December 30, 2020
Revised January 25, 2021

Verogy
150 Trumbull Street
4th Floor
Hartford, CT 06103

APT Project No.: CT590260

Attn: Kyle Perry, Engineering Manager

Re: Essex Meadows
Electrical Interconnection
30 Bokum Road
Essex, Connecticut

Dear Mr. Perry,

All-Points Technology Corporation, P.C. ("APT") understands that Eversource Energy is requiring that Verogy interconnect the electrical feed from the previously installed solar carport to the electrical room on the northeast side of the main building, instead of at the Wastewater Treatment plant as initially anticipated. This report supplements materials submitted by others as part of a Town of Essex Inland Wetlands & Watercourses Commission ("IWWC") Application for Permit ("Application"). The following document provides a description of the delineated wetlands along with the inspection report, a discussion of the proposed regulated activities. The project plan set dated December 30, 2020 prepared by APT is included under separate cover.

Wetland Resources

Matthew Gustafson, a Connecticut registered Soil Scientist with APT, performed a wetland inspection of the subject property on October 30, 2019 and November 25, 2020 to identify and delineate wetland resources located on 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 November 18, 2019, and revised December 5, 2020, is enclosed. The initial wetland report was completed for the installation of the solar facility included Wetlands 1 &2 and was revised to include Wetland 3.

A detailed description of three wetland resources identified on the Subject Property is provided below.

Wetland Description

Wetland 1 is located centrally on the subject property, east of the proposed solar facility. This wetland consists of a large complex of semi-permanently flooded backwater wetlands that drains east to the Mud River. The delineated wetland boundary is characterized by a fill slope. Interior areas of the wetland consist of hummock/hollow topography with semi-permanent shallow pools. The existing gravel access road crosses over Wetland 1 in the northeast portion of the study area; a culvert conveys surface flows

under the access road. This existing crossing has resulted in some alteration of the wetland hydrology with surface water being impounded due to an elevated culvert crossing that partially restricts flow.

Wetland 2 is located along the western property boundary, west of the proposed solar facility. This wetland consists of Tiffany Brook, a north to south flowing perennial watercourse with associated bordering wetland areas. The stream generally winds within a fairly well-defined channel with areas of bordering wetlands and intermixed well defined banks with no bordering wetlands.

Wetland 3 is located in the northeastern portion of the property in proximity to the proposed utility interconnection route. This wetland consists of a constructed wet stormwater basin that has an outlet structure that conveys flows into Wetland 1, west of Wetland 3.

Proposed Regulated Activity

The following section summarizes development activities classified as "regulated activities" as defined by the IWWC's regulations. The IWWC regulates activities in wetland and watercourses and upland areas within 100 feet of wetlands and watercourses, known as an upland review area. The proposed electrical interconnection will avoid any permanent or temporary direct impacts to wetland resource areas. Activities proposed in the 100-foot upland review area total ±8,500 square feet (±0.20 acre) and are confined to disturbed and developed areas associated with the existing Essex Meadows development. All proposed activities in the 100-foot upland review area are shown in detail on the separately attached project site plans.

Impact Analysis

The fundamental concept of wetland impact analysis is based on the precept that wetland 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.

The proposed electrical utility interconnection required by Eversource Energy results in impacts to the upland review area. The work consists of an underground utility trench where possible, a utility bridge over existing culverts, conduit on grade, and jacking and receiving pits. The proposed electrical interconnection elements are to minimize impacts to the surrounding wetlands, existing vegetation, and the Essex Meadows Facility.

Areas of proposed activity within the 100-foot upland review area to both Wetlands 1 and 3 are proposed to occur within historically developed areas within the Essex Meadows property. 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. This proposed electrical interconnection has considered the upland review areas when implementing the design features.

Activities within the 100-foot upland review area total ±8,500 square feet. Within the Wetland 1 upland review area a majority of the activity will be a standard underground utility trench with the exception of the utility bridge. The utility bridge is being proposed to eliminate any impacts to the existing cross culverts that exist under the gravel access drive and conveys the flows of Wetland 1.

Within the Wetland 3, wet stormwater basin, upland review area the electrical interconnection will transition from a standard utility trench to a ridged metal conduit that will be placed on existing grade and covered with fill/topsoil. The fill material will then be seeded and covered with an erosion control blanket to mitigate any erosion prior to the seed germination and final stabilization This is being proposed to avoid impacting the existing root system of the trees located to the south of the stormwater basin. Finally, the electrical interconnection will transition back to underground at the eastern extents of Wetland 3 where it will connect to the building through a series of small jack and bore pits to avoid impacts the entrance and exit of the Essex Meadow's facility.

Considering the proposed activities avoid any direct wetland impact, are isolated to work within an existing developed/disturbed upland review area, no likely adverse impact to wetland resources would result.

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.

Conclusion

The proposed electrical interconnection will not directly impact wetland resources. In addition, activities proposed in the 100-foot upland review area will be limited to existing developed and disturbed areas and result in a minimal impact to the facility. Erosion and sedimentation control measures will be implemented during construction to prevent direct and indirect impacts to nearby wetland resources. Therefore, the proposed project would not result in a likely adverse impact to wetland resources.

If you have any questions regarding the above-referenced information, please feel free to contact me by telephone at (860) 552.2046 or at bparsons@allpointstech.com.

Sincerely,

All-Points Technology Corporation, P.C.

Bradley J. Parsons, PE
Manager Civil Engineering

Enclosure

Wetland Inspection Report

WETLAND INSPECTION

November 18, 2019

Revised December 5, 2020 **APT Project No.: CT590260**

Prepared For:	Verogy 150 Trumbull Street, 4th Floor Hartford, CT 06103
Site Name:	Essex Meadows Solar
Site Address:	30 Bokum Road, Essex, Connecticut
Dates of Investigation:	10/30/2019 and 11/25/20
Field Conditions:	**Weather:** cloudy**,** mid 50's on 10/30/19 overcast, mide 50's on 11/25/20 **Soil Moisture:** moist

Wetland/Watercourse Delineation Methodology*:

☒Connecticut Inland Wetlands and Watercourses

☐Connecticut Tidal Wetlands

Municipal Upland Review Area/Buffer Zone:

Wetlands: 100 feet **Watercourses:** 100 feet

The wetlands inspection was performed by†:

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

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

‡ *APT has relied upon the accuracy of information provided by Verogy and its contractors regarding proposed solar facility and access road/utility interconnection locations for identifying wetlands and watercourses within the study area.*

Attachments

- Wetland Delineation Field Forms
- Wetland Inspection Map

Wetland Delineation Field Form

Wetland I.D.:	Wetland 1	
Flag #'s:	WF 1-01 to 1-32 and 1-40 to 1-58	
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 drains northeast with areas of inundation ranging from 8 to 12 inches or greater.		

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: Complexes of edge mature forest, interior open water and scrub/shrub dominate the resource.		

WATERCOURSE TYPE:

Perennial ☒	Intermittent ☐	Tidal ☐
Watercourse Name: Mud River		
Comments: Wetland 1 drains to the northeast eventually into Mud River located north of the subject property, north of Bokum Road.		

Wetland Delineation Field Form (Cont.)

SPECIAL AQUATIC HABITAT:

Vernal Pool Yes ☐ No ☐ Potential ☒	Other ☐
Vernal Pool Habitat Type: 'Cryptic'	
Comments: Interior portions of this wetland contain large expanses of semi-permanently flooding that have the physical characteristics to potentially support vernal pool habitat. Peripheries of these flooded areas contain more discrete pockets of flooding that support higher quality potential vernal pool habitat. Due to time of year the wetland inspection was performed, a biological survey for vernal pool indicator species was not performed.	

SOILS:

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

DOMINANT PLANTS:

Red Maple (Acer rubrum)	Buttonbush (Cephalanthus occidentalis)
Winterberry (Ilex verticillata)	Multiflora Rose* (Rosa multiflora)
Common Reed* (Phragmites australis)	Soft Rush (Juncus effuses)
Greenbrier (Smilax rotundifolia)	

* denotes Connecticut Invasive Species Council invasive plant species

GENERAL COMMENTS:

All-Points Technology Corp., P.C. ("APT") understands that Verogy proposes a PV solar array at the Essex Meadows senior living facility in Essex, Connecticut. The proposed solar facility would be located in an open field/recreational area in the western portion of the Essex Meadows property. No wetlands or watercourses were identified within the proposed solar facility's limit of disturbance. Three wetlands were identified in proximity to the proposed solar facility and its utility interconnection route in the eastern portion of the property, identified as Wetlands 1, 2 and 3.

Wetland 1 is located centrally on the subject property, east of the proposed solar facility. This wetland consists of a large complex of semi-permanently flooded backwater wetlands that drains east to the Mud River. The delineated wetland boundary is characterized by a fill slope. Interior areas of the wetland consist of hummock/hollow topography with semi-permanent shallow pools. The existing gravel access road crosses over Wetland 1 in the northeast portion of the study area; a culvert conveys surface flows under the access road. This existing crossing has resulted in some alteration of the wetland hydrology with surface water being impounded due to an elevated culvert crossing that partially restricts flow.

