provided below.

Preliminary Computer Modeling

Two computer modeling tools were used to calculate those areas from which at least the top of the proposed Facility is estimated to be visible: IDRISI image analysis program (developed by Clark Labs, Clark University) and ArcGIS®, developed by Environmental Systems Research Institute, Inc. Project- and Study Area-specific data were incorporated into the computer model, including the Facility's location, height, and ground elevation, as well as the surrounding topography and existing vegetation which are two primary features that can block direct lines of sight. Information used in the model included LiDAR[1]-based digital elevation data and customized land use data layers developed specifically for this analysis. The LiDAR-based Digital Elevation Model ("DEM") represents topographic 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. In addition, multiple land use data layers were created from National Agricultural Imagery Program (USDA) aerial photography (one-foot resolution, flown in 2012) using IDRISI image processing tools. The IDRISI tools develop light reflective classes defined by statistical analysis of individual pixels, which are then grouped based on common reflective values such that distinctions can be made automatically between deciduous and coniferous tree species, as well as grassland, impervious surface areas, water and other distinct land use features. This information is manually cross-checked with the recent USGS topographic land characteristics to quality assure the imaging analysis.

Once the data layers were entered, image processing tools were applied and overlaid onto USGS topographic base maps and aerial photographs to achieve an estimate of locations where the Facility might be visible. First, only the topography data layer (DEM) was incorporated to evaluate potential visibility with no intervening vegetative screening. The model is queried to determine where the top of the Facility can be seen from any point(s) within the Study Area given only the intervening existing topography, providing an opportunity to identify and evaluate those areas with potentially direct sight lines toward 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.

Eliminating the tree canopy altogether, as performed in the preliminary analysis exaggerates areas of visibility because it assumes unobstructed sight lines everywhere but in those locations where intervening topography rises above the height of the proposed Facility. However, using this technique not only allows for an initial identification of direct sight lines, but also to gain some insight regarding seasonal views when the leaves are not on the trees. This preliminary mapping is especially useful during the in-field activities (described below) to further evaluate "leaf-off" scenarios.

Visibility varies through the year as the leaves drop from deciduous trees. During "leaf on" conditions, individual trees that are grouped proximate to one another form a near opaque wall of vegetation that, once beyond a certain distance, cannot be seen through. Conversely, visibility increases during "leaf-off" conditions, where views are less obstructed by vegetative growth. Thus two forest data layers are created to represent both year-round ("leaf-on") and seasonal (leafless or "leaf-off") conditions. These data layers are incorporated into the model, analyzed separately and then merged to produce the visibility maps. Calculations resulting from the leaf-on forest data layer depict areas where at least the top of the Facility may be present above the intervening tree canopy. Similarly, computations from the "leaf-off" data layer also depict areas where the top of the Facility is predicted to be visible but it accounts for the increased transparency due to lack of vegetative screening. The Study Area includes mature vegetation with a unique composition and density of woodlands, with mast or pole timber and branching providing the majority of screening in leafless conditions. Beyond the density of woodlands found within the Study Area, each individual tree has its own unique trunk, pole timber and branching pattern characteristics that provide varying degrees of screening in leafless conditions which cannot be precisely modeled. Because tree spacing, dimensions and branching patterns as well as the understory differ greatly over even small areas, the Study Area has its own discrete forest characteristics. To approximate seasonal visibility, a conservative set of values was incorporated into the model, including the assumptions that each deciduous tree is simply a vertical pole with no distinct branching pattern. Given these conservative assumptions, the resultant modeling still over-predicts visibility in "leaf-off" conditions but does provide a better representation than the initial map using topography only.

A purposely low average tree canopy height of 50 feet was then incorporated into the forest data layers and added to the DEM for a second iteration of the visibility map. The model was queried again to determine where the top of the Facility may be seen from any point(s) within the Study Area, given both the intervening existing topography and forest data layers. The results of the preliminary analysis provide a representation of those areas where portions of the Facility could potentially be visible to the human eye without the aid of magnification, based on a viewer eye-height of 5 feet above the ground and the combination of intervening topography and tree canopy (year-round) and tree trunks (seasonally, when the leaves are off the deciduous trees) using an average tree height of 50 feet. This iteration provides a conservative assessment of intervening vegetation for use during the in-field activities to compare the outcomes of the initial computer modeling with direct observations of the balloon floats.

The forested areas were then 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.

Additional data was reviewed and incorporated into the visibility analysis, including protected private and public open space, parks, recreational facilities, hiking trails, schools, and historic districts. The Farmington Canal Heritage Trail extends north to south through the center of the Study Area and passes within approximately 800 feet of the Host Property. Based on a review of publicly-available information, no local, state or federally designated scenic roads are located within the Study Area.

In-Field Activities

To supplement and fine tune the results of the computer modeling efforts, APT completed in-field verification activities consisting of a balloon float, vehicular and pedestrian reconnaissance, and photo-documentation.

Balloon Float and Field Reconnaissance

A balloon float was conducted on April 5, 2013. The balloon float consisted of raising a red, four-foot diameter, helium-filled balloon tethered to a string height of 200 feet AGL at the proposed Facility site. The balloon's string was flagged with orange survey tape at 10 foot intervals (blue tape was also used to recognize 50-foot increments) from 190 feet AGL down to 20 feet AGL. Weather conditions were favorable for the in-field activities and included partly sunny skies and calm winds (less than 5 miles per hour). Once the balloon was secured, APT conducted a Study Area reconnaissance by driving along the local and State roads and other publicly accessible locations to document and inventory where the balloon could be seen above/through the trees. Visual observations from the reconnaissance were also used to evaluate the results of the preliminary visibility mapping and identify any discrepancies in the initial modeling.

