

October 31, 2023

APT Project No.: CT580120

**Prepared For:** James Schwartz, Vice President  
391 Durham LLC  
9 Novelty Lane – Unit 9B  
Essex, Connecticut 06426

**Site Address:** 391 Durham Road (Route 79), Madison, Connecticut

**Project Description:** 391 Durham LLC proposes to develop a commercial PV solar facility within the existing Kleins' Golf Range.

**Date of Investigation:** 9/11/2023

**Field Conditions:** **Weather:** rain/overcast, low 70's  
**Soil Moisture:** moist

**Wetland/Watercourse Delineation Methodology<sup>1</sup>:**  
☒ Connecticut Inland Wetlands and Watercourses  
☒ U.S. Army Corps of Engineers

**Municipal Upland Review Area/Buffer Zone:**  
**Wetlands:** 100 feet  
**Watercourses:** 100 feet

The wetlands inspection was performed by<sup>2</sup>:



Dean Gustafson, Senior Wetland 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.<sup>3</sup> 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.*

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

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

<sup>3</sup> APT has relied upon the accuracy of information provided by 391 Durham LLC regarding proposed Site location for identifying wetlands and watercourses.

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# Attachments

- Wetland Delineation Field Forms
- Wetland Inspection Map

### Wetland Delineation Field Form

Wetland I.D.:	Wetland 1	
Flag #'s:	WF 1-01 to 1-09	
Flag Location Method:	Site Sketch <input checked="" type="checkbox"/>	GPS (sub-meter) located <input checked="" type="checkbox"/>

#### WETLAND HYDROLOGY:

##### NONTIDAL ☒

Intermittently Flooded <input type="checkbox"/>	Artificially Flooded <input type="checkbox"/>	Permanently Flooded <input type="checkbox"/>
Semipermanently Flooded <input type="checkbox"/>	Seasonally Flooded <input type="checkbox"/>	Temporarily Flooded <input type="checkbox"/>
Permanently Saturated <input type="checkbox"/>	Seasonally Saturated/seepage <input checked="" type="checkbox"/>	Seasonally Saturated/perched <input type="checkbox"/>
Comments: Wetland 1 is a seasonally saturated feature that has experienced varying degrees of historic disturbance through agricultural activities, installation of drainage, stripping of the native wetland soil and backfilling with non-native material resulting in an altered soil profile and hydrology.		

##### TIDAL ☐

Subtidal <input type="checkbox"/>	Regularly Flooded <input type="checkbox"/>	Irregularly Flooded <input type="checkbox"/>
Irregularly Flooded <input type="checkbox"/>		
Comments: None		

#### WETLAND TYPE:

##### SYSTEM:

Estuarine <input type="checkbox"/>	Riverine <input type="checkbox"/>	Palustrine <input checked="" type="checkbox"/>
Lacustrine <input type="checkbox"/>	Marine <input type="checkbox"/>	
Comments: None		

##### CLASS:

Emergent <input checked="" type="checkbox"/>	Scrub-shrub <input type="checkbox"/>	Forested <input checked="" type="checkbox"/>
Open Water <input type="checkbox"/>	Disturbed <input checked="" type="checkbox"/>	Wet Meadow <input type="checkbox"/>
Comments: Edge forested areas occur to the far south of the delineated resource with maintained turf dominating the majority of this feature resulting from routine vegetation management as part of the Kleins' Golf Range operation.		

#### WATERCOURSE TYPE:

Perennial <input type="checkbox"/>	Intermittent <input type="checkbox"/>	Tidal <input type="checkbox"/>
Watercourse Name: None		
Comments: None		

### Wetland Delineation Field Form (Cont.)

**SPECIAL AQUATIC HABITAT:**

Vernal Pool Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Potential <input type="checkbox"/>	Other <input type="checkbox"/>
Vernal Pool Habitat Type: None	
Comments: None	

**SOILS:**

Are field identified soils consistent with NRCS mapped soils?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Native wetland soils have been excavated/filled with gravelly non-native material within the majority of the delineated feature. This disturbed soil unit is classified as Aquents during the investigation indicating disturbed wetland soils.		

**DOMINANT PLANTS:**

maintained turf	Sensitive Fern ( <i>Onoclea sensibilis</i> )
Swamp White Oak ( <i>Quercus bicolor</i> )	Red Maple ( <i>Acer rubrum</i> )
Sphagnum moss ( <i>Sphagnum</i> spp.)	Cinnamon Fern ( <i>Osmunda cinnamomea</i> )
Sweet Pepperbush ( <i>Clethra alnifolia</i> )	

\* denotes Connecticut Invasive Species Council invasive plant species

**GENERAL COMMENTS:**

<p>The entirety of the subject property is occupied by a golfing driving range facility known as Kleins' Golf Range that includes a commercial building with associated gravel parking area, golf driving range platforms, maintenance building, and a large, maintained turf range. Routine frequent mowing results in a majority of the property being maintained in short turf; the perimeter of the range consists mainly of forest edge. Three wetlands were identified on the subject property with Wetlands 1 and 2 occupy a large portion of the maintained turf range and Wetland 3 associated with a man-made pond located just north of the commercial building in the northeast corner of the property along Durham Road.</p> <p>Wetland 1 consists of a seasonally saturated complex, draining north from off property forested areas to the south; the forested area is dominated by red maple and swamp white oak. The wetland is mainly formed within the maintained turf areas, dominated by typical cool season grasses that are tightly mowed, where historic alteration to the native wetland profile has occurred. Stripping of wetland topsoil and backfilling/grading with non-native sand and gravel fill material has altered the historic extents and characteristics of this wetland resource. A catch basin is located within the central portion of Wetland 1 that drains through an underground pipe into the man-made pond (Wetland 3).</p>
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### Wetland Delineation Field Form

Wetland I.D.:	Wetland 2	
Flag #'s:	WF 2-01 to 2-28, 2-100 to 2-114, 2A-1 to 2A-9 (upland), and 2B-1 to 2B-12 (upland)	
Flag Location Method:	Site Sketch <input checked="" type="checkbox"/>	GPS (sub-meter) located <input checked="" type="checkbox"/>

#### WETLAND HYDROLOGY:

##### NONTIDAL ☒

Intermittently Flooded <input type="checkbox"/>	Artificially Flooded <input type="checkbox"/>	Permanently Flooded <input type="checkbox"/>
Semipermanently Flooded <input type="checkbox"/>	Seasonally Flooded <input type="checkbox"/>	Temporarily Flooded <input type="checkbox"/>
Permanently Saturated <input type="checkbox"/>	Seasonally Saturated/seepage <input checked="" type="checkbox"/>	Seasonally Saturated/perched <input type="checkbox"/>
Comments: Wetland 2 is a seasonally saturated feature that has experienced varying degrees of historic disturbance through agricultural activities, installation of drainage, stripping of the native wetland soil and backfilling with non-native material resulting in an altered soil profile and hydrology.		

##### TIDAL ☐

Subtidal <input type="checkbox"/>	Regularly Flooded <input type="checkbox"/>	Irregularly Flooded <input type="checkbox"/>
Irregularly Flooded <input type="checkbox"/>		
Comments: None		

#### WETLAND TYPE:

##### SYSTEM:

Estuarine <input type="checkbox"/>	Riverine <input type="checkbox"/>	Palustrine <input checked="" type="checkbox"/>
Lacustrine <input type="checkbox"/>	Marine <input type="checkbox"/>	
Comments: None		

##### CLASS:

Emergent <input checked="" type="checkbox"/>	Scrub-shrub <input type="checkbox"/>	Forested <input checked="" type="checkbox"/>
Open Water <input type="checkbox"/>	Disturbed <input checked="" type="checkbox"/>	Wet Meadow <input type="checkbox"/>
Comments: Edge forested areas occur to the far north and south of the delineated resource with maintained turf dominating the majority of this feature resulting from routine vegetation management as part of the Kleins' Golf Range operation.		

##### WATERCOURSE TYPE:

Perennial <input type="checkbox"/>	Intermittent <input type="checkbox"/>	Tidal <input type="checkbox"/>
Watercourse Name: None		
Comments: None		

## Wetland Delineation Field Form (Cont.)

### **SPECIAL AQUATIC HABITAT:**

Vernal Pool Yes <input type="checkbox"/> No <input type="checkbox"/> Potential <input checked="" type="checkbox"/>	Other <input type="checkbox"/>
Vernal Pool Habitat Type: 'Cryptic'	
Comments: A small pocket was observed on the adjacent property with evidence of seasonal flooding has the potential to support vernal pool breeding habitat. APT recommends surveying this area during the spring 2024 season to determine if it supports breeding by obligate vernal pool species.	

### **SOILS:**

Are field identified soils consistent with NRCS mapped soils?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Native wetland soils have been excavated/filled with gravelly non-native material within the majority of the delineated feature. This disturbed soil unit is classified as Aquents during the investigation indicating disturbed wetland soils.		

### **DOMINANT PLANTS:**

Pin Oak ( <i>Quercus palustris</i> )	Yellow Birch ( <i>Betula alleghaniensis</i> )
Sensitive Fern ( <i>Onoclea sensibilis</i> )	Red Maple ( <i>Acer rubrum</i> )
Sweet Pepperbush ( <i>Clethra alnifolia</i> )	Jack-in-the-Pulpit ( <i>Arisaema triphyllum</i> )
Cinnamon Fern ( <i>Osmunda cinnamomea</i> )	Eastern Red Cedar ( <i>Juniperus virginiana</i> )

\* denotes Connecticut Invasive Species Council invasive plant species

### **GENERAL COMMENTS:**

<p>The entirety of the subject property is occupied by a golfing driving range facility known as Kleins' Golf Range that includes a commercial building with associated gravel parking area, golf driving range platforms, maintenance building, and a large, maintained turf range. Routine frequent mowing results in a majority of the property being maintained in short turf; the perimeter of the range consists mainly of forest edge. Three wetlands were identified on the subject property with Wetlands 1 and 2 occupy a large portion of the maintained turf range and Wetland 3 associated with a man-made pond located just north of the commercial building in the northeast corner of the property along Durham Road.</p> <p>Wetland 2 consists of a seasonally saturated complex draining in a northerly direction across the subject property into bordering forested wetland areas that extend off property. The wetland is mainly formed within the maintained turf areas, dominated by typical cool season grasses that are tightly mowed, where historic alteration to the native wetland profile has occurred. Stripping of wetland topsoil and backfilling/grading with non-native sand and gravel fill material has altered the historic extents and characteristics of this wetland resource. Two catch basins are located within the central portion of Wetland 2 that drains north through an underground pipe that conveys flows from relatively unaltered off-Site wetlands to the south and north and from surface drainage of the golf range through the two catch basins and possible underdrains. Two interior upland 'islands' were also identified, indicated as wetland flag 2A and 2B series within the delineated feature. These areas contained fill material exceeding two feet in depth and a lack of observed poorly drained/hydric soil indicators within the upper 12-18 inches of the soil surface. The off-Site wetland north of the subject property eventually drains into Huzzle Guzzle Brook, located <math>\pm 200</math> feet north of the subject property.</p>
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### Wetland Delineation Field Form

Wetland I.D.:	Wetland 3	
Flag #'s:	WF 3-01 to 3-08	
Flag Location Method:	Site Sketch <input checked="" type="checkbox"/>	GPS (sub-meter) located <input checked="" type="checkbox"/>

#### WETLAND HYDROLOGY:

##### NONTIDAL ☒

Intermittently Flooded <input type="checkbox"/>	Artificially Flooded <input type="checkbox"/>	Permanently Flooded <input checked="" type="checkbox"/>
Semipermanently Flooded <input type="checkbox"/>	Seasonally Flooded <input type="checkbox"/>	Temporarily Flooded <input type="checkbox"/>
Permanently Saturated <input type="checkbox"/>	Seasonally Saturated/seepage <input checked="" type="checkbox"/>	Seasonally Saturated/perched <input type="checkbox"/>
Comments: Wetland 3 consists of a man-made open water feature that connects to a seasonally flooded drainage swale along the west side of Durham Road.		

##### TIDAL ☐

Subtidal <input type="checkbox"/>	Regularly Flooded <input type="checkbox"/>	Irregularly Flooded <input type="checkbox"/>
Irregularly Flooded <input type="checkbox"/>		
Comments: None		

#### WETLAND TYPE:

##### SYSTEM:

Estuarine <input type="checkbox"/>	Riverine <input type="checkbox"/>	Palustrine <input checked="" type="checkbox"/>
Lacustrine <input type="checkbox"/>	Marine <input type="checkbox"/>	
Comments: None		

##### CLASS:

Emergent <input checked="" type="checkbox"/>	Scrub-shrub <input type="checkbox"/>	Forested <input type="checkbox"/>
Open Water <input checked="" type="checkbox"/>	Disturbed <input checked="" type="checkbox"/>	Wet Meadow <input type="checkbox"/>
Comments: Banks to the pond are subject to routine maintenance creating some maintained lawn limiting diversity of vegetative communities.		

#### WATERCOURSE TYPE:

Perennial <input type="checkbox"/>	Intermittent <input type="checkbox"/>	Tidal <input type="checkbox"/>
Watercourse Name: None		
Comments: None		

### Wetland Delineation Field Form (Cont.)

**SPECIAL AQUATIC HABITAT:**

Vernal Pool Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Potential <input type="checkbox"/>	Other <input type="checkbox"/>
Vernal Pool Habitat Type: None	
Comments: None	

**SOILS:**

Are field identified soils consistent with NRCS mapped soils?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
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**DOMINANT PLANTS:**

Jewelweed ( <i>Impatiens capensis</i> )	Swamp Loosestrife ( <i>Decodon verticillatus</i> )
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\* denotes Connecticut Invasive Species Council invasive plant species

**GENERAL COMMENTS:**

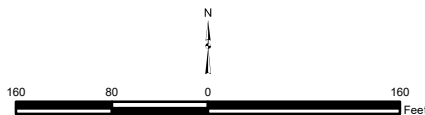
<p>The entirety of the subject property is occupied by a golfing driving range facility known as Kleins' Golf Range that includes a commercial building with associated gravel parking area, golf driving range platforms, maintenance building, and a large, maintained turf range. Routine frequent mowing results in a majority of the property being maintained in short turf; the perimeter of the range consists mainly of forest edge. Three wetlands were identified on the subject property with Wetlands 1 and 2 occupy a large portion of the maintained turf range and Wetland 3 associated with a man-made pond located just north of the commercial building in the northeast corner of the property along Durham Road.</p> <p>Wetland 3 consists of a man-made pond feature that extends onto the adjacent residential property. Pond banks are subject to routine vegetation maintenance. Located along Durham Road, this resource also receives hydrologic input from stormwater runoff that is conveyed through a connected grass-lined drainage swale bordering the roadway.</p>
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- Legend**
- Site
  - Culvert
  - Wetland Flag
  - 100-Foot Upland Review Area
  - Delineated Wetland Boundary
  - Approximate Wetland Area
  - Potential Vernal Pool
  - Approximate Parcel Boundary

**Map Notes:**  
 Base Map Source: 2019 CT Aerial Imagery (CTECO)  
 Map Scale: 1 inch = 160 feet  
 Map Date: September 2023



## Wetland Inspection Map

Proposed Solar Energy Facility  
 391 Durham Road  
 Madison, Connecticut

