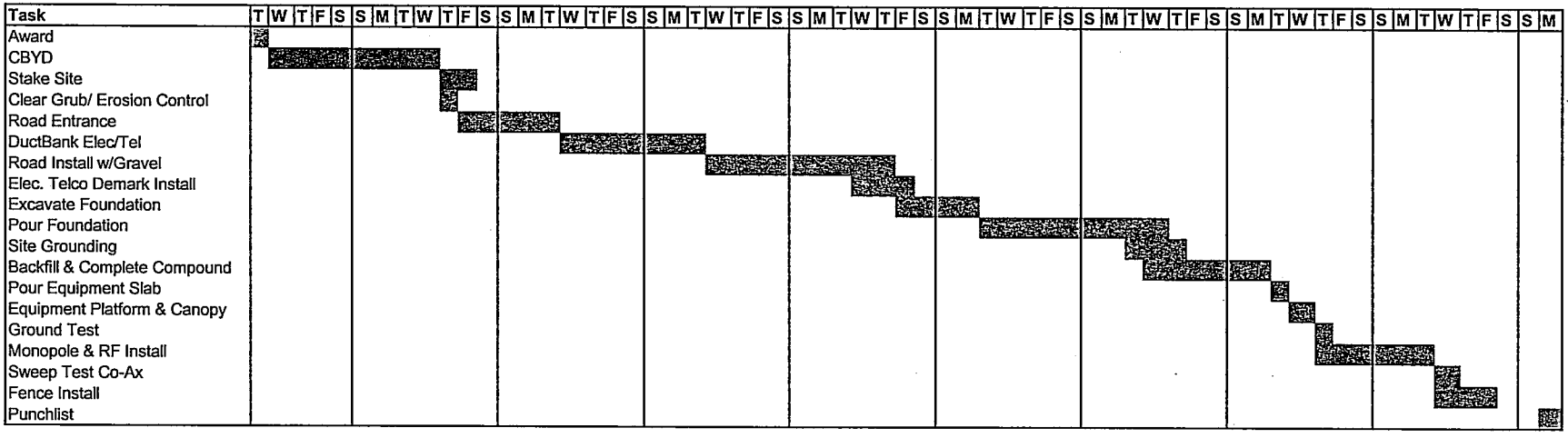
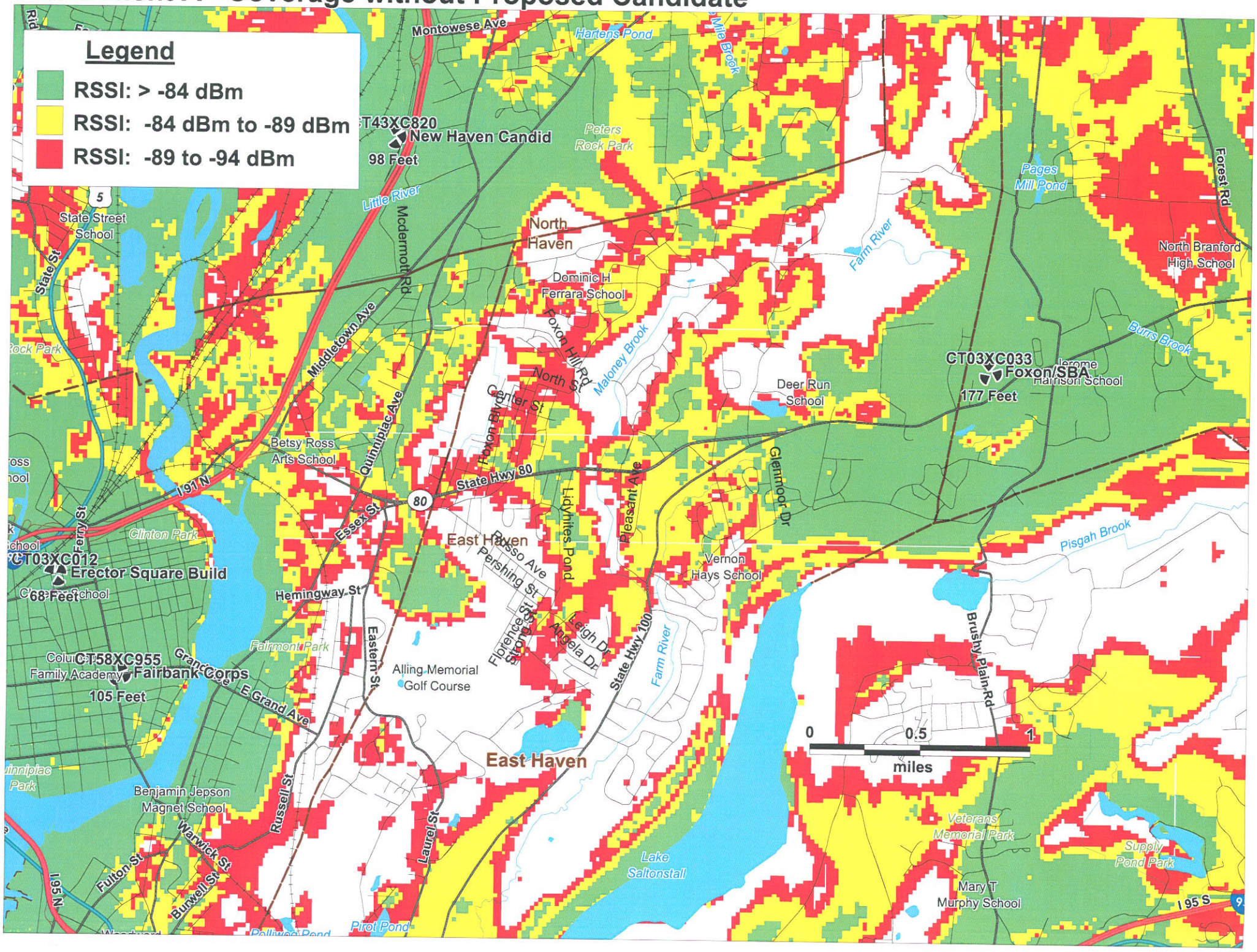

Task
T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M
Award
CBYD
Stake Site
Clear Grub/ Erosion Control
Road Entrance
DuctBank Elec/Tel
Road Install w/Gravel
Elec. Telco Demark Install
Excavate Foundation
Pour Foundation
Site Grounding
Backfill & Complete Compound
Pour Equipment Slab
Equipment Platform & Canopy
Ground Test
Monopole & RF Install
Sweep Test Co-Ax
Fence Install
Punchlist