During the balloon float, several trees were randomly surveyed using a hand-held infrared laser range finder and Suunto clinometer to ascertain their heights. Numerous locations were selected to obtain tree canopy heights, including along roadways, wooded lots, and high- and low-lying areas to provide for the irregularities associated with different land characteristics and uses found within the Study Area. The average canopy height was developed based on measurements and comparative observations, in this case approximately 60 feet AGL. Throughout Connecticut, the tree canopy height varies from about 55 feet to in excess of 80 feet (where eastern white pine becomes a dominant component of the forest type, average tree heights may be even slightly higher). This general uniformity is most likely the result of historic state-wide clear cutting of forests to produce charcoal and fuel wood, not only for home use, but also for the local brick, brass, and iron industries from the late 1800s to early 1900s[2]. Approximately 69% of Connecticut's forests are characterized as mature[3].

[2] Ward, J.S., Worthley, T.E. Forest Regeneration Handbook. A guide for forest owners, harvesting practitioners, and public officials. The Connecticut Agricultural Experiment Station and University of Connecticut, Cooperative Extension. Pg. 5.
[3] USDA Resource Bulletin NE-160, 2004.

Photographic Documentation

APT drove the public roads within the Study Area during the balloon floats and photo-documented representative areas where the balloon was and was not visible. At each photo location, the geographic coordinates of the camera's position were logged using global positioning system ("GPS") technology. Photographs were taken with a Canon EOS 6D digital camera body and Canon EF 24 to 105 millimeter ("mm") zoom lens, with lens set to 50 mm for all but two of the photographs. Photos 10 and 11 were taken using a 24 mm focal length in order to provide a greater depth of field for presentation in this report. Focal lengths ranging from 24 mm to 50 mm approximate views similar to that achieved by the human eye. However, two key aspects of an image can be directly affected by the specific focal length that is selected: field of view and relation of sizes between objects in the frame. A 24 mm focal length provides a wider field of view, representative of the extent the human eyes may see (including some peripheral vision), but the relation of sizes between objects at the edges of the photos can become minimally skewed. A 50 mm focal length has a narrower field of view than the human eye but the relation of sizes between objects is represented similar to what the human eye might perceive.

> *"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.*[4]*"*

When taking photographs for these analyses, APT prefers a focal length of 50 mm; however there are times when wider views (requiring the use of the 24 mm lens setting, in this case) can better reflect "real world" viewing conditions by providing greater context to the scene. Regardless of the lens setting, the scale of the subject in the photograph (the balloon) and corresponding simulation (the Facility) remains proportional to its surroundings.

Final Visibility Mapping

Information obtained during the field reconnaissance was incorporated into the mapping data layers, including observations of the balloon floats, the photo locations, areas that experienced recent land use changes and those places where the initial model was found to over-predict visibility. The revised average tree canopy height data (60 feet AGL) was merged with the DEM and added to the base ground elevations of the forested areas data layer. Once the additional data was integrated into the model, APT re-calculated the visibility of the proposed Facility from within the Study Area to assist in producing the final viewshed map.

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

Photographic Simulations

Photographic simulations were generated to portray a scaled rendering of the proposed Facility from representative locations where the balloon was visible during the reconnaissance. Using field data, site plan information and 3-dimension (3D) modeling software, spatially referenced models of the site area and Facility were generated and merged. The geographic coordinates obtained in the field for the photograph locations were incorporated into the model to produce virtual camera positions within the spatial 3D model. The photographic simulation was then created using a combination of renderings generated in the 3D model and photo-rendering software programs[5].

Permanent antenna configurations are included in all of the photo-simulations. Seasonal attachments used for training purposes are depicted in views 9(A) and 10(A).

As stated earlier, APT has elected to use a 50 mm focal length whenever possible; however, there are occasions when the use of a wider-angle lens setting is preferred, as in photos 10 and 11. These three views were taken with a 24 mm focal length to balance preserving the integrity of the scene's setting while depicting the subject (views toward the Facility location) in a way similar to what an observer might see, to the greatest extent possible. For presentation purposes in this report, the photographs were produced in an approximate 7-inch by 10.5-inch format. When viewing in this format size, we believe it is important to provide the largest representational image while maintaining an accurate relation of sizes between objects within the frame of the photograph.

Photo-documentation of existing conditions and the photographic simulation of the proposed Facility are presented in the attachment at the end of this report. Where visible in the existing conditions photo, the balloon provides a visual reference point for the approximate height and location of the proposed Facility relative to the scene. The photographic simulation is intended to provide the reader with a general understanding of the different views that might be achieved of the Facility.

The simulation provides a representation of the Facility under similar settings as those encountered during the balloon floats and reconnaissance. Views of the Facility can change substantially throughout the season and are dependent on environmental conditions, including (but not necessarily limited to) weather, light conditions, seasons, time of day, and the viewer location.

[5] As a final step, the accuracy and scale of select simulations are tested against photographs of similar existing facilities with recorded camera position, focal length, photo location, and tower location.

Photograph Locations

The table below summarizes the locations, view orientation, distances (from where the photo was taken relative to the proposed Facility location) and the visibility characteristics of photographs and simulations presented in the attachments to this report.

