

**WETLAND ASSESSMENT**

May 1, 2025

Katy Gagnon, Senior Project Manager
Langan Engineering and Environmental Services
Long Wharf Maritime Center
555 Long Wharf Drive
New Haven, CT 06511

Re: LEARN - Early Childhood School
51 Daniels Avenue, Waterford, Connecticut
APT Job No: CT3611350

Dear Ms. Gagnon,

All-Points Technology Corporation, P.C. ("APT") understands that LEARN - Early Childhood School is acquiring ± 15.36 acres of a ± 19.32 -acre parcel at 51 Daniels Avenue in Waterford, Connecticut to be utilized for a proposed elementary school which will include demolition of the existing buildings, reconfiguration to existing drive aisles and parking areas, along with upgrades to the stormwater infrastructure (the "Project"). This wetland and vernal pool assessment report supplements other materials submitted under separate cover by others as part of the Waterford Conservation Commission ("WCC") Application for Permit ("Application"). The remaining ± 3.96 acres will be retained by the Town of Waterford for development of pickleball courts and a parking area, details of which will be submitted under a separate application. This document provides an assessment of three (3) wetlands and an embedded vernal pool proximate to the Project, which includes a description of the functions and values of the wetlands and vernal pool, a discussion of the Project's proposed activities located in the upland review area and nearby, and an analysis of potential resource impacts associated with the proposed regulated activities. The findings of this report are based on inspections performed of the Project area and nearby wetland/vernal pool resource on September 24, 2024 and April 12, 2025 and review of project site plans prepared by Langan Engineering, dated May 1, 2025 for the Application.

The Project area consists of a ± 19.32 -acre area on the south side of Daniels Avenue currently developed with a school building, associated impervious parking, drive aisles and pervious areas within the north eastern half of the rectangular-shaped parcel. A telecommunications tower facility is also located in the southeastern corner of the property and partially within the upland review area of Wetland 2 as discussed below. Remaining undeveloped portions of the property consist of an athletic field, open grassy and wooded/scrub-shrub areas. Wetlands were identified in proximity to the property along the northeastern, southeastern and southwestern boundaries. Within the northeastern wetland complex, Wetland 1, in proximity to Daniels Avenue, vernal pool habitat was identified and confirmed during the spring 2025 breeding season. Stormwater runoff from the school building and parking areas generally run overland to the west and toward Daniels Avenue to the north and not toward Wetland 1.

Wetland and Vernal Pool Resources

Matthew Gustafson and Emily Perko, Connecticut registered Soil Scientists with APT, performed a wetland inspection of the subject property on September 24, 2024 to identify and delineate wetland resources located on and proximate to the subject property. The wetland delineation methodology was performed in accordance with the Connecticut Inland Wetlands and Watercourses Act. A copy of the Wetland Inspection report, dated October 18, 2024, is enclosed along with representative photographs of the wetland features.

Three distinct wetland areas were identified on or immediately adjacent to the subject property located along the northeastern property boundary (identified as Wetland 1), off property along the southeastern boundary (Wetland 2) and off property near the southwestern boundary (Wetland 3). The 100-foot upland review area for all three delineated wetlands encroach into the subject property. Imbedded within Wetland 1, obligate vernal pool species breeding was also confirmed during a follow-up investigation performed on April 12, 2025. The limits of inundation associated with the vernal pool habitat were surveyed during the spring 2025 inspection. Although potential vernal pool habitat was identified in Wetland 2 during the October 18, 2024 wetland investigation, no vernal pool habitat was identified during the spring 2025 vernal pool inspection as those suspect areas were either found dry or had less than 2 inches of inundation and no evidence of any amphibian breeding. A detailed description of three wetland and one vernal pool resources identified is provided below.

Wetland Descriptions

Wetland 1 is located in the northeastern portion of the subject property, primarily located on the adjacent parcel, consisting of a forested complex dominated by red maple and black gum, with co-dominant of swamp white oak. The understory contains sweet pepperbush and highbush blueberry with multiflora rose along the delineated wetland boundary. The complex is characterized by seasonally saturated edges with a distinct slope break separation to the abutting upland forest to the west that is located on the property. A relatively large depressional area located entirely off the subject property is present within the interior of the wetland generally devoid of vegetation and presents indicators that a foot or more of inundation is present during peak flooding periods. Indicators include buttressed roots and moss trim lines. This depressional area was re-evaluated during the April 12, 2025 inspection to verify vernal pool breeding activity, during which time two (2) vernal pool indicator species spotted salamander (*Ambystoma maculatum*) and wood frog (*Lithobates sylvaticus*) were observed breeding within the flooded extents. Two distinct pockets of breeding within the central and southern portions of the flooded areas were observed with water depths ranging from 1.5 to 3 feet.

Wetland 2 is located off the southeast corner of the subject property on the adjacent parcel. Similar to Wetland 1, saturated edges border interior seasonally flooded areas, although much shallower than Wetland 1. Portions of the complex have experienced varying degrees of historic alteration with a stonewall intersecting the system resulting in altering of the drainage within the southern limits of the identified wetland and a dominance of multiflora rose and green briar present. The overstory was dominated by red maple with inclusions of black gum. The southern and central wetland extents are characterized by a broad transitional area consisting of a shallow slope break.

Wetland 3 is located off the southwest corner of the subject property on the adjacent property. This wetland feature is located at the base of a hillslope within a depressional area with a distinct slope break and rocky poorly drained soils. This isolated feature is dominated by red maple with spicebush and highbush blueberry within the understory. Small areas of shallow seasonal flooding were observed within the depression, which were confirmed to not support vernal pool breeding habitat due to their shallow flooding and short-duration hydroperiod.

Soil Classification

Soil survey information obtained from the Natural Resources Conservation Service ("NRCS") did not identify wetland soil types either within or proximate to the Project area. However, wetlands were encountered during the wetland investigation along the eastern property boundary and off-Property to the west. Based on available information collected during the wetland investigation the mapped wetland soil associated with the wetlands are predominately Ridgebury, Leicester and Whitman soils. Upland soils were examined along the wetland boundary and more distant upland areas during the site investigation. Those soils dominated by the Udorthents-Urban land complex within existing developed areas associated with the vacant school, Paxton and Montauk fine sandy loam in the western half of the property and Woodbridge fine sandy loam in the undeveloped southeastern portion. Detailed descriptions of wetland and upland soil types are provided below.

Wetland Soils:

Ridgebury, Leicester and Whitman (Soil Unit 3) soils consist of very deep, poorly to very drained soils formed in coarse-loamy or lodgement till. They are nearly level or gently sloping soils in depressions, drainageways, and low-lying positions on hills. A perched water table, or excess seepage water, is at or near the surface much of the year.

Upland Soils:

Paxton and Montauk fine sandy loam (Soil Unit 84) consist of well drained loamy soils formed in lodgement till landscapes. They are very deep to the underlying bedrock with a moderate depth to a densic contact. They are nearly level to steep soils on hills, drumlins and till plains.

