Wetland and Vernal Pool Impact Analysis

August 12, 2020

Verizon Wireless
20 Alexander Drive
Wallingford, Connecticut 06492

Re: Proposed Verizon Wireless Wolcott South Telecommunications Facility
Chestnut Hill Road, Wolcott, Connecticut
APT Project No. CT1417300

On behalf of Verizon Wireless ("Verizon"), All-Points Technology Corporation, P.C. ("APT") performed an evaluation of wetland and vernal pool impacts associated with the proposed referenced telecommunication facility ("Facility") on an undeveloped forested parcel located on the south side of Chestnut Hill Road near the intersection with Grilley Road in Wolcott, Connecticut ("Subject Property").

Introduction

This wetland and vernal pool impact evaluation is based on field inspections performed on April 15, 2015, August 22, 2017 and November 25, 2019 by APT along with a review of site plans prepared by APT (latest revision date 05/06/20).

APT wetland scientists conducted an initial inspection of the Subject Property on August 22, 2017 to confirm the presence and extent of wetlands and watercourses within and proximate to the proposed Facility. A narrow forested hillside seep wetland system (Wetland 1) was identified in the northern portion of the Subject Property that extends from the eastern property boundary northward towards Chestnut Hill Road in the northwest corner of the property. Within the southern portion of this wetland system on the adjacent parcel is a small vernal pool contained within an abandoned well that supports permanent inundation (Vernal Pool 1).

The proposed Facility is located within mature upland forest in the central-south portion of the Subject Property. The proposed Facility would consist of a monopole and associated ground equipment located within a gravel compound area surrounded by an exterior chain-link fence. Access would be provided

by a proposed 12-foot wide gravel road off Chestnut Hill Road requiring crossing of Wetland 1 in order to access the proposed Facility location.

Wetland 1 consists of a relatively narrow hillside seep wetland system with a discontinuous and diffuse interior intermittent watercourse feature that is bordered by narrow forested wetlands. Where the intermittent watercourse is well defined, the bank/channel is very narrow (1-3 feet wide) with a sandy/stone bottom. The wetland drains north discharging into a 24-inch reinforced concrete culvert under Chestnut Hill Road. Portions of the intermittent watercourse in the far north end of the subject property near Chestnut Hill Road are channelized.

One vernal pool habitat feature ("Vernal Pool 1) consisting of a small (±5-foot diameter) abandoned stone well with permanent flooding was identified within Wetland 1 southeast of the proposed Facility on the adjacent parcel. A survey of this pool during the April 15, 2015 inspection documented the presence one spotted salamander egg mass within over two (2) feet of inundation contained within the well. This vernal pool did not contain high attachment sites or a dense duff layer being a spring feed well. In addition, this feature is anthropogenic (man-made well) in origin with the boundaries consisting of sheer stone walls that limits migration/emigration into and out of this man-made pool.

Wetland Impact Evaluation

Direct impacts to Wetland 1 would result from development of the proposed Facility associated with the gravel access road. The proposed wetland crossing is not avoidable since the only means of accessing the proposed Facility location requires crossing of Wetland 1. However, the proposed access road wetland crossing has been thoughtfully designed to minimize impacts to wetlands by locating the crossing at a narrow portion the wetland system. The southern property boundary constrains the ability to cross the wetland at its narrowest point near the northern end of the wetland near Chestnut Hill Road.

The crossing design will convey flows under the gravel road via three (3) 24-inch HDPE pipes. The use of three pipes will avoid hydraulic impacts to either the upstream or downstream side of the proposed wetland crossing by eliminating focused flows and fully conveying large storm events without risk of overtopping or washing out the road or creating an erosive force within the wetland system. Inverts of the three culverts will be imbedded to ensure surface water is conveyed during low flows as well as to allow for aquatic organism movement through the crossing. The proposed wetland crossing has been designed at a narrow portion of the wetland system while considering grading requirements for the proposed access road to avoid additional wetland impacts. As a result, the proposed crossing and a stormwater management area that will control and treat stormwater runoff from the proposed access road will impact ±2,797 square feet of wetlands. Disturbed side-slopes adjacent to the wetland crossing along with any temporary wetland impacts associated with installed

erosion controls will be seeded with a native wetland seed mix to reestablish vegetative cover while side slopes in upland areas will use a native New England semi-shade grass and forbs seed mix.

The Facility will also require construction activities proximate to Wetland 1, including grading and installation of stormwater management systems to control and treat runoff from the Facility prior to its ultimate discharge into Wetland 1. To promote protection of wetlands during construction, safeguards are proposed to avoid unintentional impacts to these resources, including construction phase protection measures and the installation and maintenance of erosion controls in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control. In addition, a wetland protection plan will be implemented during construction that will include an environmental monitor to ensure proper protective measures are installed and maintained throughout the duration of construction. Please refer to the attached Resource Protection Measures for additional details. By implementing these protective techniques throughout the duration of construction, potential adverse impacts to wetland resources will be mitigated.

Potential long-term secondary impacts to wetland resources associated with the operation of this Facility are minimized due to its unstaffed nature and negligible traffic for maintenance requiring approximately one visit per month. As such, operation of the Facility will not result in a likely adverse impact to wetland resources.

Considering the relatively small area of direct wetland impacts, environmentally sensitive design considerations incorporated into the wetland crossing and wetland protection measures to be implemented during construction, the proposed Facility will not result in a likely adverse impact to wetland resources.

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 Facility would not result in direct physical impact to vernal pools. It is widely documented that vernal pool dependent amphibians are not solely reliant upon the actual vernal pool habitat for breeding (i.e., egg and larval development) but do require surrounding upland forest habitat for most of their adult lives. Accepted studies recommend protection of adjacent habitat up to 750 feet from the vernal pool edge for obligate pool-breeding amphibians.[1]

In order to evaluate potential impacts to Vernal Pool 1 and its surrounding upland habitat, the resource was assessed using methodology developed by Calhoun and Klemens (2002) in combination with the

[1] 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.

US Army Corps of Engineers New England District's *Vernal Pool Best Management Practices (BMPs)* (January 2015)[2]. Collectively, these methodologies assess vernal pool ecological significance based on two (2) 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 state-listed species and the abundance and diversity of vernal pool indicator species. The terrestrial habitat is assessed based on the integrity of the vernal pool envelope ("VPE" - within 100 feet of the pool's edge) and the critical terrestrial habitat ("CTH" - within 100-750 feet of the pool's edge). Based on these observations, intact forest represents the highest value habitat within both of these conservation zones to support breeding opportunities for the various obligate vernal pool indicator species that rely on forested habitat (e.g., wood frog and spotted salamander). Based on the observations of one (1) obligate vernal pool species breeding, Vernal Pool 1 meets the biological criteria for a Tier III pool, considered to have relatively low breeding activity but relatively intact terrestrial habitat. Pools with 25% or less developed areas in the critical terrestrial habitat are identified as having high priority for maintaining less than 25% development within this terrestrial habitat, including site clearing, grading and construction.

The vernal pool evaluated in this assessment was rated based on these criteria for both the existing condition and the proposed condition (e.g., Verizon's proposed development) to determine if the proposed development would result in a reduction in the tier rating system or reduce the terrestrial habitat integrity below the critical 75% non-development criterion. As previously discussed, the vernal pool currently has a diminished conservation priority rating of Tier III. The results of this analysis show that the proposed development will not result in further degradation of the existing tier rating or terrestrial habitat integrity of the vernal pool due to the small amount of disturbance associated with the Facility. The VPE will not be impacted by the proposed development; and the proposed Facility would be located ±230 feet northwest of Vernal Pool 1. The total area of the CTH (±40.3 acres) associated with the vernal pool primarily includes undeveloped upland/wetland forested areas (±35.7 acres) and developed land associated with residential use (±4.6 acres). The vernal pool's CTH has ±11.4% development under existing conditions which does not exceed the 75% non-development criterion (88.6% non-development). Please refer to the enclosed Vernal Pool Analysis Map.

The proposed Facility and most of the access road are located within the CTH and would result in ±0.4 acre of additional development, an increase of only ±1% of the total CTH associated with the vernal pool. Therefore, the proposed Verizon development represents a de minimis increase in development of the vernal pool's critical terrestrial habitat. Considering the diminished conservation status of the Tier III vernal pool, the addition of ±1% development would not result in a likely adverse

[2] https://www.nae.usace.army.mil/Portals/74/docs/regulatory/VernalPools/VPBMPsJan2015.pdf

impact to existing amphibian productivity nor will it result in long-term adverse impact to the terrestrial habitat.

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 during construction. Short-term impacts associated with the proposed development within the terrestrial habitat 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 or alter surface water drainage patterns associated with the pool. Impervious surfaces associated with the proposed Project have been minimized with the use of a gravel surface within the Facility compound to support infiltration and local groundwater recharge. Therefore, the proposed development will not alter the hydrology of the nearby vernal pool. In addition, no stormwater management features (temporary or permanent) are proposed that would result in creation of a temporary "decoy" pool and "sink" features, which could potentially affect breeding amphibians intercepted on their migration to the nearby vernal pool.

Vernal Pool Recommended Best Management Practices

As a result of the proposed development's location in the vernal pool's critical terrestrial habitat, BMPs are recommended to both protect the nearby wetland resources from temporary impacts and avoid unintentional impact or mortality to vernal pool herpetofauna (i.e., wood frog, salamanders, turtles, etc.) during construction activities. The vernal pool BMPs would be implemented during peak amphibian movement periods (early spring breeding [March 1st to May 15th] and late summer dispersal [July 15th to September 15th]) while the wetland BMPs would be implemented regardless

of time of year. Please refer to the attached Resource Protection Measures for complete details. Therefore, it is APT's opinion the proposed Facility development will not result in a likely adverse impact to vernal pool resources.

If you have any questions regarding the above-referenced information, please feel free to contact me by telephone at (860) 552-2033 or via email at dgustafson@allpointstech.com.

Sincerely,
All-Points Technology Corporation, P.C.

Dean Gustafson
Senior Wetland Scientist

cc: Kenneth C. Baldwin, Robinson & Cole, LLP

Enclosures

Resource Protection Measures

ENVIRONMENTAL NOTES - RESOURCES PROTECTION MEASURES

WETLAND AND VERNAL POOL PROTECTION PROGRAM

As a result of the Verizon Wireless project's location in the vicinity of sensitive wetland resources and vernal pool habitat, the following Best Management Practices ("BMPs") shall be implemented by the Contractor to avoid unintentional impacts to proximate wetland resources or mortality to vernal pool herpetofauna (i.e., wood frog, salamanders, turtles, etc.) during construction activities. The vernal pool specific BMPs shall be implemented should construction activities occur during peak amphibian movement periods (early spring breeding [March 1st to May 15th] and late summer dispersal [July 15th to September 15th]). BMP's associated with the protection of wetlands will be implemented regardless of the time of year.

It is of the utmost importance that the Contractor complies with the requirement for the installation of protective measures and the education of its employees and subcontractors performing work on the project site. All-Points Technology Corporation, P.C. ("APT") will serve as the Environmental Monitor for this project to ensure that these protection measures are implemented properly and will provide an education session on the project's proximity to sensitive wetland resources and associated herpetofauna prior to the start of construction activities. The Contractor shall contact Dean Gustafson, Senior Wetland Scientist at APT, at least 5 business days prior to the pre-construction meeting. Mr. Gustafson can be reached by phone at (860) 552-2033 or via email at dgustafson@allpointstech.com.

The proposed wetland and vernal pool protection program consists of several components including: education of all contractors and sub-contractors prior to initiation of work on the site; installation of erosion controls; petroleum materials storage and spill prevention; protective measures; wetland crossing and culvert installation; herbicide and pesticide restrictions; and, reporting.

1. **Contractor Education:**

    a. Prior to work on site and initial deployment/mobilization of equipment and materials, the Contractor shall attend an educational session at the pre-construction meeting with APT. This orientation and educational session will consist of information such as, but not limited to: identification of wetland resources proximate to work areas, representative photographs of typical herpetofauna that may be encountered, Connecticut and Federal listing status of species that could be encountered, typical species behavior, and proper procedures if species are encountered. The meeting will further emphasize the non-aggressive nature of these species, the absence of need to destroy such animals and the need to follow Protective Measures as described in following sections. The Contractor will designate one of its workers as the "Project Monitor", who will receive more intense training on the identification and protection of herpetofauna.

    b. The Contractor will designate a member of its crew as the Project Monitor to be responsible for the periodic "sweeps" for herpetofauna within the construction zone each morning and for any ground disturbance work. This individual will receive more intense training from APT on the

identification and protection of herpetofauna in order to perform sweeps. Any herpetofauna discovered would be translocated outside the work zone in the general direction the animal was oriented.

c. The Contractor's Project Monitor will be provided with cell phone and email contacts for APT personnel to immediately report any encounters with herpetofauna. Educational poster materials will be provided by APT and displayed on the job site to maintain worker awareness as the project progresses.

d. APT will also post Caution Signs throughout the project site for the duration of the construction project providing notice of the environmentally sensitive nature of the work area, the potential for encountering various amphibians and reptiles and precautions to be taken to avoid injury to or mortality of these animals.

2. Erosion and Sedimentation Controls

a. Plastic netting used in a variety of erosion control products (i.e., erosion control blankets, fiber rolls [wattles], reinforced silt fence) has been found to entangle wildlife, including reptiles, amphibians, birds and small mammals. No permanent erosion control products or reinforced silt fence will be used on the project. Temporary erosion control products that will be exposed at the ground surface and represent a potential for wildlife entanglement will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (netless) or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement.

b. Installation of erosion and sedimentation controls, required for erosion control compliance and creation of a barrier too possible migrating/dispersing herpetofauna (only applicable during the seasonal restriction period and will be installed at the discretion of the Environmental Monitor), shall be performed by the Contractor if any soil disturbance occurs or heavy machinery is anticipated to be used on slopes. The Environmental Monitor will inspect the work zone area prior to and following erosion control barrier installation. In addition, work zones in proximity to vernal pool resources will be inspected prior to and following erosion control barrier installation to ensure the area is free of herpetofauna and satisfactorily installed. The intent of the barrier is to segregate the majority of the work zone from migrating/dispersing herpetofauna. Oftentimes complete isolation of a work zone is not feasible due to accessibility needs and locations of staging/material storage areas, etc. In those circumstances, the barriers will be positioned to deflect migrating/dispersal routes away from the work zone to minimize potential encounters with herpetofauna at the discretion of the Environmental Monitor.

c. No equipment, vehicles or construction materials shall be stored within 100 feet of wetland resources.

d. All silt fencing or other potential barriers to safe herpetofauna

migration shall be removed within 30 days of completion of work and permanent stabilization of site soils so that reptile and amphibian movement between uplands and wetlands is not restricted.

3. **Petroleum Materials Storage and Spill Prevention**

a. Certain precautions are necessary to store petroleum materials, refuel and contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill due to the project's location in proximity to wetland resources.

b. A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the Contractor at the construction site throughout the duration of the project. In addition, a waste drum will be kept on site to contain any used absorbent pads/material for proper and timely disposal off site in accordance with applicable local, state and federal laws.

c. The following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor.

i. Petroleum and Hazardous Materials Storage and Refueling
   1. Refueling of vehicles or machinery shall occur a minimum of 100 feet from wetlands or watercourses and shall take place on an impervious pad with secondary containment designed to contain fuels.
   2. Any fuel or hazardous materials that must be kept on site shall be stored on an impervious surface utilizing secondary containment a minimum of 100 feet from wetlands or watercourses.

ii. Initial Spill Response Procedures
   1. Stop operations and shut off equipment.
   2. Remove any sources of spark or flame.
   3. Contain the source of the spill.
   4. Determine the approximate volume of the spill.
   5. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
   6. Ensure that fellow workers are notified of the spill.

iii. Spill Clean Up & Containment
   1. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
   2. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
   3. Isolate and eliminate the spill source.
   4. Contact the appropriate local, state and/or federal agencies, as necessary.
   5. Contact a disposal company to properly dispose of contaminated materials.

iv. Reporting
   1. Complete an incident report.

2. Submit a completed incident report to local, state and federal agencies, as necessary, including the Connecticut Siting Council.

4. Wetland and Vernal Pool Protective Measures

a. A thorough cover search of the construction area will be performed by APT's Environmental Monitor for herpetofauna prior to and following installation of the silt fencing barrier to remove any species from the work zone prior to the initiation of construction activities. Any herpetofauna discovered would be translocated outside the work zone in the general direction the animal was oriented. Periodic inspections will be performed by APT's Environmental Monitor throughout the duration of the construction.

b. Any stormwater management features, ruts or artificial depressions that could hold water created intentionally or unintentionally by site clearing/construction activities will be properly filled in and permanently stabilized with vegetation to avoid the creation of vernal pool "decoy pools" that could intercept amphibians moving toward the vernal pools. Stormwater management features such as level spreaders will be carefully reviewed in the field to ensure that standing water does not endure for more than a 24-hour period to avoid creation of decoy pools and may be subject to field design changes. Any such proposed design changes will be reviewed by the design engineer to ensure stormwater management functions are maintained.

c. Erosion control measures will be removed no later than 30 days following final site stabilization so as not to impede migration of herpetofauna or other wildlife.

5. Wetland Crossing and Culvert Installation

a. The Contractor shall contact APT a minimum of 72 hours prior to construction of the wetland crossing in order to monitor installation of the three culverts.

b. Installation of the three culverts invert elevations shall conform to the project site plans and associated details allowing for slight field adjustments based on existing elevations within the wetland system to ensure that the crossing and culverts will not impeded or adversely impact conveyance of existing surface flows through the wetland system.

6. Herbicide and Pesticide Restrictions

a. The use of herbicides and pesticides at the Facility shall be avoided when possible. In the event herbicides and/or pesticides are required at the Facility, their use will be used in accordance with current Integrated Pest Management ("IPM") principles with particular attention to minimize applications within 100 feet of wetland or watercourse resources. No applications of herbicides or pesticides are allowed within actual wetland or watercourse resources.

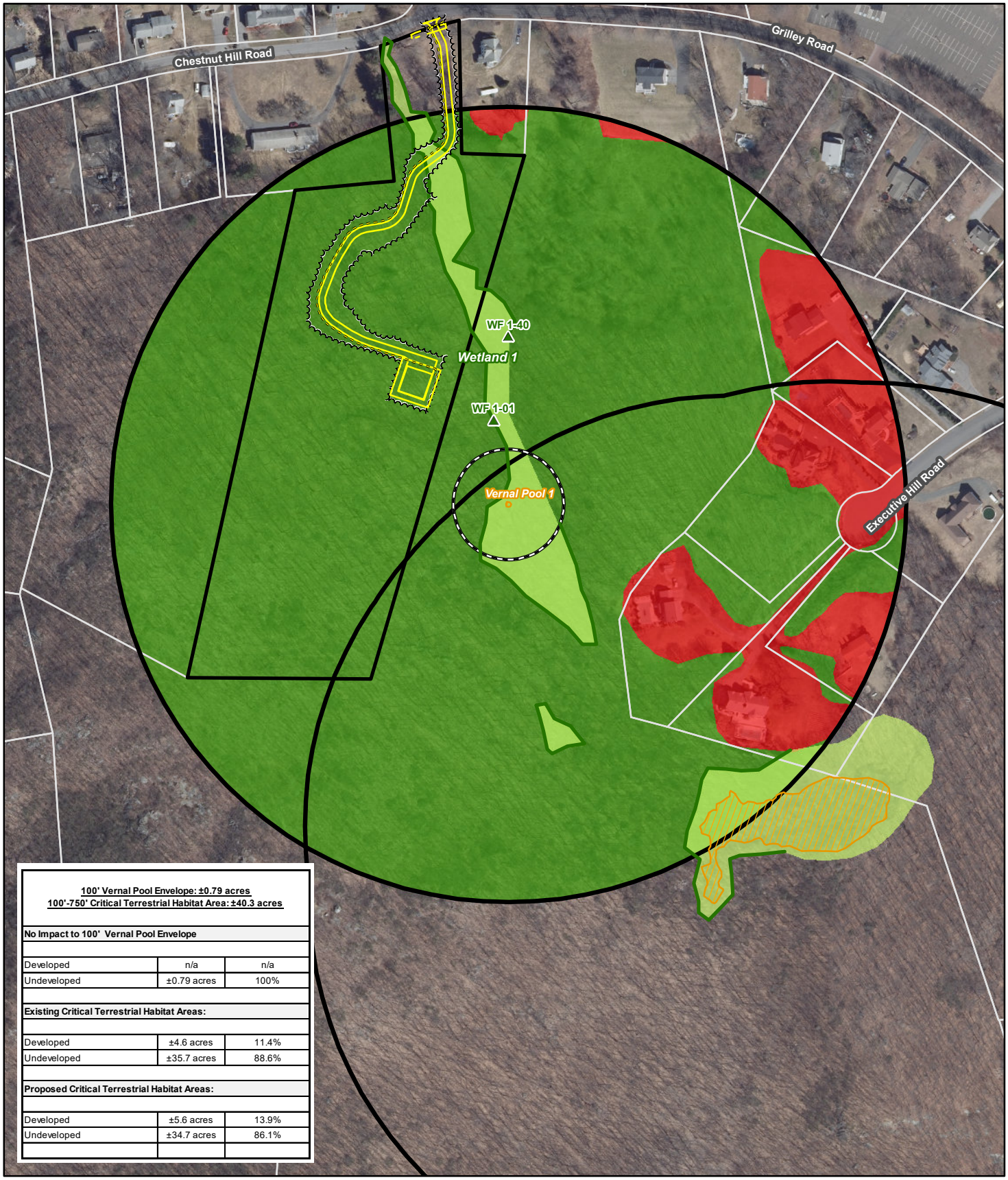
7. Reporting

a. Daily Compliance Monitoring Reports (brief narrative and applicable photos) documenting each APT inspection will be submitted by APT to Verizon Wireless for compliance verification. Any observations of herpetofauna, impacts, or corrective actions will be included in the reports.

b. Following completion of the construction project, APT will provide a Compliance Monitoring Summary Report to Verizon Wireless documenting implementation of the wetland and vernal pool protection program and monitoring observations. Verizon Wireless will provide a copy of the Compliance Monitoring Summary Report to the Connecticut Siting Council for compliance verification.

c. Any observations of rare species will be reported to CTDEEP by APT, with photo-documentation (if possible) and with specific information on the location and disposition of the animal.

Vernal Pool Analysis Map



100' Vernal Pool Envelope: ±0.79 acres 100'-750' Critical Terrestrial Habitat Area: ±40.3 acres		
No Impact to 100' Vernal Pool Envelope		
Developed	n/a	n/a
Undeveloped	±0.79 acres	100%
Existing Critical Terrestrial Habitat Areas:		
Developed	±4.6 acres	11.4%
Undeveloped	±35.7 acres	88.6%
Proposed Critical Terrestrial Habitat Areas:		
Developed	±5.6 acres	13.9%
Undeveloped	±34.7 acres	86.1%

Legend

- Proposed Verizon Wireless Site Layout
- Proposed Verizon Power and Telco Service
- Proposed Limit of Disturbance
- Subject Property
- Vernal Pool
- 100' Vernal Pool Envelope
- 100'-750' Critical Terrestial Habitat Area
- Wetland Flag
- Delineated Wetland Boundary
- Approximate Wetland Area
- Approximate Parcel Boundary (CTDEEP GIS)
- Municipal Boundary

Habitat Type

- Developed
- Undeveloped

Vernal Pool Analysis Map

Proposed Wireless
Telecommunications Facility
Wolcott South CT
Chestnut Hill Road
Wolcott, Connecticut

verizon

Map Notes:
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Scale:1 inch equals 250 feet
Map Date: August 2020

N W E S

250 125 0 250 Feet

ALL-POINTS TECHNOLOGY CORPORATION