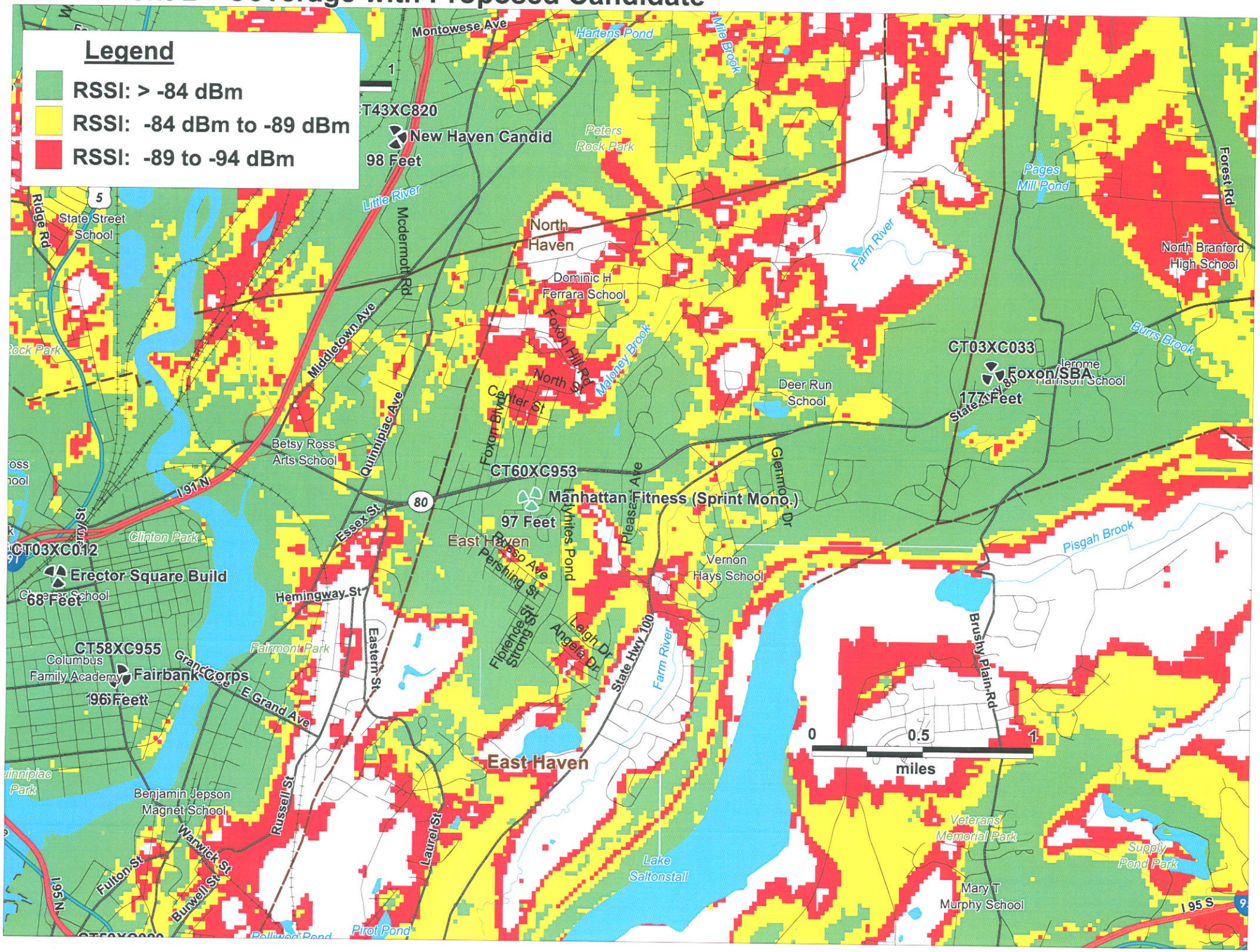
## ESTIMATED CONSTRUCTION COSTS

| | |
|---|---|
| Site Work..... | $30,500.00 |
| Monopole..... | $30,000.00 |
| Electrical & Telephone..... | $12,000.00 |
| Foundation..... | $23,500.00 |
| Landscaping..... | $ 2,000.00 |
| **TOTAL.....** | **$98,000.00** |

# Attachment A - Coverage without Proposed Candidate



# Attachment B - Coverage with Proposed Candidate



# Site Information Used in Coverage Plots

| Site | Sector | Latitude | Longitude | Antenna Height (Feet) | Antenna Type | Antenna Azimuth |
|---|---|---|---|---|---|---|
| CT03XC001 | A | 41°16'45" | -72°52'06" | 103 | ALL7184.05 | 30 |
| CT03XC001 | B | 41°16'45" | -72°52'06" | 103 | ALL7184.05 | 150 |
| CT03XC001 | G | 41°16'45" | -72°52'06" | 103 | ALL7184.05 | 280 |
| CT03XC002 | A | 41°16'09" | -72°58'27" | 75 | DB950F40T4E-M | 40 |
| CT03XC002 | B | 41°16'09" | -72°58'27" | 75 | DB950G65VTZ4E-M | 130 |
| CT03XC002 | G | 41°16'09" | -72°58'27" | 75 | ALL7184.05 | 240 |
| CT03XC003 | A | 41°20'43" | -72°58'15" | 71 | RR33-20-04DPL4 | 50 |
| CT03XC003 | B | 41°20'43" | -72°58'15" | 71 | RR33-20-04DPL4 | 105 |
| CT03XC003 | G | 41°20'43" | -72°58'15" | 71 | rr65-18-04dpl2 | 215 |
| CT03XC006 | A | 41°17'22" | -72°55'47" | 98 | ALL7184.05 | 340 |
| CT03XC006 | B | 41°17'22" | -72°55'47" | 98 | ALL7184.05 | 90 |
| CT03XC006 | G | 41°17'22" | -72°55'47" | 97 | ALL7184.05 | 220 |
| CT03XC011 | A | 41°21'20" | -72°53'25" | 120 | DB950F40T4E-M | 20 |
| CT03XC011 | B | 41°21'20" | -72°53'25" | 120 | DB950F40T4E-M | 190 |
| CT03XC011 | G | 41°21'20" | -72°53'25" | 120 | DB950G65E-M | 280 |
| CT03XC012 | A | 41°18'57" | -72°54'02" | 68 | DB950F40T4E-M | 325 |
| CT03XC012 | B | 41°18'57" | -72°54'02" | 68 | DB950F40T4E-M | 60 |
| CT03XC012 | G | 41°18'57" | -72°54'02" | 68 | DB950F40T4E-M | 170 |
| CT03XC018 | A | 41°18'33" | -72°56'17" | 79 | DB950F40T4E-M | 350 |
| CT03XC018 | B | 41°18'33" | -72°56'17" | 79 | DB950F40T4E-M | 120 |
| CT03XC018 | G | 41°18'33" | -72°56'17" | 79 | DB950F40T4E-M | 240 |
| CT03XC021 | A | 41°17'35" | -72°45'46" | 149 | DB980H90E-M | 0 |
| CT03XC021 | B | 41°17'35" | -72°45'46" | 149 | DB980H90E-M | 120 |
| CT03XC021 | G | 41°17'35" | -72°45'46" | 149 | DB980H90E-M | 240 |
| CT03XC030 | A | 41°22'09" | -72°48'40" | 190 | DB980H90E-M | 0 |
| CT03XC030 | B | 41°22'09" | -72°48'40" | 190 | DB980H65E-M | 145 |
| CT03XC030 | G | 41°22'09" | -72°48'40" | 190 | DB980H65E-M | 240 |
| CT03XC033 | A | 41°19'42" | -72°49'09" | 177 | DB980H90E-M | 0 |
| CT03XC033 | B | 41°19'42" | -72°49'09" | 177 | DB980H90E-M | 110 |
| CT03XC033 | G | 41°19'42" | -72°49'09" | 177 | DB980H90E-M | 240 |
| CT03XC039 | A | 41°23'47" | -72°51'30" | 104 | ALL7184.05 | 350 |
| CT03XC039 | B | 41°23'47" | -72°51'30" | 104 | ALL7184.05 | 110 |
| CT03XC039 | G | 41°23'47" | -72°51'30" | 104 | ALL7184.05 | 230 |
| CT03XC040 | A | 41°17'19" | -72°48'50" | 147 | DB980H90E-M | 0 |
| CT03XC040 | B | 41°17'19" | -72°48'50" | 147 | DB980H90E-M | 120 |
| CT03XC040 | G | 41°17'19" | -72°48'50" | 147 | DB980H90E-M | 240 |
| CT03XC046 | A | 41°22'34" | -72°55'12" | 53 | DB950G65E-M | 290 |
| CT03XC046 | B | 41°22'34" | -72°55'12" | 53 | DB950G65E-M | 60 |
| CT03XC046 | G | 41°22'34" | -72°55'12" | 53 | DB950G65E-M | 160 |
| CT03XC047 | A | 41°19'57" | -72°55'26" | 60 | DB950F40T4E-M | 20 |
| CT03XC047 | B | 41°19'57" | -72°55'26" | 60 | DB950F40T4E-M | 210 |
| CT03XC047 | G | 41°19'57" | -72°55'26" | 60 | DB950G65E-M | 290 |
| CT03XC048 | A | 41°16'39" | -72°50'15" | 120 | DB980H90E-M | 30 |
| CT03XC048 | B | 41°16'39" | -72°50'15" | 120 | DB980H90E-M | 150 |
| CT03XC048 | G | 41°16'39" | -72°50'15" | 120 | DB980H90E-M | 270 |

