WETLANDS AND WATERBODIES DELINEATION REPORT

Calverton Solar Energy Center
Town of Riverhead
Suffolk County, New York

Prepared for

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Project Number: 286622 December, 2017

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APPENDICES

1.0 INTRODUCTION

This report presents the results of a wetlands and waterbodies delineation conducted by TRC Environmental Corporation, Inc. on behalf of LI Solar Generation, LLC of Juno Beach, Florida. LI Solar Generation, LLC is proposing to construct a new solar energy center on two parcels totaling approximately 200 acres located in the Calverton section of the Town of Riverhead, Suffolk County, New York (Project Site) (Figure 1).

TRC conducted the delineation on November 1 and 2, 2017 to determine the extent of 1) "waters of the United States," which includes wetlands, streams, and other aquatic resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE); and 2) aquatic resources under the jurisdiction of the New York State Department of Environmental Conservation (NYSDEC).

Specific tasks undertaken to prepare this report included: 1) a review of existing federal and state agency resources; 2) a field delineation of all observed aquatic resources within the Project Site; 3) a survey of the delineated boundaries with a handheld Global Positioning System (GPS) unit set for sub-meter accuracy; and 4) development of a detailed description of the delineated resources, including any assumed government agency jurisdiction.

The agency resource review focused on many agency resources, including:

- The U.S. Geological Survey (USGS) topographic maps of the Wading River and Riverhead, NY 7.5 minute quadrangles;
- The National Hydrography Dataset (NHD);
- The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps;
- The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI);
- The New York State Department of Environmental Conservation (NYSDEC) Environmental Resource Mapper (ERM) tool;
- The Natural Resources Conservation Service (NRCS) Web Soil Survey;
- The NRCS Soil Data Access (SDA) Hydric Soils List; and
- Recent aerial photography.

2.0 AGENCY RESOURCE REVIEW

2.1 Topography and Terrain

The entirety of the Project Site is located on a vast outwash plain, an extensive lowland area of coarse textured, glaciofluvial material. The elevation of most of the Project Site is approximately 50 feet above mean sea level (MSL), with a few depressions at about 30 feet above MSL.

As shown on the topographic maps of the Wading River and Riverhead, NY 7.5 minute quadrangles (USGS 2016), the approximate midpoints of the two parcels that comprise the Project Site are located at the following coordinates (NAD 1983):

Western Parcel

	"x"	*"y"*
Geodetic	72.7549583° West	40.9098444° North
U.S. Survey Feet	1,328,377 East	273,204 North
State Plane, meters (Zone 3104, Long Island)	404,890 East	83,272 North

Eastern Parcel

	"x"	*"y"*
Geodetic	72.7493916° West	40.9120305° North
U.S. Survey Feet	1,329,905 East	274,023 North
State Plane, meters (Zone 3104, Long Island)	405,355 East	83,522 North

2.2 Watershed

The Project Site is located within the non-tidal portion of the Peconic River–Flanders Bay drainage basin. The 12-digit Hydrologic Unit Code (HUC) assigned to the applicable section of the Peconic River is 020302020502. The western parcel drains generally southward via overland flow, and eastward to Canoe Lake (also spelled Conoe Lake). The eastern parcel drains westward to Canoe Lake via overland flow. Some site drainage is directed into several ponds excavated as part of the former golf course. These ponds do not have a hydrologic connection to the Canoe Lake system. Canoe Lake, which is located on New York State land, drains southward to the Peconic River via an unnamed stream. The Peconic River flows eastward to its mouth at Flanders Bay in eastern Long Island.

The non-tidal portion of the Peconic River is classified by the NYSDEC as a "C" waterbody, described in more detail in section 5.2.

2.3 Floodplains

According to Flood Insurance Rate Maps 36103C0442H, 36103C0444H, 36103C0461H, and 36103C0463H (FEMA 2009), the Project Site is not located within a flood zone (Figure 3).

2.4 Mapped Aquatic Resources

The NWI maps eight ponds in the Palustrine System and no streams in the eastern part of the Project Site, and no streams or wetlands in the western parcel. The NWI maps depict a complex of wetlands, a pond (Canoe Lake), and a stream between the two Project Site parcels.

The Palustrine System includes all non-tidal wetlands dominated by trees, shrubs, emergent vascular plants, emergent mosses or lichens, and tidal wetlands where the salinity is below 0.5 parts per thousand (ppt). It also includes wetlands lacking such vegetation, but with all of the

following four characteristics: 1) an area of less than 8 hectares (20 acres); 2) active wave-formed or bedrock shoreline features are lacking; 3) water depth in the deepest part of the basin is less than 2.5 m (8.2 ft.) at low water; and 4) salinity due to ocean-derived salts is less than 0.5 ppt. (Federal Geographic Data Committee, 2013).

Review of NYSDEC ERM mapping indicates the Canoe Lake pond-wetland-stream complex between the two parcels, and associated "check zones" for the wetlands that extend onto both parcels. The NYSDEC also maps a small, physically isolated wetland on the western parcel, and two wetlands on the eastern parcel, near Canoe Lake. There is one NYSDEC "Class C" stream mapped in the western part of the western parcel, and no NYSDEC streams are mapped on the eastern parcel. Resources mapped by the NWI and NYSDEC on and in the vicinity of the Project Site are shown on Figure 3.

2.5 Mapped Soils

The NRCS identifies 14 soil map units within the Project Site. One of the mapped soils is on the SDA Hydric Soils List (NRCS 2017). The *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratories 1987) (1987 Manual) defines a hydric soil as:

> …a soil that is saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation.

Soil map units can represent a kind of soil, a combination of soils, or miscellaneous land types. They are usually named for the predominant soil series or land types within the map unit. Due to limitations imposed by the small scale of the soil survey mapping, it is not uncommon to identify wetlands within areas not mapped as hydric soils, and areas mapped as hydric soils often do not support wetlands. This concept is emphasized by the NRCS:

> 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.

The 14 soil map units identified on the Project Site by the NRCS are outlined below, and depicted graphically on Figure 2.

Carver and Plymouth sands, 0 to 3 percent slopes (CpA) – This excessively drained soil is mapped in the southwestern part of the eastern parcel. Carver and similar soils, and Plymouth sand each comprise 40 percent of this map unit. Unmapped inclusions that comprise five percent each of this map unit are Haven soils, Riverhead soils, Plymouth loamy sand, and Carver, dark subsoils. None of the components of map unit "CpA" is classified as a hydric soil on the SDA Hydric Soils List (NRCS 2017).

Carver and Plymouth sands, 3 to 15 percent slopes (CpC) – This excessively drained soil is mapped in the southern and northwestern parts of the Project Site. Carver and similar soils, and Plymouth sand and similar soils each comprise 40 percent of this map unit. Unmapped inclusions

that comprise five percent each of this map unit are Haven soils, Riverhead soils, and Plymouth loamy sand. Other inclusions are three percent Carver dark subsoils, and two percent "unnamed soils, silty." None of the components of map unit "CpC" are classified as hydric soil on the SDA Hydric Soils List (NRCS 2017).

Carver and Plymouth sands, 15 to 35 percent slopes (CpE) – This excessively drained soil is mapped in the western part of the western parcel. Carver and Plymouth soils each comprise 40 percent of this map unit. Unmapped inclusions that comprise five percent each of this map unit are Haven soils, Montauk, sandy variant, Riverhead soils, and Carver dark subsoils. None of the components of map unit "CpE" is classified as a hydric soil on the SDA Hydric Soils List (NRCS 2017).

Cut and fill land, gently sloping (CuB) – This is a prominent mapping unit in the western part of the eastern parcel. Cut and fill land comprises 80 percent of the mapping unit. Unmapped inclusions that comprise five percent each of this map unit are Haven, graded soils, Plymouth soils, Riverhead, graded soils, and Carver soils. None of the components of map unit "CuB" are classified as hydric soil on the SDA Hydric Soils List (NRCS 2017).

Haven loam, 0 to 2 percent slopes (HaA) – This well drained soil is mapped in the western and northeastern parts of the western parcel, and comprises most of the northern part of the eastern parcel. It is also mapped in the eastern part of the eastern parcel. Haven and similar soils comprise 75 percent of this map unit. Unmapped inclusions that comprise five percent each of this map unit are Bridgehampton soils, Montauk soils, Scio soils, unnamed soils, gravelly, and Riverhead soils. None of the components of map unit "HaA" are classified as hydric soil on the SDA Hydric Soils List (NRCS 2017).

Haven loam, 2 to 6 percent slopes (HaB) – This well drained soil is mapped in the western-most part of the western parcel, and the northeastern part of the eastern parcel. Haven and similar soils comprise 80 percent of this map unit. Unmapped inclusions that comprise five percent each of this map unit are Riverhead soils, Bridgehampton soils, Montauk soils, and Haven, thick surface soils. None of the components of map unit "HaB" are classified as hydric soil on the SDA Hydric Soils List (NRCS 2017).

Haven loam, 6 to 12 percent slopes (HaC) – This well drained soil is mapped in the western part of the western parcel. Haven and similar soils comprise 80 percent of this map unit. Unmapped inclusions that comprise five percent each of this map unit are Riverhead soils, Bridgehampton soils, Montauk soils, and Haven, thick surface soils. None of the components of map unit "HaC" are classified as hydric soil on the SDA Hydric Soils List (NRCS 2017).

Haven loam, thick surface layer (He) – This well drained soil is mapped in the northern part of the western parcel, and the southeastern part of the eastern parcel. Haven, thick surface and similar soils comprise 90 percent of this map unit. Unmapped inclusions that comprise five percent each of this map unit are Scio soils and Riverhead, thick surface soils. None of the components of map unit "He" are classified as hydric soil on the SDA Hydric Soils List (NRCS 2017).

Plymouth loamy sand, 3 to 8 percent slopes (PlB) – This excessively drained soil is mapped in the southern part of the western parcel, and the central and southern parts of the eastern parcel. Plymouth and similar soils comprise 80 percent of this map unit. Unmapped inclusions that comprise five percent each of this map unit are Carver soils, Montauk, sandy variant soils, Riverhead soils, and Plymouth, gravelly soils. None of the components of map unit "PlB" are classified as hydric soil on the SDA Hydric Soils List (NRCS 2017).

Plymouth loamy sand, 8 to 15 percent slopes (PlC) – This excessively drained soil is mapped in most of the eastern half of the western parcel, as well as a small part of the eastern part of the eastern parcel. Plymouth and similar soils comprise 85 percent of this map unit. Unmapped inclusions that comprise five percent each of this map unit are Montauk, sandy variant soils, Riverhead soils, and Plymouth, gravelly soils. None of the components of map unit "PlC" are classified as hydric soil on the SDA Hydric Soils List (NRCS 2017).

Riverhead sandy loam, 0 to 3 percent slopes (RdA) – This well drained soil is mapped in most of the eastern half of the western parcel, a small area in the southern part of the western parcel, and as a small part of the eastern part of the eastern parcel. Riverhead and similar soils comprise 80 percent of this map unit. Unmapped inclusions that comprise five percent each of this map unit are Haven soils, and Plymouth soils, and Sudbury soils. Montauk, sandy variant soils comprise three percent of this mapping unit, and Riverhead, silt loam layers soils comprise the remaining two percent. None of the components of map unit "RdA" are classified as hydric soil on the SDA Hydric Soils List (NRCS 2017).

Riverhead sandy loam, 3 to 8 percent slopes (RdB) – This well drained soil is mapped in the central and southern parts of the western parcel, as well as in small areas of the northern and southern parts of the eastern parcel. Riverhead and similar soils comprise 80 percent of this map unit. Unmapped inclusions that comprise five percent each of this map unit are Haven soils, and Plymouth soils, and Bridgehampton soils. Montauk, sandy variant soils comprise three percent of this mapping unit, and Riverhead, silt loam layers soils comprise the remaining two percent. None of the components of map unit "RdB" are classified as hydric soil on the SDA Hydric Soils List (NRCS 2017).