Photo No.	Location	View Orientation	Distance to Facility	Visibility
1	Farmington Avenue	Northwest	± 1.25-Miles	Not Visible
2	Winding Trails	Northwest	± 0.98-Mile	Year-round
3	Greenbriar Drive	Northwest	± 0.88-Mile	Year-round
4	Grandview Drive	Northwest	± 0.81-Mile	Year-round
5	Oakridge	Northeast	± 1.05-Miles	Seasonal
6	Brickyard Road	North	± 0.41-Mile	Year-round
7	Winding Trails	Northwest	± 0.51-Mile	Year-round
8	Cambridge Crossing	West	± 0.73-Mile	Not Visible
9	Brickyard Road	Northeast	± 0.18-Mile	Year-round
10	Brickyard Road (*24mm focal length)	East	± 0.13-Mile	Year-round
11	Brickyard Road (*24mm focal length)	Southeast	± 0.14-Mile	Year-round
12	Farmington Canal Heritage Trail	South	± 0.38-Mile	Not Visible
13	Taskers Pond Road	Southeast	± 0.56-Mile	Seasonal
14	Champlain's Drive	Southeast	± 0.56-Mile	Not Visible
15	Farmington Canal Heritage Trail	Southwest	± 1.75-Miles	Not Visible
16	Wildwood Road	Southeast	± 0.29-Mile	Year-round
17	Michael Drive	Southeast	± 0.37-Mile	Seasonal
18	Basswood Road	East	± 0.28-Mile	Year-round
19	Tanglewood Road	East	± 0.40-Mile	Seasonal
20	Maplewood Road	Northeast	± 0.32-Mile	Seasonal
21	Rosewood Drive	Northeast	± 0.36-Mile	Year-round

* When taking photographs for these analyses, APT prefers a focal length of 50 mm; however there are times when wider views (requiring the use of the 24 mm lens setting, in this case) can better reflect "real world" viewing conditions by providing greater context to the scene. Regardless of the lens setting, the scale of the subject in the photograph (the balloon) and corresponding simulation (the Facility) remains proportional to its surroundings.

Visibility Analysis Results

Results of the analysis are graphically displayed on the visibility maps provided in the attachments to this report. In general, potential year-round views of the proposed Facility would be limited primarily to nearby areas to the west/southwest along Brickyard Road as well as over open fields/water to the southeast. A total of 210+ acres within the Study Area could have some visibility of the Facility above the tree canopy year-round (that is, during both "leaf-off" and "leaf-on" conditions). Few residential properties appear to have direct, unobstructed views of the Facility due to the heavy forest cover in the Study Area and landscaping within surrounding neighborhoods. Brief stretches of year-round visibility may be achieved along portions of roads west of Brickyard Road where some elevation is gained (Wildwood Road, for example, as depicted in Photo 16).

Seasonally during "leaf-off" conditions, we estimate that approximately 250 additional acres have the potential to offer some views of the Facility through the trees. The majority of these areas lie to the west within the neighborhoods off Brickyard Road and across the Farmington River over one mile away, where portions of the Facility might be seen through the intervening trees. Limited seasonal views may also be achieved from a short section of the Farmington Canal Heritage Trail; however, these potential views would be heavily obstructed by intervening trees.

Proximity to Schools and Commercial Child Day Care Centers

No school or commercial child day care facilities are located within 250 feet of the host property. The nearest school (Farmington High School) is located approximately 0.75 mile to the northeast. Limited views of the Facility may be achieved from portions of the elevated ball fields in the eastern portion of the property. The nearest commercial child day care center (Joni's Child Care & Preschool) is located at 172 Brickyard Road, approximately 0.4 mile to the south. The proposed Facility would be visible from locations on this property.