| | | | | | | |
|---|---|---|---|---|---|---|
| CT03XC049 | A | 41°18'04" | -72°58'37" | 140 | DB950F40T4E-M | 50 |
| CT03XC049 | B | 41°18'04" | -72°58'37" | 140 | DB950F40T4E-M | 200 |
| CT03XC049 | G | 41°18'04" | -72°58'37" | 140 | DB950F40T2E-M | 280 |
| CT03XC119 | A | 41°18'25" | -72°54'43" | 110 | DB950F40T4E-M | 320 |
| CT03XC119 | B | 41°18'25" | -72°54'43" | 110 | DB950F40T4E-M | 120 |
| CT03XC119 | G | 41°18'25" | -72°54'43" | 110 | DB950F40T4E-M | 230 |
| CT13XC264 | A | 41°18'42" | -72°57'34" | 100 | RR65-18-00DP | 60 |
| CT13XC264 | B | 41°18'42" | -72°57'34" | 100 | RR65-18-00DP | 180 |
| CT13XC264 | G | 41°18'42" | -72°57'34" | 100 | RR65-18-00DP | 290 |
| CT59XC929 | A | 41°17'25" | -72°53'43" | 67 | DB950F40T4E-M | 315 |
| CT59XC929 | B | 41°17'25" | -72°53'43" | 67 | DB950F40T2E-M | 110 |
| CT59XC929 | G | 41°17'25" | -72°53'43" | 67 | RR65-18-V02DPL2 | 180 |
| CT23XC551 | A | 41°18'01" | -72°55'49" | 75 | DB950F40T4E-M | 10 |
| CT23XC551 | B | 41°18'01" | -72°55'49" | 75 | DB950F40T4E-M | 90 |
| CT23XC551 | G | 41°18'01" | -72°55'49" | 75 | DB950F40T4E-M | 270 |
| CT33XC535 | A | 41°20'48" | -72°43'18" | 178 | DB950F65T2E-M | 20 |
| CT33XC535 | B | 41°20'48" | -72°43'18" | 178 | DB950F65T4E-M | 140 |
| CT33XC535 | G | 41°20'48" | -72°43'18" | 178 | DB950F65T2E-M | 270 |
| CT33XC801 | A | 41°18'56" | -72°54'54" | 94 | DB950F40T2E-M | 350 |
| CT33XC801 | B | 41°18'56" | -72°54'54" | 94 | DB950F40T4E-M | 130 |
| CT33XC801 | G | 41°18'56" | -72°54'54" | 94 | DB950F40T4E-M | 240 |
| CT43XC807 | A | 41°15'28" | -72°57'07" | 126 | DB950F40T4E-M | 10 |
| CT43XC807 | B | 41°15'28" | -72°57'07" | 126 | DB950G40E-M | 100 |
| CT43XC807 | G | 41°15'28" | -72°57'07" | 126 | DB950F40T4E-M | 230 |
| CT43XC815 | A | 41°21'33" | -72°55'34" | 62 | DB932DG65VT4E-M | 35 |
| CT43XC815 | B | 41°21'33" | -72°55'34" | 62 | DB932DG65VT2E-M | 120 |
| CT43XC815 | G | 41°21'33" | --72°55'34" | 62 | DB932DG65VT4E-M | 210 |
| CT43XC820 | A | 41°20'39" | -72°52'14" | 98 | DB950F40T4E-M | 10 |
| CT43XC820 | B | 41°20'39" | -72°52'14" | 98 | DB950G65E-M | 100 |
| CT43XC820 | G | 41°20'39" | -72°52'14" | 98 | DB950F40T4E-M | 190 |
| CT43XC821 | A | 41°24'13" | -72°53'52" | 46 | DB980F65E-M | 330 |
| CT43XC821 | B | 41°24'13" | -72°53'52" | 46 | DB980F65E-M | 120 |
| CT43XC821 | G | 41°24'13" | -72°53'52" | 46 | DB980F65E-M | 190 |
| CT43XC838 | A | 41°20'47" | -72°58'54" | 47 | DB980F65E-M | 350 |
| CT43XC838 | B | 41°20'47" | -72°58'54" | 47 | DB980F65E-M | 150 |
| CT43XC838 | G | 41°20'47" | -72°58'54" | 47 | DB980F65E-M | 270 |
| CT43XC865 | A | 41°19'52" | -72°45'22" | 137 | DB980F90E-M | 0 |
| CT43XC865 | B | 41°19'52" | -72°45'22" | 137 | DB980F90E-M | 120 |
| CT43XC865 | G | 41°19'52" | -72°45'22" | 137 | DB980F90E-M | 240 |
| CT43XC881 | A | 41°18'56" | -72°55'52" | 133 | DB980F65T4E-M | 50 |
| CT43XC881 | B | 41°18'56" | -72°55'52" | 133 | RR65-18-02DPL2 | 150 |
| CT43XC881 | G | 41°18'56" | -72°55'52" | 133 | DB980F65T4E-M | 300 |
| CT57XC905 | A | 41°17'00" | -72°57'37" | 140 | DB950G65VTZ3E-M | 30 |
| CT57XC905 | B | 41°17'00" | -72°57'37" | 140 | DB950F40T4E-M | 140 |
| CT57XC905 | G | 41°17'00" | -72°57'37" | 140 | DB950G65VTZ4E-M | 300 |
| CT57XC906 | A | 41°20'04" | -72°56'42" | 59 | UMWD-06516-X2DM | 45 |

| | | | | | | |
|---|---|---|---|---|---|---|
| CT57XC906 | B | 41°20'04" | -72°56'42" | 59 | UMWD-06516-X4DM | 145 |
| CT57XC906 | G | 41°20'04" | -72°56'42" | 59 | UMWD-06516-X2DM | 260 |
| CT58XC955 | A | 41°18'33" | -72°53'43" | 105 | DB950G65VTZ5E-M | 30 |
| CT58XC955 | B | 41°18'33" | -72°53'43" | 96 | DB950G65VTZ1E-M | 120 |
| CT58XC955 | G | 41°18'33" | -72°53'43" | 96 | DB950G65VTZ5E-M | 240 |
| CT59XC925 | A | 41°18'24" | -72°55'30" | 119 | DB950F85T4E-M | 315 |
| CT59XC925 | B | 41°18'24" | -72°55'30" | 117 | DB950F85T4E-M | 60 |
| CT59XC925 | G | 41°18'24" | -72°55'30" | 117 | DB950F85T4E-M | 170 |
| CT60XC953 | A | 41°19'15" | -72°51'35" | 97 | RR65-18-V02DPL2 | 60 |
| CT60XC953 | B | 41°19'15" | -72°51'35" | 97 | RR65-18-V02DPL2 | 180 |
| CT60XC953 | G | 41°19'15" | -72°51'35" | 97 | RR65-18-V04DPL2 | 290 |
| CT60XC963 | A | 41°19'35" | -72°57'59" | 94 | DB950G85VT0E-M | 80 |
| CT60XC963 | B | 41°19'35" | -72°57'59" | 94 | DB950G85VT0E-M | 200 |
| CT60XC963 | G | 41°19'35" | -72°57'59" | 94 | DB950G85VT0E-M | 320 |
| CT60XC965 | A | 41°19'34" | -72°54'55" | 100 | DB976H65E-M | 10 |
| CT60XC965 | B | 41°19'34" | -72°54'55" | 100 | DB976H65T7E-M | 120 |
| CT60XC965 | G | 41°19'34" | -72°54'55" | 100 | DB976H65E-M | 260 |

# STATE OF CONNECTICUT
## DEPARTMENT OF ENVIRONMENTAL PROTECTION

December 21, 2006

Ms. Nicole Dentamaro
VHB Services
54 Tuttle Place
Middletown, CT 06457

Re: Proposed Wireless
Telecommunications Facility, Manhattan
Fitness, 836 Foxon Rd, East Haven

Dear Ms. Dentamaro:

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map you provided for the proposed Telecommunications Facility on 836 Foxon Road in East Haven, Connecticut. According to our information there are no known extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur at the site in question.

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 Natural Resources Center's Geological and 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 424-3592. Thank you for consulting the Natural Diversity Data Base. Also be advised thatthis 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

DMM/blm

# *Proposed Wireless Telecommunications Facility*

# *CT60XC953-D*

## Manhattan Fitness
## 836 Foxon Road
## East Haven, Connecticut

Prepared for Sprint

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

September 2006

# Visual Resource Evaluation

Sprint PCS seeks approval from the Connecticut Siting Council for a Certificate of Environmental Compatibility and Public Need to construct a telecommunications Facility at 836 Foxon Road within the Town of East Haven, Connecticut ("host property"). This "Visual Resource Evaluation" was conducted to approximate the visibility of the proposed Facility within a two-mile radius of the Site ("Study Area").

## Project Introduction

The proposed Facility includes the construction of a 100-foot tall flagpole and associated ground equipment to be located within a fenced enclosure at the base of the tower. The flagpole will be partially constructed of a radio frequency transparent material within which the proposed antenna panels will be encased. Based on information provided by the project engineer, URS Corporation, the proposed project area is located at approximately 157 feet above mean Sea level (AMSL). Access to the proposed Facility will be provided via the existing parking area located on the host property.

## Site Description and Setting

Identified in the Town of East Haven land records as Map 450/Block 5722/Lot 11, the host property is currently occupied by the Manhattan Fitness building and associated parking area (see Photolog Documentation map contained in Attachment A). The proposed Facility would be located on the southeast corner of the host property west of Fox Ridge Drive. Land use within the general vicinity of the proposed Facility is comprised of commercial establishments along Foxon Road (Route 80) and medium-density residential development located to the north and south of Route 80. Portions of Interstate 91, Route 80, Route 100 and Route 17 are contained within the Study Area. In total, the Study Area contains roughly 112 linear miles of paved roadways. The Study Area is also traversed by segments of Amtrak's Northeast Corridor rail line.

The topography in the Study Area is generally characterized by gently rolling hills that range in ground elevation from approximately 20 feet AMSL to approximately 290 feet AMSL. The tree cover within the Study Area consists mainly of mixed deciduous hardwood species. The tree canopy occupies approximately 3,583 acres of the 8,042-acre study area (45%). During the in-field activities associated with this analysis, an infrared laser range finder was used to accurately determine the average tree canopy height throughout the Study Area. Numerous trees were selected for measurement and the average tree canopy established, in this case 65 feet. Moreover, in total, the Study Area features approximately 579 acres of surface water. This includes most of Lake Saltonstall, portions of the Quinnipiac River, Graniss Pond and Foxon Pond.