Riverhead sandy loam, 8 to 15 percent slopes (RdC) – This well drained soil is mapped in the northeastern part of the eastern parcel. Riverhead and similar soils comprise 80 percent of this map unit. Unmapped inclusions that comprise five percent each of this map unit are Haven soils, and Plymouth soils, and Montauk soils. Riverhead, eroded soils comprise three percent of this mapping unit, and Riverhead, till substratum soils comprise the remaining two percent. None of the components of map unit "RdC" are classified as hydric soil on the SDA Hydric Soils List (NRCS 2017).

Wareham loamy sand (We) – This poorly drained and somewhat poorly drained soil is mapped in the southern part of the western parcel. It is also mapped in an area between the two parcels of the Project Site, near Canoe Lake. Wareham, poorly drained and similar soils comprise 50 percent of this map unit, and Wareham, somewhat poorly drained and similar soils comprise 35

percent. Unmapped inclusions that comprise five percent each of this map unit are Atsion soils, Berryland soils, and Walpole soils. Three of the components of map unit "We" are classified as hydric soils on the SDA Hydric Soils List (NRCS 2017): Wareham poorly drained, Atsion, and Berryland soils. These components comprise 60 percent of the map unit.

2.6 Aerial Photography

Recent aerial photography of the vicinity of the Project Site indicates that most of the western parcel is under open agricultural use, and is primarily bordered by forest. The southern part of the western parcel abuts River Road. The western-most portion of the western parcel is under forest cover. Aerial photographs of the eastern parcel clearly depict that parcel as a golf course, with several small ponds, as well as other open land use. A large building, outbuildings, small paved roads, unpaved trails, and a parking lot are also evident. The eastern parcel abuts Edwards Avenue to the east. No evidence of stream flow is discernible on the aerial photography for the entire Project Site.

3.0 DELINEATION METHODOLOGIES

3.1 Waterbody Delineations

Delineated boundaries of streams are identified by the presence of an ordinary high water mark (OHWM), which is the line on the shore established by the fluctuations of water (33 CFR 328.3). The OHWM line is indicated by physical characteristics such as: a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other characteristics of the surrounding areas.

3.2 Wetland Delineations

The delineation of wetlands was conducted in accordance with criteria set forth in the 1987 Manual and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)* (USACE 2012) (Supplement).

The USACE and U.S. Environmental Protection Agency (USEPA) jointly define wetlands as:

> …those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

As such, a three-parameter approach to identify and delineate wetlands presented in the 1987 Manual and the Supplement requires that except for atypical and disturbed situations, wetlands possess hydrophytic vegetation, hydric soils, and wetland hydrology.

The boundaries of wetlands were located with a handheld GPS unit set for sub-meter accuracy. All delineated resources were classified in accordance with the system presented in *The*

Classification of Wetlands and Deepwater Habitats of the United States, Second Edition (Federal Geographic Data Committee 2013).

Vegetation, soils, and hydrology data from wetlands and adjacent uplands were recorded on wetland determination data forms developed by the USACE for the Supplement. Wetland determination data forms are included in Appendix D. Representative photographs of each wetland are included in Appendix B.

3.2.1 Vegetation Methodologies

The 1987 Manual defines hydrophytic vegetation as the community of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to influence plant occurrence.

Plants are categorized according to their occurrence in wetlands. Currently, the scientific names and wetland indicator statuses for vegetation are those listed in *The National Wetland Plant List: 2016 Wetland Ratings* (Lichvar et al., 2016) (NWPL). The indicator statuses specific to the "Northcentral and Northeast Region" as defined by the USACE apply to the Project Site. The official short definitions for wetland indicator statuses are as follows.

- Obligate Wetland (OBL): Almost always occur in wetlands.
- Facultative Wetland (FACW): Usually occur in wetlands, but may occur in non-wetlands.
- Facultative (FAC): Occur in wetlands and non-wetlands.
- Facultative Upland (FACU): Usually occur in non-wetlands, but may occur in wetlands.
- Upland (UPL): Almost never occur in wetlands.
- No Indicator (NI): Reviewed but given no regional indicator.
- No Occurrence (NO): No known occurrence in the region at the time the list was compiled.

For species listed as NI or NO, the indicator status assigned to the species in the nearest adjacent region is applied. If the species is listed as NI or NO but no adjacent regional indicator is assigned, the species is not used to calculate hydrophytic vegetation indicators. Plants that are not listed in any region on the NWPL are considered as "UPL" on wetland determination data forms.

Sampling of each vegetation community was typically accomplished using a graduated series of three concentric sub-plots, with radii of 30 feet for trees and woody vines, 15 feet for saplings and shrubs, and five feet for herbaceous plants. In habitats where only herbaceous species were present, vegetation data were collected from 25-feet long transects, as described in the Supplement. In order to determine whether a species was dominant in its stratum, the "50/20 rule" was applied. In using the 50/20 rule, the plants that comprise each stratum are ranked from highest to lowest in percent cover. The species that cumulatively equal or exceed 50 percent of the total percent cover for each stratum are dominant species, and any additional species that individually provides 20 percent or more percent cover is also considered dominant species of its

respective strata. The total cover for each stratum, and subsequently the plot as a whole, could exceed 100 percent due to vegetation overlap.

A hydrophytic vegetation community is present when: 1) all of the dominant species are FACW and/or OBL (Rapid Test for Hydrophytic Vegetation); 2) greater than 50 percent of the dominant species' (as determined by the 50/20 rule) indicator statuses are FAC, FACW, or OBL (Dominance Test); and/or 3) when the calculated Prevalence Index is equal to or less than 3.0. When applying the Prevalence Index, all plants are assigned a numeric value based on indicator status (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and their abundance (absolute percent cover) is used to calculate the prevalence index.

A comprehensive inventory of the observed vegetation is included as Table 3.

3.2.2 Soils Methodologies

Hydric soil indicators established in the 1987 Manual, the Supplement, and in *Field Indicators of Hydric Soils in the United States, Version 8.0* (NRCS 2016) were used to determine the presence of characteristic soil morphologies resulting from prolonged saturation and/or inundation. Soil color was described using standard color notations provided on Munsell® soil color charts (X-Rite, Inc. 2009). Soil texture was determined using the "feel method" described by Thien (1979).

Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin (MLRA Handbook) (NRCS 2006) was referenced to determine the hydric soil indicators that apply to the Project Site. Per the MLRA Handbook, the Project Site is within Major Land Resource Area 149B (Long Island – Cape Cod Coastal Lowland) of Land Resource Region S (Northern Atlantic Slope Diversified Farming Region). Hydric soil indicators that do not apply to this MLRA were not considered on the wetland determination data forms.

The presence or absence of hydric soils was determined through examination of samples extracted with a hand shovel from the upper horizons of the soil profile. Soils were examined to a depth of approximately 20 inches, unless hard pan, rock, densely packed fill materials, etc. were encountered at shallower depths.

3.2.3 Hydrology Methodologies

Per the 1987 Manual:

> The term "wetland hydrology" encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively. Such characteristics are usually present in areas that are inundated or have soils that are saturated to the surface for sufficient duration to develop hydric soils and support vegetation typically adapted

for life in periodically anaerobic soil conditions. Hydrology is often the least exact of the parameters, and indicators of wetland hydrology are sometimes difficult to find in the field. However, it is essential to establish that a wetland area is periodically inundated or has saturated soils during the growing season.

Wetland hydrology indicators are grouped into 18 primary and 11 secondary indicators presented in the Supplement. The USACE considers wetland hydrology to be present when at least one primary indicator or two secondary indicators are identified.

In addition to wetland hydrology, surface waters such as stream channels and drainage ways observed during field work are characterized. To the extent practicable, these waters are investigated to determine drainage patterns and a physical nexus to waters of the United States. A thorough analysis of potential biological or chemical connections to waters of the United States was outside the scope of this delineation.

4.0 RESULTS

4.1 General Overview

Most of the western parcel is under active agricultural land use, currently seeded with winter wheat, with a small area planted with corn. The remainder of the parcel is comprised of forested areas, dominated by mixed oak and mixed oak – pitch pine communities. Dominant trees included scarlet oak, white oak, northern red oak, pitch pine, black cherry, sassafras, and eastern white pine.[1]

The eastern parcel is the former "Calverton Links" golf course, which is now a recreational area known as "Long Island Sports Park." Most of the former golf course has been modified for use as a disc golf course, and there are also areas used for paint ball competition. Remnants of mixed oak forest are present along portions of the western part of this parcel. The southeastern part of the eastern parcel contains many planted Douglas fir trees. Additionally, black locust trees are abundant in the central part of this parcel, near wetland W6.

4.2 Aquatic Resources

TRC identified and delineated six freshwater (Palustrine) wetland and/or pond resources, described below and shown on Figure 4. Streams were not identified within the boundaries of the Project Site.

Wetland W1 – Wetland W1 is located in the southern part of the western parcel, surrounded by open agricultural land. This is essentially a combination of a "Palustrine forested, broad-leaved deciduous" (PFO1) wetland dominated by black willow and pin oak, and a "Palustrine emergent, non-persistent" (PEM2) wetland dominated by pink weed, wool-grass, and a few areas with

[1] Scientific names for plants discussed in this section are included in Table 4.

broad-leaf cattail. Non-native species are prevalent throughout this wetland, including bitter dock, mile-a-minute, Asian bittersweet, and multiflora rose. TRC did not observe any drainage features leading from this wetland area, and it was determined to be a physically isolated resource.

Wetland W2 – Wetland W2 is located in the northwestern part of the eastern parcel. This is a "Palustrine scrub-shrub, broad leaved deciduous" (PSS1) wetland dominated by buttonbush. This is a physically isolated resource with no observed drainage features leading from this wetland area.

Wetland W3 – Wetland W3 is located in the western part of the eastern parcel. This is essentially an excavated pond surrounded by emergent herbaceous vegetation along the circumference. It was delineated as a "Palustrine unconsolidated bottom" (PUB) (pond) and PEM2 resource. This is a physically isolated resource with no observed drainage features leading from this area.

Wetland W4 – Wetland W4 is located in the western part of the eastern parcel. This is essentially an excavated pond with a very narrow belt of herbaceous vegetation along the circumference. It was delineated as a PUB resource only. This is a physically isolated resource with no observed drainage features leading from this area.

Wetland W5 – Wetland W5 is located in the southwestern part of the eastern parcel. This is an excavated pond formerly used as a golf course pond. The perimeter of the PUB portion of the wetland is dominated with obligate herbaceous vegetation including cattail and bulrush. It was delineated as a PUB/PEM2 resource. This is a physically isolated resource with no observed drainage features leading from this area.

Wetlands W6 – This wetland is located in the eastern part of the eastern parcel, and extends offsite. It is an excavated feature, likely once a golf course pond. However, at the time of the delineation most of this area was under herbaceous cover with few inundated areas. It was delineated as a PEM2 resource. Although the northern part of the wetland is offsite and was not physically inspected by TRC, available mapping indicates that this is a physically isolated resource with no observed drainage features leading from this area.

4.3 Discrepancies with Agency Mapping

The NWI mapping depicts two small excavated, crescent-shaped ponds ("PUBHx") in the east-central part of the eastern parcel. These features were observed in the field, and determined to be artificial ponds, completely lined with waterproof fabric. These ponds were decorative landscape features, created for the former golf course and were not delineated as resources.

The Class C stream depicted by the NYSDEC ERM on the western parcel is an erroneously mapped water body. TRC inspected the area mapped as a stream and no such feature is present.

5.0 AGENCY JURISDICTION

5.1 U.S. Army Corps of Engineers

Waters of the United States include wetlands, streams, and other aquatic resources under the regulatory authority of the USACE per 33 CFR 328 and/or the USEPA per 40 CFR 110, 112, 116 et el., as defined in the *Clean Water Rule: Definition of "Waters of the United States"; Final Rule* (Federal Register Vol. 80, No. 124). Per this rule, waters are ''waters of the United States'' if they significantly affect the chemical, physical, or biological integrity of traditional navigable waters, interstate waters, or the territorial seas. The USACE regulates impacts to waters of the United States under Sections 401 and 404 of the Clean Water Act.

The USACE also regulates navigable waters under Section 10 of the Rivers and Harbor Act (33 U.S.C. 401 et seq.), which requires that a permit must be issued by the USACE to construct any structure in or over any navigable water of the United States, as well as any proposed action (such as excavation/dredging or deposition of materials) that would alter or disturb these waters. If the proposed structure or activity affects the course, location, condition, or capacity of the navigable water, even if the proposed activity is outside the boundaries of the waterbody, a permit from the USACE is required.