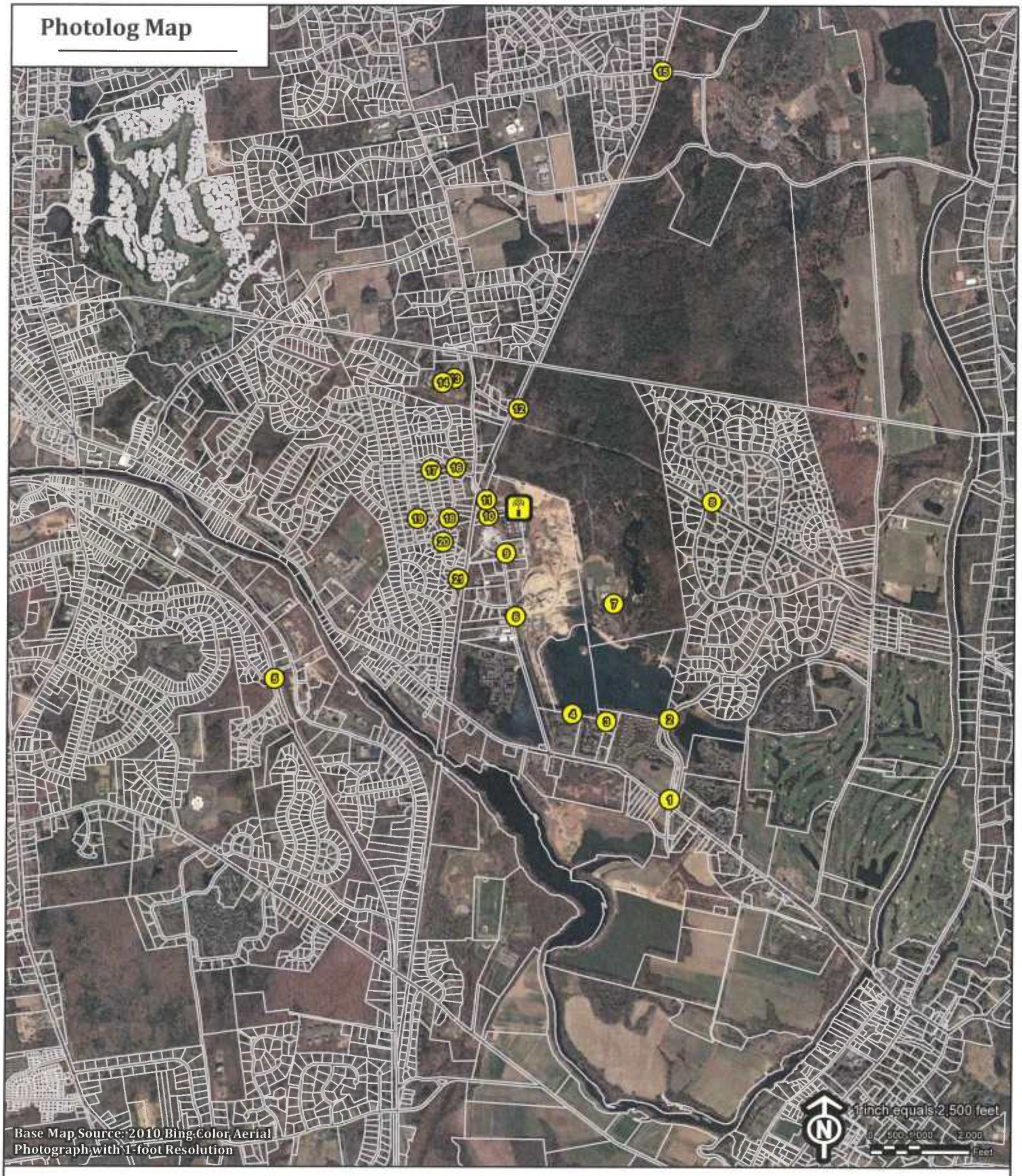
LIMITATIONS

The viewshed maps presented in the attachment to this report depict areas where the proposed Facility may potentially be visible to the human eye without the aid of magnification based on a viewer eye-height of 5 feet above the ground and intervening topography and an assumed tree canopy height of 60 feet. This analysis may not necessarily account for all visible locations, as it is based on the combination of computer modeling, incorporating 2012 aerial photographs, and in-field observations from publicly-accessible locations. No access to private properties was provided to APT personnel. This analysis does not claim to depict the only areas, or all locations, where visibility may occur; it is intended to provide a representation of those areas where the Facility is likely to be seen.

The simulations provide a representation of the Facility under similar settings as those encountered during the balloon floats and reconnaissance. Views of the Facility can change throughout the seasons and the time of day, and are dependent on weather and other atmospheric conditions (e.g., haze, fog, clouds); the location, angle and intensity of the sun; and the specific viewer location. Weather conditions on the day of the balloon floats included partly cloudy skies and, combined with the leaf-off conditions, the photo-simulations presented in this report provide an accurate portrayal of the Facility during comparable conditions.

ATTACHMENTS

Photolog Map



Legend

- Proposed Tower Location
- Photo Point (PP)
- Connecticut Parcel

199 Brickyard Road
Farmington, Connecticut

Thursday, October 23, 2014

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	**FARMINGTON AVENUE**	**NORTHWEST**	**+/- 1.25 MILES**	**NOT VISIBLE**

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	**WINDING TRAILS**	**NORTHWEST**	**+/- 0.98 MILE**	**YEAR ROUND**

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	**WINDING TRAILS**	**NORTHWEST**	**+/- 0.98 MILE**	**YEAR ROUND**

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	GREENBRIAR DRIVE	NORTHWEST	+/- 0.88 MILE	YEAR ROUND

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	**GREENBRIAR DRIVE**	**NORTHWEST**	**+/- 0.88 MILE**	**YEAR ROUND**