The Essex Inland Wetlands and Watercourses Commission ("IWWC") regulates activities in wetlands and watercourses and in adjoining uplands within 100 feet of the boundary of wetlands and watercourses. The proposed solar facility is located more than 100 feet from the nearest wetland boundary and is located ±128 feet west of Wetland 1 at its closest distance (from wetland flag WF 1-18). However, the utility interconnection to service the proposed solar facility is located in close proximity to Wetlands 1 and 3, within areas regulated by the IWWC. As a result, a wetland permit would be required for the proposed utility interconnection work.

Wetland Delineation Field Form

Wetland I.D.:	Wetland 2	
Flag #'s:	WF 2-01 to 2-15	
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 seasonally saturated seep areas that drain southwest to seasonally flooded areas associate with Tiffany Brook.		

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: This resource is dominated by mature forest with open interior pockets dominated by emergent vegetation and transitional scrub/shrub ecotones.		

WATERCOURSE TYPE:

Perennial ☒	Intermittent ☐	Tidal ☐
Watercourse Name: Tiffany Brook		
Comments: Interior stream that consists of a well-defined bank/channel with a sandy cobble bottom. Bank width was found to be 8 to 12 feet wide with depths of inundation of 12 to 14 inches.		

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 ☐

DOMINANT PLANTS:

Red Maple (Acer rubrum)	Green Ash (Fraxinus pennsylvanica)
Silky Dogwood (Cornus amomum)	Winterberry (Ilex verticillata)
Sweet Pepperbush (Clethera alnifolia)	Sensitive Fern (Onoclea sensibilis)
Multiflora Rose* (Rosa multiflora)	Jewelweed (Impatiens capensis)

* denotes Connecticut Invasive Species Council invasive plant species

GENERAL COMMENTS:

All-Points Technology Corp., P.C. ("APT") understands that Verogy proposes a PV solar array at the Essex Meadows senior living facility in Essex, Connecticut. The proposed solar facility would be located in an open field/recreational area in the western portion of the Essex Meadows property. No wetlands or watercourses were identified within the proposed solar facility's limit of disturbance. Three wetlands were identified in proximity to the proposed solar facility and its utility interconnection route in the eastern portion of the property, identified as Wetlands 1, 2 and 3.

Wetland 2 is located along the western property boundary, west of the proposed solar facility. This wetland consists of Tiffany Brook, a north to south flowing perennial watercourse with associated bordering wetland areas. The stream generally winds within a fairly well defined channel with areas of bordering wetlands and intermixed well defined banks with no bordering wetlands.

The Essex Inland Wetlands and Watercourses Commission ("IWWC") regulates activities in wetlands and watercourses and in adjoining uplands within 100 feet of the boundary of wetlands and watercourses. The proposed solar facility is located more than 100 feet from the nearest wetland boundary and is located ±128 feet southeast of Wetland 2 at its closest distance (from wetland flag WF 2-05). However, the utility interconnection to service the proposed solar facility is located in close proximity to Wetlands 1 and 3, within areas regulated by the IWWC. As a result, a wetland permit would be required for the proposed utility interconnection work.

Wetland Delineation Field Form

Wetland I.D.:	Wetland 3	
Flag #'s:	WF 3-01 to 3-20	
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 constructed wet stormwater detention basin with extended permanent flooding that drains west to Wetland 1.		

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: None		

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 ☐

DOMINANT PLANTS:

Silky Dogwood (Cornus amomum)	Soft Rush (Juncus effuses)
Sensitive Fern (Onoclea sensibilis)	Winterberry (Ilex verticillata)
Elderberry (Sambucus canadensis)	

* denotes Connecticut Invasive Species Council invasive plant species

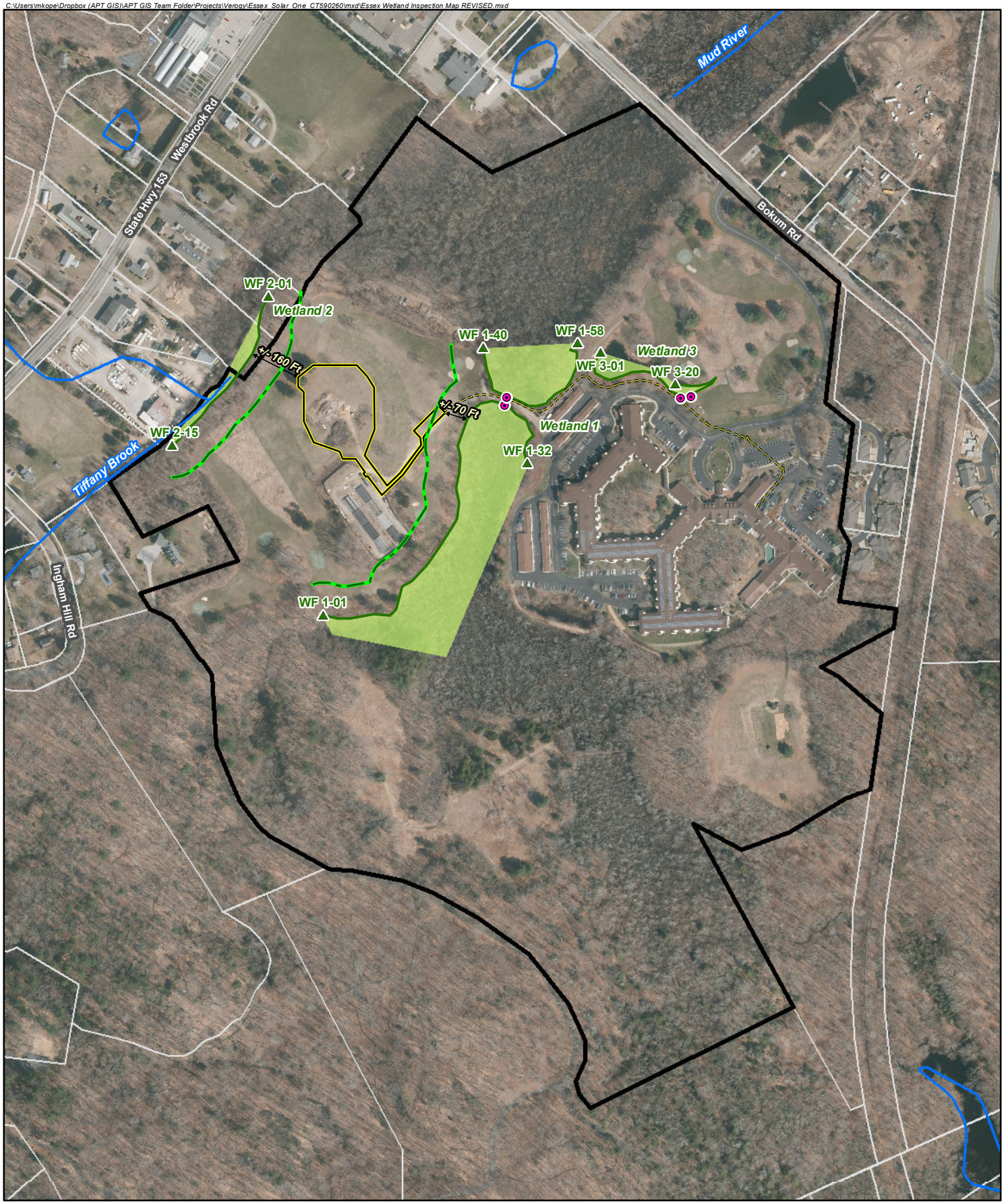
GENERAL COMMENTS:

All-Points Technology Corp., P.C. ("APT") understands that Verogy proposes a PV solar array at the Essex Meadows senior living facility in Essex, Connecticut. The proposed solar facility would be located in an open field/recreational area in the western portion of the Essex Meadows property. No wetlands or watercourses were identified within the proposed solar facility's limit of disturbance. Three wetlands were identified in proximity to the proposed solar facility and its utility interconnection route in the eastern portion of the property, identified as Wetlands 1, 2 and 3.

Wetland 3 is located in the northeastern portion of the property in proximity to the proposed utility interconnection route. This wetland consists of a constructed wet stormwater basin that has an outlet structure that conveys flows into Wetland 1, west of Wetland 3.

The Essex Inland Wetlands and Watercourses Commission ("IWWC") regulates activities in wetlands and watercourses and in adjoining uplands within 100 feet of the boundary of wetlands and watercourses. The proposed solar facility is located more than 100 feet from the nearest wetland boundary and is located ±128 feet southeast of Wetland 2 at its closest distance (from wetland flag WF 2-05). However, the utility interconnection to service the proposed solar facility is located in close proximity to Wetlands 1 and 3, within areas regulated by the IWWC. As a result, a wetland permit would be required for the proposed utility interconnection work.

C:\Users\mkope\Dropbox (APT GIS)\APT GIS Team Folder\Projects\Verogy\Essex_Solar_One_CT590260\mxd\Essex Wetland Inspection Map REVISED.mxd



Legend

- Proposed Project Area
- Underground Electrical Service
- Site/Subject Property
- Watercourse (CTDEEP)
- Wetland Flag
- Delineated Wetland Boundary
- 100-foot Upland Review Area
- Approximate Wetland Area
- Approximate Parcel Boundary (CTDEEP)

N W E S

400 200 0 400 Feet

Wetland Inspection Map

Proposed Solar Facility
30 Bokum Road
Essex, Connecticut

VEROGY

ALL-POINTS TECHNOLOGY CORPORATION

Map Notes:
Base Map Source: 2019 CT Aerial Imagery (CTECO)
Map Scale: 1 inch = 400 feet
Map Date: November 2020