5.2 New York State Department of Environmental Conservation

The Freshwater Wetlands Act [Article 24 and Title 23 of Article 71 of the Environmental Conservation Law (ECL)] gives the NYSDEC jurisdiction over state-protected wetlands and an adjacent 100-feet upland buffer area. To implement the policy established by this Act, regulations were promulgated by the state under 6 NYCRR Parts 663 and 664. Part 664 of the regulations designates wetlands into four class ratings, with Class I being the highest or best quality wetland and Class IV being the lowest. In general, wetlands regulated by the state are those 12.4 acres (5 hectares) in size or larger. The NYSDEC can regulate smaller wetlands, including those without connections to other aquatic resources if they are considered to be of "unusual local importance." The Freshwater Wetlands Act requires the NYSDEC to map all state-protected wetlands to allow landowners and other interested parties a means of determining where state jurisdictional wetlands exist. Authority under an Article 24 permit is required from the NYSDEC for any disturbance to a state-protected wetland or the adjacent buffer area, including the removal of vegetation.

Article 15 of the ECL (Protection of Waters) provides the NYSDEC with regulatory jurisdiction over any activity that disturbs the bed or banks of protected streams. In addition, small lakes and ponds with a surface area of 10 acres or less, located within the course of a protected stream, are considered to be part of a stream and are subject to regulation under the stream protection category of Article 15. Protected stream means any stream, or particular portion of a stream, that has been assigned by the NYSDEC any of the following classifications or standards: AA, A, B, C(T), or C(TS) (6 NYCRR Part 701). A classification of AA or A indicates that the best use of the

stream is as a source of water supply for drinking, culinary or food processing purposes, primary and secondary contact recreation, and fishing. The best usages of Class B waters are primary and secondary contact recreation and fishing. The best usage of Class C waters is fishing. Streams designated (T) indicate that they support trout, while those designated (TS) support trout spawning. State water quality classifications of unprotected watercourses include Class C and Class D streams. Waters with a classification of D are suitable for fishing and non-contact recreation. Additionally, per the NYSDEC:

> All streams or other bodies of water which are not shown on the reference maps herein shall be assigned to class D, as set forth in Part 701, supra, except that any continuous flowing natural stream which is not shown on the reference maps shall have the same classification and assigned standards as the waters to which it is directly tributary (6 CRR-NY 863.4).

An Article 15 permit is required from the NYSDEC for any disturbance to a stream classified C(T) or higher.

5.3 Town of Riverhead

The Town of Riverhead regulates activities in and around freshwater and tidal wetlands under Chapter 295 of the Town Code. The Town defines freshwater wetlands as:

> Lands and waters as indicated on, but not limited to, the Freshwater Wetlands Map for Suffolk County promulgated by the Department of Environmental Conservation pursuant to the Freshwater Wetlands Act and the Riverhead Freshwater Wetlands Inventory (1979).

In addition, the Town regulates activities within a 150-buffer of any freshwater wetlands, natural or altered drainage systems, or other watercourses. A copy of the Riverhead Freshwater Wetlands Inventory (1979) is not available online.

In accordance with §295-4, activities within the freshwater wetland or associated 150-buffer, including the placement or fill of any materials including structures, require a permit from the Town Conservation Advisory Council.

6.0 CONCLUSIONS

Wetlands W1, W2, W3, and W5, and pond W4 were determined to be physically isolated resources, without distinct surface hydrologic connections to waters of the United States. Wetland W6 extends offsite to the north, but based on reviews of available mapping, it is also likely physically isolated from waters of the United States. As such, these six resources might not be under the jurisdiction of the USACE. However, as stated above in section 5.1, waters are ‘‘waters of the United States’’ if they significantly affect the chemical, physical, or biological integrity of traditional navigable waters, interstate waters, or the territorial seas. As such, the

absence of a distinct, *physical* connection does not in itself preclude a resource from being federally jurisdictional. The wetlands are all mapped by the NYSDEC as state resources, per the NYSDEC's online Environmental Resource Mapper tool.

Final determination of the jurisdictional status of the wetlands identified on the Project Site must be made by both the USACE and the NYSDEC upon completion of detailed reviews by those agencies. In addition, review of the wetlands delineated against the Town maps will need to be conducted once the maps are obtained to determine whether the wetlands will be regulated by the Town.

7.0 REFERENCES

Environmental Laboratory 1987. Corps of Engineers Wetland Delineation Manual. Vicksburg, MS, 92 pp. U.S. Army Corps of Engineers.

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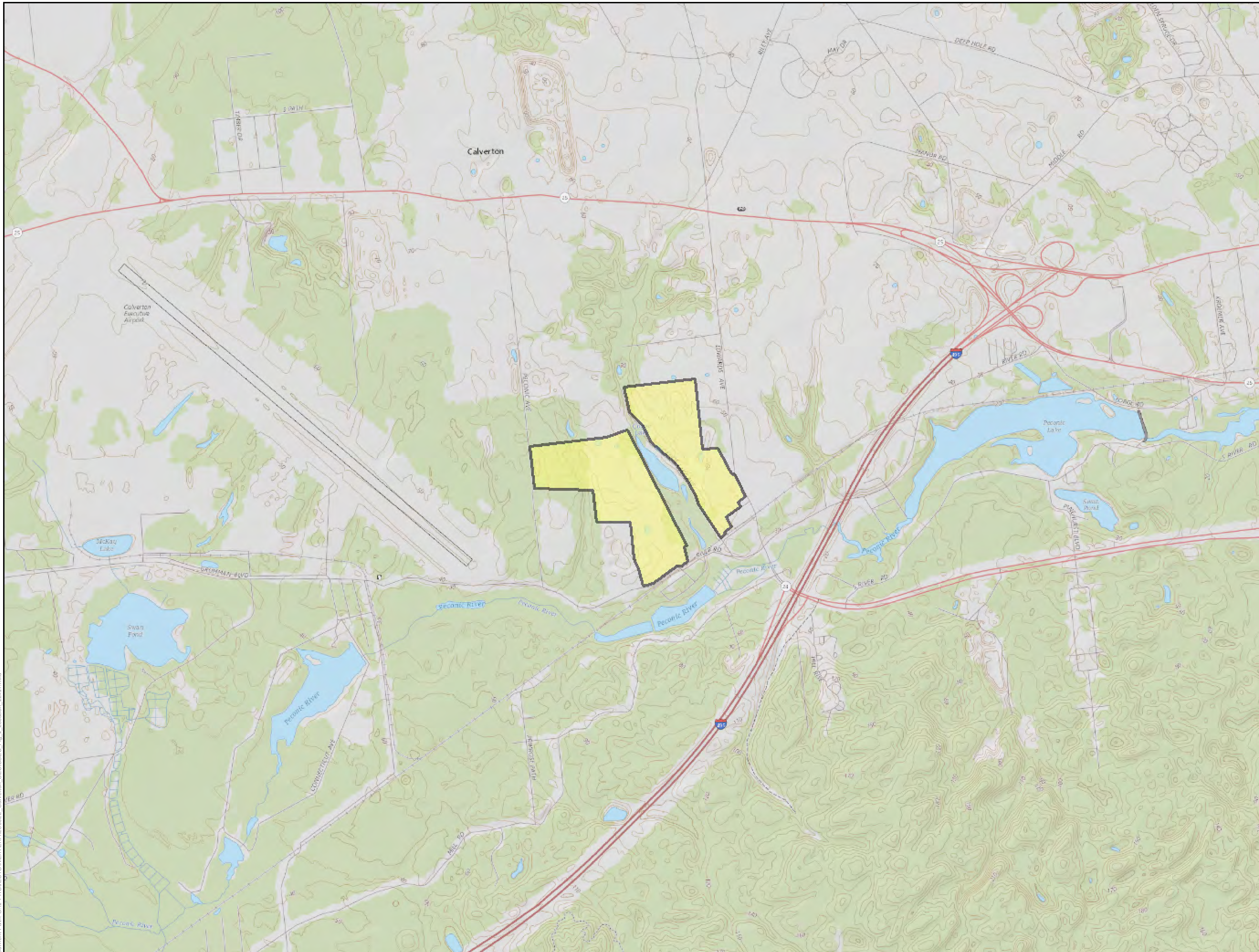
APPENDIX A

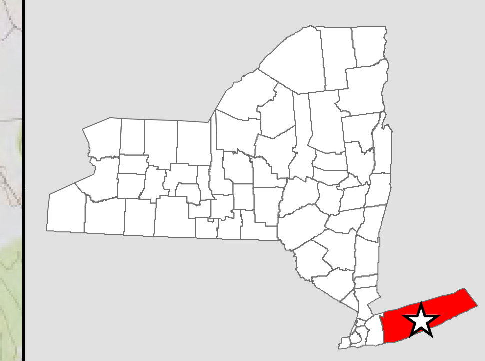
Figure 1. Site Location Map

Figure 2. Soil Map

Figure 3. Federal and State Mapped Aquatic Resources, FEMA Floodplain Mapping

Figure 4. Delineated Resources





Legend

Approximate Project Parcel Boundary

N

0 1,500 3,000

Feet

Data Sources: TRC, USGS

NEXTera ENERGY RESOURCES

Calverton Solar Energy Center

Figure 1

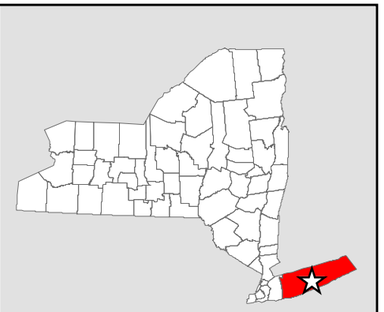
Site Location Map

Town of Riverhead, Suffolk County, NY

TRC 1200 Wall Street W Lyndhurst, NJ 07071

Created: 11/28/2017

Document Path: S:\1-PROJECTS\NEXTERA\286622_Calverton_SEC\CSEC_Fig_1_Location_11x17.mxd