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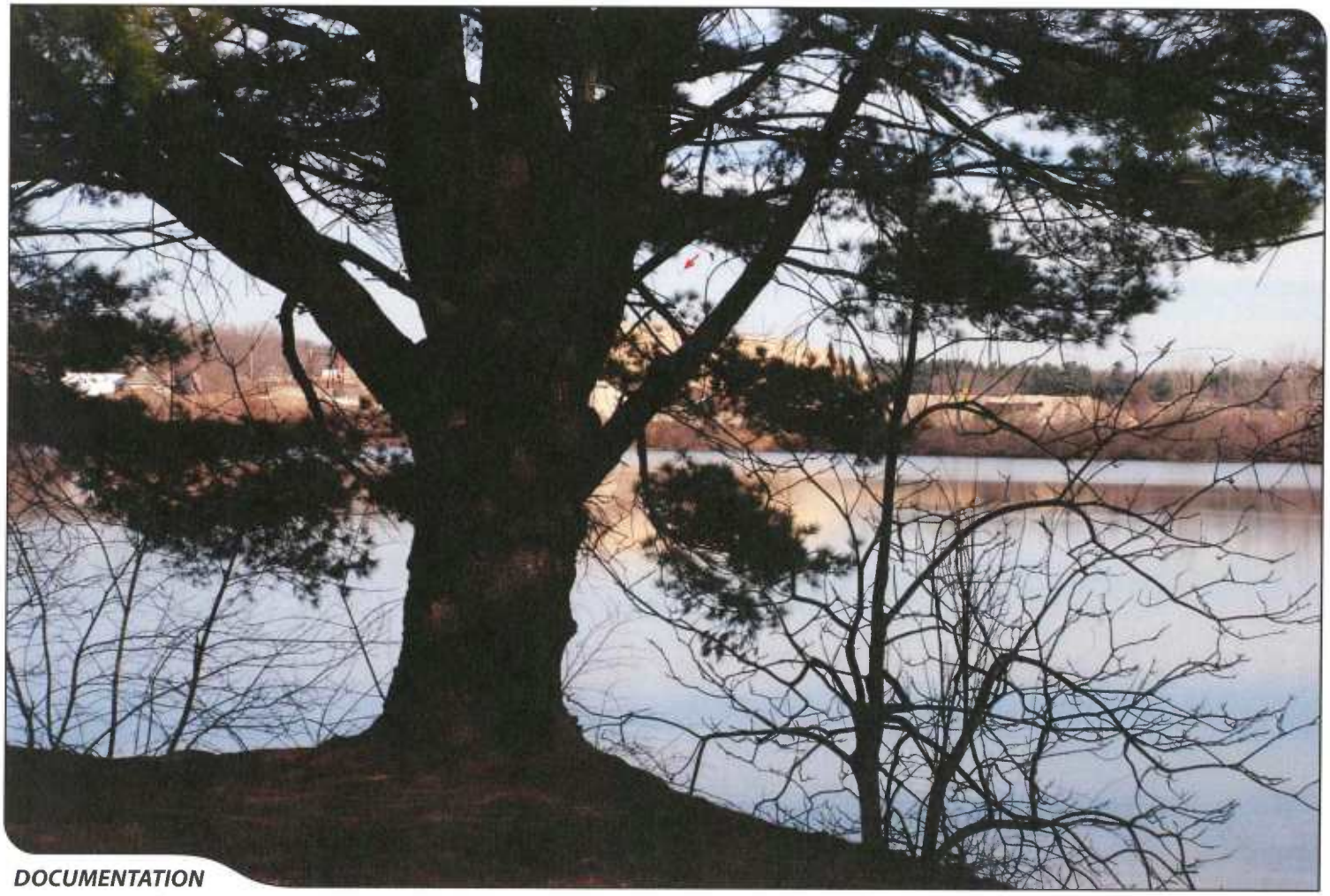

DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	**GRANDVIEW DRIVE**	**NORTHWEST**	**+/- 0.81 MILE**	**YEAR ROUND**

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	**GRANDVIEW DRIVE**	**NORTHWEST**	**+/- 0.81 MILE**	**YEAR ROUND**

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
5	**OAKRIDGE**	**NORTHEAST**	**+/- 1.05 MILES**	**SEASONAL**

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
5	**OAKRIDGE**	**NORTHEAST**	**+/- 1.05 MILES**	**SEASONAL**

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	BRICKYARD ROAD	NORTH	+/- 0.41 MILE	YEAR ROUND

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	**BRICKYARD ROAD**	**NORTH**	**+/- 0.41 MILE**	**YEAR ROUND**

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	WINDING TRAILS	NORTHWEST	+/- 0.51 MILE	YEAR ROUND

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	**WINDING TRAILS**	**NORTHWEST**	**+/- 0.51 MILE**	**YEAR ROUND**

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PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
8	CAMBRIDGE CROSSING	WEST	+/- 0.73 MILE	NOT VISIBLE

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PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	**BRICKYARD ROAD**	**NORTHEAST**	**+/- 0.18 MILE**	**YEAR ROUND**

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	**BRICKYARD ROAD**	**NORTHEAST**	**+/- 0.18 MILE**	**YEAR ROUND**

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9A	**BRICKYARD ROAD**	**NORTHEAST**	**+/- 0.18 MILE**	**YEAR ROUND**

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10	**BRICKYARD ROAD** (24mm Focal Length)	**EAST**	**+/- 0.13 MILE**	**YEAR ROUND**

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10	**BRICKYARD ROAD** (24mm Focal Length)	**EAST**	**+/- 0.13 MILE**	**YEAR ROUND**

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10A	**BRICKYARD ROAD** (24mm Focal Length)	**EAST**	**+/- 0.13 MILE**	**YEAR ROUND**