■

## METHODOLOGY

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

### Visibility Analysis

Using ESRI's ArcView® Spatial Analyst, a computer modeling tool, the areas from where the proposed Facility is expected to be visible are calculated. This is based on information entered into the computer model, including Facility height, its ground elevation, the surrounding topography, existing vegetation and any significant structures/objects that may act to obstruct potential views. Data incorporated in the model includes 7.5 minute digital elevation models (DEMs) and a digital forest layer for the Study Area. The DEMs were produced by the United States Geological Survey (USGS) in 1982 at a 30 meter resolution. The forest layer was derived through on-screen digitizing in ArcView® GIS from 2004 digital orthophotos with a 0.5 foot pixel resolution.

Once the data are entered, a series of constraints are applied to the computer model to achieve an estimate of where the Facility will be visible. Initially, only topography was used as a visual constraint; the tree canopy is omitted to evaluate all areas of potential visibility without any vegetative screening. Although this is an overly conservative prediction, the initial omission of these layers provides a reference for comparison once the tree canopy is established and also assists in the evaluation of potential seasonal visibility of the proposed Facility. A conservative tree canopy height of 50 feet is then used to prepare a preliminary viewshed map for use during the Study Area reconnaissance. The average height of the tree canopy is determined in the field using a hand-held infra-red laser range finder. The average tree canopy height is incorporated into the final viewshed map; in this case, 65 feet was identified as the average tree canopy height. The forested areas within the Study Area were then overlaid on the DEM with a height of 65 feet added and the visibility calculated. The forested areas are then extracted from the areas of visibility, with the assumption that a person standing among the trees will not be able to view the Facility beyond a distance of approximately 500 feet. Depending on the density of the vegetation in these areas, it is assumed that some locations within this range will provide visibility of at least portions of the Facility based on where one is standing. Lastly, this analysis was conducted in 20-foot increments from 100 feet down to 20 feet and the results consolidated into a single thematic

layer in order to determine the approximate amount of the tower structure that would be visible from any given location.

Also included on the map is a data layer, obtained from the Connecticut State Department of Environmental Protection (CTDEP), which depicts various land and water resources such as state parks and forests, recreational facilities, dedicated open space and CTDEP boat launches among other categories. This layer is useful in identifying potential visual impacts to any sensitive receptors that may be located within the Study Area. Lastly, based on a review of available data published by the Connecticut Department of Transportation and discussions with town staff in East Haven and New Haven, it was determined that there are no state or locally designated scenic roadways contained within the Study Area.

A preliminary viewshed map is generated for use during the in-field activity in order to confirm that no significant land use changes have occurred since the 2004 aerial photographs used in this analysis were produced and to verify the results of the model in comparison to the balloon float. Information obtained during the reconnaissance is then incorporated into the final visibility map.

## Balloon Float and Study Area Reconnaissance

On August 23, 2006 Vanasse Hangen Brustlin Inc., (VHB) conducted a balloon float at the proposed site location to evaluate the potential viewshed within the Study Area. The balloon float consisted of raising and maintaining an approximate four-foot diameter, helium-filled weather balloon at the proposed Site location at a height of 100 feet. Once the balloon was aloft, VHB personnel drove the public road system in the study area to inventory those areas where the balloon was visible. During the balloon float, weather conditions were sunny. The temperature was approximately 80 degrees with calm winds.

## Photographic Documentation

During the balloon float, 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 and refine the results of the preliminary viewshed map and to verify where the balloon was, and was not, visible above and/or through the tree canopy. The balloon was photographed from a number of different vantage points to document the actual view towards the proposed Facility. The locations and orientations of the photos are described below:

1. View from Dora Drive adjacent to house #17, looking south.
2. View from South Dale Street adjacent to house #24, looking southwest.
3. View from South Dale Street adjacent to house #8, looking southwest.
4. View from Route 80 across from host property, looking southwest.

5. View from Route 80 at Crest Avenue, looking southeast.
6. View from Thompson Street adjacent to house #30, looking southwest.
7. View from Pleasant Street at Route 80, looking southwest.
8. View from Crest Avenue adjacent to house #19, looking southeast.
9. View from end of Atlantic Court, looking northeast.
10. View from Strong Street adjacent to house #92, looking north.
11. View from View Street adjacent to house #15, looking west.
12. View from Paul Avenue south of Lucy Street, looking southeast.
13. View from Front Street north of Lombard Street, looking northeast.

Photographs of the balloon from the view points listed above were taken with a Nikon Digital Camera COOLPIX 5700, which has a lens focal length equivalent to a 35 mm camera with a 38 to 115 mm zoom. "The lens that most closely approximates the view of the unaided human eye is known as the normal focal-length lens. For the 35 mm camera format, which gives a 24x36 mm image, the normal focal length is about 50 mm.[1]" The optical zoom lens for the Nikon COOLPIX was set at a range of 50 mm to 70 mm for the purposes of this Visual Resource Evaluation.

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

## Photographic Simulation

Photographic Simulations were generated for the 13 locations identified above. The Photographic Simulations represent a scaled depiction of the proposed flagpole from these locations. The height of the Facility is determined based on the location of the balloon in the photographs and a proportional flagpole image is simulated into the photographs. The simulations are contained in Attachment A.

## CONCLUSIONS

Based on this analysis, areas from where the proposed 100-foot flagpole would be visible above the tree canopy comprise approximately 37 acres, or less than one percent of the 8,042-acre Study Area. As depicted on the attached viewshed map in Attachment B, the majority of the visibility associated with the proposed flagpole occurs in the immediate vicinity of the host property, generally within 0.25 mile of the Site location. The viewshed map also depicts a number of smaller areas of visibility at and beyond 0.50-mile. Several of these locations were confirmed during the balloon float and included in the photographic documentation

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

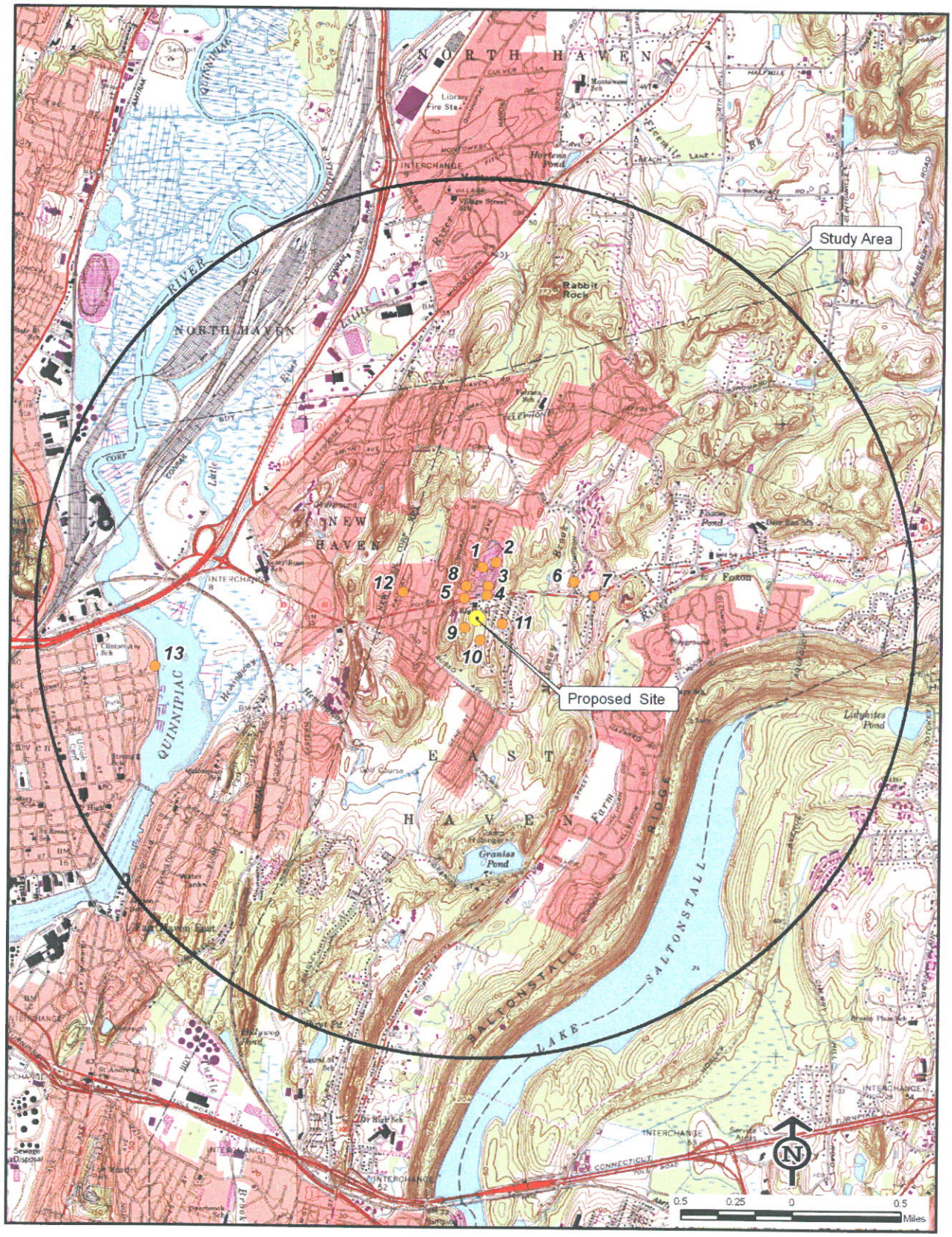
while others are located on private properties and could therefore not be accessed for confirmation. VHB estimates that approximately 34 residences within 0.25 mile of the proposed Facility will have at least partial year round views of the proposed flagpole. The viewshed map also depicts several additional areas where seasonal (i.e. during "leaf off" conditions) views through the trees are anticipated. These areas comprise approximately 27 additional acres and are mostly limited to the immediate vicinity of the proposed Facility along the periphery of anticipated areas of year-round visibility. The topography and existing tree canopy within the residential areas that surround the proposed Facility is sufficient to significantly minimize anticipated views. In addition, the height and stealth design of the proposed Facility (a 100-foot tall flagpole) combined with its setting (on an existing commercial property) further serve to minimize potential visual intrusions from locations within the Study Area.