Legend

- Approximate Project Parcel Boundary
- SSURGO Soils

N

0 250 500

Feet

Data Sources: TRC, USDA, NYGIS

NEXTera® ENERGY RESOURCES

Calverton Solar Energy Center

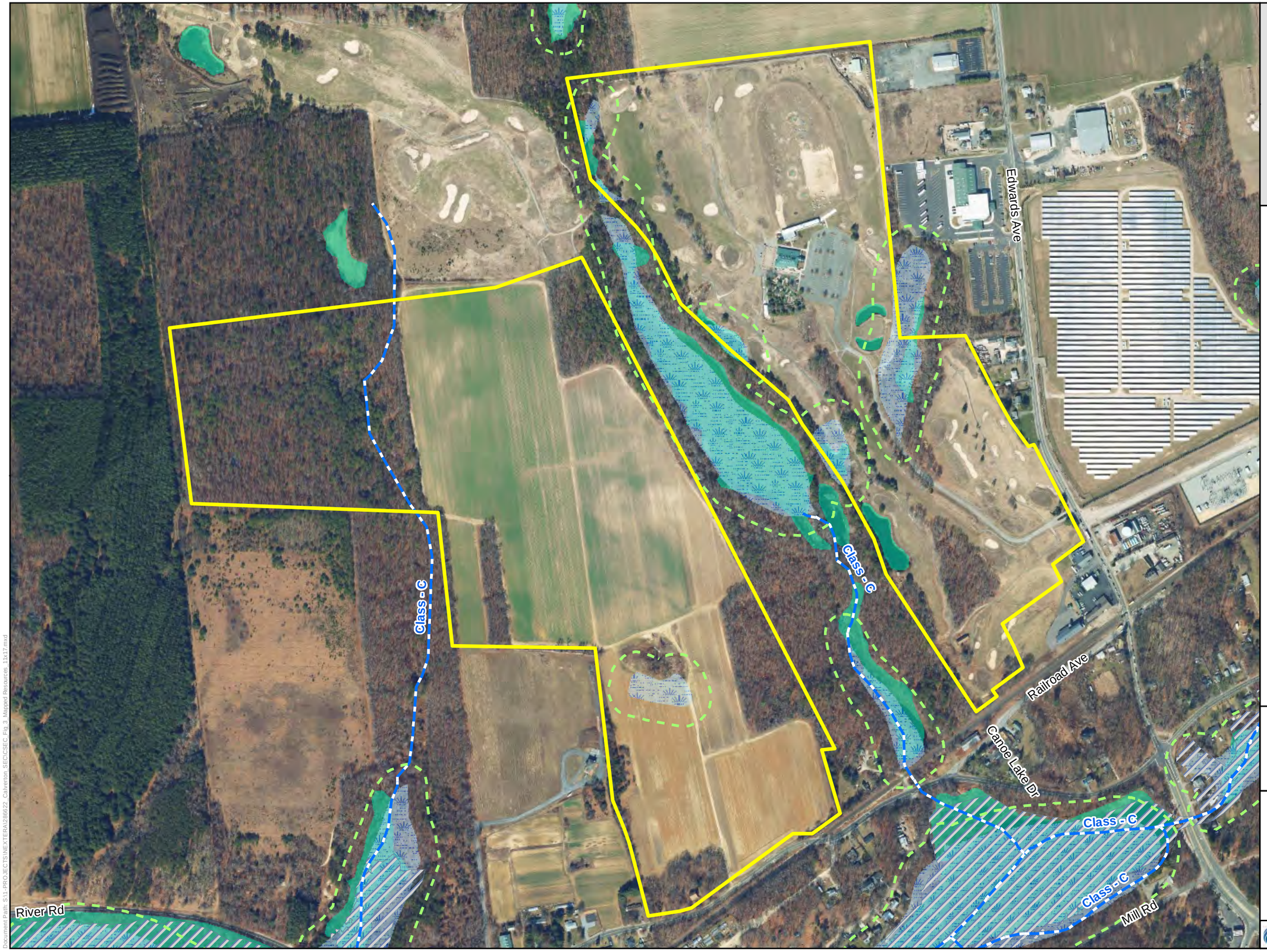
Figure 2
Soils Map

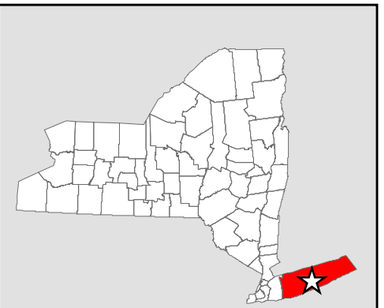
Town of Riverhead, Suffolk County, NY

TRC 1200 Wall Street W Lyndhurst, NJ 07071

Created: 11/28/2017

Document Path: S:\1-PROJECTS\NEXTERA\286622_Calverton_SEC\GSEC_Fig_2_Soils_11x17.mxd





Legend

- Approximate Project Parcel Boundary
- NYSDEC Streams
- NYSDEC Wetlands
- NWI Wetlands
- FEMA 100yr Flood Hazard
- NYSDEC 100 ft Regulated Adjacent Area

0 250 500

Feet

Data Sources: TRC, USFWS, NYSDEC, NYGIS, FEMA

NEXTera® ENERGY RESOURCES

Calverton Solar Energy Center

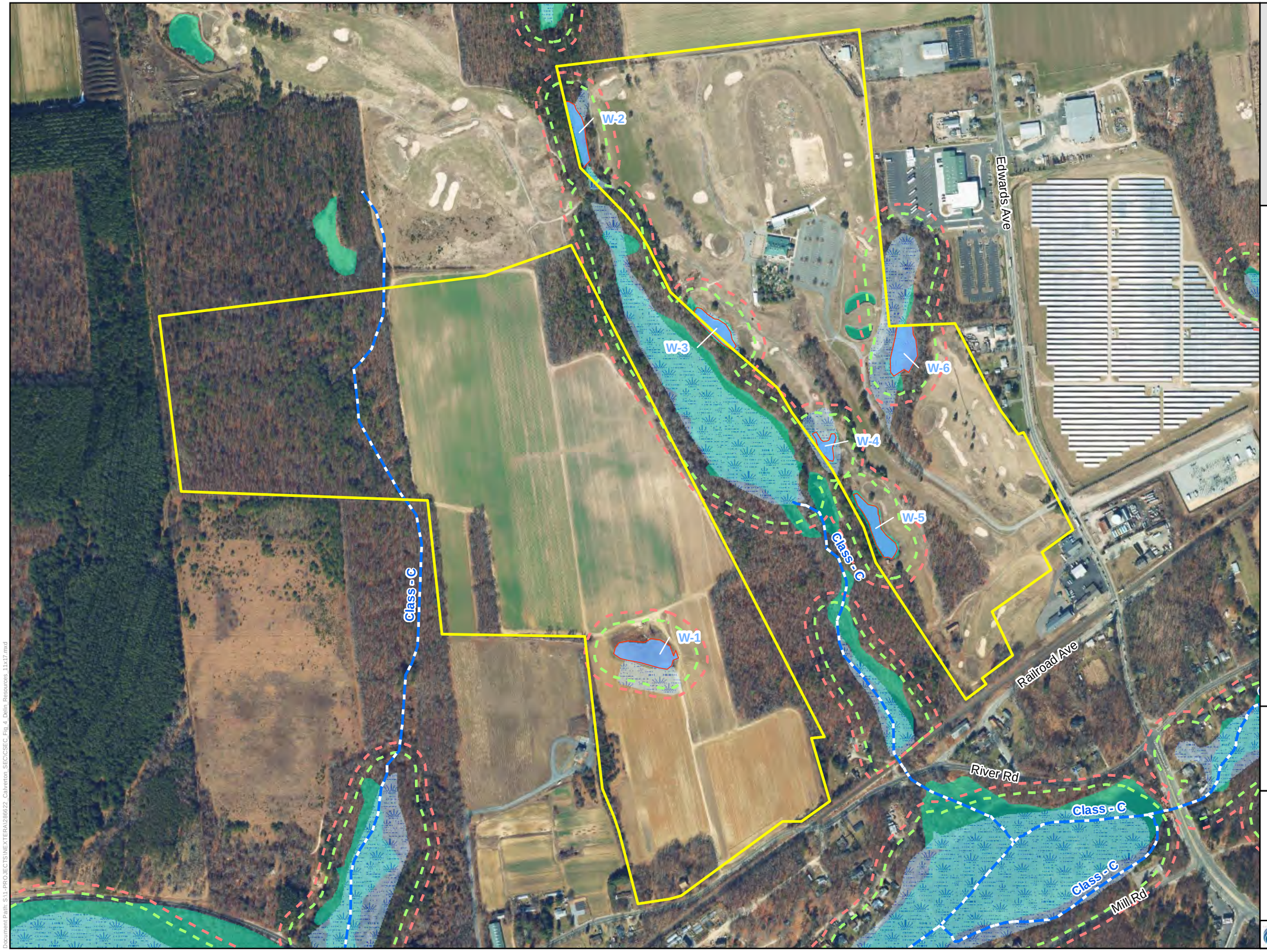
Figure 3
Federal & State Wetland, Waterbody, & Floodplain Map

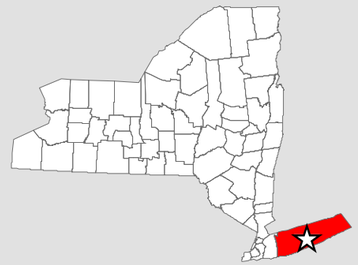
Town of Riverhead, Suffolk County, NY

TRC 1200 Wall Street W Lyndhurst, NJ 07071

Created: 11/29/2017

Document Path: S:\1-PROJECTS\NEXTERA\286622_Calverton_SEC\CSEC_Fig_3_Mapped Resources_11x17.mxd





Legend

- Approximate Parcel Boundary
- Delineated Wetland Boundary (TRC)
- Delineated Wetlands (TRC)
- NWI Wetlands
- NYSDEC Wetlands
- NYSDEC Streams
- Assumed NYSDEC 100 ft Regulated Adjacent Area
- Assumed Town 150 ft Regulated Area

N

0 250 500

Feet

Data Sources: TRC, USFWS, NYSDEC, NYGIS

NEXTera® ENERGY RESOURCES

Calverton Solar Energy Center

Figure 4
Delineated Resources Map

Town of Riverhead, Suffolk County, NY

TRC 1200 Wall Street W Lyndhurst, NJ 07071

Created: 12/1/2017

Document Path: S:\1-PROJECTS\NEXTERA\286622_Calverton_SEC\GSEC_Fig 4_Delin_Resources_11x17.mxd

APPENDIX B
Photographs

APPENDIX B: PHOTOGRAPHS

Photograph 1: View northwest at wetland W1, located on the western parcel. This wetland is physically isolated from waters of the U.S.

Photograph 2: View east across the northern part of the western parcel. Typical non-wetland, agricultural land use of the parcel.

APPENDIX B: PHOTOGRAPHS

Photograph 3: View north at sampling point within scrub/shrub dominated wetland W2, in the northwestern part of the eastern parcel. The wetland is physically isolated from waters of the U.S.

Photograph 4: Hydric soils from within wetland W2.

APPENDIX B: PHOTOGRAPHS

Photograph 5: Upland habitat adjacent to wetland W2.

Photograph 6: View north at sampling point for wetland W3, adjacent to a former golf course pond. The wetland and pond are physically isolated from waters of the U.S.

APPENDIX B: PHOTOGRAPHS

Photograph 7: View northeast depicting the sloping upland habitat adjacent to wetland W3. The mowed area is part of a former golf course currently used for disc golf.

Photograph 8: View west at wetland W4, established in a small cove adjacent to a former golf course pond. The wetland and pond are physically isolated from waters of the U.S.

APPENDIX B: PHOTOGRAPHS

Photograph 9: View southeast at the upland sampling point adjacent to wetland W4.

Photograph 10: View south across resource W5, a former golf course pond without associated wetlands. This resource is physically isolated from waters of the U.S.

APPENDIX B: PHOTOGRAPHS

Photograph 11: View southeast across upland habitat adjacent to resource W5.

Photograph 12: View north across wetland W6, located in the eastern portion of the eastern parcel. This wetland extends offsite to the north. Based on available mapping, it is a physically isolated resource.

APPENDIX B: PHOTOGRAPHS

Photograph 13: Hydric soils from within wetland W6.

Photograph 14: View west across the northern decorative, textile-lined pond in the eastern parcel. This former golf course pond was not delineated as an aquatic resource.

APPENDIX B: PHOTOGRAPHS

Photograph 15: View west across the southern decorative, textile-lined pond in the eastern parcel. This former golf course pond was not delineated as an aquatic resource.

Photograph 16: View south along a forested swale that is depicted as a Class C stream by the NYSDEC's online ERM. See sections 2.4 and 4.3 of the report for details.

APPENDIX C

Table 1. Mapped Soils

Table 2. Delineated Wetlands

Table 3. Vegetation Inventory

Appendix C - Table 1: Mapped Soils

Symbol	Map Unit Name	Natural Drainage Class*	Percent Hydric
CpA	Carver and Plymouth sands, 0 to 3 percent slopes	Excessively drained	0
CpC	Carver and Plymouth sands, 3 to 15 percent slopes	Excessively drained	0
CpE	Carver and Plymouth sands, 15 to 35 percent slopes	Excessively drained	0
CuB	Cut and fill land, gently sloping	Not applicable	0
HaA	Haven loam, 0 to 2 percent slopes	Well drained	0
HaB	Haven loam, 2 to 6 percent slopes	Well drained	0
HaC	Haven loam, 6 to 12 percent slopes	Well drained	0
He	Haven loam, thick surface layer	Well drained	0
PlB	Plymouth loamy sand, 3 to 8 percent slopes	Excessively drained	0
PlC	Plymouth loamy sand, 8 to 15 percent slopes	Excessively drained	0
RdA	Riverhead sandy loam, 0 to 3 percent slopes	Well drained	0
RdB	Riverhead sandy loam, 3 to 8 percent slopes	Well drained	0
RdC	Riverhead sandy loam, 8 to 15 percent slopes	Well drained	0
We	Wareham loamy sand	Poorly drained, Somewhat poorly drained	60

***Natural Drainage Class** refers to the frequency and duration of wet periods under conditions similar to those under which the soil developed. Alteration of the water regime by man, either through drainage or irrigation, is not a consideration unless the alterations have significantly changed the morphology of the soil. The seven natural drainage classes defined by the NRCS are:
Excessively drained. Water is removed very rapidly. The occurrence of internal free water commonly is very rare or very deep. The soils are commonly coarse-textured and have very high hydraulic conductivity or are very shallow.