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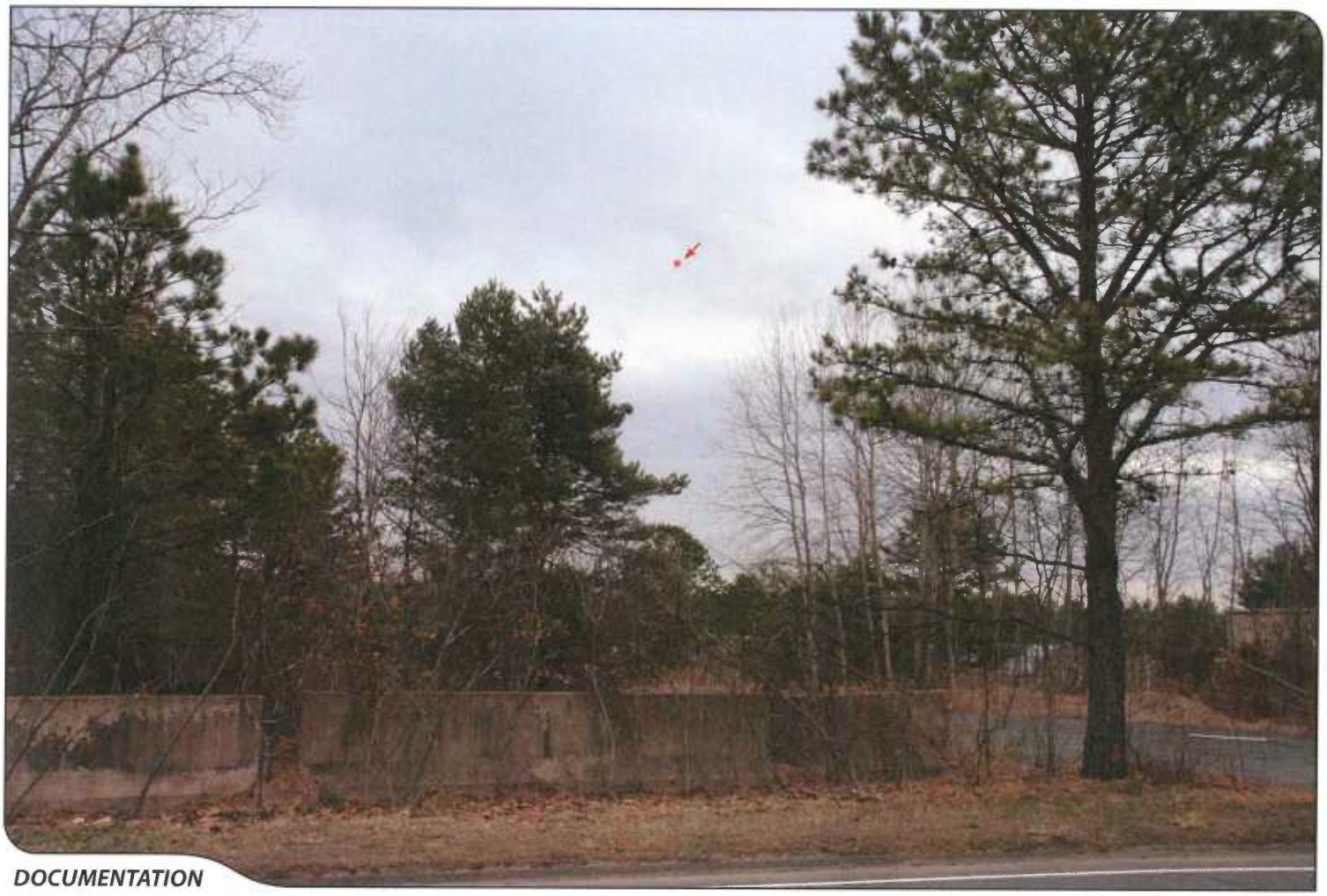

DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
11	**BRICKYARD ROAD** (24mm Focal Length)	**SOUTHEAST**	**+/- 0.14 MILE**	**YEAR ROUND**

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
11	**BRICKYARD ROAD** (24mm Focal Length)	**SOUTHEAST**	**+/- 0.14 MILE**	**YEAR ROUND**

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PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
12	**FARMINGTON CANAL HERITAGE TRAIL**	**SOUTH**	**+/- 0.38 MILE**	**NOT VISIBLE**

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PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
13	TASKERS POND ROAD	SOUTHEAST	+/- 0.56 MILE	SEASONAL

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
13	**TASKERS POND ROAD**	**SOUTHEAST**	**+/- 0.56 MILE**	**SEASONAL**

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PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
14	**CHAMPLAIN'S DRIVE**	**SOUTHEAST**	**+/- 0.56 MILE**	**NOT VISIBLE AT 180 FEET**

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
15	**FARMINGTON CANAL HERITAGE TRAIL**	**SOUTHWEST**	**+/- 1.75 MILES**	**NOT VISIBLE**

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PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
16	BASSWOOD ROAD	SOUTHEAST	+/- 0.29 MILE	YEAR ROUND

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
16	**BASSWOOD ROAD**	**SOUTHEAST**	**+/- 0.29 MILE**	**YEAR ROUND**

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
17	MICHAEL DRIVE	SOUTHEAST	+/- 0.37 MILE	SEASONAL

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
17	**MICHAEL DRIVE**	**SOUTHEAST**	**+/- 0.37 MILE**	**SEASONAL**

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
18	BASSWOOD ROAD	NORTHEAST	+/- 0.28 MILE	YEAR ROUND

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
18	**BASSWOOD ROAD**	**NORTHEAST**	**+/- 0.28 MILE**	**YEAR ROUND**

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
19	TANGLEWOOD ROAD	EAST	+/- 0.40 MILE	SEASONAL

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
19	**TANGLEWOOD ROAD**	**EAST**	**+/- 0.40 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
20	**MAPLEWOOD ROAD**	**NORTHEAST**	**+/- 0.32 MILE**	**SEASONAL**

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SIMULATION

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
21	ROSEWOOD DRIVE	NORTHEAST	+/- 0.36 MILE	YEAR ROUND