Woodbridge fine sandy loam (Soil Unit 45) is a moderately well drained loam soil formed in lodgement till. They are very deep to bedrock and moderately deep to a densic contact. They are nearly level to moderately steep soils with slopes ranging from 0 to 25 percent on hills, drumlins, till plains, and ground moraines.

Udorthents-Urban Land Complex (Soil Unit 306) is a miscellaneous land type consisting mostly of disturbed soils (cutting, filling & grading) such that the original soil profile can no longer be discerned, buildings, paved roads and parking lots.

Wetland Evaluation

There are many methods of evaluating wetlands, all incorporating different parameters to assess these resources. This study uses methodology recommended by the Corps, *The Highway Methodology Workbook Supplement, Wetland Functions and Values: A Descriptive Approach* issued by the Corps, dated September 1999. This evaluation provides a qualitative approach in which wetland functions can be considered Principal, Secondary, or unlikely to be provided at a significant level. Functions and values can be Principal if they are an important physical component of a wetland ecosystem (function only), and/or are considered of special value to society, from a local, regional, and/or national perspective. The Corps recommends that wetland values and functions be determined through "best professional judgment" based on a qualitative description of the physical attributes of wetlands and the functions and values exhibited.

The basis for APT's determination of this qualitative approach relies on over 35 years of field experience and extensive knowledge of other scientific methods used for wetland evaluation purposes.

These functions and values can be grouped into four basic categories as follows:

Biological Functions

Fish and Shellfish Habitat — This function considers the effectiveness of seasonal or permanent waterbodies associated with the wetland in question for fish and shellfish habitat.

Wildlife Habitat — This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge.

Production Export (Nutrient) — This function relates to the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Hydrologic Functions

Floodflow Alteration (Storage & Desynchronization) — This function considers the effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events.

Groundwater Recharge/Discharge — This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. Recharge should relate to the potential for the wetland to contribute water to an aquifer. Discharge should relate to the potential for the wetland to serve as an area where groundwater can be discharged to the surface.

Water Quality Functions

Sediment/Toxicant/Pathogen Retention — This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens.

Nutrient Removal/Retention/Transformation — This function relates to the effectiveness of the wetland to prevent adverse effects of excess nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.

Sediment/Shoreline Stabilization — This function relates to the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.

Societal Values

Recreation (Consumptive and Non-Consumptive) — This value considers the effectiveness of the wetland and associated watercourses to provide recreational opportunities such as canoeing, boating, fishing, hunting, and other active or passive recreational activities. Consumptive activities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland, whereas non-consumptive activities do not.

Educational/Scientific Value — This value considers the effectiveness of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage — This value relates to the effectiveness of the wetland or its associated waterbodies to produce certain special values. Special values may include such things as archaeological sites, unusual aesthetic quality, historical events, or unique plants, animals, or geologic features.

Visual Quality/Aesthetics — This value relates to the visual and aesthetic qualities of the wetland.

Threatened or Endangered Species Habitat — This value relates to the effectiveness of the wetland or associated waterbodies to support threatened, endangered or special concern species.

The degree to which a wetland provides each of these functions is determined by one or more of the following factors: landscape position, substrate, hydrology, vegetation, history of disturbance, and size. Each wetland may provide one or more of the listed functions at Principal levels.

The determining factors that affect the level of function provided by a wetland can often be broken into two categories. The effectiveness of a wetland to provide a specified function is generally dependent on factors within the wetland whereas the opportunity to provide a function is often influenced by the wetland's position in the landscape and adjacent land uses. For example, a depressed wetland with a restricted outlet may be considered highly effective in trapping sediment due to the long residence time of runoff water passing through the system. If this wetland is located in gently sloping woodland, however, there is no significant source of sediment in the runoff therefore the wetland is considered to have a small opportunity of providing this function.

Biological Functions:

The ecological integrity of all three Wetlands have been compromised due to proximity to developed areas, historic alteration of Wetland 2 and the relatively small size of Wetland 3. From a comparative perspective, Wetland 1 has the highest ecological quality: however, fragmented upland habitat buffering this wetland from the existing on-site development, Daniels Avenue to the north and residential properties to the east has diminished some of the wetland's biological functions. As a result, wildlife utilization would largely be used by generalists and species habituated to the high level of human activity that exists both on the subject property and in the surrounding area. Wetland 1 maintains sufficient hydrology to support vernal pool breeding habitat throughout the complex but does not maintain permanent inundation to support finfish habitat. Although the ecological integrity of these wetlands has been compromised, wildlife habitat function is supported within Wetland 1 at a Principal level due in part to the vernal pool habitat but not at a significant capacity in Wetlands 2 and 3.

All three wetlands consist of a common vegetative class of palustrine forest cover type with shrub and herbaceous understory. However, there is not a large diversity of wetland cover types so there is a limited potential to produce food for several different types of wildlife that require diverse or specific wetland habitats beyond the forest habitat that is present. Therefore, these wetlands were assessed as supporting the production export (nutrient) function at a Secondary level based on the fruit bearing shrubs observed in the three resource areas.

Hydrologic Functions:

Wetlands 1, 2 and 3 do not border on a perennial watercourse with an active floodplain, and floodflow alteration is only supported at a Secondary level within Wetland 1 due to the potential for this system to support flood storage from stormwater runoff since it essentially functions as a confined basin. This function is not supported within Wetlands 2 or 3 due to the small size of these features.

All three wetlands receive groundwater discharges from hillside seepage providing the potential for both water discharge and recharge to the local groundwater. Wetland 1 was

assessed as supporting the groundwater discharge/recharge function at a Principal level due to its larger size while Wetlands 2 and 3 support this function at a Secondary level due to their relatively small size.

Water Quality:

The developed surrounding environment provides an opportunity for all three wetlands to support sediment/toxicant/pathogen retention and nutrient removal/retention/transformation functions. Wetland 1 receives stormwater from the subject property through sheet flow. Based on the resource size and location of Wetland 1 there is a potential to support these water quality functions in a Secondary level. Due to the relatively small sizes of Wetlands 2 and 3 there is limited potential to support this function in any significant capacity.

None of the wetlands have the potential for sediment/shoreline stabilization since they do not border on a perennial stream or open water body that would generate high flow velocities during storm events or from wave action.

Societal Values:

Wetland 1, consisting of a forested wetland type that supports vernal pool habitat is easily accessible by the public, and is associated with a school, supports an opportunity for various societal values. However, due to a lack of hunting or fishing opportunities, this wetland supports recreation value at a Secondary level. This wetland supports educational/scientific value at a Principal level due to the ease of access, proximity to a unique wetland habitat with breeding by vernal pool species, and future use of the property as a public school. In addition, this wetland supports visual/aesthetics value at a Secondary level due to the proximity of development and obstructive intervening vegetation from any publicly viewable areas. The uniqueness/heritage value of this wetland is diminished by the lack of: archaeological sites; unusual aesthetic quality; historical events; or unique plants, animals, or geologic features. As such, Wetland 1 does not support the uniqueness/heritage value at a Principle or Secondary level. Due to their small size and lack of unique characteristics, Wetlands 2 and 3 do not support any of these functions and values in a significant capacity.

Urban wetland quality values are supported by Wetland 1 at a Secondary level, since this wetland is generally surrounded by development but does support some habitat for wildlife particularly for vernal pool species. Wetlands 2 and 3 do not support this value in a significant capacity due to their small size and lack of diverse habitat.

Threatened or Endangered Species Habitat:

No State-listed Threatened, Endangered or Special Concern species are known to utilize the subject property, or its wetlands based on available mapping (December 2024) from the Connecticut Department of Energy & Environmental Protection ("DEEP") Natural Diversity Data Base ("NDDDB"). The nearest NDDDB buffer area is located ± 0.18 mile to the northeast in nearby Millstone Brook riparian corridor. As such, consultation with DEEP NDDDB is not required for this project. Due to the relatively small forest patch size, limited size of these wetland resources through development on the subject property and abutting properties, the potential wildlife habitat value for rare species would be limited and is not considered to be supported at either a Principle or Secondary level.

Proposed Activities

The following section summarizes development activities. The WCC regulates activities in wetland and watercourses and upland areas within 100 feet of wetlands and watercourses, known as an upland review area ("URA") that are likely to impact wetlands and watercourses and not otherwise deemed as-of-right or non-regulated activities.

The proposed redevelopment will avoid direct wetland impacts. As previously discussed, Wetland 1 is located mainly off the subject property with the vernal pool habitat located off site and Wetlands 2 and 3 are entirely located off the property. However, due to the proximity of all wetlands to the subject property, the 100-foot URA encroaches on to the property. The proposed redevelopment will avoid encroachment into most of the URA with one exception. A small ± 200 SF portion of the proposed perimeter sidewalk that will surround the entire LEARN school will just encroach into the URA of Wetland 2 with associated grading and limit of disturbance encompassing an additional ± 800 SF of the URA; total activity in the URA is $\pm 1,000$ SF. This relatively small area of regulated activity in the URA is currently comprised of maintained lawn associated with the nearby athletic field. In addition, a gravel access road that provides access to the telecommunications facility (approved by this Commission in 2012) is located between the proposed sidewalk and Wetland 2. Additionally, the redevelopment project avoids any encroachment into areas within 100 feet of the vernal pool in Wetland 1. As a result, the proposed redevelopment will not impact the vernal pool habitat or intercept migratory corridors or forested habitat used by the identified vernal pool species.

The project has been designed to avoid direct stormwater discharges to wetland resource areas while maintaining existing drainage patterns and hydrology inputs to the wetland areas to the maximum extent practicable. The proposed stormwater management system incorporates a variety of stormwater quality measures including catch basins with sumps, ADS Stormtech Isolator Rows, hydrodynamic separators, and belowground and aboveground infiltration basins. These treatment measures will properly control peak runoff rates, retain all of the project's post-development retention volume, and provide proper renovation of the water quality volume, resulting in a significant improvement over the current stormwater management system to the benefit of the receiving wetlands. The proposed stormwater management system substantially achieves the stormwater volume, rate, and average annual pollutant load reduction requirements as per the recommendations of the 2024 *Connecticut Stormwater Quality Manual*.

Wetland and Vernal Pool Impact Analysis

The fundamental concept of wetland and vernal pool impact analysis is based on the precept that wetland and vernal pool impacts should first be avoided where possible. Secondly, if practicable alternatives do not exist to avoid wetland impacts, then impacts should be minimized. Thirdly, mitigation should be considered for unavoidable wetland impacts, with consideration given to the loss of wetland functions and values that are important to the local region.

As previously discussed, the LEARN - Early Childhood School redevelopment will avoid any direct impact to wetlands or vernal pool resources.

Areas of proposed activity within Wetland 2's 100-foot URA, which total $\pm 1,000$ SF, are proposed to occur within an existing maintained open field associated with the nearby athletic field that is routinely mowed. Impacted and degraded areas currently exist in closer proximity to Wetland 2 associated with the telecommunications facility and gravel access drive. Upland review areas can serve a number of important functions that support wetlands and watercourses including water quality protection (erosion control and sediment, nutrient, biological and toxics removal), hydrologic event modification

and wildlife habitat. However, considering the existing developed and disturbed nature of this particular upland review area, such functions are not being supported in a significant capacity.

Construction and operation of the school would not result in direct physical impact to Vernal Pool 1 or impact within 100 feet of the vernal pool edge. It is widely documented that vernal pool dependent amphibians are not solely reliant upon the actual vernal pool, which is limited to use for breeding and egg/larval development, and require surrounding upland forest habitat for most of their adult lives. Intact forest represents the highest value, or optimal, habitat within the VPE and adjacent areas to support breeding opportunities for the various obligate vernal pool indicator species that rely on forested habitat (e.g., wood frog and spotted salamander). The US Army Corps of Engineers New England District's *Vernal Pool Best Management Practices* ("BMPs") also establish the concept of "directional corridors" (identified herein as "Migratory Corridors"). Identification of Migratory Corridors allow a project to evaluate potential impacts to optimal pool-breeding amphibian habitat that focuses on conserving the most essential habitats which link breeding pools, forested wetlands, and forested uplands. These interrelated habitats form essential migratory corridors at a landscape scale level. The location of Migratory Corridors is established through an evaluation of both wetland and terrestrial habitat structure qualities (e.g., vegetative cover types, width of vegetated buffer, soil surface moisture, thickness of duff layer, abundance of cover objects, etc.) that determines the locations of "Suitable Non-Breeding Habitat" and "Non-Habitat" in proximity to the vernal pool. Non-habitat areas such as developed areas, maintained lawn, and large expanses of impervious surface do not support Migratory Corridors due to the lack of sufficient vegetative conditions which are often associated with higher levels of predation and high level of human activity that can result in direct mortality. For the subject property which is dominated by the existing school development and includes the school building, relatively large areas of paved parking and access, and regularly maintained athletic fields and lawn, represents a large area of Non-Habitat located west of Vernal Pool 1. This large area of Non-Habitat provides no vegetative cover for migratory wood frogs or salamanders, which would expose these amphibians to desiccation and high levels of predation. This existing development separates the vernal pool habitat from other forested areas thereby eliminating a potential Migratory Corridor to the west.

Migratory Corridors occur in areas that link vernal pools and Suitable Non-Breeding Habitat, which consists of (both forested wetland and upland habitats). The principal Migratory Corridors associated with Vernal Pool 1 are located to the south and east of the resource area linking adjacent and somewhat continuous upland and wetland forested habitats. Although residential properties are located proximate to these Migratory Corridors, there is significantly less landscape-level anthropogenic changes when compared to the expansive school development, that still maintains a relatively large forested habitat block to accommodate these Migratory Corridors. The proposed redevelopment does not intercept this Migratory Corridor.

There is the potential for short term wetland impacts during construction due to the proximity of wetland resources and proposed site work associated with grading and vegetation removal activities. The potential for these short-term impacts is mitigated with the implementation and maintenance of a comprehensive soil erosion and sediment control plan, as detailed on the separately attached project site plans that were developed in accordance with *2024 Connecticut Guidelines For Soil Erosion and Sediment Control*. The installation of silt fence and employment of additional erosion control Best Management Practices ("BMPs") would function as an effective isolation barrier for possible migrating herpetofauna from encountering construction. Additionally, a Wetland and Vernal Pool Protection Plan will include contractor education and awareness signage of the nearby sensitive wetland resources, including the vernal pool habitat and associated herpetofauna (i.e., wood frog, salamanders, turtles, snakes, etc.) that could be encountered.

Wetland and Vernal Pool Protection Plan

As a result of the proposed development's location in the vicinity of wetlands and vernal pool, the following protection plan is provided to avoid unintentional impact to wetland and vernal pool habitats and associated herpetofauna during construction activities. Complete details of the recommended wetland and vernal pool are enclosed with a summary provided below. Upon permit approval, this protection plan will be incorporated into the construction drawings to ensure the Contractor is fully aware of the project's environmentally sensitive setting and the required protection measures.

A wetland scientist from APT experienced in compliance monitoring of construction activities will serve as the Environmental Monitor for this project to ensure that the following BMPs are implemented properly. The proposed wetland and vernal pool protection program consists of several components including: periodic inspection and maintenance of erosion controls and isolation structures; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; wildlife sweeps to remove any wildlife from work areas; and reporting.

APT recommends establishing a wetland and vernal pool protection program consisting of contractor awareness training prior to initiation of construction activities. The contractor training session would stress the sensitive nature of the project, what species might be encountered and what to do if they are present. In addition, the wetland protection program would include an initial inspection of the silt fence erosion and sedimentation controls that will serve double duty as a restrictive barrier to possible species dispersal into the construction site from the nearby wetland and vernal pool. Provided the wetland protection program is properly implemented during construction, it is APT's opinion that potential short-term impacts to nearby wetland and vernal pool resources would not occur.

Mitigation

Since the proposed addition and renovation activities will not directly impact wetland resources and are limited to activities within the existing developed/disturbed upland review area, no mitigation is considered necessary. APT will perform contractor education training at a pre-construction meeting to review the environmentally sensitive nature of the project area, where wetland and vernal pool resources are located and the need to ensure protection of those resources during construction through implementation and maintenance of the soil erosion and sediment control plan. APT will also posting notice signs to highlight the environmentally sensitive nature of the subject property to maintain diligence by the contractor throughout the construction project duration.

Summary and Conclusion

The LEARN - Early Childhood School redevelopment project will not directly impact wetland or vernal pool resources. In addition, activities proposed in the 100-foot URA will be limited to existing developed and disturbed areas and only encompass a relatively small $\pm 1,000$ SF area. A comprehensive suite of erosion and sedimentation control measures in addition to a Wetland and Vernal Pool Protection Plan will be implemented during construction to prevent direct and indirect impacts to nearby wetland and vernal pool resources during construction.

Considering the proposed development activities avoid any direct wetland and vernal pool impact, work is limited to the outer URA within an existing degraded and maintained area, and extensive protection measures will be employed during construction activities, it is our professional opinion that no likely adverse impact to wetland and vernal pool resources would result.

Based on the findings of this assessment, we respectfully request that the Town of Waterford Conservation Commission serving as the Inland Wetlands Agency find this project and the various conservation and mitigation measures are adequately protective of the interests contained in the Town of Waterford Inland Wetlands and Watercourses Regulations and issue a wetland permit approving the proposed regulated activity.

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

Sincerely,

All-Points Technology Corporation, P.C.



Dean Gustafson
Professional Soil Scientist
Senior Wetland Scientist

Enclosures

Wetland Inspection Report



WETLAND INSPECTION

October 18, 2024

APT Project No.: CT3611350

Prepared For: Langan Engineering and Environmental Services
Long Wharf Maritime Center
555 Long Wharf Drive, New Haven, CT 06511

Site Address: 51 Daniels Avenue, Waterford, Connecticut

Date of Investigation: 9/25/2024

Field Conditions: **Weather:** cloudy, mid 60's
Soil Moisture: dry to moist

Wetland/Watercourse Delineation Methodology¹:

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

Municipal Upland Review Area: Wetlands: 100 feet **Watercourses:** 100 feet

The wetlands inspection was performed by²:

Matthew Gustafson, Registered Soil Scientist

Enclosures: Wetland Delineation Field Forms & Wetland Inspection Map

This report is provided as a brief summary of findings from APT's wetland investigation of the referenced Study Area that consists of proposed development activities and areas generally within 200 feet.³ If applicable, APT is available to provide a more comprehensive wetland impact analysis upon receipt of site plans depicting the proposed development activities and surveyed location of identified wetland and watercourse resources.

¹ Wetlands and watercourses were delineated in accordance with applicable local, state and federal statutes, regulations and guidance.

² All established wetlands boundary lines are subject to change until officially adopted by local, state, or federal regulatory agencies.

³ APT has relied upon the accuracy of information provided by Langan Engineering and Environmental Services regarding the location and limits of the Study Area for the purposes of identifying wetlands and watercourses.

Attachments

- Wetland Delineation Field Forms
- Wetland Inspection Map

Wetland Delineation Field Form

Wetland I.D.:	Wetland 1	
Flag #'s:	WF 1-01 to 1-22	
Flag Location Method:	Site Sketch ☒	GPS (sub-meter) located ☒

WETLAND HYDROLOGY:

NONTIDAL ☒

Intermittently Flooded ☐	Artificially Flooded ☐	Permanently Flooded ☐
Semipermanently Flooded ☐	Seasonally Flooded ☒	Temporarily Flooded ☐
Permanently Saturated ☐	Seasonally Saturated/seepage ☒	Seasonally Saturated/perched ☐
Comments: Wetland 1 consist of a seasonally flooded interior with bordering saturated edges following a distinct slope break to the abutting upland forest.		

TIDAL ☐

Subtidal ☐	Regularly Flooded ☐	Irregularly Flooded ☐
Irregularly Flooded ☐		
Comments: None		

WETLAND TYPE:

SYSTEM:

Estuarine ☐	Riverine ☐	Palustrine ☒
Lacustrine ☐	Marine ☐	
Comments: None		

CLASS:

Emergent ☐	Scrub-shrub ☐	Forested ☒
Open Water ☐	Disturbed ☐	Wet Meadow ☐
Comments: Closed canopy hardwood forest consisting of red maple and black gum with co-dominant swamp white oak		

WATERCOURSE TYPE:

Perennial ☐	Intermittent ☐	Tidal ☐
Watercourse Name: None		
Comments: None		

Wetland Delineation Field Form (Cont.)

SPECIAL AQUATIC HABITAT:

Vernal Pool Yes ☐ No ☐ Potential ☒	Other ☐
Vernal Pool Habitat Type: 'Cryptic'	
Comments: A large depressional area was identified void of vegetation containing buttressed roots and moss trim lines indicating inundation is present during month of elevated water levels. This depressional area did not contain any flooding at the time of inspection. An adult wood frog was observed within the depressional limits. It is recommended a formal vernal pool investigation be performed during the spring breeding season to determine the presence of obligate vernal pool breeding.	

SOILS:

Are field identified soils consistent with NRCS mapped soils?	Yes ☒	No ☐
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DOMINANT PLANTS:

Red Maple (<i>Acer rubrum</i>)	Black Gum (<i>Nyssa sylvatica</i>)
Swamp White Oak (<i>Quercus bicolor</i>)	Sweet Pepperbush (<i>Clethra alnifolia</i>)
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	Multiflora Rose* (<i>Rosa multiflora</i>)
Sensitive Fern (<i>Onoclea sensibilis</i>)	Cinnamon Fern (<i>Osmunda cinnamomea</i>)
Poison Ivy (<i>Toxicodendron radicans</i>)	Greenbrier (<i>Smilax rotundifolia</i>)

* denotes Connecticut Invasive Species Council invasive plant species

GENERAL COMMENTS:

All-Points Technology Corp., P.C. ("APT") investigated property at 51 Daniels Avenue in Waterford, Connecticut ("Site"). The ±20-acre town-owned parcel is developed with the former Waterford Dual Language & Arts Magnet Middle School, which is currently vacant, and wireless telecommunications facility located in the southeast corner of the Site. The vacant school building and associated infrastructure occupies the northern and central portion of the Site along with open fields that extend to the western and southern portions of the property. Successional forest and scrub/shrub habitats are present along the Site's eastern and western boundaries. APT soil scientists identified and delineated three (3) wetland systems that are primarily located on adjacent parcels with some encroachment into the Site.

Wetland 1 is located in the northeastern portion of the Site, primarily located on the adjacent parcel, consisting of a forested complex dominated by red maple and black gum, with co-dominant of swamp white oak. The understory contains sweet pepperbush and highbush blueberry with multiflora rose along the delineated wetland boundary. The complex is characterized by seasonally saturated edges with a distinct slope break separation to the abutting upland forest to the west that is located on the Site. A large depressional area is present within the interior of the wetland generally devoid of vegetation and presents indicators that a foot or more of inundation is present during peak flooding periods. Indicators include buttressed roots and moss trim lines. This depressional area, which appears to be entirely located on the adjacent property, has the potential to support breeding habitat for vernal pool indicator species.

Wetland Delineation Field Form

Wetland I.D.:	Wetland 2	
Flag #'s:	WF 2-01 to 2-14	
Flag Location Method:	Site Sketch ☒	GPS (sub-meter) located ☒

WETLAND HYDROLOGY:

NONTIDAL ☒

Intermittently Flooded ☐	Artificially Flooded ☐	Permanently Flooded ☐
Semipermanently Flooded ☐	Seasonally Flooded ☒	Temporarily Flooded ☐
Permanently Saturated ☐	Seasonally Saturated/seepage ☒	Seasonally Saturated/perched ☐
Comments: Wetland 2 consists of a seasonally saturated complex with interior seasonal flooding containing two depressional areas.		

TIDAL ☐

Subtidal ☐	Regularly Flooded ☐	Irregularly Flooded ☐
Irregularly Flooded ☐		
Comments: None		

WETLAND TYPE:

SYSTEM:

Estuarine ☐	Riverine ☐	Palustrine ☒
Lacustrine ☐	Marine ☐	
Comments: None		

CLASS:

Emergent ☐	Scrub-shrub ☐	Forested ☒
Open Water ☐	Disturbed ☐	Wet Meadow ☐
Comments: Forested complex dominated by red maple with co-dominant black gum.		

WATERCOURSE TYPE:

Perennial ☐	Intermittent ☐	Tidal ☐
Watercourse Name: None		
Comments: None		

Wetland Delineation Field Form (Cont.)

SPECIAL AQUATIC HABITAT:

Vernal Pool Yes ☐ No ☐ Potential ☒	Other ☐
Vernal Pool Habitat Type: 'Cryptic'	
Comments: Two potential vernal pools were identified within seasonally flooded areas in the northern and southern limits of the complex. It is recommended that a formal vernal pool investigation be performed during the spring breeding season to determine the presence of obligate vernal pool breeding.	

SOILS:

Are field identified soils consistent with NRCS mapped soils?	Yes ☒	No ☐
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DOMINANT PLANTS:

Red Maple (<i>Acer rubrum</i>)	Highbush Blueberry (<i>Vaccinium corymbosum</i>)
Multiflora Rose* (<i>Rosa multiflora</i>)	Sweet Pepperbush (<i>Clethra alnifolia</i>)
Greenbrier (<i>Smilax rotundifolia</i>)	Royal Fern (<i>Osmunda regalis</i>)
Sensitive Fern (<i>Onoclea sensibilis</i>)	Cinnamon Fern (<i>Osmunda cinnamomea</i>)
Poison Ivy (<i>Toxicodendron radicans</i>)	Black Gum (<i>Nyssa sylvatica</i>)

* denotes Connecticut Invasive Species Council invasive plant species

GENERAL COMMENTS:

Wetland 2 is located off the southeast corner of the Site on the adjacent property. Similar to Wetland 1, saturated edges border interior seasonally flooded areas. Potential vernal pool habitat was identified within the northern and southern extents of the system. Portions of the complex have experienced varying degrees of historic alteration with a stonewall intersecting the system resulting in altering of the drainage within the southern limits and a dominance of multiflora rose and green briar present. The overstory was dominated by red maple with inclusions of black gum. The southern and central wetland extents are characterized by a broad transitional area consisting of a shallow slope break.

Wetland Delineation Field Form

Wetland I.D.:	Wetland 3	
Flag #'s:	WF 3-01 to 3-05	
Flag Location Method:	Site Sketch ☒	GPS (sub-meter) located ☒

WETLAND HYDROLOGY:

NONTIDAL ☒

Intermittently Flooded ☐	Artificially Flooded ☐	Permanently Flooded ☐
Semipermanently Flooded ☐	Seasonally Flooded ☐	Temporarily Flooded ☐
Permanently Saturated ☐	Seasonally Saturated/seepage ☒	Seasonally Saturated/perched ☐
Comments: Wetland 3 consists of a seasonally saturated depressional area at the base of a hillslope.		

TIDAL ☐

Subtidal ☐	Regularly Flooded ☐	Irregularly Flooded ☐
Irregularly Flooded ☐		
Comments: None		

WETLAND TYPE:

SYSTEM:

Estuarine ☐	Riverine ☐	Palustrine ☒
Lacustrine ☐	Marine ☐	
Comments: None		

CLASS:

Emergent ☐	Scrub-shrub ☐	Forested ☒
Open Water ☐	Disturbed ☐	Wet Meadow ☐
Comments: Wetland 3 is characterized by a closed canopy hardwood forest dominated by red maple.		

WATERCOURSE TYPE:

Perennial ☐	Intermittent ☐	Tidal ☐
Watercourse Name: None		
Comments: None		

Wetland Delineation Field Form (Cont.)

SPECIAL AQUATIC HABITAT:

Vernal Pool Yes ☐ No ☒ Potential ☐	Other ☐
Vernal Pool Habitat Type: None	
Comments: None	

SOILS:

Are field identified soils consistent with NRCS mapped soils?	Yes ☒	No ☐
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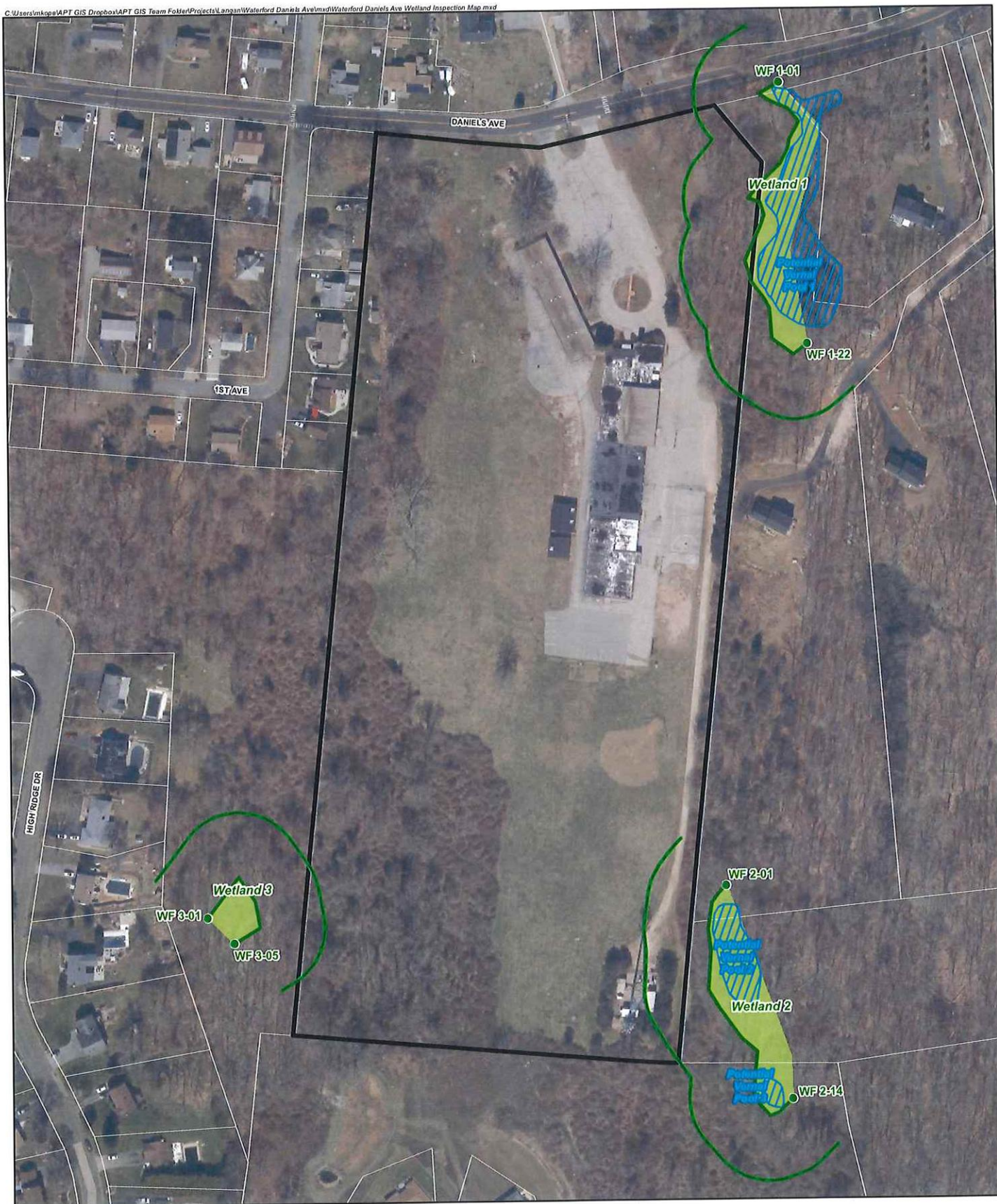
DOMINANT PLANTS:

Red Maple (<i>Acer rubrum</i>)	Spicebush (<i>Lindera benzoin</i>)
Multiflora Rose* (<i>Rosa multiflora</i>)	Highbush Blueberry (<i>Vaccinium corymbosum</i>)
Poison Ivy (<i>Toxicodendron radicans</i>)	

* denotes Connecticut Invasive Species Council invasive plant species

GENERAL COMMENTS:

Wetland 3 is located off the southwest corner of the Site on the adjacent property. This wetland feature is located at the base of a hillslope within a depressional area with a distinct slope break and rocky poorly drained soils. This isolated feature is dominated by red maple with spicebush and highbush blueberry within the understory. Small areas of shallow seasonal flooding were observed within the depression, which are unlikely support vernal pool breeding habitat due to their apparent shallow flooding and anticipate short-duration hydroperiod.



Legend

- Site
- Wetland Flag
- 100' Upland Review Area
- Delineated Wetland Boundary
- Approximate Wetland Area
- Approximate Parcel Boundary

Map Notes:
 Base Map Source: 2019 CT Aerial Imagery (CTECO)
 Map Scale: 1 inch = 200 feet
 Map Date: September 2024



Wetland Inspection Map

51 Daniels Avenue
 Waterford, Connecticut

Wetland and Vernal Pool Protection Program

ENVIRONMENTAL NOTES - RESOURCES PROTECTION PROGRAM

WETLAND AND VERNAL POOL PROTECTION MEASURES

As a result of the project's location in the vicinity of sensitive habitats including wetland resources and vernal pool habitat, the following Protection Program shall be implemented by the Contractor to avoid unintentional impacts to proximate wetland and vernal pool resources during construction activities. Details of protection measures to be implemented in association with construction and maintenance of the facility are provided below.

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. The protection measures shall be implemented and maintained throughout the duration of construction activities until permanent stabilization of site soils has occurred.

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 wetlands 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.

This resources 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 and vernal pool protection measures; herbicide, pesticide, and salt restrictions; and reporting.

1. Contractor Education:

- a. Prior to work on site, the Contractor shall attend an educational session at the pre-construction meeting with APT. This orientation and educational session will consist of an introductory meeting with APT to emphasize the environmentally sensitive nature of the project, the various wetland and vernal pool resources, and the requirement to diligently follow the Protective Measures as described in sections below. Workers will also be provided information regarding the identification of turtles, snakes, and common herpetofauna that could be 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.
- b. The Town of Waterford Environmental Planner will be notified a minimum of 72 hours in advance of the pre-construction meeting with an invitation to attend.
- c. The Contractor will designate a member of its crew as the Project Monitor to be responsible for the periodic "sweeps" for turtles and other 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.

- d. The Contractor's Project Monitor will be provided with cell phone and email contacts for APT personnel. Educational poster materials will be provided by APT and displayed on the job site to maintain worker awareness as the project progresses.
- e. 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.
- f. If any rare species are encountered, the Contractor shall immediately cease all work, avoid any disturbance to the species, and contact APT.

2. Erosion and Sedimentation Controls/Isolation Barriers

- 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. Exclusionary fencing shall be at least 20 inches tall and must be secured to and remain in contact with the ground and be regularly maintained by the contractor (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through.
- c. The extent of the erosion controls will be as shown on the site plans. The Contractor shall have additional sedimentation and erosion controls stockpiled on site should field or construction conditions warrant extending devices. In addition to the Contractor making these determinations, requests for additional controls will also be at the discretion of the Environmental Monitor.
- d. Installation of sedimentation and erosion controls, required for erosion control compliance and creation of a barrier to possible migrating/dispersing turtles, shall be performed by the Contractor following clearing activities and prior to any earthwork. The Environmental Monitor will inspect the work zone area prior to and following erosion control barrier installation to ensure the area is free of amphibians and reptiles and document barriers have been satisfactorily installed. The intent of the barrier is to segregate the majority of the work zone and isolate it from nesting/foraging/migrating/dispersing turtles, snakes and other herpetofauna. Oftentimes complete isolation of a work zone is not feasible due to accessibility needs and locations of staging/material storage areas, etc. Although the barriers may not completely isolate the work zone, they will be positioned to deflect

migrating/dispersal routes away from the work zone to minimize potential encounters with turtles, snakes and other herpetofauna.

- e. The Contractor shall be responsible for daily inspections of the sedimentation and erosion controls for tears or breaches and accumulation levels of sediment, particularly following storm events that generate a discharge, as defined by and in accordance with applicable local, state and federal regulations. The Contractor shall notify the APT Environmental Monitor within 24 hours of any breaches of the sedimentation and erosion controls and any sediment releases beyond the perimeter controls that impact wetlands, watercourses, or areas within 100 feet of wetlands. The APT Environmental Monitor will provide periodic inspections of the sedimentation and erosion controls throughout the duration of construction activities only as it pertains to their function to protect nearby wetlands. Such inspections will generally occur once per month. The frequency of monitoring may increase depending upon site conditions, level of construction activities in proximity to sensitive receptors, or at the request of regulatory agencies. If the Environmental Monitor is notified by the Contractor of a sediment release, an inspection will be scheduled specifically to investigate and evaluate possible impacts to wetland resources.
- f. Third party monitoring of sedimentation and erosion controls will be performed by other parties, as necessary, under applicable local, state and/or federal regulations and permit conditions.
- g. No equipment, vehicles or construction materials shall be stored within 100 feet of wetland or watercourse resources.
- h. All silt fencing and other erosion control devices shall be removed within 30 days of completion of work and permanent stabilization of site soils. If fiber rolls/wattles, straw bales, or other natural material erosion control products are used, such devices will not be left in place to biodegrade and shall be promptly removed after soils are stable so as not to create a barrier to wildlife movement. Seed from seeding of soils should not spread over fiber rolls/wattles as it makes them harder to remove once soils are stabilized by vegetation.

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. If a Spill Prevention Control and Countermeasure (SPCC) Plan for this project, per the requirements of 40 CFR 112, has been developed for this facility, please refer to the SPCC for specific requirements. Basic requirements for petroleum materials storage and spill prevention are provided below. In the event these basic requirements contradict the SPCC, the Contractor shall rely on requirements provided in the SPCC.
- c. 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.

- d. The service of machinery shall not occur within 100 feet of wetlands or watercourses.
- e. At a minimum, 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 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.
 - 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 wetlands and vernal pool.
 - 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 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 Town of Waterford.

4. Wetland and Vernal Pool Protective Measures

- a. A thorough cover search of the construction area will be performed by APT's Environmental Monitor prior to and following installation of the silt fencing barrier to remove any wildlife from the work zone prior to the initiation of any vegetation removal and construction activities. Any wildlife 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, generally on a monthly basis.

- 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 "decoy pools" that could intercept amphibians potentially moving through the project area. 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 wildlife movements.

5. Reporting

- a. A Compliance Monitoring Report (brief narrative and applicable photos) documenting each APT inspection will be submitted by APT to the Permittee and its Contractor for compliance verification of these protection measures. These reports are not to be used to document compliance with any other permit agency approval conditions (i.e., CTDEEP Stormwater Permit monitoring, etc.). Any non-compliance observations of erosion control measures or evidence of erosion or sediment release will be immediately reported to the Permittee and its Contractor and included in the reports. Any observations of rare species, resource impacts, or corrective actions will be included in the reports.
- a. Following completion of the construction project, APT will provide a final Compliance Monitoring Report to the Permittee documenting implementation of this wetland and vernal pool protection program and monitoring observations. The Permittee is responsible for providing a copy of the final Compliance Monitoring Report to the Town of Waterford Environmental Planner for compliance verification.
- b. Any observations of rare species will be reported to CTDEEP NDDB by APT on the appropriate reporting form, with photo-documentation (if possible) and specific information on the location and disposition of the animal.

Photo Documentation



Photo 1: Overview of Wetland 1 looking southeast.



Photo 2: View of southern portion of Wetland 1 looking south at potential vernal pool.

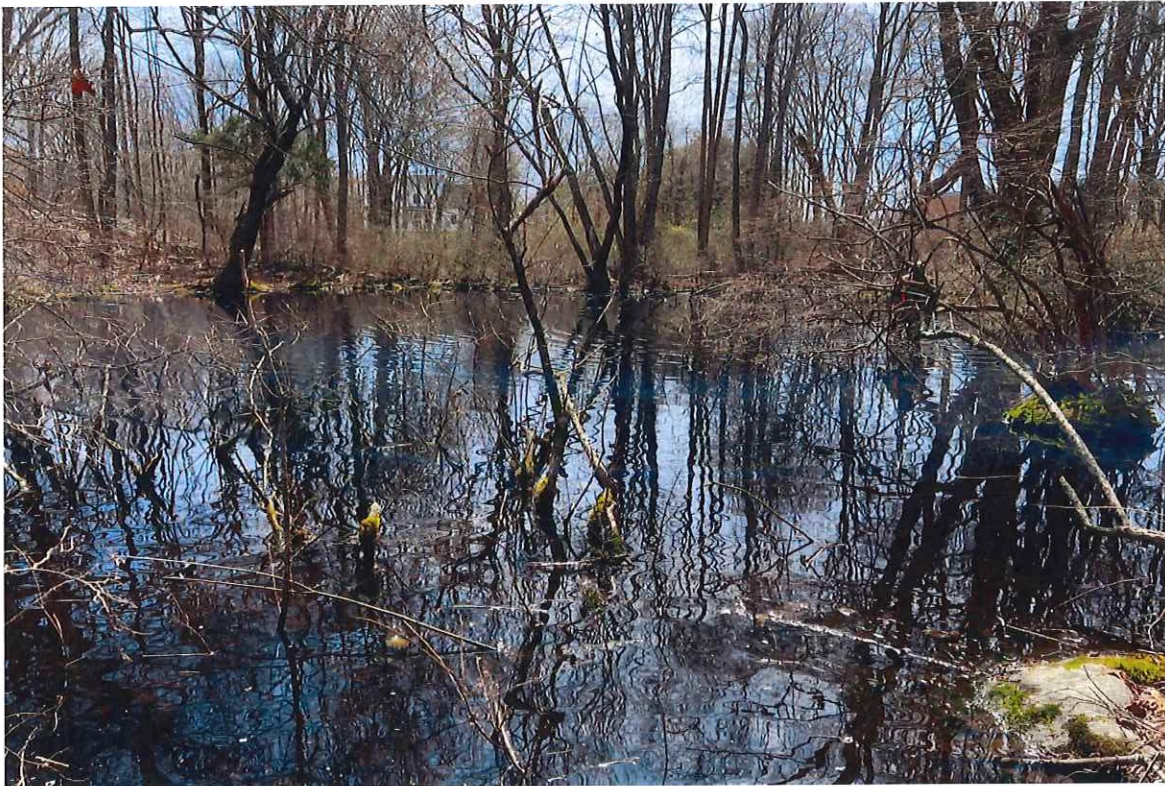


Photo 3: View of Wetland 1's southern vernal pool habitat looking south.



Photo 4: View of wood frog egg masses in Vernal Pool 1.

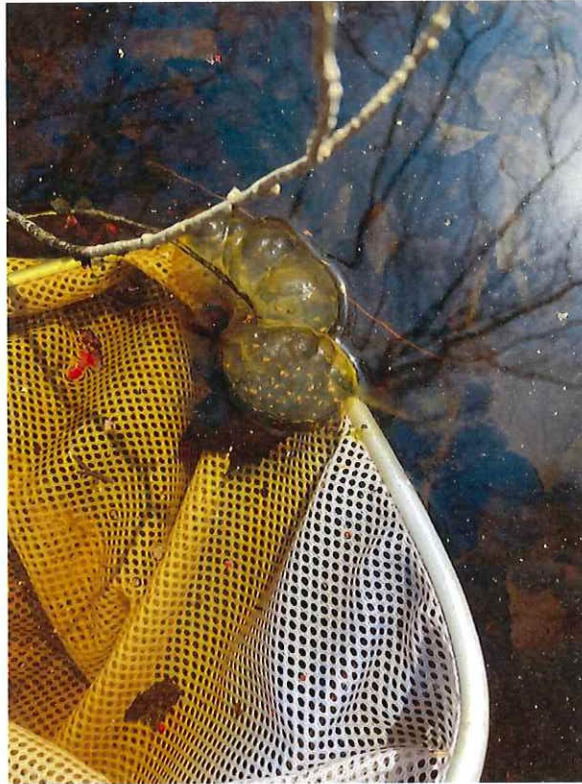


Photo 5: View of spotted salamander egg mass in Vernal Pool 1.



Photo 6: View of wetland and vernal pool upland enhancement area looking east;
Wetland 1 and Vernal Pool 1 in background in forested area.

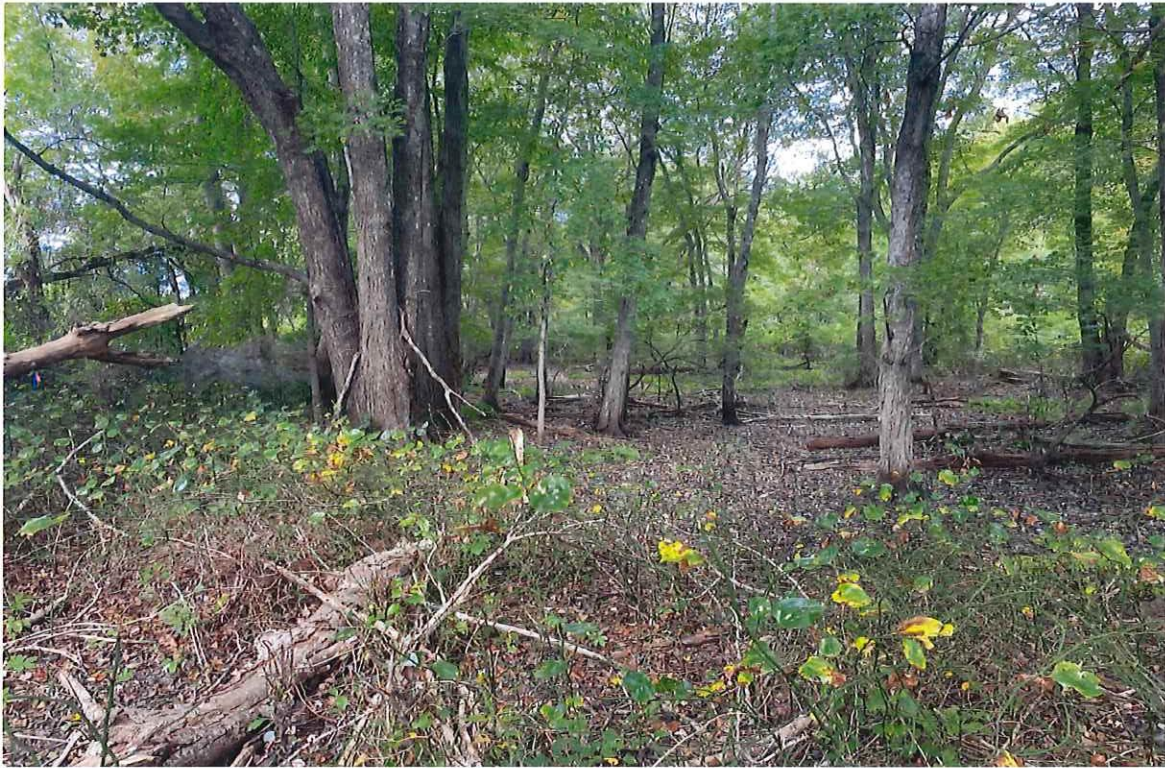


Photo 7: View of Wetland 2 looking southeast.



Photo 8: View of Wetland 3 looking west.



Photo 9: View of Wetland 2 Potential Vernal Pool 2 area looking south.
Area contained less than 2 inches of inundation with no breeding observed.



Photo 10: View of Wetland 2 Potential Vernal Pool 3 area looking south.
Area void of any inundation with no breeding observed.