Somewhat excessively drained. Water is removed from the soil rapidly. Internal free water occurrence commonly is very rare or very deep. The soils are commonly coarse-textured and have high saturated hydraulic conductivity or are very shallow.
Well drained. Water is removed from the soil readily but not rapidly. Internal free water occurrence commonly is deep or very deep; annual duration is not specified. Water is available to plants throughout most of the growing season in humid regions. Wetness does not inhibit growth of roots for significant periods during most growing seasons. The soils are mainly free of the deep redoximorphic features that are related to wetness.
Moderately well drained. Water is removed from the soil somewhat slowly during some periods of the year. Internal free water occurrence commonly is moderately deep and transitory through permanent. The soils are wet for only a short time within the rooting depth during the growing season, but long enough that most mesophytic crops are affected. They commonly have a moderately low or lower saturated hydraulic conductivity in a layer within the upper 1 meter, periodically receive high rainfall, or both.
Somewhat poorly drained. Water is removed slowly so that the soil is wet at a shallow depth for significant periods during the growing season. The occurrence of internal free water commonly is shallow to moderately deep and transitory to permanent. Wetness markedly restricts the growth of mesophytic crops, unless artificial drainage is provided. The soils commonly have one or more of the following characteristics: low or very low saturated hydraulic conductivity, a high water table, additional water from seepage, or nearly continuous rainfall.
Poorly drained. Water is removed so slowly that the soil is wet at shallow depths periodically during the growing season or remains wet for long periods. The occurrence of internal free water is shallow or very shallow and common or persistent. Free water is commonly at or near the surface long enough during the growing season so that most mesophytic crops cannot be grown, unless the soil is artificially drained. The soil, however, is not continuously wet directly below plow-depth. Free water at shallow depth is usually present. This water table is commonly the result of low or very low saturated hydraulic conductivity of nearly continuous rainfall, or of a combination of these.
Very poorly drained. Water is removed from the soil so slowly that free water remains at or very near the ground surface during much of the growing season. The occurrence of internal free water is very shallow and persistent or permanent. Unless the soil is artificially drained, most mesophytic crops cannot be grown. The soils are commonly level or depressed and frequently ponded. If rainfall is high or nearly continuous, slope gradients may be greater.

Appendix C - Table 2: Wetlands Delineated at the Site

Field ID	Estimated Area within the Project Site[1] (acres)	Field Designated NWI Classification[1]	NWI Classification[2]	NYSDEC Classification[1]	Assumed Jurisdictional Status[3]	Assumed Buffer/ Setback Requirements	General Description
W1	0.78	PFO/PEM	N/A	2	NYSDEC/Town	100/150 feet	Forested/emergent wetland dominated by pink weed, wool-grass, and mile-a minute
W2	0.39	PSS1	PUBHx	N/A	NYSDEC/Town	100/150 feet	Scrub/shrub wetland dominated by common buttonbush.
W3	0.41	PUB/PEM	PUBHx	1	NYSDEC/Town	100/150 feet	Excavated, former golf course pond with herbaceous wetland margin.
W4	0.20	PUB/PEM	PUBHx	1	NYSDEC/Town	100/150 feet	Excavated, former golf course pond with herbaceous wetland margin.
W5	0.54	PUB/PEM	PUBHx	N/A	NYSDEC/Town	100/150 feet	Excavated, former golf course pond with a very narrow herbaceous wetland margin. Considered to be only a pond for the purposes of the delineation.
W6	0.53	PEM	PUBHx	2	NYSDEC/Town	100/150 feet	Excavated, former golf course pond, which is essentially all herbaceous wetland.

[1] Boundaries of delineated resources have not been field verified by the USACE or NYSDEC or confirmed against Town maps.
[2] *The Classification of Wetlands and Deepwater Habitats of the United States, Second Edition* (Federal Geographic Data Committee 2013):
PFO1 - Palustrine forested, broad-leaved deciduous;
PSS1 - Palustrine scrub/shrub, broad-leaved deciduous;
PEM2 - Palustrine emergent non-persistent
PUB – Palustrine unconsolidated bottom (PUBHx – permanently flooded, excavated)
[3] These are not official jurisdictional statuses, as the final determinations of jurisdiction are made by the NYSDEC, the USACE and/or the Town of Riverhead.

Appendix C - Table 3: Vegetation Inventory

Scientific Name	Common Name	Indicator Status*
Acer platanoides	Norway maple	UPL
Acer rubrum	Red maple	FAC
Alliaria petiolata	Garlic mustard	FACU
Amelanchier sanguinea	Round-leaf shadbush	NL
Ampelopsis brevipedunculata	Porcelain-berry	NL
Apocynum androsaemifolium	Spreading dogbane	UPL
Artemisia vulgaris	Common mugwort	UPL
Berberis thunbergii	Japanese barberry	FACU
Betula populifolia	Gray birch	FAC
Carex comosa	Bearded sedge	OBL
Celastrus orbiculatus	Asian bittersweet	UPL
Cephalanthus occidentalis	Common buttonbush	OBL
Chimaphila maculata	Striped wintergreen	NL
Clethra alnifolia	Sweet pepperbush	FAC
Comptonia peregrina	Sweetfern	NL
Cyperus diandrus	Umbrella flatsedge	OBL
Cypripedium acuale	Pink lady's slipper	FACW
Dactylis glomerata	Orchard grass	FACU
Dendrolycopodium obscurum	Princess-pine	FACU
Dichanthelium acuminatum	Tapered rosette-grass	FAC
Dichanthelium clandestinum	Deer-tongue witch-grass	FACW
Diphasiastrum digitatum	Running ground-cedar	NL
Echinochloa crus-galli	Barnyard grass	FAC
Elaeagnus umbellata	Autumn olive	NL
Eleocharis obtusa	Blunt spikerush	OBL
Eleusine indica	India goose-grass	FACU
Eupatorium perfoliatum	Common boneset	FACW
Euthamia caroliniana	Slender-leaved goldenrod	FAC
Fagus grandifolia	American beech	FACU
Fraxinus americana	White ash	FACU
Gaultheria procumbens	Eastern teaberry	FACU
Gaylussacia baccata	Black huckleberry	FACU
Gratiola neglecta	Clammy hedge-hyssop	OBL
Ilex opaca	American holly	FACU
Juglans nigra	Black walnut	FACU
Juncus canadensis	Canada rush	OBL
Juncus effusus	Soft rush	OBL
Juncus tenuis	Path rush	FAC
Juniperus virginiana	Eastern red cedar	FACU
Kalmia latifolia	Mountain laurel	FACU

Scientific Name	Common Name	Indicator Status*
Ligustrum ovalifolium	California privet	NL
Linaria vulgaris	Butter-and-eggs	NL
Lonicera japonica	Japanese honeysuckle	FACU
Lonicera morrowii	Morrow's honeysuckle	FACU
Lycopus uniflorus	Northern bugleweed	OBL
Lyonia mariana	Piedmont staggerbush	FAC
Mikania scandens	Climbing hemp-vine	OBL
Morella pensylvanica	Northern bayberry	FAC
Morus alba	White mulberry	FACU
Nyssa sylvatica	Black gum	FAC
Oenothera biennis	Common evening-primrose	FACU
Parthenocissus quinquefolia	Virginia creeper	FACU
Persicaria pensylvanica	Pink-weed	FACW
Persicaria perfoliata	Mile-a-minute	FAC
Phragmites australis	Common reed	FACW
Phytolacca americana	Common pokeweed	FACU
Picea abies	Norway spruce	NL
Pinus rigida	Pitch pine	FACU
Pinus strobus	Eastern white pine	FACU
Plantago lanceolata	English plantain	FACU
Plantago major	Common plantain	FACU
Polystichum acrostichoides	Christmas fern	FACU
Potentilla simplex	Oldfield cinquefoil	FACU
Prunus avium	Sour cherry	FACU
Prunus serotina	Black cherry	FACU
Prunus virginiana	Choke cherry	FACU
Pseudotsuga menziesii	Douglas fir	FACU
Pteridium aquilinum	Bracken fern	FACU
Pyrola elliptica	Shinleaf	FACU
Quercus alba	White oak	FACU
Quercus coccinea	Scarlet oak	NL
Quercus palustris	Pin oak	FACW
Quercus prinoides	Dwarf chestnut oak	NL
Quercus rubra	Northern red oak	FACU
Quercus velutina	Black oak	NL
Reynoutria japonica	Japanese knotweed	FACU
Robinia pseudoacacia	Black locust	FACU
Rosa multiflora	Multiflora rose	FACU
Rubus allegheniensis	Allegheny blackberry	FACU
Rubus flagellaris	Whiplash dewberry	FACU
Rubus hispidus	Bristly dewberry	FACW
Rubus occidentalis	Black raspberry	NL

Scientific Name	Common Name	Indicator Status*
Rumex obtusifolius	Bitter dock	FAC
Salix caprea	Goat willow	FAC
Salix nigra	Black willow	OBL
Sassafras albidum	Sassafras	FACU
Schizachyrium scoparium	Little bluestem	FACU
Schoenoplectus tabernaemontani	Softstem bulrush	OBL
Scirpus cyperinus	Wool-grass	OBL
Scirpus pendulus	Rufous bulrush	OBL
Setaria faberi	Faber's bristle-grass	FACU
Setaria pumila	Yellow bristle-grass	FAC
Smilax glauca	Saw-brier	FACU
Smilax rotundifolia	Common greenbrier	FAC
Solidago altissima	Tall goldenrod	FACU
Solidago bicolor	Silver-rod	NL
Sparganium americanum	American bur-reed	OBL
Toxicodendron radicans	Poison ivy	FAC
Trifolium repens	White clover	FACU
Triticum aestivalis	Winter wheat	NL
Typha latifolia	Broad-leaf cattail	OBL
Vaccinium angustifolium	Late lowbush blueberry	FACU
Vaccinium cf. *stamineum*	Deerberry	FACU
Vaccinium corymbosum	Highbush blueberry	FACW
Vaccinium pallidum	Blue Ridge blueberry	NL
Vitis sp.	Grape	NA
Xanthium strumarium	Cocklebur	FAC

***Indicator Status Categories (Official Short Definitions)**
Obligate Wetland Plants (OBL): Almost always occur in wetlands.
Facultative Wetland Plants (FACW): Usually occur in wetlands, but may occur in non-wetlands.
Facultative Wetland Plants (FAC): Occur in wetlands and non-wetlands.
Facultative Upland Plants (FACU): Usually occur in non-wetlands, but may occur in wetlands.
Upland Plants (UPL): Almost never occur in wetlands.
Source: Lichvar, R.W., N.C. Melvin, M.L. Butterwick, and W.N. Kirchner. 2012. National Wetland Plant List Indicator Rating Definitions. US Army Corps of Engineers, Engineer Research and Development Center. ERDC/CRREL TN-12-1.
Current Species Ratings: Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X
Unofficial Indicators Used in this Table
Not Applicable (NA): Applied to plants that were not identified to species level.
Not Listed (NL): Applied to species not listed in any region on the National Wetland Plant List. Considered UPL for delineations.

APPENDIX D
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Calverton Solar Site | City/County: Riverhead / Suffolk | Sampling Date: 11/1/2017

Applicant/Owner: LI Solar Generation, LLC | State: New York | Sampling Point: W1 PFO/PEM

Investigator(s): A. Bellesheim, A. Froonjian | Section, Township, Range:

Landform (hillslope, terrace, etc.): Outwash plain | Local Relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRR or MLRA): LRR S; MLRA 149B | Lat: 40.90774463° North | Long: 72.75305852° West | Datum: WGS 1984

Soil Map Unit Name: RdB - Riverhead sandy loam, 3 to 8 percent slopes | NWI Classification: Not mapped by the NWI

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally probelmatic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Samples Area**		
Hydric Soils Present?	Yes ✓	No ____	**within a Wetland?**	Yes ✓	No ____
Wetland Hydrology Present?	Yes ✓	No ____	If yes, optional Wetland Site ID:	Near delineation flags W1-13 & W1-14	

Remarks: (Explain alternative procedures here or in a separate report.)