ALL-POINTS TECHNOLOGY CORPORATION

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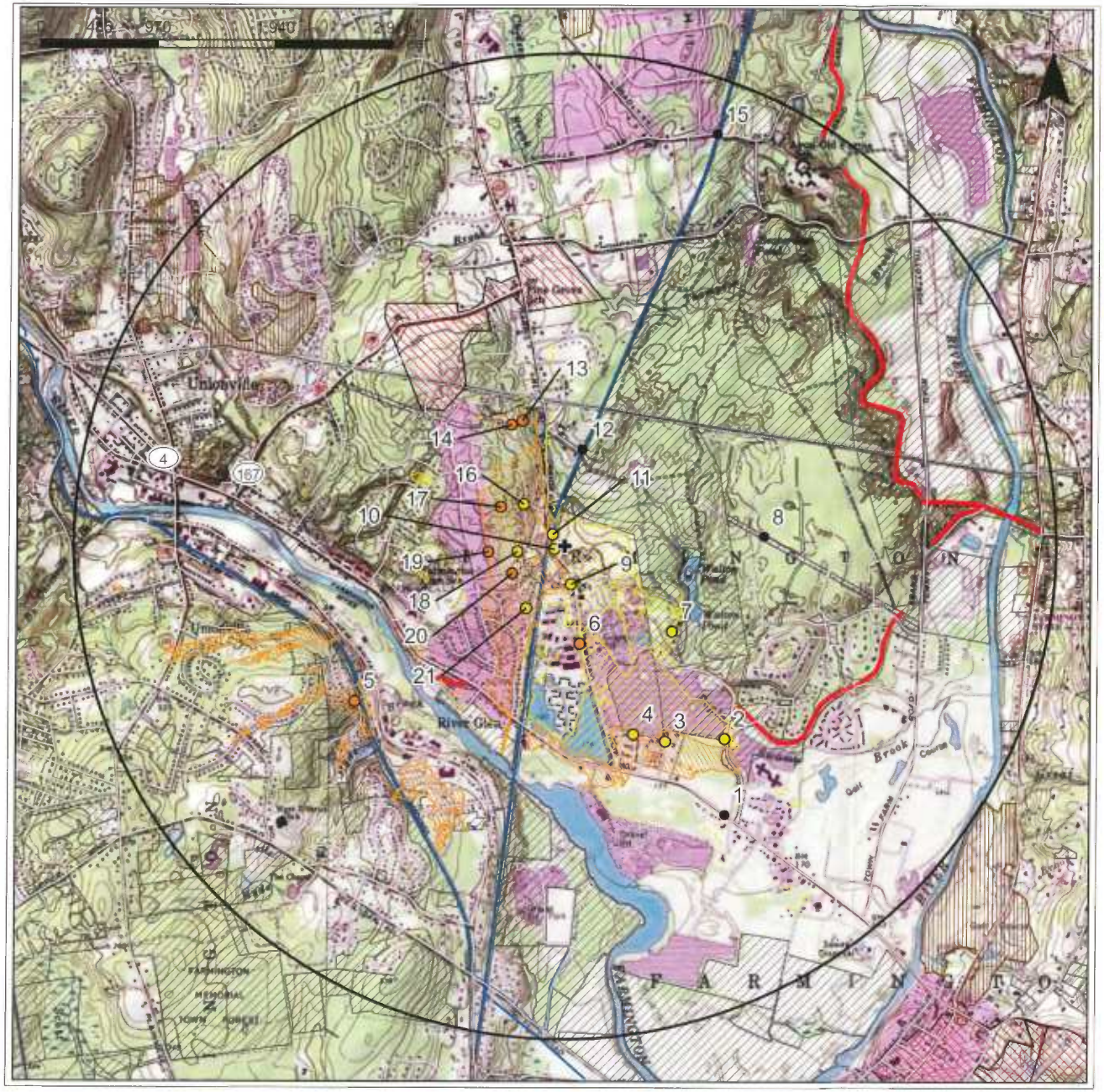


VISIBILITY ANALYSIS

Proposed Telecommunications Tower

199 Brickyard Road
Farmington, CT

Proposed facility height is 180 feet AGL
Existing tree canopy height estimated as 60 feet
Study area includes 8,042 acres of land

Map compiled 4/8/2013

Map information has been field verified by All-Points Technology Corporation on Wednesday April 5, 2013

Only those resources located within the Study Area are depicted. For a complete list of data sources consulted for this analysis, please refer to the Documentation Page.

