



## VERNAL POOL ANALYSIS

**September 13, 2017**

**Tarpon Towers II, LLC  
1001 3rd Avenue West, Suite 420  
Bradenton, FL 34205**

**APT Project No.: CT407210**

**Re: Proposed Bridgeport East Facility  
380 Horace Street  
Bridgeport, Connecticut**

All-Points Technology Corporation, P.C. ("APT") understands that a wireless telecommunications facility is proposed by Tarpon Towers II, LLC at 380 Horace Street in Bridgeport, Connecticut ("subject property"). This vernal pool evaluation is based on field inspections performed on April 25, 2015 and June 15, 2017 by APT. The findings of this vernal pool assessment are presented below.

### **Introduction**

The subject property that will house the proposed monopole tower and compound (the "Facility") consists of an industrially developed parcel with buildings and paved access, parking and storage areas. Access and utility easement to the compound would cross over an adjacent, second parcel that is occupied by the Germania Schwaben Society club which includes a banquet hall building, pavilion and paved parking lot. The proposed Facility is located in an upland area immediately adjacent to the paved parking lot on this second parcel. Development of the proposed Facility would occur within a cleared area and at the edge of a small edge forest patch that will require removal of a few trees; exposed bedrock is located just north of the club's parking lot and encompasses a portion of the proposed Facility's compound.

Wetlands on the subject property are located  $\pm 500$  feet to the southeast of the proposed Facility, consisting of an emergent marsh system associated with an intermittent watercourse that flows south eventually into Yellow Mill Creek. The on-site wetland extends north onto Remington Woods, a  $\pm 420$ -acre property formerly owned by the Remington Arms Company. This property is surrounded by a chain link and barb wire fence and is not open to the public. The off-site wetland extends northwest towards the proposed Facility and is  $\pm 150$  feet away at its closest point. Viewing this off-site wetland from the property line, it appears that a potential cryptic style vernal pool area is associated with the western end of this wetland at a distance of  $\pm 150$  feet from the proposed Facility.

### **ALL-POINTS TECHNOLOGY CORPORATION, P.C.**

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## **Vernal Pool Analysis**

### ***Physical Impact to Vernal Pool and Surrounding Terrestrial Habitat***

This section details a recognized scientific method for analyzing the potential impact a project may have on a particular vernal pool and its surrounding upland habitat.

Construction and operation of the proposed Facility would not result in direct physical impact to the vernal pool located  $\pm 165$  feet to the northeast. It is widely documented that vernal pool dependent amphibians are not solely dependent upon the actual vernal pool habitat for breeding and egg and juvenile development but also require surrounding upland habitat for most of their adult lives. Various recognized scientific studies recommend protection of adjacent habitat up to 750 feet from the vernal pool edge for obligate pool-breeding amphibians.<sup>1</sup>

In order to evaluate potential impacts to this vernal pool and its surrounding upland habitat, the nearby vernal pool habitat was assessed using methodology developed by Calhoun and Klemens (2002). This methodology assesses vernal pool ecological significance based on two parameters: 1) biological value of the vernal pool, and 2) conditions of the critical terrestrial habitat. The biological rating is based on the presence of federal or state-listed species and abundance and diversity of vernal pool indicator species. The terrestrial habitat is assessed based on the integrity of the vernal pool envelope (within 100 feet of the pool's edge; "VPE") and the critical terrestrial habitat (within 100-750 feet of the pool's edge; "CTH"). Since the off-Site vernal pool is inaccessible, a conservative priority rating of Tier I was assigned since less than 75% of the VPE is developed (3% developed), less than 50% of the CTH is developed (44% developed) and it is assumed that either two or more vernal pool indicator species breed in the pool or 25 or more egg masses would be present in the pool by the conclusion of the breeding season. A Tier I rating is considered to have relatively high breeding activity and relatively intact terrestrial habitat<sup>2</sup> (Tier II and III pools represent lower amphibian productivity and fragmented terrestrial habitat). Pools with 25% or less developed areas in the CTH are identified as having high priority for maintaining less than 25% development within this terrestrial habitat, including site clearing, grading and construction<sup>1</sup>. The vernal pool's CTH has 44% development under existing conditions. Since  $\pm 44\%$  of the CTH is already developed, the 75% non-development criterion<sup>3</sup> tipping point has already been exceeded (56% non-development). As a result, this pool would not qualify for this conservation priority.

The vernal pool evaluated in this assessment was rated based on these criteria for both the existing condition and the future developed condition to determine if the proposed Facility would result in a reduction in the tier rating system. The results of this analysis demonstrate that the proposed development will not result in further degradation of the existing conservation priority Tier I rating or terrestrial habitat integrity of the vernal pool due to the small amount of disturbance associated with the proposed Facility. The VPE would not be impacted as the proposed development is located approximately  $\pm 165$  feet west of the nearest vernal pool edge. The total area of developed CTH associated with the subject property is  $\pm 7.3$  acres. Surrounding residential development comprise an additional  $\pm 13.2$  acres within the CTH. The combined total acreage represents 44% development of the CTH under existing conditions. Please refer to the enclosed Vernal Pool Analysis Map.