PFO1/PEM2 wetland without a physical nexus to waters of the U.S. This wetland is mapped by the NYSDEC ERM.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Wetland Hydrology Indicators (minimum of one is required; list all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches):	4	
Water Table Present?	Yes ✓	No ____	Depth (inches):	0	
Saturation Present? (includes capliary fringe)	Yes ✓	No ____	Depth (inches):	0	**Wetland Hydrology Present? Yes ✓ No ____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Recent very heavy rain on October 30, 2017.

VEGETATION - Use scientific names of plants.

Sampling Point: W1 PFO/PEM

Tree Stratum (Plot size: 30 ft.)		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Salix nigra*	25.0	Yes	OBL
2.	*Quercus palustris*	10.0	Yes	FACW
3.				
4.				
5.				
6.				
7.				
		35.0 =Total Cover	50% =	17.5
			20% =	7
Sapling/Shrub Stratum (Plot size: 15 ft.)				
1.	*Rosa multiflora*	10.0	Yes	FACU
2.				
3.				
4.				
5.				
6.				
7.				
		10.0 =Total Cover	50% =	5
			20% =	2
Herb Stratum (Plot size: 5 ft.)				
1.	*Persicaria perfoliata*	55.0	Yes	FAC
2.	*Rumex obtusifolius*	20.0	Yes	FAC
3.	*Persicaria pensylvanica*	5.0	No	FACW
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11				
12				
		80.0 =Total Cover	50% =	40
			20% =	16
Woody Vine Stratum (Plot size: 30 ft.)				
1.	*Celastrus orbiculatus*	20.0	Yes	UPL
2.	*Smilax rotundifolia*	5.0	Yes	FAC
3.				
4.				
		25.0 =Total Cover	50% =	12.5
			20% =	5

DominanceTest worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 71.4% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25.0	x 1 =	25.0
FACW species	15.0	x 2 =	30.0
FAC species	80.0	x 3 =	240.0
FACU species	10.0	x 4 =	40.0
UPL species	20.0	x 5 =	100.0
Column Totals	150.0		435.0
	(A)		(B)

Prevalence Index (B/A) = 2.9

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is > 50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 inches (7.6 centimeters) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 inches DBH and greater than 3.28 feet (1 meter) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 feet tall.

Woody Vines - All woody vines greater than 3.28 feet in height.

HydrophyticVegetation Present? **Yes** ✓ **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Soil

Sampling Point: W1 PFO/PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type	Location	Texture	Remarks
0-6	10YR 3/2	100					loamy sand	
6-14	10YR 5/2	90	10YR 6/6	10	C	M	loamy fine sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS = Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ ~~Loamy Mucky Mineral (F1) (**LRR K, L**)~~
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[2]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ ~~Coast Prairie Redox (A16) (**LRR K, L, R**)~~
- ___ ~~5 cm Peat or Mucky Peat (S3) (**LRR K, L, R**)~~
- ___ ~~Dark Surface (S7) (**LRR K, L, M**)~~
- ___ ~~Polyvalue Below Surface (S8) (**LRR K, L**)~~
- ___ ~~Thin Dark Surface (S9) (**LRR K, L**)~~
- ___ ~~Iron-Manganese Masses (F12) (**LRR K, L, R**)~~
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[2]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

This is likely a disturbed area. Broken glass was observed in the soil pit at approximately 10 inches. Perhaps a former farm pond, excavated.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Calverton Solar Site City/County: Riverhead / Suffolk Sampling Date: 11/1/2017

Applicant/Owner: LI Solar Generation, LLC State: New York Sampling Point: W1 UPL

Investigator(s): A. Bellesheim, A. Froonjian Section, Township, Range:

Landform (hillslope, terrace, etc.): Outwash plain Local Relief (concave, convex, none): None Slope (%): 2

Subregion (LRR or MLRA): LRR S; MLRA 149B Lat: 40.90767215° North Long: 72.75312899° West Datum: WGS 1984

Soil Map Unit Name: RdB - Riverhead sandy loam, 3 to 8 percent slopes NWI Classification: Not mapped by the NWI

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally probelmatic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No ✓

Hydric Soils Present? Yes ____ No ✓

Wetland Hydrology Present? Yes ____ No ✓

Is the Samples Area within a Wetland? Yes ____ No ✓

If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Upland sampling point south of delineation flags W1-13 and W1-14.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Wetland Hydrology Indicators (minimum of one is required; list all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? Yes ____ No ✓ Depth (inches): ____

(includes capliary fringe)

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point:

Tree Stratum (Plot size: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 =Total Cover	50% =	0
		20% =	0
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 =Total Cover	50% =	0
		20% =	0
Herb Stratum (Plot size: 5 ft.)			
1. *Triticum aestivalis* (emerging)	35.0	Yes	UPL
2. *Eleusine indica*	20.0	Yes	FACU
3. *Rumex obtusifolius*	5.0	No	FAC
4. *Plantago major*	2.0	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11			
12			
	62.0 =Total Cover	50% =	31
		20% =	12.4
Woody Vine Stratum (Plot size: 30 ft.)			
1.			
2.			
3.			
4.			
	0.0 =Total Cover	50% =	0
		20% =	0

DominanceTest worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.0	x 1 =	0.0
FACW species	0.0	x 2 =	0.0
FAC species	5.0	x 3 =	15.0
FACU species	22.0	x 4 =	88.0
UPL species	35.0	x 5 =	175.0
Column Totals	62.0		278.0
	(A)		(B)

Prevalence Index (B/A) = 4.5

Hydrophytic Vegetation Indicators:

_ 1 - Rapid Test for Hydrophytic Vegetation

_ 2 - Dominance Test is > 50%

_ 3 - Prevalence Index is ≤3.0[1]

_ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 inches (7.6 centimeters) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 inches DBH and greater than 3.28 feet (1 meter) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 feet tall.

Woody Vines - All woody vines greater than 3.28 feet in height.

HydrophyticVegetation Present?

Yes _ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Active agricultural field. Winter wheat emerging.

Soil

Sampling Point: W1 UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type	Location	Texture	Remarks
0-18	10YR 4/4	100					Loamy sand	Ap horizon

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS = Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ____ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ____ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ____ ~~Loamy Mucky Mineral (F1) (**LRR K, L**)~~
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[2]:

- ____ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ____ ~~Coast Prairie Redox (A16) (**LRR K, L, R**)~~
- ____ ~~5 cm Peat or Mucky Peat (S3) (**LRR K, L, R**)~~
- ____ ~~Dark Surface (S7) (**LRR K, L, M**)~~
- ____ ~~Polyvalue Below Surface (S8) (**LRR K, L**)~~
- ____ ~~Thin Dark Surface (S9) (**LRR K, L**)~~
- ____ ~~Iron-Manganese Masses (F12) (**LRR K, L, R**)~~
- ____ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ____ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ____ Red Parent Material (F21)
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[2]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Calverton Solar Site City/County: Riverhead / Suffolk Sampling Date: 11/2/2017

Applicant/Owner: LI Solar Generation, LLC State: New York Sampling Point: W2 PSS

Investigator(s): A. Bellesheim, A. Froonjian Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR S; MLRA 149B Lat: 40.91565429° North Long: 72.75419658° West Datum: WGS 1984

Soil Map Unit Name: CpC - Carver and Plymouth sands, 3 to 15 percent slopes NWI Classification: PUBHx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally probelmatic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No ____

Hydric Soils Present? Yes ✓ No ____

Wetland Hydrology Present? Yes ✓ No ____

Is the Samples Area within a Wetland? Yes ✓ No ____

If yes, optional Wetland Site ID: Near delineation flag W2-2

Remarks: (Explain alternative procedures here or in a separate report.)

This wetland is mapped by the NWI and the NYSDEC ERM.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Wetland Hydrology Indicators (minimum of one is required; list all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? Yes ____ No ✓ Depth (inches): ____

(includes capliary fringe)

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point:

Tree Stratum (Plot size: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix caprea*	5.0	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5.0 =Total Cover	50% =	2.5
		20% =	1
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Cephalanthus occidentalis*	75.0	Yes	OBL
2. *Nyssa sylvatica*	2.0	No	FAC
3.			
4.			
5.			
6.			
7.			
	77.0 =Total Cover	50% =	38.5
		20% =	15.4
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	15.0	Yes	FACW
2. *Lonicera japonica*	10.0	Yes	FACU
3. *Phragmites australis*	10.0	Yes	FACW
4. *Toxicodendron radicans*	5.0	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11			
12			
	40.0 =Total Cover	50% =	20
		20% =	8
Woody Vine Stratum (Plot size: 30 ft.)			
1. *Smilax rotundifolia*	10.0	Yes	FAC
2.			
3.			
4.			
	10.0 =Total Cover	50% =	5
		20% =	2

DominanceTest worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	75.0	x 1 =	75.0
FACW species	25.0	x 2 =	50.0
FAC species	22.0	x 3 =	66.0
FACU species	10.0	x 4 =	40.0
UPL species	0.0	x 5 =	0.0
Column Totals	132.0 (A)		231.0 (B)

Prevalence Index (B/A) = 1.8

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is > 50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ✓ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 inches (7.6 centimeters) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 inches DBH and greater than 3.28 feet (1 meter) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 feet tall.

Woody Vines - All woody vines greater than 3.28 feet in height.

HydrophyticVegetation Present?

Yes ✓ **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Morphological adaptations: Adventitious roots on *Cephalanthus occidentalis*.

Soil

Sampling Point: W2 PSS

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type	Location	Texture	Remarks
0-7	10YR 3/2	100					sand	
7-16	2.5Y 5/2	95	10YR 6/6	5	C	M, RC	gravelly sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS = Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ____ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ____ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ____ ~~Loamy Mucky Mineral (F1) (**LRR K, L**)~~
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[2]:

- ____ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ____ ~~Coast Prairie Redox (A16) (**LRR K, L, R**)~~
- ____ ~~5 cm Peat or Mucky Peat (S3) (**LRR K, L, R**)~~
- ____ ~~Dark Surface (S7) (**LRR K, L, M**)~~
- ____ ~~Polyvalue Below Surface (S8) (**LRR K, L**)~~
- ____ ~~Thin Dark Surface (S9) (**LRR K, L**)~~
- ____ ~~Iron-Manganese Masses (F12) (**LRR K, L, R**)~~
- ____ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ____ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ____ Red Parent Material (F21)
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[2]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Calverton Solar Site City/County: Riverhead / Suffolk Sampling Date: 11/2/2017

Applicant/Owner: LI Solar Generation, LLC State: New York Sampling Point: W2 UPL

Investigator(s): A. Bellesheim, A. Froonjian Section, Township, Range:

Landform (hillslope, terrace, etc.): Outwash plain Local Relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR or MLRA): LRR S; MLRA 149B Lat: 40.91567220° North Long: 72.75403067° West Datum: WGS 1984

Soil Map Unit Name: CpC - Carver and Plymouth sands, 3 to 15 percent slopes NWI Classification: Not mapped by the NWI

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally probelmatic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No ✓

Hydric Soils Present? Yes ____ No ✓

Wetland Hydrology Present? Yes ____ No ✓

Is the Samples Area within a Wetland? Yes ____ No ✓

If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Upland area east of delineation flags W2-2 and W2-3

HYDROLOGY

Wetland Hydrology Indicators:

Primary Wetland Hydrology Indicators (minimum of one is required; list all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? Yes ____ No ✓ Depth (inches): ____

(includes capliary fringe)

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: W2 UPL

Tree Stratum (Plot size: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus coccinea*	45.0	Yes	UPL
2. *Pinus rigida*	35.0	Yes	FACU
3. *Prunus serotina*	5.0	No	FACU
4.			
5.			
6.			
7.			
	85.0 =Total Cover	50% =	42.5
		20% =	17
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Quercus alba*	10.0	Yes	FACU
2. *Ligustrum ovalifolium*	8.0	Yes	UPL
3. *Prunus serotina*	5.0	Yes	FACU
4. *Rosa multiflora*	3.0	No	FACU
5. *Berberis thunbergii*	2.0	No	FACU
6.			
7.			
	28.0 =Total Cover	50% =	14
		20% =	5.6
Herb Stratum (Plot size: 5 ft.)			
1. *Lonicera japonica*	25.0	Yes	FACU
2. *Rubus hispidus*	10.0	Yes	FACW
3. *Toxicodendron radicans*	5.0	No	FAC
4. *Polystichum acrostichoides*	3.0	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11			
12			
	43.0 =Total Cover	50% =	21.5
		20% =	8.6
Woody Vine Stratum (Plot size: 30 ft.)			
1. *Smilax rotundifolia*	5.0	Yes	FAC
2. *Celastrus orbiculatus*	2.0	No	UPL
3.			
4.			
	7.0 =Total Cover	50% =	3.5
		20% =	1.4

DominanceTest worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.0	x 1 =	0.0
FACW species	10.0	x 2 =	20.0
FAC species	10.0	x 3 =	30.0
FACU species	88.0	x 4 =	352.0
UPL species	55.0	x 5 =	275.0
Column Totals	163.0 (A)		677.0 (B)

Prevalence Index (B/A) = 4.2

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is > 50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 inches (7.6 centimeters) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 inches DBH and greater than 3.28 feet (1 meter) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 feet tall.