# Attachment A

# Photolog Documentation Map, Balloon Float Photographs and Photographic Simulations

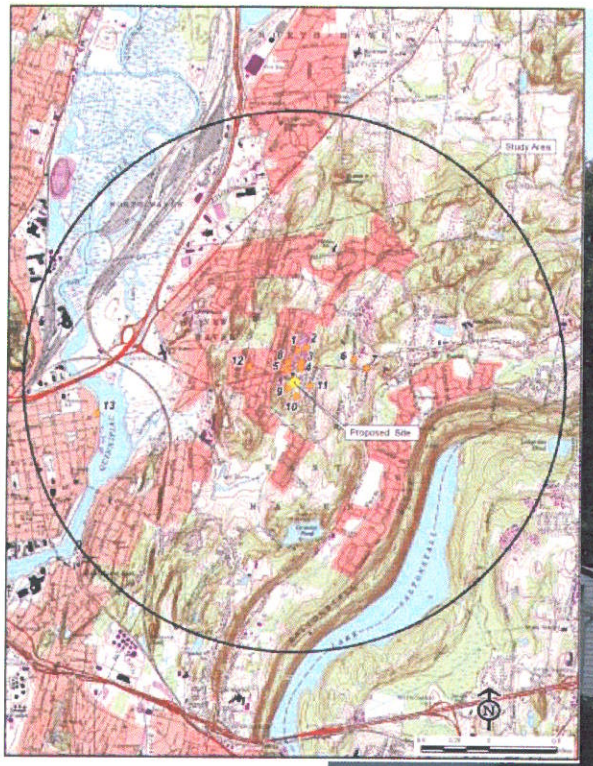
# Photolog Documentation

Town of
**East Haven**
Connecticut



# Photographic Documentation and Simulation *View 1*

Town of
**East Haven**
Connecticut





Manhattan Fitness
836 Foxon Road
East Haven, CT
CT60XC953-D

Flagpole installation

**PHOTO TAKEN FROM DORA DRIVE ADJACENT TO HOUSE #17, LOOKING SOUTH**

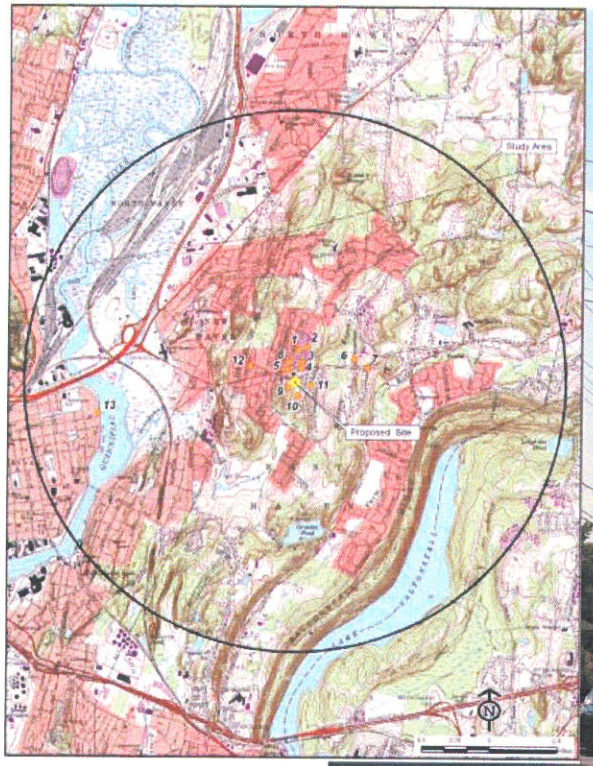
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.23 MILE +/-

Sprint

Vanasse Hangen Brustlin, Inc.

# Photographic Documentation and Simulation *View 2*

Town of
**East Haven**
Connecticut





Manhattan Fitness
836 Foxon Road
East Haven, CT
CT60XC953-D

Flagpole installation

**PHOTO TAKEN FROM SOUTH DALE STREET ADJACENT TO HOUSE #24, LOOKING SOUTHWEST**

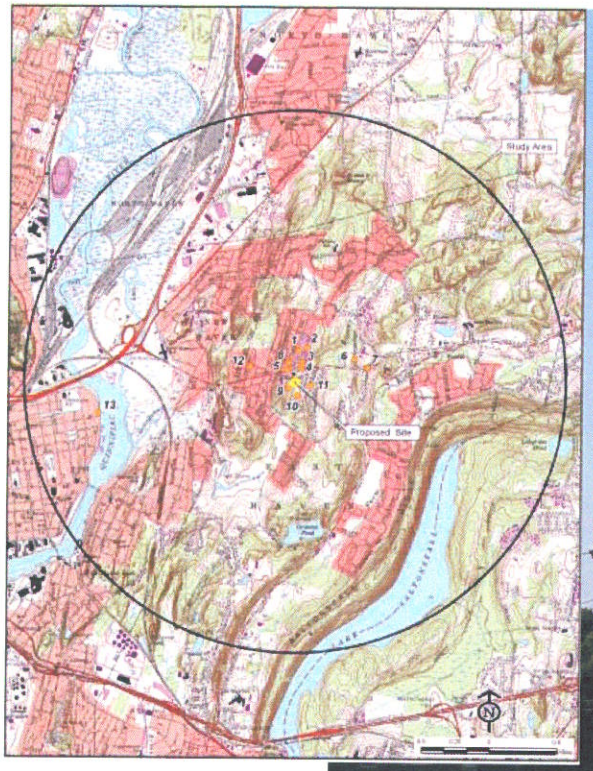
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.26 MILE +/-

Sprint

VHB Vanasse Hangen Brustlin, Inc.

# Photographic Documentation and Simulation *View 3*

Town of
**East Haven**
Connecticut





Manhattan Fitness
836 Foxon Road
East Haven, CT
CT60XC953-D

Flagpole installation

**PHOTO TAKEN FROM SOUTH DALE STREET ADJACENT TO HOUSE #8, LOOKING SOUTHWEST**

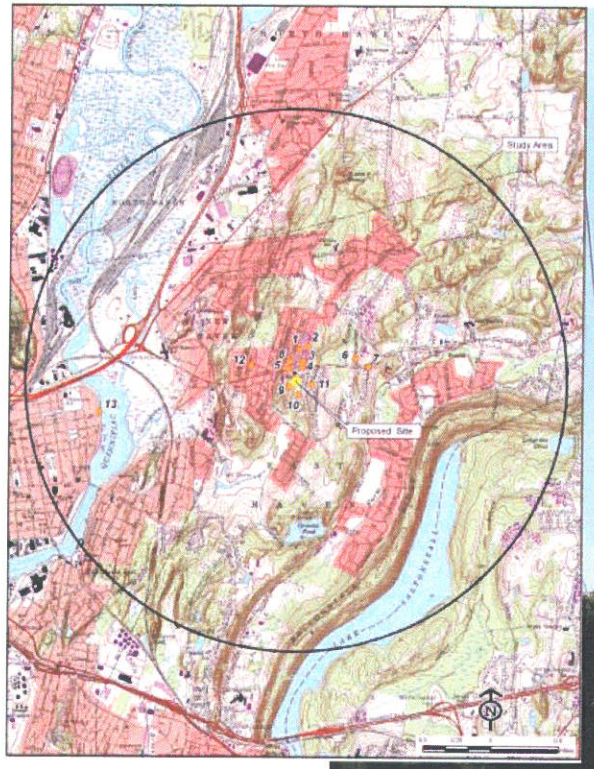
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.13 MILE +/-

Sprint

VHB Vanasse Hangen Brustlin, Inc.