The proposed Facility is located within the CTH and would result in  $\pm 0.03$  acres of additional development, an increase of only  $\pm 0.06\%$  of the total CTH associated with the vernal pool. Therefore, the proposed development represents a

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<sup>1</sup> Calhoun, A.J.K. and M.W. Klemens. 2002. Best Development Practices (BDPs): Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States. WCS/MCA Technical Paper No. 5.

<sup>2</sup> Vernal Pool Assessment Sheet (source: Calhoun and Klemens 2002)

<sup>3</sup> This threshold is generally used for prioritizing vernal pool conservation efforts: Calhoun, A.J.K. and M.W. Klemens. 2002. Best Development Practices (BDPs): Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States. WCS/MCA Technical Paper No. 5. Pg. 10.

de minimis increase in development of the vernal pool's CTH. Although not directly applicable in this instance, because the 75% non-development criterion tipping point is exceeded, the proposed Facility would not result in a likely adverse impact to existing amphibian productivity nor will it result in long-term adverse impact to the terrestrial habitat. The proposed Facility would occupy a relatively small area of development and create minimal impact to the vegetated buffer separating the vernal pool from the proposed development area.

The potential exists for possible short-term impact to herpetofauna associated with the nearby vernal pool habitat due to possible encounters with migrating and basking individuals that may intercept the proposed development footprint should construction occur during their active season. Short-term impacts associated with the proposed development within the CTH proximate to the vernal pool would be minimized by the proper installation and maintenance of erosion and sedimentation controls in accordance with *2002 Connecticut Guidelines For Soil Erosion and Sediment Control*. Best Management Practices ("BMPs") are proposed during construction in a subsequent section of this document to avoid/minimize the potential for short-term impact to herpetofauna.

### ***Hydraulic Alterations***

Land-use changes (i.e., clearing, increases in impervious surface) can increase surface runoff in the watershed of a vernal pool. Direct inputs of stormwater flows into a pool may produce sudden water level increases in a short period of time and may lengthen the duration of flooding (hydroperiod). Diversion of stormwater flows past a pool may have the opposite effect of decreasing water levels and shortening the pool's hydroperiod. In addition, stormwater features that create temporary pools of water can result in a biological "sink" as breeding amphibians deposit eggs into a water body without the necessary hydraulic period to allow for successful development of the eggs into juveniles.

The proposed development will not alter existing surface or subsurface flow conditions or directions. Site clearing and grading activities will not de-water the nearby vernal pool. Further, no alterations to surface water drainage patterns associated with the pool would occur since any new impervious surfaces would be minimized with the use of gravel surfaces that promote infiltration. Therefore, the proposed development will not alter the hydrology of the nearby vernal pool. No stormwater management features are proposed that would result in creation of a temporary "decoy" pool and "sink" features. In addition, final site grading activities will be carefully performed to avoid creating artificial shallow depressions that could also serve as decoy features.

### ***Vernal Pool Recommended Best Management Practices***

As a result of the proposed development's location in the vernal pool CTH, BMPs were evaluated to determine if such actions would avoid unintentional impact or mortality to vernal pool herpetofauna (i.e., wood frog, salamanders, turtles, etc.) during construction activities. Considering the developed nature of the subject property and the proposed location of the proposed Facility, which afford little terrestrial habitat for herpetofauna, there appears to be minimal opportunity for the project to encounter migrating amphibians or reptiles during construction. Therefore, APT recommends establishing a vernal pool protection plan consisting of contractor awareness training prior to initiation of construction activities. This plan would identify the potentially sensitive nature of the project, what amphibians and reptiles might be encountered and what to do if they are present. In addition, the vernal pool protection plan should include an initial inspection of the silt fence erosion and sedimentation controls that will serve double duty as a restrictive barrier to possible migrating herpetofauna from the construction site. Provided the vernal pool protection plan is properly implemented during construction, it is APT's opinion the proposed development will not result in a likely adverse impact to nearby vernal pool resources.

If you have any questions regarding the above-referenced information, please feel free to contact me by telephone at (860) 663-1697 ext. 201 or via email at [dgustafson@allpointstech.com](mailto:dgustafson@allpointstech.com).

Sincerely,

All-Points Technology Corporation, P.C.

A handwritten signature in blue ink that reads "Dean Gustafson". The signature is fluid and cursive, with the first name "Dean" and the last name "Gustafson" clearly legible.

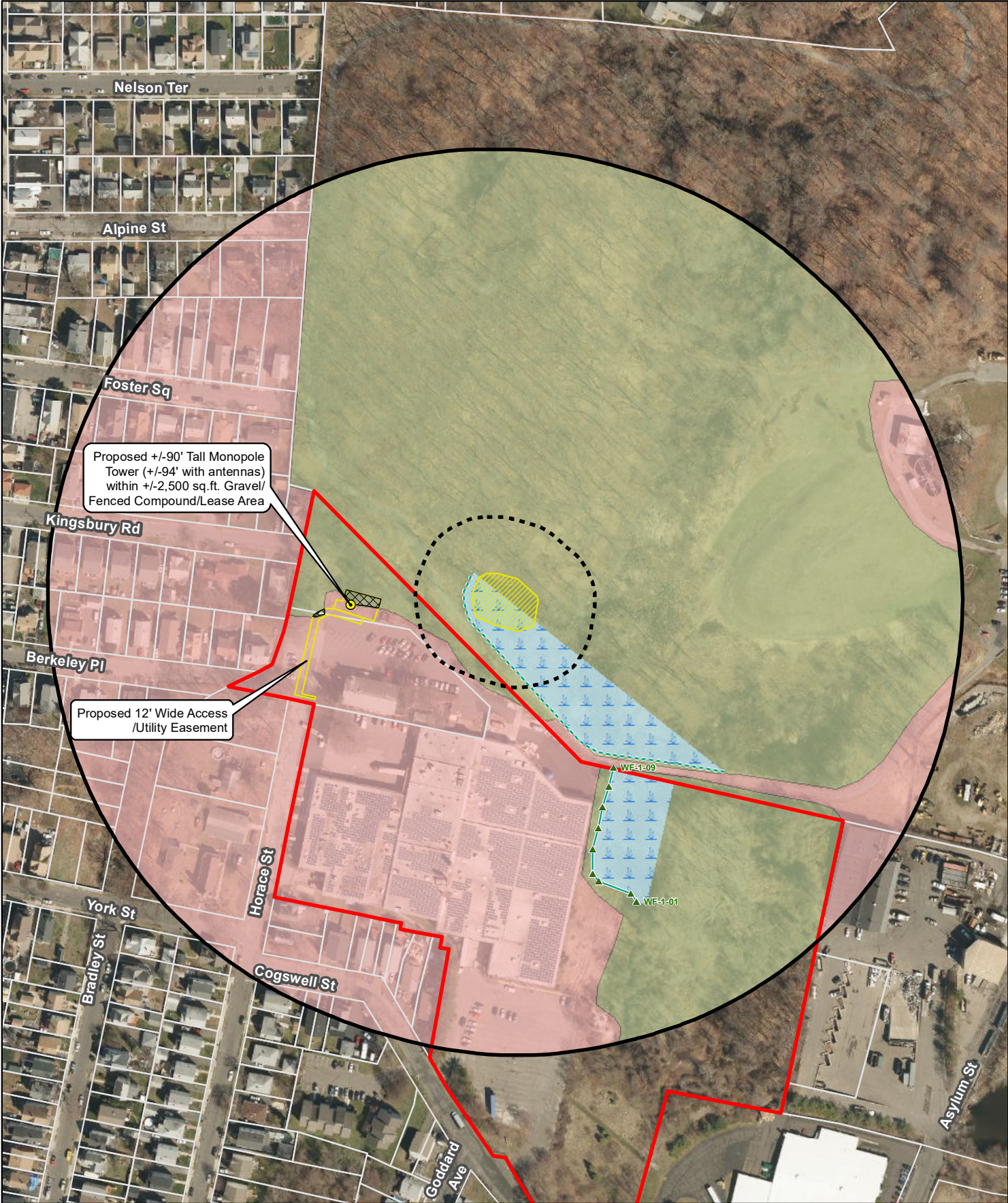
Dean Gustafson  
Senior Wetland Scientist

Enclosures

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# Vernal Pool Analysis Map

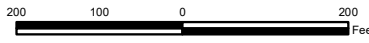




**Legend**

- Proposed Facility Layout
- Approximate Parcel Boundary (CTDEEP GIS)
- Approximate Vernal Pool Limits
- Wetland Flag
- Delineated Wetland Boundary
- Approximate Wetland Boundary
- Wetland Area
- 100' Vernal Pool Envelope (+/-1.7 acres)
- 100'-750' Critical Terrestrial Habitat (CTH) Area (+/-45.2 acres)
- Habitat**
- Developed (+/-20.5 acres)
- Undeveloped (+/-26.4 acres)
- Proposed Project Take of Undeveloped Habitat in CTH (+/-0.03 acre)

Proposed Habitat:  
 Developed: +/-20.53 acres; Undeveloped: +/-26.37 acres  
 No Impact/Change to Vernal Pool Envelope Habitat



**Map Notes:**  
 Base Map Source: 2016 Aerial Photograph (CTECO)  
 Map Scale: 1 inch = 231 feet  
 Map Date: June 2017

**Vernal Pool Analysis Map**

Proposed Wireless  
 Telecommunications Facility  
 Bridgeport East  
 380 Horace Street  
 Bridgeport, Connecticut