Woody Vines - All woody vines greater than 3.28 feet in height.

HydrophyticVegetation Present?

Yes _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Soil

Sampling Point: W2 UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type	Location	Texture	Remarks
0-10	10YR 3/3	100					loamy sand	
10-16	10YR 4/4	100					loamy sand	some gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS = Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ____ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ____ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ____ ~~Loamy Mucky Mineral (F1) (**LRR K, L**)~~
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[2]:

- ____ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ____ ~~Coast Prairie Redox (A16) (**LRR K, L, R**)~~
- ____ ~~5 cm Peat or Mucky Peat (S3) (**LRR K, L, R**)~~
- ____ ~~Dark Surface (S7) (**LRR K, L, M**)~~
- ____ ~~Polyvalue Below Surface (S8) (**LRR K, L**)~~
- ____ ~~Thin Dark Surface (S9) (**LRR K, L**)~~
- ____ ~~Iron-Manganese Masses (F12) (**LRR K, L, R**)~~
- ____ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ____ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ____ Red Parent Material (F21)
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[2]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Calverton Solar Site City/County: Riverhead / Suffolk Sampling Date: 11/1/2017

Applicant/Owner: LI Solar Generation, LLC State: New York Sampling Point: W3 PEM

Investigator(s): A. Bellesheim, A. Froonjian Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR S; MLRA 149B Lat: 40.91213496° North Long: 72.75114115° West Datum: WGS 1984

Soil Map Unit Name: CuB - Cut and fill land, gently sloping NWI Classification: PUBHx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally probelmatic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No ____

Hydric Soils Present? Yes ✓ No ____

Wetland Hydrology Present? Yes ✓ No ____

Is the Samples Area within a Wetland? Yes ✓ No ____

If yes, optional Wetland Site ID: Wetland W3

Remarks: (Explain alternative procedures here or in a separate report.)

This sampling point is within a PEM wetland established at the southern edge of an excavated, former golf course pond.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Wetland Hydrology Indicators (minimum of one is required; list all that apply)

- ✓ Surface Water (A1) ***(to the north in the pond)***
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ✓ No ____ Depth (inches): 2

Saturation Present? Yes ✓ No ____ Depth (inches): 0

(includes capliary fringe)

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Physically isolated, excavated pond.

VEGETATION - Use scientific names of plants.

Sampling Point: W3 PEM

Tree Stratum (Plot size: 30 ft.)		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		0.0	=Total Cover	50% = 0
				20% = 0
Sapling/Shrub Stratum (Plot size: 15 ft.)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		0.0	=Total Cover	50% = 0
				20% = 0
Herb Stratum (Plot size: 5 ft.)				
1.	*Gratiola neglecta*	50.0	Yes	OBL
2.	*Cyperus diandrus*	20.0	Yes	OBL
3.	*Scirpus pendulus*	10.0	No	OBL
4.	*Lycopus uniflorus*	5.0	No	OBL
5.	Also: Mowed Cyperaceae			
6.				
7.				
8.				
9.				
10.				
11				
12				
		85.0	=Total Cover	50% = 42.5
				20% = 17
Woody Vine Stratum (Plot size: 30 ft.)				
1.				
2.				
3.				
4.				
		0.0	=Total Cover	50% = 0
				20% = 0

DominanceTest worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	85.0	x 1 =	85.0
FACW species	0.0	x 2 =	0.0
FAC species	0.0	x 3 =	0.0
FACU species	0.0	x 4 =	0.0
UPL species	0.0	x 5 =	0.0
Column Totals	85.0		85.0
	(A)		(B)

Prevalence Index (B/A) = 1.0

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is > 50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 inches (7.6 centimeters) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 inches DBH and greater than 3.28 feet (1 meter) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 feet tall.

Woody Vines - All woody vines greater than 3.28 feet in height.

HydrophyticVegetation Present?

Yes ✓ **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Soil

Sampling Point: W3 PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type	Location	Texture	Remarks
0-7	10YR 2/1	100					mucky sand	
7-16	10YR 5/2	90	7.5YR 4/6	10	C	M	mucky sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS = Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ ~~Loamy Mucky Mineral (F1) (**LRR K, L**)~~
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[2]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ ~~Coast Prairie Redox (A16) (**LRR K, L, R**)~~
- ___ ~~5 cm Peat or Mucky Peat (S3) (**LRR K, L, R**)~~
- ___ ~~Dark Surface (S7) (**LRR K, L, M**)~~
- ___ ~~Polyvalue Below Surface (S8) (**LRR K, L**)~~
- ___ ~~Thin Dark Surface (S9) (**LRR K, L**)~~
- ___ ~~Iron-Manganese Masses (F12) (**LRR K, L, R**)~~
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[2]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Calverton Solar Site City/County: Riverhead / Suffolk Sampling Date: 11/2/2017

Applicant/Owner: LI Solar Generation, LLC State: New York Sampling Point: W3 UPL

Investigator(s): A. Bellesheim, A. Froonjian Section, Township, Range:

Landform (hillslope, terrace, etc.): Outwash plain Local Relief (concave, convex, none): None Slope (%): 15

Subregion (LRR or MLRA): LRR S; MLRA 149B Lat: 40.91207455° North Long: 72.75108054° West Datum: WGS 1984

Soil Map Unit Name: CuB - Cut and fill land, gently sloping NWI Classification: Not mapped by the NWI

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally probelmatic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Samples Area**		
Hydric Soils Present?	Yes ____	No ✓	**within a Wetland?**	Yes ____	No ✓
Wetland Hydrology Present?	Yes ____	No ✓	If yes, optional Wetland Site ID:		

Remarks: (Explain alternative procedures here or in a separate report.)

Sampling point is south and west of wetland W3.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Wetland Hydrology Indicators (minimum of one is required; list all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____		
Water Table Present?	Yes ____	No ✓	Depth (inches): ____		
Saturation Present? (includes capliary fringe)	Yes ____	No ✓	Depth (inches): ____	**Wetland Hydrology Present?**	**Yes** ____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: W3 UPL

Tree Stratum (Plot size: 30 ft.)		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Acer rubrum*	20.0	Yes	FAC
2.	*Pinus rigida*	10.0	Yes	FACU
3.				
4.				
5.				
6.				
7.				
		30.0 =Total Cover	50% =	15
			20% =	6
Sapling/Shrub Stratum (Plot size: 15 ft.)				
1.	*Rosa multiflora*	5.0	Yes	FACU
2.	*Cephalanthus occidentalis*	5.0	Yes	OBL
3.	*Prunus virginiana*	5.0	Yes	FACU
4.	*Quercus coccinea*	3.0	No	UPL
5.	*Elaeagnus umbellata*	2.0	No	UPL
6.				
7.				
		20.0 =Total Cover	50% =	10
			20% =	4
Herb Stratum (Plot size: 5 ft.)				
1.	*Toxicodendron radicans*	5.0	Yes	FAC
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11				
12				
		5.0 =Total Cover	50% =	2.5
			20% =	1
Woody Vine Stratum (Plot size: 30 ft.)				
1.				
2.				
3.				
4.				
		0.0 =Total Cover	50% =	0
			20% =	0

DominanceTest worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5.0	x 1 =	5.0
FACW species	0.0	x 2 =	0.0
FAC species	25.0	x 3 =	75.0
FACU species	20.0	x 4 =	80.0
UPL species	5.0	x 5 =	25.0
Column Totals	55.0 (A)		185.0 (B)

Prevalence Index (B/A) = 3.4

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤3.0[1]

4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 inches (7.6 centimeters) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 inches DBH and greater than 3.28 feet (1 meter) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 feet tall.

Woody Vines - All woody vines greater than 3.28 feet in height.

HydrophyticVegetation Present?

Yes _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Soil

Sampling Point: W3 UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type	Location	Texture	Remarks
0-4	10YR 3/3	100					loamy sand	
4-16	2.5Y 7/4	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS = Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ____ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ____ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ____ ~~Loamy Mucky Mineral (F1) (**LRR K, L**)~~
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[2]:

- ____ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ____ ~~Coast Prairie Redox (A16) (**LRR K, L, R**)~~
- ____ ~~5 cm Peat or Mucky Peat (S3) (**LRR K, L, R**)~~
- ____ ~~Dark Surface (S7) (**LRR K, L, M**)~~
- ____ ~~Polyvalue Below Surface (S8) (**LRR K, L**)~~
- ____ ~~Thin Dark Surface (S9) (**LRR K, L**)~~
- ____ ~~Iron-Manganese Masses (F12) (**LRR K, L, R**)~~
- ____ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ____ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ____ Red Parent Material (F21)
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[2]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Calverton Solar Site | City/County: Riverhead / Suffolk | Sampling Date: 11/2/2017

Applicant/Owner: LI Solar Generation, LLC | State: New York | Sampling Point: W4 PUB

Investigator(s): A. Bellesheim, A. Froonjian | Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression | Local Relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRR or MLRA): LRR S; MLRA 149B | Lat: 40.91085230° North | Long: 72.74927356° West | Datum: WGS 1984

Soil Map Unit Name: CuB - Cut and fill land, gently sloping | NWI Classification: PUBHx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally probelmatic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Samples Area**		
Hydric Soils Present?	Yes ✓	No ____	**within a Wetland?**	Yes ✓	No ____
Wetland Hydrology Present?	Yes ✓	No ____	If yes, optional Wetland Site ID:	Wetland W4	

Remarks: (Explain alternative procedures here or in a separate report.)

This sampling point is within a PEM wetland established at the eastern edge of an excavated, former golf course pond.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Wetland Hydrology Indicators (minimum of one is required; list all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches):	3+	
Water Table Present?	Yes ✓	No ____	Depth (inches):	0	
Saturation Present? (includes capliary fringe)	Yes ✓	No ____	Depth (inches):	0	**Wetland Hydrology Present?** Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: W4 PUB

Tree Stratum (Plot size: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 =Total Cover	50% =	0
		20% =	0
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 =Total Cover	50% =	0
		20% =	0
Herb Stratum (Plot size: 5 ft.)			
1. *Sparganium* cf. *americanum*	60.0	Yes	OBL
2. *Typha latifolia*	20.0	Yes	OBL
3. *Juncus canadensis*	10.0	No	OBL
4. *Gratiola neglecta*	5.0	No	OBL
5. *Euthamia caroliniana*	3.0	No	FAC
6.			
7.			
8.			
9.			
10.			
11			
12			
	98.0 =Total Cover	50% =	49
		20% =	19.6
Woody Vine Stratum (Plot size: 30 ft.)			
1.			
2.			
3.			
4.			
	0.0 =Total Cover	50% =	0
		20% =	0

DominanceTest worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	95.0	x 1 =	95.0
FACW species	0.0	x 2 =	0.0
FAC species	3.0	x 3 =	9.0
FACU species	0.0	x 4 =	0.0
UPL species	0.0	x 5 =	0.0
Column Totals	98.0		104.0
	(A)		(B)

Prevalence Index (B/A) = 1.1

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is > 50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 inches (7.6 centimeters) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 inches DBH and greater than 3.28 feet (1 meter) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 feet tall.

Woody Vines - All woody vines greater than 3.28 feet in height.

HydrophyticVegetation Present?