# Photographic Documentation and Simulation *View 4*

Town of
**East Haven**
Connecticut





Manhattan Fitness
836 Foxon Road
East Haven, CT
CT60XC953-D

Flagpole installation

**PHOTO TAKEN FROM ROUTE 80 ACROSS FROM HOST PROPERTY, LOOKING SOUTHWEST**

DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.10 MILE +/-

Sprint

VHB Vanasse Hangen Brustlin, Inc.

# Photographic Documentation and Simulation *View 5*

Town of
**East Haven**
Connecticut



Manhattan Fitness
836 Foxon Road
East Haven, CT
CT60XC953-D

Flagpole installation

**PHOTO TAKEN FROM ROUTE 80 AT CREST AVENUE, LOOKING SOUTHEAST**

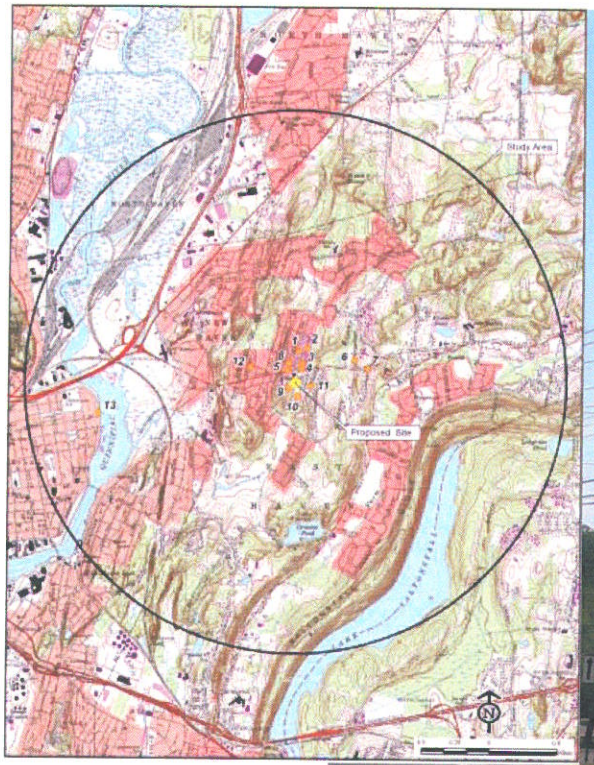
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.11 MILE +/-

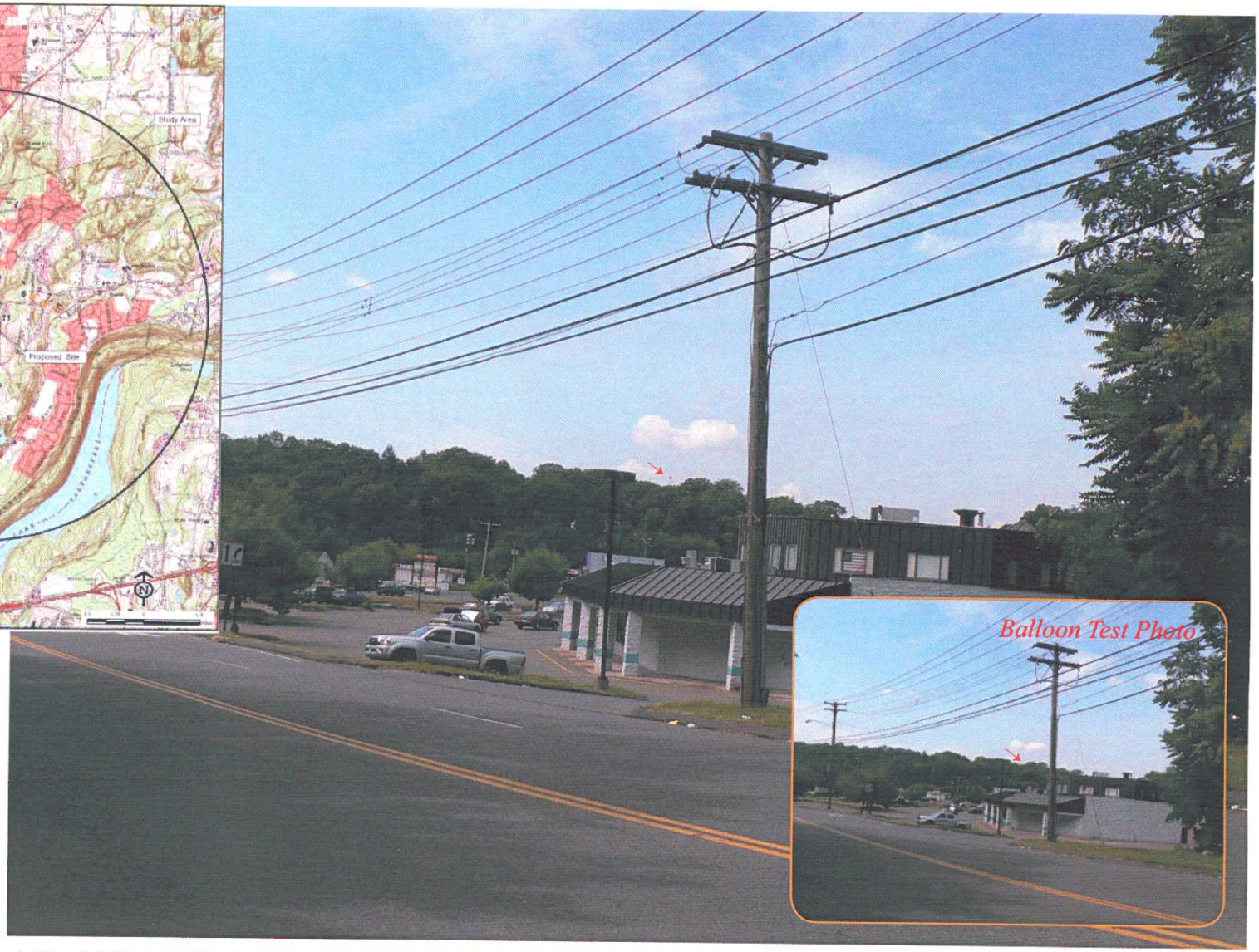
Sprint

VHB Vanasse Hangen Brustlin, Inc.

# Photographic Documentation and Simulation *View 6*

Town of
**East Haven**
Connecticut




Manhattan Fitness
836 Foxon Road
East Haven, CT
CT60XC953-D

Flagpole installation

**PHOTO TAKEN FROM THOMPSON STREET ADJACENT TO HOUSE #30, LOOKING SOUTHWEST**

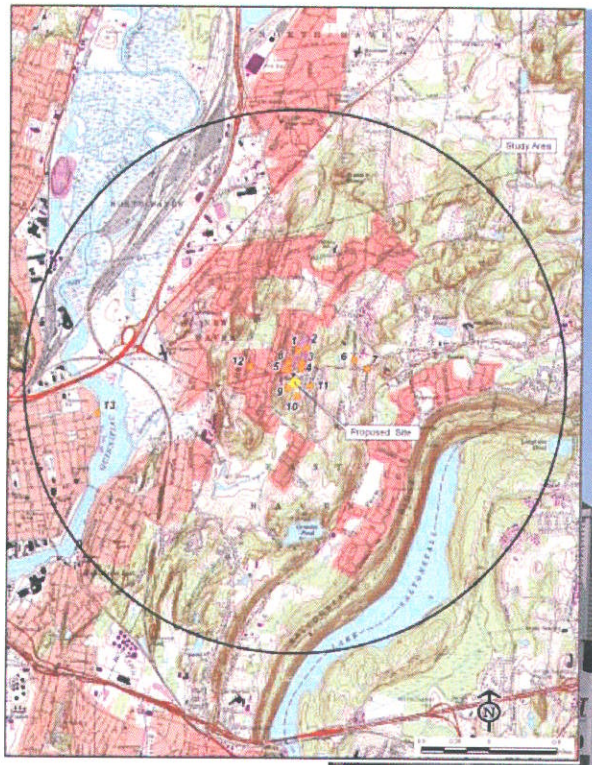
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.47 MILE +/-

Sprint

VHB Vanasse Hangen Brustlin, Inc.

# Photographic Documentation and Simulation *View 7*

Town of
**East Haven**
Connecticut





Manhattan Fitness
836 Foxon Road
East Haven, CT
CT60XC953-D

Flagpole installation

**PHOTO TAKEN FROM PLEASANT STREET AT ROUTE 80, LOOKING SOUTHWEST**

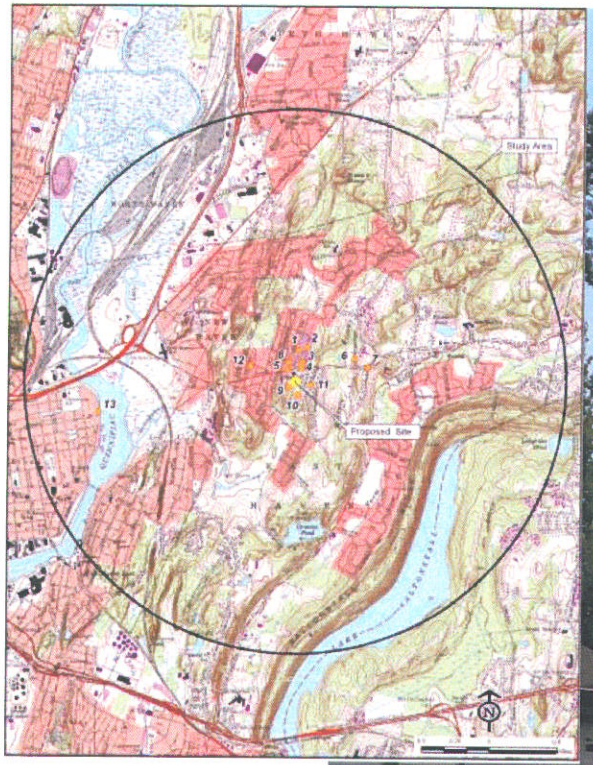
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.53 MILE +/-

Sprint

Vanasse Hangen Brustlin, Inc.

# Photographic Documentation and Simulation *View 8*

Town of
**East Haven**
Connecticut





Manhattan Fitness
836 Foxon Road
East Haven, CT
CT60XC953-D

Flagpole installation

**PHOTO TAKEN FROM CREST AVENUE ADJACENT TO HOUSE #19, LOOKING SOUTHEAST**

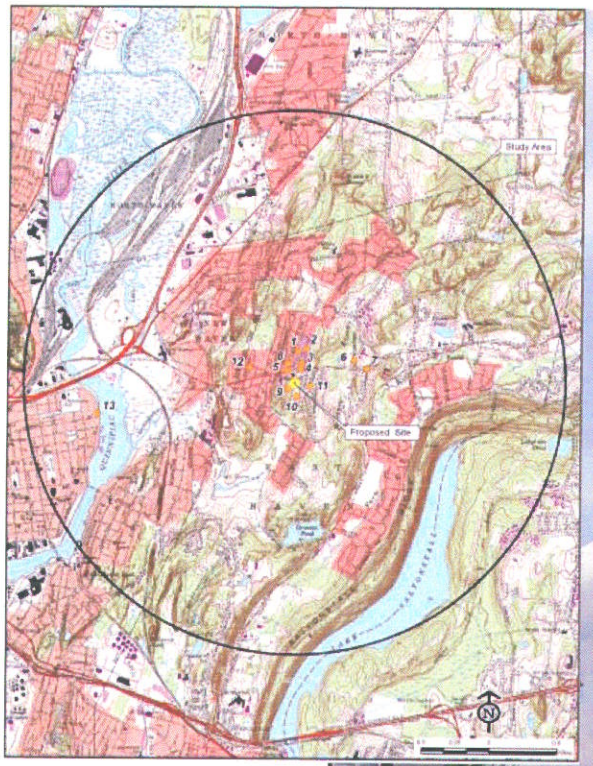
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.14 MILE +/-

Sprint

VHB Vanasse Hangen Brustlin, Inc.

# Photographic Documentation and Simulation *View 9*

Town of
**East Haven**
Connecticut




Manhattan Fitness
836 Foxon Road
East Haven, CT
CT60XC953-D

Flagpole installation


**PHOTO TAKEN FROM END OF ATLANTIC COURT, LOOKING NORTHEAST**

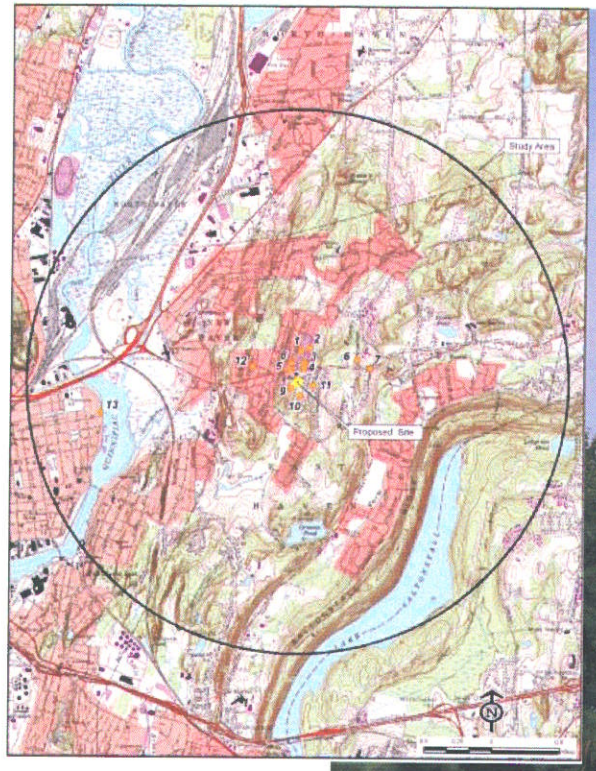
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 400 FEET +/-

Sprint

Vanasse Hangen Brustlin, Inc.

# Photographic Documentation and Simulation *View 10*

Town of
**East Haven**
Connecticut




Manhattan Fitness
836 Foxon Road
East Haven, CT
CT60XC953-D

Flagpole installation


**PHOTO TAKEN FROM STRONG STREET ADJACENT TO HOUSE #92, LOOKING NORTH**

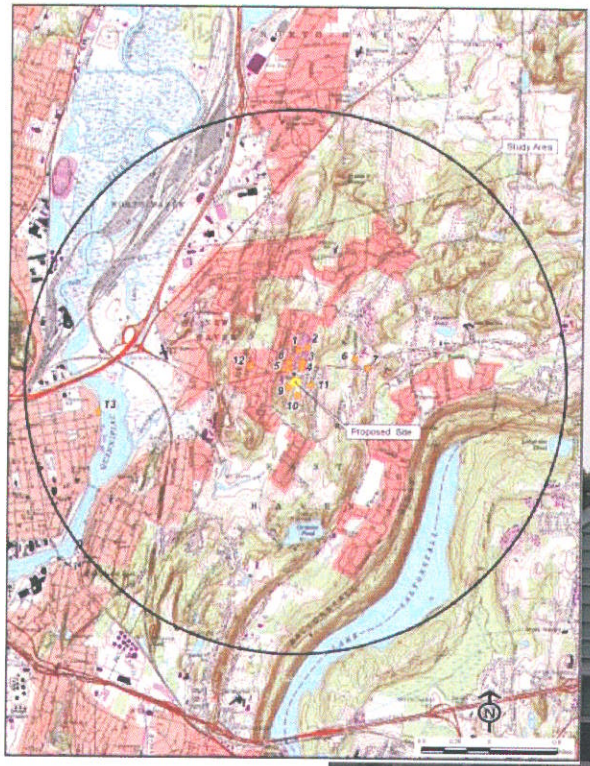
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.10 MILE +/-

Sprint

VHB Vanasse Hangen Brustlin, Inc.

# Photographic Documentation and Simulation *View 11*

Town of
**East Haven**
Connecticut





Manhattan Fitness
836 Foxon Road
East Haven, CT
CT60XC953-D

Flagpole installation

**PHOTO TAKEN FROM VIEW STREET ADJACENT TO HOUSE #15, LOOKING WEST**

DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.12 MILE +/-

Sprint

VHB Vanasse Hangen Brustlin, Inc.

# Photographic Documentation and Simulation *View 12*

Town of
**East Haven**
Connecticut



Manhattan Fitness
836 Foxon Road
East Haven, CT
CT60XC953-D

Flagpole installation

**PHOTO TAKEN FROM PAUL AVENUE SOUTH OF LUCY STREET, LOOKING SOUTHEAST**

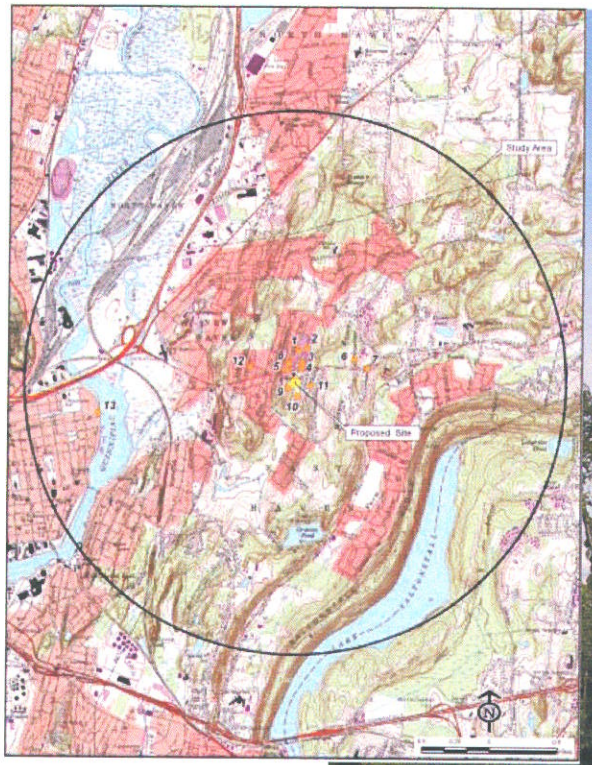
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.36 MILE +/-

Sprint

Vanasse Hangen Brustlin, Inc.

# Photographic Documentation and Simulation *View 13*

Town of
**East Haven**
Connecticut





Manhattan Fitness
836 Foxon Road
East Haven, CT
CT60XC953-D

Flagpole installation

**PHOTO TAKEN FROM FRONT STREET NORTH OF LOMBARD STREET, LOOKING NORTHEAST**

DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 1.48 MILES +/-

Sprint

Vanasse Hangen Brustlin, Inc.

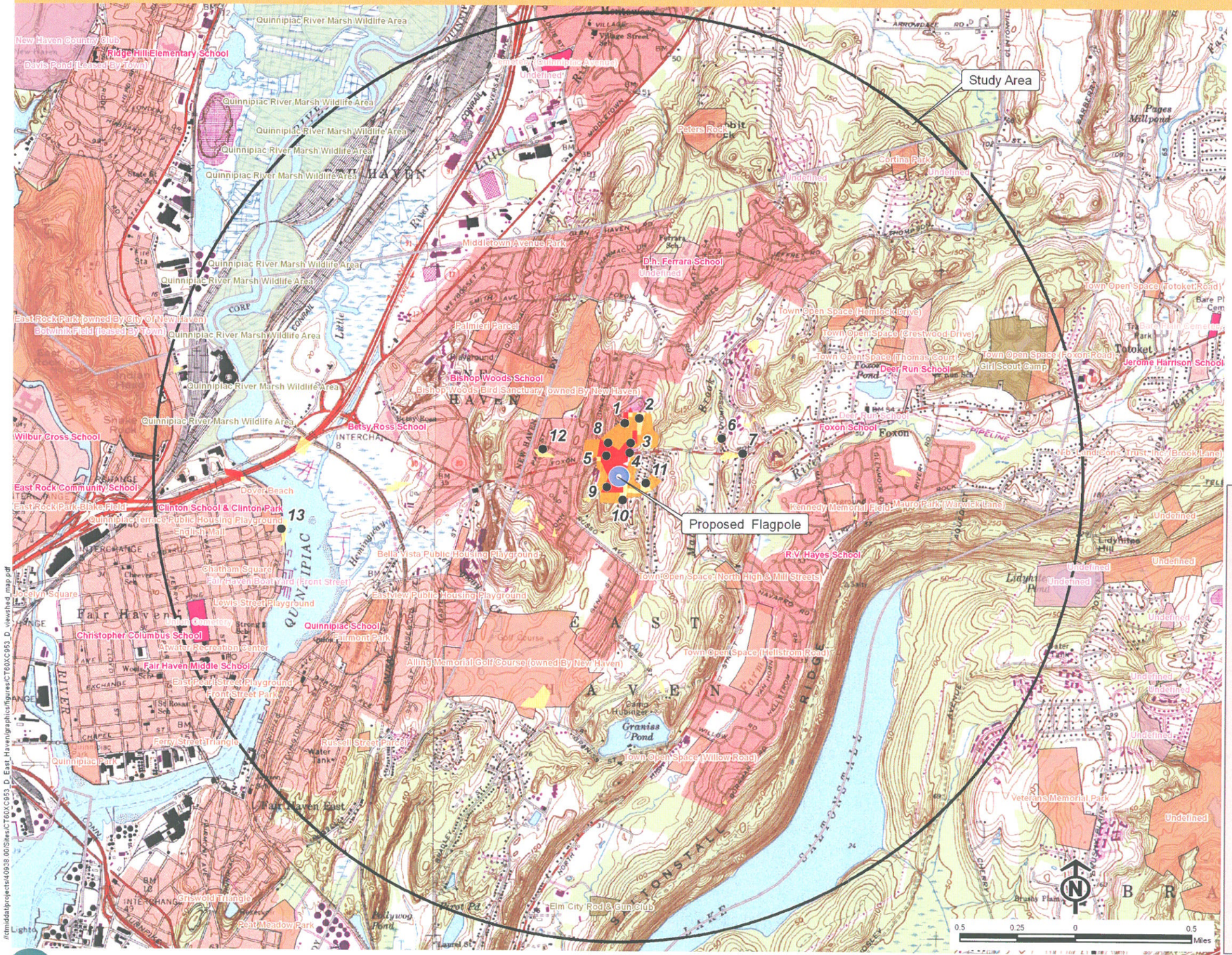
# Attachment B

# Viewshed Map

# Viewshed Map

## Topography and Forest Cover as Constraints

*Town of East Haven Connecticut*




## Proposed Telecommunications Facility
## Sprint PCS Site ID # CT60XC953-D
## Manhattan Fitness
## 836 Foxon Road
## East Haven, Connecticut

NOTE:
- Viewshed analysis conducted using ESRI's Spatial Analyst.
- Proposed Facility height is 100 feet.
- Existing tree canopy height estimated at 65 feet.

DATA SOURCES:
- 7.5 minute digital elevation model (DEM) with 30 meter resolution produced by the USGS, 1982
- Forest areas derived from 2004 digital orthophotos with 0.5-foot pixel resolution; digitized by VHB, 2006
- Base map comprised of Branford and New Haven USGS Quadrangle Maps
- Protected properties data layer provided CTDEP, 2003
- Scenic Roads layer derived from available State and Local listings.

Map Compiled September, 2006

### Legend

Proposed 100-foot Flagpole Location (Includes area of visibility approximately 500 feet around facility)

Photographs - August 24, 2006

Photographic Location

Anticipated Seasonal Visibility (Approx. 27 Acres)

**Approx. % of Flagpole Visible (Year-Round)**

Upper 25% to Tree Line View - 20 Acres

50% - 16 Acres

Entire Facility Visible - 1 Acre

***Total Year-Round Visibility Approximately 37 Acres***

Protected Properties (Municipal)
- Cemetery
- Preservation
- Conservation
- Existing Preserved Open Space
- Recreation
- General Recreation
- School
- Uncategorized

Protected Properties (CT DEP)
- State Forest
- State Park
- DEP Owned Waterbody
- State Park Scenic Reserve
- Historic Preserve
- Natural Area Preserve
- Fish Hatchery
- Flood Control
- Other
- State Park Trail
- Water Access
- Wildlife Area
- Wildlife Sanctuary

DEP Boat Launches

Scenic Road (State and Local)

Town Line

Protected Properties (Federal)



VHB Vanasse Hangen Brustlin, Inc.
Transportation | Land Development | Environmental Services

Sprint

CT60XC953 East Haven CT

Worst Case Power Density Analysis of Sprint PCS Antennas @ Base of Building. Assumes Max ERP & No Antenna Pattern Adjustment

| Operating Frequency (MHz) | Number of Trans. | Effective Radiated Power (ERP) Per Transmitter (Watts) | Total ERP (Watts) | Antenna Height (Feet) | Distance From Base of Tower (Feet) | Calculated Power Density (mW/cm2) | Maximum Permissable Exposure* | %MPE |
|---|---|---|---|---|---|---|---|---|
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 0 | 0.088 | 1 | 8.80% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 50 | 0.070 | 1 | 7.00% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 100 | 0.044 | 1 | 4.40% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 150 | 0.027 | 1 | 2.70% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 200 | 0.018 | 1 | 1.80% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 250 | 0.012 | 1 | 1.20% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 300 | 0.009 | 1 | 0.90% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 350 | 0.007 | 1 | 0.70% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 400 | 0.005 | 1 | 0.50% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 450 | 0.004 | 1 | 0.40% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 500 | 0.003 | 1 | 0.30% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 550 | 0.003 | 1 | 0.30% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 600 | 0.002 | 1 | 0.20% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 650 | 0.002 | 1 | 0.20% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 700 | 0.002 | 1 | 0.20% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 750 | 0.002 | 1 | 0.20% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 800 | 0.001 | 1 | 0.10% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 850 | 0.001 | 1 | 0.10% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 900 | 0.001 | 1 | 0.10% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 950 | 0.001 | 1 | 0.10% |
| 1962.5 | 11 | 221.87 | 2440.57 | 97 | 1000 | 0.001 | 1 | 0.10% |

*Requirements set forth in OET Bulletin 65. Based on NCRP Report No. 86 and ANSI/IEEE C95.1-1992