Legend

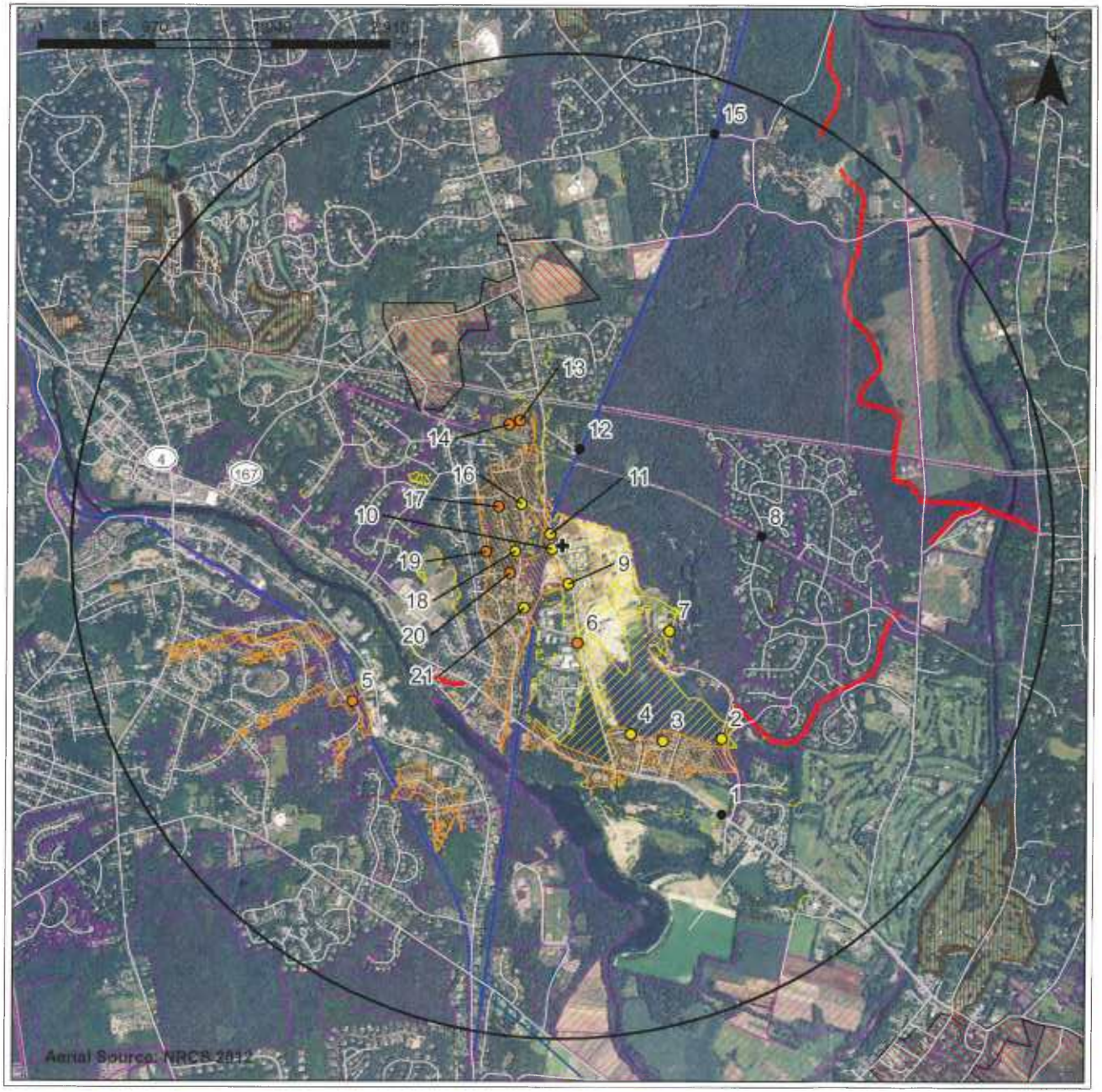
- Proposed Tower
- 2-Mile Study Area

Photo Locations

- Not Visible
- Seasonal
- Year-round
- Predicted Seasonal Visibility
- Predicted Year-Round Visibility
- National Register (line)
- Trails
- National Register
- Protected Open Space
- Municipal Private Open Space
- Town

Location

ALL-POINTS
TECHNOLOGY CORPORATION
3 Saddlebrook Drive Killingworth, CT 06419
www.allpointstech.com



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DOCUMENTATION

SOURCES CONSULTED FOR PRELIMINARY VISBILITY ANALYSES
Tower Holdings, LLC – 199 Brickyard Road, Farmington, CT

Physical Geography / Background Data

Center for Land Use Education and Research, University of Connecticut (http://clear.uconn.edu)
- *Land Use / Land Cover (2006)
- *Coniferous and Deciduous Forest (2006)
- *LiDAR data – topography (2000)

United States Geological Survey
- *USGS topographic quadrangle maps – Avon and New Britain (1984)

National Resource Conservation Service
- *NAIP aerial photography (2012)

Heritage Consultants
- ^State Scenic Highways (based on Department of Transportation data, updated monthly)
- ^Municipal Scenic Roads (by website, phone and/or email/fax - current)

Cultural Resources

Heritage Consultants
- ^National Register
- ^ Local Survey Data

Dedicated Open Space & Recreation Areas

Connecticut Department of Energy and Environmental Protection (DEEP)
- *DEEP Property (May 2007)
- *Federal Open Space (1997)
- *Municipal and Private Open Space (1997)
- *DEEP Boat Launches (1994)

Connecticut Forest & Parks Association
- ^Connecticut Walk Books - East & West – The Guide to the Blue-Blazed Hiking Trails of Eastern/Western Connecticut, 19th Editions, 2006.

Other
- ^ConnDOT Scenic Strips (based on Department of Transportation data)

*Available to the public in GIS-compatible format (some require fees).
^ Data not available to general public in GIS format. Reviewed independently and, where applicable, GIS data later prepared specifically for this Study Area.

Limitations

The visibility analysis map(s) presented in this report depict areas where the proposed Facility may potentially be visible to the human eye without the aid of magnification based on a viewer eye-height of 5 feet above the ground and intervening topography and an assumed tree canopy height of 60 feet. This analysis may not necessarily account for all visible locations, as it is based on the combination of computer modeling, incorporating 2012 aerial photographs, and in-field observations from publicly-accessible locations. No access to private properties beyond the host Property was provided to APT personnel. This analysis does not claim to depict the only areas, or all locations, where the Facility may be seen; it is intended to provide a representation of those areas where visibility is possible. The photo-simulations in this report are provided for visual representation only. Actual visibility depends on various environmental conditions, including (but not necessarily limited to) weather, season, time of day, and viewer location.