Yes ✓ **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Soil

Sampling Point: W4 PUB

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type	Location	Texture	Remarks
0-4	10YR 2/2	100					loamy sand	
4-8	10YR 5/1	95	7.5YR 6/6	5	C	M	loamy sand	
8-16	2.5Y 6/2	85	10YR 4/6	15	C	M	sand	blotchy, rounded areas of redox; diffuse

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS = Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ✓ Stripped Matrix (S6)
- ____ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ____ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ____ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ____ ~~Loamy Mucky Mineral (F1) (**LRR K, L**)~~
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[2]:

- ____ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ____ ~~Coast Prairie Redox (A16) (**LRR K, L, R**)~~
- ____ ~~5 cm Peat or Mucky Peat (S3) (**LRR K, L, R**)~~
- ____ ~~Dark Surface (S7) (**LRR K, L, M**)~~
- ____ ~~Polyvalue Below Surface (S8) (**LRR K, L**)~~
- ____ ~~Thin Dark Surface (S9) (**LRR K, L**)~~
- ____ ~~Iron-Manganese Masses (F12) (**LRR K, L, R**)~~
- ____ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ____ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ____ Red Parent Material (F21)
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[2]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Calverton Solar Site City/County: Riverhead / Suffolk Sampling Date: 11/2/2017

Applicant/Owner: LI Solar Generation, LLC State: New York Sampling Point: W4 UPL

Investigator(s): A. Bellesheim, A. Froonjian Section, Township, Range:

Landform (hillslope, terrace, etc.): Outwash plain Local Relief (concave, convex, none): None Slope (%): 50

Subregion (LRR or MLRA): LRR S; MLRA 149B Lat: 40.91087599° North Long: 72.74922438° West Datum: WGS 1984

Soil Map Unit Name: CuB - Cut and fill land, gently sloping NWI Classification: Not mapped by the NWI

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally probelmatic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No ✓

Hydric Soils Present? Yes ____ No ✓

Wetland Hydrology Present? Yes ____ No ✓

Is the Samples Area within a Wetland? Yes ____ No ✓

If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Sampling point is on the upper slope of an excavated, former golf course pond. East of wetland W4.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Wetland Hydrology Indicators (minimum of one is required; list all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? Yes ____ No ✓ Depth (inches): ____

(includes capliary fringe)

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: W4 UPL

Tree Stratum (Plot size: 30 ft.)		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		0.0	=Total Cover	50% = 0
				20% = 0
Sapling/Shrub Stratum (Plot size: 15 ft.)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		0.0	=Total Cover	50% = 0
				20% = 0
Herb Stratum (Plot size: 5 ft.)				
1.	*Artemisia vulgaris*	45.0	Yes	UPL
2.	*Euthamia caroliniana*	10.0	No	FAC
3.	*Schizachyrium scoparium*	10.0	No	FACU
4.	Mowed grasses			NA
5.				
6.				
7.				
8.				
9.				
10.				
11				
12				
		65.0	=Total Cover	50% = 32.5
				20% = 13
Woody Vine Stratum (Plot size: 30 ft.)				
1.				
2.				
3.				
4.				
		0.0	=Total Cover	50% = 0
				20% = 0

DominanceTest worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.0	x 1 =	0.0
FACW species	0.0	x 2 =	0.0
FAC species	10.0	x 3 =	30.0
FACU species	10.0	x 4 =	40.0
UPL species	45.0	x 5 =	225.0
Column Totals	65.0		295.0
	(A)		(B)

Prevalence Index (B/A) = 4.5

Hydrophytic Vegetation Indicators:

_ 1 - Rapid Test for Hydrophytic Vegetation

_ 2 - Dominance Test is > 50%

_ 3 - Prevalence Index is ≤3.0[1]

_ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 inches (7.6 centimeters) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 inches DBH and greater than 3.28 feet (1 meter) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 feet tall.

Woody Vines - All woody vines greater than 3.28 feet in height.

HydrophyticVegetation Present?

Yes _ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Soil

Sampling Point: W4 UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type	Location	Texture	Remarks
0-5	10YR 3/4	100					loamy sand	
5-16	10YR 4/4	100					loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS = Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ____ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ____ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ____ ~~Loamy Mucky Mineral (F1) (**LRR K, L**)~~
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[2]:

- ____ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ____ ~~Coast Prairie Redox (A16) (**LRR K, L, R**)~~
- ____ ~~5 cm Peat or Mucky Peat (S3) (**LRR K, L, R**)~~
- ____ ~~Dark Surface (S7) (**LRR K, L, M**)~~
- ____ ~~Polyvalue Below Surface (S8) (**LRR K, L**)~~
- ____ ~~Thin Dark Surface (S9) (**LRR K, L**)~~
- ____ ~~Iron-Manganese Masses (F12) (**LRR K, L, R**)~~
- ____ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ____ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ____ Red Parent Material (F21)
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[2]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Calverton Solar Site City/County: Riverhead / Suffolk Sampling Date: 11/2/2017

Applicant/Owner: LI Solar Generation, LLC State: New York Sampling Point: W6 PEM

Investigator(s): A. Bellesheim, A. Froonjian Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR S; MLRA 149B Lat: 40.91198020° North Long: 72.74815602° West Datum: WGS 1984

Soil Map Unit Name: RdA - Riverhead sandy loam, 0 to 3 percent slopes NWI Classification: PUBHx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally probelmatic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No ____

Hydric Soils Present? Yes ✓ No ____

Wetland Hydrology Present? Yes ✓ No ____

Is the Samples Area within a Wetland? Yes ✓ No ____

If yes, optional Wetland Site ID: Wetland W6

Remarks: (Explain alternative procedures here or in a separate report.)

Wetland established within an excavated, former golf course pond. Most of this wetland is PEM - very little pond (PUB) habitat remaining.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Wetland Hydrology Indicators (minimum of one is required; list all that apply)

- ✓ Surface Water (A1) *(approx. 15 ft. north of plot)*
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 6 *(inundated north of the plot)*

Water Table Present? Yes ✓ No ____ Depth (inches): 2

Saturation Present? Yes ✓ No ____ Depth (inches): 0

(includes capliary fringe)

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: W6 PEM

Tree Stratum (Plot size: 30 ft.)		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		0.0	=Total Cover	50% = 0
				20% = 0
Sapling/Shrub Stratum (Plot size: 15 ft.)				
1.	*Cephalanthus occidentalis*	2.0	No	OBL
2.				
3.				
4.				
5.				
6.				
7.				
		2.0	=Total Cover	50% = 1
				20% = 0.4
Herb Stratum (Plot size: 5 ft.)				
1.	*Mikania scandens*	40.0	Yes	OBL
2.	*Persicaria pensylvanica*	20.0	Yes	FACW
3.	*Carex comosa*	5.0	No	OBL
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11				
12				
		65.0	=Total Cover	50% = 32.5
				20% = 13
Woody Vine Stratum (Plot size: 30 ft.)				
1.				
2.				
3.				
4.				
		0.0	=Total Cover	50% = 0
				20% = 0

DominanceTest worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	47.0	x 1 =	47.0
FACW species	20.0	x 2 =	40.0
FAC species	0.0	x 3 =	0.0
FACU species	0.0	x 4 =	0.0
UPL species	0.0	x 5 =	0.0
Column Totals	67.0		87.0
	(A)		(B)

Prevalence Index (B/A) = 1.3

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is > 50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 inches (7.6 centimeters) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 inches DBH and greater than 3.28 feet (1 meter) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 feet tall.

Woody Vines - All woody vines greater than 3.28 feet in height.

HydrophyticVegetation Present?

Yes ✓ **No**

Remarks: (Include photo numbers here or on a separate sheet.)

Soil

Sampling Point: W6 PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type	Location	Texture	Remarks
0-4	10YR 3/2	100					silt	
4-16	2.5Y 6/1	85	7.5YR 6/6	15	C	M	silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS = Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ____ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ____ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ____ ~~Loamy Mucky Mineral (F1) (**LRR K, L**)~~
- ____ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[2]:

- ____ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ____ ~~Coast Prairie Redox (A16) (**LRR K, L, R**)~~
- ____ ~~5 cm Peat or Mucky Peat (S3) (**LRR K, L, R**)~~
- ____ ~~Dark Surface (S7) (**LRR K, L, M**)~~
- ____ ~~Polyvalue Below Surface (S8) (**LRR K, L**)~~
- ____ ~~Thin Dark Surface (S9) (**LRR K, L**)~~
- ____ ~~Iron-Manganese Masses (F12) (**LRR K, L, R**)~~
- ____ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ____ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ____ Red Parent Material (F21)
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[2]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Calverton Solar Site City/County: Riverhead / Suffolk Sampling Date: 11/2/2017

Applicant/Owner: LI Solar Generation, LLC State: New York Sampling Point: W6 UPL

Investigator(s): A. Bellesheim, A. Froonjian Section, Township, Range:

Landform (hillslope, terrace, etc.): Outwash plain Local Relief (concave, convex, none): Concave Slope (%): 15

Subregion (LRR or MLRA): LRR S; MLRA 149B Lat: 40.91199122° North Long: 72.74835397° West Datum: WGS 1984

Soil Map Unit Name: RdA - Riverhead sandy loam, 0 to 3 percent slopes NWI Classification: Not mapped by the NWI

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally probelmatic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No ✓

Hydric Soils Present? Yes ____ No ✓

Wetland Hydrology Present? Yes ____ No ✓

Is the Samples Area within a Wetland? Yes ____ No ✓

If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

Sampling plot is located west of wetland W6.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Wetland Hydrology Indicators (minimum of one is required; list all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? Yes ____ No ✓ Depth (inches): ____

(includes capliary fringe)

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: W6 UPL

Tree Stratum (Plot size: 30 ft.)		Absolute % Cover	Dominant Species?	Indicator Status
1.	*Robinia pseudoacacia*	60.0	Yes	FACU
2.	*Acer rubrum*	30.0	Yes	FAC
3.	*Sassafras albidum*	2.0	No	FACU
4.				
5.				
6.				
7.				
		92.0	=Total Cover	50% = 46
				20% = 18.4
Sapling/Shrub Stratum (Plot size: 15 ft.)				
1.	*Rubus allegheniensis*	10.0	Yes	FACU
2.	*Rosa multiflora*	5.0	Yes	FACU
3.	*Smilax rotundifolia*	5.0	Yes	FAC
4.				
5.				
6.				
7.				
		20.0	=Total Cover	50% = 10
				20% = 4
Herb Stratum (Plot size: 5 ft.)				
1.	*Lonicera japonica*	75.0	Yes	FACU
2.	*Toxicodendron radicans*	10.0	No	FAC
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11				
12				
		85.0	=Total Cover	50% = 42.5
				20% = 17
Woody Vine Stratum (Plot size: 30 ft.)				
1.				
2.				
3.				
4.				
		0.0	=Total Cover	50% = 0
				20% = 0

DominanceTest worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.0	x 1 =	0.0
FACW species	0.0	x 2 =	0.0
FAC species	45.0	x 3 =	135.0
FACU species	152.0	x 4 =	608.0
UPL species	0.0	x 5 =	0.0
Column Totals	197.0 (A)		743.0 (B)

Prevalence Index (B/A) = 3.8

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤3.0[1]

4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 inches (7.6 centimeters) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 inches DBH and greater than 3.28 feet (1 meter) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 feet tall.

Woody Vines - All woody vines greater than 3.28 feet in height.

HydrophyticVegetation Present?

Yes _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Soil

Sampling Point: W6 UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type	Location	Texture	Remarks
0-4	10YR 3/2	100					sand	
4-16	10YR 5/4	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS = Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ____ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ____ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ____ ~~Loamy Mucky Mineral (F1) (**LRR K, L**)~~
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[2]:

- ____ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ____ ~~Coast Prairie Redox (A16) (**LRR K, L, R**)~~
- ____ ~~5 cm Peat or Mucky Peat (S3) (**LRR K, L, R**)~~
- ____ ~~Dark Surface (S7) (**LRR K, L, M**)~~
- ____ ~~Polyvalue Below Surface (S8) (**LRR K, L**)~~
- ____ ~~Thin Dark Surface (S9) (**LRR K, L**)~~
- ____ ~~Iron-Manganese Masses (F12) (**LRR K, L, R**)~~
- ____ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ____ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ____ Red Parent Material (F21)
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[2]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks: