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July 30, 2021

Paul McGovern
PG Construction Management, Inc.
1218 Great Plain Avenue
Needham, MA. 02492

RE: 61 County Street, Dover
Wetland Delineation and Vernal Pool Inspection

Dear Mr. McGovern:

At your request, on October 25, 2020, Debbie Anderson, Wetlands Scientist, inspected the property located at 61 County Street in Dover, Massachusetts for the presence of wetland resources as defined by the Massachusetts Wetlands Protection Act (M.G.L. Ch. 131, S. 40) and its implementing regulations (310 CMR 10.00 et seq.), the Dover Wetlands Protection Chapter (Ch. 181) and its implementing regulations (Rules and Regulations for the Dover Wetlands Protection Bylaw Ch. 263), and the U.S. Clean Water Act. The following is a brief description of the existing conditions observed during the site inspection and the potentially regulated wetland resources present at the site.

The approximately 1-acre piece of property is located on the northerly side of County Street between Tisdale Drive and Walpole Street. The hatchet-shaped parcel is accessed via a long gravel driveway close to the easterly property line. The driveway is forested on both sides with mainly eastern white pine trees. At the end of the driveway is a small turn around flanking the 815-square feet ranch-style house constructed in 1960 to the west. Beyond the turn-around area to the northeast, the topography slopes relatively steeply down a wooded hill to an Isolated Wetland located off-property at the base of the hill.

Located to the southwest of the property is #63 County Street. Privately owned properties are located to the east and west, The Isolated Wetlands and Bordering Vegetated Wetlands beyond are located on parcels to the northeast. Across County Street is the Town of Walpole.

Aside from Buffer Zone, the Massachusetts Wetlands Protection Act Regulations have established five (5) freshwater resource categories: (1) Bank; (2) Bordering Vegetated Wetlands; (3) Land Under Water Bodies and Waterways; (4) Land Subject to Flooding; and (5) Riverfront Area. The site was examined and areas that qualified as any of the above resource categories were identified. Vegetated wetlands are identified by the presence of a vegetational community comprised of 50% or more wetland plant species and the presence of wetland hydrology (i.e. hydric soils and/or other indicators of hydrology). Bordering Vegetated Wetlands are delineated in accordance with the methodology set forth in "Delineating Bordering Vegetated Wetlands under the Massachusetts Wetlands Protection Act: A Handbook", dated March 1995, produced by the Massachusetts Department of Environmental Protection, Division of Wetlands and Waterways.

Debbie Anderson, Wetland Scientist/Wildlife Biologist conducted the initial site visit on October 25, 2020. The purpose of the inspection was to identify the presence of wetland resources as defined by the Massachusetts Wetlands Protection Act and implementing Regulations, the Dover Wetlands Protection Bylaw and implementing Regulations, and the U.S. Clean Water Act. Upon inspection, D. Anderson determined that an Isolated Wetland was located off-property at the base of the slope and beyond that to the north was Bordering Vegetated Wetlands associated with an intermittent stream. As the Bordering Vegetated Wetlands were located in excess of 150-feet from the property line, the BVW boundary was not delineated for this project.

The boundary of the Isolated Wetland was delineated using the Dover Wetland Bylaw criteria. The boundary followed along the line below which 50% or more of the vegetational community consists of wetland plant species. Some of the wetland vegetation including sweet pepperbush (*Clethra alnifolia*) did creep up the hillside resulting in the wetland line being above the base of the slope. The wetland was delineated with pink flagging tape and identified as (DA A-1) to (DA A-10).

The Isolated Wetland may qualify as Isolated Land Subject to Flooding (ILSF) if the area at least once a year confines standing water to a volume of at least $\frac{1}{4}$ acre-feet and to an average depth of at least six inches.. This is an Engineering calculation that must be computed. If the area is calculated to fit the criteria, the Isolated Wetland would be jurisdictional under the State Regulations. If the criteria is not met, only the Dover Wetlands Protection Bylaw would have jurisdiction.

The plant species identified in wetland and upland areas of the site include: white oak (*Quercus alba*), northern red oak (*Quercus rubra*), yellow birch (*Betula alleghaniensis*), red maple (*Acer rubrum*), red cedar (*Juniperus virginiana*), Sassafras (*Sassafras albidum*), river birch (*Betula nigra*), eastern redbud (*Cercis canadensis*), japanese maple (*Acer palmatum*), american beech (*Fagus grandifolia*) and eastern white pine (*Pinus strobus*) in the tree and sapling layers; sweet pepperbush (*Clethra alnifolia*), eastern burning-bush (*Euonymus atropurpureus*), rhododendron, glossy buckthorn (*Rhamnus frangula*), highbush blueberry (*Vaccinium corymbosum*), and japanese barberry (*Berberis thunbergii*) in the shrub layer; royal fern (*Osmunda regalis*), cinnamon fern (*Osmunda cinnamomea*), hay-scented fern (*Dennstaedtia punctilobula*), and sphagnum moss (*Sphagnum spp.*) in the groundcover layer; and oriental bittersweet (*Celastrus orbiculata*), poison ivy (*Toxicodendron radicans*), and common greenbrier (*Smilax rotundifolia*) woody vines. Evidence of hydrology located within the delineated wetland include hydric soils, drainage patterns and water-stained leaves.

At the time of the fall site visit, D. Anderson determined that the Isolated Wetland may fit the criteria for a Vernal Pool and visited the site several times in Spring 2021 to conduct a potential Vernal Pool survey. Debbie Anderson, Wetland Scientist/Wildlife Biologist conducted studies of the Isolated Wetland over several weeks both during the day and in the evening to look for evidence of the pool being used for breeding for obligate vernal pool species including various species of amphibians such as the wood frog and spotted salamander which use vernal pools to breed and lay their eggs during the spring when the isolated pools have water and for fairy shrimp which utilize the pool for their entire life-cycle. As shown in the attached photograph, D. Anderson found several dozen masses of wood frog eggs during her surveys, as well as, fairy shrimp in the Isolated Wetland. The wetland therefore fits the criteria of a Vernal Pool. It is isolated, does not support a consistent population of fish, holds water continuously for at least two months in the Spring then dries up during the summer. The wetland is located within a bowl-shaped depression.

The boundary of a Vernal Pool was delineated on May 10, 2021 with blue flagging tape and identified with flag numbers (DA B-1) to (DA B-10). The boundary was determined using annual average high-water level determined from available evidence including leaf staining and a distinct topographic break.

CHAPTER 263. RULES AND REGULATIONS FOR THE DOVER WETLANDS PROTECTION BYLAW

§ 263-6. Definitions. The following definitions shall apply in the interpretation and implementation of this chapter. For terms not defined herein, the definitions of the MA Wetland Regs at 310 CMR 10.00 et seq., as amended, shall apply:

LAND SUBJECT TO FLOODING (BORDERING AND ISOLATED)

B. ISOLATED LAND SUBJECT TO FLOODING —

An isolated depression or closed basin without an inlet or an outlet. It is an area which at least once a year confines standing water to a volume of at least one-sixth-acre-foot and an average depth of at least six inches. The boundary of Isolated Land Subject to Flooding is the perimeter of the area which would be inundated during a 100- year frequency storm event, or the maximum extent of flooding observed or recorded in said area, whichever is larger. If drainage calculations are utilized in an effort to determine if a depression qualifies as Isolated Land Subject to Flooding, and/or to establish the boundary, said calculations shall consider groundwater as well as surface water runoff and must be performed by a registered professional engineer or other person whose qualifications are deemed acceptable by the Commission.

VEGETATED WETLANDS: BORDERING AND ISOLATED

Includes swamps, marshes, bogs and wet meadows. They are areas where the soils are annually saturated by surface or ground water for a significant portion of every growing season (i.e., wetland hydrology exists) and where there is a predominance of plant species adapted to these conditions. Evidence of wetland hydrology includes but is not limited to hydric soils, oxidized rhizospheres, pore linings, drift lines, drainage patterns, and free water or saturation within 12 inches of the soil surface for a prolonged period during the growing season.

B. "Isolated Vegetated Wetlands" are those Vegetated Wetlands which do not border a stream, lake or pond. Some Isolated Vegetated Wetlands exist in a topographic depression, either natural or man-made, which prevents water from leaving the depression except by infiltration or by overflow of surface water during rainfall events of a magnitude greater than a one-year frequency storm. Other Isolated Vegetated Wetlands exist on areas that may be flat or sloping, and have wetland hydrology that is the result of shallow groundwater and/or surface water.

C. The boundary of a Vegetated Wetland is the line below which 50% or more of the vegetational community consists of wetland plant species. For purposes of this definition, all species listed as facultative or wetter on the most recent applicable United States Fish and Wildlife Service Wetland Plant List, as amended, or individual plants which exhibit growth forms or adaptations indicative of saturated soils, are presumed to be wetland plant species. This presumption may be overcome by a clear showing to the contrary. In the event of cutting of vegetation, filling, excavation, or other disturbance to a site which makes the above boundary delineation criterion impractical, the Commission may, at its discretion, utilize or allow the use of topography, indicators of hydrology, plant community composition in nearby unaltered areas, and soil characteristics in determining the boundary of a Vegetated Wetland that likely would have existed in the absence of the

disturbance. For an area to qualify as a Vegetated Wetland, one or more indicators of wetland hydrology must be present over at least part of the area. For an Isolated (non-bordering) wetland to qualify as Isolated Vegetated Wetland, it must encompass an area of at least 400 square feet based upon the delineation criterion above. Alternatively, one or more isolated wetlands that exist in an ecologically related cluster and have an aggregate area of 1,000 square feet or greater, collectively qualify as Isolated Vegetated Wetland.

C. Isolated Vegetated Wetland.

Wetlands in areas with high permeability soils are more closely linked to groundwater, which is the source of all drinking water within the Town of Dover. Therefore, Isolated Vegetated Wetlands are divided into two categories: those areas with highly permeable soils located within the Town of Dover Groundwater Protection Districts GW-1 or WP and those with less permeable soils located within Groundwater Protection District GW-2. The boundaries of the Groundwater Protection District are those which are shown on the most recent version of the Town of Dover Groundwater Protection District Map. The performance standards for Isolated Vegetated Wetlands are different for each of these areas. (1) Isolated Vegetated Wetlands within GW-1 or WP: the performance standards for Bordering Vegetated Wetland, as outlined in Subsection 263-5-B apply. (2) Isolated Vegetated Wetlands within GW-2: (a) Alterations within these Isolated Vegetated Wetlands should generally be avoided. (b) The Commission may, at its discretion, permit the alteration of such an area, up to a maximum of 2,500 square feet, provided that the area is replicated in accordance with the provisions of Subsection 263-5-B. (c) The Commission may permit the alteration of more than 2,500 square feet of such an Isolated Vegetated Wetland, in the event that a hardship is found to exist. If so, replication which meets the provisions for replication of Bordering Vegetated Wetland (Subsection 263-5-B) must be provided. (3) For both types of Isolated Vegetated Wetland, work shall not impair the important wetlands wildlife habitat functions of the resource area.

I. Isolated Land Subject to Flooding.

Where an area of Isolated Land Subject to Flooding is vegetated, it may also qualify as the Resource Area Vegetated Wetland, under this chapter. In such a case, the performance standards of both Resource Areas apply. The performance standards for Isolated Lands Subject to Flooding are dependent upon whether the area is underlain by Pervious or Impervious Soils: (1) Impervious Soils. No work in an Isolated Land Subject to Flooding which is underlain by Impervious Soils shall adversely impact any property by displacing floodwaters which are normally contained within said area. (2) Pervious Soils. Any project which involves work in an Isolated Land Subject to Flooding which is underlain by Pervious Soils shall: (a) Prevent impacts to any property from the displacement of floodwaters. (b) Maintain the annual infiltration of surface water over the portion of the site which constitutes the drainage basin for the Isolated Land Subject to Flooding. (c) Maintain the quality of the water which infiltrates into the ground within the contributing drainage basin to the Isolated Land Subject to Flooding. (3) For both types of Isolated Land Subject to Flooding, work shall not impair the important wetlands wildlife habitat functions of the resource area.

J. Vernal Pools.

Any work within 100 feet of a Vernal Pool must not impair its capacity to function as a Vernal Pool. This chapter presumes that any work within a Vernal Pool or within undeveloped and unimproved areas within 100 feet thereof will impair the capacity of such Vernal Pool to so function. 100-foot Adjacent Upland Resource Area: No Disturb Zone. No activity shall be permitted within 100 feet of the delineated edge of a Vernal Pool. Prohibited activities include, but are not limited to, grading, landscaping, vegetation control, pruning, cutting,

filling, excavation, roadway construction and/or driveway construction. All applicants shall certify to the existence and location or nonexistence of any Vernal Pools on the project site. Any area which any credible evidence suggests may be a Vernal Pool shall be presumed to be a Vernal Pool and afforded all the protections thereto, unless and until the Commission explicitly finds that such area is not a Vernal Pool based on field examination(s) in the spring vernal pool season by the Commission or its Agent, or a detailed written analysis by an independent appropriately qualified wetlands professional based on a documented field examination in the spring during vernal pool season. The credible evidence referred to in this provision may include sworn testimony of or affidavit provided under pains and penalties of perjury from one or more abutters or persons familiar with the site.

VERNAL POOL

A confined basin depression which, at least in most years, holds water for a minimum of 2 continuous months during the spring and/or summer, and which is free of adult fish populations. The Commission may rely on past, observations, engineering calculations or other factors in determining the existence or extent of a Vernal Pool. A Vernal Pool may be any size. The boundary of a Vernal Pool shall be the annual average high-water level determined from available evidence, or engineering calculations, if required in the Commission's discretion. All Vernal Pools shall be protected as part of the resource area with a 100' no disturb setback within the 150' buffer zone.

310 CMR 10.00: WETLANDS PROTECTION

10.04: Definitions

*Vernal Pool Habitat means confined basin depressions which, at least in most years, hold water for a minimum of two continuous months during the spring and/or summer, and which are free of adult fish populations, as well as the area within 100 feet of the mean annual boundaries of such depressions, to the extent that such habitat is within an Area Subject to Protection under M.G.L. c. 131, § 40 as specified in 310 CMR 10.02(1). These areas are essential breeding habitat, and provide other extremely important wildlife habitat functions during non breeding season as well, for a variety of amphibian species such as wood frog (*Rana sylvatica*) and the spotted salamander (*Ambystoma maculatum*), and are important habitat for other wildlife species.*

10.57: Land Subject to Flooding (Bordering and Isolated Areas)

(1) Preamble.

(b) Isolated Land Subject to Flooding:

1. Isolated Land Subject to Flooding is an isolated depression or a closed basin which serves as a ponding area for run-off or high ground water which has risen above the ground surface. Such areas are likely to be locally significant to flood control and storm damage prevention. In addition, where such areas are underlain by pervious material they are likely to be significant to public or private water supply and to ground water supply. Where such areas are underlain by pervious material covered by a mat of organic peat and muck, they are also likely to be significant to the prevention of pollution. Finally, where such areas are vernal pool habitat, they are significant to the protection of wildlife habitat.

2. Isolated Land Subject to Flooding provides a temporary storage area where run-off and high ground water pond and slowly evaporate or percolate into the substrate. Filling causes lateral displacement of the ponded water onto contiguous properties, which may in turn result in damage to said properties. 3. Isolated Land

Subject to Flooding, where it is underlain by pervious material, provides a point of exchange between ground and surface waters. Contaminants introduced into said area, such as septic system discharges and road salts, find easy access into the ground water and neighboring wells. Where these conditions occur and a mat of organic peat or muck covers the substrate of the area, said mat serves to detain and remove contaminants which might otherwise enter the ground water and neighboring wells. 4. Isolated Land Subject to Flooding, where it is vernal pool habitat, is an essential breeding site for certain amphibians which require isolated areas that are generally flooded for at least two continuous months in the spring and/or summer and are free from fish predators. Most of these amphibians remain near the breeding pool during the remainder of their lifecycle. Many reptiles, birds and mammals also feed here.

(2) Definitions, Critical Characteristics and Boundaries.

(b) Isolated Land Subject to Flooding.

1. *Isolated Land Subject to Flooding is an isolated depression or closed basin without an inlet or an outlet. It is an area which at least once a year confines standing water to a volume of at least ¼ acre-feet and to an average depth of at least six inches. Isolated Land Subject to Flooding may be underlain by pervious material, which in turn may be covered by a mat of organic peat or muck.*
2. *The characteristics specified in the foregoing 310 CMR 10.57(2)(b)1. are critical to the protection of the interests specified in 310 CMR 10.57(1)(b).*
3. *The boundary of Isolated Land Subject to Flooding is the perimeter of the largest observed or recorded volume of water confined in said area. In the event of a conflict of opinion regarding the extent of water confined in an Isolated Land Subject to Flooding, the applicant may submit an opinion certified by a registered professional engineer, supported by engineering calculations, as to the probable extent of said water. Said calculations shall be prepared in accordance with the general requirements set forth in 310 CMR 10.57(2)(a)3.a. through c., except that the maximum extent of said water shall be based upon the total volume (rather than peak rate) of run-off from the drainage area contributing to the Isolated Land Subject to Flooding and shall be further based upon the assumption that there is no infiltration of said run-off into the soil within the Isolated Land Subject to Flooding.*
4. *The only portions of this resource area which shall be presumed to be vernal pool habitat are those determined under procedures established in 310 CMR 10.57(2)(a)5.*
5. *The boundary of vernal pool habitat is that determined under procedures established in 310 CMR 10.57(2)(a)6.*

(4) General Performance Standards.

(b) Isolated Land Subject to Flooding.

A proposed project in Isolated Land Subject to Flooding shall not result in the following:

1. *Flood damage due to filling which causes lateral displacement of water that would otherwise be confined within said area.*
2. *An adverse effect on public and private water supply or ground water supply, where said area is underlain by pervious material.*

3. An adverse effect on the capacity of said area to prevent pollution of the ground water, where the area is underlain by pervious material which in turn is covered by a mat of organic peat and muck.

4. An impairment of its capacity to provide wildlife habitat where said area is vernal pool habitat, as determined by procedures contained in 310 CMR 10.60.

The USDA Soil Survey of Norfolk & Suffolk Counties (MA 616), Version 16, dated June 11, 2020 (see attached) identifies the soils in the upland areas of the property as Canton fine sandy loam, 15 to 35% slopes, extremely stony and the wetland areas as Swansea muck, 0-1% slopes. Soils identified on-site were consistent with the soil survey.

As part of the wetland evaluation for this site, the Massachusetts Natural Heritage Atlas, August 1, 2021 Edition, published by the Massachusetts Natural Heritage and Endangered Species Program, was reviewed. According to the Atlas, the site does not exist within any area designated as an Estimated Habitat of Rare Wetlands Wildlife or Priority Habitat. According to the Atlas, there is one Potential Vernal Pool located in the delineated area.

If you have any questions, please feel free to contact me.

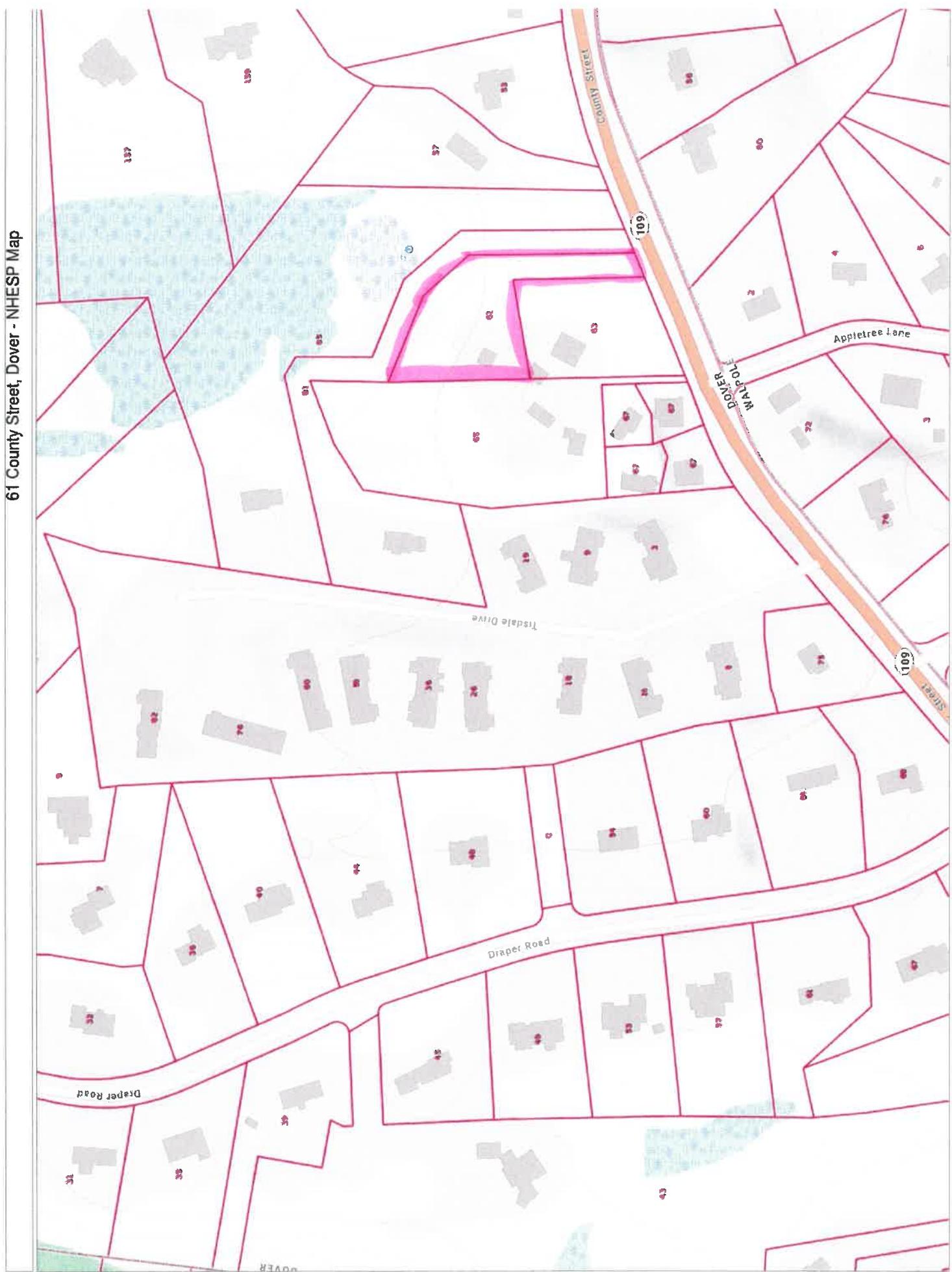
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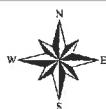
Debora J. Anderson

Debora Anderson
Wetland Scientist/Wildlife Biologist

Attachments

61 County Street, Dover - NHESP Map





Dover, MA



August 9, 2021

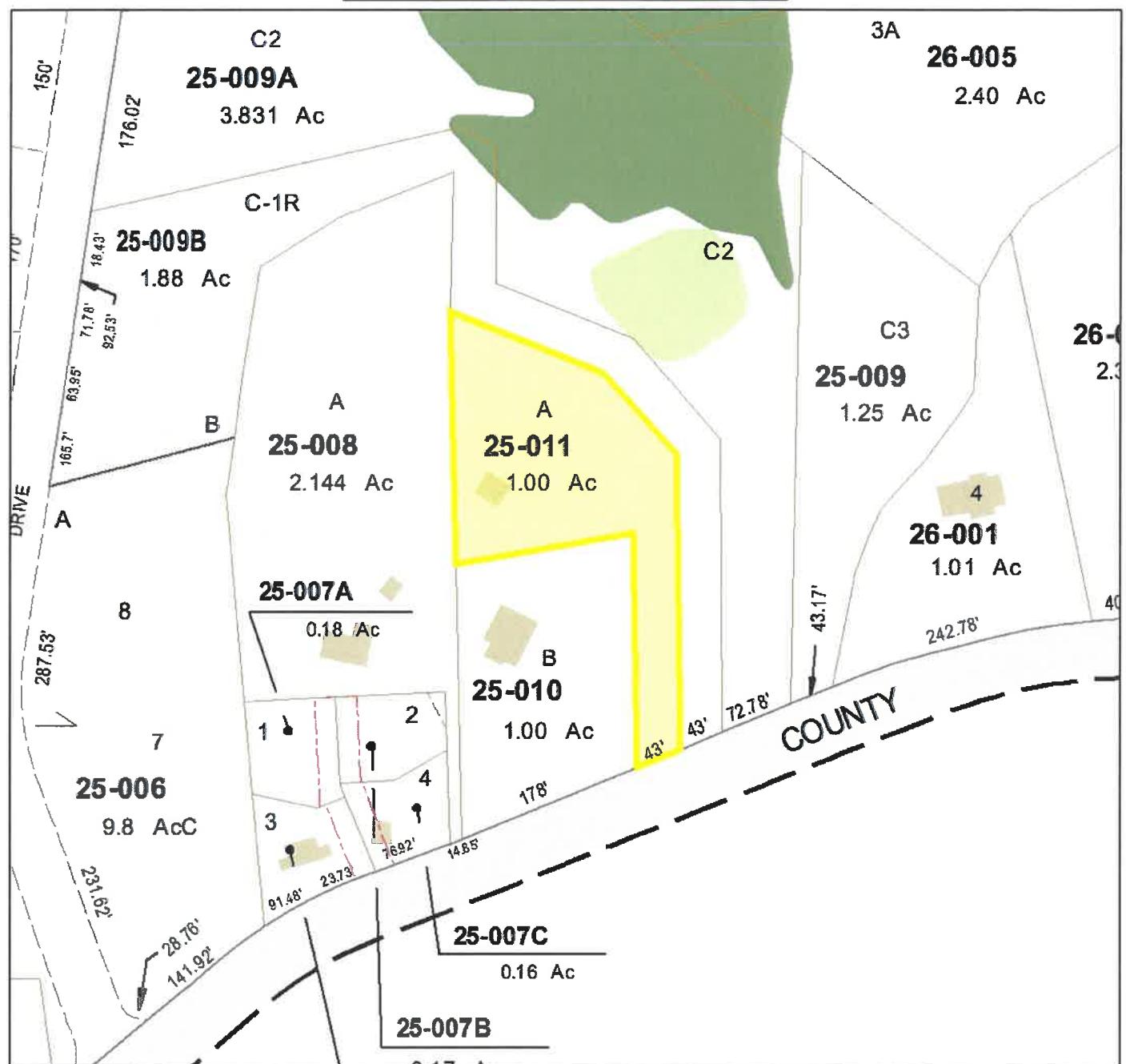
1 inch = 139 Feet

0

139 279

418

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— CAI Town Line	— HOOK	Buildings
— PROPERTYLINE	— TRACT	Right of Ways
— PVTRD	— PRIVATE ROAD ROW	Marsh/Bog
— ROAD	— UTILITY	Wooded marsh

Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

Soil Map—Norfolk and Suffolk Counties, Massachusetts
(61 County Street, Dover)



MAP LEGEND

Area of Interest (AOI)	
	Area of Interest (AOI)
Soils	
	Soil Map Unit Polygons
	Soil Map Unit Lines
	Soil Map Unit Points
Special Point Features	
	Blowout
	Borrow Pit
	Clay Spot
	Closed Depression
	Gravel Pit
	Gravelly Spot
	Landfill
	Lava Flow
	Marsh or swamp
	Mine or Quarry
	Miscellaneous Water
	Perennial Water
	Rock Outcrop
	Saline Spot
	Sandy Spot
	Severely Eroded Spot
	Sinkhole
	Slide or Slip
	Sodic Spot

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov/>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 16, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 4, 2020—Oct 19, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
51	Swansea muck, 0 to 1 percent slopes	1.8	5.9%
103C	Charlton-Hollis-Rock outcrop complex, 8 to 15 percent slopes	5.6	18.6%
420B	Canton fine sandy loam, 3 to 8 percent slopes	13.8	46.2%
422B	Canton fine sandy loam, 0 to 8 percent slopes, extremely stony	4.5	14.9%
422D	Canton fine sandy loam, 15 to 35 percent slopes, extremely stony	4.3	14.4%
Totals for Area of Interest		29.9	100.0%

61 COUNTY STREET, DOVER – ISOLATED WETLAND/VERNAL POOL SITE PHOTOGRAPHS

FALL 2020



FALL 2020



61 County Street, Dover

SPRING 2021



SPRING 2021

