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File #: 217477

February 17, 2026

VIA ELECTRONIC FILING

Matthew L. Homsher, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, Second Floor
Harrisburg, PA 17105

Re: Letter of Notification of Mid-Atlantic Interstate Transmission, LLC ("MAIT"), for Approval of the Farmers Valley-Ridgway 115 Kilovolt Interconnection Project in Sergeant Township. McKean County, Pennsylvania
Docket No. A-2026-

Dear Secretary Homsher:

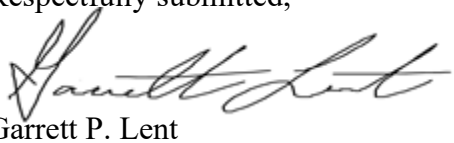
Enclosed for filing on behalf of Mid-Atlantic Interstate Transmission, LLC ("MAIT") is a Letter of Notification ("LON"), requesting approval for the Farmers Valley-Ridgway 115 Kilovolt ("kV") Interconnection Project ("Project"). This LON is being filed pursuant to the Pennsylvania Public Utility Commission's ("Commission") regulations at 52 Pa. Code § 57.72(d)(1). Copies of this LON have been served upon the parties as required by 52 Pa. Code § 57.74 and noted on the attached Certificate of Service.

Subject to the Commission's approval, the Project has a scheduled construction date of April 27, 2026, to meet an in-service date of June 8, 2026. To support this construction timeline, MAIT respectfully requests the Commission's expedited review and approval for the LON on or before the April 10, 2026, Public Meeting to allow construction to commence immediately thereafter.

Due to the size of the filing, only the cover letter and Certificate of Service will be electronically filed through the Commission's e-filing website. The Letter of Notification is being uploaded to the Commission's ShareFile website.

If you have any questions pertaining to this matter, please do not hesitate to contact me.

Respectfully submitted,



Garrett P. Lent

GPL/dmc
Attachments

cc: Deb Backer, Bureau of Technical Utility Services (*via email; w/attachments*)
Jordan Van Order, Bureau of Technical Utility Services (*via email; w/attachments*)
Certificate of Services

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing Letter of Notification has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 57.72(d)(3).

VIA CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Office of Small Business Advocate
555 Walnut Street
1st Floor Forum Place
Harrisburg, PA 17101

Office of Consumer Advocate
555 Walnut Street
5th Floor Forum Place
Harrisburg, PA 17101-1923

Pennsylvania Public Utility Commission
Bureau of Investigation and Enforcement
P.O. Box 3265
Harrisburg, PA 17105-3265

Ms. Andrea Lowery, Executive Director
Pennsylvania Historical & Museum Commission
300 North Street
Harrisburg, PA 17120-0024

Office of Chief Counsel, Real Property Division
Pennsylvania Department of Transportation
Commonwealth Keystone Building
400 North Street, 9th Floor
Harrisburg, PA 17120

Pennsylvania Department of Conservation and Natural Resources
400 Market St.
Harrisburg, PA 17105

PA Department of Environmental Protection
ATTN: Bureau of Waterways Engineering and Wetlands
400 Market Street
Harrisburg, PA 17101

PA Department of Environmental Protection
ATTN: Office of Chief Counsel
400 Market St., 9th Floor
Harrisburg, PA 17105
CC: Secretary to PADEP Chief Counsel

Pennsylvania Fish and Boat Commission
1601 Elmerton Ave.
Harrisburg, PA 17110

Pennsylvania Game Commission
2001 Elmerton Ave.
Harrisburg, PA 17110-9797

US Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, PA 16801-4850

Thomas Kreiner - Chair
McKean County Commissioner
500 W Main St
Smethport, PA 16749

Carol Duffy - Vice Chair
McKean County Commissioner
500 W Main St
Smethport, PA 16749

Mary Wilder - Member
McKean County Commissioner
500 W Main St
Smethport, PA 16749

Melissa Smith
McKean County Treasurer
500 W Main St
Smethport, PA 16749

Sandy Thompson – District Manager
McKean County Conservation
District
17137 Route 6
Smethport, PA 16749

Richard Fry - Director
McKean County
Planning Commission
17137 Route 6
Smethport, PA 16749

Raymond Imhof - City Mayor
Ridgway Borough
108 Main Street
Ridgway, PA 15853

Steve Caggeso - President
Ridgway Borough Council
108 Main Street
Ridgway, PA 15853

Abbi Peters - Vice President
Ridgway Borough Council
108 Main Street
Ridgway, PA 15853

Lauren Stark - Council Member
Ridgway Borough Council
108 Main Street
Ridgway, PA 15853

Brent Kemmer - Council Member
Ridgway Borough Council
108 Main Street
Ridgway, Pa. 15853

Chris Matheson - Council Member
Ridgway Borough Council
108 Main Street
Ridgway, Pa. 15853

Zack Pontious - Council Member
Ridgway Borough Council
108 Main Street
Ridgway, Pa. 15853

Ms. Karen Kochenbach
U.S. Army Corps of Engineers
Pittsburgh District
2200 William S. Moorhead
Federal Building
1000 Liberty Avenue, Suite 2200
Pittsburgh, Pa 15222

Clermont Solar, LLC
1201 Wilson Blvd
Ste 2200
Arlington, Va 22209

Date: February 17, 2026

Garrett P. Lent

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

LETTER OF NOTIFICATION OF MID-ATLANTIC INTERSTATE TRANSMISSION, LLC FOR APPROVAL OF THE FARMERS VALLEY-RIDGWAY 115 KILOVOLT INTERCONNECTION PROJECT IN SERGEANT TOWNSHIP, MCKEAN COUNTY, PENNSYLVANIA	:	**Docket No. _____**

LETTER OF NOTIFICATION

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION:

Pursuant to 52 Pa. Code § 57.72(d)(1)(iii) and (d)(1)(vi), Mid-Atlantic Interstate Transmission, LLC ("MAIT") hereby files this Letter of Notification ("LON") requesting approval from the Pennsylvania Public Utility Commission ("Commission") to create an underground line loop on the existing Farmers Valley-Ridgway 115 kilovolt ("kV") Transmission Line to the new Five Mile Run Substation, the "Farmers Valley-Ridgway 115 kV Interconnection Project" or "Project," in Sergeant Township, McKean County, Pennsylvania.

The proposed Farmers Valley-Ridgway 115 kV Transmission Line Interconnection Project was developed to provide a 115 kV electrical connection to the 120-megawatt ("MW") solar photovoltaic ("PV") generation plant proposed by Clermont Solar LLC ("Clermont"), in Sergeant Township, McKean County, Pennsylvania. MAIT will construct a line loop from the Farmers Valley-Ridgway 115 kV Transmission Line into the new Five Mile Run 115 kV Substation which is being built by Clermont, with ownership being transferred to MAIT upon completion. The point of interconnection ("POI") between MAIT and Clermont will be on a deadend structure inside of

the Five Mile Run Substation. The Project will be constructed in Sergeant Township, McKean County, Pennsylvania. MAIT has provided information regarding this Project to all identified political subdivisions, and none of them have objected to the Project. Subject to the Commission's approval, construction on the Farmers Valley-Ridgway 115 kV Transmission Line Interconnection Project is scheduled to begin on or about April 27, 2026, to meet an in-service date of June 8, 2026. To support this construction timeline, MAIT respectfully requests that the Commission issue its final ruling by the Public Meeting scheduled for April 10, 2026.

In support thereof, MAIT submits as follows:

I INTRODUCTION

1. MAIT is a public utility subject to the jurisdiction of the Commission over the siting and construction of transmission lines pursuant to Chapter 57, Subchapter G, of the Commission's regulations.

2. The address of MAIT's principal business office is:

Mid-Atlantic Interstate Transmission, LLC
341 White Pond Drive
Akron, OH 44320

3. The attorney representing MAIT in this matter authorized to receive notices and communications on its behalf is:

Tori Giesler (ID #207742)
FirstEnergy Service Company
341 White Pond Drive
Akron, OH 44320
(717) 490-3292
tgiesler@firstenergycorp.com

David B. MacGregor (ID #28804)
Garrett P. Lent (ID #321566)
Megan Rulli (ID # 331981)
Post & Schell, P.C.
17 North Second Street
12th Floor
Harrisburg, PA 17101-1601
(717) 731-1970
dmacgregor@postschell.com
glent@postschell.com
mrulli@postschell.com

MAIT agrees to accept electronic service in this proceeding.

4. MAIT also requests that a copy of all notices and communications regarding this matter be sent to:

Anthony Oberhauser
Transmission Specialist II
FirstEnergy Service Company
341 White Pond Drive
Akron, OH 44320
(330) 384-5188
aoberhauser@firstenergycorp.com

5. MAIT provides the following attached exhibits in support of this LON:

- **Exhibit 1:** A topographic map depicting the location of the proposed Project;
- **Exhibit 2:** An overview depicting the general layout of the Project;
- **Exhibit 3:** A depiction of the general configuration for a 115 kV single circuit steel monopole deadend riser structure;
- **Exhibit 4:** A depiction of the general configuration for a 115 kV single circuit steel 3-pole deadend riser structure;
- **Exhibit 5:** A copy of the Wetland and Stream Delineation Report prepared by TRC Companies, Inc. ("TRC") dated June 2020;
- **Exhibit 6:** A copy of the Pennsylvania Natural Diversity Inventory ("PNDI") review dated December 16, 2025; and
- **Exhibit 7**: Copies of the Pennsylvania State Historic Preservation Office ("SHPO") clearance letters dated March 24, 2025.

6. This Letter of Notification and accompanying Exhibits, which are incorporated herein by reference, contains all the information required by 52 Pa. Code § 57.72(d)(4).

II. THE PROJECT

A. NEED FOR THE PROJECT

7. As explained in further detail below, the proposed Project is needed to provide a 115 kV electrical connection to the 120 MW solar PV generation plant proposed by Clermont in Sergeant Township, McKean County, Pennsylvania. MAIT will construct an underground line loop from the Farmers Valley–Ridgway 115 kV Transmission Line into the new Five Mile Run Substation. FirstEnergy and PJM Interconnection, LLC ("PJM") Transmission Planning evaluated the generation interconnection. Results of the FirstEnergy and PJM analyses are documented on the PJM website[1] for queue project AE2-113. This proposed Project was not submitted to the PJM Transmission Expansion Advisory Committee ("TEAC") since network upgrade projects are not submitted to the TEAC. PJM assigned the network upgrade identification number n8187.1 for construction of the new underground line loop into the new Five Mile Run Substation.

1. Existing System

8. The existing Farmers Valley-Ridgway 115 kV Transmission line consists of 636 kcmil 24/7 Aluminum Conductor Steel Reinforced ("ACSR") "Rook" conductor and two 101.8 kcmil 12/7 ACSR "Petrel" shield wires. There are four new structures that are subject of this LON. Structures #150A and #151A will be 115 kV steel three-pole deadend riser structures with an approximate above ground height of 50 feet. Structures #150B and #151B will be 115 kV single steel monopole structures with an approximate above ground height of 95 feet.

9. A layout of the proposed Project is provided in **Exhibit 2.**

[1] https://www.pjm.com/planning/services-requests/interconnection-queues

2. Identification of Need

10. The proposed Project is needed to provide a 115 kV electrical connection to the 120 MW solar PV generation plant proposed by Clermont in Sergeant Township, McKean County, Pennsylvania. MAIT will construct an underground line loop on the Farmers Valley–Ridgway 115 kV Transmission Line into the new Five Mile Run Substation.

11. MAIT, as a public utility, has a general right and obligation to serve customers in its service territory, subject to the terms and conditions of its certificate of public convenience. Specifically, under Section 1501 of the Public Utility Code, MAIT:

> . . . shall furnish and maintain adequate, efficient, safe, and reasonable service and facilities, and shall make all such repairs, changes, alterations, substitutions, extensions, and improvements in or to such service and facilities as shall be necessary or proper for the accommodation, convenience, and safety of its patrons, employees, and the public.

66 Pa.C.S. § 1501; *see also id*. § 1103(a). Section 2802(12) of the Public Utility Code further emphasizes that "[r]eliable electric service is of the utmost importance to the health, safety and welfare of the citizens of the Commonwealth. Electric industry restructuring should ensure the reliability of the interconnected electric system by maintaining the efficiency of the transmission and distribution system." *Id.* § 2802(12). Pennsylvania appellate courts and the Commission have further confirmed this obligation to serve.[2]

12. No feasible alternatives were considered when determining the solution for the proposed Project, because the Project is needed to interconnect a new customer with the electric system. The outage history on the Farmers Valley-Ridgway 115 kV Transmission Line is not

[2] *See, e.g.*, *Pa. Gas Co. v. Pub. Serv. Comm'n*, 83 Pa. Super. 557, 565-66 (1924); *Philadelphia Transp. Co. v. Pa. PUC*, 37 A.2d 138, 147 (Pa. Super. 1944); *Application of Leatherstocking Gas Co., LLC, for Approval to Supply Natural Gas Serv. to the Pub. in N. Susquehanna Cnty., in the Twps. of Bridgewater, Forest Lake, Great Bend, Harmony, New Milford, and Oakland, and in the Boroughs of Great Bend, Hallstead, Lanesboro, Montrose, New Milford, Oakland and Susquehanna*, Docket No. A-2011-2275595, 2012 Pa. PUC LEXIS 1391, at *22 (Order entered Aug. 30, 2012).

relevant to the proposed Project. The proposed Project does not impact benchmark reliability metrics. Load growth is not relevant to the proposed Project since load has no impact on the need to construct the new Five Mile Run Substation to serve Clermont. The proposed Project does not involve the use of any advanced transmission technologies, nor does it lend itself to benefit from the use of advanced transmission technologies.

B. THE PROPOSED PROJECT

13. In this Project, MAIT proposes to create an approximately 640-foot underground line loop from the Farmers Valley–Ridgway 115 kV Transmission Line into the new Five Mile Run Substation.

14. The proposed transmission line loop will be constructed between existing structures #150 and #151 on the Farmers Valley–Ridgway 115 kV Transmission Line. The transmission line loop will be located approximately 15.8 miles from the existing Farmers Valley Substation and approximately 18.6 miles from the existing Ridgway Substation.

15. The proposed Project will be located within existing 100-foot-wide right-of-way ("ROW") and crosses parcels owned by Clermont. The Project is located in Sergeant Township, McKean County, Pennsylvania.

16. A depiction of the general location of the Project is provided in **Exhibit 1**. A depiction of the general layout for the Project is provided in **Exhibit 2**.

17. To construct the Project, four new structures will be installed. As shown in **Exhibit 3**, proposed structures #150B and #151B will be 115 kV steel monopole deadend riser structures with an approximate above ground height of 95 feet. Proposed structures #150A and #151A will be 115 kV steel three-pole deadend riser structures with an approximate above ground height of 50 feet, as shown in **Exhibit 4**. These proposed structures will match the approximate above

ground height (55 to 85 feet) of other existing structures in the area and will have drilled concrete shaft foundations.

18. The existing Farmers Valley–Ridgway 115 kV main line conductor (636 kcmil 24/7 ACSR "Rook") and shield wire (101.8 kcmil 12/7 ACSR "Petrel") will be transferred onto the new steel three-pole riser structures designated as Structures #150A and #151A. To establish the new transmission line loop, approximately 320 feet of new 115 kV CU 1/C 3000 kcmil XLPE underground ("UG") cable will be installed for each segment. These underground sections will terminate at the new steel riser structures #150B and #151B, located outside the Five Mile Run Substation. From Structures #150B and #151B, the overhead conductor (636 kcmil 24/7 ACSR "Rook") and shield wire (101.8 kcmil 12/7 ACSR "Petrel") will extend into and out of the terminal bays within the Five Mile Run Substation.

19. The underground transmission line and associated transmission line structures, as well as the Five Mile Run Substation will be owned, operated and maintained by MAIT. However, all associated costs will be incurred by Clermont. The current estimated Project cost is approximately $14,922,000, inclusive of the estimated transmission line cost of approximately $8,521,000.

III. HEALTH AND SAFETY

20. The proposed lines will not create any unreasonable risk of danger to public health or safety. The Project will be designed to meet or exceed all requirements of the latest revision of the National Electrical Safety Code ("NESC") under all operating conditions as well as FirstEnergy's current design criteria.

21. MAIT's design criteria requires that 115 kV transmission lines shall have a designed vertical conductor to ground clearance of 26 feet. This design value exceeds the NESC minimum of 20.2 feet by a margin of 5.8 feet. In general, MAIT clearance criteria exceed the

NESC minimums by various margins ranging from 2 feet to 7 feet, which are dependent on the voltage and specific clearance measurement. The operating temperature will be 212 degrees Fahrenheit.

22. The design, construction, and operation of the Project will meet or exceed all applicable safety standards established by the Occupational Safety and Health Administration ("OSHA"). Moreover, the Project will be constructed following MAIT's standard construction practices to perform all work safely. All work will be done in accordance with NESC, OSHA and all other applicable state and federal requirements.

IV DESCRIPTION OF RIGHT OF WAY

23. The proposed Project will be located within existing 100-foot-wide ROW and within new 100-foot-wide ROW that crosses parcels owned by Clermont. The Farmers Valley–Ridgway 115 kV Transmission Line will remain on its existing centerline in the ROW.

24. The proposed structures, #150A and #151A, will be installed along the centerline of the existing Farmers Valley–Ridgway 115 kV Transmission Line.

V. LAND USE AND ENVIRONMENTAL EVALUATION

25. As explained above, construction of the proposed Project will take place entirely within the existing ROW and on land developed by Clermont. Therefore, it is anticipated that the proposed Project will have minimal incremental impacts on land use in the area.

26. A copy of the Wetland and Stream Delineation Report for the Clermont Project, inclusive of the transmission line loop Project Area, was conducted and prepared by TRC dated June 2020 and is included as **Exhibit 5**. No streams or wetlands were identified in the transmission line loop Project area, therefore, there are no anticipated impacts to streams and wetlands. Structure locations are proposed to be limited to the existing ROW. Existing access roads will be

utilized to the maximum extent practicable and non-existing roads and work areas are expected to be temporary.

27. A PNDI database search was conducted on December 16, 2025, for Clermont's proposed project area and was inclusive of the transmission line loop Project Area. A copy of the PNDI receipt is included as **Exhibit 6**. The Pennsylvania Game Commission ("PGC") indicated that there was a potential impact to a state and federally listed species under the jurisdiction of both the PGC and U.S. Fish and Wildlife Service ("USFWS"). The PGC deferred comments to the USFWS, which indicated that impacts to federally listed species are not anticipated and that no further consultation is required.

28. Section 106 initial consultation was prepared by GAI Consultants, Inc. and submitted to the SHPO on March 21, 2025. Agency concurrence was received on March 24, 2025, and is included as **Exhibit 7**.

VI. NOTICE

29. MAIT has provided information regarding the Project to representatives of Sergeant Township, and McKean County. These entities have not objected to the proposed Project. Copies of the Letter of Notification will be served upon all state agencies, federal agencies, county agencies, municipalities, and landowners in accordance with 52 Pa. Code § 57.72(d)(3).

VII. LETTER OF NOTIFICATION

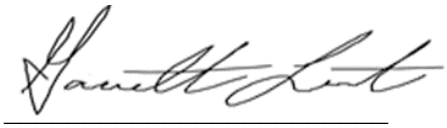
30. MAIT is proceeding by means of a Letter of Notification, instead of a full Application, pursuant to the Commission's regulations at 52 Pa. Code § 57.72(d)(1)(iii) and (d)(1)(vi).

31. The proposed Project involves the installation of two transmission line structures on an existing transmission line within an existing transmission line ROW and extending 115 kV

conductor underground to the two structures in new ROW that will connect to the new Five Mile Run Substation. As such, the proposed Project qualifies for use of a Letter of Notification because it will be a high voltage ("HV") line which is proposed to be located entirely within applicant's existing transmission line right-of-way and the property of the sole customer to be served by the line. See 52 Pa. Code § 57.72(d)(1)(iii). In addition, the Project qualifies for a Letter of Notification because it consists of an HV line with a proposed route of 2 miles or less. See 52 Pa. Code § 57.72(d)(1)(vi).

32. This Letter of Notification is filed on the date set forth below. As provided in 52 Pa. Code § 57.72(d)(5), the Commission will review and, by order, approve or disapprove this Letter of Notification. If the Commission approves this Letter of Notification, the proposed Project will be constructed as proposed herein without the formal application process set forth at 52 Pa. Code §§ 57.71, et seq.

WHEREFORE, MAIT respectfully requests that the Commission review and approve the Farmers Valley-Ridgway 115 kV Interconnection Project in Sergeant Township, McKean County, Pennsylvania , that is explained above and in the Exhibits attached hereto, on or before the Public Meeting scheduled for April 10, 2026.



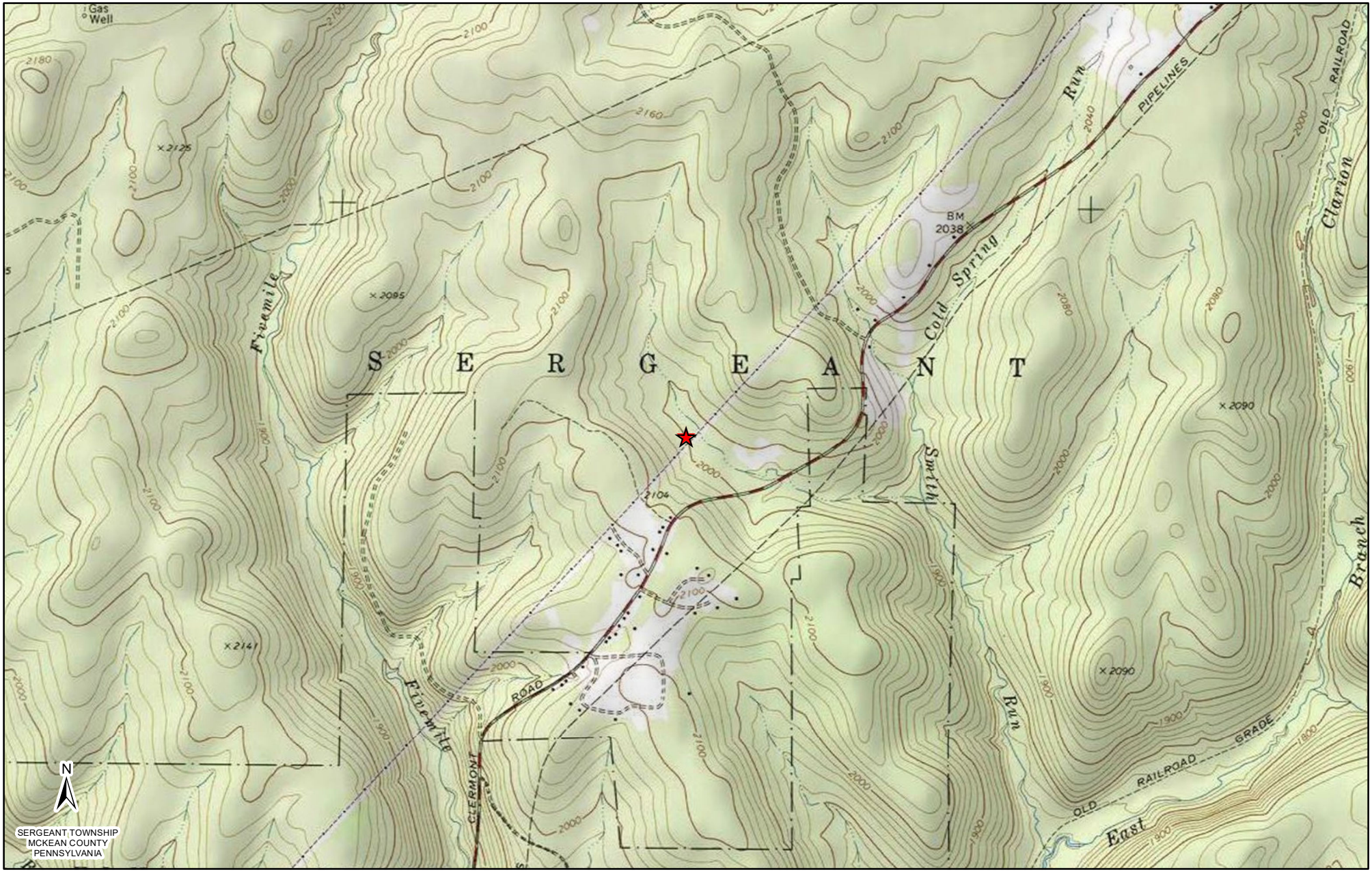
Tori L. Giesler (ID #207742)
FirstEnergy Service Company
341 White Pond Drive
Akron, OH 44320
Phone: (610) 921-6658
Email: tgiesler@firstenergycorp.com

David B. MacGregor (ID #28804)
Garrett P. Lent (ID #321566)
Megan E. Rulli (ID # 331981)
Post & Schell, P.C.
17 North Second Street
12th Floor
Harrisburg, PA 17101-1601)
Phone: (717) 731-1970
Fax: (717) 731-1985
E-mail: dmacgregor@postschell.com
E-mail: glent@postschell.com
Email: mrulli@postschell.com

Attorneys for Mid-Atlantic Interstate Transmission, LLC

Date: February 17, 2026

Exhibit 1



LEGEND:

Project Location

0 1,000 2,000 4,000

Feet

Reference:
USGS Topographical Overlay; PennDOT, PADCNR PAMAP

Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic; Units: Foot US

EXHIBIT 1

MAIT™
Mid-Atlantic Interstate Transmission, LLC
A FirstEnergy Company

FARMERS VALLEY-RIDGWAY 115kV
INTERCONNECTION PROJECT

Exhibit 2

LEGEND

- CUSTOMER SUBSTATION
- TRANSMISSION CENTERLINE
- NEW STEEL POLE
- EXISTING TRANSMISSION LINE
- NEW SUBSTATION BAY (BY OTHERS)
- SUBSTATION FENCE
- CABLE (UNDERGROUND)
- EXISTING WOOD POLE

Christine M. Imbrogno, et.al.
29-004-400.3
DB 922 PG 828
(First)

McKEAN COUNTY,
STATE OF PENNSYLVANIA

N/F
Commonwealth of PA
Elk State Forest
29-009-100
DB 222 PG 305

New Shawmut
Timber Company, Inc.
29-009-101
DB 948 PG 733
(Parcel Third)

#152

FARMERS VALLEY BAY

5 MILE RUN SUBSTATION

#151B

RIDGWAY BAY

#150B

FARMERS VALLEY - RIDGWAY 115KV LINE

#151

#151A

NYSEG HOMER CITY-PIERCE BROOK 345KV

#150A

#150

WILCOX CLERMONT RD (SR 2001)

#149

N/F
Michael J. Calla, et.al.
29-009-102
DB 909 PG 295

N/F
John Finlay Fitzroy V
29-009-105
DB 669 PG 937

N/F
Barbara A. Bishop
29-009-106
DB 240 PG 622

N/F
Rosalie I. Bishop
29-009-109
DB 432 PG 661

PAPER SIZE: 17X11

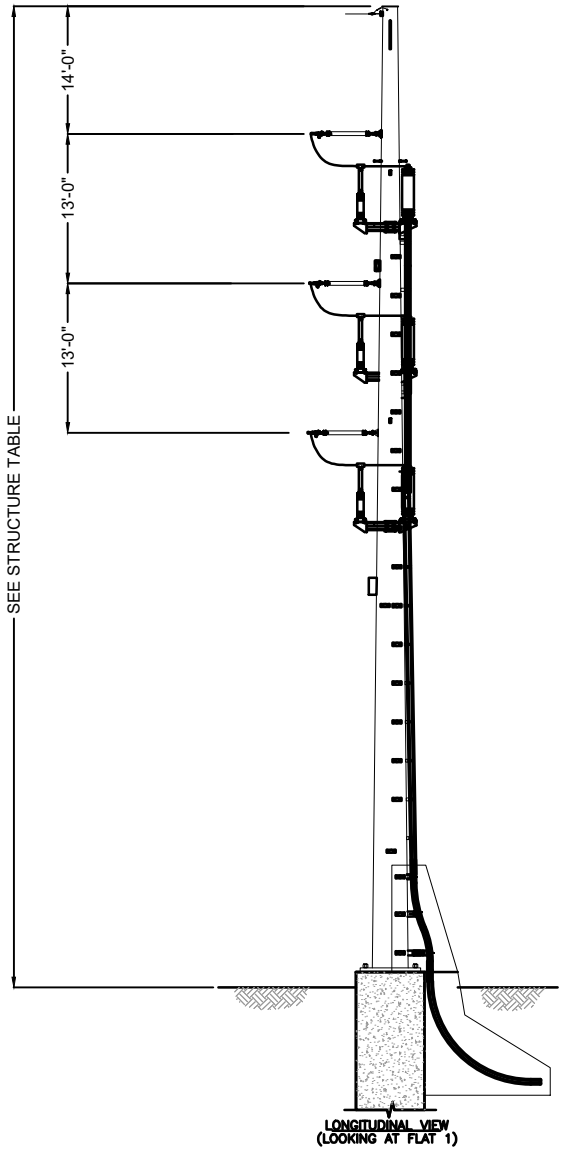
FARMERS VALLEY-RIDGWAY 115kV
INTERCONNECTION PROJECT

GENERAL PROJECT LAYOUT

EXHIBIT 2

Exhibit 3

STRUCTURE NUMBER	STRUCTURE HEIGHT
150B & 151B	95'



FARMERS VALLEY-RIDGWAY 115kV
INTERCONNECTION PROJECT

SINGLE CIRCUIT STEEL MONOPOLE DEADEND RISER STRUCTURE

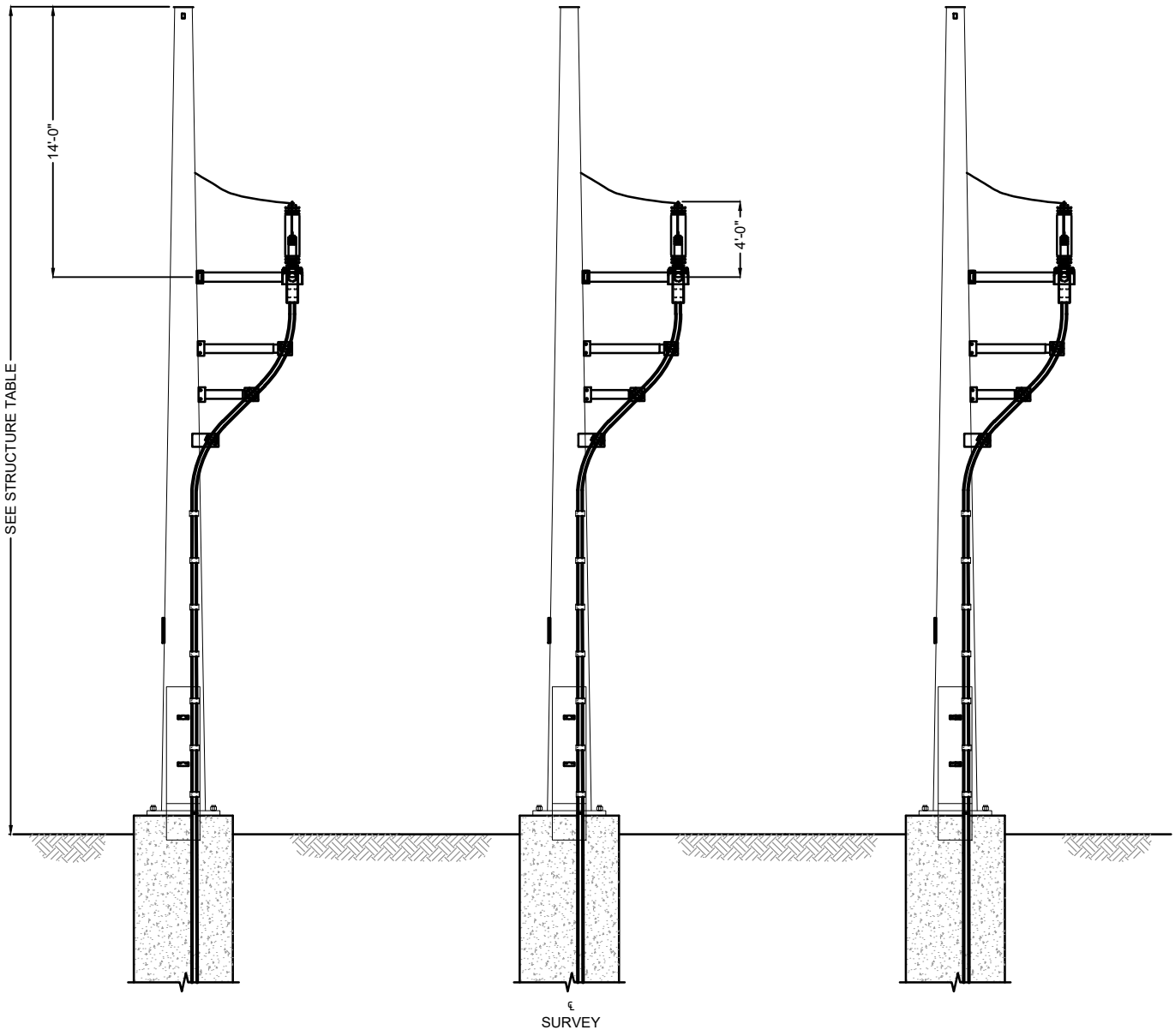
SCALE: NTS

EXHIBIT 3

PAPER SIZE: 8.5X11

Exhibit 4

STRUCTURE NUMBER	STRUCTURE HEIGHT
150A & 151A	50'



FARMERS VALLEY-RIDGWAY 115kV
INTERCONNECTION PROJECT

SINGLE CIRCUIT STEEL
3–POLE DEADEND RISER STRUCTURE

SCALE: NTS

EXHIBIT 4

PAPER SIZE: 8.5X11

Exhibit 5

EXHIBIT 5

WETLAND AND STREAM DELINEATION REPORT
RIDGWAY SOLAR PROJECT

WILCOX CLERMONT ROAD
WILCOX, PENNSYLVANIA 15870
SERGEANT TOWNSHIP, MCKEAN COUNTY, PENNSYLVANIA

Prepared For:
Walden Renewables Development, LLC
155 Fleet Street
Portsmouth, New Hampshire 03801

Prepared By:
TRC Companies, Inc.
2200 Liberty Avenue
Suite 100
Pittsburgh, Pennsylvania 15222

June 29, 2020

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Table 3. Delineated Streams Within the Investigation Area

APPENDICES

Appendix A – Figures
Figure 1. Project Location Map
Figure 2. NWI and NHD Map
Figure 3. Soil Survey Map
Figure 4. Field Data Location Map

Appendix B – Photograph Log

Appendix C – Stream Data Forms
Physical Characterization / Water Quality Field Data Sheet

Appendix D – Wetland Data Forms
USACE Routine Wetland Determination Forms

1.0 INTRODUCTION

1.1 Project Description

Walden Renewables Development, LLC (Walden) is proposing to construct a new ground-mounted solar field in association with the Ridgeway Solar Project (Project). The Project Investigation Area (Investigation Area) consists of approximately 1,394 acres and is located along Wilcox Clermont Road, Wilcox, Pennsylvania (PA) 15870 in Sergeant Township, McKean County, PA (see Appendix A - Figure 1).

1.2 Report Purpose

At Walden's request, TRC Companies, Inc. (TRC) conducted a wetland and stream delineation of the Investigation Area on behalf of Walden between the dates of June 1 and June 11, 2020. This report details the wetlands and surface waters identified within the Investigation Area (including rivers, streams, ponds, and lakes), regardless of jurisdictional status. However, this report's description of resources located within the Investigation Area may be utilized in the assessment of potential agency jurisdiction and the avoidance and minimization of impacts to wetlands and surface waters during the planning stages of the development of the Project.

Delineation efforts included the following tasks:

1. A desktop review of existing, publicly available federal and state agency resources;

2. A field delineation of all aquatic features within the Investigation Area using a handheld Global Positioning System (GPS) with reported sub-meter accuracy; and,

3. Documentation of the delineated aquatic features based on hydrology, vegetation, and hydric soils data collected in the field.

Conclusions proposed herein provide information necessary to support a permit application to the United States Army Corps of Engineers (USACE) and the Pennsylvania Department of Environmental Protections (PADEP).

2.0 PHYSICAL SITE CHARACTERISTICS

2.1 Resources

The following publicly available resources were used in the investigation, delineation, and report preparation:

- United States Geological Survey (USGS) Hazel Hurst, Pennsylvania 7.5-minute quadrangle;
- United States Department of Agriculture (USDA) Ecoregion Maps;
- USGS National Hydrography Dataset (NHD);
- USGS Hydrologic Unit Maps;
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panels 42047C0065D (effective date 1/18/2012) and 42083C0445D (effective date 12/22/2016);
- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping;
- USDA Natural Resources Conservation Service (NRCS) Web Soil Survey; and
- Recent aerial orthoimagery.

2.2 Vegetation and Ecological Communities

The Investigation Area resides in the Laurentian Mixed Forest Province and Northern Unglaciated Allegheny Plateau Section ecoregions of the United States as defined by the USDA Forest Service (Bailey et al., 1995). Ecoregions are ecosystems of regional extent. The USDA identifies ecoregions by ecosystem characteristics into the following classifications:

- Domains: The largest ecosystem, which are groups of related climates and are differentiated based on precipitation and temperature;
- Divisions: Represent the climates within domains and are differentiated based on precipitation levels and patterns, as well as temperature;
- Provinces: Subdivisions of divisions, which are differentiated based on vegetation or other natural land covers;

- Sections: Subdivisions of provinces based on terrain features; sections are the finest level of detail described for each subregion; and,

- Mountainous Areas: Mountainous regions that exhibit different ecological zones based on elevation.

The Laurentian Mixed Forest Province has low relief, but rolling hills occur in many places. Lakes, poorly drained depressions, and other glacial features are typical of the area, which was entirely covered by glaciers during parts of the Pleistocene. Winters are moderately long and somewhat severe. The frost-free season lasts from 100 to 140 days. This province lies between the boreal forest and broadleaf deciduous forest zones and is therefore transitional. The soils vary greatly.

Recent aerial orthoimagery of the Investigation Area and surrounding vicinity, obtained from Google Earth Pro, indicates that the Investigation Area is dominated by deciduous forest, with evidence of prolonged logging activity and various stages of clear-cutting and regrowth. Two utility line rights-of-way and several dirt/gravel access roads are also apparent on the imagery. These mowed and maintained rights-of-way are dominated by herbaceous vegetation.

2.3 Federal and State Mapped Wetlands and Streams

On the federal level, the USFWS is the principal US federal agency tasked with providing information to the public on the status and trends of wetlands on a national scale, which the PADEP also defers to since a system of state-mapped wetlands does not exist for PA. The USFWS NWI is a publicly available resource that provides detailed information on the abundance, characteristics, and distribution of nationwide wetlands (where mapped). NWI mapping data is offered in an effort to promote the understanding, conservation, and restoration of wetlands. NWI wetlands are used as a reference guide by TRC field biologists to conduct a more informed site survey in the demarcation or delineation of wetlands and streams within the target Investigation Area.

Review of the USFWS NWI mapping indicated no mapped wetlands were present within the Investigation Area; however, the NWI maps identified five (5) mapped linear riverine systems. These riverine systems are associated with Fivemile Run, Smith Run, Cold Spring Run, and their Unnamed Tributaries (UNTs). These linear NWI features also coalign with USGS NHD mapped stream features. These NWI and NHD mapped features can be found in Appendix A, Figure 2.

2.4 Hydrology

2.4.1 Hydrologic Mapping

The USGS has divided and sub-divided the country into hydrologic units based primarily on drainage basins and watershed boundaries. The main hydrologic unit levels are regions, sub-regions, basins, sub-basins, watersheds, and sub-watersheds. The hydrologic units are nested within each other, from the largest geographic area (regions) to the smallest geographic area

(sub-watersheds). Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two (2) to twelve digits based on the six (6) levels of classification in the hydrologic unit system. In addition to the hydrologic unit codes, each hydrologic unit is assigned a name corresponding to the unit's principal hydrologic feature, or to a cultural or political feature within the unit.

The region hydrologic unit level contains either the drainage area of a major river or the combined drainage areas of a series of rivers. Regions receive a two (2) digit code. The following hydrologic unit levels are designated by the addition of another two (2) digits with each level. Each sub-region includes the area drained by a river system, a reach of a river and its tributaries in that reach, a closed basin or basins, or a group of streams forming a coastal drainage area.

The Investigation Area falls entirely within the “East Branch Clarion River – East Branch Lake Dam” (HUC 050100050101) USGS defined sub-watershed. This sub-watershed is part of the “Clarion” (HUC 05010005) sub-basin, which drains into the Clarion River and eventually into the Allegheny River.

2.4.2 Hydrologic Character

The Investigation Area is best broken into three (3) separate local watersheds associated with Fivemile Run, Smith Run, and Cold Spring Run. The western third of the Investigation Area contains aquatic features that flow toward Fivemile Run or UNTs to Fivemile Run. The central third of the Investigation Area contains aquatic features that flow toward an UNT to Smith Run. The eastern third of the Investigation Area contains aquatic features that either flow into Cold Spring Run and UNTs to Cold Spring Run, or flow into Smith Run and UNTs to Smith Run. These named streams and UNTs are mapped on both the NHD maps and NWI maps, and can be found in Appendix A, Figure 2.

The Investigation Area drains generally north to south along these named stream systems. However, the very northernmost portion of the Investigation Area drains north into Catherine Swamp and Fivemile Run.

Fivemile Run, Smith Run, Cold Spring Run, and all their UNTs have a Chapter 93 Designated Aquatic Life Use of High Quality Cold Water Fishes (HQ-CWF) according to Title 25, Chapter 93 of the PA Code. None of these named streams are listed as a “Wilderness Trout Water” or a “Class A Wild Trout Water”. However, both Fivemile Run and Smith Run are listed as a “Wild Trout Water (Natural Reproduction)” by the Pennsylvania Fish and Boat Commission, which also includes their contributing UNTs. Finally, none of the streams within the Investigation Area are listed as an “Approved Trout Water (Stocked Trout Stream)”.

2.4.3 FEMA Flood Zone Mapping

FEMA maintains materials developed to support flood hazard mapping for the National Flood Insurance Program (NFIP). According to FIRM Panels 42047C0065D (effective date 1/18/2012)

and 42083C0445D (effective date 12/22/2016), the majority of the Investigation Area is not located within a flood zone. Only a small portion of the northwest corner of the Investigation Area is located within a FEMA floodzone, which is associated with Fivemile Run.

2.5 Physiography and Soil Characteristics

2.5.1 Physiography and Topography

The landforms of the Investigation Area include smooth hills and valleys, according to the USGS Global Ecosystem Viewer. Landcover includes grasslands, scrub/shrub areas, and deciduous forests.

As shown on the USGS Hazel Hurst, Pennsylvania 7.5-minute quadrangle, topography of the Investigation Area can be described as gently sloping hilltops with shallow drainages and valleys. General topography appears to slope downward from north to south along Fivemile Run, Smith Run, Cold Spring Run, and their UNTs. However, a small portion of the Investigation Area (the northernmost portion) slopes downward from south to north toward Catherine Swamp and Fivemile Run. The topography ranges from approximately 1,940 feet above mean sea level (AMSL) to approximately 2,180 feet AMSL.

2.5.2 Site Soils

The USDA NRCS Web Soil Survey is an online resource mapping tool that provides soil data and information for the vast majority of the nation. This information is produced by the National Cooperative Soil Survey (NCSS), in partnership with federal, regional, state, and local agencies and private entities and institutions.

A total of 18 soil map units were identified within the Investigation Area. Soil map units represent a type of soil, a combination of soils, or miscellaneous land types. Soil map units 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 soil, while areas mapped as hydric 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.*"

Soil drainage in the Investigation Area is at least moderately well drained overall, with approximately 45 percent of the Investigation Area classified as well drained, 53.8 percent classified as moderately well drained, 0 percent classified as somewhat poorly drained, and 1.2 percent classified as poorly drained.

The 18 soil map units identified by the NRCS within the Investigation Area are briefly described below and outlined in Table 1. Refer to Appendix A - Figure 3 for graphically depicted soil map units of the Investigation Area.

Hydric Soil

The Web Soil Survey of the Investigation Area was consulted prior to conducting the delineation to determine the extent of soils meeting hydric criteria as defined by the NRCS. The *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratories, 1987) (1987 Manual) defines a hydric soil as "*a soil that in its undrained condition, is saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation.*"

Of the 18 soil map units, 10 are classified as hydric or as having hydric inclusions. These soils indicate the potential presence of a wetland feature on site. Hydric Soil Rating indicates the percentage of map units that meet the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor non-hydric components in the higher positions on the landform, and map units that are made up dominantly of non-hydric soils may have small areas of minor hydric components in the lower positions on the landform. As such, each map unit is rated based on its respective components and the percentage of each component within the map unit. Although a soil series will be given a general hydric soil rating on the Web Soil Survey, this rating is for reference only and does not supersede site-specific conditions documented in the field that constitute hydric soil presence in located wetlands.

Table 1 – Mapped Soils Within the Investigation Area

Map Unit Symbol	Map Unit Name	Drainage Class	Hydric Rating (%)	Acres in Investigation Area	Portion of Investigation Area (%)
BrA	Brinkerton soils, 0 to 3 percent slopes	Poorly drained	85	1	0.10
BsB	Brinkerton mucky silt loam, 0 to 8 percent slopes, extremely stony	Poorly drained	80	15.5	1.10
BuB	Buchanan silt loam, 3 to 8 percent slopes	Moderately well drained	3	3.5	0.20
BxB	Buchanan silt loam, 0 to 8 percent slopes, extremely stony	Moderately well drained	3	224.6	16.10
BxD	Buchanan silt loam, 8 to 25 percent slopes, extremely stony	Moderately well drained	3	46.3	3.30
ClB	Clymer loam, 3 to 8 percent slopes	Well drained	0	51.9	3.70

Table 1 – Mapped Soils Within the Investigation Area					
Map Unit Symbol	**Map Unit Name**	**Drainage Class**	**Hydric Rating (%)**	**Acres in Investigation Area**	**Portion of Investigation Area (%)**
CoA	Cookport loam, 0 to 3 percent slopes	Moderately well drained	5	27.1	1.90
CoB	Cookport loam, 3 to 8 percent slopes	Moderately well drained	5	113.8	8.20
CoC	Cookport loam, 8 to 15 percent slopes	Moderately well drained	2	18	1.30
CpB	Cookport loam, 0 to 8 percent slopes, very stony	Moderately well drained	5	249.7	17.90
CpD	Cookport loam, 8 to 25 percent slopes, very stony	Moderately well drained	3	35.7	2.60
HaB	Hartleton channery silt loam, 3 to 8 percent slopes	Well drained	0	15.7	1.10
HaC	Hartleton channery silt loam, 8 to 15 percent slopes	Well drained	0	6.5	0.50
HbB	Hazleton channery loam, 3 to 8 percent slopes	Well drained	0	93.4	6.70
HbC	Hazleton channery loam, 8 to 15 percent slopes	Well drained	0	10.5	0.80
HdB	Hazleton channery loam, 0 to 8 percent slopes, very stony	Well drained	0	120.3	8.60
HdD	Hazleton channery loam, 8 to 25 percent slopes, very stony	Well drained	0	328.2	23.60
HeF	Hartleton and Buchanan soils, 25 to 60 percent slopes	Moderately well drained	0	31.7	2.30

3.0 WETLAND AND STREAM DELINEATION METHODOLOGY

Prior to initiating field investigations, TRC conducted a desktop review of publicly available data to determine the potential presence of federal and state mapped wetlands and streams within the Investigation Area. TRC field biologists Steve Crescenzo, Jeff Vandeveer, Amanda Larsen, Matt Boscow, Weston Hillegas, Alyssa Hessler, Tony Tredway, and Shane Brodnick subsequently performed field investigations to identify aquatic features within the Investigation Area. Delineations for wetlands and streams were performed in accordance with criteria set forth in the 1987 Manual (Environmental Laboratory, 1987) and the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) (USACE, 2012) (Supplement). Data were collected from a sample plot in each delineated wetland. Depending on the size of the delineated area and any change in cover type, multiple sample plots of the delineated wetland may have been taken. Delineation data for individual streams and wetlands were recorded on Physical Characterization / Water Quality Field Data Sheet (Appendix C) and USACE Routine Wetland Determination Forms (Appendix D), respectively The boundaries of wetlands were demarcated with pink survey ribbon labeled “wetland delineation” and streams were demarcated with blue survey ribbon, both of which were located with a GPS unit with reported sub-meter accuracy.

3.1 Wetland Hydrology

The presence of wetland hydrology is determined based on primary and secondary indicators established by the USACE. The 1987 Manual defines the presence of wetland hydrology when at least one primary indicator or two secondary indicators are identified. One primary indicator is sufficient to determine if hydrology is present; however, if primary indicators are absent, two or more secondary indicators are required to determine the presence of wetland hydrology. If other probable wetland hydrology evidence was found on-site, then such characteristics were subsequently documented on the USACE Routine Wetland Determination Form. Wetland hydrology indicators are grouped into 18 primary and 12 secondary indicators as presented in the USACE Supplement.

Wetland hydrology may influence the characteristics of vegetation and soils due to anaerobic and reducing conditions (Environmental Laboratory, 1987). This influence is dependent on the frequency and duration of soil inundation or saturation which, in turn, is dependent on a variety of factors including topography, soil stratigraphy, and soil permeability, in conjunction with precipitation, runoff, and stormwater and groundwater influence. The observed indicators of wetland hydrology for each resource were recorded on an individual USACE Routine Wetland Determination Forms (Appendix D).

3.2 Wetland Vegetation

Hydrophytic vegetation is defined in the 1987 Manual as:

> "*…the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present.*"

Plants are categorized according to their occurrence in wetlands. Scientific names and wetland indicator statuses for vegetation are those listed in *The National Wetland Plant List: 2018 Wetland Ratings* (Lichvar et al., 2018) (NWPL). Due to regional differences in wetland vegetation, among other characteristics, the USACE divided the United States into regions to improve the accuracy and efficiency of wetland delineations. The indicator statuses specific to the "Eastern Mountains and Piedmont Region," as defined by the USACE, apply to the Investigation Area. 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; and,
- Upland (UPL): Almost never occur in wetlands.

For species with no indicator status in the Investigation Area's region, the indicator status assigned to the species in the nearest adjacent region is applied. Plants that are not included on the NWPL within the Investigation Area's region, nor an adjacent region, are given no indicator status, and are not included in dominance calculations. Plants that are not listed in any region on the NWPL are considered as UPL on USACE Routine Wetland Determination Forms.

Vegetation in both upland and wetland communities was characterized using areal methods for instituting plot measurement. In accordance with USACE methodology, a plot radius of 30 feet around the soil sample location was applied to tree species and vines, a 15-foot radius for saplings/shrubs, and a 5-foot radius was utilized for herbaceous plants. After the measurement of percent coverage was determined for each species, an application of the 50/20 rule of dominance determination was utilized to determine hydrophytic dominance at sample plots. 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 are 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.

Cover types are also assigned to each wetland. The 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 [FGDC], 2013), as

well as guidance provided within the USACE's Supplement. Field biologists assign cover types to wetlands based on this classification standard and utilize these documents. TRC biologists used the definitions for perennial and intermittent streams found in *The Classification of Wetlands and Deepwater Habitats of the United States, Second Edition* (FGDC, 2013) and the PA Code, Title 25, Chapter 105. Dam Safety and Waterway Management (Commonwealth of Pennsylvania, 2019) when classifying delineated streams. Ephemeral streams have flowing water primarily from rainfall runoff and are above the water table. The observed indicators of wetland vegetation for each resource were recorded on an individual USACE Routine Wetland Determination Forms (Appendix D).

3.3 Wetland Soils

Hydric soil indicators were determined utilizing the Supplement with added provision from the *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils*, Version 8.2 (USDA NRCS, 2018). Soil characteristics were documented, such as color, texture, layer depth, presence of organic-layers, and evidence of redoximorphic features, which may include indicators such as reduction, oxidation, gleyed matrices, manganese features. Soil test pits were dug using a spade shovel to a depth of approximately 14 inches. If refusal of a soil sample occurred due to the presence of hardpan layer, rock, or hard fill materials, this occurrence was documented. Soil color was described using the *Munsell Soil Color Book* (Munsell Color, 2015). Texture was determined using the USDA feel method (Thien, 1979).

Hydric soil indicators applicable to the Investigation Area were determined using the *Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin* (NRCS, 2006) (MLRA Handbook). Per the MLRA Handbook, the Investigation Area is within Major Land Resource Area 127 (Eastern Allegheny Plateau and Mountains) of Land Resource Region (LRR) N (East and Central Farming and Forest Region). Hydric soil indicators that do not apply to this MLRA and LRR were not considered. The observed indicators of wetland soils for each resource were recorded on an individual USACE Routine Wetland Determination Forms (Appendix D).

3.4 Streams

Streams within the Investigation Area were identified by the presence of an OHWM, which is the line 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. TRC biologists used the definitions for perennial and intermittent streams found in *The Classification of Wetlands and Deepwater Habitats of the United States, Second Edition* (FGDC, 2013) and the PA Code, Title 25, Chapter 105.

The streams were delineated from along the approximate centerline with blue flagging and were located with a handheld GPS unit set for sub-meter accuracy. Stream attributes including width,

bank height, and water depth are measured and documented on Physical Characterization / Water Quality Field Data Sheets (Appendix C).

4.0 RESULTS

4.1 General Overview

The Investigation Area contains young-growth deciduous forests, with evidence of multiple tree-harvesting activities that have occurred at varying times. Dominant vegetation at the Investigation Area included red maple (*Acer rubrum*), black cherry (*Prunus serotina*), sweet birch (*Betula lenta*), yellow birch (*Betula alleghaniensis*), silver maple (*Acer saccharinum*), sugar maple (*Acer saccharum*), slippery elm (*Ulmus rubra*), eastern hemlock (*Tsuga canadensis*), swamp dewberry (*Rubus hispidus*), Allegheny blackberry (*Rubus allegheniensis*), and various sedges (*Carex spp.*) and grass species.

During the seven (7) days prior to June 1, 2020, the Investigation Area received approximately 1.4 inches of rainfall. During the on-site field investigation, steady rainfall lasting most of the day occurred on June 3 and June 4, 2020. Also, between June 1 and June 11, 2020, approximately 1.3 inches of rainfall accumulated within the Investigation Area. Average temperature during field investigations ranged between 60 degrees Fahrenheit (°F) and 80°F.

TRC identified and delineated 102 wetlands and 55 streams within the Investigation Area between the dates of June 1 and Jun 11, 2020 (see Appendix A - Figure 4). Approximately 4.8 percent (67.01 acres) of the approximately 1,394-acre Investigation Area is classified as wetland. Tables 2 and 3 below detail the wetlands and streams delineated at the Investigation Area. Representative photographs taken of each delineated wetland community and stream within the Investigation Area are provided in Appendix B. Descriptions of the streams and wetlands are provided below. Completed Physical Characterization / Water Quality Field Data Sheets and USACE Routine Wetland Determination Forms are provided in Appendices C and D, respectively.

4.2 Delineated Wetlands

The field-delineated aquatic features within the Investigation Area are far more abundant than features represented by the NWI mapping and NHD mapping. Moreover, field-delineated features did not match exactly with their current NWI depiction and have more specific sinuosity to their boundaries. However, the physical presence of all of the NWI mapped and NHD mapped features were confirmed during delineation efforts.

A total of 102 wetlands were delineated within the Investigation Area, some of which included a complex of cover types. Classification of wetland cover type was dependent on the existing conditions within the resource, which typically include four (4) types of wetlands. The following provides a summary of the identified resources based on Cowardin Classification:

Palustrine Emergent wetlands (*PEM*) – A total of 40 wetlands delineated within the Investigation Area contained characteristics representative of an emergent wetland community. Emergent wetlands are dominated herbaceous (non-woody) plants or woody plants that are both less than 3 inches DBH and less than 3.28 feet tall. Herbaceous species dominating the wetland could

include tree or shrub saplings, a mixture of rushes, sedges, and grasses, any vines, or any other herbaceous vegetation.

Palustrine Scrub-shrub wetlands (*PSS*) – A total of five (5) wetlands delineated within the Investigation Area contained characteristics representative of a scrub-shrub wetland community. Scrub-shrub wetlands are dominated by woody shrub vegetation that stand greater than 3.28 feet tall and typically less than 3 inches DBH. Shrub species dominating the wetland could include true shrubs, a mixture of young trees and shrubs, or trees that are small or stunted due to stressors from explicit environmental conditions.

Palustrine Forested wetlands (*PFO*) – A total of 69 wetlands delineated within the Investigation Area contained characteristics representative of a forested wetland community. Forested wetlands are dominated by woody, typically tree vegetation that are greater than 3 inches DBH, regardless of height. Tree species dominating the wetland could include true trees, partially felled or dead standing trees, or a mixture of trees and shrubs. Typical areal canopy cover exceeds 30 percent.

Palustrine Unconsolidated Bottom wetlands (*PUB*) – None of the wetlands delineated within the Investigation Area contained characteristics representative of a palustrine unconsolidated bottom wetland (or pond) community. PUB wetlands are ponded, typically man-made, and permanently inundated with water depths greater than 12 inches. Any vegetation is either a true aquatic plant or an obligate species adapted for surviving in permanently inundated waters. Most of the time, vegetation is entirely absent and open water is the dominant cover type.

Table 2. Delineated Wetlands within the Investigation Area

Wetland Field Designation	Cover Type Classification and Acreage[1]				Acreage within Investigation Area[2]	NWI Cover Type	Potential USACE Jurisdictional Status[3, 4]	Chapter 93 Designation[5]
	PEM	PSS	PFO	PUB				
W-AAL-1	-	-	0.08	-	0.08	-	USACE Jurisdictional	Exceptional Value
W-AAL-2	0.42	-	0.19	-	0.61	-	USACE Jurisdictional	Exceptional Value
W-AAL-3	-	-	0.15	-	0.15	-	USACE Non-Jurisdictional	-
W-AAL-4	-	-	0.27	-	0.27	-	USACE Jurisdictional	Exceptional Value
W-AAL-5	-	-	0.05	-	0.05	-	USACE Non-Jurisdictional	-
W-AAL-6	0.03	-	-	-	0.03	-	USACE Non-Jurisdictional	-
W-AAL-7	-	0.28	0.31	-	0.59	-	USACE Non-Jurisdictional	-
W-AAL-8	0.36	-	0.64	-	1.00	-	USACE Jurisdictional	Exceptional Value
W-AAL-9	-	-	0.02	-	0.02	-	USACE Non-Jurisdictional	-
W-AAL-10	-	-	0.06	-	0.06	-	USACE Jurisdictional	Exceptional Value
W-AAL-11	0.70	-	1.89	-	2.59	-	USACE Jurisdictional	Exceptional Value
W-AAL-12	-	-	0.04	-	0.04	-	USACE Non-Jurisdictional	-
W-AAL-13	-	-	0.11	-	0.11	-	USACE Jurisdictional	Exceptional Value
W-AAL-14	-	-	0.02	-	0.02	-	USACE Non-Jurisdictional	-
W-AAL-15	-	-	0.04	-	0.04	-	USACE Non-Jurisdictional	-
W-AAL-16	2.82	19.76	0.78	-	23.36	-	USACE Jurisdictional	Exceptional Value
W-AAL-17	0.49	-	-	-	0.49	-	USACE Jurisdictional	Exceptional Value
W-AAL-18	0.21	-	-	-	0.21	-	USACE Non-Jurisdictional	-
W-SRC-1	0.06	-	-	-	0.06	-	USACE Jurisdictional	-

Table 2. Delineated Wetlands within the Investigation Area

Wetland Field Designation	Cover Type Classification and Acreage[1]				Acreage within Investigation Area[2]	NWI Cover Type	Potential USACE Jurisdictional Status[3, 4]	Chapter 93 Designation[5]
	PEM	PSS	PFO	PUB				
W-SRC-2	0.04	-	-	-	0.04	-	USACE Jurisdictional	-
W-SRC-3	-	-	0.04	-	0.04	-	USACE Jurisdictional	-
W-SRC-4	-	-	0.01	-	0.01	-	USACE Non-Jurisdictional	-
W-SRC-5	-	-	0.27	-	0.27	-	USACE Jurisdictional	-
W-SRC-6	-	-	0.23	-	0.23	-	USACE Non-Jurisdictional	-
W-SRC-7	-	-	0.54	-	0.54	-	USACE Non-Jurisdictional	-
W-SRC-8	-	-	0.27	-	0.27	-	USACE Non-Jurisdictional	-
W-SRC-9	0.01	-	-	-	0.01	-	USACE Non-Jurisdictional	-
W-SRC-10	0.01	-	-	-	0.01	-	USACE Non-Jurisdictional	-
W-SRC-11	-	-	0.06	-	0.06	-	USACE Non-Jurisdictional	-
W-SRC-12	-	-	0.63	-	0.63	-	USACE Jurisdictional	Exceptional Value
W-SRC-13	0.70	-	-	-	0.70	-	USACE Jurisdictional	Exceptional Value
W-SRC-14	-	-	2.25	-	2.25	-	USACE Jurisdictional	Exceptional Value
W-SRC-15	0.06	-	-	-	0.06	-	USACE Jurisdictional	Exceptional Value
W-SRC-16	0.07	-	-	-	0.07	-	USACE Non-Jurisdictional	-
W-SRC-17	0.42	-	0.19	-	0.61	-	USACE Jurisdictional	Exceptional Value
W-SRC-18	0.24	-	0.21	-	0.45	-	USACE Jurisdictional	Exceptional Value
W-SRC-19	-	-	3.32	-	3.32	-	USACE Jurisdictional	Exceptional Value
W-SRC-20	0.10	-	0.09	-	0.19	-	USACE Jurisdictional	Exceptional Value

Table 2. Delineated Wetlands within the Investigation Area

Wetland Field Designation	Cover Type Classification and Acreage[1]				Acreage within Investigation Area[2]	NWI Cover Type	Potential USACE Jurisdictional Status[3, 4]	Chapter 93 Designation[5]
	PEM	PSS	PFO	PUB				
W-SRC-21	0.07	0.10	-	-	0.17	-	USACE Jurisdictional	Exceptional Value
W-SRC-22	-	-	0.02	-	0.02	-	USACE Non-Jurisdictional	-
W-SRC-23	-	0.12	-	-	0.12	-	USACE Jurisdictional	Exceptional Value
W-SRC-24	-	-	1.11	-	1.11	-	USACE Non-Jurisdictional	-
W-SRC-25	-	0.02	-	-	0.02	-	USACE Non-Jurisdictional	-
W-SRC-26	0.03	-	-	-	0.03	-	USACE Non-Jurisdictional	-
W-SRC-27	0.02	-	-	-	0.02	-	USACE Non-Jurisdictional	-
W-SRC-28	0.01	-	-	-	0.01	-	USACE Non-Jurisdictional	-
W-SRC-29	0.82	-	2.28	-	3.10	-	USACE Jurisdictional	Exceptional Value
W-SRC-30	-	-	0.14	-	0.14	-	USACE Jurisdictional	Exceptional Value
W-SRC-31	-	-	0.03	-	0.03	-	USACE Jurisdictional	Exceptional Value
W-SRC-32	-	-	1.03	-	1.03	-	USACE Jurisdictional	Exceptional Value
W-SRC-33	-	-	0.08	-	0.08	-	USACE Jurisdictional	Exceptional Value
W-SRC-34	0.03	-	-	-	0.03	-	USACE Non-Jurisdictional	-
W-SRC-35	-	-	0.03	-	0.03	-	USACE Non-Jurisdictional	Exceptional Value
W-SRC-36	-	-	0.03	-	0.03	-	USACE Non-Jurisdictional	-
W-SRC-37	0.02	-	-	-	0.02	-	USACE Non-Jurisdictional	-
W-SRC-38	0.13	-	-	-	0.13	-	USACE Non-Jurisdictional	-
W-SRC-39	0.04	-	-	-	0.04	-	USACE Non-Jurisdictional	-

Table 2. Delineated Wetlands within the Investigation Area

Wetland Field Designation	Cover Type Classification and Acreage[1]				Acreage within Investigation Area[2]	NWI Cover Type	Potential USACE Jurisdictional Status[3, 4]	Chapter 93 Designation[5]
	PEM	PSS	PFO	PUB				
W-SRC-40	-	-	0.02	-	0.02	-	USACE Non-Jurisdictional	-
W-SRC-41	-	-	0.27	-	0.27	-	USACE Non-Jurisdictional	-
W-SRC-42	-	-	0.05	-	0.05	-	USACE Jurisdictional	Exceptional Value
W-SRC-43	0.17	-	-	-	0.17	-	USACE Jurisdictional	Exceptional Value
W-SRC-44	0.27	-	-	-	0.27	-	USACE Non-Jurisdictional	-
W-SRC-45	0.05	-	-	-	0.05	-	USACE Jurisdictional	Exceptional Value
W-SRC-46	0.15	-	-	-	0.15	-	USACE Jurisdictional	Exceptional Value
W-SRC-47	0.03	-	-	-	0.03	-	USACE Jurisdictional	Exceptional Value
W-SRC-48	0.35	-	-	-	0.35	-	USACE Jurisdictional	Exceptional Value
W-SRC-49	-	-	0.14	-	0.14	-	USACE Non-Jurisdictional	-
W-SRC-50	0.02	-	-	-	0.02	-	USACE Non-Jurisdictional	-
W-SRC-51	-	-	0.75	-	0.75	-	USACE Jurisdictional	Exceptional Value
W-SRC-52	-	-	0.01	-	0.01	-	USACE Jurisdictional	Exceptional Value
W-SRC-53	-	-	0.06	-	0.06	-	USACE Jurisdictional	Exceptional Value
W-SRC-54	-	-	0.13	-	0.13	-	USACE Non-Jurisdictional	-
W-SRC-55	-	-	0.07	-	0.07	-	USACE Jurisdictional	Exceptional Value
W-SRC-56	-	-	0.14	-	0.14	-	USACE Non-Jurisdictional	-
W-SRC-57	0.09	-	-	-	0.09	-	USACE Jurisdictional	Exceptional Value
W-SRC-58	0.03	-	-	-	0.03	-	USACE Non-Jurisdictional	-

Table 2. Delineated Wetlands within the Investigation Area

Wetland Field Designation	Cover Type Classification and Acreage[1]				Acreage within Investigation Area[2]	NWI Cover Type	Potential USACE Jurisdictional Status[3, 4]	Chapter 93 Designation[5]
	PEM	PSS	PFO	PUB				
W-SRC-59	-	-	0.03	-	0.03	-	USACE Non-Jurisdictional	-
W-SRC-60	-	-	0.01	-	0.01	-	USACE Non-Jurisdictional	-
W-SRC-61	0.03	-	-	-	0.03	-	USACE Non-Jurisdictional	-
W-SRC-62	-	-	0.02	-	0.02	-	USACE Jurisdictional	-
W-SRC-63	-	-	0.09	-	0.09	-	USACE Non-Jurisdictional	-
W-SRC-64	3.23	-	-	-	3.23	-	USACE Jurisdictional	Exceptional Value
W-SRC-65	-	-	0.06	-	0.06	-	USACE Non-Jurisdictional	-
W-SRC-66	-	-	0.19	-	0.19	-	USACE Jurisdictional	Exceptional Value
W-SRC-67	-	-	6.43	-	6.43	-	USACE Jurisdictional	Exceptional Value
W-SRC-68	-	-	0.03	-	0.03	-	USACE Non-Jurisdictional	-
W-SRC-69	-	-	0.24	-	0.24	-	USACE Jurisdictional	Exceptional Value
W-SRC-70	-	-	0.94	-	0.94	-	USACE Jurisdictional	Exceptional Value
W-SRC-71	-	-	0.05	-	0.05	-	USACE Jurisdictional	-
W-TPT-1	3.02	-	0.26	-	3.28	-	USACE Jurisdictional	Exceptional Value
W-TPT-2	-	-	0.18	-	0.18	-	USACE Jurisdictional	Exceptional Value
W-TPT-3	-	-	0.06	-	0.06	-	USACE Non-Jurisdictional	-
W-WH-3	-	-	0.18	-	0.18	-	USACE Jurisdictional	Exceptional Value
W-WH-4	0.16	-	-	-	0.16	-	USACE Non-Jurisdictional	-
W-WH-5	-	-	0.89	-	0.89	-	USACE Jurisdictional	Exceptional Value

Table 2. Delineated Wetlands within the Investigation Area

Wetland Field Designation	Cover Type Classification and Acreage[1]				Acreage within Investigation Area[2]	NWI Cover Type	Potential USACE Jurisdictional Status[3, 4]	Chapter 93 Designation[5]
	PEM	PSS	PFO	PUB				
W-WH-6	-	-	0.86	-	0.86	-	USACE Jurisdictional	Exceptional Value
W-WH-7	-	-	0.33	-	0.33	-	USACE Jurisdictional	Exceptional Value
W-WH-8	-	-	0.46	-	0.46	-	USACE Jurisdictional	Exceptional Value
W-WH-9	-	-	0.24	-	0.24	-	USACE Jurisdictional	Exceptional Value
W-WH-10	-	-	0.12	-	0.12	-	USACE Non-Jurisdictional	-
W-WH-11	0.09	-	-	-	0.09	-	USACE Jurisdictional	Exceptional Value
W-WH-12	-	-	0.31	-	0.31	-	USACE Jurisdictional	Exceptional Value
Total Acreage:	**15.60**	**20.28**	**31.13**	**-**	**67.01**			

[1]PEM – palustrine emergent; PSS – palustrine scrub-shrub; PFO – palustrine forested; PUB – palustrine unconsolidated bottom
[2]Acreage is rounded to the nearest 0.01-acre. Any resources comprising less than 0.01 acres are tabulated within the total as 0.01 acres.
[3]Potential USACE Jurisdictional Status determined by TRC based on field observations and mapping reviews. These determinations are subject to verification by the PADEP and USACE.
[4]All resources are considered PADEP-jurisdictional under Chapter 105.
[5]Fivemile Run and Smith Run are listed as wild trout streams. Wetlands that are located in or along the floodplain of a wild trout stream or it's UNTs are considered Exceptional Value wetlands under Chapter 105. Streams and UNTs that do not have an associate FEMA floodplain have an assumed floodplain extending outward 50 feet from the top-of-bank.

4.3 Delineated Streams

A total of 55 streams were delineated within the Investigation Area. Classification of streams was dependent on a temporal description of their usual level of flow regimes and in-stream habitat. Perennial streams tend to flow all year, except during severe drought conditions. Perennial streams can flow below the water table and receive groundwater flow sources from springs or groundwater seepages on slopes. Intermittent streams flow only during certain times of the year from alternating springs, snow melts, or from runoff from seasonal precipitation events. Intermittent streams can flow above or below the water table. Ephemeral streams flow sporadically and are entirely dependent on transient precipitation from storm events or from periodic snow melts. These streams tend to flow above the water table and are often found as drainage features adjacent to, or within, the headwaters of a more major stream system.

Of the 55 streams encountered within the Investigation Area, perennial streams accounted for 17, intermittent streams accounted for 29, and ephemerals accounted for six (6) of the total delineated streams. The remaining three (3) streams were classified as both intermittent and perennial, due to a significant change in flow and morphology due to their large delineation lengths. Most streams were along moderate gradients (4 to 10 percent) with widths ranging between one (1) to 12 feet. Streams generally contained channel substrates of silt, clay, cobble, and gravel with probed stream depths in the range of 0 to 20 inches. Most of the ephemeral streams were principally drainage features and lacked substantial characteristics to permit the prevalence of aquatic ecologies. Most of the intermittent and perennial streams were determined to contain significant aquatic habitat to establish and support small fish and macroinvertebrate populations.

Table 3. Delineated Streams within the Investigation Area

Stream Field Designation	Flow Regime Classification[1]	Linear Feet within Investigation Area[2]	Stream Name	Protected Water Use[3]	Potential USACE Jurisdictional Status[4, 5]	Associated Riparian Buffer
S-AAL-1	Perennial	892	Cold Spring Run	HQ-CWF	USACE Jurisdictional	150
S-AAL-2	Intermittent	147	UNT to Cold Spring Run	HQ-CWF	USACE Jurisdictional	150
S-AAL-3	Intermittent/ Perennial	2,854	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-AAL-4	Intermittent	597	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-AAL-5	Intermittent	58	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-AAL-6	Intermittent	117	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-AAL-7	Intermittent/ Perennial	3,430	Smith Run	HQ-CWF	USACE Jurisdictional	150
S-AAL-8	Intermittent	111	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-AAL-9a	Intermittent	225	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-AAL-9b	Intermittent	156	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-AAL-10	Intermittent	282	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-AAL-11	Perennial	1,126	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-AAL-12	Intermittent	236	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-AAL-13	Intermittent	202	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-AAL-14	Intermittent	329	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-1	Ephemeral	731	UNT to Fivemile Run	HQ-CWF	USACE Non-Jurisdictional	-
S-SRC-2	Perennial	1,946	Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-3	Ephemeral	30	UNT to Fivemile Run	HQ-CWF	USACE Non-Jurisdictional	-
S-SRC-4	Perennial	66	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-5	Perennial	6,504	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-6	Intermittent	136	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-7	Intermittent	207	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-8	Intermittent	684	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-9	Perennial	433	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-10	Perennial	796	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150

Table 3. Delineated Streams within the Investigation Area

Stream Field Designation	Flow Regime Classification[1]	Linear Feet within Investigation Area[2]	Stream Name	Protected Water Use[3]	Potential USACE Jurisdictional Status[4, 5]	Associated Riparian Buffer
S-SRC-11	Perennial	98	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-12	Intermittent	69	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-13	Perennial	1,165	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-14	Intermittent	260	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-15	Perennial	64	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-16	Perennial	719	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-17	Intermittent	151	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-18	Perennial	557	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-19	Perennial	593	UNT to Fivemile Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-20	Perennial	208	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-21	Perennial	83	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-22	Perennial	1,399	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-23	Intermittent	204	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-24	Intermittent	52	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-25	Intermittent	94	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-SRC-26	Perennial	640	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-TPT-1	Ephemeral	67	UNT to Smith Run	HQ-CWF	USACE Non-Jurisdictional	-
S-TPT-2	Intermittent	761	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-TPT-3	Ephemeral	228	UNT to Smith Run	HQ-CWF	USACE Non-Jurisdictional	-
S-TPT-4	Intermittent	274	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-WH-1	Intermittent/ Perennial	9,430	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-WH-2	Intermittent	623	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-WH-3	Ephemeral	186	UNT to Smith Run	HQ-CWF	USACE Non-Jurisdictional	-
S-WH-4	Intermittent	369	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-WH-5	Intermittent	1,017	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150

Table 3. Delineated Streams within the Investigation Area

Stream Field Designation	Flow Regime Classification[1]	Linear Feet within Investigation Area[2]	Stream Name	Protected Water Use[3]	Potential USACE Jurisdictional Status[4, 5]	Associated Riparian Buffer
S-WH-6	Intermittent	238	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-WH-7	Intermittent	49	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-WH-8	Intermittent	320	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
S-WH-9	Ephemeral	426	UNT to Smith Run	HQ-CWF	USACE Non-Jurisdictional	-
S-WH-10	Intermittent	296	UNT to Smith Run	HQ-CWF	USACE Jurisdictional	150
Total Stream Length Delineated:		**42,935**				

[1]Streams classified as Perennial, Intermittent, or Ephemeral based upon USACE and PADEP criteria.
[2]Length of stream resources is rounded to the nearest foot
[3]Protected Water Uses were identified in the PA Code 93.9r in Drainage List R.
[4]Potential USACE Jurisdictional Status determined by TRC based on field observations and mapping reviews. These determinations are subject to verification by the PADEP and USACE.
[5]All resources are considered PADEP-jurisdictional under Chapter 105.

5.0 CONCLUSIONS

TRC identified 102 wetlands within the Investigation Area. Approximately 23.3 percent of the identified wetland areas are classified as PEM, 30.2 percent are classified as PSS, and 46.5 percent are classified as PFO. TRC also identified 55 streams within the Investigation Area, which included: 17 perennial streams, 29 intermittent streams, six (6) ephemeral streams, and three (3) streams that were classified as both intermittent and perennial due to their length within the Investigation Area.

All perennial and intermittent streams (49 in total) identified within the Investigation Area are assumed to be USACE-jurisdictional. Ephemeral streams (six (6) in total) are no longer considered USACE-jurisdictional based on the definitions of Waters of the United States, as outlined within the January 23, 2020 revision of the Clean Water Rule. Based on the revised definition of Waters of the United States under the Clean Water Rule, only wetlands that are "adjacent" to perennial and intermittent streams are considered USACE-jurisdictional (56 in total). All other wetlands are no longer considered USACE-jurisdictional (46 in total). On the state level, all identified resources within the Investigation Area are considered jurisdictional under PADEP Chapter 105, as discussed within Section 2.2 of this report.

Final determination of the jurisdictional status of the wetlands and streams identified in the Investigation Area must be made by both the USACE and the PADEP upon completion of detailed reviews by those agencies.

This Report is limited in scope to the specific terms of the Agreement previously entered into between TRC and Walden. This report represents the site conditions within the Investigation Area identified herein, as of the issue date.

Should the Project change from the scope described herein, TRC should be immediately notified such that additional investigations may be conducted to amend the content of the report herein. Human-induced and/or natural changes at the site may occur after the date of this investigation and may result in changes to the presence, extent, and classification of the aquatic resources identified within this Report.

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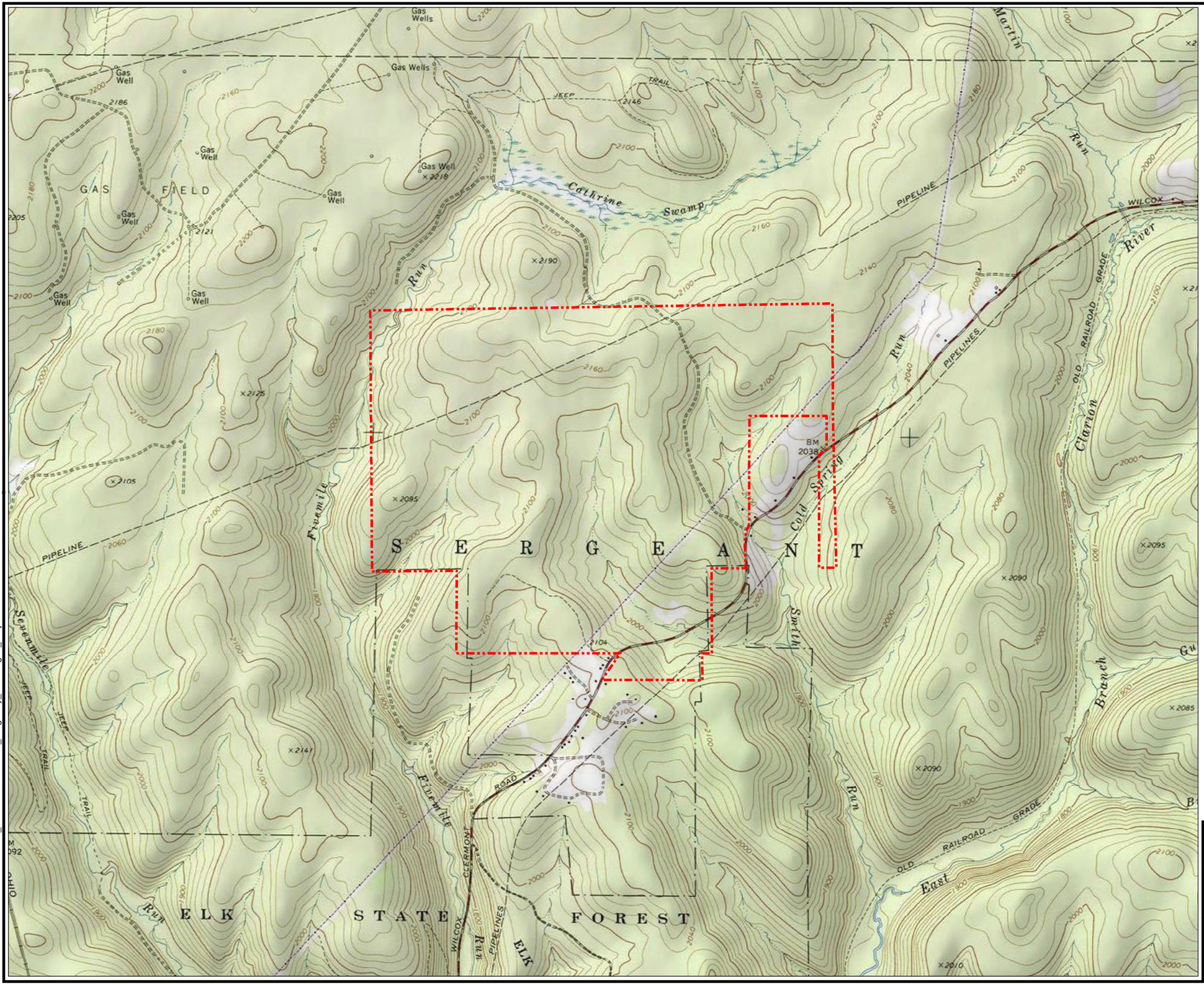
APPENDIX A

Figures

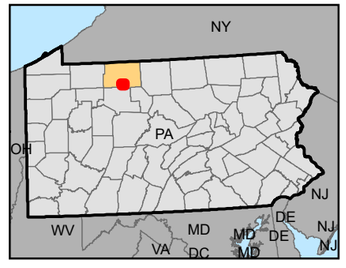
TRC - GIS



PROJECT AREA

USGS 7.5-MINUTE TOPOGRAPHIC QUADRANGLE

NOTES:
1. THE TOPOGRAPHIC MAP WAS ACQUIRED THROUGH THE USGS TOPOGRAPHIC MAP WEB SERVICE. HAZEL HURST QUAD, 1972



0 2,000 4,000 Feet

1 " = 2,000 ' 1:24,000

WALDEN RENEWABLES - RIDGEWAY SOLAR
MCKEAN COUNTY, PENNSYLVANIA

FIGURE 1
PROJECT LOCATION MAP

2200 Liberty Avenue
Suite 100
Pittsburgh, PA 15222
Phone: 412-713-7131

MAY 2020 Fig01_ProjLoc.mxd

Plot Date: 5/28/2020, 09:58:31 AM by MOPEL -- LAYOUT: ANSI B(11"x17")
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TRC - GIS

PROJECT AREA
NHD STREAMS
NWI WETLAND

R5UBH
R4SBC
PSS1C
PFO1A
Fivemile Run
Cold Spring Run
Smith Run
W. Wilcox Clermont Rd
Wilcox Clermont Rd
Hillcrest Ln
Nearing Ln

0 1,000 2,000 Feet

1 " = 1,000 ' 1:12,000

WALDEN RENEWABLES - RIDGEWAY SOLAR
MCKEAN COUNTY, PENNSYLVANIA

FIGURE 2
NWI AND NHD MAP

TRC
2200 Liberty Avenue
Suite 100
Pittsburgh, PA 15222
Phone: 412-713-7131

MAY 2020 Fig02_NWI.mxd

Plot Date: 5/28/2020, 10:06:38 AM by MOPEL -- LAYOUT: ANSI B(11"x17")
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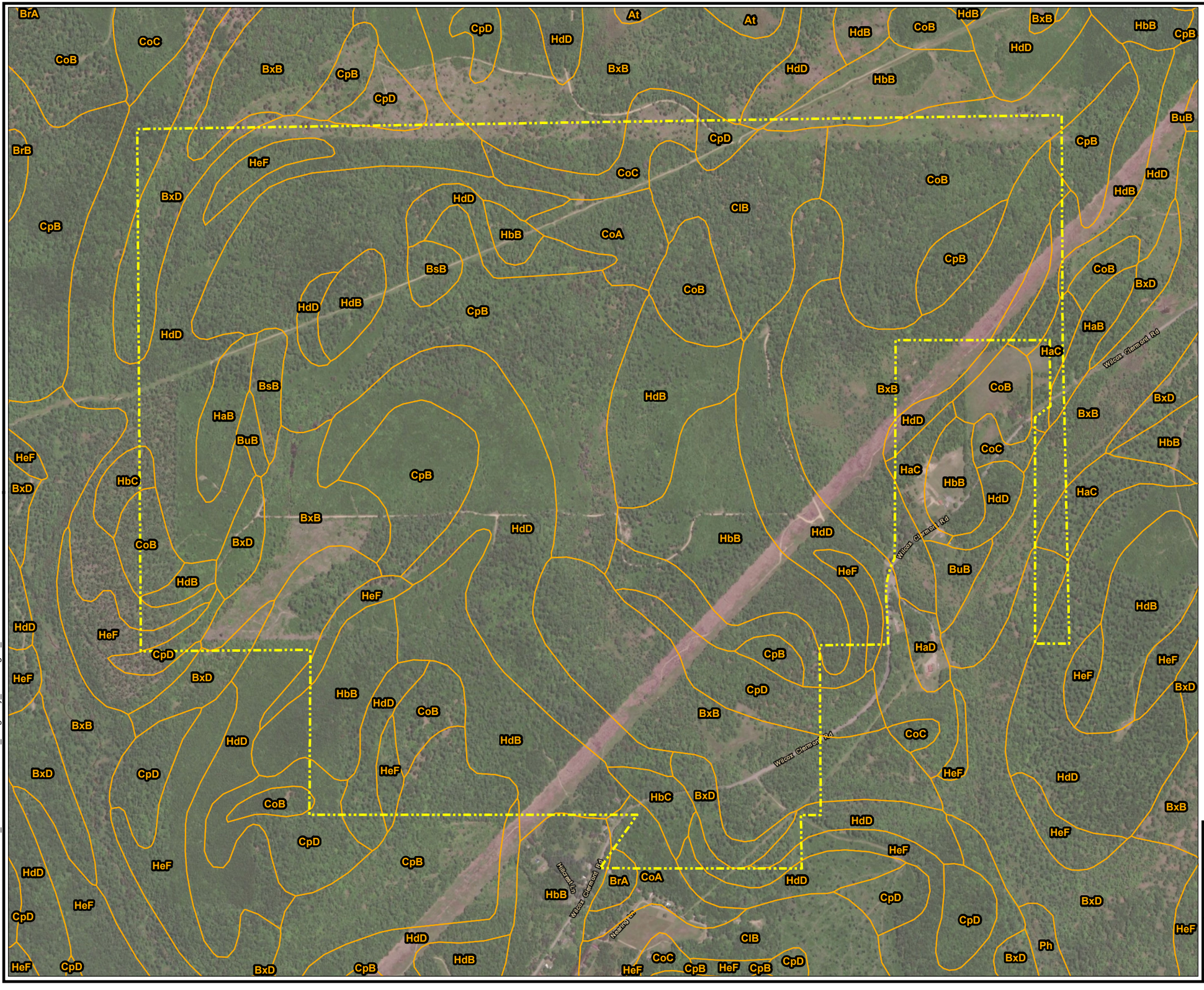
TRC - GIS



PROJECT AREA

MAPPED SOIL UNITS

0 1,000 2,000 Feet

1 " = 1,000 ' 1:12,000

WALDEN RENEWABLES - RIDGEWAY SOLAR
MCKEAN COUNTY, PENNSYLVANIA

FIGURE 3
SOIL SURVEY MAP

TRC
2200 Liberty Avenue
Suite 100
Pittsburgh, PA 15222
Phone: 412-713-7131

MAY 2020 Fig03_Soil.mxd

Plot Date: 5/28/2020, 10:18:07 AM by MOPEL -- LAYOUT: ANSI B(11"x17")
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TRC - GIS

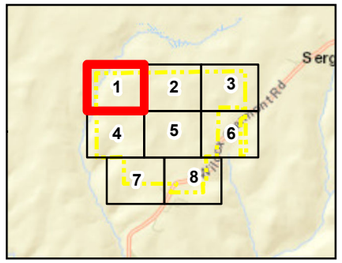
SHEET 1
SHEET 2
SHEET 3
SHEET 4
SHEET 5
SHEET 6
SHEET 7
SHEET 8

Wilcox Clermont Rd
Wilcox Clermont Rd
Wilcox Clermont Rd

TRC - GIS

W-SRC-3
W-SRC-2
W-SRC-1
S-SRC-2
W-SRC-4
W-SRC-12
W-SRC-9
W-SRC-11
S-SRC-6
S-SRC-8
W-SRC-18
W-SRC-6
S-SRC-4
S-SRC-3
W-SRC-5
W-SRC-7
W-SRC-20
W-SRC-10
S-SRC-5
S-SRC-9
W-SRC-8
W-SCR-21
S-SRC-1
W-SRC-29
S-SRC-14

PROJECT AREA
PEM WETLAND
PFO WETLAND
PSS WETLAND
PERENNIAL STREAM
INTERMITTENT STREAM
EPHEMERAL STREAM
WETLAND SAMPLE POINT
UPLAND SAMPLE POINT



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WALDEN RENEWABLES - RIDGEWAY SOLAR
MCKEAN COUNTY, PENNSYLVANIA

FIGURE 4 (PAGE 1 OF 8)
FIELD DATA LOCATION MAP

TRC
2200 Liberty Avenue
Suite 100
Pittsburgh, PA 15222
Phone: 412-713-7131

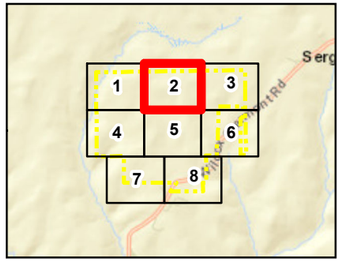
JUNE 2020 Fig04DDP_FieldData.mxd

Plot Date: 6/24/2020, 15:07:11 PM by MOPEL -- LAYOUT: ANSI B(11"x17")
Path: S:\1-PROJECTS\Walden_Renewables\397992_Ridgeway_Solar\Fig04DDP_FieldData.mxd

TRC - GIS

W-SRC-15
S-SRC-1
W-SRC-13
W-SRC-16
W-SRC-14
W-WH-3
W-WH-4
W-AAL-6
W-SRC-17
S-SRC-10
W-WH-5
W-WH-6
S-WH-4
S-WH-5
S-WH-3
S-WH-1
S-WH-2
W-SRC-19
S-WH-7

PROJECT AREA
PEM WETLAND
PFO WETLAND
PSS WETLAND
PERENNIAL STREAM
INTERMITTENT STREAM
EPHEMERAL STREAM
WETLAND SAMPLE POINT
UPLAND SAMPLE POINT



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WALDEN RENEWABLES - RIDGEWAY SOLAR
MCKEAN COUNTY, PENNSYLVANIA

FIGURE 4 (PAGE 2 OF 8)
FIELD DATA LOCATION MAP

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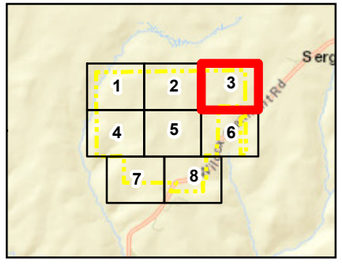
TRC - GIS

PROJECT AREA
PEM WETLAND
PFO WETLAND
PSS WETLAND
PERENNIAL STREAM
INTERMITTENT STREAM
EPHEMERAL STREAM
WETLAND SAMPLE POINT
UPLAND SAMPLE POINT



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WALDEN RENEWABLES - RIDGEWAY SOLAR
MCKEAN COUNTY, PENNSYLVANIA

FIGURE 4 (PAGE 3 OF 8)
FIELD DATA LOCATION MAP

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JUNE 2020 Fig04DDP_FieldData.mxd

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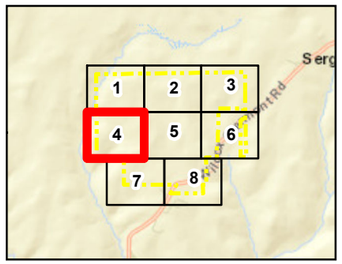
Path: S:\1-PROJECTS\Walden_Renewables\397992_Ridgeway_Solar\Fig04DDP_FieldData.mxd

TRC - GIS

W-SRC-29
W-SRC-30
W-SRC-22
S-SRC-13
S-SRC-3
W-SRC-31
W-SRC-32
W-SRC-23
S-SRC-12
W-SRC-26
S-SRC-5
W-SRC-24
W-SRC-28
W-SRC-27
W-SRC-47
S-SRC-19
W-SRC-48
W-SRC-38
W-SRC-46
W-SRC-41
W-SRC-49
W-SRC-45
S-SRC-15
S-SRC-5
W-SRC-50
W-SRC-39
W-SRC-37
W-SRC-36
W-SRC-44
W-SRC-35
W-SRC-34
W-SRC-43
S-SRC-18
W-SRC-33
W-SRC-42
S-SRC-17

PROJECT AREA
PEM WETLAND
PFO WETLAND
PSS WETLAND
PERENNIAL STREAM
INTERMITTENT STREAM
EPHEMERAL STREAM
WETLAND SAMPLE POINT
UPLAND SAMPLE POINT



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WALDEN RENEWABLES - RIDGEWAY SOLAR
MCKEAN COUNTY, PENNSYLVANIA

FIGURE 4 (PAGE 4 OF 8)
FIELD DATA LOCATION MAP

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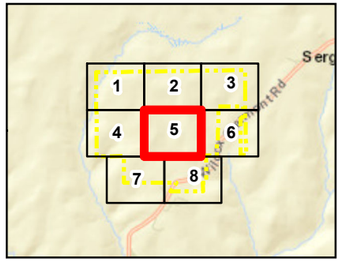
TRC - GIS

W-WH-7
S-WH-6
S-WH-5
S-WH-9
S-WH-1
W-WH-8
S-WH-10
W-WH-12
W-WH-9
W-SRC-24
W-WH-10
W-WH-11
W-SRC-25
S-WH-1
S-SRC-20
W-SRC-71
W-SRC-66
W-SRC-70
W-SRC-62
S-SRC-25
W-SRC-68
W-SRC-69
W-SRC-67
W-SRC-65
W-SRC-64
S-AAL-13
S-AAL-12

PROJECT AREA
PEM WETLAND
PFO WETLAND
PSS WETLAND
PERENNIAL STREAM
INTERMITTENT STREAM
EPHEMERAL STREAM
WETLAND SAMPLE POINT
UPLAND SAMPLE POINT



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WALDEN RENEWABLES - RIDGEWAY SOLAR
MCKEAN COUNTY, PENNSYLVANIA

FIGURE 4 (PAGE 5 OF 8)
FIELD DATA LOCATION MAP

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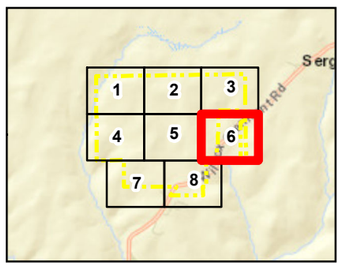
TRC - GIS

W-AAL-16
S-AAL-7
S-AAL-11
S-AAL-14
W-AAL-17
S-AAL-7
W-AAL-18
Wilcox Clermont Rd
W-AAL-4
W-AAL-1
S-AAL-1
W-AAL-2
S-AAL-2
W-AAL-3

PROJECT AREA
PEM WETLAND
PFO WETLAND
PSS WETLAND
PERENNIAL STREAM
INTERMITTENT STREAM
EPHEMERAL STREAM
WETLAND SAMPLE POINT
UPLAND SAMPLE POINT



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WALDEN RENEWABLES - RIDGEWAY SOLAR
MCKEAN COUNTY, PENNSYLVANIA

FIGURE 4 (PAGE 6 OF 8)
FIELD DATA LOCATION MAP

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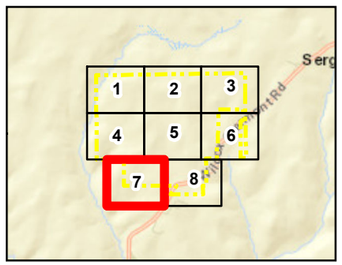
PROJECT AREA
PEM WETLAND
PFO WETLAND
PSS WETLAND
PERENNIAL STREAM
INTERMITTENT STREAM
EPHEMERAL STREAM
WETLAND SAMPLE POINT
UPLAND SAMPLE POINT



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WALDEN RENEWABLES - RIDGEWAY SOLAR
MCKEAN COUNTY, PENNSYLVANIA

FIGURE 4 (PAGE 7 OF 8)
FIELD DATA LOCATION MAP

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JUNE 2020 Fig04DDP_FieldData.mxd

TRC - GIS
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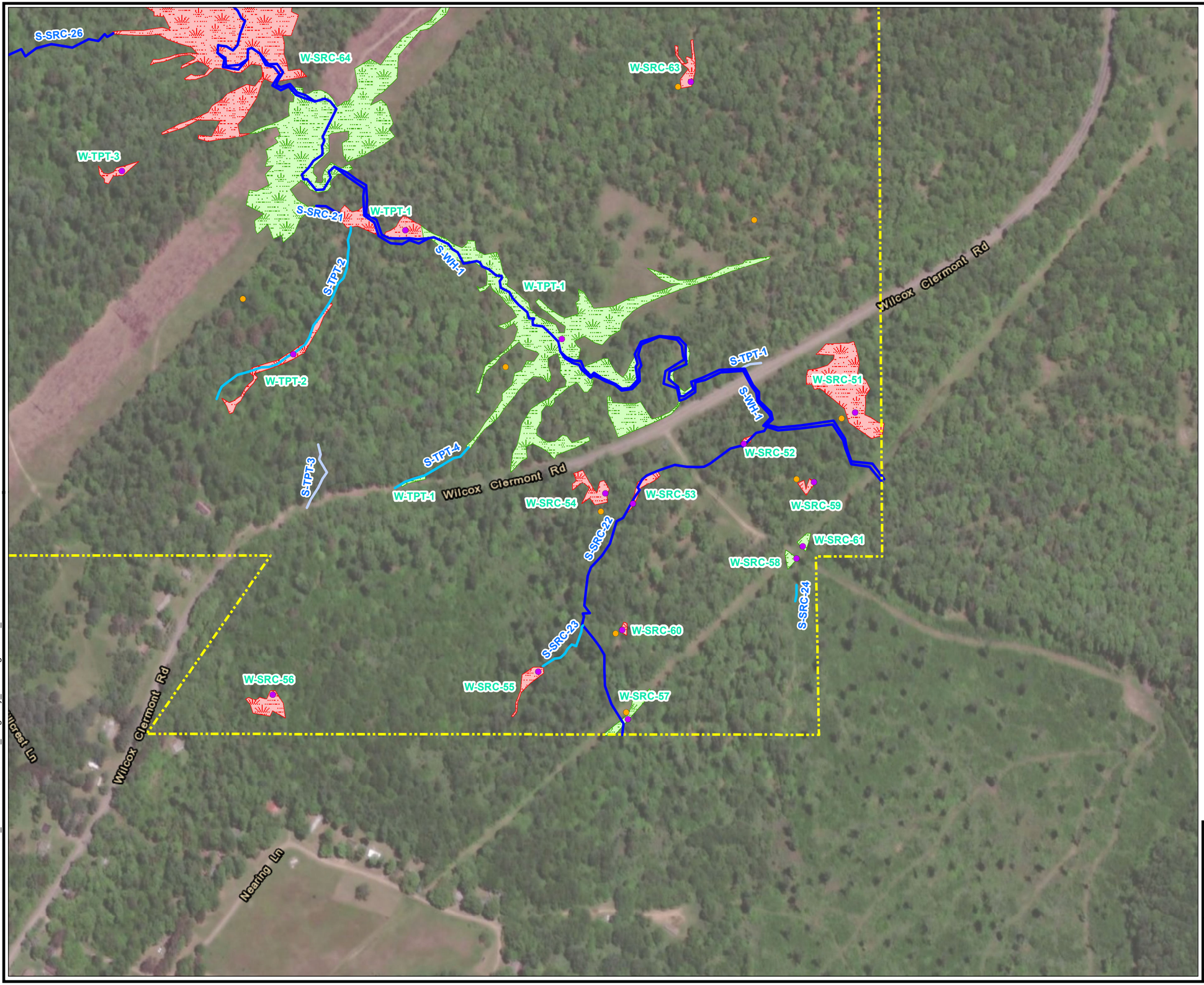
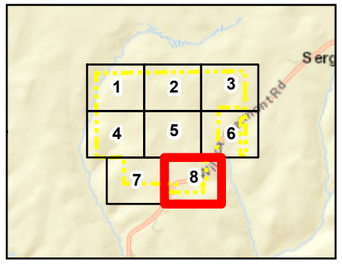
Path: S:\1-PROJECTS\Walden_Renewables\397992_Ridgeway_Solar\Fig04DDP_FieldData.mxd

TRC - GIS



- PROJECT AREA
- PEM WETLAND
- PFO WETLAND
- PSS WETLAND
- PERENNIAL STREAM
- INTERMITTENT STREAM
- EPHEMERAL STREAM
- WETLAND SAMPLE POINT
- UPLAND SAMPLE POINT



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WALDEN RENEWABLES - RIDGEWAY SOLAR
MCKEAN COUNTY, PENNSYLVANIA

FIGURE 4 (PAGE 8 OF 8)
FIELD DATA LOCATION MAP

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APPENDIX B

Photograph Log

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 1.

Date:
6/3/2020

Description:

View of perennial stream S-AAL-1, facing upstream and northeast

Photo No. 2.

Date:
6/3/2020

Description:

View of intermittent stream S-AAL-2, facing downstream and west

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 3. **Date:** 6/4/2020 **Description:** View of intermittent portion of stream S-AAL-3, facing upstream and north	

Photo No. 4. **Date:** 6/4/2020 **Description:** View of perennial portion of stream S-SRC-3, facing downstream and south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 5. **Date:** 6/4/2020 **Description:** View of intermittent stream S-AAL-4, facing downstream and south	

Photo No. 6. **Date:** 6/4/2020 **Description:** View of intermittent stream S-AAL-5, facing downstream and southwest	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 7. **Date:** 6/4/2020 **Description:** View of intermittent stream S-AAL-6, facing upstream and east	

Photo No. 8. **Date:** 6/6/2020 **Description:** View of intermittent and forested portion of stream S-AAL-7, facing downstream and south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 9. **Date:** 6/6/2020 **Description:** View of intermittent and open (herbaceous) portion of stream S-AAL-7, facing downstream and south	

Photo No. 10. **Date:** 6/6/2020 **Description:** View of perennial portion of stream S-AAL-7, facing downstream and south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 11. **Date:** 6/6/2020 **Description:** View of intermittent stream S-AAL-8, facing downstream and southeast	

Photo No. 12. **Date:** 6/6/2020 **Description:** View of intermittent stream S-AAL-9a, facing upstream and west	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 13. **Date:** 6/6/2020 **Description:** View of intermittent stream S-AAL-9b, facing upstream and west	

Photo No. 14. **Date:** 6/6/2020 **Description:** View of intermittent stream S-AAL-10, facing upstream and northwest	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 15. **Date:** 6/6/2020 **Description:** View of perennial stream S-AAL-11, facing upstream and north	

Photo No. 16. **Date:** 6/7/2020 **Description:** View of intermittent stream A-AAL-12, facing upstream and west	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 17.

Date:
6/7/2020

Description:

View of intermittent stream S-AAL-13, facing upstream and west

Photo No. 18.

Date:
6/7/2020

Description:

View of intermittent stream S-AAL-14, facing downstream and east

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 19. **Date:** 6/1/2020 **Description:** View of ephemeral stream S-SRC-1, facing upstream and east	

Photo No. 20. **Date:** 6/1/2020 **Description:** View of perennial stream S-SRC-2, facing downstream and southwest	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 21. **Date:** 6/1/2020 **Description:** View of ephemeral stream S-SRC-3, facing upstream and northeast	

Photo No. 22. **Date:** 6/1/2020 **Description:** View of perennial stream S-SRC-4, facing upstream and southwest	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 23. **Date:** 6/2/2020 **Description:** View of perennial stream S-SRC-5 at its upper extent, facing upstream and north	

Photo No. 24. **Date:** 6/5/2020 **Description:** View of perennial stream S-SRC-5 at its lower extent, facing downstream and southwest	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 25. **Date:** 6/2/2020 **Description:** View of intermittent stream S-SRC-6, facing upstream and north	

Photo No. 26. **Date:** 6/2/2020 **Description:** View of intermittent stream S-SRC-7, facing upstream and southwest	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 27. **Date:** 6/3/2020 **Description:** View of intermittent stream S-SRC-8, facing downstream and southwest	

Photo No. 28. **Date:** 6/3/2020 **Description:** View of perennial stream S-SRC-9, facing downstream and southwest	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 29. **Date:** 6/3/2020 **Description:** View of perennial stream S-SRC-10, facing upstream and northeast	

Photo No. 30. **Date:** 6/3/2020 **Description:** View of perennial stream S-SRC-11, facing upstream and north	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 31. **Date:** 6/4/2020 **Description:** View of intermittent stream S-SRC-12, facing downstream and west	

Photo No. 32. **Date:** 6/5/2020 **Description:** View of perennial stream S-SRC-13, facing downstream and south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 33. **Date:** 6/5/2020 **Description:** View of intermittent stream S-SRC-14, facing upstream and northeast	

Photo No. 34. **Date:** 6/6/2020 **Description:** View of perennial stream S-SRC-15, facing downstream and southeast	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 35. **Date:** 6/6/2020 **Description:** View of perennial stream S-SRC-16, facing downstream and southwest	

Photo No. 36. **Date:** 6/7/2020 **Description:** View of intermittent stream S-SRC-17, facing downstream and west	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 37. **Date:** 6/7/2020 **Description:** View of perennial stream S-SRC-18, facing downstream and west	

Photo No. 38. **Date:** 6/7/2020 **Description:** View of perennial stream S-SRC-19, facing downstream and west	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 39. **Date:** 6/8/2020 **Description:** View of perennial stream S-SRC-20, facing downstream and west	

Photo No. 40. **Date:** 6/8/2020 **Description:** View of perennial stream S-SRC-21, facing upstream and northwest	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 41. **Date:** 6/8/2020 **Description:** View of perennial stream S-SRC-22, facing upstream and south	

Photo No. 42. **Date:** 6/9/2020 **Description:** View of intermittent stream S-SRC-23, facing upstream and southwest	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 43. **Date:** 6/9/2020 **Description:** View of intermittent stream S-SRC-24, facing downstream and north	

Photo No. 44. **Date:** 6/9/2020 **Description:** View of intermittent stream S-SRC-25, facing downstream and southeast	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 45. **Date:** 6/11/2020 **Description:** View of perennial stream S-SRC-26, facing downstream and east	

Photo No. 46. **Date:** 6/10/2020 **Description:** View of ephemeral stream S-TPT-1, facing upstream and east	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 47. **Date:** 6/11/2020 **Description:** View of intermittent stream S-TPT-2, facing upstream and southwest	

Photo No. 48. **Date:** 6/11/2020 **Description:** View of ephemeral stream S-TPT-3, facing upstream and southwest	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 49.

Date:
6/11/2020

Description:

View of intermittent stream S-TPT-4, facing upstream and northeast

Photo No. 50.

Date:
6/4/2020

Description:

View of intermittent portion of stream S-WH-1, facing downstream and south

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 51.

Date:
6/4/2020

Description:

View of perennial portion of stream S-WH-1, facing upstream and north

Photo No. 52.

Date:
6/4/2020

Description:

View of intermittent stream S-WH-2, facing upstream and north

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 53.

Date:
6/4/2020

Description:

View of ephemeral stream S-WH-3, facing downstream and south

Photo No. 54.

Date:
6/4/2020

Description:

View of intermittent stream S-WH-4, facing upstream and northwest

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 55. **Date:** 6/4/2020 **Description:** View of intermittent stream S-WH-5, facing upstream and northwest	

Photo No. 56. **Date:** 6/5/2020 **Description:** View of intermittent stream S-WH-6, facing downstream and southeast	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 57.

Date:
6/5/2020

Description:

View of intermittent stream S-WH-7, facing upstream and northeast

Photo No. 58.

Date:
6/5/2020

Description:

View of intermittent stream S-WH-8, facing upstream and northwest

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 59. **Date:** 6/5/2020 **Description:** View of ephemeral stream S-WH-9, facing upstream and west	

Photo No. 60. **Date:** 6/6/2020 **Description:** View of intermittent stream S-WH-10, facing across stream and east	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 61. **Date:** 6/3/2020 **Description:** View of PFO wetland W-AAL-1, facing west	

Photo No. 62. **Date:** 6/3/2020 **Description:** View of PEM portion of wetland W-AAL-2, facing west	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 63. **Date:** 6/3/2020 **Description:** View of PFO portion of wetland W-AAL-2, facing east	

Photo No. 64. **Date:** 6/3/2020 **Description:** View of PFO wetland W-AAL-3, facing west	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 65. **Date:** 6/3/2020 **Description:** View of PFO wetland W-AAL-4, facing north	

Photo No. 66. **Date:** 6/3/2020 **Description:** View of PFO wetland W-AAL-5, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 67. **Date:** 6/4/2020 **Description:** View of PEM wetland W-AAL-6, facing north	

Photo No. 68. **Date:** 6/4/2020 **Description:** View of PSS portion of wetland W-AAL-7, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 69. **Date:** 6/4/2020 **Description:** View of PFO portion of wetland W-AAL-7, facing north	

Photo No. 70. **Date:** 6/4/2020 **Description:** View of PEM portion of wetland W-AAL-8, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 71. **Date:** 6/4/2020 **Description:** View of PFO portion of wetland W-AAL-8, facing north	

Photo No. 72. **Date:** 6/4/2020 **Description:** View of PFO wetland W-AAL-9, facing east	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 73. **Date:** 6/4/2020 **Description:** View of PFO wetland W-AAL-10, facing west	

Photo No. 74. **Date:** 6/4/2020 **Description:** View of PFO portion of wetland W-AAL-11, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 75. **Date:** 6/4/2020 **Description:** View of PFO portion of wetland W-AAL-11, facing east	

Photo No. 76. **Date:** 6/5/2020 **Description:** View of PEM portion of wetland W-AAL-11, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 77.

Date:
6/6/2020

Description:

View of PFO wetland W-AAL-12, facing south

Photo No. 78.

Date:
6/5/2020

Description:

View of PFO wetland W-AAL-13, facing south

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 79. **Date:** 6/5/2020 **Description:** View of PFO wetland W-AAL-14, facing south	

Photo No. 80. **Date:** 6/6/2020 **Description:** View of PFO wetland W-AAL-15, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 81. **Date:** 6/6/2020 **Description:** View of PEM portion of wetland W-AAL-16, facing south	

Photo No. 82. **Date:** 6/6/2020 **Description:** View of PSS portion of wetland W-AAL-16, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 83. **Date:** 6/6/2020 **Description:** View of PFO portion of wetland W-AAL-16, facing north	

Photo No. 84. **Date:** 6/7/2020 **Description:** View of PEM wetland W-AAL-17, facing north	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 85. **Date:** 6/7/2020 **Description:** View of PEM wetland W-AAL-18, facing west	

Photo No. 86. **Date:** 6/1/2020 **Description:** View of PEM wetland W-SRC-1, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 87. **Date:** 6/1/2020 **Description:** View of PEM wetland W-SRC-2, facing west	

Photo No. 88. **Date:** 6/1/2020 **Description:** View of PFO wetland W-SRC-3, facing north	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 89. **Date:** 6/1/2020 **Description:** View of PFO wetland W-SRC-4, facing north	

Photo No. 90. **Date:** 6/1/2020 **Description:** View of PFO wetland W-SRC-5, facing east	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 91. **Date:** 6/1/2020 **Description:** View of PFO wetland W-SRC-6, facing south	

Photo No. 92. **Date:** 6/1/2020 **Description:** View of PFO wetland W-SRC-7, facing north	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 93. **Date:** 6/1/2020 **Description:** View of PFO wetland W-SRC-8, facing north	

Photo No. 94. **Date:** 6/2/2020 **Description:** View of PEM wetland W-SRC-9, facing north	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 95.

Date:
6/2/2020

Description:

View of PEM wetland W-SRC-10, facing south

Photo No. 96.

Date:
6/2/2020

Description:

View of PFO wetland W-SRC-11, facing north

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 97.

Date:
6/2/2020

Description:

View of PFO wetland W-SRC-12, facing east

Photo No. 98.

Date:
6/2/2020

Description:

View of PEM wetland W-SRC-13, facing north

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 99.

Date:
6/2/2020

Description:

View of PFO wetland W-SRC-14, facing north.

Note: Wetland W-WH-1 and wetland W-WH-2 are included as part of wetland W-SRC-14.

Photo No. 100.

Date:
6/2/2020

Description:

View of PEM wetland W-SRC-15, facing west

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 101. **Date:** 6/2/2020 **Description:** View of PEM wetland W-SRC-16, facing west	

Photo No. 102. **Date:** 6/3/2020 **Description:** View of PEM portion of wetland W-SRC-17, facing east	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 103.

Date:
6/3/2020

Description:

View of PFO portion of wetland W-SRC-17, facing north

Photo No. 104.

Date:
6/3/2020

Description:

View of PEM portion of wetland W-SRC-18, facing north

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 105. **Date:** 6/3/2020 **Description:** View of PFO portion of wetland W-SRC-18, facing south	

Photo No. 106. **Date:** 6/3/2020 **Description:** View of PFO wetland W-SRC-19, facing north	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 107.

Date:
6/4/2020

Description:

View of PEM portion of wetland W-SRC-20, facing east

Photo No. 108.

Date:
6/4/2020

Description:

View of PFO portion of wetland W-SRC-20, facing south

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 109. **Date:** 6/4/2020 **Description:** View of PEM portion of wetland W-SRC-21, facing south	

Photo No. 110. **Date:** 6/4/2020 **Description:** View of PSS portion of wetland W-SRC-21, facing north	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 111.

Date:
6/4/2020

Description:

View of PFO wetland W-SRC-22, facing south

Photo No. 112.

Date:
6/4/2020

Description:

View of PSS wetland W-SRC-23, facing south

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 113. **Date:** 6/4/2020 **Description:** View of PFO wetland W-SRC-24, facing north	

Photo No. 114. **Date:** 6/4/2020 **Description:** View of PSS wetland W-SRC-25, facing west	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 115. **Date:** 6/4/2020 **Description:** View of PEM wetland W-SRC-26, facing east	

Photo No. 116. **Date:** 6/4/2020 **Description:** View of PEM wetland W-SRC-27, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 117. **Date:** 6/4/2020 **Description:** View of PEM wetland W-SRC-28, facing north	

Photo No. 118. **Date:** 6/4/2020 **Description:** View of PEM portion of wetland W-SRC-29, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 119. **Date:** 6/5/2020 **Description:** View of PFO portion of wetland W-SRC-29, facing north	

Photo No. 120. **Date:** 6/5/2020 **Description:** View of PFO wetland W-SRC-30, facing north	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 121. **Date:** 6/5/2020 **Description:** View of PFO wetland W-SRC-31, facing south	

Photo No. 122. **Date:** 6/5/2020 **Description:** View of PFO wetland W-SRC-32, facing east	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 123. **Date:** 6/5/2020 **Description:** View of PFO wetland W-SRC-33, facing west	

Photo No. 124. **Date:** 6/5/2020 **Description:** View of PEM wetland W-SRC-34, facing west	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 125.

Date:
6/5/2020

Description:

View of PFO wetland W-SRC-35, facing south

Photo No. 126.

Date:
6/6/2020

Description:

View of PFO wetland W-SRC-36, facing south

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 127. **Date:** 6/6/2020 **Description:** View of PEM wetland W-SRC-37, facing north	

Photo No. 128. **Date:** 6/6/2020 **Description:** View of PEM wetland W-SRC-38, facing east	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 129. **Date:** 6/6/2020 **Description:** View of PEM wetland W-SRC-39, facing south	

Photo No. 130. **Date:** 6/6/2020 **Description:** View of PFO wetland W-SRC-40, facing east	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 131. **Date:** 6/6/2020 **Description:** View of PFO wetland W-SRC-41, facing west	

Photo No. 132. **Date:** 6/7/2020 **Description:** View of PFO wetland W-SRC-42, facing east	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 133. **Date:** 6/7/2020 **Description:** View of PEM wetland W-SRC-43, facing north	

Photo No. 134. **Date:** 6/7/2020 **Description:** View of PEM wetland W-SRC-44, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 135. **Date:** 6/7/2020 **Description:** View of PEM wetland W-SRC-45, facing north	

Photo No. 136. **Date:** 6/7/2020 **Description:** View of PEM wetland W-SRC-46, facing west	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 137. **Date:** 6/7/2020 **Description:** View of PEM wetland W-SRC-47, facing west	

Photo No. 138. **Date:** 6/7/2020 **Description:** View of PEM wetland W-SRC-48, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 139. **Date:** 6/7/2020 **Description:** View of PFO wetland W-SRC-49, facing north	

Photo No. 140. **Date:** 6/7/2020 **Description:** View of PEM wetland W-SRC-50, facing north	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 141. **Date:** 6/8/2020 **Description:** View of PFO wetland W-SRC-51, facing south	

Photo No. 142. **Date:** 6/8/2020 **Description:** View of PFO wetland W-SRC-52, facing north	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 143. **Date:** 6/8/2020 **Description:** View of PFO wetland W-SRC-53, facing west	

Photo No. 144. **Date:** 6/9/2020 **Description:** View of PFO wetland W-SRC-54, facing west	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 145. **Date:** 6/9/2020 **Description:** View of PFO wetland W-SRC-55, facing south	

Photo No. 146. **Date:** 6/9/2020 **Description:** View of PFO wetland W-SRC-56, facing east	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 147. **Date:** 6/9/2020 **Description:** View of PEM wetland W-SRC-57, facing west	

Photo No. 148. **Date:** 6/9/2020 **Description:** View of PEM wetland W-SRC-58, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 149. **Date:** 6/9/2020 **Description:** View of PFO wetland W-SRC-59, facing north	

Photo No. 150. **Date:** 6/9/2020 **Description:** View of PFO wetland W-SRC-60, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 151. **Date:** 6/9/2020 **Description:** View of PEM wetland W-SRC-61, facing south	

Photo No. 152. **Date:** 6/9/2020 **Description:** View of PFO wetland W-SRC-62, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 153. **Date:** 6/10/2020 **Description:** View of PFO wetland W-SRC-63, facing north	

Photo No. 154. **Date:** 6/10/2020 **Description:** View of PEM wetland W-SRC-64, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 155. **Date:** 6/10/2020 **Description:** View of PFO wetland W-SRC-65, facing south	

Photo No. 156. **Date:** 6/10/2020 **Description:** View of PFO wetland W-SRC-66, facing east	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 157. **Date:** 6/10/2020 **Description:** View of PFO wetland W-SRC-67, facing east	

Photo No. 158. **Date:** 6/10/2020 **Description:** View of PFO wetland W-SRC-68, facing west	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 159. **Date:** 6/11/2020 **Description:** View of PFO wetland W-SRC-69, facing north	

Photo No. 160. **Date:** 6/11/2020 **Description:** View of PFO wetland W-SRC-70, facing south	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 161. **Date:** 6/11/2020 **Description:** View of PFO wetland W-SRC-71, facing south	

Photo No. 162. **Date:** 6/10/2020 **Description:** View of PEM portion of wetland W-TPT-1, facing north	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 163. **Date:** 6/10/2020 **Description:** View of PFO portion of wetland W-TPT-1, facing west	

Photo No. 164. **Date:** 6/11/2020 **Description:** View of PFO wetland W-TPT-2, facing east	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 165.

Date:
6/11/2020

Description:

View of PFO wetland W-TPT-3, facing north

Photo No. 166.

Date:
6/3/2020

Description:

View of PFO wetland W-WH-1, facing east.

W-WH-1 was combined with W-SRC-14.

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 167.

Date:
6/3/2020

Description:

View of PFO wetland W-WH-2, facing north.

W-WH-2 was combined with W-SRC-14.

Photo No. 168.

Date:
6/3/2020

Description:

View of PFO wetland W-WH-3, facing south

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 169.

Date:
6/3/2020

Description:

View of PEM wetland W-WH-4, facing north

Photo No. 170.

Date:
6/4/2020

Description:

View of PFO wetland W-WH-5, facing south

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 171.

Date:
6/4/2020

Description:

View of PFO wetland W-WH-6, facing west

Photo No. 172.

Date:
6/5/2020

Description:

View of PFO wetland W-WH-7, facing north

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 173. **Date:** 6/6/2020 **Description:** View of PFO wetland W-WH-8, facing east	

Photo No. 174. **Date:** 6/6/2020 **Description:** View of PFO wetland W-WH-9, facing east	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 175. **Date:** 6/6/2020 **Description:** View of PFO wetland W-WH-10, facing south	

Photo No. 176. **Date:** 6/6/2020 **Description:** View of PEM wetland W-WH-11, facing north	

PHOTOGRAPHIC LOG

Ridgeway Solar Project
Wetland Delineation Report

Client Name:	Site Location:	Project No.
Walden Renewables Development, LLC	Sergeant Township, McKean County, Pennsylvania	397992

Photo No. 177.

Date:
6/7/2020

Description:

View of PFO wetland W-WH-12, facing north

APPENDIX C

Stream Data Forms

Physical Characterization / Water Quality Field Data Sheet

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-1 (Cold Spring Run)				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL/MB**	**DATE**	**06/03/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**11.46**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66429433**	**LONGITUDE**		**-78.547836**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**65** % CLOUD COVER		**35**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **68** °F

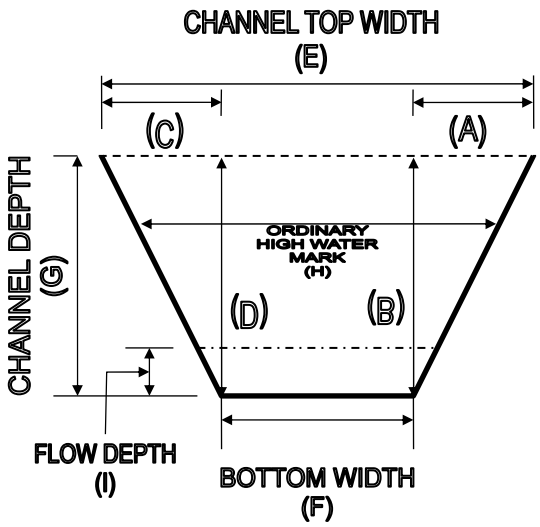
OTHER: **Overcast**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.5**	FT.
	VERTICAL **(B)**	**2.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.75**	FT.
	VERTICAL **(D)**	**2.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**8.0**	FT.
	BOTTOM WIDTH **(F)**	**6.0**	FT.
	OVERALL DEPTH **(G)**	**3.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**6.0**	FT.
	FLOW DEPTH **(I)**	**1.0**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐	GLACIAL	☒	SPRING FED
☐	NON-GLACIAL MONTANE	☒	MIXTURE OF ORIGINS
☐	SWAMP AND BOG	☐	OTHER

STREAM ID: S-AAL-1

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☒ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☒ HERBACEOUS

DOMINANT SPECIES PRESENT? **Beech, blk cherry, ferns**

INSTREAM FEATURES

STUDY LENGTH	**200**	FT.
STREAM WIDTH	**8.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒ YES ☐ NO	
TAXA PRESENT	**Crawfish**; **Caddisfly, stonefly**	

CANOPY COVER

☐ OPEN	☒ PARTLY OPEN	☐ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **50** %
- ☒ RUN **30** %
- ☒ POOL **20** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☒ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION **10** %

WATER QUALITY

TEMPERATURE	- ° C
SPEC. CONDUCTANCE	-
DISSOLVED OXYGEN	-
pH	-
TURBIDITY	-
WQ INSTRUMENT USED	-

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☒ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☒ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**15**
BOULDER	256 MM (10"+)	**15**			
COBBLE	64 – 256 MM (2.5 – 10")	**20**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**10**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**20**			
SAND	0.06 -0 2 MM (GRITTY)	**35**			
SILT	0.004 – 0.06 MM	**5**	MARL	GREY, SHELL FRAGMENTS	**5**
CLAY	<0.004 MM (SLICK)	**5**			

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-2				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**INTERMITTENT**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/3/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**14.51**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66178416**	**LONGITUDE**		**-78.548051**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☐	RAIN (STEADY RAIN)			☐
☒	SHOWERS (INTERMITTENT)			☐
☒	**90**	% CLOUD COVER	**30**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **68** °F

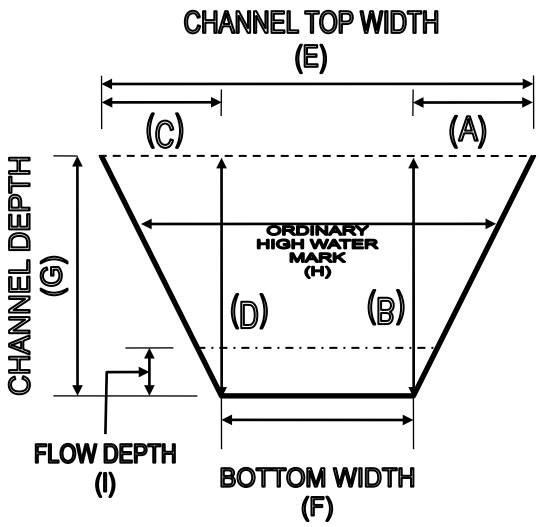
OTHER: **Intermittent breaks in cloud cover between showers**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.5**	FT.
	VERTICAL **(B)**	**0.75**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.5**	FT.
	VERTICAL **(D)**	**0.75**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**2.0**	FT.
	BOTTOM WIDTH **(F)**	**2.0**	FT.
	OVERALL DEPTH **(G)**	**0.75**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.0**	FT.
	FLOW DEPTH **(I)**	**0.25**	FT.
	APPROX. SURFACE VELOCITY	**2.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **Stormwater**

STREAM ID: S-AAL-2

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☒ HERBACEOUS

DOMINANT SPECIES PRESENT? **Blk cherry, sugar maple, beech, ferns**

INSTREAM FEATURES

STUDY LENGTH	**60**	FT.
STREAM WIDTH	**2.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐	YES
	☐	NO
TAXA PRESENT	-	-

CANOPY COVER

☐	☐	☐	☒
OPEN	PARTLY OPEN	PARTLY SHADED	SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **10** %
- ☒ RUN **65** %
- ☒ POOL **25** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION **0** %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☒ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☒ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**20**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**30**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**20**			
SAND	0.06 -0 2 MM (GRITTY)	**50**			
SILT	0.004 – 0.06 MM	**20**	MARL	GREY, SHELL FRAGMENTS	**0**
CLAY	<0.004 MM (SLICK)	**10**			

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-3				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/4/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**12:50**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.671326**	**LONGITUDE**		**-78.549754**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☒
☐		% CLOUD COVER	**50**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **75** °F

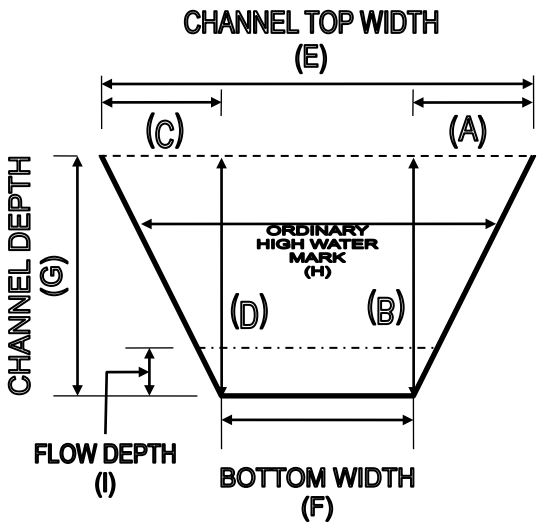
OTHER: **Heavy rain followed by intermittent showers past 24 hrs**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.25**	FT.
	VERTICAL **(B)**	**1.50**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.25**	FT.
	VERTICAL **(D)**	**1.50**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**3.0**	FT.
	BOTTOM WIDTH **(F)**	**2.0**	FT.
	OVERALL DEPTH **(G)**	**2.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.0**	FT.
	FLOW DEPTH **(I)**	**1.0**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER ____

STREAM ID: S-AAL-3 (Intermittent)

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☐ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☒ HERBACEOUS

DOMINANT SPECIES PRESENT? **Mountain and Sugar maples, wood and hay ferns**

INSTREAM FEATURES

STUDY LENGTH	**200**	FT.
STREAM WIDTH	**3.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒	YES
	☐	NO

CANOPY COVER

☐	☒	☐	☐
OPEN	PARTLY OPEN	PARTLY SHADED	SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **30** %
- ☒ RUN **50** %
- ☒ POOL **20** %

TAXA PRESENT: **caddisfly**, **crayfish**

- CHANNELIZED: ☐ YES ☒ NO
- DAM PRESENT: ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION: **0** %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☒ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**25**
BOULDER	256 MM (10"+)	**10**			
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**20**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**20**			
SAND	0.06 -0 2 MM (GRITTY)	**50**			
SILT	0.004 – 0.06 MM	**5**	MARL	GREY, SHELL FRAGMENTS	**0**
CLAY	<0.004 MM (SLICK)	**5**			

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-4				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/4/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**14:18**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.671536**	**LONGITUDE**		**-78.549118**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☐	RAIN (STEADY RAIN)			☐
☒	SHOWERS (INTERMITTENT)			☒
☒	**100**	% CLOUD COVER	**40**	☐
☐	CLEAR/SUNNY			☒

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **75** °F

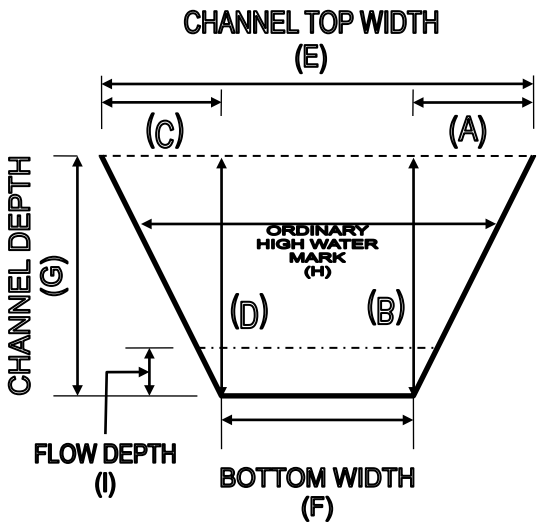
OTHER: **Overcast**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.5**	FT.
	VERTICAL **(B)**	**0.75**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.5**	FT.
	VERTICAL **(D)**	**0.75**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.0**	FT.
	BOTTOM WIDTH **(F)**	**3.0**	FT.
	OVERALL DEPTH **(G)**	**0.75**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**3.5**	FT.
	FLOW DEPTH **(I)**	**0.5**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT
☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER
CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED
☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS
☐ SWAMP AND BOG ☐ OTHER ____

STREAM ID: S-AAL-4

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☐ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☒ HERBACEOUS

DOMINANT SPECIES PRESENT? **Ferns, sugar maples, beech**

INSTREAM FEATURES

STUDY LENGTH		FT.
STREAM WIDTH	**4.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☒ PARTLY OPEN	☐ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **10** %
- ☒ RUN **70** %
- ☒ POOL **20** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION **0** %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**40**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**5**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**30**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**20**			
SAND	0.06 -0 2 MM (GRITTY)	**70**			
SILT	0.004 – 0.06 MM	**5**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-5				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/4/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**14:32**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.671573**	**LONGITUDE**		**-78.54899**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☐	RAIN (STEADY RAIN)			☐
☒	SHOWERS (INTERMITTENT)			☐
☒	**100**	% CLOUD COVER	**40**	☒
☐	CLEAR/SUNNY			☒

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **75** °F

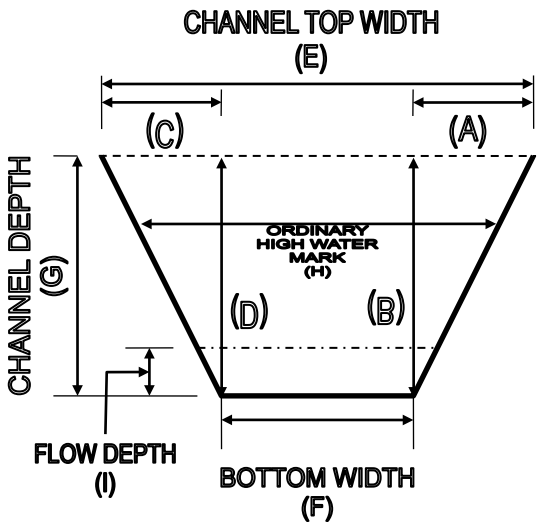
OTHER: **Overcast**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.25**	FT.
	VERTICAL **(B)**	**0.75**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.25**	FT.
	VERTICAL **(D)**	**0.75**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.0**	FT.
	BOTTOM WIDTH **(F)**	**3.0**	FT.
	OVERALL DEPTH **(G)**	**0.25**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.0**	FT.
	FLOW DEPTH **(I)**	**0.25**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER ____

STREAM ID: S-AAL-5

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☐ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☒ HERBACEOUS

DOMINANT SPECIES PRESENT? **Ferns, maple, beech**

INSTREAM FEATURES

STUDY LENGTH	**50**	FT.	
STREAM WIDTH	**4.0**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO		
TAXA PRESENT			

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **10** %
- ☒ RUN **60** %
- ☒ POOL **30** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	$FT.^2$
DENSITY OF LWD	-	$FT.^2/MI.^2$

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION **0** %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**35**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**5**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**10**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**50**			
SAND	0.06 -0 2 MM (GRITTY)	**35**			
SILT	0.004 – 0.06 MM	**5**	MARL	GREY, SHELL FRAGMENTS	**0**
CLAY	<0.004 MM (SLICK)	**5**			

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-6				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/4/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**15:12**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66871**	**LONGITUDE**		**-78.551166**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☐	RAIN (STEADY RAIN)			☐
☒	SHOWERS (INTERMITTENT)			☒
☒	**100**	% CLOUD COVER	**45**	☒
☐	CLEAR/SUNNY			☒

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **75** °F

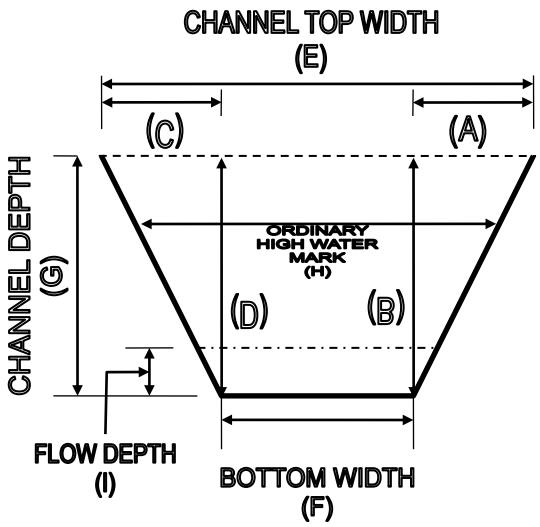
OTHER: **Overcast**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.5**	FT.
	VERTICAL **(B)**	**1.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.25**	FT.
	VERTICAL **(D)**	**1.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**3.0**	FT.
	BOTTOM WIDTH **(F)**	**1.5**	FT.
	OVERALL DEPTH **(G)**	**1.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**1.5**	FT.
	FLOW DEPTH **(I)**	**0.40**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER ____

STREAM ID: S-AAL-6

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☐ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☒ HERBACEOUS

DOMINANT SPECIES PRESENT? **Ferns, beech, blk cheery, carpinus caroliniana**

INSTREAM FEATURES

STUDY LENGTH	**120**	FT.
STREAM WIDTH	**3.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☐ RIFFLE ____ %
- ☒ RUN **80** %
- ☒ POOL **20** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**20**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**70**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**5**			
SAND	0.06 -0 2 MM (GRITTY)	**20**			
SILT	0.004 – 0.06 MM	**75**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-7 (Smith Run)				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent (Upstream Forested area)**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/6/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**12:50**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66814089**	**LONGITUDE**		**-78.556838**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☐		% CLOUD COVER	**20**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **66** °F

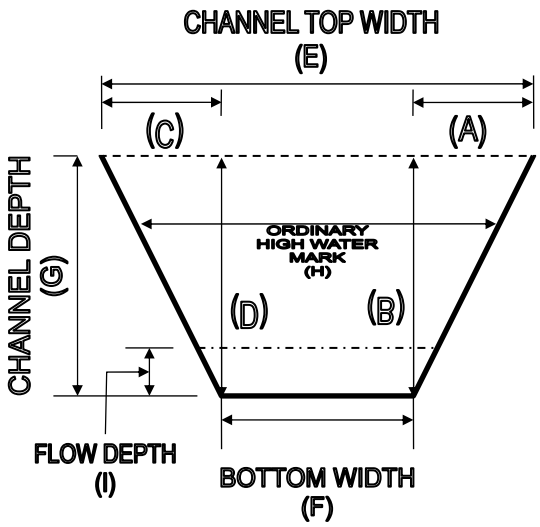
OTHER:

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.5**	FT.
	VERTICAL **(B)**	**2.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.5**	FT.
	VERTICAL **(D)**	**1.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**3.5**	FT.
	BOTTOM WIDTH **(F)**	**2.5**	FT.
	OVERALL DEPTH **(G)**	**1.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**3.0**	FT.
	FLOW DEPTH **(I)**	**0.5**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER

STREAM ID: S-AAL-7 (Forested Area)

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☐ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Beech, yellow birch**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.
STREAM WIDTH	**3.5**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒	YES
	☐	NO
TAXA PRESENT	**Stonefly**	

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **50** %
- ☒ RUN **40** %
- ☒ POOL **10** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	$FT.^2$
DENSITY OF LWD	-	$FT.^2/MI.^2$

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☒ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**10**
BOULDER	256 MM (10"+)	**5**			
COBBLE	64 – 256 MM (2.5 – 10")	**20**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**0**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**50**			
SAND	0.06 -0 2 MM (GRITTY)	**25**			
SILT	0.004 – 0.06 MM		MARL	GREY, SHELL FRAGMENTS	**0**
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-7 (Smith Run)				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent (downstream open area)**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/6/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**15:56**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66646397**	**LONGITUDE**		**-78.556050**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☐	**20**	% CLOUD COVER	**20**	☒
☐	CLEAR/SUNNY			☒

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **75** °F

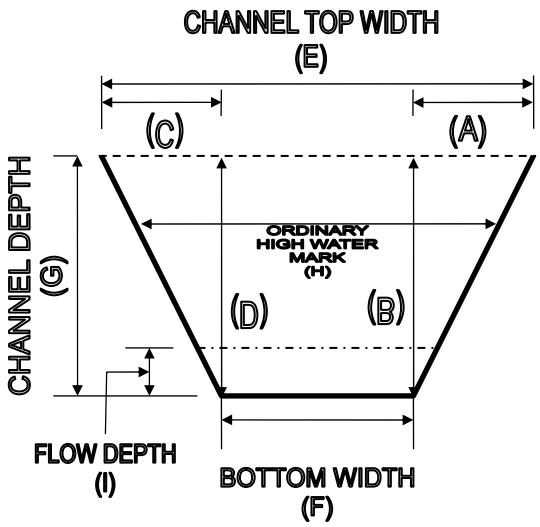
OTHER:

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.75**	FT.
	VERTICAL **(B)**	**2.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.75**	FT.
	VERTICAL **(D)**	**2.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**3.0**	FT.
	BOTTOM WIDTH **(F)**	**1.5**	FT.
	OVERALL DEPTH **(G)**	**2.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.0**	FT.
	FLOW DEPTH **(I)**	**1.0**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER

STREAM ID: S-AAL-7 (downstream open area)

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☐ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☒ OTHER — **PEM/PSS wetland**

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ TREES
- ☒ SHRUBS
- ☐ GRASSES
- ☒ HERBACEOUS

DOMINANT SPECIES PRESENT? **Carex spp., Juncus sp., ferns, yellow birch, red maple, blk cherry**

INSTREAM FEATURES

STUDY LENGTH	**300**	FT.
STREAM WIDTH	**3.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☐ RIFFLE **25** %
- ☒ RUN **50** %
- ☒ POOL **25** %
- CHANNELIZED: ☐ YES ☒ NO
- DAM PRESENT: ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☒ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT: **Juncus sp., Scirpus sp.**

PORTION OF THE REACH WITH AQUATIC VEGETATION: **35** %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**0**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**0**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**20**			
SAND	0.06 -0 2 MM (GRITTY)	**70**			
SILT	0.004 – 0.06 MM		MARL	GREY, SHELL FRAGMENTS	**0**
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-7 (Smith Run)				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**PERENNIAL**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/7/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**11:15**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.662969**	**LONGITUDE**		**-78.554923**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**40**	% CLOUD COVER	**20**	☒
☐	CLEAR/SUNNY			☒

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **70** °F

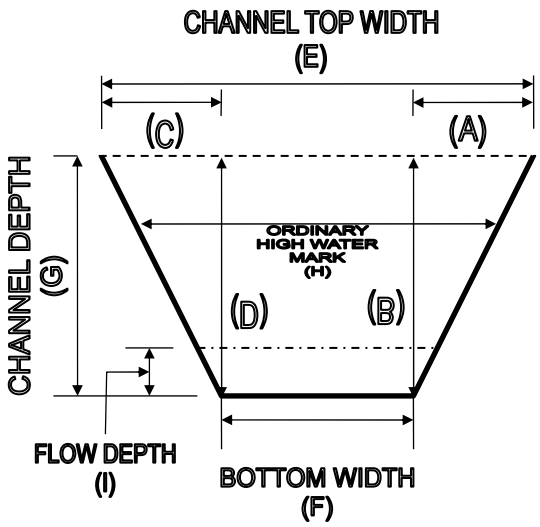
OTHER:

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.25**	FT.
	VERTICAL **(B)**	**2.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.25**	FT.
	VERTICAL **(D)**	**2.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**8.0**	FT.
	BOTTOM WIDTH **(F)**	**5.5**	FT.
	OVERALL DEPTH **(G)**	**2.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**6.0**	FT.
	FLOW DEPTH **(I)**	**0.66**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☐ COLD WATER ☐ WARM WATER

CATCHMENT AREA SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **Multiple spring fed tributaries**

STREAM ID: S-AAL-7 (Perennial)

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☒ HERBACEOUS

DOMINANT SPECIES PRESENT? **Hemlock, beech, blk cherry, wood fern**

INSTREAM FEATURES

STUDY LENGTH	**200**	FT.
STREAM WIDTH	**8.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒ YES / ☐ NO	
TAXA PRESENT	**stonefly**, **caddisfly**	

CANOPY COVER

☐ OPEN	☒ PARTLY OPEN	☐ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **50** %
- ☒ RUN **35** %
- ☒ POOL **15** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION **0** %

WATER QUALITY

TEMPERATURE	- ° C
SPEC. CONDUCTANCE	-
DISSOLVED OXYGEN	-
pH	-
TURBIDITY	-
WQ INSTRUMENT USED	-

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☒ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**20**
BOULDER	256 MM (10"+)	**10**			
COBBLE	64 – 256 MM (2.5 – 10")	**25**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**5**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**25**			
SAND	0.06 -0 2 MM (GRITTY)	**40**			
SILT	0.004 – 0.06 MM		MARL	GREY, SHELL FRAGMENTS	**0**
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-8				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**INTERMITTENT**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/6/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**9:30**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.668873**	**LONGITUDE**		**-78.557331**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**30**	% CLOUD COVER	**30**	☒
☐	CLEAR/SUNNY			☒

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **68** °F

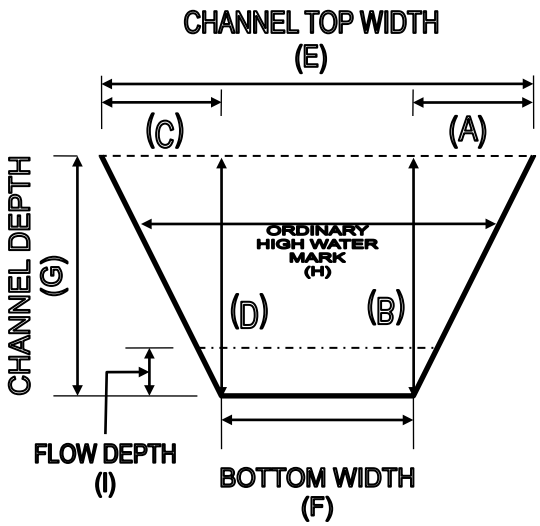
OTHER:

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.5**	FT.
	VERTICAL **(B)**	**1.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.5**	FT.
	VERTICAL **(D)**	**0.75**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.5**	FT.
	BOTTOM WIDTH **(F)**	**3.5**	FT.
	OVERALL DEPTH **(G)**	**0.75**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**4.0**	FT.
	FLOW DEPTH **(I)**	**0.25**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER

STREAM ID: S-AAL-8

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☒ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☒ HERBACEOUS

DOMINANT SPECIES PRESENT? **Beech, Carpinus caroliniana, wood ferns, Carex spp.**

INSTREAM FEATURES

STUDY LENGTH	**80**	FT.
STREAM WIDTH	**4.5**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒ YES / ☐ NO	
TAXA PRESENT	**MAYFLY**	**-**

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **100** %
- ☐ RUN **0** %
- ☐ POOL %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	**-**	FT.^{2}
DENSITY OF LWD	**-**	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☒ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☒ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION **0** %

WATER QUALITY

TEMPERATURE	**-**	° C
SPEC. CONDUCTANCE	**-**	
DISSOLVED OXYGEN	**-**	
pH	**-**	
TURBIDITY	**-**	
WQ INSTRUMENT USED	**-**	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**70**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**45**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**0**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**40**			
SAND	0.06 -0 2 MM (GRITTY)	**15**			
SILT	0.004 – 0.06 MM		MARL	GREY, SHELL FRAGMENTS	**0**
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-9a/9b				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/6/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**10:50**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66856**	**LONGITUDE**		**-78.557388**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**30**	% CLOUD COVER	**30**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **68** °F

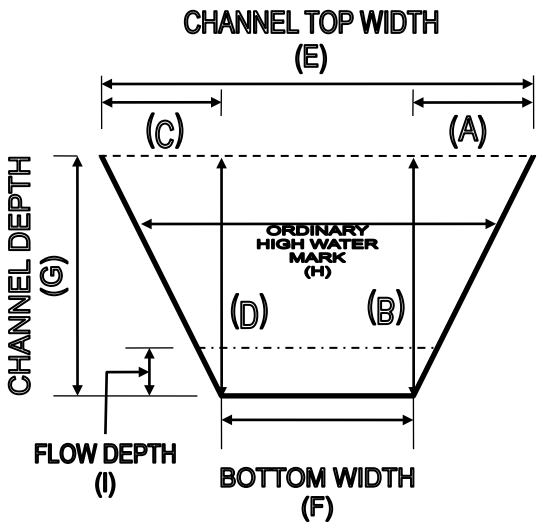
OTHER:

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**2.0**	FT.
	VERTICAL **(B)**	**0.75**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**2.0**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**6.5**	FT.
	BOTTOM WIDTH **(F)**	**2.5**	FT.
	OVERALL DEPTH **(G)**	**2.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**3.0**	FT.
	FLOW DEPTH **(I)**	**0.33**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER

STREAM ID: S-AAL-9a/9b

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☒ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☒ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **beech**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.	
STREAM WIDTH	**6.5**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☐	YES	
	☒	NO	
TAXA PRESENT			

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **75** %
- ☒ RUN **15** %
- ☒ POOL **10** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**60**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**20**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**35**			
SAND	0.06 -0 2 MM (GRITTY)	**20**			
SILT	0.004 – 0.06 MM	**30**	MARL	GREY, SHELL FRAGMENTS	**0**
CLAY	<0.004 MM (SLICK)	**5**			

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-10				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**INTERMITTENT**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/6/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**11:30**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.668299**	**LONGITUDE**		**-78.557414**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**10**	% CLOUD COVER	**30**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **70** °F

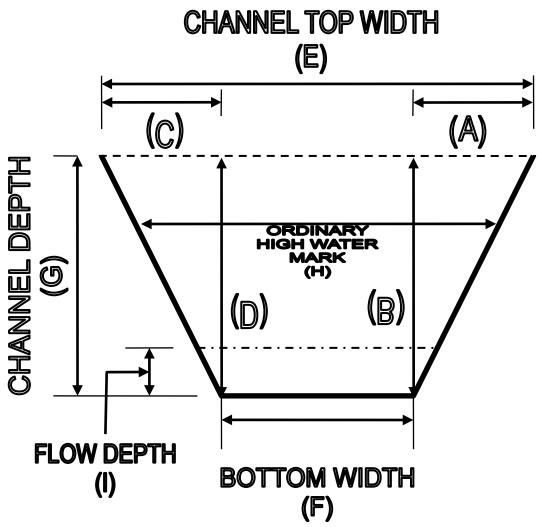
OTHER:

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.25**	FT.
	VERTICAL **(B)**	**1.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.25**	FT.
	VERTICAL **(D)**	**1.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**3.5**	FT.
	BOTTOM WIDTH **(F)**	**2.0**	FT.
	OVERALL DEPTH **(G)**	**2.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**3.0**	FT.
	FLOW DEPTH **(I)**	**0.1**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER

STREAM ID: S-AAL-10

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☐ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **BEECH**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.	
STREAM WIDTH	**3**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☒	YES	
	☐	NO	
TAXA PRESENT	**Caddisfly**	**Unknown egg masses**	

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **80** %
- ☒ RUN **10** %
- ☒ POOL **10** %

CHANNELIZED ☐ YES ☒ NO

DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☒ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**10**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**40**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**20**			
SAND	0.06 -0 2 MM (GRITTY)	**20**			
SILT	0.004 – 0.06 MM		MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-11				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/6/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**17:00**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.665703**	**LONGITUDE**		**-78.554908**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**5**	% CLOUD COVER	**30**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **75** °F

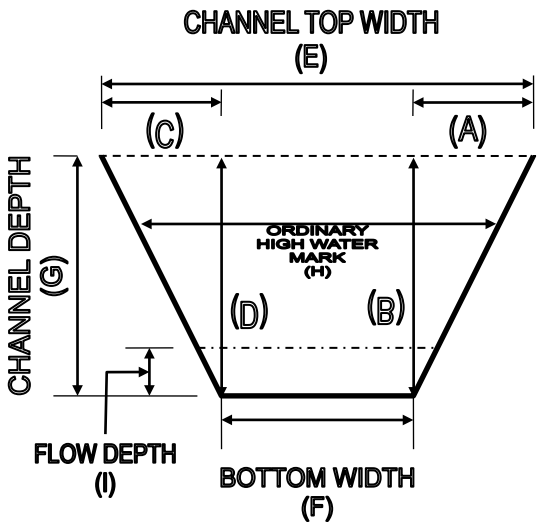
OTHER:

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.75**	FT.
	VERTICAL **(B)**	**3.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.75**	FT.
	VERTICAL **(D)**	**3.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.5**	FT.
	BOTTOM WIDTH **(F)**	**3.5**	FT.
	OVERALL DEPTH **(G)**	**3.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**4.0**	FT.
	FLOW DEPTH **(I)**	**1.0**	FT.
	APPROX. SURFACE VELOCITY	**0.25**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA SQ. MI.

STREAM ORIGIN

☐	GLACIAL	☒	SPRING FED
☐	NON-GLACIAL MONTANE	☐	MIXTURE OF ORIGINS
☐	SWAMP AND BOG	☒	OTHER **Multiple tributaries**

STREAM ID: S-AAL-11

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☐ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☒ OTHER — **wetland**

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☒ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ TREES
- ☒ SHRUBS
- ☐ GRASSES
- ☒ HERBACEOUS

DOMINANT SPECIES PRESENT? **Blk cherry, willow, Carex spp. ferns**

INSTREAM FEATURES

STUDY LENGTH	**500**	FT.
STREAM WIDTH	**4.5**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒ YES / ☐ NO	
TAXA PRESENT	**Stonefly**, **Caddisfly**	

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **15** %
- ☒ RUN **60** %
- ☒ POOL **25** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☒ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION: **35** %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☒ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**50**
BOULDER	256 MM (10"+)	**5**			
COBBLE	64 – 256 MM (2.5 – 10")	**5**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**20**			
SAND	0.06 -0 2 MM (GRITTY)	**70**			
SILT	0.004 – 0.06 MM		MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-12				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/7/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**8:39**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.6656**	**LONGITUDE**		**-78.558401**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**10**	% CLOUD COVER	**10**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **68** °F

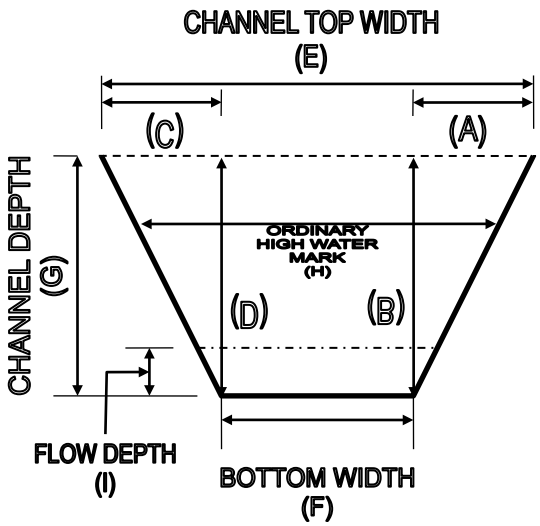
OTHER:

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.75**	FT.
	VERTICAL **(B)**	**1.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.75**	FT.
	VERTICAL **(D)**	**1.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.0**	FT.
	BOTTOM WIDTH **(F)**	**2.5**	FT.
	OVERALL DEPTH **(G)**	**1.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**3.5**	FT.
	FLOW DEPTH **(I)**	**0.25**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER

STREAM ID: S-AAL-12

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☐ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Beech, yellow birch**

INSTREAM FEATURES

STUDY LENGTH	**150**	FT.
STREAM WIDTH	**4.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES ☐ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☒ PARTLY OPEN	☐ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **20** %
- ☒ RUN **60** %
- ☒ POOL **20** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION **0** %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**40**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**50**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**70**			
SAND	0.06 -0 2 MM (GRITTY)	**20**			
SILT	0.004 – 0.06 MM	**10**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-13				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/7/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**9:00**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.665881**	**LONGITUDE**		**-78.558656**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**10**	% CLOUD COVER	**20**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **65** °F

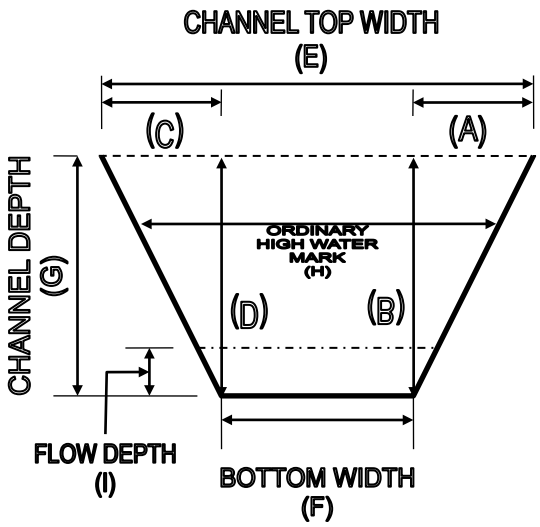
OTHER:

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.5**	FT.
	VERTICAL **(B)**	**0.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.5**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**2.5**	FT.
	BOTTOM WIDTH **(F)**	**1.5**	FT.
	OVERALL DEPTH **(G)**	**0.25**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.0**	FT.
	FLOW DEPTH **(I)**	**0.25**	FT.
	APPROX. SURFACE VELOCITY	**0.25**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER ____

STREAM ID: S-AAL-13

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE
- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION
- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION
- ☒ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

☒ TREES ☒ SHRUBS ☐ GRASSES ☒ HERBACEOUS

DOMINANT SPECIES PRESENT? **Beech, sugar maple, Juncus sp., Carex sp., wood ferns**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.
STREAM WIDTH	**2.5**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **5** %
- ☒ RUN **90** %
- ☒ POOL **5** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	$FT.^2$
DENSITY OF LWD	-	$FT.^2/MI.^2$

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION **0** %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS
- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS
- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)
- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS
- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS
- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS
- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?
- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-	**0**	DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**100**
BOULDER	256 MM (10"+)	**0**			
COBBLE	64 – 256 MM (2.5 – 10")	**0**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**0**			
SAND	0.06 -0 2 MM (GRITTY)	**0**			
SILT	0.004 – 0.06 MM	**0**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)	**0**			

Completely unconsolidated substrate

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-AAL-14				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**AAL, MBB**	**DATE**	**6/7/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**10:17**	**24 HOUR (I.E. 16:45)**		
LATITUDE		**LONGITUDE**			**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**30**	% CLOUD COVER	**20**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **65** °F

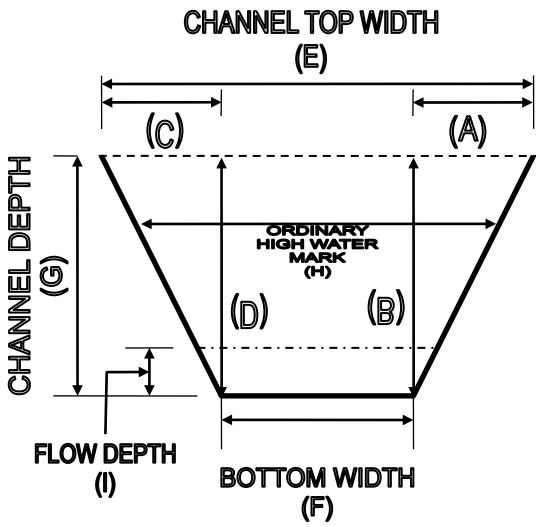
OTHER:

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.25**	FT.
	VERTICAL **(B)**	**2.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.25**	FT.
	VERTICAL **(D)**	**2.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**1.75**	FT.
	BOTTOM WIDTH **(F)**	**1.75**	FT.
	OVERALL DEPTH **(G)**	**2.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**1.5**	FT.
	FLOW DEPTH **(I)**	**0.75**	FT.
	APPROX. SURFACE VELOCITY	**0.5**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER

STREAM ID: S-AAL-14

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☒ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ TREES
- ☒ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Red maple, service berry, dogwood**

INSTREAM FEATURES

STUDY LENGTH	**200**	FT.
STREAM WIDTH	**1.75**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐	YES
	☒	NO
TAXA PRESENT	-	-

CANOPY COVER

☐	☐	☒	☐
OPEN	PARTLY OPEN	PARTLY SHADED	SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **20** %
- ☒ RUN **50** %
- ☒ POOL **30** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	$FT.^2$
DENSITY OF LWD	-	$FT.^2/MI.^2$

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**60**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**40**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**20**			
SAND	0.06 -0 2 MM (GRITTY)	**80**			
SILT	0.004 – 0.06 MM		MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-1				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Ephemeral**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/1/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**9:15**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66740**	**LONGITUDE**		**-78.58215**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☐		% CLOUD COVER	**25**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **47** °F

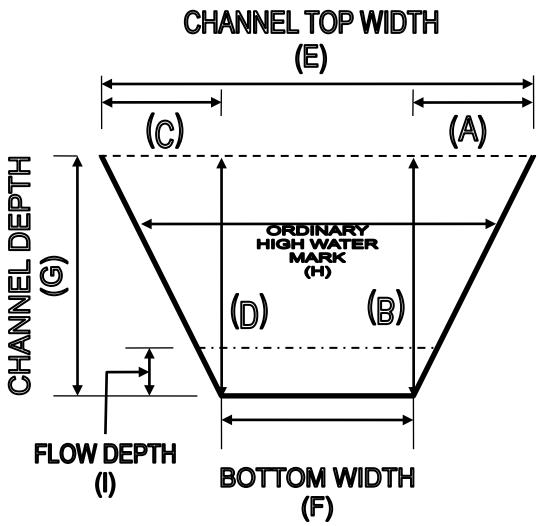
OTHER: **Sunny and clear**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**1.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**1.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**5.0**	FT.
	BOTTOM WIDTH **(F)**	**3.0**	FT.
	OVERALL DEPTH **(G)**	**1.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**4.0**	FT.
	FLOW DEPTH **(I)**	**NA**	FT.
	APPROX. SURFACE VELOCITY	**NA**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☐ INTERMITTENT
☒ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER
CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☐ SPRING FED
☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS
☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-1

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.	
STREAM WIDTH	**4.0**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO		
TAXA PRESENT			

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **30** %
- ☒ RUN **65** %
- ☒ POOL **5** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**40**
BOULDER	256 MM (10"+)	**30**			
COBBLE	64 – 256 MM (2.5 – 10")	**30**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**40**			
SAND	0.06 -0 2 MM (GRITTY)				
SILT	0.004 – 0.06 MM		MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-2 (Fivemile Run)				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/1/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**9:50**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.67236**	**LONGITUDE**		**-78.58199**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS	PAST 24 HOURS
☐	STORM (HEAVY RAIN)	☐
☐	RAIN (STEADY RAIN)	☐
☐	SHOWERS (INTERMITTENT)	☐
☐	% CLOUD COVER **25**	☒
☒	CLEAR/SUNNY	☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE **48** °F

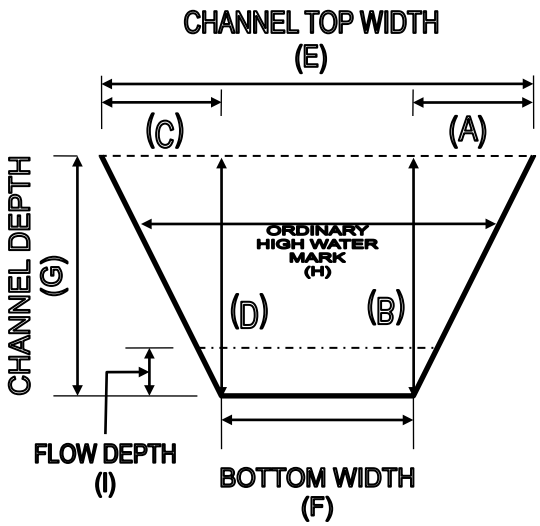
OTHER **Sunny and clear**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**6.0**	FT.
	VERTICAL **(B)**	**3.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**6.0**	FT.
	VERTICAL **(D)**	**3.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**30.0**	FT.
	BOTTOM WIDTH **(F)**	**18.0**	FT.
	OVERALL DEPTH **(G)**	**3.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**22.0**	FT.
	FLOW DEPTH **(I)**	**1.2**	FT.
	APPROX. SURFACE VELOCITY	**5.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☒ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-2

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.	
STREAM WIDTH	**22.0**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☒	YES	
	☐	NO	
TAXA PRESENT	**caddisflies**		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **40** %
- ☒ RUN **20** %
- ☒ POOL **40** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**15**
BOULDER	256 MM (10"+)	**30**			
COBBLE	64 – 256 MM (2.5 – 10")	**40**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**20**			
SAND	0.06 -0 2 MM (GRITTY)	**10**			
SILT	0.004 – 0.06 MM		MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-3				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Ephemeral**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/1/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**9:50**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66900**	**LONGITUDE**		**-78.58207**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☐		% CLOUD COVER	**25**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **47** °F

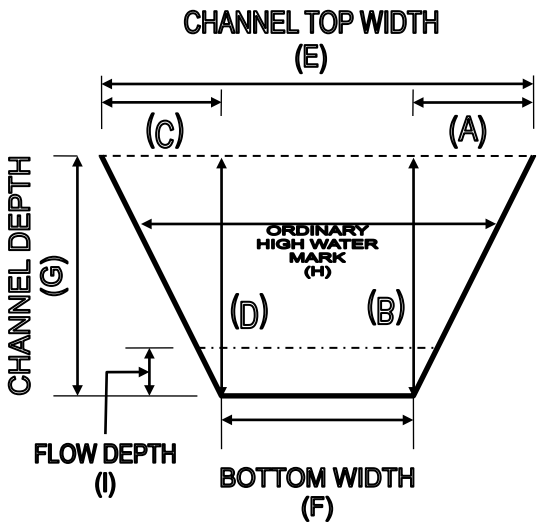
OTHER: **Sunny and clear**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.5**	FT.
	VERTICAL **(B)**	**0.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.5**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.0**	FT.
	BOTTOM WIDTH **(F)**	**3.0**	FT.
	OVERALL DEPTH **(G)**	**0.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**3.5**	FT.
	FLOW DEPTH **(I)**	**0.2**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☐ INTERMITTENT

☒ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-3

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.	
STREAM WIDTH	**3.5**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO		
TAXA PRESENT			

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **15** %
- ☒ RUN **35** %
- ☒ POOL **50** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**65**
BOULDER	256 MM (10"+)	**5**			
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**10**			
SAND	0.06 -0 2 MM (GRITTY)	**45**			
SILT	0.004 – 0.06 MM	**40**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-4				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/1/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**14:05**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66908**	**LONGITUDE**		**-78.58009**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☐		% CLOUD COVER	**25**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **54** °F

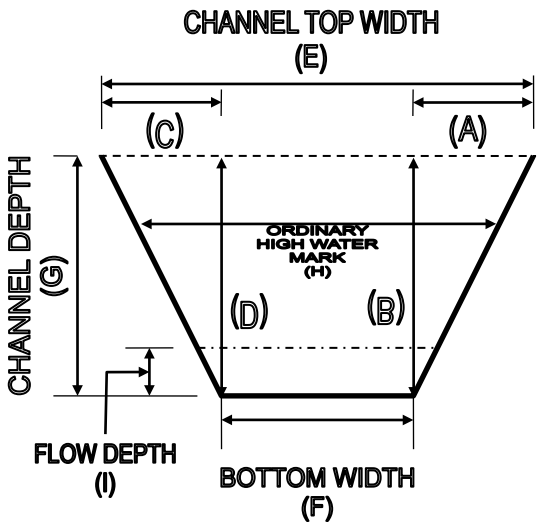
OTHER: **Sunny and clear**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**2.0**	FT.
	VERTICAL **(B)**	**1.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**2.0**	FT.
	VERTICAL **(D)**	**1.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**6.0**	FT.
	BOTTOM WIDTH **(F)**	**2.0**	FT.
	OVERALL DEPTH **(G)**	**1.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**3.0**	FT.
	FLOW DEPTH **(I)**	**0.1**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-4

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☒ NONE
- ☐ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.
STREAM WIDTH	**3.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒ YES / ☐ NO	
TAXA PRESENT	**caddisflies**, **stoneflies**	

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **60** %
- ☐ POOL %
- ☒ RUN **40** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**80**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**10**			
SAND	0.06 -0 2 MM (GRITTY)	**60**			
SILT	0.004 – 0.06 MM	**20**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-5				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/2/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**11:30**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66969**	**LONGITUDE**		**-78.57308**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☒	SHOWERS (INTERMITTENT)			☐
☒	**45**	% CLOUD COVER	**55**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **50** °F

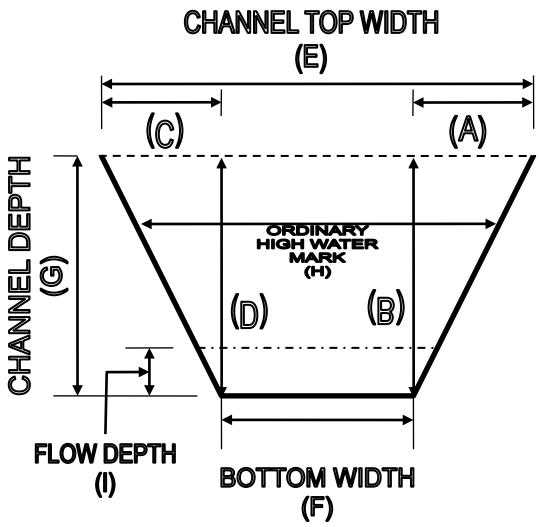
OTHER: **Cloudy; intermittent showers in the morning**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**3.0**	FT.
	VERTICAL **(B)**	**1.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**3.0**	FT.
	VERTICAL **(D)**	**1.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**10.0**	FT.
	BOTTOM WIDTH **(F)**	**4.0**	FT.
	OVERALL DEPTH **(G)**	**1.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**5.5**	FT.
	FLOW DEPTH **(I)**	**0.3**	FT.
	APPROX. SURFACE VELOCITY	**3.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA _____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-5

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.
STREAM WIDTH	**5.5**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒	YES
	☐	NO

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **35** %
- ☒ RUN **45** %
- ☒ POOL **20** %

TAXA PRESENT: **caddisflies**, **stoneflies**

- CHANNELIZED: ☐ YES ☒ NO
- DAM PRESENT: ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**60**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**20**			
SAND	0.06 -0 2 MM (GRITTY)	**30**			
SILT	0.004 – 0.06 MM	**40**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-6				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/2/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**11:40**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.67011**	**LONGITUDE**		**-78.57289**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☒	SHOWERS (INTERMITTENT)			☐
☒	**45**	% CLOUD COVER	**55**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **50** °F

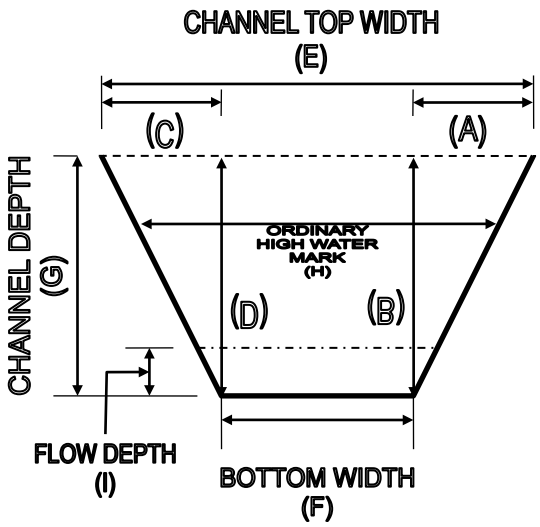
OTHER: **Cloudy; intermittent showers in the morning**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**1.3**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**1.3**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.0**	FT.
	BOTTOM WIDTH **(F)**	**2.0**	FT.
	OVERALL DEPTH **(G)**	**1.3**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.5**	FT.
	FLOW DEPTH **(I)**	**0.1**	FT.
	APPROX. SURFACE VELOCITY	**2.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-6

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.	
STREAM WIDTH	**2.5**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☒	YES	
	☐	NO	
TAXA PRESENT	**midges**		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **30** %
- ☒ RUN **60** %
- ☒ POOL **10** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**15**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**10**			
SAND	0.06 -0 2 MM (GRITTY)	**60**			
SILT	0.004 – 0.06 MM	**30**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-7				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/2/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**17:20**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.67384**	**LONGITUDE**		**-78.56755**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☒	SHOWERS (INTERMITTENT)			☐
☒	**45**	% CLOUD COVER	**55**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **50** °F

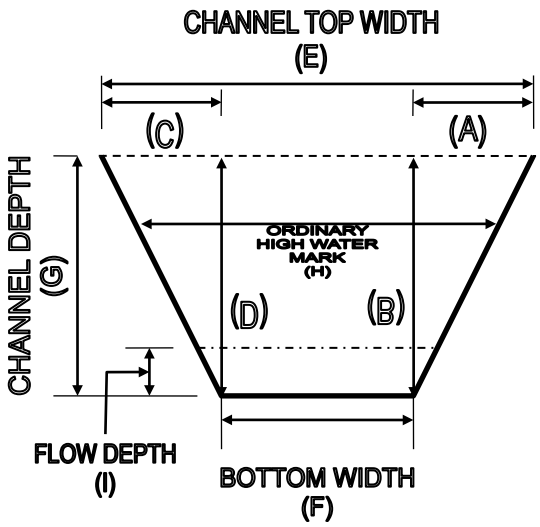
OTHER: **Cloudy; intermittent showers in the morning**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**0.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**5.5**	FT.
	BOTTOM WIDTH **(F)**	**3.5**	FT.
	OVERALL DEPTH **(G)**	**0.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**4.5**	FT.
	FLOW DEPTH **(I)**	**0.2**	FT.
	APPROX. SURFACE VELOCITY	**2.5**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐	PERENNIAL	☒	INTERMITTENT
☐	EPHEMERAL	☐	TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐	GLACIAL	☒	SPRING FED
☐	NON-GLACIAL MONTANE	☐	MIXTURE OF ORIGINS
☐	SWAMP AND BOG	☒	OTHER **stormwater**

STREAM ID: S-SRC-7

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.
STREAM WIDTH	**4.5**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒	YES
	☐	NO
TAXA PRESENT	**caddisflies**	

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **40** %
- ☒ RUN **40** %
- ☒ POOL **20** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	$FT.^2$
DENSITY OF LWD	-	$FT.^2/MI.^2$

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**20**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**15**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**25**			
SAND	0.06 -0 2 MM (GRITTY)	**40**			
SILT	0.004 – 0.06 MM	**20**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-8				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/3/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**10:10**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66972**	**LONGITUDE**		**-78.57196**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☒	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**100**	% CLOUD COVER	**100**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **52** °F

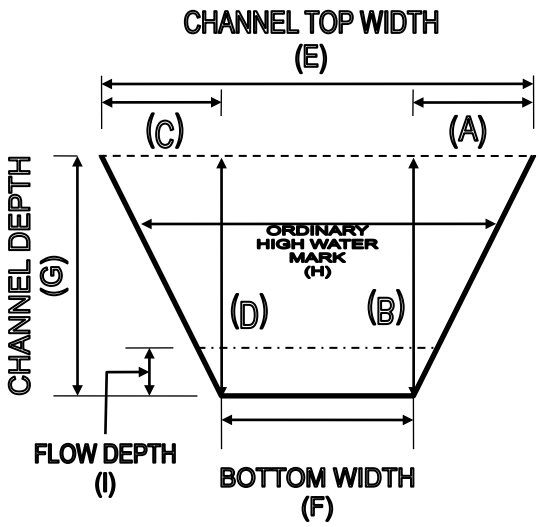
OTHER: **Storms overnight; on-and-off storms daily**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**4.5**	FT.
	VERTICAL **(B)**	**2.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**4.5**	FT.
	VERTICAL **(D)**	**2.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**12.0**	FT.
	BOTTOM WIDTH **(F)**	**3.0**	FT.
	OVERALL DEPTH **(G)**	**2.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**5.0**	FT.
	FLOW DEPTH **(I)**	**0.5**	FT.
	APPROX. SURFACE VELOCITY	**4.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-8

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry, elm**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.
STREAM WIDTH	**5.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **75** %
- ☒ RUN **10** %
- ☒ POOL **15** %
- CHANNELIZED ☒ YES ☐ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**50**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**25**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**15**			
SAND	0.06 -0 2 MM (GRITTY)	**10**			
SILT	0.004 – 0.06 MM	**50**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-9				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/3/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**10:45**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66869**	**LONGITUDE**		**-78.57243**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☒	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**100**	% CLOUD COVER	**100**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **54** °F

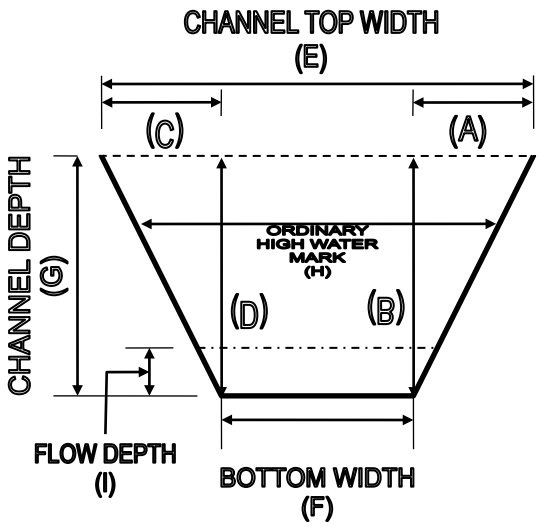
OTHER: **Overnight storms; on-and-off storms daily**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**2.0**	FT.
	VERTICAL **(B)**	**2.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**2.0**	FT.
	VERTICAL **(D)**	**2.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**7.0**	FT.
	BOTTOM WIDTH **(F)**	**3.0**	FT.
	OVERALL DEPTH **(G)**	**2.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**3.5**	FT.
	FLOW DEPTH **(I)**	**0.5**	FT.
	APPROX. SURFACE VELOCITY	**3.5**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA _____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-9

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry, elm**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.
STREAM WIDTH	**3.5**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **20** %
- ☒ RUN **10** %
- ☒ POOL **70** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**80**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**30**			
SAND	0.06 -0 2 MM (GRITTY)	**30**			
SILT	0.004 – 0.06 MM	**30**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-10				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/3/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**10:50**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66895**	**LONGITUDE**		**-78.57158**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☒	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**100**	% CLOUD COVER	**100**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **54** °F

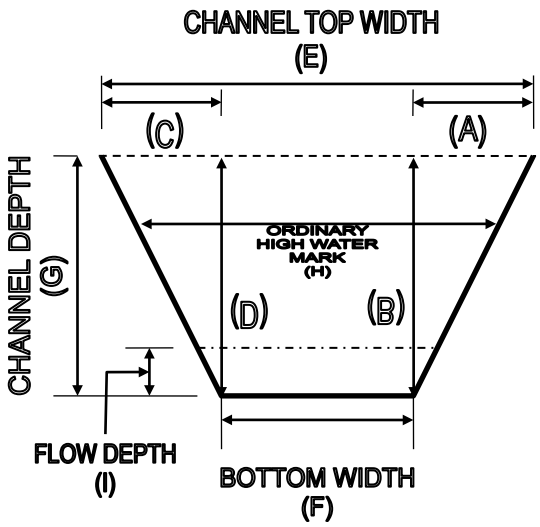
OTHER: **Overnight storms; on-and-off storms daily**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**5.0**	FT.
	VERTICAL **(B)**	**2.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**5.0**	FT.
	VERTICAL **(D)**	**2.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**13.0**	FT.
	BOTTOM WIDTH **(F)**	**3.0**	FT.
	OVERALL DEPTH **(G)**	**2.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**4.0**	FT.
	FLOW DEPTH **(I)**	**0.3**	FT.
	APPROX. SURFACE VELOCITY	**4.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA _____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-10

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry, elm**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.
STREAM WIDTH	**4.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **60** %
- ☒ RUN **15** %
- ☒ POOL **25** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	$FT.^2$
DENSITY OF LWD	-	$FT.^2/MI.^2$

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**80**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**25**			
SAND	0.06 -0 2 MM (GRITTY)	**35**			
SILT	0.004 – 0.06 MM	**40**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-11				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/3/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**17:25**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66690**	**LONGITUDE**		**-78.57447**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☒	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**100**	% CLOUD COVER	**100**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **58** °F

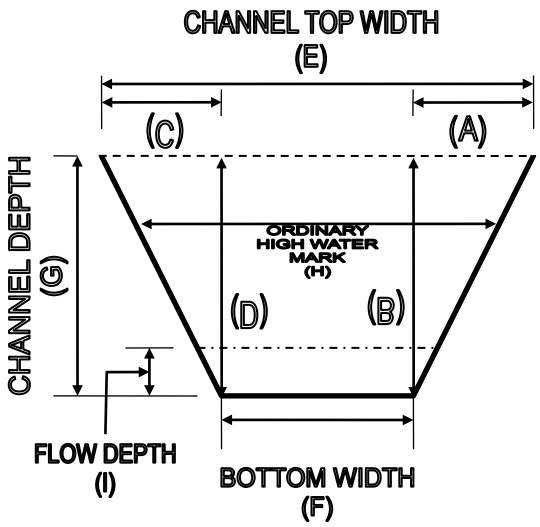
OTHER: **Overnight storms; on-and-off storms daily**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**1.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**1.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.0**	FT.
	BOTTOM WIDTH **(F)**	**2.0**	FT.
	OVERALL DEPTH **(G)**	**1.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.5**	FT.
	FLOW DEPTH **(I)**	**0.3**	FT.
	APPROX. SURFACE VELOCITY	**3.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA _____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-11

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry, elm**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.
STREAM WIDTH	**2.5**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **65** %
- ☒ RUN **10** %
- ☒ POOL **25** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**90**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**40**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**30**			
SAND	0.06 -0 2 MM (GRITTY)	**30**			
SILT	0.004 – 0.06 MM		MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-12				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/4/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**12:45**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66433**	**LONGITUDE**		**-78.57700**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**35** % CLOUD COVER		**75**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **68** °F

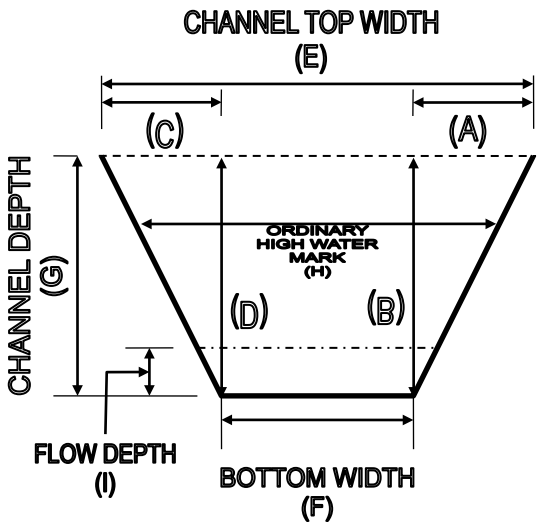
OTHER: **Mostly clear; scattered showers**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**0.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.5**	FT.
	BOTTOM WIDTH **(F)**	**1.5**	FT.
	OVERALL DEPTH **(G)**	**0.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.0**	FT.
	FLOW DEPTH **(I)**	**0.2**	FT.
	APPROX. SURFACE VELOCITY	**2.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT
☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER
CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☐ SPRING FED
☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS
☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-12

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, maple, cherry, elm**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.
STREAM WIDTH	**2.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **80** %
- ☒ RUN **5** %
- ☒ POOL **15** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	$FT.^2$
DENSITY OF LWD	-	$FT.^2/MI.^2$

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**90**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")				
SAND	0.06 -0 2 MM (GRITTY)	**20**			
SILT	0.004 – 0.06 MM	**80**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-13				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/5/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**8:05**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66593**	**LONGITUDE**		**-78.57843**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☒
☒	**40**	% CLOUD COVER	**70**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **57** °F

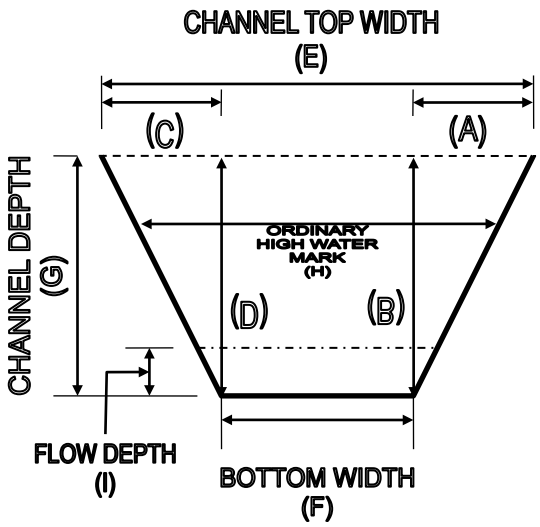
OTHER: **Partly cloudy**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**2.5**	FT.
	VERTICAL **(B)**	**1.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**2.5**	FT.
	VERTICAL **(D)**	**1.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**7.5**	FT.
	BOTTOM WIDTH **(F)**	**2.5**	FT.
	OVERALL DEPTH **(G)**	**1.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**3.0**	FT.
	FLOW DEPTH **(I)**	**0.3**	FT.
	APPROX. SURFACE VELOCITY	**2.5**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-13

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry, elm**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.
STREAM WIDTH	**3.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒	YES
	☐	NO
TAXA PRESENT	**caddisflies**	**beetles**

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **70** %
- ☒ RUN **10** %
- ☒ POOL **20** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	$FT.^2$
DENSITY OF LWD	-	$FT.^2/MI.^2$

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**40**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**5**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**10**			
SAND	0.06 -0 2 MM (GRITTY)	**10**			
SILT	0.004 – 0.06 MM	**75**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-14				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/5/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**8:20**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66687**	**LONGITUDE**		**-78.57840**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☒
☒	**40**	% CLOUD COVER	**70**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **57** °F

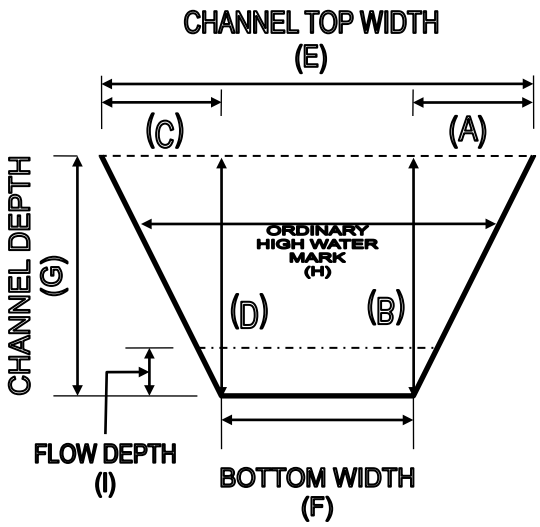
OTHER: **Partly cloudy**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**0.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.0**	FT.
	BOTTOM WIDTH **(F)**	**2.0**	FT.
	OVERALL DEPTH **(G)**	**0.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.5**	FT.
	FLOW DEPTH **(I)**	**0.1**	FT.
	APPROX. SURFACE VELOCITY	**2.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT
☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER
CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED
☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS
☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-14

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry, elm**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.
STREAM WIDTH	**2.5**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **100** %
- ☐ POOL %
- ☐ RUN %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**80**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**5**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**5**			
SAND	0.06 -0 2 MM (GRITTY)	**10**			
SILT	0.004 – 0.06 MM	**80**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-15				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/6/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**8:15**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66051**	**LONGITUDE**		**-78.57936**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**15**	% CLOUD COVER	**30**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **65** °F

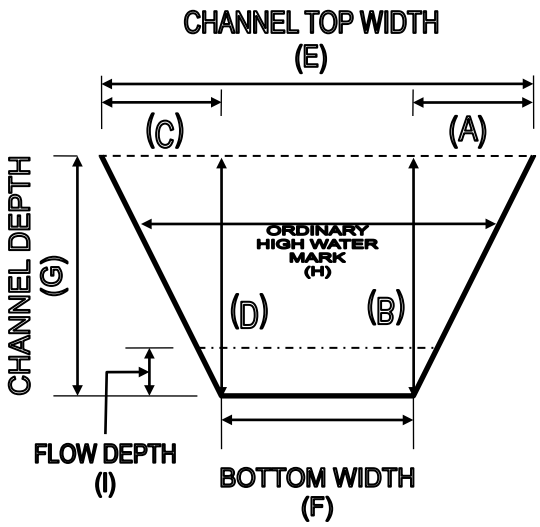
OTHER: **Mostly sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**1.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**1.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.0**	FT.
	BOTTOM WIDTH **(F)**	**2.0**	FT.
	OVERALL DEPTH **(G)**	**1.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**3.8**	FT.
	FLOW DEPTH **(I)**	**0.3**	FT.
	APPROX. SURFACE VELOCITY	**2.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA _____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-15

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry, elm**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.
STREAM WIDTH	**3.8**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒	YES
	☐	NO

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **85** %
- ☒ RUN **10** %
- ☒ POOL **5** %

TAXA PRESENT: **caddisflies**, **stoneflies**

- CHANNELIZED: ☐ YES ☒ NO
- DAM PRESENT: ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**30**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**15**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**50**			
SAND	0.06 -0 2 MM (GRITTY)	**20**			
SILT	0.004 – 0.06 MM	**15**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-16				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/6/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**13:35**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.65511**	**LONGITUDE**		**-78.57129**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**15**	% CLOUD COVER	**30**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **77** °F

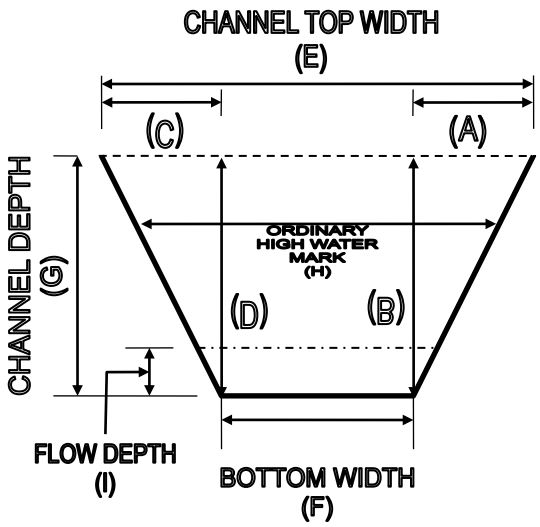
OTHER: **Mostly sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.5**	FT.
	VERTICAL **(B)**	**0.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.5**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**6.0**	FT.
	BOTTOM WIDTH **(F)**	**3.0**	FT.
	OVERALL DEPTH **(G)**	**0.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**5.0**	FT.
	FLOW DEPTH **(I)**	**0.2**	FT.
	APPROX. SURFACE VELOCITY	**3.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-SRC-16

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech, cherry, elm**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.	
STREAM WIDTH	**5.0**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☒	YES	
	☐	NO	
TAXA PRESENT	**caddisflies**	**midges**	

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **70** %
- ☒ RUN **5** %
- ☒ POOL **25** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	$FT.^2$
DENSITY OF LWD	-	$FT.^2/MI.^2$

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☐ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☐ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☐ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**50**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**5**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**30**			
SAND	0.06 -0 2 MM (GRITTY)	**50**			
SILT	0.004 – 0.06 MM	**15**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-17				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/8/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**08:20**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.65880**	**LONGITUDE**		**-78.57937**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**0**	% CLOUD COVER	**15**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **65** °F

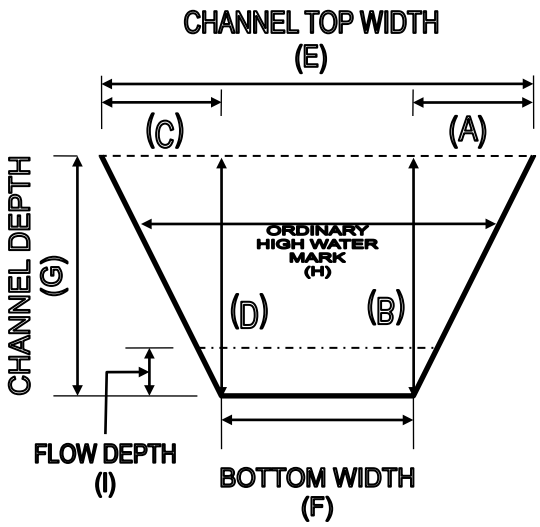
OTHER: **Mostly sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**0.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**3.0**	FT.
	BOTTOM WIDTH **(F)**	**1.0**	FT.
	OVERALL DEPTH **(G)**	**0.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**1.5**	FT.
	FLOW DEPTH **(I)**	**0.1**	FT.
	APPROX. SURFACE VELOCITY	**<1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA _____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER _____

STREAM ID: S-SRC-17

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech**

INSTREAM FEATURES

STUDY LENGTH	**150**	FT.
STREAM WIDTH	**3.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒ YES / ☐ NO	
TAXA PRESENT	**Aquatic larvae**	

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **100** %
- ☐ POOL %
- ☐ RUN %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**70**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**30**			
SAND	0.06 -0 2 MM (GRITTY)	**40**			
SILT	0.004 – 0.06 MM	**10**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-18				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/8/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**08:30**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.65885**	**LONGITUDE**		**-78.57986**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**0**	% CLOUD COVER	**15**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **65** °F

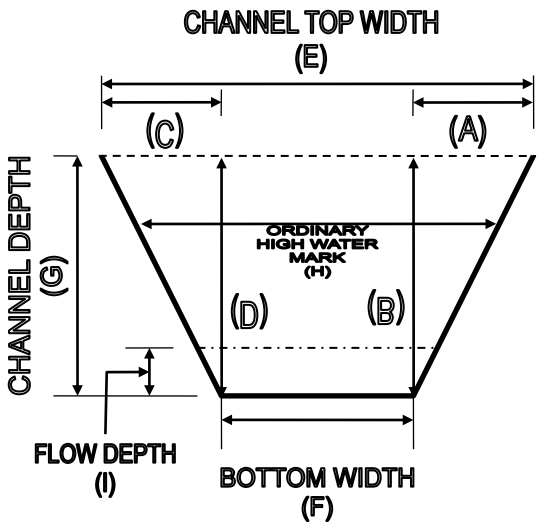
OTHER: **Mostly sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**1.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**1.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.0**	FT.
	BOTTOM WIDTH **(F)**	**2.0**	FT.
	OVERALL DEPTH **(G)**	**1.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.5**	FT.
	FLOW DEPTH **(I)**	**0.25**	FT.
	APPROX. SURFACE VELOCITY	**~1-2**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA _____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER _____

STREAM ID: S-SRC-18

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☒ OTHER — **Clearcut**

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech**

INSTREAM FEATURES

STUDY LENGTH	**550**	FT.
STREAM WIDTH	**4.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒ YES / ☐ NO	
TAXA PRESENT	**Aquatic larvae**	**Caddis**

CANOPY COVER

☒ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **80** %
- ☐ RUN ____ %
- ☒ POOL **20** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	- FT.^{2}
DENSITY OF LWD	- FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION ____ %

WATER QUALITY

TEMPERATURE	- ° C
SPEC. CONDUCTANCE	-
DISSOLVED OXYGEN	-
pH	-
TURBIDITY	-
WQ INSTRUMENT USED	-

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**25**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**25**			
SAND	0.06 -0 2 MM (GRITTY)	**50**			
SILT	0.004 – 0.06 MM	**15**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-19				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, JDV**	**DATE**	**6/8/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**10:55**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66211**	**LONGITUDE**		**-78.57664**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**0**	% CLOUD COVER	**15**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **65** °F

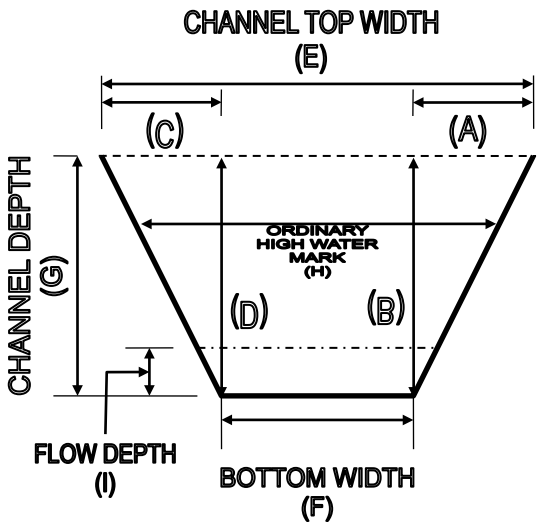
OTHER: **Mostly sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**1.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**1.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.5**	FT.
	BOTTOM WIDTH **(F)**	**2.5**	FT.
	OVERALL DEPTH **(G)**	**1.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**3.0**	FT.
	FLOW DEPTH **(I)**	**0.5**	FT.
	APPROX. SURFACE VELOCITY	**<1**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT
☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER
CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL
☐ NON-GLACIAL MONTANE
☐ SWAMP AND BOG
☒ SPRING FED
☐ MIXTURE OF ORIGINS
☐ OTHER ____

STREAM ID: S-SRC-19

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☒ OTHER — **Clearcut**

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, beech**

INSTREAM FEATURES

STUDY LENGTH	**575**	FT.
STREAM WIDTH	**4.5**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒ YES / ☐ NO	
TAXA PRESENT	**Stonefly**, **Caddis**	

CANOPY COVER

☒ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **20** % ☐ RUN ____ %
- ☒ POOL **80** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☒ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT: **Green Algae**

PORTION OF THE REACH WITH AQUATIC VEGETATION: **25** %

WATER QUALITY

TEMPERATURE	- ° C
SPEC. CONDUCTANCE	-
DISSOLVED OXYGEN	-
pH	-
TURBIDITY	-
WQ INSTRUMENT USED	-

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**40**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**40**			
SAND	0.06 -0 2 MM (GRITTY)	**40**			
SILT	0.004 – 0.06 MM	**10**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-20				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, MB**	**DATE**	**6/9/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**08:35**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66231**	**LONGITUDE**		**-78.56505**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**0**	% CLOUD COVER	**0**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **50** °F

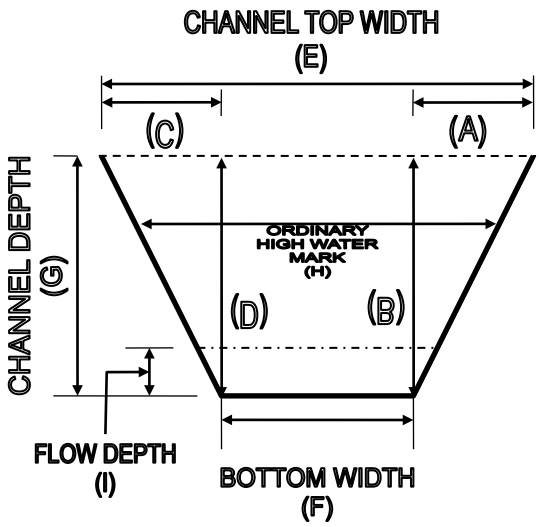
OTHER: **Mostly sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**2.0**	FT.
	VERTICAL **(B)**	**0.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**2.0**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**3.0**	FT.
	BOTTOM WIDTH **(F)**	**1.0**	FT.
	OVERALL DEPTH **(G)**	**0.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**1.25**	FT.
	FLOW DEPTH **(I)**	**0.1**	FT.
	APPROX. SURFACE VELOCITY	**~1**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER ____

STREAM ID: S-SRC-20

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Maple, cherry, beech**

INSTREAM FEATURES

STUDY LENGTH	**200**	FT.
STREAM WIDTH	**3.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒	YES
	☐	NO
TAXA PRESENT	**Stonefly**	**Caddis**

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **80** %
- ☐ RUN ____ %
- ☒ POOL **20** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	$FT.^2$
DENSITY OF LWD	-	$FT.^2/MI.^2$

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**60**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**30**			
SAND	0.06 -0 2 MM (GRITTY)	**25**			
SILT	0.004 – 0.06 MM	**45**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-21				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, MB**	**DATE**	**6/9/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**11:45**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.65698**	**LONGITUDE**		**-78.56312**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**0**	% CLOUD COVER	**0**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **50** °F

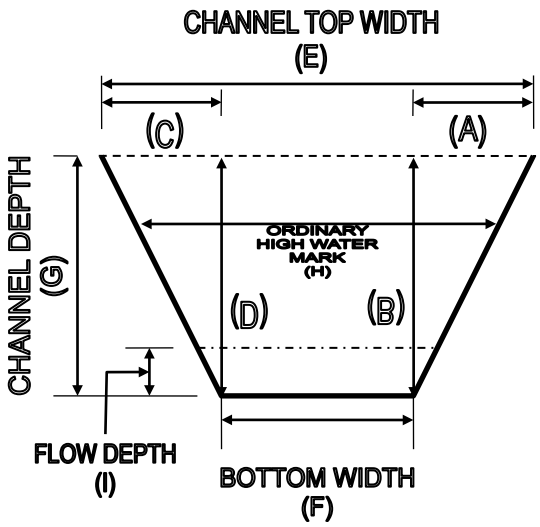
OTHER: **Mostly sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.5**	FT.
	VERTICAL **(B)**	**0.25**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.5**	FT.
	VERTICAL **(D)**	**0.25**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**3.0**	FT.
	BOTTOM WIDTH **(F)**	**2.0**	FT.
	OVERALL DEPTH **(G)**	**0.25**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.25**	FT.
	FLOW DEPTH **(I)**	**0.1**	FT.
	APPROX. SURFACE VELOCITY	**<1**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER ____

STREAM ID: S-SRC-21

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **E. hemlock, maple**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.	
STREAM WIDTH	**3.0**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☒	YES	
	☐	NO	
TAXA PRESENT	**Aquatic larvae**	**Caddis**	

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **100** %
- ☐ RUN ____ %
- ☐ POOL ____ %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	- FT.^{2}
DENSITY OF LWD	- FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**75**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**10**			
SAND	0.06 -0 2 MM (GRITTY)	**30**			
SILT	0.004 – 0.06 MM	**60**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-22				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, MB**	**DATE**	**6/9/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**15:30**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.65488**	**LONGITUDE**		**-78.55836**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**0**	% CLOUD COVER	**0**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **75** °F

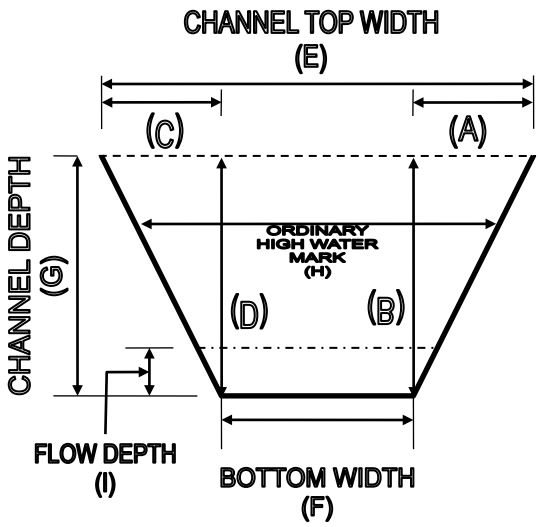
OTHER: **Mostly sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**1.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**1.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.0**	FT.
	BOTTOM WIDTH **(F)**	**2.0**	FT.
	OVERALL DEPTH **(G)**	**1.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.5**	FT.
	FLOW DEPTH **(I)**	**0.25**	FT.
	APPROX. SURFACE VELOCITY	**<1**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER ____

STREAM ID: S-SRC-22

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Hornbeam, birch, maple**

INSTREAM FEATURES

STUDY LENGTH	**1350**	FT.
STREAM WIDTH	**4.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒ YES / ☐ NO	
TAXA PRESENT	**Aquatic larvae**: **Caddis**	

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **100** %
- ☐ POOL %
- ☐ RUN %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**33**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**20**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**40**			
SAND	0.06 -0 2 MM (GRITTY)	**20**			
SILT	0.004 – 0.06 MM	**20**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-23				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, MB**	**DATE**	**6/9/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**09:20**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.65308**	**LONGITUDE**		**-78.56027**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**0**	% CLOUD COVER	**0**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **55** °F

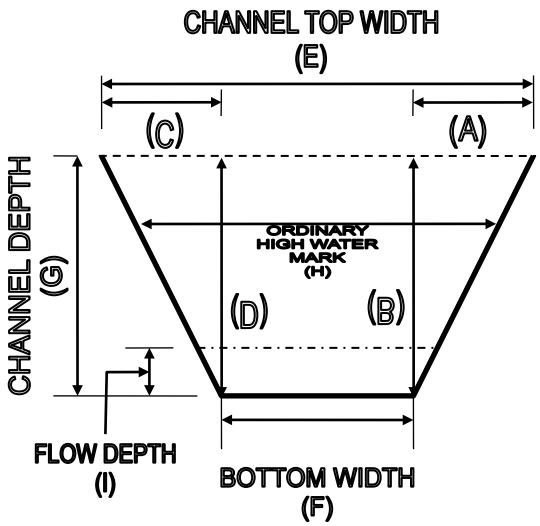
OTHER: **Mostly sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**0.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.0**	FT.
	BOTTOM WIDTH **(F)**	**1.0**	FT.
	OVERALL DEPTH **(G)**	**0.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**1.5**	FT.
	FLOW DEPTH **(I)**	**0.1**	FT.
	APPROX. SURFACE VELOCITY	**<1**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER ____

STREAM ID: S-SRC-23

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Beech, cherry, maple**

INSTREAM FEATURES

STUDY LENGTH	**400**	FT.
STREAM WIDTH	**4.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT	-	-

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **100** %
- ☐ POOL %
- ☐ RUN %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**60**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**50**			
SAND	0.06 -0 2 MM (GRITTY)	**25**			
SILT	0.004 – 0.06 MM	**25**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-24				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, MB**	**DATE**	**6/9/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**11:40**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.65360**	**LONGITUDE**		**-78.55758**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**0**	% CLOUD COVER	**0**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **70** °F

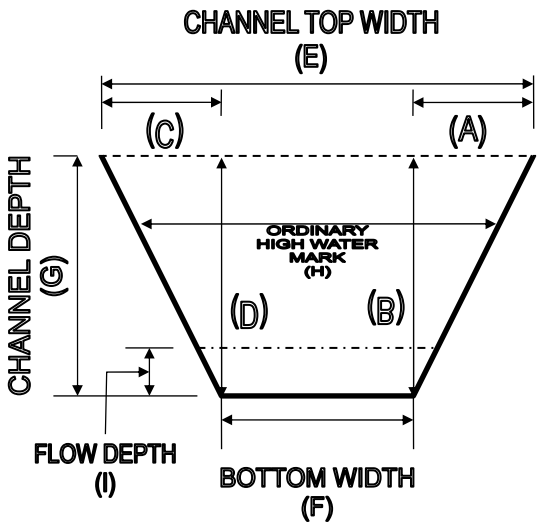
OTHER: **Mostly sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.5**	FT.
	VERTICAL **(B)**	**0.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.5**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**2.0**	FT.
	BOTTOM WIDTH **(F)**	**1.0**	FT.
	OVERALL DEPTH **(G)**	**0.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**1.0**	FT.
	FLOW DEPTH **(I)**	**0.1**	FT.
	APPROX. SURFACE VELOCITY	**<1**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER ____

STREAM ID: S-SRC-24

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Birch, blackberry**

INSTREAM FEATURES

STUDY LENGTH	**75**	FT.
STREAM WIDTH	**2.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT	-	-

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **100** %
- ☐ POOL %
- ☐ RUN %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT **Rubus sp.**

PORTION OF THE REACH WITH AQUATIC VEGETATION **40** %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**70**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**10**			
SAND	0.06 -0 2 MM (GRITTY)	**30**			
SILT	0.004 – 0.06 MM	**60**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-25				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, MB**	**DATE**	**6/9/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**11:40**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66054**	**LONGITUDE**		**-78.56884**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**0**	% CLOUD COVER	**0**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **75** °F

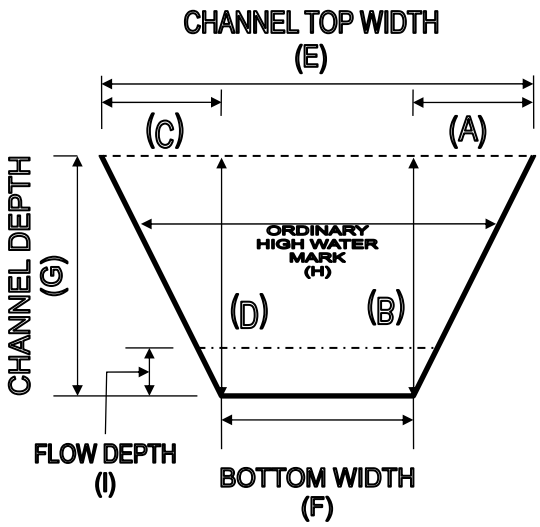
OTHER: **Mostly sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**0.25**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**0.25**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**3.0**	FT.
	BOTTOM WIDTH **(F)**	**2.0**	FT.
	OVERALL DEPTH **(G)**	**0.25**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.0**	FT.
	FLOW DEPTH **(I)**	**0.1**	FT.
	APPROX. SURFACE VELOCITY	**<1**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER ____

STREAM ID: S-SRC-25

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Maple, cherry**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.	
STREAM WIDTH	**3.0**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☐	YES	
	☒	NO	
TAXA PRESENT	-	-	

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **25** %
- ☐ RUN ____ %
- ☒ POOL **75** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION ____ %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**80**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**25**			
SAND	0.06 -0 2 MM (GRITTY)	**25**			
SILT	0.004 – 0.06 MM	**50**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-SRC-26				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**SRC, MB**	**DATE**	**6/11/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**10:30**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.65833**	**LONGITUDE**		**-78.56652**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☒	**100** % CLOUD COVER		**0**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

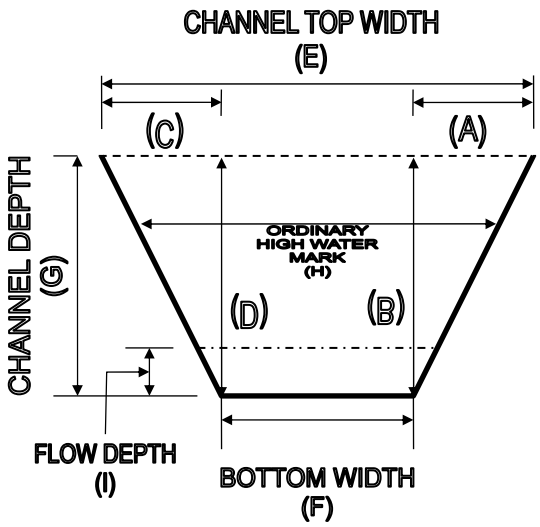
AIR TEMPERATURE	**55**	°F
OTHER	**Mostly sunny**	

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**0.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**3.0**	FT.
	BOTTOM WIDTH **(F)**	**2.0**	FT.
	OVERALL DEPTH **(G)**	**0.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.5**	FT.
	FLOW DEPTH **(I)**	**0.1**	FT.
	APPROX. SURFACE VELOCITY	**<1**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT
☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER
CATCHMENT AREA SQ. MI.

STREAM ORIGIN

☐ GLACIAL
☐ NON-GLACIAL MONTANE
☐ SWAMP AND BOG
☒ SPRING FED
☐ MIXTURE OF ORIGINS
☐ OTHER

STREAM ID: S-SRC-26

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **E. hemlock**

INSTREAM FEATURES

STUDY LENGTH	**650**	FT.
STREAM WIDTH	**3.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒ YES / ☐ NO	
TAXA PRESENT	**Caddis**; **Stonefly**	

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **90** %
- ☐ RUN ____ %
- ☒ POOL **10** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION ____ %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER ____

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER ____

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER ____

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**75**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**30**			
SAND	0.06 -0 2 MM (GRITTY)	**50**			
SILT	0.004 – 0.06 MM	**10**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-TPT-1				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Ephemeral**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**TPT,SJB**	**DATE**	**6/10/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**14:30**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**40.65562**	**LONGITUDE**		**-78.55815**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS	PAST 24 HOURS
☐	STORM (HEAVY RAIN)	☐
☐	RAIN (STEADY RAIN)	☐
☐	SHOWERS (INTERMITTENT)	☐
☐	% CLOUD COVER	☐
☒	CLEAR/SUNNY	☒

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☐ YES ☒ NO

AIR TEMPERATURE: **87** °F

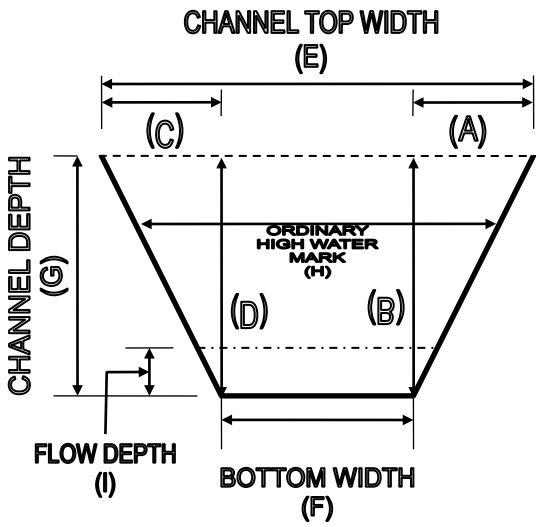
OTHER: **Overcast**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.5**	FT.
	VERTICAL **(B)**	**2.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.5**	FT.
	VERTICAL **(D)**	**2.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**1.5**	FT.
	BOTTOM WIDTH **(F)**	**1.0**	FT.
	OVERALL DEPTH **(G)**	**2.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**1.0**	FT.
	FLOW DEPTH **(I)**	**0**	FT.
	APPROX. SURFACE VELOCITY	**0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☐ INTERMITTENT
☒ EPHEMERAL ☐ TIDAL

STREAM TYPE

☐ COLD WATER ☒ WARM WATER
CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☐ SPRING FED
☐ NON-GLACIAL MONTANE ☒ MIXTURE OF ORIGINS
☐ SWAMP AND BOG ☐ OTHER ____

STREAM ID: S-TPT-1

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☒ OTHER — **Roadway**

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **American Beech**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.	
STREAM WIDTH	**2.0**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO		
TAXA PRESENT			

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☐ RIFFLE ____ %
- ☐ POOL ____ %
- ☐ RUN **0** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**20**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**20**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**60**			
SAND	0.06 -0 2 MM (GRITTY)	**10**			
SILT	0.004 – 0.06 MM	**10**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-TPT-2				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**TPT,SJB**	**DATE**	**6/11/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**9:30**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.65616**	**LONGITUDE**		**-78.56304**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS	PAST 24 HOURS
☐	STORM (HEAVY RAIN)	☐
☐	RAIN (STEADY RAIN)	☐
☒	SHOWERS (INTERMITTENT)	☒
☐	% CLOUD COVER	☐
☐	CLEAR/SUNNY	☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☐ YES ☒ NO

AIR TEMPERATURE: **77** °F

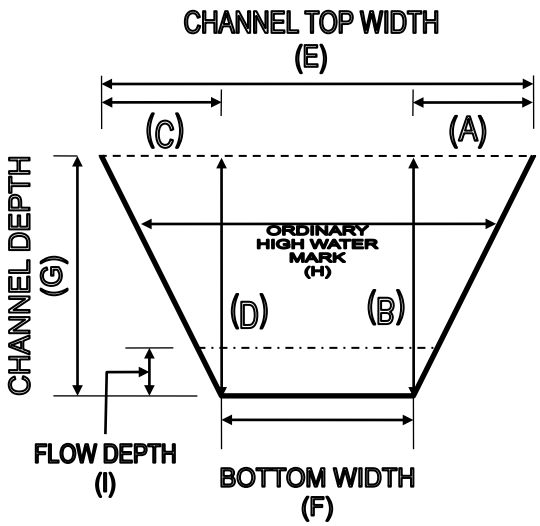
OTHER: **Overcast**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.3**	FT.
	VERTICAL **(B)**	**0.4**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.3**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**1.5**	FT.
	BOTTOM WIDTH **(F)**	**1.0**	FT.
	OVERALL DEPTH **(G)**	**0.75**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**1.0**	FT.
	FLOW DEPTH **(I)**	**.02**	FT.
	APPROX. SURFACE VELOCITY	**1**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☒ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☐ OTHER ____

STREAM ID: S-TPT-2

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Yellow Birch**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.	
STREAM WIDTH	**1.5**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☐	YES	
	☒	NO	
TAXA PRESENT			

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **25** %
- ☐ POOL %
- ☒ RUN **75** %
- CHANNELIZED ☒ YES ☐ NO
- DAM PRESENT ☐ YES ☐ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**5**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**30**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**15**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**50**			
SAND	0.06 -0 2 MM (GRITTY)	**10**			
SILT	0.004 – 0.06 MM	**10**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-TPT-3				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Ephemeral**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**TPT,SJB**	**DATE**	**6/11**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**10:00**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.65458**	**LONGITUDE**		**-78.56313**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS	PAST 24 HOURS
☐	STORM (HEAVY RAIN)	☐
☐	RAIN (STEADY RAIN)	☐
☒	SHOWERS (INTERMITTENT)	☒
☐	% CLOUD COVER	☐
☐	CLEAR/SUNNY	☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☐ YES ☒ NO

AIR TEMPERATURE: **77** °F

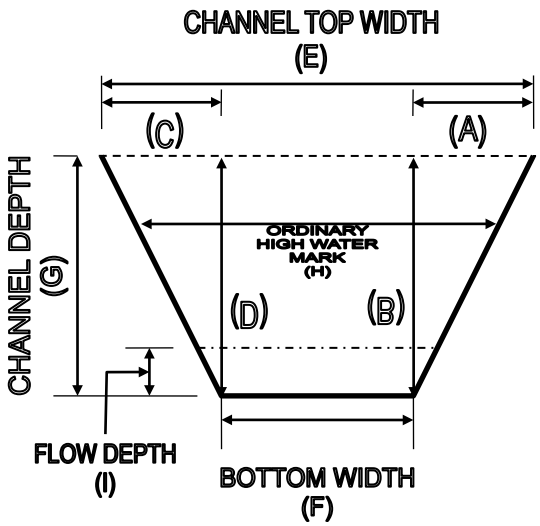
OTHER: **Overcast**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.25**	FT.
	VERTICAL **(B)**	**0.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.25**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**1.5**	FT.
	BOTTOM WIDTH **(F)**	**0.8**	FT.
	OVERALL DEPTH **(G)**	**0.75**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**1.0**	FT.
	FLOW DEPTH **(I)**	**-**	FT.
	APPROX. SURFACE VELOCITY	**-**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☐ INTERMITTENT

☒ EPHEMERAL ☐ TIDAL

STREAM TYPE

☐ COLD WATER ☒ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☐ SPRING FED

☐ NON-GLACIAL MONTANE ☒ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **roadside**

STREAM ID: S-TPT-3

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Yellow Birch**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.	
STREAM WIDTH	**2.0**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO		
TAXA PRESENT			

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **25** %
- ☐ POOL %
- ☒ RUN **75** %
- CHANNELIZED ☒ YES ☐ NO
- DAM PRESENT ☐ YES ☐ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☐ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☐ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☐ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**5**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**85**			
SAND	0.06 -0 2 MM (GRITTY)	**5**			
SILT	0.004 – 0.06 MM		MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-TPT-4				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**TPT,SJB**	**DATE**	**6/11/20**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**12:15**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.65469**	**LONGITUDE**		**-78.56178**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS	PAST 24 HOURS
☐	STORM (HEAVY RAIN)	☐
☐	RAIN (STEADY RAIN)	☐
☒	SHOWERS (INTERMITTENT)	☒
☐	% CLOUD COVER	☐
☐	CLEAR/SUNNY	☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☐ YES ☒ NO

AIR TEMPERATURE: **77** °F

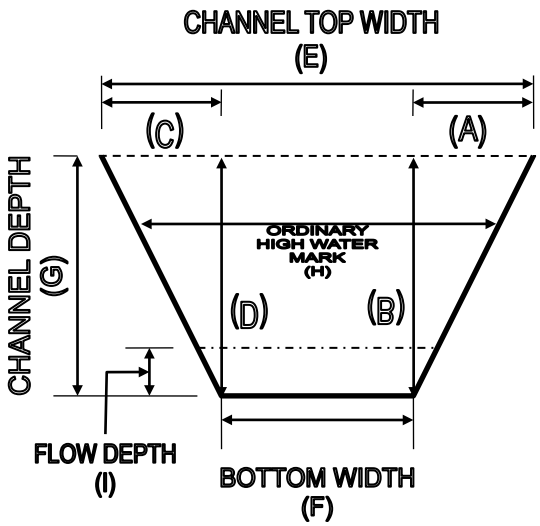
OTHER: **Overcast**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.2**	FT.
	VERTICAL **(B)**	**0.25**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.2**	FT.
	VERTICAL **(D)**	**0.25**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**2.0**	FT.
	BOTTOM WIDTH **(F)**	**0.75**	FT.
	OVERALL DEPTH **(G)**	**0.4**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**1.0**	FT.
	FLOW DEPTH **(I)**	**0.2**	FT.
	APPROX. SURFACE VELOCITY	**5**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☐ COLD WATER ☒ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☐ SPRING FED

☐ NON-GLACIAL MONTANE ☒ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **roadside**

STREAM ID: S-TPT-4

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **American Beech**

INSTREAM FEATURES

STUDY LENGTH	**100**	FT.
STREAM WIDTH	**2.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒ YES / ☐ NO	
TAXA PRESENT	**Planaria**, **Caddisfly**	

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **20** %
- ☐ POOL %
- ☒ RUN **80** %
- CHANNELIZED ☒ YES ☐ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☐ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☒ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**30**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**5**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**60**			
SAND	0.06 -0 2 MM (GRITTY)	**10**			
SILT	0.004 – 0.06 MM		MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-WH-1				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**WH, AH**	**DATE**	**6/4/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**10:30**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66864**	**LONGITUDE**		**-78.56605**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☐		% CLOUD COVER	**55**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **65** °F

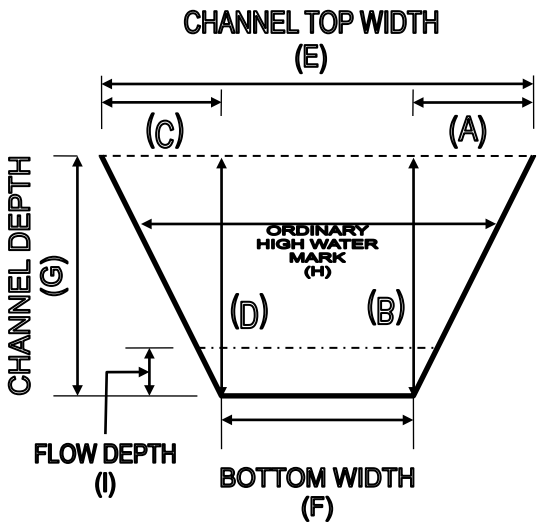
OTHER: **Sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**2.0**	FT.
	VERTICAL **(B)**	**2.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**3.0**	FT.
	VERTICAL **(D)**	**2.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**10.0**	FT.
	BOTTOM WIDTH **(F)**	**4.0**	FT.
	OVERALL DEPTH **(G)**	**2.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**7.0**	FT.
	FLOW DEPTH **(I)**	**0.5**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-WH-1

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Hemlock, Striped Maple, American Beech**

INSTREAM FEATURES

STUDY LENGTH		FT.
STREAM WIDTH	**10.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **35** %
- ☒ RUN **50** %
- ☒ POOL **15** %
- CHANNELIZED: ☒ YES ☐ NO
- DAM PRESENT: ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☒ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☒ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**60**
BOULDER	256 MM (10"+)	**5**			
COBBLE	64 – 256 MM (2.5 – 10")	**5**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**10**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**10**			
SAND	0.06 -0 2 MM (GRITTY)	**60**			
SILT	0.004 – 0.06 MM	**20**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-WH-1				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Perennial**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**WH, AH**	**DATE**	**6/5/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**15:32**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66505**	**LONGITUDE**		**-78.56592**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS		PAST 24 HOURS
☐	STORM (HEAVY RAIN)		☐
☐	RAIN (STEADY RAIN)		☐
☐	SHOWERS (INTERMITTENT)		☒
☒	**40** % CLOUD COVER	**65**	☒
☐	CLEAR/SUNNY		☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **75** °F

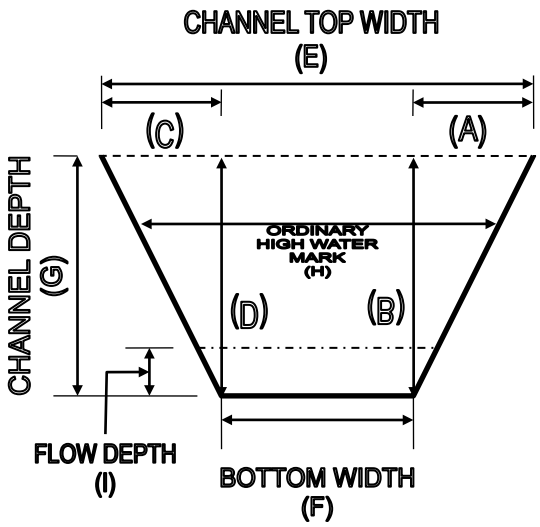
OTHER: **Partly Cloudy**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**10.0**	FT.
	VERTICAL **(B)**	**8.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**10.0**	FT.
	VERTICAL **(D)**	**8.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**30.0**	FT.
	BOTTOM WIDTH **(F)**	**4.0**	FT.
	OVERALL DEPTH **(G)**	**8.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**5.0**	FT.
	FLOW DEPTH **(I)**	**0.5**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☒ PERENNIAL ☐ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-WH-1

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **American Beech, Red Maple, River Birch**

INSTREAM FEATURES

STUDY LENGTH		FT.
STREAM WIDTH	**30.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒ YES / ☐ NO	
TAXA PRESENT	**Caddisfly**, **Stonefly**	

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **10** %
- ☒ RUN **80** %
- ☒ POOL **10** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☒ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☒ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**90**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**15**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**20**			
SAND	0.06 -0 2 MM (GRITTY)	**60**			
SILT	0.004 – 0.06 MM	**5**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-WH-2				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**WH, AH**	**DATE**	**6/4/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**11:30**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66826**	**LONGITUDE**		**-78.56540**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☐
☐		% CLOUD COVER	**50**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **68** °F

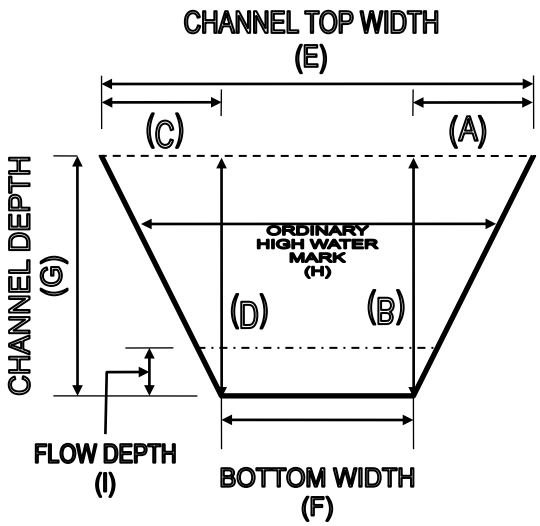
OTHER: **Sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**2.0**	FT.
	VERTICAL **(B)**	**2.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**3.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**6.0**	FT.
	BOTTOM WIDTH **(F)**	**3.0**	FT.
	OVERALL DEPTH **(G)**	**4.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**5.0**	FT.
	FLOW DEPTH **(I)**	**0.5**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-WH-2

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Hemlock, Yellow Birch, American Beech**

INSTREAM FEATURES

STUDY LENGTH		FT.
STREAM WIDTH	**6.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☐ PARTLY SHADED	☒ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **30** %
- ☒ RUN **60** %
- ☒ POOL **10** %
- CHANNELIZED: ☒ YES ☐ NO
- DAM PRESENT: ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☒ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☒ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**70**
BOULDER	256 MM (10"+)	**5**			
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**10**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**10**			
SAND	0.06 -0 2 MM (GRITTY)	**65**			
SILT	0.004 – 0.06 MM	**10**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-WH-3				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Ephemeral**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**WH, AH**	**DATE**	**6/4/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**13:00**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66826**	**LONGITUDE**		**-78.56649**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☐	RAIN (STEADY RAIN)			☐
☒	SHOWERS (INTERMITTENT)			☐
☐		% CLOUD COVER	**50**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **70** °F

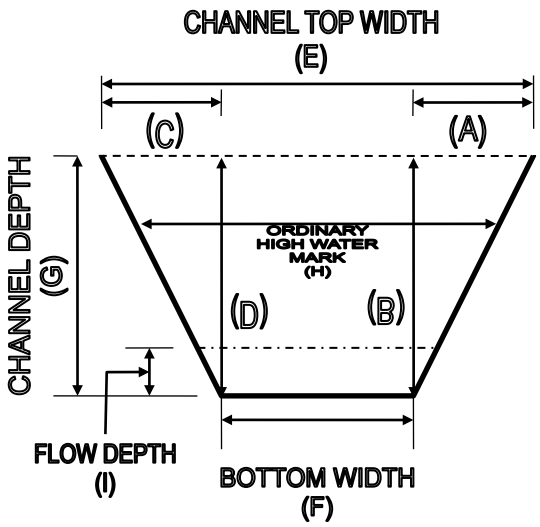
OTHER: **Sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**2.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**2.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.0**	FT.
	BOTTOM WIDTH **(F)**	**1.5**	FT.
	OVERALL DEPTH **(G)**	**4.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**3.0**	FT.
	FLOW DEPTH **(I)**	**0.0**	FT.
	APPROX. SURFACE VELOCITY	**0.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☐ INTERMITTENT
☒ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER
CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☐ SPRING FED
☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS
☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-WH-3

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Hemlock, American Beech**

INSTREAM FEATURES

STUDY LENGTH		FT.
STREAM WIDTH	**4.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☐ RIFFLE **0** %
- ☐ RUN **0** %
- ☐ POOL **0** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	$FT.^2$
DENSITY OF LWD	-	$FT.^2/MI.^2$

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☒ OTHER **none**

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☒ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☒ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**90**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**5**			
SAND	0.06 -0 2 MM (GRITTY)	**85**			
SILT	0.004 – 0.06 MM	**10**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-WH-4				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**WH, AH**	**DATE**	**6/4/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**16:00**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66837**	**LONGITUDE**		**-78.56783**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☐	RAIN (STEADY RAIN)			☐
☒	SHOWERS (INTERMITTENT)			☐
☐		% CLOUD COVER	**50**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **72** °F

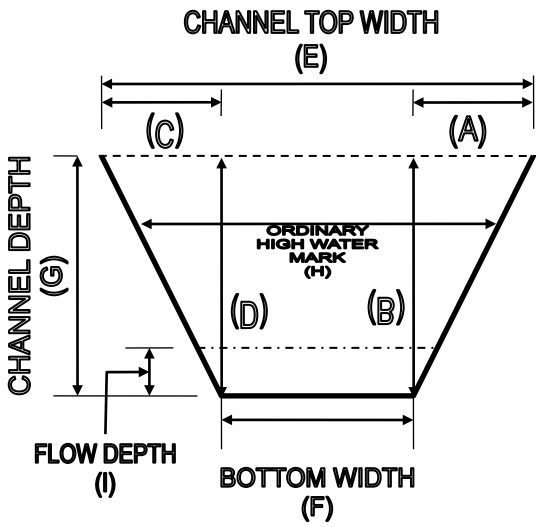
OTHER: **Overcast**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**2.0**	FT.
	VERTICAL **(B)**	**2.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**2.0**	FT.
	VERTICAL **(D)**	**2.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**8.0**	FT.
	BOTTOM WIDTH **(F)**	**4.0**	FT.
	OVERALL DEPTH **(G)**	**3.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**6.0**	FT.
	FLOW DEPTH **(I)**	**0.5**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-WH-4

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **American Beech**

INSTREAM FEATURES

STUDY LENGTH		FT.	
STREAM WIDTH	**8.0**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☒	YES	
	☐	NO	
TAXA PRESENT	**Caddisfly**		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **25** %
- ☒ RUN **70** %
- ☒ POOL **5** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT: **Sphagnum Moss**

PORTION OF THE REACH WITH AQUATIC VEGETATION: **10** %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☒ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☒ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**95**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**2**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**5**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**5**			
SAND	0.06 -0 2 MM (GRITTY)	**10**			
SILT	0.004 – 0.06 MM	**80**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)	**3**			

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-WH-5				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**WH, AH**	**DATE**	**6/4/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**17:00**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66757**	**LONGITUDE**		**-78.56630**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☒
☐	RAIN (STEADY RAIN)			☐
☒	SHOWERS (INTERMITTENT)			☐
☒	**100**	% CLOUD COVER	**50**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **73** °F

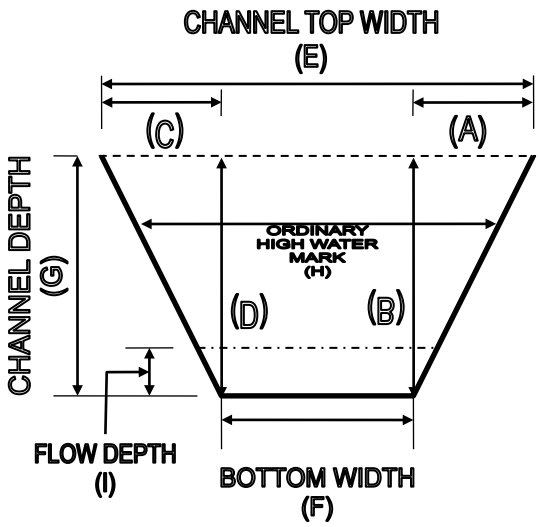
OTHER: **Overcast**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**4.0**	FT.
	VERTICAL **(B)**	**4.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**4.0**	FT.
	VERTICAL **(D)**	**4.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**12.0**	FT.
	BOTTOM WIDTH **(F)**	**6.0**	FT.
	OVERALL DEPTH **(G)**	**4.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**8.0**	FT.
	FLOW DEPTH **(I)**	**0.5**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-WH-5

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **American Beech, Yellow Birch, Red Maple**

INSTREAM FEATURES

STUDY LENGTH		FT.
STREAM WIDTH	**12.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **50** %
- ☒ RUN **30** %
- ☒ POOL **20** %
- CHANNELIZED: ☒ YES ☒ NO
- DAM PRESENT: ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION: **10** %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☒ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☒ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**70**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**10**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**15**			
SAND	0.06 -0 2 MM (GRITTY)	**35**			
SILT	0.004 – 0.06 MM	**40**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-WH-6				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**WH, AH**	**DATE**	**6/5/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**14:15**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66611**	**LONGITUDE**		**-78.56707**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☒
☐	SHOWERS (INTERMITTENT)			☐
☒	**40**	% CLOUD COVER	**65**	☒
☒	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **73** °F

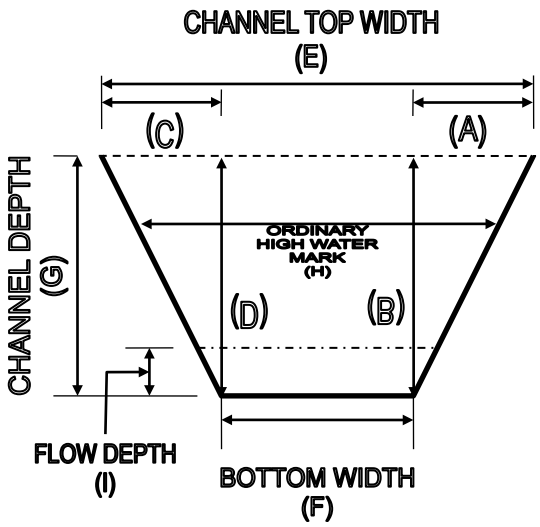
OTHER: **Partly Cloudy**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**1.0**	FT.
	VERTICAL **(B)**	**2.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**1.0**	FT.
	VERTICAL **(D)**	**2.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**5.0**	FT.
	BOTTOM WIDTH **(F)**	**4.0**	FT.
	OVERALL DEPTH **(G)**	**1.5**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**4.0**	FT.
	FLOW DEPTH **(I)**	**0.5**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA _____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-WH-6

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **American Beech, Striped Maple, Sweet Birch**

INSTREAM FEATURES

STUDY LENGTH		FT.
STREAM WIDTH	**5.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **10** %
- ☒ RUN **70** %
- ☒ POOL **20** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☐ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☒ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☒ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**35**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	**10**
GRAVEL	2 – 64 MM (0.1 – 2.5")	**10**			
SAND	0.06 -0 2 MM (GRITTY)	**60**			
SILT	0.004 – 0.06 MM	**20**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-WH-7				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**WH, AH**	**DATE**	**6/5/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**15:00**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66736**	**LONGITUDE**		**-78.56526**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☒
☒	**40**	% CLOUD COVER	**65**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **75** °F

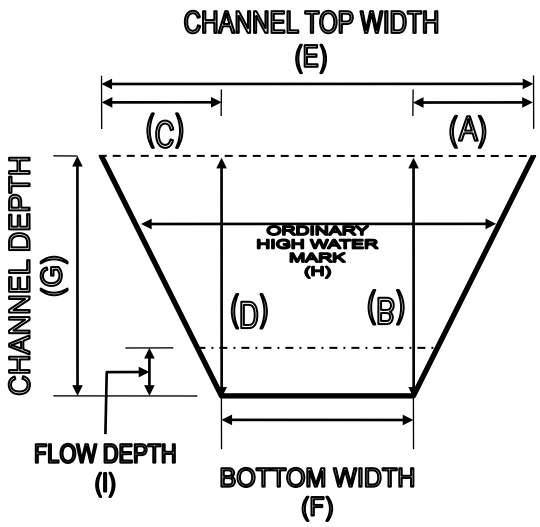
OTHER: **Partly Cloudy**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**3.0**	FT.
	VERTICAL **(B)**	**5.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**3.0**	FT.
	VERTICAL **(D)**	**5.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**15.0**	FT.
	BOTTOM WIDTH **(F)**	**2.0**	FT.
	OVERALL DEPTH **(G)**	**5.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**2.0**	FT.
	FLOW DEPTH **(I)**	**0.25**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA _____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-WH-7

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **American Beech, Red Maple, Black Cherry**

INSTREAM FEATURES

STUDY LENGTH		FT.
STREAM WIDTH	**15.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☒ YES / ☐ NO	
TAXA PRESENT	**Caddisfly**	

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **10** %
- ☒ RUN **60** %
- ☒ POOL **30** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☒ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☒ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**90**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**15**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**20**			
SAND	0.06 -0 2 MM (GRITTY)	**60**			
SILT	0.004 – 0.06 MM	**5**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-WH-8				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**WH, AH**	**DATE**	**6/5/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**16:00**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66608**	**LONGITUDE**		**-78.56614**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☒
☒	**40** % CLOUD COVER		**65**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **75** °F

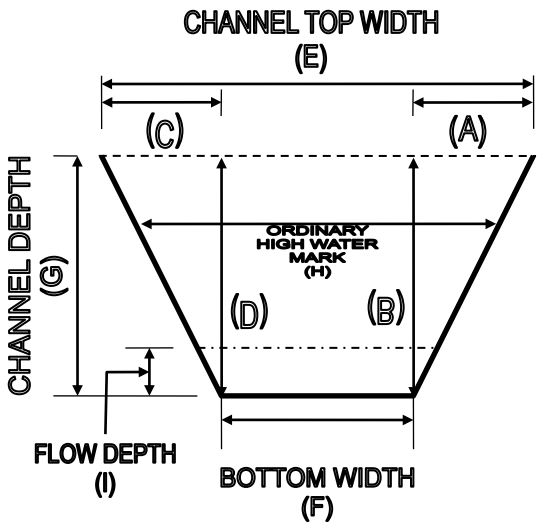
OTHER: **Sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**0.5**	FT.
	VERTICAL **(B)**	**0.5**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**0.5**	FT.
	VERTICAL **(D)**	**0.5**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**3.0**	FT.
	BOTTOM WIDTH **(F)**	**1.0**	FT.
	OVERALL DEPTH **(G)**	**1.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**1.0**	FT.
	FLOW DEPTH **(I)**	**0.25**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☒ INTERMITTENT

☐ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA _____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☒ SPRING FED

☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS

☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-WH-8

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Hemlock, Striped Maple, Sweet Birch**

INSTREAM FEATURES

STUDY LENGTH		FT.
STREAM WIDTH	**3.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **10** %
- ☒ RUN **70** %
- ☒ POOL **20** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	$FT.^2$
DENSITY OF LWD	-	$FT.^2/MI.^2$

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☒ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☒ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**25**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")	**10**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**10**			
SAND	0.06 -0 2 MM (GRITTY)	**60**			
SILT	0.004 – 0.06 MM	**20**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-WH-9				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Ephemeral**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**WH, AH**	**DATE**	**6/5/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**16:35**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66623**	**LONGITUDE**		**-78.56481**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS			PAST 24 HOURS
☐	STORM (HEAVY RAIN)			☐
☐	RAIN (STEADY RAIN)			☐
☐	SHOWERS (INTERMITTENT)			☒
☒	**40**	% CLOUD COVER	**65**	☒
☐	CLEAR/SUNNY			☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **76** °F

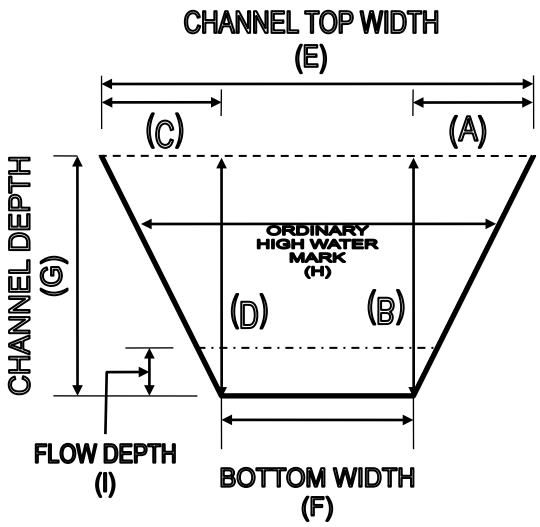
OTHER: **Sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**3.0**	FT.
	VERTICAL **(B)**	**5.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**3.0**	FT.
	VERTICAL **(D)**	**5.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**15.0**	FT.
	BOTTOM WIDTH **(F)**	**4.0**	FT.
	OVERALL DEPTH **(G)**	**6.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**1.0**	FT.
	FLOW DEPTH **(I)**	**0.1**	FT.
	APPROX. SURFACE VELOCITY	**1.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐ PERENNIAL ☐ INTERMITTENT
☒ EPHEMERAL ☐ TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER
CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐ GLACIAL ☐ SPRING FED
☐ NON-GLACIAL MONTANE ☐ MIXTURE OF ORIGINS
☐ SWAMP AND BOG ☒ OTHER **stormwater**

STREAM ID: S-WH-9

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Hemlock, American Beech**

INSTREAM FEATURES

STUDY LENGTH		FT.	
STREAM WIDTH	**15.0**	FT.	
STUDY REACH AREA		AC.	
EST. DRAINAGE AREA		SQ. MI.	
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO		
TAXA PRESENT			

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☐ RIFFLE ____ %
- ☒ RUN **10** %
- ☐ POOL ____ %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	FT.^{2}
DENSITY OF LWD	-	FT.^{2}/MI.^{2}

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☒ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☒ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**95**
BOULDER	256 MM (10"+)				
COBBLE	64 – 256 MM (2.5 – 10")		MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**20**			
SAND	0.06 -0 2 MM (GRITTY)	**20**			
SILT	0.004 – 0.06 MM	**40**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)	**20**			

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

STREAM NAME	S-WH-10				**CLIENT**	**Walden Renewables Development, LLC**
STREAM CLASS	**Intermittent**				**PROJECT**	**Ridgeway Solar**
INVESTIGATORS	**WH, AH**	**DATE**	**6/6/2020**	**MM/DD/YR**	**LOCATION**	**Sergeant Township McKean County, Pennsylvania**
		TIME	**15:30**	**24 HOUR (I.E. 16:45)**		
LATITUDE	**41.66453**	**LONGITUDE**		**-78.56629**	**RIVER BASIN**	**East Branch Clarion River – East Branch Lake Dam (050100050101)**
STATION #	**-**	**RIVERMILE**		**-**	**STORET #**	**-**

WEATHER CONDITIONS

NOW	WEATHER CONDITIONS		PAST 24 HOURS
☐	STORM (HEAVY RAIN)		☐
☐	RAIN (STEADY RAIN)		☐
☐	SHOWERS (INTERMITTENT)		☐
☒	**15** % CLOUD COVER		☐
☐	CLEAR/SUNNY		☐

HAS THERE BEEN A HEAVY RAIN IN THE LAST 7 DAYS? ☒ YES ☐ NO

AIR TEMPERATURE: **76** °F

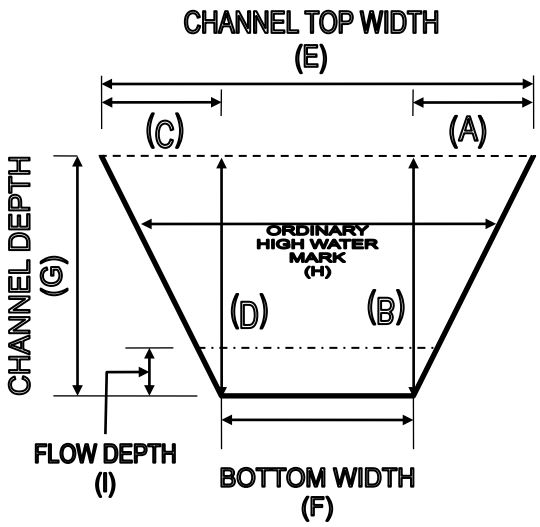
OTHER: **Sunny**

SITE LOCATION MAP

PROVIDE A PLAN VIEW SKETCH WITH A NORTH ARROW (INDICATE DIRECTIONS OF PHOTOGRAPHS)

STREAM CHANNEL DIMENSIONS

FOR LINEAR PROJECTS, PROVIDE DIMENSIONS AT THE CENTERLINE OF THE STREAM CROSSING.



RIGHT BANK (FACE DOWNSTREAM)	HORIZONTAL **(A)**	**2.0**	FT.
	VERTICAL **(B)**	**2.0**	FT.
LEFT BANK (FACE DOWNSTREAM)	HORIZONTAL **(C)**	**2.0**	FT.
	VERTICAL **(D)**	**2.0**	FT.
CHANNEL DIMENSIONS	TOP WIDTH **(E)**	**4.0**	FT.
	BOTTOM WIDTH **(F)**	**1.0**	FT.
	OVERALL DEPTH **(G)**	**2.0**	FT.
	ORDINARY HIGH WATER MARK **(H)**	**1.5**	FT.
	FLOW DEPTH **(I)**	**0.15**	FT.
	APPROX. SURFACE VELOCITY	**2.0**	FT./ SEC

STREAM CHARACT-ERIZATION

STREAM SUBSYSTEM

☐	PERENNIAL	☒	INTERMITTENT
☐	EPHEMERAL	☐	TIDAL

STREAM TYPE

☒ COLD WATER ☐ WARM WATER

CATCHMENT AREA ____ SQ. MI.

STREAM ORIGIN

☐	GLACIAL	☒	SPRING FED
☐	NON-GLACIAL MONTANE	☐	MIXTURE OF ORIGINS
☐	SWAMP AND BOG	☒	OTHER **stormwater**

STREAM ID: S-WH-10

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

WATERSHED FEATURES

PREDOMINANT SURROUNDING LANDUSE

- ☒ FOREST
- ☐ FIELD/PASTURE
- ☐ AGRICULTURAL
- ☐ RESIDENTIAL
- ☐ COMMERCIAL
- ☐ INDUSTRIAL
- ☐ OTHER

LOCAL WATERSHED NPS POLLUTION

- ☒ NO EVIDENCE
- ☐ SOME POTENTIAL SOURCES
- ☐ OBVIOUS SOURCES

LOCAL WATERSHED EROSION

- ☐ NONE
- ☒ MODERATE
- ☐ HEAVY

RIPARIAN VEG. (18 M. BUFFER)

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☒ TREES
- ☐ SHRUBS
- ☐ GRASSES
- ☐ HERBACEOUS

DOMINANT SPECIES PRESENT? **Hemlock, American Beech, Red Maple, Sweet Birch**

INSTREAM FEATURES

STUDY LENGTH		FT.
STREAM WIDTH	**4.0**	FT.
STUDY REACH AREA		AC.
EST. DRAINAGE AREA		SQ. MI.
MACROINVERTEBRATES PRESENT?	☐ YES / ☒ NO	
TAXA PRESENT		

CANOPY COVER

☐ OPEN	☐ PARTLY OPEN	☒ PARTLY SHADED	☐ SHADED

PROPERTIES OF REACH, STREAM MORPHOLOGY TYPES

- ☒ RIFFLE **60** %
- ☒ RUN **20** %
- ☒ POOL **20** %
- CHANNELIZED ☐ YES ☒ NO
- DAM PRESENT ☐ YES ☒ NO

LARGE WOODY DEBRIS

LWD	-	$FT.^2$
DENSITY OF LWD	-	$FT.^2/MI.^2$

AQUATIC VEGETATON

INDICATE THE DOMINANT TYPE AND RECORD THE DOMINANT SPECIES PRESENT

- ☐ ROOTED EMERGENT
- ☐ ROOTED SUBMERGENT
- ☐ ROOTED FLOATING
- ☐ FLOATING ALGAE
- ☐ ATTACHED ALGAE
- ☐ FREE FLOATING

DOMINANT SPECIES PRESENT

PORTION OF THE REACH WITH AQUATIC VEGETATION %

WATER QUALITY

TEMPERATURE	-	° C
SPEC. CONDUCTANCE	-	
DISSOLVED OXYGEN	-	
pH	-	
TURBIDITY	-	
WQ INSTRUMENT USED	-	

WATER ODORS

- ☒ NORMAL/NONE
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ CHEMICAL
- ☐ FISHY
- ☐ OTHER

WATER SURFACE OILS

- ☐ SLICK
- ☐ SHEEN - Oily
- ☐ GLOBS
- ☐ FLECKS
- ☒ NONE
- ☐ OTHER

TURBIDITY (IF NOT MEASURED)

- ☒ CLEAR
- ☐ SLIGHTLY TURBID
- ☐ TURBID
- ☐ OPAQUE
- ☐ STAINED
- ☐ OTHER

SEDIMENT/ SUBSTRATE

ODORS

- ☒ NORMAL
- ☐ SEWAGE
- ☐ PETROLEUM
- ☐ OTHER
- ☐ ANAEROBIC
- ☒ NONE
- ☐ CHEMICAL

DEPOSITS

- ☐ SLUDGE
- ☐ PAPER FIBER
- ☐ RELICT SHELLS
- ☐ OTHER
- ☐ SAWDUST
- ☒ SAND

OILS

- ☒ ABSENT
- ☐ MODERATE
- ☐ SLIGHT
- ☐ PROFUSE

UNDERSIDES OF NON-EMBEDDED STONES BLACK IN COLOR?

- ☐ YES
- ☒ NO

INORGANIC SUBSTRATE COMPONENTS (ADD TO 100%)			ORGANIC SUBSTRATE COMPONENTS (MAY ADD TO LESS THAN 100%)		
SUBSTRATE TYPE	**DIAMETER**	**% COMPOSITION IN SAMPLING REACH**	**SUBSTRATE TYPE**	**CHARACTERISTIC**	**% COMPOSITION IN SAMPLING REACH**
BEDROCK	-		DETRITUS	STICKS, WOOD, COARSE PLANT MATERIALS (CPOM)	**20**
BOULDER	256 MM (10"+)	**30**			
COBBLE	64 – 256 MM (2.5 – 10")	**30**	MUCK - MUD	BLACK, VERY FINE ORGANIC (FPOM)	
GRAVEL	2 – 64 MM (0.1 – 2.5")	**20**			
SAND	0.06 -0 2 MM (GRITTY)	**10**			
SILT	0.004 – 0.06 MM	**10**	MARL	GREY, SHELL FRAGMENTS	
CLAY	<0.004 MM (SLICK)				

APPENDIX D

Wetland Data Forms

USACE Routine Wetland Determination Forms

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-1 PFO
Investigator(s): A. Larsen, M. Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave | Slope (%): 1%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66432 | Long: -78.54732 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

Wetland W-AAL-1, a PFO wetland is located in the southeast portion of the Project Area and is associated with stream S-AAL-1 (Cold Spring Run).

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 6
Water Table Present?	Yes X	No ____	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

The criterion for wetland hydrology has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-1 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghansis*	25	Yes	FAC
2. *Tsuga canadensis*	15	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghansis*	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	10 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	65	Yes	FACW
2. *Carex crinita*	10	No	OBL
3. *Betula alleghansis*	10	No	FAC
4. *Leersia virginica*	10	No	FACW
5. *Acer rubrum*	5	No	FAC
6. *Tsuga canadensis*	5	No	FACU
7. *Osmunda claytoniana*	3	No	FAC
8.			
9.			
10.			
11.			
12.			
	108 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**10**	x 1 =	**10**
FACW species	**75**	x 2 =	**150**
FAC species	**53**	x 3 =	**159**
FACU species	**20**	x 4 =	**80**
UPL species	**0**	x 5 =	**0**
Column Totals:	**158** (A)		**399** (B)

Prevalence Index = B/A = **2.53**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-1 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	95	10YR 4/1	5	D	M	Sandy Loam	
2-6	10YR 2/1	80	10YR 4/1	10	D	M	Sandy Clay Loam	
			10YR 5/8	10	C	M		
6-15	10YR 4/1	80	10YR 5/8	20	MS	M	Sand	
15-20	10YR 4/2	95	10YR 5/8	5	MS	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- __X__ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- __X__ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- __X__ Redox Dark Surface (F6)
- __X__ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

The criterion for hydric soil has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-1 UPLAND
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Shoulderslope | Local relief (concave, convex, none): Convex | Slope (%): 5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66434 | Long: -78.54723 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 X
Hydric Soil Present?	Yes _____	No X
Wetland Hydrology Present?	Yes _____	No X

Is the Sampled Area within a Wetland? Yes _____ No X

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria.This point is located in the southeast region of the Project Area and is located east of W-AAL-1 in a wooded upland area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 x	Depth (inches): _____
Water Table Present?	Yes _____	No x	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No x

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

Remarks:

The criterion for wetland hydrology has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-1 UPLAND**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Tsuga canadensis*	60	Yes	FACU
2. *Acer rubrum*	20	Yes	FAC
3. *Fagus grandifolia*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Fagus grandifolia*	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	10 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Tsuga canadensis*	10	Yes	FACU
2. *Fagus grandifolia*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **20%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**20**	x 3 =	**60**
FACU species	**95**	x 4 =	**380**
UPL species	**0**	x 5 =	**0**
Column Totals:	**115** (A)		**440** (B)

Prevalence Index = B/A = **3.83**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **x**

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

The criterion for hydrophytic vegetation has not been met.

SOIL

Sampling Point: **W-AAL-1 UPLAND**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 3/2	50					Sandy Loam	
	10YR 2/1	30						
	10YR 3/3	20						
4-13	10YR 4/6	100					Loam	
13-16	10YR 4/4	70	10YR 5/8	5	C	M	Clay loam	
	10YR 4/6	25						
16-19	2.5Y 6/1	70	10YR 5/8	30	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 x

Remarks:

The criterion for hydric soil has not been met. Refusal on roots at 19 inches.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-2 PEM
Investigator(s): A. Larsen, M. Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave | Slope (%): 3
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66432 | Long: -78.54732 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within the PEM portion of Wetland W-AAL-2. Wetland W-AAL-2, a PEM/PFO mixed covertype wetland is located in the southeast portion of the Project Area and is associated with stream S-AAL-1 (Cold Spring Run).

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- X Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 6
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

The criterion for wetland hydrology has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-2 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Eleocharis obtusa*	60	Yes	OBL
2. *Setaria pumila*	20	No	FAC
3. *Juncus torreyi*	15	No	FACW
4. *Carex crinita*	10	No	OBL
5. *Penthorum sedoides*	5	No	OBL
6. *Potentilla norvegica*	5	No	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	115 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**75**	x 1 =	**75**
FACW species	**15**	x 2 =	**30**
FAC species	**20**	x 3 =	**60**
FACU species	**5**	x 4 =	**20**
UPL species	**0**	x 5 =	**0**
Column Totals:	**115** (A)		**185** (B)

Prevalence Index = B/A = **1.61**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-2 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	90	10YR 5/8	10	C	M	Sandy Loam	
6-13	10YR 6/1	85	10YR 5/8	15	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
__X__ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
__X__ Depleted Matrix (F3)
__X__ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock
Depth (inches): 13

Hydric Soil Present? Yes X No ____

Remarks:

The criterion for hydric soil has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-2 PFO
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Backslope | Local relief (concave, convex, none): Concave | Slope (%): 2
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66376 | Long: -78.54785 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within the PFO portion of wetland W-AAL-2, a PEM/PFO mixed covertype wetland. W-AAL-2 is located in the southeast portion of the Project Area and is associated with stream S-AAL-1 (Cold Spring Run).

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- X Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 4
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-2 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Tsuga canadensis*	25	Yes	FACU
2. *Acer rubrum*	25	Yes	FAC
3. *Prunus serotina*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*		#DIV/0!	Bag & Tag
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Osmunda regalis*	5	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**5**	x 1 =	**5**
FACW species	**0**	x 2 =	**0**
FAC species	**25**	x 3 =	**75**
FACU species	**30**	x 4 =	**120**
UPL species	**0**	x 5 =	**0**
Column Totals:	**60** (A)		**200** (B)

Prevalence Index = B/A = **3.33**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤ 3.0[1]
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met. Tsuga canadensis observed to be restricted to raised areas and with shallow, exposed roots.

SOIL

Sampling Point: **W-AAL-2 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					Peat	
2-7	10YR 3/1	95	10YR 5/8	5	C	M	Clay loam	
7-12	10YR 5/1	95	10YR 5/8	5	C	M	Sandy Clay Loam	
12-20	10YR 5/1	70	10YR 5/8	30	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
__X__Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
__X__Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-2 UPLAND
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): Convex | Slope (%): 4
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66385 | Long: -78.54758 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No X

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. This point is located in the southeast region of the Project area in a forested upland habitat adjacent to a pipeline ROW that is rough mowed. This sample point is associated with W-AAL-2 PEM and W-AAL-2 PFO.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

The wetland hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-2 UPLAND**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	40	Yes	FACU
2. *Acer rubrum*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Tsuga canadensis*	15	Yes	FACU
2. *Fagus grandifolia*	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	25 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Glechoma hederacea*	30	Yes	FACU
2. *Rubus hispidus*	30	Yes	FACW
3. *Athyrium filix-femina*	25	Yes	UPL
4. *Tsuga canadensis*	15	No	FACU
5. *Osmunda regalis*	5	No	OBL
6. *Acer rubrum*	5	No	FAC
7. *Prunus serotina*	5	No	FACU
8.			
9.			
10.			
11.			
12.			
	115 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **29%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**5**	x 1 =	**5**
FACW species	**30**	x 2 =	**60**
FAC species	**25**	x 3 =	**75**
FACU species	**115**	x 4 =	**460**
UPL species	**25**	x 5 =	**125**
Column Totals:	**200** (A)		**725** (B)

Prevalence Index = B/A = **3.63**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-2 UPLAND**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					Silt Loam	
4-18	10YR 5/4	70					Silty Clay Loam	
	10YR 2/1	30						
18-20	10YR 5/4	85	10YR 5/8	15	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-3 PFO
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Backslope | Local relief (concave, convex, none): Concave | Slope (%): 3
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65992 | Long: -78.54824 | Datum: WGS84
Soil Map Unit Name: BxD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within PFO wetland W-AAL-3. W-AAL-3 is located in the southeast portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 1
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-3 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	20	Yes	FACW
2. *Acer rubrum*	15	Yes	FAC
3. *Betula alleghaniesis*	10	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	45 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Carpinus caroliniana*	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Osmunda cinnamomea*	25	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**45**	x 2 =	**90**
FAC species	**45**	x 3 =	**135**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**90** (A)		**225** (B)

Prevalence Index = B/A = **2.50**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-3 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	95	10YR 5/8	5	C	M	Loam	
2-10	10YR 6/1	85	10YR 5/8	15	C	M	Sandy Clay	
10-20	10YR 6/1	70	10YR 5/8	30	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-3 UPLAND
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65999 | Long: -78.54815 | Datum:
Soil Map Unit Name: BxD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No X

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria.This sample point is located in the southeast region of the Project Area to the northeast of W-AAL-3.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-3 UPLAND**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	35	Yes	FACU
2. *Betula alleghaniesis*	20	Yes	Bag & Tag
3. *Fagus grandifolia*	15	No	FACU
4. *Populus tremuloides*	10	No	FAC
5.			
6.			
7.			
8.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniesis*	10	Yes	Bag & Tag
2. *Fagus grandifolia*	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dennstaedtia punctilobula*	30	Yes	FACU
2. *Oxalis stricta*	10	Yes	FACU
3. *Acer saccharum*	5	No	FACU
4. *Fagus grandifolia*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**10**	x 3 =	**30**
FACU species	**110**	x 4 =	**440**
UPL species	**0**	x 5 =	**0**
Column Totals:	**120** (A)		**470** (B)

Prevalence Index = B/A = **3.92**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-3 UPLAND**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					Silt Loam	
3-20	10YR 4/6	100					Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-4 PFO
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Backslope | Local relief (concave, convex, none): Concave | Slope (%): 3
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66473 | Long: -78.54820 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within PFO wetland W-AAL-4. W-AAL-4 is located in the southeast portion of the Project Area, and is associated with stream S-AAL-1 (Cold Spring Run).

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- X 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 2
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-4 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	65	Yes	FACW
2. *Fagus grandifolia*	10	No	FACU
3. *Prunus serotina*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Carpinus caroliniana*	10	Yes	FAC
2. *Prunus serotina*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Glyceria striata*	60	Yes	OBL
2. *Carex lupulina*	20	Yes	OBL
3. *Osmunda cinnamonea*	15	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**80**	x 1 =	**80**
FACW species	**80**	x 2 =	**160**
FAC species	**10**	x 3 =	**30**
FACU species	**20**	x 4 =	**80**
UPL species	**0**	x 5 =	**0**
Column Totals:	**190** (A)		**350** (B)

Prevalence Index = B/A = **1.84**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-4 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					Loam	
8-15	10YR 5/2	85	10YR 5/8	15	C	M	Sandy Clay	
15-20	10YR 5/1	70	10YR 5/8	30	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
__X__ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
__X__ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-4 UPLAND
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66494 | Long: -78.54819 | Datum: WGS84
Soil Map Unit Name: HaC | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 X
Hydric Soil Present?	Yes _____	No X
Wetland Hydrology Present?	Yes _____	No X

Is the Sampled Area within a Wetland? Yes _____ No X

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. This point is located in an upland forested habitat and located in the southeast region of the Project Area, northeast of wetland W-AAL-4.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-4 UPLAND**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	60	Yes	FACU
2. *Acer saccharum*	10	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Prunus serotina*	10	Yes	FACU
2. *Acer saccharum*	5	Yes	FACU
3. *Fagus grandifolia*	5	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dryopteris spinulosa*	50	Yes	FAC
2. *Fragaria virginiana*	10	No	FACU
3. *Fagus grandifolia*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **20%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**50**	x 3 =	**150**
FACU species	**105**	x 4 =	**420**
UPL species	**0**	x 5 =	**0**
Column Totals:	**155** (A)		**570** (B)

Prevalence Index = B/A = **3.68**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-4 UPLAND**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					Loam	
5-15	10YR 3/3	100					Silt Loam	
15-20	10YR 5/4	100					Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-5 PFO
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 3
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66953 | Long: -78.54769 | Datum: WGS84
Soil Map Unit Name: HdB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 X	No _____
Hydric Soil Present?	Yes X	No _____
Wetland Hydrology Present?	Yes X	No _____

Is the Sampled Area within a Wetland? **Yes** X **No** _____

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

This sample point is located within PFO wetland W-AAL-5. W-AAL-5 is located south of a maintained (rough mowed) utility ROW along the eastern edge of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-5 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	35	Yes	FACU
2. *Acer rubrum*	25	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Fagus grandifolia*	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	10 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Veratrum viride*	45	Yes	FACW
2. *Osmunda cinnamonea*	15	Yes	FACW
3. *Fagus grandifolia*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **60%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**60**	x 2 =	**120**
FAC species	**25**	x 3 =	**75**
FACU species	**50**	x 4 =	**200**
UPL species	**0**	x 5 =	**0**
Column Totals:	**135** (A)		**395** (B)

Prevalence Index = B/A = **2.93**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-5 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Peat	
4-10	10YR 5/1	95	10YR 5/8	5	C	M	Sandy Clay	
10-20	2.5Y 6/1	90	10TR 7/8	10	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-5 UPLAND
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66962 | Long: -78.54776 | Datum: WGS84
Soil Map Unit Name: HdB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 X
Hydric Soil Present?	Yes _____	No X
Wetland Hydrology Present?	Yes _____	No X

Is the Sampled Area within a Wetland? Yes _____ No X

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. This point is located in an upland forest habitat north of W-AAL-5 and south of the utility ROW along the east edge of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-5 UPLAND**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	60	Yes	FACU
2. *Tsuga canadensis*	15	No	FACU
3. *Acer rubrum*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Fagus grandifolia*	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dryopteris spinulosa*	15	Yes	FAC
2. *Fagus grandifolia*	5	Yes	FACU
3. *Medeola virginiana*	5	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **40%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**25**	x 3 =	**75**
FACU species	**100**	x 4 =	**400**
UPL species	**0**	x 5 =	**0**
Column Totals:	**125** (A)		**475** (B)

Prevalence Index = B/A = **3.80**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-5 UPLAND**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Loam	
4-13	10YR 4/4	85	10YR 5/2	10	D	M	Sandy Clay Loam	
			10YR 5/8	5	C	M		
13-17	10YR 4/4	80	10YR 5/8	20	C	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock
Depth (inches): 17

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-6
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 2
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67419 | Long: -78.55925 | Datum: WGS84
Soil Map Unit Name: HdD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within PEM wetland W-AAL-6. W-AAL-6 is located adjacent to an unimproved (dirt) access road along the north boundary of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- X Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 3
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-6**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniesis*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	35	Yes	FACW
2. *Carex stipata*	15	Yes	OBL
3. *Carex vulpinoidea*	10	No	OBL
4. *Juncus effusus*	5	No	FACW
5. *Carex crinita*	5	No	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 20 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**40**	x 2 =	**80**
FAC species	**5**	x 3 =	**15**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**75** (A)		**125** (B)

Prevalence Index = B/A = **1.67**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-6**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 4/1	70	10YR 6/2	20	D	M	Sandy Clay	
			10YR 5/8	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock
Depth (inches): 9

Hydric Soil Present? Yes X No ____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-6 UPLAND
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Flat | Slope (%): 4
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67415 | Long: -78.55924 | Datum: WGS84
Soil Map Unit Name: HdD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 X
Hydric Soil Present?	Yes X	No _____
Wetland Hydrology Present?	Yes _____	No X

Is the Sampled Area within a Wetland? Yes _____ No X

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

This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology. This sample point is located south of W-AAL-6.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-6 UPLAND**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Prunus serotina*	20	Yes	FACU
2. *Carpinus caroliniana*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	30 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus allegheniensis*	40	Yes	FACU
2. *Rubus hispidus*	30	Yes	FACW
3. *Prunus serotina*	10	No	FACU
4. *Pteridium aquilinum*	10	No	FACU
5. *Carex pensylvanica*	10	No	UPL
6. *Dichanthelium clandestinum*	5	No	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**30**	x 2 =	**60**
FAC species	**15**	x 3 =	**45**
FACU species	**80**	x 4 =	**320**
UPL species	**10**	x 5 =	**50**
Column Totals:	**135** (A)		**475** (B)

Prevalence Index = B/A = **3.52**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-6 UPLAND**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					Loam	
2-10	10YR 3/1	90	10YR 5/6	10	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- **X** Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 10

Hydric Soil Present? Yes X No ____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-7 PFO
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 2
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67317 | Long: -78.55483 | Datum: WGS84
Soil Map Unit Name: CoB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within the PFO portion of Wetland W-AAL-7. Wetland W-AAL-7, is a PSS/PFO mixed covertype wetland located along the north boundary in the northeast region of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- X Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 3
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-7 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	55	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex blanda*	15	Yes	FAC
2. *Dryopteris carthusiana*	15	Yes	FAC
3. *Glyceria striata*	5	No	OBL
4. *Osmunda cinnamomea*	5	No	FACW
5. *Dichanthelium clandestinum*	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	45 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**5**	x 1 =	**5**
FACW species	**5**	x 2 =	**10**
FAC species	**90**	x 3 =	**270**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**285** (B)

Prevalence Index = B/A = **2.85**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-7 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 4/1	70	2.5Y 5/2	20	D	M	Sandy Loam	
			10YR 5/8	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock
Depth (inches): 8

Hydric Soil Present? Yes X No ____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-7 PSS
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 2
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67365 | Long: -78.55470 | Datum: WGS84
Soil Map Unit Name: CoB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within the PSS portion of wetland W-AAL-7, a PFO/PSS mixed covertype wetland. W-AAL-7 is located in the northeast region of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 3
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-7 PSS**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniensis*	35	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	35 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	40	Yes	FACW
2. *Onoclea sensibilis*	20	Yes	FACW
3. *Carex crinita*	15	No	OBL
4. *Betula alleghaniensis*	10	No	FAC
5. *Juncus effusus*	5	No	FACW
6. *Persicaria pensylvanica*	5	No	FACW
7. *Acer rubrum*	5	No	FAC
8. *Dryopteris carthusiana*	5	No	FAC
9.			
10.			
11.			
12.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**15**	x 1 =	**15**
FACW species	**70**	x 2 =	**140**
FAC species	**55**	x 3 =	**165**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**140** (A)		**320** (B)

Prevalence Index = B/A = **2.29**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-7 PSS**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/1	85	10YR 6/8	15	C	M	Sandy Loam	
7-13	10YR 6/1	80	10YR 5/8	20	C	M	Sandy Clay	
13-20	10YR 6/1	80	10YR 5/8	20	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-7 UPLAND
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Shoulder slope | Local relief (concave, convex, none): Convex | Slope (%):
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67343 | Long: -78.55499 | Datum: WGS84
Soil Map Unit Name: CoB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No X

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. This point is located west of wetland W-AAL-7 and is associated with wetland points W-AAL-7 PFO and W-AAL-PSS in the northeast region of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-7 UPLAND**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	35	Yes	FACU
2. *Acer spicatum*	25	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Fagus grandifolia*	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	10 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Dennstaedtia punctilobula*	40	Yes	FACU
2. *Diphasiastrum digitatum*	20	Yes	UPL
3. *Dendrolycopodium obscurum*	15	No	FACU
4. *Fagus grandifolia*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**130**	x 4 =	**520**
UPL species	**20**	x 5 =	**100**
Column Totals:	**150** (A)		**620** (B)

Prevalence Index = B/A = **4.13**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-7 UPLAND**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	7.5YR 2.5/2	100					Organic	Duff layer
2-6	10YR 4/4	70					Loam	
	10YR 6/4	30						
6-20	10YR 5/4	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-8 PEM
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 1
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67332 | Long: -78.55201 | Datum: WGS84
Soil Map Unit Name: CoB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within the PEM portion of a PEM/PFO mixed covertype wetland; wetland W-AAL-8. W-AAL-8 is located in the northeast region of the Project Area and is associated with stream S-AAL-3.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- x Surface Water (A1)
- x High Water Table (A2)
- x 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)
- x Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- x 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)
- x Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- x Microtopographic Relief (D4)
- x FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 3
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-8 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniensis*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex lupulina*	30	Yes	OBL
2. *Osmunda cinnamomea*	30	Yes	FACW
3. *Veratrum viride*	15	No	FACW
4. *Rubus hispidus*	15	No	FACW
5. *Dichanthelium clandestinum*	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**60**	x 2 =	**120**
FAC species	**15**	x 3 =	**45**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**105** (A)		**195** (B)

Prevalence Index = B/A = **1.86**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-8 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	7.5YR 2.5/2	100					Organic layer	Duff layer
3-6	10YR 4/2	90	10YR 6/8	10	C	M	Clay loam	
6-15	10YR 5/1	80	10YR 6/8	20	C	M	Silty Clay	
15-20	10YR 3/1	80	10YR 6/1	15	D	M	Clay	
			10YR 5/8	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-8 PFO
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 1
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: | Long: | Datum: WGS84
Soil Map Unit Name: CoB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within the PFO portion of PEM/PFO mixed covertype wetland W-AAL-8. W-AAL-8 is located in the northeast portion of the Project Area and is associated with stream S-AAL-3.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 5
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-8 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	45	Yes	FAC
2. *Fagus grandifolia*	10	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniensis*	5	Yes	FAC
2. *Fagus grandifolia*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	10 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex blanda*	25	Yes	FAC
2. *Carex crinita*	20	Yes	OBL
3. *Osmunda cinnamomea*	15	Yes	FACW
4. *Carex lupulina*	15	Yes	OBL
5. *Viola sororia*	10	No	FAC
6. *Hamamelis virginiana*	5	No	FACU
7. *Pedicularis lanceolata*	5	No	FACW
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **6** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **86%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**35**	x 1 =	**35**
FACW species	**20**	x 2 =	**40**
FAC species	**85**	x 3 =	**255**
FACU species	**20**	x 4 =	**80**
UPL species	**0**	x 5 =	**0**
Column Totals:	**160** (A)		**410** (B)

Prevalence Index = B/A = **2.56**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-8 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 2.5/2	100					Organic	Duff layer
2-11	10YR 4/1	95	10YR 5/8	5	C	M	Silty Clay Loam	
11-20	10YR 4/1	90	10YR 5/8	10	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-8 UPLAND
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 3
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67334 | Long: -78.55220 | Datum: WGS84
Soil Map Unit Name: CoB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 X
Hydric Soil Present?	Yes _____	No X
Wetland Hydrology Present?	Yes _____	No X

Is the Sampled Area within a Wetland? Yes _____ No X

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. This point is located west of W-AAL-8 and is the corresponding upland point for wetland points W-AAL-8 PEM and W-AAL-8 PFO.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-8 UPLAND**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer spicatum*	35	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	35 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dennstaedtia punctilobula*	60	Yes	FACU
2. *Pteridium aquilinum*	15	No	FACU
3. *Dendrolycopodium obscurum*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**120**	x 4 =	**480**
UPL species	**0**	x 5 =	**0**
Column Totals:	**120** (A)		**480** (B)

Prevalence Index = B/A = **4.00**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-8 UPLAND**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 4/3	100					Clay loam	
12-20	10YR 4/4	98	10YR 5/8	2	C	M	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-9 PFO
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 1
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67197 | Long: -78.55083 | Datum: WGS84
Soil Map Unit Name: CoB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within PFO wetland W-AAL-9. W-AAL-9 is an isolated wetland in a closed depression located west of stream S-AAL-3 n the eastern portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- X Sparsely Vegetated Concave Surface (B8)
- ____ 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)
- X Geomorphic Position (D2)
- X Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-9 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Prunus serotina*	10	Yes	FACU
2. *Lindera benzoin*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex crinita*	5	Yes	OBL
2. *Schoenoplectus acutus*	5	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**10**	x 1 =	**10**
FACW species	**0**	x 2 =	**0**
FAC species	**45**	x 3 =	**135**
FACU species	**10**	x 4 =	**40**
UPL species	**0**	x 5 =	**0**
Column Totals:	**65** (A)		**185** (B)

Prevalence Index = B/A = **2.85**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-9 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/1	90	10YR 6/8	10	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 12

Hydric Soil Present? Yes X No ____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-9 UPLAND
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Backslope | Local relief (concave, convex, none): Flat | Slope (%): 3
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67202 | Long: -78.55062 | Datum: WGS84
Soil Map Unit Name: CoB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No X

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-9 UPLAND**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	30	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Prunus serotina*	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dennstaedtia punctilobula*	50	Yes	FACU
2. *Prunus serotina*	10	No	FACU
3. *Carex pensylvanica*	5	No	UPL
4. *Rubus hispidus*	5	No	FACW
5. *Medeola virginiana*	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**5**	x 2 =	**10**
FAC species	**5**	x 3 =	**15**
FACU species	**110**	x 4 =	**440**
UPL species	**5**	x 5 =	**25**
Column Totals:	**125** (A)		**490** (B)

Prevalence Index = B/A = **3.92**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-9 UPLAND**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR 3/3	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 3

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

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-10 PFO
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 4
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67183 | Long: -78.54938 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within PFO wetland W-AAL-10. W-AAL-10 is located adjacent to stream S-AAL-4, a tributary to S-AAL-3 in the eastern region of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 2
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-10 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	30	Yes	FAC
2. *Betula alleghaniensis*	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	45 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniensis*	10	Yes	FAC
2. *Lindera benzoin*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Matteuccia struthiopteris*	30	Yes	FACW
2. *Osmunda claytoniana*	20	Yes	FAC
3. *Medeola virginiana*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **6** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**30**	x 2 =	**60**
FAC species	**85**	x 3 =	**255**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**115** (A)		**315** (B)

Prevalence Index = B/A = **2.74**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-10 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					Muck	
2-9	10YR 3/1	95	10YR 5/8	5	C	M	Sandy Loam	
9-13	10YR 5/1	100					Sandy Clay Loam	
13-16	10YR 5/1	80	10YR 5/8	20	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- __X__ 2 cm Muck (A10) **(LRR N)**
- __X__ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- __X__ Depleted Matrix (F3)
- __X__ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 16

Hydric Soil Present? **Yes** __X__ **No** ____

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-10 UPLAND
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: | Long: | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No X

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. Sample point located in an upland forested area west of W-AAL-10 in the eastern portion of the Project Area between S-AAL-3 and W-AAL-10.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-10 UPLAND**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	40	Yes	FACU
2. *Acer rubrum*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dennstaedtia punctilobula*	60	Yes	FACU
2. *Rubus hispidus*	10	No	FACW
3. *Medeola virginiana*	10	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **33%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**10**	x 2 =	**20**
FAC species	**20**	x 3 =	**60**
FACU species	**100**	x 4 =	**400**
UPL species	**0**	x 5 =	**0**
Column Totals:	**130** (A)		**480** (B)

Prevalence Index = B/A = **3.69**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-10 UPLAND**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 4/4	100					Silty Clay Loam	
14-20	10YR 5/6	100					Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-11 PEM
Investigator(s): Amanda Larsen | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Backslope | Local relief (concave, convex, none): Concave | Slope (%): 4
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66862 | Long: -78.55018 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within a PEM portion of wetland W-AAL-11; a PEM/PFO mixed covertype wetland. W-AAL-1 is is located in and adjacent to / north of a maintained utility ROW. This point is located within the maintained (rough mowed) utility ROW near the southeastern area of W-AAL-11 in the eastern region of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 4
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-11 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	50	Yes	FACW
2. *Scirpus cyperinus*	35	Yes	FACW
3. *Verbena hastata*	5	No	FACW
4. *Dichanthelium clandestinum*	5	No	FAC
5. *Acer rubrum*	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**90**	x 2 =	**180**
FAC species	**10**	x 3 =	**30**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**210** (B)

Prevalence Index = B/A = **2.10**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** _____

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

The hydrophytic vegetation criterion has not been met. Majority of wetland covered with dense carpet of Sphagnum moss.

SOIL

Sampling Point: **W-AAL-11 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/2	100					Peat	
6-7	10YR 2/1	100					Muck	
7-16	2.5Y 6/1	95	10YR 6/8	5	C	M	Sandy clay	
16-20	2.5Y 6/1	80	10YR 6/8	20	C	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
__X__2 cm Muck (A10) **(LRR N)**
__X__Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-11 PFO 1
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): Flat | Slope (%): 1
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66932 | Long: -78.55076 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within the PFO portion of wetland W-AAL-11 a PEM/PFO mixed covertype wetland. W-AAL-11 is associated with stream S-AAL-3 in the eastern portion of the Project Area. This PFO point is located north of S-AAL-3.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 11
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-11 PFO 1**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Yes	FAC
2. *Prunus serotina*	10	No	FACU
3. *Acer spicatum*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Carpinus caroliniana*	20	Yes	FAC
2. *Betula alleghaniensis*	15	Yes	FAC
3. *Prunus serotina*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	40 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Osmunda cinnamonea*	30	Yes	FACW
2. *Carex lupulina*	25	Yes	OBL
3. *Thelypteris noveboracensis*	5	No	FAC
4. *Betula alleghaniensis*	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**25**	x 1 =	**25**
FACW species	**30**	x 2 =	**60**
FAC species	**85**	x 3 =	**255**
FACU species	**20**	x 4 =	**80**
UPL species	**0**	x 5 =	**0**
Column Totals:	**160** (A)		**420** (B)

Prevalence Index = B/A = **2.63**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-11 PFO 1**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 2.5/2	85	10YR 5/2	10	D	M	Loam	
			10YR 5/8	5	C	M		
4-7	10YR 3/1	85	10YR 5/1	10	D	M	Loam	
			10YR 5/8	5	C	M		
7-20	10YR 4/1	80	7.5YR 4/6	20	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- **X** Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-11 PFO 2
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 1
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66878 | Long: -78.55164 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within a PFO portion of mixed covertype wetland W-AAL-11. W-AAL-11 is located within and north of the utility ROW in the eastern portion of the Project Area. This point is located northwest of the ROW and S-AAL-3.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 2
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-11 PFO 2**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Tsuga canadensis*	25	Yes	FACU
2. *Betula alleghaniensis*	20	Yes	FAC
3. *Acer saccharinum*	15	Yes	FACW
4. *Prunus serotina*	10	No	FACU
5.			
6.			
7.			
8.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Fagus grandifolia*	10	Yes	FACU
2. *Acer rubrum*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Viola sororia*	50	Yes	FAC
2. *Carex crinita*	30	Yes	OBL
3. *Osmunda cinnamomea*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**25**	x 2 =	**50**
FAC species	**75**	x 3 =	**225**
FACU species	**45**	x 4 =	**180**
UPL species	**0**	x 5 =	**0**
Column Totals:	**175** (A)		**485** (B)

Prevalence Index = B/A = **2.77**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-11 PFO 2**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					Loam	
4-7	10YR 3/1	80	10YR 4/1	15	D	M	Sandy Loam	
			10YR 5/8	5	C	M		
7-20	10YR 4/1	85	10YR 5/6	15	MS	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
__X__ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
__X__ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-11 UPLAND 1
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Shoulder slope | Local relief (concave, convex, none): Convex | Slope (%): 5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66938 | Long: -78.55078 | Datum:
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No X

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. This point is located in an upland forest area north of W-AAL-11 and north of S-AAL-3.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-11 UPLAND 1**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	35	Yes	FACU
2. *Acer saccharum*	15	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Prunus serotina*	30	Yes	FACU
2. *Fagus grandifolia*	15	Yes	FACU
3. *Carpinus caroliniana*	10	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	55 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Pteridium aquilinum*	15	Yes	FACU
2. *Dendrolycopodium oscurum*	15	Yes	FACU
3. *Acer spicatum*	10	Yes	FACU
4. *Dennstaedtia punctilobula*	10	Yes	FACU
5. *Osmunda cinnamonea*	5	No	FACW
6. *Carex pensylvanica*	5	No	UPL
7. *Glechoma hederacea*	5	No	FACU
8.			
9.			
10.			
11.			
12.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**5**	x 2 =	**10**
FAC species	**10**	x 3 =	**30**
FACU species	**150**	x 4 =	**600**
UPL species	**5**	x 5 =	**25**
Column Totals:	**170** (A)		**665** (B)

Prevalence Index = B/A = **3.91**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-11 UPLAND 1**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					Loam	
3-9	10YR4/3	100					Loam	
9-16	7.5YR 4/6	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 16

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

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-11 UPLAND 2
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66878 | Long: -78.55179 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 X
Hydric Soil Present?	Yes _____	No X
Wetland Hydrology Present?	Yes _____	No X

Is the Sampled Area within a Wetland? Yes _____ No X

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. Point W-AAL-11 UPLAND 2 is located north of W-AAL-11 in an upland forested area in the eastern portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-11 UPLAND 2**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	30	Yes	FACU
2. *Tsuga canadensis*	25	Yes	FACU
3. *Acer saccharum*	20	Yes	FACU
4. *Prunus serotina*	15	No	FACU
5.			
6.			
7.			
8.			
	90 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Fagus grandifolia*	25	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	25 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dendrolycopodium obscurum*	20	Yes	FACU
2. *Fagus grandifolia*	5	No	FACU
3. *Dryopteris carthusiana*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**5**	x 3 =	**15**
FACU species	**140**	x 4 =	**560**
UPL species	**0**	x 5 =	**0**
Column Totals:	**145** (A)		**575** (B)

Prevalence Index = B/A = **3.97**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-11 UPLAND 2**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/3	80	10YR 5/8	15	C	M	Loam	
			10YR 5/1	5	D	M		
7-15	10YR 4/3	65	10YR 5/8	30	C	M	Sandy loam	
			10YR 5/1	5	D	M		
15-20	10YR 6/1	40	10YR 6/8	30	C	M	Sandy clay loam	
	10YR 3/2	30						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-11 UPLAND 3
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Footslope | Local relief (concave, convex, none): Convex | Slope (%): 3
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66870 | Long: -78.55022 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 X
Hydric Soil Present?	Yes _____	No X
Wetland Hydrology Present?	Yes _____	No X

Is the Sampled Area within a Wetland? Yes _____ No X

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. This point is located in a upland forested area just north of the uitlity ROW in an upland "island" within W-AAL-11.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 19
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 18

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-11 UPLAND 3**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer spicatum*	40	Yes	FACU
2. *Tsuga canadensis*	15	Yes	FACU
3. *Fagus grandifolia*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Fagus grandifolia*	15	Yes	FACU
2. *Prunus serotina*	15	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	30 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Fragaria virginiana*	65		FACU
2. *Prunus serotina*	10	No	FACU
3. *Dennstaedtia punctilobula*	10	No	FACU
4. *Medeola virginiana*	5	No	FAC
5. *Dichanthelium clandestinum*	5	No	FAC
6. *Pteridium aquilinum*	5	No	FACU
7. *Carex pensylvanica*	5	No	UPL
8. *Dendrolycopodium obscurum*	5	No	FACU
9.			
10.			
11.			
12.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**10**	x 3 =	**30**
FACU species	**190**	x 4 =	**760**
UPL species	**5**	x 5 =	**25**
Column Totals:	**205** (A)		**815** (B)

Prevalence Index = B/A = **3.98**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-11 UPLAND 3**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR 3/1	100					Loam	
2-4	10YR 4/2	100					Clay loam	
4-15	10YR 4/2	30	10YR 5/6	20	C	M	Clay loam	Mixed
	10YR 3/1	25						
	10YR 6/3	25						
15-21	10YR 6/3	80	10YR 5/6	20	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-12 PFO
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 3
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66800 | Long: -78.55434 | Datum:
Soil Map Unit Name: BxB | NWI Classification:
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within PFO wetland W-AAL-12. W-AAL-12 is located north of a maintained utility ROW in the eastern portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-12 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Yes	FAC
2. *Acer saccharum*	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniensis*	5	Yes	FAC
2. *Prunus serotina*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	10 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex trisperma*	55	Yes	OBL
2. *Viola blanda*	30	Yes	FACW
3. *Osmunda cinnamonea*	15	No	FACW
4. *Adiantum pedatum*	10	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**55**	x 1 =	**55**
FACW species	**45**	x 2 =	**90**
FAC species	**55**	x 3 =	**165**
FACU species	**25**	x 4 =	**100**
UPL species	**0**	x 5 =	**0**
Column Totals:	**180** (A)		**410** (B)

Prevalence Index = B/A = **2.28**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-12 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 2.5/2	100					Peat	
3-9	10YR 4/1	95	10YR 6/8	5	C	M	Sandy clay	
9-20	2.5Y 5/1	80	10YR 6/8	20	C	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-13 PFO
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave | Slope (%): 3
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66792 | Long: -78.55290 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within PFO wetland W-AAL-13. W-AAL-13 is located north of a maintained utilty ROW in the eastern portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- X Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-13 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	30	Yes	FAC
2. *Prunus serotina*	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniensis*	10	Yes	FAC
2. *Prunus serotina*	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Matteuccia struthiopteris*	30	Yes	FACW
2. *Veratrum viride*	25	Yes	FACW
3. *Thelypteris noveboracensis*	15	No	FACW
4. *Glyceria striata*	5	No	OBL
5. *Betula alleghaniensis*	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**5**	x 1 =	**5**
FACW species	**70**	x 2 =	**140**
FAC species	**45**	x 3 =	**135**
FACU species	**20**	x 4 =	**80**
UPL species	**0**	x 5 =	**0**
Column Totals:	**140** (A)		**360** (B)

Prevalence Index = B/A = **2.57**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-13 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	7.5YR 2.5/2	100					Peat	
5-6	10YR 2/1	100					Muck	
6-12	10YR 5/1	90	10YR 5/6	10	C	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
__X__ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
__X__ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock
Depth (inches): 12

Hydric Soil Present? Yes X No ____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-13 UPLAND
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 7
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66807 | Long: -78.55302 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 X
Hydric Soil Present?	Yes _____	No X
Wetland Hydrology Present?	Yes _____	No X

Is the Sampled Area within a Wetland? Yes X No _____

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. This sample point is located in an upland forest area north of W-AAL-13.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-13 UPLAND**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	30	Yes	FACU
2. *Prunus serotina*	25	Yes	FACU
3. *Acer spicatum*	5	No	FACU
4. *Betula alleghaniensis*	5	No	FAC
5.			
6.			
7.			
8.			
	65 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Prunus serotina*	30	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	30 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium filix-femina*	20	Yes	UPL
2. *Dryopteris carthusiana*	20	Yes	FAC
3. *Dendrolycopodium obscurum*	15	Yes	FACU
4. *Fagus grandifolia*	5	No	FACU
5. *Prunus serotina*	5	No	FACU
6. *Rubus hispidus*	5	No	FACW
7. *Medeola virginiana*	5	No	FAC
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **17%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**5**	x 2 =	**10**
FAC species	**30**	x 3 =	**90**
FACU species	**115**	x 4 =	**460**
UPL species	**20**	x 5 =	**100**
Column Totals:	**170** (A)		**660** (B)

Prevalence Index = B/A = **3.88**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-13 UPLAND**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR 2/2	100						
3-5	10YR 6/1	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock
Depth (inches): 5

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-14 PFO

Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 5

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66822 | Long: -78.55384 | Datum:

Soil Map Unit Name: CoB | NWI Classification:

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within PFO wetland W-AAL-14. W-AAL-14 is located north of the utility line ROW in the eastern portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 9
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-14 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	35	Yes	FAC
2. *Acer rubrum*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniensis*	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Adiantum pedatum*	40	Yes	FAC
2. *Carex lupulina*	15	Yes	OBL
3. *Rubus hispidus*	10	No	FACW
4. *Carex vulpinoidea*	5	No	OBL
5. *Acer rubrum*	5	No	FAC
6. *Medeola virginiana*	5	No	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**20**	x 1 =	**20**
FACW species	**10**	x 2 =	**20**
FAC species	**125**	x 3 =	**375**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**155** (A)		**415** (B)

Prevalence Index = B/A = **2.68**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-14 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	7.5YR 2.5/2	100					Peat	80% organics
2-6	10YR 2/1	100					Muck	
6-13	2.5Y 6/1	90	10YR 6/8	10	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
__X__ 2 cm Muck (A10) **(LRR N)**
__X__ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
__X__ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock
Depth (inches): 13

Hydric Soil Present? Yes X No ____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-14 UPLAND
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 6
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66820 | Long: -78.55394 | Datum: WGS84
Soil Map Unit Name: CoB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 X
Hydric Soil Present?	Yes _____	No X
Wetland Hydrology Present?	Yes _____	No X

Is the Sampled Area within a Wetland? Yes _____ No N

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. This point is located west of W-AAL-14 in an upland forested area in the eastern region of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-14 UPLAND**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	40	Yes	FACU
2. *Acer saccharum*	30	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Prunus serotina*	50	Yes	FACU
2. *Betula alleghaniensis*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	70 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dennstaedtia punctilobula*	30	Yes	FACU
2. *Medeola virginiana*	20	Yes	FAC
3. *Prunus serotina*	5	No	FACU
4. *Dendrolycopodium obscurum*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**40**	x 3 =	**120**
FACU species	**160**	x 4 =	**640**
UPL species	**0**	x 5 =	**0**
Column Totals:	**200** (A)		**760** (B)

Prevalence Index = B/A = **3.80**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-14 UPLAND**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Loam	
3-15	10YR 5/4	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 15

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

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-15 PFO

Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 3

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66798 | Long: -78.55454 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within PFO wetland W-AAL-15. W-AAL-15 is located north of the utility ROW in the eastern portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 2
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-15 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	35	Yes	FAC
2. *Betula alleghaniensis*	20	Yes	FAC
3. *Acer saccharum*	15	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniensis*	10	Yes	FAC
2. *Carpinus caroliniana*	10	Yes	FAC
3. *Prunus serotina*	5	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	25 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex crinita*	50	Yes	OBL
2. *Carex vulpinoidea*	30	Yes	OBL
3. *Viola sororia*	25	No	FAC
4. *Leersia virginica*	15	No	FACW
5. *Rubus hispidus*	10	No	FACW
6. *Osmunda cinnamonea*	5	No	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	135 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **6** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**80**	x 1 =	**80**
FACW species	**30**	x 2 =	**60**
FAC species	**100**	x 3 =	**300**
FACU species	**20**	x 4 =	**80**
UPL species	**0**	x 5 =	**0**
Column Totals:	**230** (A)		**520** (B)

Prevalence Index = B/A = **2.26**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-15 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/1	95	10YR 5/8	5	C	M	Sand	
10-20	2.5Y 4/1	75	10YR 6/1	15	D	M	Sandy clay	
			10YR 6/8	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
__X__ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
__X__ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-12/15 Upland

Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 5

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66799 | Long: -78.55444 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes **X** No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 **X**
Hydric Soil Present?	Yes _____	No **X**
Wetland Hydrology Present?	Yes _____	No **X**

Is the Sampled Area within a Wetland? **Yes** _____ **No** **X**

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. This point is the upland point for wetland W-AAL-12 and wetland W-AAL-15 and is located between the two wetlands in the eastern portion of the Project Area north of the utiity ROW.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): _____
Water Table Present?	Yes _____	No **X**	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No **X**	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** **X**

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-12/15 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	20	Yes	FACU
2. *Prunus serotina*	20	Yes	FACU
3. *Acer rubrum*	15	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Carpinus caroliniana*	15	Yes	FAC
2. *Prunus serotina*	10	Yes	FACU
3. *Betula alleghaniensis*	10	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	35 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dendrolycopodium obscurum*	30	Yes	FACU
2. *Pteridium aquilinum*	20	Yes	FACU
3. *Rubus alleghaniensis*	20	Yes	FACU
4. *Medeola virginiana*	15	No	FAC
5. *Prunus serotina*	5	No	FACU
6. *Dryopteris carthusiana*	5	No	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **9** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **33%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**60**	x 3 =	**180**
FACU species	**125**	x 4 =	**500**
UPL species	**0**	x 5 =	**0**
Column Totals:	**185** (A)		**680** (B)

Prevalence Index = B/A = **3.68**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-12/15 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					Loam	
2-20	10YR 5/4	95	10YR 5/8	5	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-16 PEM
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Flat | Slope (%): 3
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66731 | Long: -78.55612 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within a PEM portion of wetland W-AAL-16, an interspersed PEM/PSS/PFO mixed covertype wetland. W-AAL-16 is located in the eastern portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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)
- X Geomorphic Position (D2)
- X Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 2
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-16 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	35	Yes	FACW
2. *Carex trisperma*	30	Yes	OBL
3. *Schoenoplectus fluviatilis*	15	No	OBL
4. *Poa palustris*	10	No	FACW
5. *Betula alleghaniensis*	5	No	FAC
6. *Osmunda claytoniana*	5	No	FAC
7. *Osmunda cinnamomea*	5	No	FACW
8.			
9.			
10.			
11.			
12.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**45**	x 1 =	**45**
FACW species	**50**	x 2 =	**100**
FAC species	**10**	x 3 =	**30**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**105** (A)		**175** (B)

Prevalence Index = B/A = **1.67**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-16 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					Mucky Peat	
12-16	10YR 6/1	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- **X** Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 16

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

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-16 PFO
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave | Slope (%): 2
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66794 | Long: -78.55683 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within a PFO wetland W-AAL-16, a PEM/PSS/PFO interspersed covertype wetland. W-AAL-16 is associated with multiple streams and is located in the eastern portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-16 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Yes	FAC
2. *Fagus grandifolia*	15	Yes	FACU
3. *Prunus serotina*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniensis*	15	Yes	FAC
2. *Prunus serotina*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Leersia virginica*	35	Yes	FACW
2. *Betula alleghaniensis*	10	Yes	FAC
3. *Dryopteris carthusiana*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**35**	x 2 =	**70**
FAC species	**70**	x 3 =	**210**
FACU species	**30**	x 4 =	**120**
UPL species	**0**	x 5 =	**0**
Column Totals:	**135** (A)		**400** (B)

Prevalence Index = B/A = **2.96**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-16 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/2	65	10YR 5/8	15	C	M	Sandy Clay Loam	
	10YR 2/1	20						
10-20	2.5Y 4/1	95	10YR 6/8	5	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-16 PSS
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Flat | Slope (%): 4
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66727 | Long: -78.55391 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within a PSS portion of wetland W-AAL-16, a PEM/PSS/PFO interspersed wetland. This point is located in the northeast portion of W-AAL-16.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-16 PSS**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniensis*	35	Yes	FAC
2. *Carpinus caroliniana*	10	No	FAC
3. *Cornus amomum*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	55 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex trisperma*	30	Yes	OBL
2. *Rubus hispidus*	30	Yes	FACW
3. *Carex lupulina*	5	No	OBL
4. *Acer rubrum*	5	No	FAC
5. *Betula alleghaniensis*	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**35**	x 1 =	**35**
FACW species	**40**	x 2 =	**80**
FAC species	**55**	x 3 =	**165**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**130** (A)		**280** (B)

Prevalence Index = B/A = **2.15**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

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

The hydrophytic vegetation criterion has been met. Dense covering of Sphagnum moss throughout majority of wetland.

SOIL

Sampling Point: **W-AAL-16 PSS**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Peat	
4-5	10YR 2/1	100					Muck	
5-15	10YR 5/1	80	10YR 5/6	20	C	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
__X__ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
__X__ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock
Depth (inches): 15

Hydric Soil Present? Yes X No ____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-16 UPLAND 1
Investigator(s): Amanda Larsen | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66735 | Long: -78.55586 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No N

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

This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology. This point is located in an upland forest area north of W-AAL-16.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-16 UPLAND 1**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	25	Yes	FACU
2. *Acer sachharum*	25	Yes	Bag & Tag
3. *Fagus grandifolia*	15	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Prunus serotina*	20	Yes	FACU
2. *Carpinus caroliniana*	15	Yes	FAC
3. *Fagus grandifolia*	10	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	45 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dennstaeditia punctilobula*	45	Yes	FACU
2. *Fragaria virginiana*	20	Yes	FACU
3. *Prunus serotina*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **14%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**15**	x 3 =	**45**
FACU species	**145**	x 4 =	**580**
UPL species	**0**	x 5 =	**0**
Column Totals:	**160** (A)		**625** (B)

Prevalence Index = B/A = **3.91**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-16 UPLAND 1**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	7.5YR 2.5/2	100					Loam	
4-9	10YR 2/1	100					Loam	
9-20	10YR 5/2	90	10YR 6/8	10	C	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-16 UPLAND 2
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 6
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66765 | Long: -78.55411 | Datum: wgs84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. This sample point is located north of W-AAL-16.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-16 UPLAND 2**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	35	Yes	FACU
2. *Acer spicatum*	25	Yes	FACU
3. *Prunus serotina*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Prunus serotina*	25	Yes	FACU
2. *Fagus grandifolia*	10	Yes	FACU
3. *Carpinus caroliniana*	10	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	45 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Pteridium aquilinum*	20	Yes	FACU
2. *Fagus grandifolia*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **14%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**10**	x 3 =	**30**
FACU species	**130**	x 4 =	**520**
UPL species	**0**	x 5 =	**0**
Column Totals:	**140** (A)		**550** (B)

Prevalence Index = B/A = **3.93**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-16 UPLAND 2**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	10YR 2/2	60					Loam	
	10YR 2/1	40						
5-20	10YR 5/4	75	10YR 5/8	20	C	M	Clay loam	
			10YR 6/1	5	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-16 UPLAND 3
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 10
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66790 | Long: -78.55689 | Datum:
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No X

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. This point is associated with wetland point W-AAL-16 PFO and is located west of W-AAL-16 near the northwest portion of the wetland.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-16 UPLAND 3**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	40	Yes	FACU
2. *Fagus grandifolia*	10	No	FACU
3. *Acer rubrum*	10	No	FAC
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Prunus serotina*	60	Yes	FACU
2. *Betula alleghaniensis*	10	No	FAC
3. *Carpinus caroliniana*	5	No	FAC
4. *Hamamelis virginiana*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dendrolycopodium obscurum*	20	Yes	FACU
2. *Pteridium aquilinum*	15	Yes	FACU
3. *Diphasiastrum digitatum*	10	Yes	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	45 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**25**	x 3 =	**75**
FACU species	**150**	x 4 =	**600**
UPL species	**10**	x 5 =	**50**
Column Totals:	**185** (A)		**725** (B)

Prevalence Index = B/A = **3.92**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-16 UPLAND 3**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10YR 5/4	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL17 PEM
Investigator(s): Amanda Larsen | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Backslope | Local relief (concave, convex, none): Concave | Slope (%): 4
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66259 | Long: -78.55411 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

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

This sample point is located within PEM wetland W-AAL-17. W-AAL-17 is located north of Wilcox Clemont Road in the southeastern region of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 2
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL17 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Viburnum dentatum*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex stipata*	30	Yes	OBL
2. *Carex trisperma*	30	Yes	OBL
3. *Juncus effusus*	20	No	FACW
4. *Scirpus cyperinus*	15	No	FACW
5. *Mimulus ringens*	10	No	OBL
6. *Vibernum dentatum*	5	No	Bag & Tag
7.			
8.			
9.			
10.			
11.			
12.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**70**	x 1 =	**70**
FACW species	**35**	x 2 =	**70**
FAC species	**5**	x 3 =	**15**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**110** (A)		**155** (B)

Prevalence Index = B/A = **1.41**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL17 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	100					Loam	
2-6	10YR 4/1	80	10YR 5/8	20	C	M	Clay loam	
6-20	2.5Y 6/1	85	10YR 5/8	15	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-17 UPLAND
Investigator(s): Amanda Larsen | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66254 | Long: -78.55382 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) X (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. This point is located east of W-AAL-17 in the southeast reagion of the Project Area north of Wilcox Clemont Road.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): ____
Water Table Present?	Yes ____	No **X**	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** **X**

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-17 UPLAND**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	40	Yes	FACU
2. *Prunus serotina*	20	Yes	FACU
3. *Acer saccharum*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Fagus grandifolia*	25	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	25 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Fagus grandifolia*	5	Yes	FACU
2. *Dryopteris carthusiana*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **20%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**5**	x 3 =	**15**
FACU species	**100**	x 4 =	**400**
UPL species	**0**	x 5 =	**0**
Column Totals:	**105** (A)		**415** (B)

Prevalence Index = B/A = **3.95**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-17 UPLAND**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					Loam	
3-8	10YR 4/3	80	10YR 5/8	20	C	M	Clay loam	
8-15	10YR 5/4	90	5YR 5/6	10	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 15

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

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-18 PEM
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 4
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66192 | Long: -78.55729 | Datum: WGS84
Soil Map Unit Name: HdD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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 X	No _____
Hydric Soil Present?	Yes X	No _____
Wetland Hydrology Present?	Yes X	No _____

Is the Sampled Area within a Wetland? **Yes** X **No** _____

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

This sample point is located within PEM wetland W-AAL-18. W-AAL-18 is located along the southedge of the maintained utility ROW in the easter region of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- X Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 4

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

A positive indication of wetland hydrology was observed (primary and secondary indicators were present).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-18 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dryopteris carthusiana*	50	Yes	FAC
2. *Rubus hispidus*	40	Yes	FACW
3. *Veratrum viride*	30	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	120 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**70**	x 2 =	**140**
FAC species	**50**	x 3 =	**150**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**120** (A)		**290** (B)

Prevalence Index = B/A = **2.42**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-AAL-18 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	70	10YR 4/2	25	D	M	Sandy loam	
			10YR 5/8	5	C	M		
4-12	10YR 6/2	75	10YR 7/1	15	D	M	Sand	
			10YR 6/8	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- **X** Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- **X** Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 12

Hydric Soil Present? **Yes** X **No** ____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-AAL-18 UPLAND
Investigator(s): Amanda Larsen, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 6
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66183 | Long: -78.55721 | Datum: WGS84
Soil Map Unit Name: HdD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Y (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No N

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

This point was determined not to be within a wetland due to the lack of all three wetland criteria. This sample point is located south of W-AAL-18 in an upland forest area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-AAL-18 UPLAND**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	40	Yes	FACU
2. *Fagus grandifolia*	20	Yes	FACU
3. *Prunus serotina*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Fagus grandifolia*	30	Yes	FACU
2. *Acer pensylvanicum*	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dryopteris carthusiana*	40	Yes	FAC
2. *Dennstaedtia punctilobula*	10	No	FACU
3. *Fagus grandifolia*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **20%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**40**	x 3 =	**120**
FACU species	**135**	x 4 =	**540**
UPL species	**0**	x 5 =	**0**
Column Totals:	**175** (A)		**660** (B)

Prevalence Index = B/A = **3.77**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-AAL-18 UPLAND**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-13	10YR 3/4	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 13

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

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/1/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-1 PEM

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 5%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67278 | Long: -78.58257 | Datum: WGS84

Soil Map Unit Name: BxD | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

Is the Sampled Area within a Wetland? **Yes X** **No** ____

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

This sample point is located within PEM wetland W-SRC-1. W-SRC-1 is located in the northwest portion of the Project Area, near stream S-SRC-2 (Fivemile Run).

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** 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)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **3**
Water Table Present?	Yes **X**	No ____	Depth (inches): **8**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No** ____

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-1 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex stricta*	25	Yes	OBL
2. *Carex intumescens*	20	Yes	FACW
3. *Alnus serrulata*	20	Yes	OBL
4. *Rubus hispidus*	20	Yes	FACW
5. *Osmundastrum cinnamomeum*	10	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**45**	x 1 =	**45**
FACW species	**50**	x 2 =	**100**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**95** (A)		**145** (B)

Prevalence Index = B/A = **1.53**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-1 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-5	10YR 5/2	90	10YR 5/4	10	C	M	Silty Clay	
5-12	2.5Y 6/1	80	7.5YR 4/4	20	C	PL	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/1/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-2 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 5%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67291 | Long: -78.58242 | Datum: WGS84
Soil Map Unit Name: BxD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within PEM wetland W-SRC-2. W-SRC-2 is located in the northwest portion of the Project Area, near stream S-SRC-2 (Fivemile Run).

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- **X** 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)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **-**
Water Table Present?	Yes	No **X**	Depth (inches): **-**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-2 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dichanthelium clandestinum*	25	Yes	FAC
2. *Rubus hispidus*	20	Yes	FACW
3. *Alnus serrulata*	15	Yes	OBL
4. *Carex echinata*	10	No	OBL
5. *Carex intumescens*	10	No	FACW
6. *Osmundastrum cinnamomeum*	10	No	FACW
7. *Pteridium aquilinum*	5	No	FACU
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**25**	x 1 =	**25**
FACW species	**40**	x 2 =	**80**
FAC species	**25**	x 3 =	**75**
FACU species	**5**	x 4 =	**20**
UPL species	**0**	x 5 =	**0**
Column Totals:	**95** (A)		**200** (B)

Prevalence Index = B/A = **2.11**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-2 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-5	2.5Y 5/1	100					Clay Loam	
5-12	2.5Y 6/1	75	10YR 5/6	25	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/1/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-1/2 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Convex | Slope (%): 5%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67288 | Long: -78.58250 | Datum: WGS84

Soil Map Unit Name: BxD | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	
Hydric Soil Present?	Yes ____	No **X**	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Wetland Hydrology Present?	Yes ____	No **X**	

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

This sample point is located between wetlands W-SRC-1 and W-SRC-2.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-1/2 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Pteridium aquilinum*	20	Yes	FACU
2. *Rubus hispidus*	10	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**10**	x 2 =	**20**
FAC species	**0**	x 3 =	**0**
FACU species	**20**	x 4 =	**80**
UPL species	**0**	x 5 =	**0**
Column Totals:	**30** (A)		**100** (B)

Prevalence Index = B/A = **3.33**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-1/2 Upland**

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[1]	Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-12	10YR 5/5						Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/1/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-3 PFO

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 5%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.58170 | Long: 41.67336 | Datum: WGS84

Soil Map Unit Name: BxD | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

Is the Sampled Area within a Wetland? **Yes X** **No** ____

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

This sample point is located within PFO wetland W-SRC-3. W-SRC-3 is located in the northwest portion of the Project Area, near stream S-SRC-2 (Fivemile Run).

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No **X**	Depth (inches): **-**
Water Table Present?	Yes ____	No **X**	Depth (inches): **-**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No** ____

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-3 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	55	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex intumescens*	40	Yes	FACW
2. *Osmundastrum cinnamomeum*	20	Yes	FACW
3. *Alnus serrulata*	10	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**10**	x 1 =	**10**
FACW species	**60**	x 2 =	**120**
FAC species	**55**	x 3 =	**165**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**125** (A)		**295** (B)

Prevalence Index = B/A = **2.36**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-3 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-5	10YR 3/2	100					Sandy Loam	
5-10	2.5Y 5/2	90	10YR 4/5	10	C	M	Sandy Clay	Refusal at 10"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 10

Hydric Soil Present? Yes X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/1/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-3 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Convex | Slope (%): 5%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.57340 | Long: -78.58166 | Datum: WGS84

Soil Map Unit Name: BxD | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

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

This sample point is located northeast of wetland W-SRC-3.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-3 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Smilax glauca*	25	Yes	FACU
2. *Dendrolycopodium obscurum*	20	Yes	FACU
3. *Alnus incana*	5	No	FACU
4. *Osmundastrum cinnamomeum*	5	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**5**	x 2 =	**10**
FAC species	**0**	x 3 =	**0**
FACU species	**50**	x 4 =	**200**
UPL species	**0**	x 5 =	**0**
Column Totals:	**55** (A)		**210** (B)

Prevalence Index = B/A = **3.82**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-3 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2								Refusal at 2"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Tree roots

Depth (inches): 2

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

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/1/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-4 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67151 | Long: -78.58002 | Datum: WGS84
Soil Map Unit Name: HeF | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within PFO wetland W-SRC-4. W-SRC-4 is located on an old logging access road on a hillslope in the northwest portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- ____ High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes	No **X**	Depth (inches): **-**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-4 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	60	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex stipata*	40	Yes	OBL
2. *Juncus effusus*	30	Yes	FACW
3. *Ranunculus sp.*	Noted	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**40**	x 1 =	**40**
FACW species	**30**	x 2 =	**60**
FAC species	**60**	x 3 =	**180**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**130** (A)		**280** (B)

Prevalence Index = B/A = **2.15**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-4 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-7	2.5Y 4/1	90	10YR 5/6	10			Clay Loam	
7-11	2.5Y 5/2	80	10YR 5/8	20	C	M	Sandy Clay	Refusal at 11"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 11

Hydric Soil Present? Yes X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/1/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-4 Upland
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67154 | Long: -78.57997 | Datum: WGS84
Soil Map Unit Name: HeF | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes	No **X**

Is the Sampled Area within a Wetland? **Yes** **No X**

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

This sample point is located northeast of wetland W-SRC-4.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- 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)
- Sparsely Vegetated Concave Surface (B8)
- 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 **X**	Depth (inches): -
Water Table Present?	Yes	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** **No X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-4 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	20	Yes	FACU
2. *Betula lenta*	15	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	35 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dennstaedtia punctilobula*	30	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**65**	x 4 =	**260**
UPL species	**0**	x 5 =	**0**
Column Totals:	**65** (A)		**260** (B)

Prevalence Index = B/A = **4.00**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-4 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3								Refusal at 3"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Tree roots
Depth (inches): 3

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/1/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-5 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66903 | Long: -78.58023 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

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

This sample point is located within PFO wetland W-SRC-5. W-SRC-5 is located in a foreested swale in the northwest portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** 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)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- **X** Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **4**
Water Table Present?	Yes **X**	No	Depth (inches): **10**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-5 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	20	Yes	FAC
2. *Acer saccharinum*	10	Yes	FACW
3. *Betula lenta*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
	35 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula lenta*	15	Yes	FACU
2. *Betula alleghaniensis*	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	30 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dichanthelium clandestinum*	40	Yes	FAC
2. *Leersia oryzoides*	20	Yes	OBL
3. *Carex stipata*	10	No	OBL
4. *Osmundastrum cinnamomeum*	5	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**15**	x 2 =	**30**
FAC species	**75**	x 3 =	**225**
FACU species	**20**	x 4 =	**80**
UPL species	**0**	x 5 =	**0**
Column Totals:	**140** (A)		**365** (B)

Prevalence Index = B/A = **2.61**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-5 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-6	7.5YR 5/1	95	2.5YR 3/4	5	C	PL	Clay	
7-11	5YR 5/1	80	5YR 3/4	20	C	PL	Clay	Refusal at 11"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 11

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/1/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-5 Upland
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66909 | Long: -78.58025 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	**Is the Sampled Area within a Wetland?** Yes	No **X**
Hydric Soil Present?	Yes **X**	No	
Wetland Hydrology Present?	Yes	No **X**	

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

This sample point is located north of wetland W-SRC-5.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes | No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-5 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Rubus idaeus*	40	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	40 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dennstaedtia punctilobula*	30	Yes	FACU
2. *Rubus hispidus*	30	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**30**	x 2 =	**60**
FAC species	**40**	x 3 =	**120**
FACU species	**30**	x 4 =	**120**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**300** (B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-5 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	10YR 3/2	90	7.5YR 4/6	10	C	M	Silt Loam	
4-12	10YR 3/1	75	7.5YR 3/4	25	C	PL	Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/1/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-6 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66914 | Long: -78.57897 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____	**Is the Sampled Area within a Wetland?** Yes **X** No ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

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

This sample point is located within PFO wetland W-SRC-6. W-SRC-6 is located in a foreested depression in the northwest portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **4**
Water Table Present?	Yes **X**	No ____	Depth (inches): **2**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No ____

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-6 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	80	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Glyceria striata*	70	Yes	OBL
2. *Rubus hispidus*	20	Yes	FACW
3. *Osmundastrum cinnamomeum*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**70**	x 1 =	**70**
FACW species	**30**	x 2 =	**60**
FAC species	**80**	x 3 =	**240**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**180** (A)		**370** (B)

Prevalence Index = B/A = **2.06**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-6 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-5	10YR 6/2	90	10YR 4/6	10	C	M	Clay Loam	
5-12	2.5Y 6/2	80	10YR 4/6	20	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
__X__ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/1/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-7 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66856 | Long: -78.57904 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

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

This sample point is located within PFO wetland W-SRC-7. W-SRC-7 is located in a foreested depression in the northwest portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes **X**	No	Depth (inches): **8**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-7 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	40	Yes	FACW
2. *Betula alleghaniensis*	30	Yes	FAC
3. *Betula lenta*	15	No	FACU
4.			
5.			
6.			
7.			
8.			
	85 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	20	Yes	FACW
2. *Carex spicata*	5	No	FAC
3. *Glyceria striata*	5	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**5**	x 1 =	**5**
FACW species	**60**	x 2 =	**120**
FAC species	**35**	x 3 =	**105**
FACU species	**15**	x 4 =	**60**
UPL species	**0**	x 5 =	**0**
Column Totals:	**115** (A)		**290** (B)

Prevalence Index = B/A = **2.52**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-7 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-6	10YR 4/2	80	7.5YR 4/6	20	C	M	Clay Loam	
6-12	2.5YR 4/2	60	10YR 4/6	25	C	M	Clay Loam	
			5YR 3/4	15	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/1/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-8 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66779 | Long: -78.57929 | Datum: WGS84
Soil Map Unit Name: HdD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within PFO wetland W-SRC-8. W-SRC-8 is located in a forested swale in the northwest portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- **X** Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **4**
Water Table Present?	Yes **X**	No	Depth (inches): **4**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-8 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	40	Yes	FAC
2. *Betula lenta*	30	Yes	FACU
3. *Prunus serotina*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Glyceria striata*	10	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**10**	x 1 =	**10**
FACW species	**0**	x 2 =	**0**
FAC species	**40**	x 3 =	**120**
FACU species	**40**	x 4 =	**160**
UPL species	**0**	x 5 =	**0**
Column Totals:	**90** (A)		**290** (B)

Prevalence Index = B/A = **3.22**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-8 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-6	7.5YR 4/2	75	7.5YR 4/6	25	C	M	Clay Loam	
6-12	10YR 5/2	70	7.5YR 4/6	30	C	M	Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/1/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-6/7/8 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 6%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66782 | Long: -78.57930 | Datum: WGS84

Soil Map Unit Name: HdD | NWI Classification: None

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes	No **X**

Is the Sampled Area within a Wetland? **Yes** **No X**

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

This sample point is located between wetlands W-SRC-7 and W-SRC-8.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- 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)
- Sparsely Vegetated Concave Surface (B8)
- 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 **X**	Depth (inches): -
Water Table Present?	Yes	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** **No X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-6/7/8 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula lenta*	50	Yes	FACU
2. *Acer saccharum*	20	Yes	FACU
3. *Tsuga canadensis*	20	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dennstaedtia punctilobula*	25	Yes	FACU
2. *Glyceria striata*	5	No	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**5**	x 1 =	**5**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**115**	x 4 =	**460**
UPL species	**0**	x 5 =	**0**
Column Totals:	**120** (A)		**465** (B)

Prevalence Index = B/A = **3.88**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-6/7/8 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-8	10YR 5/4	80	5YR 4/6	20	C	PL	Silt Loam	
8-10	10YR 5/3	90	7.5YR 5/8	10	C	M	Silty Clay	Refusal at 10"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Tree roots

Depth (inches): 10

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

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-9 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 5%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67240 | Long: -78.57496 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within PEM wetland W-SRC-9. W-SRC-9 is located along an old access road in the northwest portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- **X** Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes **X**	No	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-9 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Juncus effusus*	30	Yes	FACW
2. *Juncus tenuis*	30	Yes	FAC
3. *Mentha sp.*	10	No	FAC
4. *Osmundastrum cinnamomeum*	5	No	FACW
5. *Carex spicata*	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**35**	x 2 =	**70**
FAC species	**45**	x 3 =	**135**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**80** (A)		**205** (B)

Prevalence Index = B/A = **2.56**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-9 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	2.5Y 6/2	95	10YR 5/6	5	C	PL	Clay	
4-8	2.5Y 6/1	85	10YR 6/4	15	C	M	Clay	Refusal at 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Compaction/Clay
Depth (inches): 8

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

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-9 Upland
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Convex | Slope (%): 5%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67242 | Long: -78.57500 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____	
Hydric Soil Present?	Yes ____	No **X**	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Wetland Hydrology Present?	Yes ____	No **X**	

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

This sample point is located northwest of wetlnad W-SRC-9.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-9 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	60	Yes	FACW
2. *Dennstaedtia punctilobula*	10	No	FACU
3. *Dichanthelium clandestinum*	10	No	FAC
4. *Carex species**	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**60**	x 2 =	**120**
FAC species	**15**	x 3 =	**45**
FACU species	**10**	x 4 =	**40**
UPL species	**0**	x 5 =	**0**
Column Totals:	**85** (A)		**205** (B)

Prevalence Index = B/A = **2.41**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

*Unable to identify species due to the absence of distinguishing characteristics. However, due to the associated vegetative community, this species is assumed FAC.

SOIL

Sampling Point: **W-SRC-9 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-2	2.5Y 5/1	80	10YR 4/6	20	C	PL		
2-5	10YR 6/6	90	10YR 6/1	10	D	PL		Refusal at 5"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Clay/Compaction

Depth (inches): 5

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

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-10 PEM

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 5%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66840 | Long: -78.57601 | Datum: WGS84

Soil Map Unit Name: HdB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____	**Is the Sampled Area within a Wetland?** Yes **X** No ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

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

This sample point is located within PEM wetland W-SRC-10. W-SRC-10 is located along a pipeline ROW in the northwest portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** 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)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- **X** 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **6**
Water Table Present?	Yes **X**	No ____	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No ____

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-10 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Juncus tenuis*	50	Yes	FAC
2. *Rubus hispidus*	20	Yes	FACW
3. *Solidago rugosa*	10	No	FAC
4. *Juncus effusus*	5	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**25**	x 2 =	**50**
FAC species	**60**	x 3 =	**180**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**85** (A)		**230** (B)

Prevalence Index = B/A = **2.71**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-10 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
								Refusal at 2"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock/Compaction
Depth (inches): 2

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

Based on the presence of wetland hydrology and hydrophytic vegetation, hydric soils are assumed to be present.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-10 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Convex | Slope (%): 5%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66840 | Long: -78.57596 | Datum: WGS84

Soil Map Unit Name: HdB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____	
Hydric Soil Present?	Yes ____	No **X**	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Wetland Hydrology Present?	Yes ____	No **X**	

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

This sample point is located east of wetland W-SRC-10.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-10 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	60	Yes	FACW
2. *Potentilla reptans*	10	No	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**60**	x 2 =	**120**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**10**	x 5 =	**50**
Column Totals:	**70** (A)		**170** (B)

Prevalence Index = B/A = **2.43**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-10 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
								Refusal at 2"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock/ROW Compaction
Depth (inches): 2

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-11 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 5%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66989 | Long: -78.57429 | Datum: WGS84
Soil Map Unit Name: HdB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

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

This sample point is located within PFO wetland W-SRC-11. W-SRC-11 is located in a forested area in the northwest portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- **X** Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes **X**	No	Depth (inches): **8**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-11 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*		#DIV/0!	FAC
2. *Acer saccharinum*		#DIV/0!	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	25	Yes	FACW
2. *Poa palustris*	15	Yes	FACW
3. *Juncus effusus*	5	No	FACW
4. *Osmundastrum cinnamomeum*	5	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**50**	x 2 =	**100**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**50** (A)		**100** (B)

Prevalence Index = B/A = **2.00**

Hydrophytic Vegetation Indicators:

- **X** 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-11 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4							Organic	Organic Layer
4-6	2.5Y 4/2	80	7.5YR 3/4	20	C	M	Clay	
6-11	2.5Y 7/1	60	7.5YR 5/8	40	C	M	Clay	Refusal at 11"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Clay

Depth (inches): 11

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-11 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Convex | Slope (%): 5%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66993 | Long: -78.57430 | Datum: WGS84

Soil Map Unit Name: HdB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____	
Hydric Soil Present?	Yes ____	No **X**	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Wetland Hydrology Present?	Yes ____	No **X**	

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

This sample point is located north of wetland W-SRC-11.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-11 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	30	Yes	FACW
2. *Dennstaedtia punctilobula*	20	Yes	FACU
3. *Carex species**	10	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**30**	x 2 =	**60**
FAC species	**10**	x 3 =	**30**
FACU species	**20**	x 4 =	**80**
UPL species	**0**	x 5 =	**0**
Column Totals:	**60** (A)		**170** (B)

Prevalence Index = B/A = **2.83**

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

X 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

*Unable to identify species due to the absence of distinguishing characteristics. This species is assumed FAC.

SOIL

Sampling Point: **W-SRC-11 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-6	2.5Y 5/4	80	7.5YR 4/4	20	C	M	Clay	
6-11	2.5Y 6/1	85	7.5YR 5/8	15	C	M	Clay	Refusal at 11"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Clay

Depth (inches): 11

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

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-12 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 4%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67117 | Long: -78.57357 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within PFO wetland W-SRC-12. W-SRC-12 is located in a forested area between streams S-SRC-5 and S-SRC-6 in the northwest portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- **X** Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- **X** Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **4**
Water Table Present?	Yes **X**	No	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-12 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	30	Yes	FAC
2. *Acer saccharinum*	30	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	25	Yes	FAC
2. *Dichanthelium clandestinum*	25	Yes	FAC
3. *Veratrum viride*	20	Yes	FACW
4. *Rubus hispidus*	20	Yes	FACW
5. *Juncus effusus*	5	No	FACW
6. *Carex intumescens*	5	No	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **6** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**80**	x 2 =	**160**
FAC species	**80**	x 3 =	**240**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**160** (A)		**400** (B)

Prevalence Index = B/A = **2.50**

Hydrophytic Vegetation Indicators:

- **X** 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-12 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4							Organic	Organic Layer
4-6	10YR 6/1	70	5YR 4/4	30	C	M	Clay	
6-12	7.5YR 6/2	60	5YR 6/8	40	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-11 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Convex | Slope (%): 5%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67125 | Long: -78.57390 | Datum: WGS84

Soil Map Unit Name: CpB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

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

This sample point is located northwest of wetland W-SRC-12.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-11 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	30	Yes	FACU
2. *Betula lenta*	20	Yes	FACU
3. *Betula alleghaniensis*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**5**	x 3 =	**15**
FACU species	**50**	x 4 =	**200**
UPL species	**0**	x 5 =	**0**
Column Totals:	**55** (A)		**215** (B)

Prevalence Index = B/A = **3.91**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-11 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-3	10YR 4/2	100					Silty Clay	
3-6	10YR 5/3	70	7.5YR 4/4	30	C	M	Silty Clay Loam	Refusal at 6"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Roots

Depth (inches): 6

Hydric Soil Present? Yes ____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-13 PEM

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 6%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67367 | Long: -78.56977 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____	**Is the Sampled Area within a Wetland?** Yes **X** No ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

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

This sample point is located within PEM wetland W-SRC-13. W-SRC-13 is located in a clear cut area along the northern boundary of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No **X**	Depth (inches): **-**
Water Table Present?	Yes **X**	No ____	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **4**

Wetland Hydrology Present? Yes **X** No ____

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-13 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Scirpus cyperinus*	40	Yes	FACW
2. *Rubus hispidus*	30	Yes	FACW
3. *Carex echinata*	20	Yes	OBL
4. *Alnus serrulata*	10	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**70**	x 2 =	**140**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**170** (B)

Prevalence Index = B/A = **1.70**

Hydrophytic Vegetation Indicators:

- **X** 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-13 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-6	2.5Y 3/3	90	5YR 3/4	10	C	M	Silt Loam	
6-10	2.5Y 6/1	85	5YR 4/3	15	C	PL	Clay Loam	Refusal at 10"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Clay
Depth (inches): 10

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-13 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 7%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67359 | Long: -78.56978 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

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

This sample point is located south of wetland W-SRC-13.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-13 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus allegheniensis*	35	Yes	FACU
2. *Rubus hispidus*	25	Yes	FACW
3. *Dennstaedtia punctilobula*	20	Yes	FACU
4. *Acer saccharum*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **33%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**25**	x 2 =	**50**
FAC species	**0**	x 3 =	**0**
FACU species	**60**	x 4 =	**240**
UPL species	**0**	x 5 =	**0**
Column Totals:	**85** (A)		**290** (B)

Prevalence Index = B/A = **3.41**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-13 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-6	10YR 3/2	100					Silt Loam	
6-12	2.5Y 5/4	100					Silt Loam	Refusal at 12"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Tree roots

Depth (inches): 12

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

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-14 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 5%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67315 | Long: -78.56689 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within PFO wetland W-SRC-14. W-SRC-14 is located in a forested near the norther boundary of the Project Area. Wetland W-WH-1 and wetland W-WH-2 became extensions of this single, forested wetland complex.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- **X** Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **6**
Water Table Present?	Yes **X**	No	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-14 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula lenta*	30	Yes	FACU
2. *Betula alleghaniensis*	25	Yes	FAC
3. *Tsuga canadensis*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex crinita*	20	Yes	OBL
2. *Viola cuculata*	20	Yes	FACW
3. *Veratrum viride*	10	No	FACW
4. *Athyrium angustum*	10	No	FAC
5. *Osmundastrum cinnamomeum*	10	No	FACW
6. *Onoclea sensibilis*	5	No	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**20**	x 1 =	**20**
FACW species	**45**	x 2 =	**90**
FAC species	**35**	x 3 =	**105**
FACU species	**35**	x 4 =	**140**
UPL species	**0**	x 5 =	**0**
Column Totals:	**135** (A)		**355** (B)

Prevalence Index = B/A = **2.63**

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met. Eastern hemlock, included within the identified wetland boundary, is considered a problematic species.

SOIL

Sampling Point: **W-SRC-14 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4							Organic	Organic Layer
4-6	2.5Y 3/1	100					Silty sand	
6-12	10YR 4/1	100					Silty sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
__X__ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-14 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Berm | Local relief (concave, convex, none): Convex | Slope (%): 6%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67305 | Long: -78.56665 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	
Hydric Soil Present?	Yes ____	No **X**	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Wetland Hydrology Present?	Yes ____	No **X**	

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

This sample point is located in an "upland peninsula" of wetland W-SRC-14.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-14 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula lenta*	60	Yes	FACU
2. *Tsuga canadensis*	10	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Trillium species**	10	Yes	FACU
2. *Athyrium angustum*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **33%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**10**	x 3 =	**30**
FACU species	**80**	x 4 =	**320**
UPL species	**0**	x 5 =	**0**
Column Totals:	**90** (A)		**350** (B)

Prevalence Index = B/A = **3.89**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

*Unable to identify species due to the absence of distinguishing characteristics. However, due to the associated vegetative community and the absence of wetland hydrology and/or hydric soils, this species is assumed FACU.

SOIL

Sampling Point: **W-SRC-14 Upland**

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[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-6	10YR 4/2	100					Loamy Sand	Refusal at 6"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Tree roots
Depth (inches): 6

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

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-15 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67389 | Long: -78.56788 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

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

This sample point is located within PEM wetland W-SRC-15. W-SRC-15 is located in a swale associatd with stream S-SRC-7 in a clear cut area along the northern boundary of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- ____ High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes	No **X**	Depth (inches): **-**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **4**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-15 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex stricta*	35	Yes	OBL
2. *Rubus hispidus*	30	Yes	FACW
3. *Athyrium angustum*	20	Yes	FAC
4. *Osmunda claytoniana*	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**35**	x 1 =	**35**
FACW species	**30**	x 2 =	**60**
FAC species	**25**	x 3 =	**75**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**90** (A)		**170** (B)

Prevalence Index = B/A = **1.89**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-15 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-5	2.5Y 4/2	100					Sandy Loam	
5-12	2.5Y 6/3	80	7.5YR 4/4	20	C	PL	Loamy Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
__X__ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-16 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 4%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67365 | Long: -78.56750 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within PEM wetland W-SRC-16. W-SRC-16 is located on an old logging trail in a clear cut area near the northern boundary of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** 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)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes **X**	No	Depth (inches): **5**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-16 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex stricta*	30	Yes	OBL
2. *Rubus hispidus*	20	Yes	FACW
3. *Juncus effusus*	20	Yes	FACW
4. *Athyrium angustum*	10	No	FAC
5. *Osmunda claytoniana*	10	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**40**	x 2 =	**80**
FAC species	**20**	x 3 =	**60**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**90** (A)		**170** (B)

Prevalence Index = B/A = **1.89**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-16 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	2.5Y 4/2	90	7.5YR 3/3	10	C	PL	Sandy Loam	
4-12	2.5Y 4/1	80	7.5YR 3/4	20	C	PL	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/2/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-15/16 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Convex | Slope (%): 6%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.67377 | Long: -78.56758 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

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

This sample point is located between wetlands W-SRC-15 and W-SRC-16.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** ____ **No** **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-15/16 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula lenta*	75	Yes	FACU
2. *Acer saccharum*	10	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	85 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**85**	x 4 =	**340**
UPL species	**0**	x 5 =	**0**
Column Totals:	**85** (A)		**340** (B)

Prevalence Index = B/A = **4.00**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-15/16 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
								Refusal at 2"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Tree roots
Depth (inches): 2

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-17 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hilltop | Local relief (concave, convex, none): Concave | Slope (%): 4%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66983 | Long: -78.57095 | Datum: WGS84
Soil Map Unit Name: BsB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within the PEM portion of wetland W-SRC-17. W-SRC-17 is a PEM/PFO complex along a pipeline ROW between streams S-SRC-8 and S-SRC-10.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- **X** 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes **X**	No	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-17 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex crinita*	30	Yes	OBL
2. *Rubus hispidus*	20	Yes	FACW
3. *Juncus effusus*	15	No	FACW
4. *Osmundastrum cinnamomeum*	10	No	FACW
5. *Solidago gigantea*	10	No	FACW
6. *Juncus tenuis*	5	No	FAC
7. *Dichanthelium clandestinum*	5	No	FAC
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**55**	x 2 =	**110**
FAC species	**10**	x 3 =	**30**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**95** (A)		**170** (B)

Prevalence Index = B/A = **1.79**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-17 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-5	10YR 5/2	90	7.5YR 5/6	10	C	PL	Silty Clay	
5-8	10YR 5/1	80	7.5YR 4/4	20	C	PL	Sandy Clay	Refusal at 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 8

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-17 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hilltop | Local relief (concave, convex, none): Concave | Slope (%): 4%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66945 | Long: -78.57140 | Datum: WGS84
Soil Map Unit Name: BsB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

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

This sample point is located within the PFO portion of wetland W-SRC-17. W-SRC-17 is a PEM/PFO complex along a pipeline ROW between streams S-SRC-8 and S-SRC-10.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- **X** Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes **X**	No	Depth (inches): **5**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-17 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Ulmus americana*	60	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	15	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**60**	x 2 =	**120**
FAC species	**15**	x 3 =	**45**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**75** (A)		**165** (B)

Prevalence Index = B/A = **2.20**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-17 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	2.5Y 2/2	90	7.5YR 4/4	10	C	PL	Silty Clay	
4-6	10YR 4/2	80	5YR 3/6	20	C	PL	Silty Clay	Refusal at 6"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Tree roots
Depth (inches): 6

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

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-18 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 4%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66925 | Long: -78.57282 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within the PEM portion of wetland W-SRC-18. W-SRC-18 is a PEM/PFO complex along a pipeline ROW between streams S-SRC-5 and S-SRC-9.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes **X**	No	Depth (inches): **2**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-18 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex crinita*	20	Yes	OBL
2. *Juncus effusus*	20	Yes	FACW
3. *Solidago gigantea*	15	Yes	FACW
4. *Dichanthelium clandestinum*	15	Yes	FAC
5. *Rubus hispidus*	10	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**20**	x 1 =	**20**
FACW species	**45**	x 2 =	**90**
FAC species	**15**	x 3 =	**45**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**80** (A)		**155** (B)

Prevalence Index = B/A = **1.94**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-18 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-7	10YR 4/1	90	10YR 4/6	10	C	PL	Clay	
7-11	2.5Y 4/2	90	10YR 4/6	10	C	M	Sandy Clay	Refusal at 11"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 11

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-18 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 4%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66912 | Long: -78.57280 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

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

This sample point is located within the PFO portion of wetland W-SRC-18. W-SRC-18 is a PEM/PFO complex along a pipeline ROW between streams S-SRC-5 and S-SRC-9.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** 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)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes **X**	No	Depth (inches): **2**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-18 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Ulmus rubra*	50	Yes	FAC
2. *Betula nigra*	40	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex crinita*	30	Yes	OBL
2. *Athyrium angustum*	10	Yes	FAC
3. *Osmundastrum cinnamomeum*	10	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**50**	x 2 =	**100**
FAC species	**60**	x 3 =	**180**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**140** (A)		**310** (B)

Prevalence Index = B/A = **2.21**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-18 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	10YR 5/1	100					Sandy Clay Loam	
4-10	2.5Y 7/1	70	5YR 5/6	30	C	M	Sandy Clay	Refusal at 10"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Tree roots
Depth (inches): 10

Hydric Soil Present? Yes X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-17/18 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hilltop | Local relief (concave, convex, none): None | Slope (%): 6%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66978 | Long: -78.57092 | Datum: WGS84

Soil Map Unit Name: BsB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

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

This sample point is located in a forested area south of wetland W-SRC-17.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-17/18 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula lenta*	80	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Betula lenta*	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**100**	x 4 =	**400**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**400** (B)

Prevalence Index = B/A = **4.00**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-17/18 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
								Refusal at 2"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock and tree roots
Depth (inches): 2

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-19 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66854 | Long: -78.57049 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

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

This sample point is located within PFO wetland W-SRC-19. W-SRC-19 is located on a forested hillsope in the north-central portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- **X** Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- **X** Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- **X** Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **6**
Water Table Present?	Yes **X**	No	Depth (inches): **4**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

The hydrology criterion has been met.

Historic logging practices have altered hydrology.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-19 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Tsuga canadensis*	30	Yes	FACU
2. *Ulmus rubra*	20	Yes	FAC
3. *Betula nigra*	20	Yes	FACW
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**20**	x 2 =	**40**
FAC species	**30**	x 3 =	**90**
FACU species	**30**	x 4 =	**120**
UPL species	**0**	x 5 =	**0**
Column Totals:	**80** (A)		**250** (B)

Prevalence Index = B/A = **3.13**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-19 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4							Organic	Organic Layer
4-6	7.5YR 2.5/1	100					Silt Loam	
6-11	2.5Y 4/2	85	10YR 5/6	15	C	PL	Clay Loam	Refusal at 11"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Tree roots

Depth (inches): 11

Hydric Soil Present? **Yes** X **No** ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/3/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-19 Upland
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66840 | Long: -78.57111 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes	No **X**

Is the Sampled Area within a Wetland? **Yes** **No X**

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

This sample point is located in a forested area west of wetland W-SRC-19.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- 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)
- Sparsely Vegetated Concave Surface (B8)
- 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 **X**	Depth (inches): -
Water Table Present?	Yes	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** **No X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-19 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula lenta*	50	Yes	FACU
2. *Betula alleghaniensis*	30	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**30**	x 3 =	**90**
FACU species	**50**	x 4 =	**200**
UPL species	**0**	x 5 =	**0**
Column Totals:	**80** (A)		**290** (B)

Prevalence Index = B/A = **3.63**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-19 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4							Organic	Organic Layer
4-7	10YR 4/3	95	7.5YR 3/4	5	C	M	Clay Loam	Refusal at 7"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Tree roots
Depth (inches): 7

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

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-20 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66896 | Long: -78.57364 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within the PEM portion of wetland W-SRC-20. W-SRC-20 is a PEM/PFO complex along a pipeline ROW near stream S-SRC-5.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes **X**	No	Depth (inches): **6**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-20 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex crinita*	30	Yes	OBL
2. *Rubus hispidus*	30	Yes	FACW
3. *Athyrium angustum*	30	Yes	FAC
4. *Vernonia noveboracensis*	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**40**	x 2 =	**80**
FAC species	**30**	x 3 =	**90**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**200** (B)

Prevalence Index = B/A = **2.00**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-20 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	2.5Y 4/2	100					Clay	
4-6	2.5Y 4/1	80	7.5YR 4/6	20	C	M	Clay	Refusal at 6"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock/Clay
Depth (inches): 6

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-20 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66886 | Long: -78.57338 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

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

This sample point is located within the PFO portion of wetland W-SRC-20. W-SRC-20 is a PEM/PFO complex along a pipeline ROW near stream S-SRC-5.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes **X**	No	Depth (inches): **6**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-20 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	60	Yes	FAC
2. *Acer saccharinum*	40	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**40**	x 2 =	**80**
FAC species	**60**	x 3 =	**180**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**260** (B)

Prevalence Index = B/A = **2.60**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-20 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	2.5Y 3/2	100					Silt Loam	
4-6	2.5Y 5/2	60	5YR 5/8	25	C	M	Silty Clay Loam	Refusal at 6"
			7.5YR 6/8	15	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock/Clay
Depth (inches): 6

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-20 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 6%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66882 | Long: -78.57357 | Datum: WGS84

Soil Map Unit Name: CpB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

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

This sample point is located in a forested area southwest of wetland W-SRC-20.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** ____ **No** **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-20 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula lenta*	40	Yes	FACU
2. *Betula alleghaniensis*	30	Yes	FAC
3. *Ulmus rubra*	10	No	FAC
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**40**	x 3 =	**120**
FACU species	**40**	x 4 =	**160**
UPL species	**0**	x 5 =	**0**
Column Totals:	**80** (A)		**280** (B)

Prevalence Index = B/A = **3.50**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-20 Upland**

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[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-3	10YR 4/2	100					Clay Loam	Refusal at 3"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock/Clay
Depth (inches): 3

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-21 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave | Slope (%): 3%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66769 | Long: -78.57391 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within the PEM portion of wetland W-SRC-21. W-SRC-21 is a PEM/PSS complex near stream S-SRC-5 in the western portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- **X** Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- **X** Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes **X**	No	Depth (inches): **3**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-21 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	40	Yes	FACW
2. *Carex crinita*	30	Yes	OBL
3. *Juncus effusus*	25	Yes	FACW
4. *Carex spicata*	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**65**	x 2 =	**130**
FAC species	**5**	x 3 =	**15**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**175** (B)

Prevalence Index = B/A = **1.75**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-21 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	10YR 4/2	80	5YR 3/4	20	C	M	Clay Loam	
4-5	10YR 4/1	70	5YR 3/4	30	C	M	Clay Loam	Refusal at 5"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock/Clay
Depth (inches): 5

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-21 PSS
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave | Slope (%): 3%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66789 | Long: -78.57379 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within the PSS portion of wetland W-SRC-21. W-SRC-21 is a PEM/PSS complex near stream S-SRC-5 in the western portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- **X** Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- **X** Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes **X**	No	Depth (inches): **3**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-21 PSS**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniensis*	80	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	40	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**120**	x 3 =	**360**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**120** (A)		**360** (B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-21 PSS**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	2.5Y 3/1	100					Silt Loam	
4-11	2.5Y 3/2	90	7.5YR 5/8	10	C	M	Clay	Refusal at 11"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock/Clay
Depth (inches): 11

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

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-21 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 6%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66752 | Long: -78.57416 | Datum: WGS84

Soil Map Unit Name: CpB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____	
Hydric Soil Present?	Yes ____	No **X**	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Wetland Hydrology Present?	Yes ____	No **X**	

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

This sample point is located in a forested area southwest of wetland W-SRC-21.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-21 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula lenta*	40	Yes	FACU
2. *Betula alleghaniensis*	35	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**40**	x 3 =	**120**
FACU species	**40**	x 4 =	**160**
UPL species	**0**	x 5 =	**0**
Column Totals:	**80** (A)		**280** (B)

Prevalence Index = B/A = **3.50**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-21 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-5	7.5YR 3/3	100					Silt Loam	
5-10	10YR 4/3	90	7.5YR 4/6	10	C	PL	Silty Clay Loam	Refusal at 10"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock/Clay

Depth (inches): 10

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

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-22 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 3%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66589 | Long: -78.57221 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within PFO wetland W-SRC-22. W-SRC-22 is located along an old logging road in the western portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- Water Marks (B1)
- **X** Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- **X** Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes **X**	No	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-22 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	85	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	85 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**95**	x 3 =	**285**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**95** (A)		**285** (B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-22 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-6	2.5Y 4/3	100					Silt Loam	
6-8	10YR 4/1	90	7.5YR 5/8	10	C	M	Silty Clay	Refusal at 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock/Clay/Compaction
Depth (inches): 8

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

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-22 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 6%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66590 | Long: -78.57214 | Datum: WGS84

Soil Map Unit Name: CpB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

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

This sample point is located in a forested area east of wetland W-SRC-22.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** ____ **No** **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-22 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	70	Yes	FAC
2. *Betula lenta*	10	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**80**	x 3 =	**240**
FACU species	**10**	x 4 =	**40**
UPL species	**0**	x 5 =	**0**
Column Totals:	**90** (A)		**280** (B)

Prevalence Index = B/A = **3.11**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-22 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
								Refusal at 2"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Tree roots
Depth (inches): 2

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-23 PSS
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 4%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66445 | Long: -78.57670 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within PSS wetland W-SRC-23. W-SRC-23 is located in the western portion of the Project Area at the start of stream S-SRC-12.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **4**
Water Table Present?	Yes **X**	No	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-23 PSS**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Acer rubrum*	35	Yes	FAC
2. *Betula alleghaniensis*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	45 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	60	Yes	FACW
2. *Juncus tenuis*	20	Yes	FAC
3. *Carex intumescens*	10	No	FACW
4. *Osmundastrum cinnamomeum*	5	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**75**	x 2 =	**150**
FAC species	**65**	x 3 =	**195**
FACU species	**10**	x 4 =	**40**
UPL species	**0**	x 5 =	**0**
Column Totals:	**150** (A)		**385** (B)

Prevalence Index = B/A = **2.57**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-23 PSS**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-6	2.5Y 2/1	95	2.5YR 4/3	5	C	M	Silt Loam	
6-12	10YR 5/2	90	7.5YR 5/4	10	C	M	Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-23 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Convex | Slope (%): 5%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66439 | Long: -78.57662 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____	
Hydric Soil Present?	Yes ____	No **X**	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Wetland Hydrology Present?	Yes ____	No **X**	

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

This sample point is located in a forested area east of wetland W-SRC-23.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-23 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	40	Yes	FACU
2. *Betula alleghaniensis*	20	Yes	FAC
3. *Betula lenta*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	20	Yes	FACW
2. *Athyrium angustum*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**20**	x 2 =	**40**
FAC species	**30**	x 3 =	**90**
FACU species	**45**	x 4 =	**180**
UPL species	**0**	x 5 =	**0**
Column Totals:	**95** (A)		**310** (B)

Prevalence Index = B/A = **3.26**

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

__X__ 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-23 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-8	10YR 4/4	100					Silt Loam	Refusal at 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rocks/Tree roots

Depth (inches): 8

Hydric Soil Present? Yes ____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-24 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 4%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66404 | Long: -78.57101 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

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

This sample point is located within PFO wetland W-SRC-24. W-SRC-24 is located along an old logging road in the western portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- **X** Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes **X**	No	Depth (inches): **2**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-24 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	75	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Veratrum viride*	30	Yes	FACW
2. *Rubus hispidus*	20	Yes	FACW
3. *Athyrium angustum*	20	Yes	FAC
4. *Impatiens capensis*	15	No	FACW
5. *Carex spicata*	10	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**65**	x 2 =	**130**
FAC species	**105**	x 3 =	**315**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**170** (A)		**445** (B)

Prevalence Index = B/A = **2.62**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-24 PFO**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-5	10YR 2/1	100					Silt Loam	
5-7	2.5Y 6/1	80	7.5YR 4/6	20	C	M	Sandy Loam	Refusal at 7"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 7

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-24 Upland
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66420 | Long: -78.57058 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes	No **X**

Is the Sampled Area within a Wetland? Yes No **X**

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

This sample point is located in a forested area northeast of wetland W-SRC-24.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-24 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	60	Yes	FAC
2. *Acer pensylvanicum*	10	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**60**	x 3 =	**180**
FACU species	**10**	x 4 =	**40**
UPL species	**0**	x 5 =	**0**
Column Totals:	**70** (A)		**220** (B)

Prevalence Index = B/A = **3.14**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-24 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-3	10YR 4/4	100					Silt Loam	Refusal at 3"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock/Tree roots

Depth (inches): 3

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

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-25 PSS
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 4%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66284 | Long: -78.57163 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

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

This sample point is located within PSS wetland W-SRC-25. W-SRC-25 is located in the western portion of the Project Area near a dirt access road.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **5**
Water Table Present?	Yes **X**	No	Depth (inches): **3**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-25 PSS**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniensis*	45	Yes	FAC
2. *Acer saccharinum*	35	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**35**	x 2 =	**70**
FAC species	**55**	x 3 =	**165**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**90** (A)		**235** (B)

Prevalence Index = B/A = **2.61**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-25 PSS**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	2.5Y 3/1	100					Silt	
4-10	2.5Y 2.5/1	95	7.5YR 3/3	5	C	PL	Sandy Loam	Refusal at 10"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- **X** Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 10

Hydric Soil Present? **Yes** X **No** ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-25 Upland
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 4%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66283 | Long: -78.57168 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

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

This sample point is located in a forested area west of wetland W-SRC-25.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-25 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	40	Yes	FAC
2. *Ulmus rubra*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**60**	x 3 =	**180**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**60** (A)		**180** (B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-25 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	2.5Y 3/3	100					Silt Loam	Refusal at 4"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Tree roots
Depth (inches): 4

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-26 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave | Slope (%): 3%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66373 | Long: -78.57681 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within PEM wetland W-SRC-26. W-SRC-26 is located near stream S-SRC-5 in the western portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes **X**	No	Depth (inches): **3**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-26 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	35	Yes	FACW
2. *Poa palustris*	30	Yes	FACW
3. *Osmunda claytoniana*	20	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**65**	x 2 =	**130**
FAC species	**20**	x 3 =	**60**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**85** (A)		**190** (B)

Prevalence Index = B/A = **2.24**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-26 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-6	2.5Y 3/1	100					Silt Loam	
6-8	2.5Y 5/2	90	7.5YR 4/6	10	C	M	Silty Clay	Refusal at 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 8

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-26 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Toe slope | Local relief (concave, convex, none): None | Slope (%): 4%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66373 | Long: -78.57697 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

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

This sample point is located in a forested area west of wetland W-SRC-26.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** ____ **No** **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-26 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	25	Yes	FAC
2. *Prunus serotina*	25	Yes	FACU
3. *Betula lenta*	20	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **33%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**25**	x 3 =	**75**
FACU species	**45**	x 4 =	**180**
UPL species	**0**	x 5 =	**0**
Column Totals:	**70** (A)		**255** (B)

Prevalence Index = B/A = **3.64**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-26 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
								Refusal at 2"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Tree roots
Depth (inches): 2

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-27 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 5%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66285 | Long: -78.57663 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

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

This sample point is located within PEM wetland W-SRC-27. W-SRC-27 is located on a forested hillslope near an access road in the western portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** 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)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes **X**	No	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-27 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	50	Yes	FACW
2. *Osmundastrum cinnamomeum*	25	Yes	FACW
3. *Osmunda claytoniana*	20	Yes	FAC
4. *Carex echinata*	5	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**5**	x 1 =	**5**
FACW species	**75**	x 2 =	**150**
FAC species	**20**	x 3 =	**60**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**215** (B)

Prevalence Index = B/A = **2.15**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-27 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6							Organic	Organic Layer
6-10	10YR 2/1						Silty Peat	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
X Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-27 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 4%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66280 | Long: -78.57665 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

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

This sample point is located in a forested area south of wetland W-SRC-27.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** ____ **No** **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-27 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula lenta*	40	Yes	FACU
2. *Acer saccharum*	30	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Rubus allegheniensis*	25	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	25 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	20	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **25%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**20**	x 2 =	**40**
FAC species	**0**	x 3 =	**0**
FACU species	**95**	x 4 =	**380**
UPL species	**0**	x 5 =	**0**
Column Totals:	**115** (A)		**420** (B)

Prevalence Index = B/A = **3.65**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-27 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
								Refusal at 2"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rocks/Tree roots
Depth (inches): 2

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-28 PEM

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 5%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66298 | Long: -78.57540 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____	**Is the Sampled Area within a Wetland?** Yes **X** No ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

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

This sample point is located within PEM wetland W-SRC-28. W-SRC-28 is located on a forested hillslope near an access road in the western portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **2**
Water Table Present?	Yes **X**	No ____	Depth (inches): **8**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No ____

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-28 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	25	Yes	FACW
2. *Vernonia noveboracensis*	25	Yes	FACW
3. *Athyrium angustum*	20	Yes	FAC
4. *Osmundastrum cinnamomeum*	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**60**	x 2 =	**120**
FAC species	**20**	x 3 =	**60**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**80** (A)		**180** (B)

Prevalence Index = B/A = **2.25**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

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

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-28 PEM**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	7.5Y 5/2	90	7.5YR 5/8	10	C	PL	Clay Loam	
4-8	2.5Y 5/2	70	5YR 4/4	30	C	M	Clay Loam	Refusal at 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 8

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-28 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 4%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66295 | Long: -78.57535 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

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

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

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

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

This sample point is located in a forested area southeast of wetland W-SRC-28.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

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

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-28 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula lenta*	40	Yes	FACU
2. *Prunus serotina*	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Rubus allegheniensis*	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	20	Yes	FAC
2. *Rubus allegheniensis*	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **20%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**20**	x 3 =	**60**
FACU species	**75**	x 4 =	**300**
UPL species	**0**	x 5 =	**0**
Column Totals:	**95** (A)		**360** (B)

Prevalence Index = B/A = **3.79**

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 Five Vegetation Strata:

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

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

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

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-28 Upland**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
								Refusal at 2"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rocks
Depth (inches): 2

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/4/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-29 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66731 | Long: -78.57903 | Datum: WGS84
Soil Map Unit Name: HaB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

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

This sample point is located within the PEM portion of wetland W-SRC-29. W-SRC-29 is a PEM/PFO complex along a pipeline ROW and at the start of streams S-SRC-13 and S-SRC-14 in the western portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- Water Marks (B1)
- **X** Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- **X** Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- **X** Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- **X** Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **6**
Water Table Present?	Yes **X**	No	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

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

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-29 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Juncus effusus*	30	Yes	FACW
2. *Rubus hispidus*	20	Yes	FACW
3. *Vernonia noveboracensis*	20	Yes	FACW
4. *Carex scoparia*	20	Yes	FACW
5. *Juncus tenuis*	10	No	FAC
6. *Dichanthelium clandestinum*	5	No	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	105 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**90**	x 2 =	**180**
FAC species	**15**	x 3 =	**45**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**105** (A)		**225** (B)

Prevalence Index = B/A = **2.14**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-29 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-5	2.5Y 5/2	95	7.5YR 4/6	5	C	PL	Silt Loam	
5-12	2.5Y 4/1	75	7.5YR 5/8	20	C	M	Clay	
			7.5YR 4/6	5	C	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-29 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 5%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66703 | Long: -78.57877 | Datum: WGS84
Soil Map Unit Name: BsB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within the PFO portion of wetland W-SRC-29. W-SRC-29 is a PEM/PFO complex along a pipeline ROW and at the start of streams S-SRC-13 and S-SRC-14 in the western portion of the Project Area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- **X** Saturation (A3)
- **X** Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- **X** Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- **X** Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **-**
Water Table Present?	Yes	No **X**	Depth (inches): **-**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-29 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	30	Yes	FAC
2. *Acer saccharinum*	25	Yes	FACW
3. *Tsuga canadensis*	20	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	30	Yes	FAC
2. *Osmundastrum cinnamomeum*	25	Yes	FACW
3. *Rubus hispidus*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**60**	x 2 =	**120**
FAC species	**60**	x 3 =	**180**
FACU species	**20**	x 4 =	**80**
UPL species	**0**	x 5 =	**0**
Column Totals:	**140** (A)		**380** (B)

Prevalence Index = B/A = **2.71**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-29 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-5	10YR 3/2	100					Silt Loam	
5-12	10YR 5/2	80	7.5YR 4/6	20	C	M	Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-29 Upland
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66694 | Long: -78.57897 | Datum: WGS84
Soil Map Unit Name: HaB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes	No **X**

Is the Sampled Area within a Wetland? Yes | No **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located in an herbaceous area southwest of wetland W-SRC-29.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes | No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-29 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus allegheniensis*	25	Yes	FACU
2. *Athyrium angustum*	20	Yes	FAC
3. *Osmundastrum cinnamomeum*	15	Yes	FACW
4. *Dichanthelium clandestinum*	10	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**15**	x 2 =	**30**
FAC species	**30**	x 3 =	**90**
FACU species	**25**	x 4 =	**100**
UPL species	**0**	x 5 =	**0**
Column Totals:	**70** (A)		**220** (B)

Prevalence Index = B/A = **3.14**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-29 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-4	10YR 5/3	100					Silty Clay	
4-12	10YR 5/6	70	7.5Y 5/3	30	D	M	Clay	Refusal at 12"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 12

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-30 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 5%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66606 | Long: -78.57621 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-30. W-SRC-30 is located in the western portion of the Project Area between streams S-SRC-5 and S-SRC-13.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- High Water Table (A2)
- **X** Saturation (A3)
- Water Marks (B1)
- **X** Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- **X** Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- **X** Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes	No **X**	Depth (inches): **-**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-30 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	30	Yes	FAC
2. *Acer saccharinum*	25	Yes	FACW
3. *Tsuga canadensis*	20	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	20	Yes	FAC
2. *Poa palustris*	10	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**35**	x 2 =	**70**
FAC species	**50**	x 3 =	**150**
FACU species	**20**	x 4 =	**80**
UPL species	**0**	x 5 =	**0**
Column Totals:	**105** (A)		**300** (B)

Prevalence Index = B/A = **2.86**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-30 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-7	7.5YR 2.5/1	100					Silt	
7-12	10YR 4/2	80	5YR 3/4	20	C	M	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-30 Upland
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): None | Slope (%): 6%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66540 | Long: -78.57639 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes	No **X**

Is the Sampled Area within a Wetland? Yes No **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located in a forested area south of wetland W-SRC-30.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-30 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	25	Yes	FACU
2. *Betula alleghaniensis*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	45 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	10	Yes	FAC
2. *Rubus hispidus*	5	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

	Total % Cover of:		Multiply by:
OBL species	**0**	x 1 =	**0**
FACW species	**5**	x 2 =	**10**
FAC species	**30**	x 3 =	**90**
FACU species	**25**	x 4 =	**100**
UPL species	**0**	x 5 =	**0**
Column Totals:	**60** (A)		**200** (B)

Prevalence Index = B/A = **3.33**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-30 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4							Organic	Organic Layer
4-7	10YR 4/2	80	7.5YR 4/6	20	C	M	Clay Loam	Refusal at 7"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Tree roots
Depth (inches): 7

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-31 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 4%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66530 | Long: -78.57732 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-31. W-SRC-31 is located in the western portion of the Project Area between streams S-SRC-5 and S-SRC-13.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- **X** Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- **X** Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- **X** Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **4**
Water Table Present?	Yes **X**	No	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-31 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	35	Yes	FAC
2. *Acer saccharinum*	15	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Veratrum viride*	60	Yes	FACW
2. *Athyrium angustum*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**75**	x 2 =	**150**
FAC species	**55**	x 3 =	**165**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**130** (A)		**315** (B)

Prevalence Index = B/A = **2.42**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-31 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-8	10YR 6/2	75	10YR 5/6	25	C	M	Silt Loam	
8-12	2.5Y 6/2	60	7.5YR 4/8	30	C	M	Silty Clay	
			10YR 4/6	10	C	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-32 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 4%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66502 | Long: -78.57807 | Datum: WGS84
Soil Map Unit Name: BsS | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____	**Is the Sampled Area within a Wetland?** Yes **X** No ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-32. W-SRC-32 is located in the western portion of the Project Area along streams S-SRC-5 and S-SRC-13.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- **X** Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **4**
Water Table Present?	Yes **X**	No ____	Depth (inches): **5**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-32 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	40	Yes	FACW
2. *Betula alleghaniensis*	30	Yes	FAC
3. *Prunus serotina*	15	No	FACU
4.			
5.			
6.			
7.			
8.			
	85 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus hispidus*	25	Yes	FACW
2. *Osmundastrum cinnamomeum*	25	Yes	FACW
3. *Carex intumescens*	20	Yes	FACW
4. *Carex crinita*	20	Yes	OBL
5. *Vernonia noveboracensis*	10	No	FACW
6. *Carex echinata*	10	No	OBL
7. *Athyrium angustum*	5	No	FAC
8.			
9.			
10.			
11.			
12.			
	115 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **6** (A)

Total Number of Dominant Species Across All Strata: **6** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**120**	x 2 =	**240**
FAC species	**35**	x 3 =	**105**
FACU species	**15**	x 4 =	**60**
UPL species	**0**	x 5 =	**0**
Column Totals:	**200** (A)		**435** (B)

Prevalence Index = B/A = **2.18**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-32 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-5	10YR 3/2	90	5YR 4/4	10	C	PL	Clay Loam	
5-12	10YR 5/2	95	7.5YR 4/6	5	C	PL	Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-31/32 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Plateau | Local relief (concave, convex, none): None | Slope (%): 4%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66530 | Long: -78.57742 | Datum: WGS84

Soil Map Unit Name: CpB | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____	
Hydric Soil Present?	Yes ____	No **X**	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Wetland Hydrology Present?	Yes ____	No **X**	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located in a forested area between wetlands W-SRC-31 and W-SRC-32.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-31/32 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	35	Yes	FAC
2. *Ulmus rubra*	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**50**	x 3 =	**150**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**50** (A)		**150** (B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-31/32 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
								Refusal at 2"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Tree roots
Depth (inches): 2

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-33 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 12%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65887 | Long: -78.58162 | Datum: WGS84
Soil Map Unit Name: CpD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-33. W-SRC-33 is located on a forested hillslope in the southwest portion of the Project Area near stream S-SRC-5.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- **X** Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **4**
Water Table Present?	Yes **X**	No	Depth (inches): **2**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-33 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	45	Yes	FAC
2. *Carpinus caroliniana*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Poa palustris*	20	Yes	FACW
2. *Athyrium angustum*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**20**	x 2 =	**40**
FAC species	**70**	x 3 =	**210**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**90** (A)		**250** (B)

Prevalence Index = B/A = **2.78**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-33 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4							Organic	Organic Layer
4-8	10YR 2/1	100					Silt	Refusal at 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- **X** Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 8

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-34 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 12%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65934 | Long: -78.58116 | Datum: WGS84
Soil Map Unit Name: HeF | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PEM wetland W-SRC-34. W-SRC-34 is located on a forested hillslope in the southwest portion of the Project Area near stream S-SRC-5.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- **X** 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes **X**	No	Depth (inches): **2**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-34 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Juncus effusus*	30	Yes	FACW
2. *Vernonia noveboracensis*	20	Yes	FACW
3. *Dichanthelium clandestinum*	20	Yes	FAC
4. *Athyrium angustum*	15	No	FAC
5. *Carex lurida*	5	No	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**5**	x 1 =	**5**
FACW species	**50**	x 2 =	**100**
FAC species	**35**	x 3 =	**105**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**90** (A)		**210** (B)

Prevalence Index = B/A = **2.33**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-34 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-6	2.5Y 4/1	85	10YR 4/6	15	C	PL	Silty Clay	
6-12	2.5Y 4/2	95	7.5YR 4/4	5	C	PL	Silty Clay	Refusal at 12"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 12

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-35 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 12%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65948 | Long: -78.58083 | Datum: WGS84
Soil Map Unit Name: CpD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-35. W-SRC-35 is located on a forested hillslope in the southwest portion of the Project Area near stream S-SRC-5.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes **X**	No	Depth (inches): **2**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-35 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	75	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	25	Yes	FAC
2. *Vernonia noveboracensis*	20	Yes	FACW
3. *Carex lurida*	10	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**10**	x 1 =	**10**
FACW species	**20**	x 2 =	**40**
FAC species	**100**	x 3 =	**300**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**130** (A)		**350** (B)

Prevalence Index = B/A = **2.69**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-35 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-5	10YR 5/1	80	7.5YR 4/6	20	C	M	Silt Loam	Refusal at 5"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 5

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-36 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 12%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65964 | Long: -78.58073 | Datum: WGS84
Soil Map Unit Name: CpD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-36. W-SRC-36 is located on a forested hillslope in the southwest portion of the Project Area near stream S-SRC-5.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** 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)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- **X** Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes **X**	No	Depth (inches): **2**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-36 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	40	Yes	FAC
2. *Ulmus rubra*	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex crinita*	35	Yes	OBL
2. *Vernonia noveboracensis*	25	Yes	FACW
3. *Osmundastrum cinnamomeum*	20	Yes	FACW
4. *Solidago gigantea*	15	No	FACW
5. *Onoclea sensibilis*	5	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **5** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**35**	x 1 =	**35**
FACW species	**65**	x 2 =	**130**
FAC species	**55**	x 3 =	**165**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**155** (A)		**330** (B)

Prevalence Index = B/A = **2.13**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-36 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	2.5Y 3/1	100					Silt Loam	
4-11	5Y 4/1	95	7.5YR 4/6	5	C	PL	Sandy Clay	Refusal at 11"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 11

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/5/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-33/34/35/36 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): None | Slope (%): 15%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65894 | Long: -78.58161 | Datum: WGS84

Soil Map Unit Name: CpD | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located on a forested hillslope between wetlands W-SRC-33 and W-SRC-34.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-33/34/35/36 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Ulmus rubra*	30	Yes	FAC
2. *Acer saccharum*	25	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**30**	x 3 =	**90**
FACU species	**25**	x 4 =	**100**
UPL species	**0**	x 5 =	**0**
Column Totals:	**55** (A)		**190** (B)

Prevalence Index = B/A = **3.45**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-33/34/35/36 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
								Refusal at 2"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Tree roots
Depth (inches): 2

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-37 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 10
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66033 | Long: -78.58303 | Datum: WGS84
Soil Map Unit Name: CoB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PEM wetland W-SRC-37, which is associated with a retired logging access road.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **5**
Water Table Present?	Yes **X**	No	Depth (inches): **5**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Noted spagnum moss.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-37 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Scirpus cyperinus*	40	Yes	FACW
2. *Athyrium angustum*	20	Yes	FAC
3. *Dichanthelium clandestinum*	15	No	FAC
4. *Rumex sp.*	10	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**40**	x 2 =	**80**
FAC species	**45**	x 3 =	**135**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**85** (A)		**215** (B)

Prevalence Index = B/A = **2.53**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Rumex sp. assumed to be FAC based on hydrology and hydrophytic vegetation present.

*Unable to identify species due to the absence of distinguishing characteristics. However, due to the presence of wetland hydrology, hydric soils, and the associated vegetative community, this species is assumed FAC.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-38 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 10
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66173 | Long: -78.58237 | Datum: WGS84
Soil Map Unit Name: CoB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

Is the Sampled Area within a Wetland? **Yes** **X** **No** ____

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PEM wetland W-SRC-38, which is associated with a low point that has been compacted from previous use as an access road during logging operations.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **1**
Water Table Present?	Yes **X**	No ____	Depth (inches): **2**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? **Yes** **X** **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-38 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Juncus effusus*	25	Yes	FACW
2. *Athyrium angustum*	25	Yes	FAC
3. *Carex intumescens*	20	Yes	FACW
4. *Dichanthelium clandestinum*	20	Yes	FAC
5. *Rubus allegheniensis*	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**45**	x 2 =	**90**
FAC species	**45**	x 3 =	**135**
FACU species	**5**	x 4 =	**20**
UPL species	**0**	x 5 =	**0**
Column Totals:	**95** (A)		**245** (B)

Prevalence Index = B/A = **2.58**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-38 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-4	2.5Y 5/1	80	7.5YR 4/6	20	RM	M	Silty loam	
4-8	2.5Y 5/2	90	7.5YR 5/8	10	RM	PL	Silty clay	Refusal at 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots

Depth (inches): 8

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

SOIL

Sampling Point: **W-SRC-37 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-6	2.5Y 3/2	100					Silty Clay	
6-12	2.5Y 4/1	95	7.5YR 4/4	5	RM	PL	Clay	Refusal at 12"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 12

Hydric Soil Present? Yes X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-37/38 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): None | Slope (%): 10

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66045 | Long: -78.58306 | Datum: WGS84

Soil Map Unit Name: CoB | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located on a forested hillslope between wetlands W-SRC-37 and W-SRC-38.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-37/38 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer pensylvanicum*	30	Yes	FACU
2. *Prunus serotina*	25	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus allegheniensis*	35	Yes	FACU
2. *Dennstaedtia punctilobula*	30	Yes	FACU
3. *Carex intumescens*	Noted	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**120**	x 4 =	**480**
UPL species	**0**	x 5 =	**0**
Column Totals:	**120** (A)		**480** (B)

Prevalence Index = B/A = **4.00**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-37/38 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-4	10YR 5/4	90	7.5YR 3/6	10	RM	PL	Silt loam	
4-10	10YR 5/2	90	7.5YR 5/8	10	RM	M	Clay loam	Refusal at 10"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots

Depth (inches): 10

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-39 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): Concave | Slope (%): 10
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66039 | Long: -78.58176 | Datum: WGS84
Soil Map Unit Name: HdB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PEM wetland W-SRC-39, which is associated with a spring seep located along a retired logging access road.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes **X**	No	Depth (inches): **4**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Noted spagnum moss.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-39 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex lurida*	25	Yes	OBL
2. *Carex stipata*	20	Yes	OBL
3. *Carex intumescens*	20	Yes	FACW
4. *Vernonia noveboracensis*	15	No	FACW
5. *Rubus hispidus*	10	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**45**	x 1 =	**45**
FACW species	**45**	x 2 =	**90**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**90** (A)		**135** (B)

Prevalence Index = B/A = **1.50**

Hydrophytic Vegetation Indicators:

- **X** 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-39 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-6	10YR 5/2	80	7.5YR 5/6	20	RM	M	Loamy clay	
6-10	10YR 4/1	70	7.5YR 5/8	30	RM	M	Clay w/ rock	Refusal at 10"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Clay and rock
Depth (inches): 10

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-39 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): None | Slope (%): 10

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66042 | Long: -78.58183 | Datum: WGS84

Soil Map Unit Name: HdB | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located on a forested hillslope adjacent to wetland W-SRC-39.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-39 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	25	Yes	FACU
2. *Betula lenta*	25	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dichanthelium clandestinum*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **33%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**5**	x 3 =	**15**
FACU species	**50**	x 4 =	**200**
UPL species	**0**	x 5 =	**0**
Column Totals:	**55** (A)		**215** (B)

Prevalence Index = B/A = **3.91**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-39 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
								Refusal at 3"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots
Depth (inches): 3

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-40 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65700 | Long: -78.57144 | Datum:
Soil Map Unit Name: CoB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-40, which is located within a low point contained within an upland, deciduous forest.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- Water Marks (B1)
- **X** Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- **X** Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **1**
Water Table Present?	Yes **X**	No	Depth (inches): **6**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-40 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	25	Yes	FAC
2. *Acer saccharinum*	20	Yes	FACW
3. *Prunus serotina*	15	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Osmundastrum cinnamomeum*	25	Yes	FACW
2. *Osmunda claytoniana*	25	Yes	FAC
3. *Athyrium angustum*	20	Yes	FAC
4. *Onoclea sensibilis*	Noted	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**45**	x 2 =	**90**
FAC species	**70**	x 3 =	**210**
FACU species	**15**	x 4 =	**60**
UPL species	**0**	x 5 =	**0**
Column Totals:	**130** (A)		**360** (B)

Prevalence Index = B/A = **2.77**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-40 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-5	10YR 5/1	80	7.5YR 6/8	20	RM	M	Silty Sand	
5-10	2.5Y 6/2	60	10YR 6/8	20	RM	M		Refusal at 10"
			10YR 3/4	20	RM	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Clay
Depth (inches): 10

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-40 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): None | Slope (%): 10

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65701 | Long: -78.57149 | Datum: WGS84

Soil Map Unit Name: CoB | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located on a forested hillslope adjacent to wetland W-SRC-40.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-40 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	40	Yes	FACU
2. *Betula alleghaniensis*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Pteridium aquilinum*	20	Yes	FACU
2. *Athyrium angustum*	25	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	45 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**45**	x 3 =	**135**
FACU species	**60**	x 4 =	**240**
UPL species	**0**	x 5 =	**0**
Column Totals:	**105** (A)		**375** (B)

Prevalence Index = B/A = **3.57**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-40 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-6	10YR 3/2	85	7.5YR 3/4	15	RM	PL	Sandy loam	Refusal at 3"
6-12	10YR 5/3	90	7.5YR 5/8	10	RM	M	Clay and sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 X

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-41 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66106 | Long: -78.57373 | Datum:
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **Yes**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? Yes **X** No

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-41, which is located within a groundwater seep.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- **X** Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes **X**	No	Depth (inches): **2**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Noted spagnum moss.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-41 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Tsuga canadensis*	25	Yes	FACU
2. *Betula alleghaniensis*	25	Yes	FAC
3. *Acer saccharinum*	20	Yes	FACW
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	40	Yes	FAC
2. *Carex sp.*	25	Yes	FAC
3. *Glyceria striata*	10	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**10**	x 1 =	**10**
FACW species	**20**	x 2 =	**40**
FAC species	**90**	x 3 =	**270**
FACU species	**25**	x 4 =	**100**
UPL species	**0**	x 5 =	**0**
Column Totals:	**145** (A)		**420** (B)

Prevalence Index = B/A = **2.90**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- **X** Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Eastern hemlock is noted as problematic vegetation in EMP.

*Unable to identify species due to the absence of distinguishing characteristics. However, due to the presence of wetland hydrology, hydric soils, and the associated vegetative community, this species is assumed FAC.

SOIL

Sampling Point: **W-SRC-41 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5							Organic	Organic Layer
5-6	2.5Y 3/1	100					Silt	
6-10	2.5Y 6/2	100					Silty sand	Refusal at 10"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- __X__ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock and sand

Depth (inches): 10

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-42 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65870 | Long: -78.58068 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-42. W-SRC-8 is located in a forested swale in the soutwest portion of the Project Area and is associated with streams S-SRC-05 and S-SRC-18.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- **X** Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **4**
Water Table Present?	Yes **X**	No	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-42 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	50	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Tsuga canadensis*	20	Yes	FACU
2. *Betula alleghaniensis*	30	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Osmundastrum cinnamomeum*	30	Yes	FACW
2. *Vernonia noveboracensis*	20	Yes	FACW
3. *Juncus tenuis*	20	Yes	FAC
4. *Onoclea sensibilis*	20	Yes	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **6** (A)

Total Number of Dominant Species Across All Strata: **7** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **86%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**70**	x 2 =	**140**
FAC species	**100**	x 3 =	**300**
FACU species	**20**	x 4 =	**80**
UPL species	**0**	x 5 =	**0**
Column Totals:	**190** (A)		**520** (B)

Prevalence Index = B/A = **2.74**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-42 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-12	10YR 3/2	100					Silty Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
__X__Stripped Matrix (S6)

____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-43 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 5%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65908 | Long: -78.58013 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **Yes**, Soil **Yes**, or Hydrology **Yes** significantly disturbed? Are "Normal Circumstances" present? Yes ____ No **X**
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

Is the Sampled Area within a Wetland? Yes **X** No ____

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PEM wetland W-SRC-43, which is located within a previous clearcut adjacent to streams S-SRC-05 and S-SRC-18.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **2**
Water Table Present?	Yes **X**	No ____	Depth (inches): **6**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Hydrology has been altered via previous clearcut operation.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-43 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex echinata*	25	Yes	OBL
2. *Osmundastrum cinnamomeum*	25	Yes	FACW
3. *Rubus hispidus*	20	Yes	FACW
4. *Carex crinita*	20	Yes	OBL
5. *Agrimonia parviflora*	5	No	FACW
6. *Vernonia noveboracensis*	10	No	FACW
7. *Juncus effusus*	5	No	FACW
8.			
9.			
10.			
11.			
12.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**45**	x 1 =	**45**
FACW species	**65**	x 2 =	**130**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**110** (A)		**175** (B)

Prevalence Index = B/A = **1.59**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Vegetation disturbed via previous clearcut operation.

SOIL

Sampling Point: **W-SRC-43 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-6	5Y 2.5/1	100					Silty Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
__X__ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock and roots
Depth (inches): 6

Hydric Soil Present? **Yes** __X__ **No** _____

Remarks:

The soils criterion has been met. Soils are disturbed from previous clearcut operation.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-44 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 5%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65998 | Long: -78.57895 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **Yes**, Soil **Yes**, or Hydrology **Yes** significantly disturbed? Are "Normal Circumstances" present? Yes ____ No **X**
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

Is the Sampled Area within a Wetland? Yes **X** No ____

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PEM wetland W-SRC-44, which is located within a previous clearcut area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- ____ High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **2**
Water Table Present?	Yes ____	No **X**	Depth (inches): **-**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Hydrology has been altered via previous clearcut operation.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-44 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex crinita*	25	Yes	OBL
2. *Juncus effusus*	25	Yes	FACW
3. *Scirpus cyperinus*	20	Yes	FACW
4. *Rubus hispidus*	20	Yes	FACW
5. *Vernonia noveboracensis*	10	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**25**	x 1 =	**25**
FACW species	**75**	x 2 =	**150**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**175** (B)

Prevalence Index = B/A = **1.75**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Vegetation disturbed via previous clearcut operation.

SOIL

Sampling Point: **W-SRC-44 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-5	2.5Y 2.5/1	100					Silt w/ Sand	
5-10	10YR 5/2	85	7.5YR 5/6	15	RM	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 10

Hydric Soil Present? Yes X No _____

Remarks:

The soils criterion has been met. Soils are disturbed from previous clearcut operation.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-42/43/44 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 6%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65927 | Long: -78.57984 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located between wetlands W-SRC-42, W-SRC-43, and W-SRC-44.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-42/43/44 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula lenta*	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Rubus allegheniensis*	30	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	30 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Rubus allegheniensis*	20	Yes	FACU
2. *Carex crinita*	10	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **25%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**10**	x 1 =	**10**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**60**	x 4 =	**240**
UPL species	**0**	x 5 =	**0**
Column Totals:	**70** (A)		**250** (B)

Prevalence Index = B/A = **3.57**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-42/43/44 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 2

Hydric Soil Present? Yes _____ **No** X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-45 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 5%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66092 | Long: -78.57773 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **Yes**, Soil **Yes**, or Hydrology **Yes** significantly disturbed? Are "Normal Circumstances" present? Yes ____ No **X**
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

Is the Sampled Area within a Wetland? Yes **X** No ____

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PEM wetland W-SRC-45, which is located within a previous clearcut and is associated with S-SRC-05.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- ____ High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **2**
Water Table Present?	Yes ____	No **X**	Depth (inches): **-**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Hydrology has been altered via previous clearcut operation.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-45 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Juncus effusus*	30	Yes	FACW
2. *Carex crinita*	25	Yes	OBL
3. *Carex lurida*	20	Yes	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**45**	x 1 =	**45**
FACW species	**30**	x 2 =	**60**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**75** (A)		**105** (B)

Prevalence Index = B/A = **1.40**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Vegetation disturbed via previous clearcut operation.

SOIL

Sampling Point: **W-SRC-45 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-4	10YR 3/2	80	7.5YR 3/4	20	RM	PL	Silty Clay	
4-8	2.5Y 4/1	90	7.5YR 3/4	10	RM	PL	Clay w/ Rock	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 10

Hydric Soil Present? Yes X No _____

Remarks:

The soils criterion has been met. Soils are disturbed from previous clearcut operation.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-46 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 5%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66174 | Long: -78.57680 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **Yes**, Soil **Yes**, or Hydrology **Yes** significantly disturbed? Are "Normal Circumstances" present? Yes ____ No **X**
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

Is the Sampled Area within a Wetland? Yes **X** No ____

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PEM wetland W-SRC-46, which is located within a previous clearcut and is associated with S-SRC-05.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **6**
Water Table Present?	Yes **X**	No ____	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Hydrology has been altered via previous clearcut operation. Noted bacterial film.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-46 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Juncus effusus*	30	Yes	FACW
2. *Carex crinita*	25	Yes	OBL
3. *Dichanthelium clandestinum*	20	Yes	FAC
4. *Juncus tenuis*	20	Yes	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**25**	x 1 =	**25**
FACW species	**30**	x 2 =	**60**
FAC species	**40**	x 3 =	**120**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**95** (A)		**205** (B)

Prevalence Index = B/A = **2.16**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Vegetation disturbed via previous clearcut operation.

SOIL

Sampling Point: **W-SRC-46 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-4	10YR 3/2	80	7.5YR 3/4	20	RM	PL	Silty Clay	
4-8	2.5Y 4/1	90	7.5YR 3/4	10	RM	PL	Clay w/ Rock	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 10

Hydric Soil Present? Yes X No _____

Remarks:

The soils criterion has been met. Soils are disturbed from previous clearcut operation.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-47 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 10%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66242 | Long: -78.57651 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **Yes**, Soil **Yes**, or Hydrology **Yes** significantly disturbed? Are "Normal Circumstances" present? Yes ____ No **X**
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

Is the Sampled Area within a Wetland? **Yes X** **No** ____

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PEM wetland W-SRC-47, which is located within a previous clearcut and is associated with S-SRC-05.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **2**
Water Table Present?	Yes **X**	No ____	Depth (inches): **8**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Hydrology has been altered via previous clearcut operation. Noted bacterial film.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-47 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Juncus effusus*	35	Yes	FACW
2. *Carex crinita*	30	Yes	OBL
3. *Vernonia noveboracensis*	20	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**55**	x 2 =	**110**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**85** (A)		**140** (B)

Prevalence Index = B/A = **1.65**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Vegetation disturbed via previous clearcut operation.

SOIL

Sampling Point: **W-SRC-47 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-7	2.5Y 4/2	95	10YR 3/6	5	RM	M	Silty Loam	
7-10	10YR 4/2	85	10YR 5/6	15	RM	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 10

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met. Soils are disturbed from previous clearcut operation.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-45/46/47 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 5%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66104 | Long: -78.57750 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located between wetlands W-SRC-45, W-SRC-46, and W-SRC-47.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-45/46/47 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Rubus allegheniensis*	30	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	30 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex sp.*	20	Yes	Bag & Tag
2. *Rubus allegheniensis*	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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** (A/B)

Prevalence Index Worksheet:

	Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**	
FACW species	**0**	x 2 =	**0**	
FAC species	**0**	x 3 =	**0**	
FACU species	**40**	x 4 =	**160**	
UPL species	**0**	x 5 =	**0**	
Column Totals:	**40**	(A)	**160**	(B)

Prevalence Index = B/A = **4.00**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-45/46/47 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-3	10YR 6/3	100					Silty Clay	
3-10	10YR 5/8	100					Silty Clay w/ Rock	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 10

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-48 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 10%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66189 | Long: -78.57468 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **Yes**, Soil **Yes**, or Hydrology **Yes** significantly disturbed? Are "Normal Circumstances" present? Yes ____ No **X**
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

Is the Sampled Area within a Wetland? **Yes** **X** **No** ____

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PEM wetland W-SRC-48, which is located within a previously logged area and is associated with stream S-SRC-19.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **4**
Water Table Present?	Yes **X**	No ____	Depth (inches): **5**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? **Yes** **X** **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Hydrology has been altered via previous clearcut operation. Noted bacterial film.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-48 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Juncus effusus*	30	Yes	FACW
2. *Dichanthelium clandestinum*	30	Yes	FAC
3. *Carex crinita*	20	Yes	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**20**	x 1 =	**20**
FACW species	**30**	x 2 =	**60**
FAC species	**30**	x 3 =	**90**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**80** (A)		**170** (B)

Prevalence Index = B/A = **2.13**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Vegetation disturbed via previous clearcut operation.

SOIL

Sampling Point: **W-SRC-48 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-5	10YR 3/2	90	7.5YR 4/6	10	RM	PL	Silty Loam	
5-10	10YR 5/2	75	5YR 3/4	25	RM	PL	Silty Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 10

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met. Soils are disturbed from previous clearcut operation.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-49 PFO
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66106 | Long: -78.57489 | Datum: WGS84
Soil Map Unit Name: HdD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **Yes**, or Hydrology **Yes** significantly disturbed? Are "Normal Circumstances" present? Yes ____ No **X**
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

Is the Sampled Area within a Wetland? **Yes X** **No** ____

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-49. W-SRC-49 is located in a forested swale in the soutwest portion of the Project Area and is associated with several groundwater seeps. This wetland discharges to a non-jurisdictional swale within a clearcut area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **3**
Water Table Present?	Yes **X**	No ____	Depth (inches): **8**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Bacterial film noted.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-49 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	40	Yes	FAC
2. *Acer saccharinum*	25	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	10	Yes	FAC
2. *Carex sp.* *	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**25**	x 2 =	**50**
FAC species	**55**	x 3 =	**165**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**80** (A)		**215** (B)

Prevalence Index = B/A = **2.69**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Drains to a non-jurisdictional swale within a clearcut area.

*Unable to identify species due to the absence of distinguishing characteristics. However, due to the presence of wetland hydrology, hydric soils, and the associated vegetative community, this species is assumed FAC.

SOIL

Sampling Point: **W-SRC-49 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-6	10YR 2/2	100					Silt	
6-11	2.5Y 3/2	95	7.5YR 3/4	5	RM	PL	Silt Loam w/ Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Sand and rock
Depth (inches): 11

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-48/49 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 5%

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66104 | Long: -78.57750 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located between wetlands W-SRC-48 and W-SRC-49.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-48/49 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Rubus allegheniensis*	25	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	25 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dennstaedtia punctilobula*	20	Yes	FACU
2. *Rubus allegheniensis*	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

	Total % Cover of:		Multiply by:
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**55**	x 4 =	**220**
UPL species	**0**	x 5 =	**0**
Column Totals:	**55** (A)		**220** (B)

Prevalence Index = B/A = **4.00**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-48/49 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-5	10YR 2/2	100					Silty loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots
Depth (inches): 5

Hydric Soil Present? Yes _____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/7/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-50 PEM
Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 10%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66077 | Long: -78.57374 | Datum: WGS84
Soil Map Unit Name: HeF | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **Yes**, Soil **Yes**, or Hydrology **Yes** significantly disturbed? Are "Normal Circumstances" present? Yes ____ No **X**
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____	**Is the Sampled Area within a Wetland?** Yes **X** No ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PEM wetland W-SRC-50, which is located within a stump pile from previous logging operations and is associated with a groundwater seep.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **6**
Water Table Present?	Yes **X**	No ____	Depth (inches): **6**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Hydrology has been altered via previous clearcut operation. Noted bacterial film and spagnum moss.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-50 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	25	Yes	FAC
2. *Carex aquatilis*	20	Yes	OBL
3. *Carex sp.*	20	Yes	FAC
4. *Viola cucullata*	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**20**	x 1 =	**20**
FACW species	**10**	x 2 =	**20**
FAC species	**45**	x 3 =	**135**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**75** (A)		**175** (B)

Prevalence Index = B/A = **2.33**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Vegetation disturbed via previous clearcut operation.

*Unable to identify species due to the absence of distinguishing characteristics. However, due to the presence of wetland hydrology, hydric soils, and the associated vegetative community, this species is assumed FAC.

SOIL

Sampling Point: **W-SRC-50 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	2.5Y 5/2	95	10YR 5/6	5	RM	M	Silty Sand	
4-8	2.5Y 4/2	90	10YR 5/6	10	RM	M	Silty Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 8

Hydric Soil Present? Yes X No _____

Remarks:

The soils criterion has been met. Soils are disturbed from previous clearcut operation.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/6/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-41/50 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): None | Slope (%): 10

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66111 | Long: -78.57356 | Datum: WGS84

Soil Map Unit Name: HdD | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	
Hydric Soil Present?	Yes ____	No **X**	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Wetland Hydrology Present?	Yes ____	No **X**	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located on a forested hillslope between wetlands W-SRC-41 and W-SRC-50.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-41/50 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	30	Yes	FACU
2. *Fagus grandifolia*	20	Yes	FACU
3. *Tsuga canadensis*	20	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **25%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**10**	x 3 =	**30**
FACU species	**70**	x 4 =	**280**
UPL species	**0**	x 5 =	**0**
Column Totals:	**80** (A)		**310** (B)

Prevalence Index = B/A = **3.88**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-41/50 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
								Refusal at 2"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots
Depth (inches): 2

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/8/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-51 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65521 | Long: -78.55693 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-51. Associated with the floodplain of stream S-WH-01.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **4**
Water Table Present?	Yes **X**	No	Depth (inches): **5**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Bacterial film and buttressed roots noted.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-51 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Carpinus caroliniana*	40	Yes	FAC
2. *Acer saccharinum*	20	Yes	FACW
3. *Betula alleghaniensis*	15	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Osmundastrum cinnamomeum*	25	Yes	FACW
2. *Carex intumescens*	20	Yes	FACW
3. *Athyrium angustum*	20	Yes	FAC
4. *Rubus hispidus*	15	No	FACW
5. *Glyceria striata*	15	No	OBL
6. *Carex crinita*	10	No	OBL
7. *Carex echinata*	5	No	OBL
8.			
9.			
10.			
11.			
12.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **6** (A)

Total Number of Dominant Species Across All Strata: **6** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**80**	x 2 =	**160**
FAC species	**75**	x 3 =	**225**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**185** (A)		**415** (B)

Prevalence Index = B/A = **2.24**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Drains to a non-jurisdictional swale within a clearcut area.

SOIL

Sampling Point: **W-SRC-51 PFO**

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[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-7	10YR 2/2	100					Silt	
7-12	10YR 4/2	90	7.5YR 5/8	10	RM	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/8/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-52 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65492 | Long: -78.55822 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-52. Associated with streams S-SRC-22 and S-WH-01.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes **X**	No	Depth (inches): **8**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Buttressed roots noted.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-52 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	25	Yes	FAC
2. *Acer saccharinum*	25	Yes	FACW
3. *Carpinus caroliniana*	10	No	FAC
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex crinita*	25	Yes	OBL
2. *Athyrium angustum*	25	Yes	FAC
3. *Glyceria striata*	15	No	OBL
4. *Rubus hispidus*	10	No	FACW
5. *Viola cucullata*	10	No	FACW
6. *Juncus effusus*	10	No	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**40**	x 1 =	**40**
FACW species	**55**	x 2 =	**110**
FAC species	**60**	x 3 =	**180**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**155** (A)		**330** (B)

Prevalence Index = B/A = **2.13**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Drains to a non-jurisdictional swale within a clearcut area.

SOIL

Sampling Point: **W-SRC-52 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-6	10YR 3/2	100					Silt	
6-12	2.5Y 3/2	95	7.5YR 3/3	5	RM	M	Silty sand w/ rock	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
X Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 12

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/8/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-51/52 Upland

Investigator(s): Steve Crescenzo, Jeff Vandeveer | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 15

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65516 | Long: -78.55708 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located between wetlands W-SRC-51 and W-SRC-52.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-51/52 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	30	Yes	FACU
2. *Carpinus caroliniana*	20	Yes	FAC
3. *Acer saccharum*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**20**	x 3 =	**60**
FACU species	**40**	x 4 =	**160**
UPL species	**0**	x 5 =	**0**
Column Totals:	**60** (A)		**220** (B)

Prevalence Index = B/A = **3.67**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-51/52 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-5	2.5Y 3/3	100					Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots
Depth (inches): 5

Hydric Soil Present? Yes _____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/8/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-53 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65440 | Long: -78.55951 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? Yes **X** No

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-53. Associated with stream S-SRC-22.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- High Water Table (A2)
- **X** Saturation (A3)
- Water Marks (B1)
- **X** Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes	No **X**	Depth (inches): **-**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Buttressed roots noted.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-53 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	40	Yes	FAC
2. *Acer saccharinum*	25	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Onoclea sensibilis*	30	Yes	FACW
2. *Osmundastrum cinnamomeum*	20	Yes	FACW
3. *Osmunda claytoniana*	20	Yes	FAC
4. *Impatiens capensis*	20	Yes	FACW
5. *Carex crinita*	10	No	OBL
6. *Glyceria striata*	10	No	OBL
7.			
8.			
9.			
10.			
11.			
12.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **6** (A)

Total Number of Dominant Species Across All Strata: **6** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**20**	x 1 =	**20**
FACW species	**95**	x 2 =	**190**
FAC species	**60**	x 3 =	**180**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**175** (A)		**390** (B)

Prevalence Index = B/A = **2.23**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Drains to a non-jurisdictional swale within a clearcut area.

SOIL

Sampling Point: **W-SRC-53 PFO**

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[1]	Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-3	10YR 3/3	100					Silt	
3-12	2.5Y 4/2	90	10YR 3/6	10	RM	M	Silty Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
__X__ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/9/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-54 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65448 | Long: -78.55983 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? Yes **X** No

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-54. Associated with stream S-SRC-22.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- High Water Table (A2)
- **X** Saturation (A3)
- Water Marks (B1)
- **X** Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes	No **X**	Depth (inches): **-**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Buttressed roots noted.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-54 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Tsuga canadensis*	30	Yes	FACU
2. *Carpinus caroliniana*	20	Yes	FAC
3. *Betula alleghaniensis*	10	No	FAC
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex intumescens*	25	Yes	FACW
2. *Athyrium angustum*	25	Yes	FAC
3. *Vernonia noveboracensis*	20	Yes	FACW
4. *Juncus effusus*	10	No	FACW
5. *Carex aquatilis*	10	No	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**10**	x 1 =	**10**
FACW species	**55**	x 2 =	**110**
FAC species	**55**	x 3 =	**165**
FACU species	**30**	x 4 =	**120**
UPL species	**0**	x 5 =	**0**
Column Totals:	**150** (A)		**405** (B)

Prevalence Index = B/A = **2.70**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-54 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-8	5YR 5/1	100					Silt	
8-12	5YR 6/1	60	5YR 3/4	20	RM	M	Silty clay	
			5YR 5/8	20	RM	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/9/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-55 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65291 | Long: -78.56059 | Datum: WGS84
Soil Map Unit Name: BxD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-55. Associated with stream S-SRC-23.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes **X**	No	Depth (inches): **3**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Bacterial film and buttressed roots noted.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-55 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	30	Yes	FACW
2. *Betula alleghaniensis*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex crinita*	30	Yes	OBL
2. *Athyrium angustum*	30	Yes	FAC
3. *Onoclea sensibilis*	20	Yes	FACW
4. *Rubus allegheniensis*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **5** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**50**	x 2 =	**100**
FAC species	**50**	x 3 =	**150**
FACU species	**5**	x 4 =	**20**
UPL species	**0**	x 5 =	**0**
Column Totals:	**135** (A)		**300** (B)

Prevalence Index = B/A = **2.22**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-55 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-7	2.5Y 5/3	95	10YR 6/8	5	RM	PL	Silty clay	
7-12	10YR 4/2	90	5YR 4/4	10	RM	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/9/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-56 PFO

Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hilltop | Local relief (concave, convex, none): Concave | Slope (%): 5

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65269 | Long: -78.56369 | Datum: WGS84

Soil Map Unit Name: CoA | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-56, located on a hilltop.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- **X** FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **-**
Water Table Present?	Yes	No **X**	Depth (inches): **-**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Buttressed roots noted.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-56 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Tsuga canadensis*	60	Yes	FACU
2. *Acer saccharinum*	25	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	85 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Veratrum viride*	30	Yes	FACW
2. *Glyceria stiata*	30	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**55**	x 2 =	**110**
FAC species	**30**	x 3 =	**90**
FACU species	**60**	x 4 =	**240**
UPL species	**0**	x 5 =	**0**
Column Totals:	**145** (A)		**440** (B)

Prevalence Index = B/A = **3.03**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤ 3.0[1]
- **X** 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- **X** Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met due to atypical situation with problematic vegetation noted. Eastern hemlock forested wetland, noted buttressed roots on all trees within the wetland boundary.

SOIL

Sampling Point: **W-SRC-56 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-7	2.5Y 5/3	95	10YR 6/8	5	RM	PL	Silty clay	
7-12	10YR 4/2	90	5YR 4/4	10	RM	M	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/9/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-53/54/55/56 Upland

Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 15

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65433 | Long: -78.55988 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located between wetlands W-SRC-53, W-SRC-54, W-SRC-55, and W-SRC-56.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-53/54/55/56 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Tsuga canadensis*	30	Yes	FACU
2. *Betula alleghaniensis*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Pteridium aquilinum*	25	Yes	FACU
2. *Dennstaedtia punctilobula*	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	35 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **25%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**20**	x 3 =	**60**
FACU species	**65**	x 4 =	**260**
UPL species	**0**	x 5 =	**0**
Column Totals:	**85** (A)		**320** (B)

Prevalence Index = B/A = **3.76**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-53/54/55/56 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	10YR 3/2	100					Silt loam	
4-8	2.5Y 4/4	100					Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots

Depth (inches): 8

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/9/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-57 PEM
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65251 | Long: -78.55954 | Datum: WGS84
Soil Map Unit Name: BxD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **Yes**, Soil **Yes**, or Hydrology **Yes** significantly disturbed? Are "Normal Circumstances" present? Yes ____ No **X**
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? Yes **X** No

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PEM wetland W-SRC-57, which is located within a natural gas pipeline right-of-way and is assocated with stream S-SRC-22. Atypical situation due to disturbance associated with the installation, operation, and maintenance of the pipeline and right-of-way.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- ____ High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes	No **X**	Depth (inches): **-**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Hydrology has been altered via previous natural gas pipeline installation and right-of-way maintenance. Noted bacterial film.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-57 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	30	Yes	FAC
2. *Juncus effusus*	25	Yes	FACW
3. *Juncus tenuis*	20	Yes	FAC
4. *Osmundastrum cinnamomeum*	20	Yes	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**45**	x 2 =	**90**
FAC species	**50**	x 3 =	**150**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**95** (A)		**240** (B)

Prevalence Index = B/A = **2.53**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Vegetation disturbed via natural gas pipeline installation, operation, and maintenance.

SOIL

Sampling Point: **W-SRC-57 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock and clay

Depth (inches): 2

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met. Soils are disturbed from previous natural gas pipeline installation.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/9/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-58 PEM
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65393 | Long: -78.55761 | Datum: WGS84
Soil Map Unit Name: BxD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **Yes**, Soil **Yes**, or Hydrology **Yes** significantly disturbed? Are "Normal Circumstances" present? Yes ____ No **X**
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? Yes **X** No

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PEM wetland W-SRC-58, which is located within a natural gas pipeline right-of-way and is assocated with stream S-SRC-24. Atypical situation due to disturbance associated with the installation, operation, and maintenance of the pipeline and right-of-way.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- ____ High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes	No **X**	Depth (inches): **-**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Hydrology has been altered via previous natural gas pipeline installation and right-of-way maintenance. Noted bacterial film.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-58 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Juncus tenuis*	30	Yes	FAC
2. *Juncus effusus*	25	Yes	FACW
3. *Carex stipata*	20	Yes	OBL
4. *Solidago sp.* *	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**20**	x 1 =	**20**
FACW species	**25**	x 2 =	**50**
FAC species	**35**	x 3 =	**105**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**80** (A)		**175** (B)

Prevalence Index = B/A = **2.19**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Vegetation disturbed via natural gas pipeline installation, operation, and maintenance.

*Unable to identify species due to the absence of distinguishing characteristics. However, due to the presence of wetland hydrology, hydric soils, and the associated vegetative community, this species is assumed FAC.

SOIL

Sampling Point: **W-SRC-58 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock and clay

Depth (inches): 2

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met. Soils are disturbed from previous natural gas pipeline installation.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/9/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-59 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65460 | Long: -78.55740 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____	**Is the Sampled Area within a Wetland?** Yes **X** No ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-59, which is associated with a groundwater seep.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **2**
Water Table Present?	Yes **X**	No ____	Depth (inches): **6**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Bacterial film noted.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-59 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	75	Yes	FACW
2. *Prunus serotina*	10	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	85 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Carex crinita*	20	Yes	OBL
2. *Athyrium angustum*	30	Yes	FAC
3. *Carex stipata*	30	Yes	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**50**	x 1 =	**50**
FACW species	**75**	x 2 =	**150**
FAC species	**30**	x 3 =	**90**
FACU species	**10**	x 4 =	**40**
UPL species	**0**	x 5 =	**0**
Column Totals:	**165** (A)		**330** (B)

Prevalence Index = B/A = **2.00**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-59 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-4	10YR 4/1	85	10YR 4/6	15	RM	PL	Silty clay	
4-8	2.5Y 6/2	60	10YR 3/6	40	RM	M	Silty clay w/ gravel	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Gravel and sand
Depth (inches): 8

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/9/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-59 Upland
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 20
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65462 | Long: -78.55769 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes	No **X**

Is the Sampled Area within a Wetland? Yes No **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located adjacent to wetland W-SRC-59.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-59 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	60	Yes	FACU
2. *Acer saccharum*	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Osmunda claytoniana*	45	Yes	FAC
2. *Athyrium angustum*	25	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**70**	x 3 =	**210**
FACU species	**80**	x 4 =	**320**
UPL species	**0**	x 5 =	**0**
Column Totals:	**150** (A)		**530** (B)

Prevalence Index = B/A = **3.53**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-59 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock and roots
Depth (inches): 2

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/9/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-60 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65328 | Long: -78.55962 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes **X**	No
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-60, which is associated with a groundwater seep located within a depressional area.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **1**
Water Table Present?	Yes **X**	No	Depth (inches): **4**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Buttressed roots and spagnum moss noted.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-60 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Carpinus caroliniana*	70	Yes	FAC
2. *Prunus serotina*	10	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *Carex crinita*	60	Yes	OBL
2. *Osmundastrum cinnamomeum*	30	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**60**	x 1 =	**60**
FACW species	**30**	x 2 =	**60**
FAC species	**70**	x 3 =	**210**
FACU species	**10**	x 4 =	**40**
UPL species	**0**	x 5 =	**0**
Column Totals:	**170** (A)		**370** (B)

Prevalence Index = B/A = **2.18**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-60 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	7.5YR 2.5/1	100					Silt loam	
4-10	10YR 6/2	80	7.5YR 5/8	20	RM	M	Sandy clay w/ gravel	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Sand and rock
Depth (inches): 10

Hydric Soil Present? **Yes** __X__ **No** _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/9/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-60 Upland

Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 10

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65325 | Long: -78.55969 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located southwest of wetland W-SRC-60.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-60 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	30	Yes	FACU
2. *Prunus serotina*	25	Yes	FACU
3. *Betula alleghaniensis*	10	No	FAC
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		

Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**10**	x 3 =	**30**
FACU species	**55**	x 4 =	**220**
UPL species	**0**	x 5 =	**0**
Column Totals:	**65** (A)		**250** (B)

Prevalence Index = B/A = **3.85**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-60 Upland**

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[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-5	10YR 4/4	100					Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots

Depth (inches): 5

Hydric Soil Present? Yes _____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/9/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-61 PEM
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65403 | Long: -78.55752 | Datum: WGS84
Soil Map Unit Name: HdD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **Yes**, Soil **Yes**, or Hydrology **Yes** significantly disturbed? Are "Normal Circumstances" present? Yes ____ No **X**
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes **X**	No

Is the Sampled Area within a Wetland? Yes **X** No

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PEM wetland W-SRC-61, which is located within a natural gas pipeline right-of-way. Atypical situation due to disturbance associated with the installation, operation, and maintenance of the pipeline and right-of-way.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- ____ High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **7**
Water Table Present?	Yes	No **X**	Depth (inches): **-**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Hydrology has been altered via previous natural gas pipeline installation and right-of-way maintenance. Noted bacterial film.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-61 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Juncus tenuis*	30	Yes	FAC
2. *Juncus effusus*	25	Yes	FACW
3. *Glyceria striata*	20	No	OBL
4. *Dichanthelium clandestinum*	20	No	FAC
5. *Carex crinita*	10	No	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**25**	x 2 =	**50**
FAC species	**50**	x 3 =	**150**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**105** (A)		**230** (B)

Prevalence Index = B/A = **2.19**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Vegetation disturbed via natural gas pipeline installation, operation, and maintenance.

SOIL

Sampling Point: **W-SRC-61 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Clay and rock

Depth (inches): 2

Hydric Soil Present? Yes _____ **No** **X**

Remarks:

The soils criterion has not been met. Soils are disturbed from previous natural gas pipeline installation.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/9/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-57/58/61 Upland

Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 15

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65256 | Long: -78.55956 | Datum: WGS84

Soil Map Unit Name: BxD | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located between wetlands W-SRC-57, W-SRC-58, and W-SRC-61.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-57/58/61 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	30	Yes	FAC
2. *Pteridium aquilinum*	20	Yes	FACU
3. *Dactylis glomerata*	20	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **33%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**30**	x 3 =	**90**
FACU species	**40**	x 4 =	**160**
UPL species	**0**	x 5 =	**0**
Column Totals:	**70** (A)		**250** (B)

Prevalence Index = B/A = **3.57**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-57/58/61 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock and clay

Depth (inches): 2

Hydric Soil Present? Yes _____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/9/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-62 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66064 | Long: -78.56894 | Datum: WGS84
Soil Map Unit Name: HdD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-62, which appears to be the source of stream S-SRC-25.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- **X** Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes **X**	No	Depth (inches): **2**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Buttressed roots and spagnum moss noted.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-62 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	80	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Athyrium angustum*	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**80**	x 2 =	**160**
FAC species	**20**	x 3 =	**60**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**100** (A)		**220** (B)

Prevalence Index = B/A = **2.20**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-62 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-3	10YR 6/2	80	7.5YR 5/8	20	RM	M	Silty clay	
3-6	2.5Y 6/2	75	7.5YR 5/6	25	RM	M	Clay w/ gravel	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Clay and rock
Depth (inches): 6

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/9/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-62 Upland

Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 10

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66069 | Long: -78.56886 | Datum: WGS84

Soil Map Unit Name: HdD | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located adjacent to wetland W-SRC-62.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-62 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	30	Yes	FACU
2. *Acer saccharum*	25	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Fagus grandifolia*	25	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	25 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

	Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**	
FACW species	**0**	x 2 =	**0**	
FAC species	**0**	x 3 =	**0**	
FACU species	**80**	x 4 =	**320**	
UPL species	**0**	x 5 =	**0**	
Column Totals:	**80**	(A)	**320**	(B)

Prevalence Index = B/A = **4.00**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-62 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Clay and rock

Depth (inches): 3

Hydric Soil Present? Yes _____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/10/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-63 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65809 | Long: -78.55887 | Datum: WGS84
Soil Map Unit Name: CpD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-63, which is associated within a groundwater seep.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **1**
Water Table Present?	Yes **X**	No	Depth (inches): **6**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Noted buttressed roots.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-63 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	30	Yes	FACW
2. *Betula alleghaniensis*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Veratrum viride*	25	Yes	FACW
2. *Glyceria striata*	20	Yes	OBL
3. *Athyrium angustum*	15	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **5** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**20**	x 1 =	**20**
FACW species	**55**	x 2 =	**110**
FAC species	**35**	x 3 =	**105**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**110** (A)		**235** (B)

Prevalence Index = B/A = **2.14**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-63 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	2.5Y 3/2	100					Sandy silt	
2-10	10YR 3/1	100					Sandy silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
__X__ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots
Depth (inches): 10

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/10/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-63 Upland
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 10
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65804 | Long: -78.55903 | Datum: WGS84
Soil Map Unit Name: CpD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes	No **X**
Wetland Hydrology Present?	Yes	No **X**

Is the Sampled Area within a Wetland? Yes No **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located adjacent to wetland W-SRC-63.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-63 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	40	Yes	FACU
2. *Fagus grandifolia*	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*		#DIV/0!	Bag & Tag
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Pteridium aquilinum*	30	Yes	FACU
2. *Dennstaedtia punctilobula*	25	Yes	FACU
3. *Osmundastrum cinnamomeum*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**10**	x 2 =	**20**
FAC species	**0**	x 3 =	**0**
FACU species	**115**	x 4 =	**460**
UPL species	**0**	x 5 =	**0**
Column Totals:	**125** (A)		**480** (B)

Prevalence Index = B/A = **3.84**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-63 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots
Depth (inches): 2

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/10/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-64 PEM
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 15%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65899 | Long: -78.56149 | Datum: WGS84
Soil Map Unit Name: CpD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **Yes**, Soil **Yes**, or Hydrology **Yes** significantly disturbed? Are "Normal Circumstances" present? Yes ____ No **X**
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____
Hydric Soil Present?	Yes **X**	No ____
Wetland Hydrology Present?	Yes **X**	No ____

Is the Sampled Area within a Wetland? **Yes X** **No** ____

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within a large PEM wetland W-SRC-64, which is located within an electrical transmission right-of-way. Atypical situation due to disturbance associated with the installation, operation, and maintenance of the electrical right-of-way. Associated with stream S-WH-01 and PFO wetland W-SRC-67.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **6**
Water Table Present?	Yes **X**	No ____	Depth (inches): **6**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? **Yes X** **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Hydrology has been altered via previous electrical transmission line installation and right-of-way maintenance. Noted spagnum moss.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-64 PEM**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex aquatilis*	10	No	OBL
2. *Carex echinata*	10	No	OBL
3. *Rubus hispidus*	80	Yes	FACW
4. *Carex crinita*	10	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**80**	x 2 =	**160**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**110** (A)		**190** (B)

Prevalence Index = B/A = **1.73**

Hydrophytic Vegetation Indicators:

- **X** 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Vegetation disturbed via electrical transmission right-of-way installation, operation, and maintenance.

SOIL

Sampling Point: **W-SRC-64 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4							Organic	Organic Layer
4-16	2.5Y 2.5/1	100					Silty sand	Black organic, spagnum bog

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
__X__ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 16

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met. Soils are disturbed from previous electrical transmission installation.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/10/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-65 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10%
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65950 | Long: -78.56235 | Datum: WGS84
Soil Map Unit Name: CpD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-65, which is associated within a groundwater seep.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- **X** Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **2**
Water Table Present?	Yes **X**	No	Depth (inches): **7**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Noted bacterial film and spagnum moss.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-65 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	40	Yes	FAC
2. *Acer saccharinum*	25	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *None observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**25**	x 2 =	**50**
FAC species	**40**	x 3 =	**120**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**65** (A)		**170** (B)

Prevalence Index = B/A = **2.62**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Additional canopy cover provided by black cherry trees located immediately outside of the wetland boundaries.

SOIL

Sampling Point: **W-SRC-65 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6							Organic	Organic Layer
6-10	2.5Y 2.5/1	100					Silty sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
__X__ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 10

Hydric Soil Present? **Yes** __X__ **No** _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/10/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-64/65 Upland

Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 15

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65940 | Long: -78.56168 | Datum: WGS84

Soil Map Unit Name: HdD | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located between wetlands W-SRC-64 and W-SRC-65.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-64/65 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	30	Yes	FACU
2. *Fagus grandifolia*	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None observed*		#DIV/0!	Bag & Tag
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dennstaedtia punctilobula*	20	Yes	FACU
2. *Osmundastrum cinnamomeum*	20	Yes	FACW
3. *Lycopodium clavatum*	20	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **40%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**20**	x 2 =	**40**
FAC species	**20**	x 3 =	**60**
FACU species	**70**	x 4 =	**280**
UPL species	**0**	x 5 =	**0**
Column Totals:	**110** (A)		**380** (B)

Prevalence Index = B/A = **3.45**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-64/65 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock and roots
Depth (inches): 1

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/10/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-66 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66230 | Long: -78.56468 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-66, which is associated within streams S-SRC-20 and S-WH-01.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- **X** Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **4**
Water Table Present?	Yes **X**	No	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Noted spagnum moss.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-66 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	40	Yes	FACW
2. *Betula nigra*	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Betula nigra*	25	Yes	FACW
2. *Athyrium angustum*	20	Yes	FAC
3. *Osmundastrum cinnamomeum*	20	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **5** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**105**	x 2 =	**210**
FAC species	**20**	x 3 =	**60**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**125** (A)		**270** (B)

Prevalence Index = B/A = **2.16**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Additional canopy cover provided by black cherry trees located immediately outside of the wetland boundaries.

SOIL

Sampling Point: **W-SRC-66 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4							Organic	Organic Layer
4-7	7.5YR 2.5/2	100					Silty sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
__X__Stripped Matrix (S6)

____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 7

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/10/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-66 Upland

Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 15

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66222 | Long: -78.56493 | Datum: WGS84

Soil Map Unit Name: CpB | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located adjacent to wetland W-SRC-66.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-66 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	25	Yes	FAC
2. *Prunus serotina*	20	Yes	FACU
3. *Acer saccharum*	20	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Hamamelis virginiana*	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Dennstaedtia punctilobula*	25	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **20%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**25**	x 3 =	**75**
FACU species	**85**	x 4 =	**340**
UPL species	**0**	x 5 =	**0**
Column Totals:	**110** (A)		**415** (B)

Prevalence Index = B/A = **3.77**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-66 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots

Depth (inches): 3

Hydric Soil Present? Yes _____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/10/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-67 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65980 | Long: -78.56510 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Hydric Soil Present?	Yes **X**	No	
Wetland Hydrology Present?	Yes **X**	No	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-67, which is a large, forest wetland associated with multiple groundwater seeps and stream S-WH-01. Connected to PEM wetland W-SRC-64.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- **X** Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- **X** Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **4**
Water Table Present?	Yes **X**	No	Depth (inches): **0**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Noted spagnum moss, bacterial film, and dead standing trees (black cherry).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-67 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	30	Yes	FAC
2. *Tsuga canadensis*	25	Yes	FACU
3. *Acer saccharinum*	20	Yes	FACW
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Osmundastrum cinnamomeum*	20	Yes	FACW
2. *Carex crinita*	20	Yes	OBL
3. *Onoclea sensibilis*	20	Yes	FACW
4. *Rubus hispidus*	15	No	FACW
5. *Glyceria striata*	15	No	OBL
6. *Carex stipata*	10	No	OBL
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**45**	x 1 =	**45**
FACW species	**75**	x 2 =	**150**
FAC species	**30**	x 3 =	**90**
FACU species	**25**	x 4 =	**100**
UPL species	**0**	x 5 =	**0**
Column Totals:	**175** (A)		**385** (B)

Prevalence Index = B/A = **2.20**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- **X** 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- **X** Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Noted several dead standing trees. Problematic vegatation consists of eastern hemlocks.

SOIL

Sampling Point: **W-SRC-67 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-7	7.5YR 2.5/1	100					Silt	
7-12	2.5Y 3/1	100					Silty sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
__X__ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Sand and rock
Depth (inches): 12

Hydric Soil Present? **Yes** __X__ **No** _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/10/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-68 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66039 | Long: -78.56304 | Datum: WGS84
Soil Map Unit Name: HdD | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Hydric Soil Present?	Yes **X**	No	
Wetland Hydrology Present?	Yes **X**	No	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-68, which is associated with a groundwater seep.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- **X** Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): **-**
Water Table Present?	Yes **X**	No	Depth (inches): **8**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Noted spagnum moss.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-68 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	60	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Osmundastrum cinnamomeum*	25	Yes	FACW
2. *Athyrium angustum*	30	Yes	FAC
3. *Carex lurida*	20	Yes	OBL
4. *Carex aquatilis*	10	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**85**	x 2 =	**170**
FAC species	**30**	x 3 =	**90**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**145** (A)		**290** (B)

Prevalence Index = B/A = **2.00**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-68 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-4	2.5Y 2.5/1	100					Silt loam	
4-9	10YR 6/2	80	7.5YR 5/6	20	RM	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots
Depth (inches): 9

Hydric Soil Present? Yes X No ____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/10/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-67/68 Upland

Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 10

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66043 | Long: -78.56309 | Datum: WGS84

Soil Map Unit Name: HdD | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located adjacent to wetlands W-SRC-67 and W-SRC-68.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? **Yes** ____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-67/68 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	30	Yes	FACU
2. *Prunus serotina*	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Pteridium aquilinum*	60	Yes	FACU
2. *Dennstaedtia punctilobula*	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**130**	x 4 =	**520**
UPL species	**0**	x 5 =	**0**
Column Totals:	**130** (A)		**520** (B)

Prevalence Index = B/A = **4.00**

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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has not been met.

SOIL

Sampling Point: **W-SRC-67/68 Upland**

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[1]	Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-5	10YR 3/3	100					Silt loam	
5-9	10YR 4/6	100					Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots
Depth (inches): 3

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/11/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-69 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66003 | Long: -78.56634 | Datum: WGS84
Soil Map Unit Name: BxB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Hydric Soil Present?	Yes **X**	No	
Wetland Hydrology Present?	Yes **X**	No	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-69, which is associated with a groundwater seep.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- **X** Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No **X**	Depth (inches): -
Water Table Present?	Yes	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Noted buttressed roots, dead standing trees, and spagnum moss.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-69 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	40	Yes	FAC
2. *Acer saccharinum*	30	Yes	FACW
3. *Prunus serotina*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Osmundastrum cinnamomeum*	30	Yes	FACW
2. *Athyrium angustum*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**60**	x 2 =	**120**
FAC species	**60**	x 3 =	**180**
FACU species	**10**	x 4 =	**40**
UPL species	**0**	x 5 =	**0**
Column Totals:	**130** (A)		**340** (B)

Prevalence Index = B/A = **2.62**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-69 PFO**

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[1]	Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer
1-10	10YR 3/1	100					Silty sand	
10-12	10YR 6/2	70	7.5YR 4/6	30	RM	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/11/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-70 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66167 | Long: -78.56665 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No	
Hydric Soil Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes **X** No
Wetland Hydrology Present?	Yes **X**	No	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-70, which is associated with a groundwater seep and stream S-WH-01.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ___ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No	Depth (inches): **3**
Water Table Present?	Yes **X**	No	Depth (inches): **1**
Saturation Present? (includes capillary fringe)	Yes **X**	No	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Noted buttressed roots, bacterial film, and spagnum moss.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-70 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	25	Yes	FAC
2. *Acer saccharinum*	25	Yes	FACW
3. *Tsuga canadensis*	20	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Osmundastrum cinnamomeum*	30	Yes	FACW
2. *Athyrium angustum*	20	Yes	FAC
3. *Carex crinita*	20	Yes	OBL
4. *Viola cucullata*	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**20**	x 1 =	**20**
FACW species	**65**	x 2 =	**130**
FAC species	**45**	x 3 =	**135**
FACU species	**20**	x 4 =	**80**
UPL species	**0**	x 5 =	**0**
Column Totals:	**150** (A)		**365** (B)

Prevalence Index = B/A = **2.43**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- **X** 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- **X** Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Eastern hemlock is considered problematic vegetation. Noted buttressed roots and moss trim lines.

SOIL

Sampling Point: **W-SRC-70 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2							Organic	Organic Layer
2-9	10YR 3/1	100					Silty sand	
9-12	10YR 6/2	60	7.5YR 4/8	40	RM	M	Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
____Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
__X__Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 X No _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/11/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-71 PFO
Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66203 | Long: -78.56608 | Datum: WGS84
Soil Map Unit Name: CpB | NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____	**Is the Sampled Area within a Wetland?** Yes **X** No ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-SRC-71, which is associated with stream S-WH-01.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- **X** Surface Water (A1)
- **X** High Water Table (A2)
- **X** Saturation (A3)
- ____ Water Marks (B1)
- **X** Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- **X** Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- **X** Thin Muck Surface (C7)
- **X** Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- **X** 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)
- **X** Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes **X**	No ____	Depth (inches): **2**
Water Table Present?	Yes **X**	No ____	Depth (inches): **4**
Saturation Present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches): **0**

Wetland Hydrology Present? Yes **X** No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has been met. Noted buttressed roots.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-71 PFO**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Tsuga canadensis*	30	Yes	FACU
2. *Betula alleghaniensis*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Osmundastrum cinnamomeum*	25	Yes	FACW
2. *Athyrium angustum*	20	Yes	FAC
3. *Carex intumescens*	15	Yes	FACW
4. *Tsuga canadensis*	10	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**40**	x 2 =	**80**
FAC species	**40**	x 3 =	**120**
FACU species	**40**	x 4 =	**160**
UPL species	**0**	x 5 =	**0**
Column Totals:	**120** (A)		**360** (B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤ 3.0[1]
- **X** 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- **X** Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met. Eastern hemlock is considered problematic vegetation. Noted buttressed roots and moss trim lines.

SOIL

Sampling Point: **W-SRC-71 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3							Organic	Organic Layer
3-8	10YR 3/1	100					Sandy silt	
8-11	5YR 4/1	100					Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
__X__ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Sand and rock
Depth (inches): 11

Hydric Soil Present? **Yes** __X__ **No** _____

Remarks:

The soils criterion has been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/11/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-SRC-69/70/71 Upland

Investigator(s): Steve Crescenzo, Matt Boscow | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 10

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.66024 | Long: -78.56654 | Datum: WGS84

Soil Map Unit Name: BxB | NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (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 **X**	No ____
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located adjacent to wetlands W-SRC-67 and W-SRC-68.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 **X**	Depth (inches): -
Water Table Present?	Yes ____	No **X**	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches): -

Wetland Hydrology Present? Yes ____ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrology criterion has not been met.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-SRC-69/70/71 Upland**

Tree Stratum (Plot size: 30 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	30	Yes	FACU
2. *Acer saccharum*	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Betula alleghaniensis*	15	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Osmundastrum cinnamomeum*	60	Yes	FACW
2. *Betula alleghaniensis*	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **60%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**60**	x 2 =	**120**
FAC species	**35**	x 3 =	**105**
FACU species	**50**	x 4 =	**200**
UPL species	**0**	x 5 =	**0**
Column Totals:	**145** (A)		**425** (B)

Prevalence Index = B/A = **2.93**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-SRC-69/70/71 Upland**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1							Organic	Organic Layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 1

Hydric Soil Present? Yes _____ No X

Remarks:

The soils criterion has not been met.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/10/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-TPT-1 PEM
Investigator(s): Tony Tredway, Shane Brodnick | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave | Slope (%): 1-5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65566 | Long: -78.56056 | Datum: NAD83
Soil Map Unit Name: BxB | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 x	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes x	No ____	
Wetland Hydrology Present?	Yes x	No ____	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within the PEM portion of wetland W-TPT-1

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- x Surface Water (A1)
- ____ High Water Table (A2)
- x Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- x Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 X	No ____	Depth (inches): 3
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 6

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-TPT-1 PEM**

Tree Stratum (Plot size: 20 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft.)			
1. *Amelanchier arborea*	2	No	FAC
2. *Viburnum lentago*	2	No	FAC
3. *Spirea*	10	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	14 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Juncus effusus*	20	Yes	FACW
2. *Carex intumescens*	25	Yes	FACW
3. *Matteuccia struthiopteris*	10	No	FACW
4. *Thelypteris noveboracensis*	5	No	FAC
5. *Carex crinita*	20	Yes	OBL
6. *Scirpus atrovirens*	10	No	OBL
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**30**	x 1 =	**30**
FACW species	**55**	x 2 =	**110**
FAC species	**19**	x 3 =	**57**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column Totals:	**104** (A)		**197** (B)

Prevalence Index = B/A = **1.89**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-TPT-1 PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/4	100			C	M	Sandy Loam	
2-16	10YR 4/2	90	10YR 5/6	10	C	M	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)

____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/11/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-TPT-1 PFO
Investigator(s): Tony Tredway, Shane Brodnick | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): Concave | Slope (%): 1-5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65677 | Long: -78.56222 | Datum: NAD83
Soil Map Unit Name: BxB | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 x	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes x	No ____	
Wetland Hydrology Present?	Yes x	No ____	

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within the PFO portion of wetland W-TPT-1.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- x Surface Water (A1)
- x High Water Table (A2)
- x Saturation (A3)
- x Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- x 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)
- x Sparsely Vegetated Concave Surface (B8)
- x 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)
- x Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- x FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 1
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-TPT-1 PFO**

Tree Stratum (Plot size: 20 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	55	Yes	FAC
2. *Betula lenta*	20	Yes	FACU
3. *Tsuga canadensis*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft.)			
1. *Betula alleghaniensis*	15	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1.			
2. *Carex intumescens*	15	Yes	FACW
3. *veratrum viride*	10	No	FACW
4. *Thelypteris noveboracensis*	5	No	FAC
5. *Carex crinita*	25	Yes	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**25**	x 1 =	**25**
FACW species	**25**	x 2 =	**50**
FAC species	**75**	x 3 =	**225**
FACU species	**25**	x 4 =	**100**
UPL species	**0**	x 5 =	**0**
Column Totals:	**150** (A)		**400** (B)

Prevalence Index = B/A = **2.67**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-TPT-1 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Organic	
6-16	10YR 3/1	90	10YR 5/6	10	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5)
____ 2 cm Muck (A10) **(LRR N)**
____ Depleted Below Dark Surface (A11)
__x__ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Dark Surface (S7)
____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____ Thin Dark Surface (S9) **(MLRA 147, 148)**
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____ Umbric Surface (F13) **(MLRA 136, 122)**
____ Piedmont Floodplain Soils (F19) **(MLRA 148)**
____ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____ 2 cm Muck (A10) **(MLRA 147)**
____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____ Very Shallow Dark Surface (TF12)
____ Other (Explain in Remarks)

[3]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 X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/11/2020

Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-TPT-1, UPL

Investigator(s): Tony Tredway, Shane Brodnick | Section, Township, Range: Sergeant Township

Landform (hillslope, terrace, etc.): upland | Local relief (concave, convex, none): convex | Slope (%): 3

Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65558 | Long: -78.56101 | Datum: NAD83

Soil Map Unit Name: BxB | NWI Classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 x	No ____
Hydric Soil Present?	Yes x	No ____
Wetland Hydrology Present?	Yes ____	No x

Is the Sampled Area within a Wetland? **Yes** ____ **No** x

Remarks: (Explain alternative procedures here or in a separate report)

This point was determined not to be within a wetland due to the lack of all three wetland criteria. Upland point for W-TPT-1

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** x

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-TPT-1, UPL**

Tree Stratum (Plot size: 20 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *prunus serotina*	45	Yes	FACU
2. *acer rubrum*	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		

Sapling/Shrub Stratum (Plot size: 10 ft.)			
1. *amelanchier arborea*	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *pteridium aquilinum*	30		FACU
2. *theylpteris noveboracensis*	30	Yes	FAC
3. *rubus trivialis*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		

Woody Vine Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**65**	x 3 =	**195**
FACU species	**85**	x 4 =	**340**
UPL species	**0**	x 5 =	**0**
Column Totals:	**150** (A)		**535** (B)

Prevalence Index = B/A = **3.57**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-TPT-1, UPL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Organic	
6-16	10YR 3/1	90	10YR 5/6	10	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
__x__Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/11/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-TPT-2 PFO
Investigator(s): Tony Tredway, Shane Brodnick | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): Concave | Slope (%): 1-5
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65567 | Long: -78.56349 | Datum: NAD83
Soil Map Unit Name: HdD | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 x	No ____
Hydric Soil Present?	Yes x	No ____
Wetland Hydrology Present?	Yes x	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-TPT-2

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- x Surface Water (A1)
- x High Water Table (A2)
- x Saturation (A3)
- x Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- x 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)
- x Sparsely Vegetated Concave Surface (B8)
- x 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)
- x Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 1
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-TPT-2 PFO**

Tree Stratum (Plot size: 20 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	50	Yes	FAC
2. *Betula lenta*	20	Yes	FACU
3. *Tsuga canadensis*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft.)			
1. *Betula alleghaniensis*	15	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Carex intumescens*	15	Yes	FACW
2. *Veratrum viride*	10	No	FACW
3. *Parathelypteris noveboracensis*	5	No	FAC
4. *Carex crinita*	25	Yes	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**25**	x 2 =	**50**
FAC species	**95**	x 3 =	**285**
FACU species	**30**	x 4 =	**120**
UPL species	**0**	x 5 =	**0**
Column Totals:	**150** (A)		**455** (B)

Prevalence Index = B/A = **3.03**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-TPT-2 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Organic	
6-16	10YR 3/1	90	10YR 5/6	10	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
__x__Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/11/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-TPT-3 PFO
Investigator(s): Tony Tredway, Shane Brodnick | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): Concave | Slope (%): 3
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65727 | Long: -78.56551 | Datum: NAD83
Soil Map Unit Name: HdD | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 x	No ____
Hydric Soil Present?	Yes x	No ____
Wetland Hydrology Present?	Yes x	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: (Explain alternative procedures here or in a separate report)

This sample point is located within PFO wetland W-TPT-3

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- x Surface Water (A1)
- x High Water Table (A2)
- x Saturation (A3)
- x Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- x 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)
- x Sparsely Vegetated Concave Surface (B8)
- x 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)
- x Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- x FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 1
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-TPT-3 PFO**

Tree Stratum (Plot size: 20 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	50	Yes	FAC
2. *Betula lenta*	10	No	FACU
3. *Tsuga canadensis*	15	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft.)			
1. *Betula alleghaniensis*	15	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Thelypteris noveboracensis*	25	Yes	FAC
2. *Carex intumescens*	20	Yes	FACW
3. *veratrum viride*	10	No	FACW
4. *Carex crinita*	25	Yes	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test 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%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**25**	x 1 =	**25**
FACW species	**30**	x 2 =	**60**
FAC species	**90**	x 3 =	**270**
FACU species	**25**	x 4 =	**100**
UPL species	**0**	x 5 =	**0**
Column Totals:	**170** (A)		**455** (B)

Prevalence Index = B/A = **2.68**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-TPT-3 PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Organic	
6-16	10YR 3/1	90	10YR 5/6	10	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
__x__Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar | County: McKean | Sampling Date: 6/11/2020
Applicant/Owner: Walden Renewables Development, LLC | State: PA | Sample Point: W-TPT-2/3, UPL
Investigator(s): Tony Tredway, Shane Brodnick | Section, Township, Range: Sergeant Township
Landform (hillslope, terrace, etc.): upland | Local relief (concave, convex, none): convex | Slope (%): 3
Subregion (LRR or MLRA): LRR N, MLRA 127 | Lat: 41.65615 | Long: -78.56408 | Datum: NAD83
Soil Map Unit Name: HdD | NWI Classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) Yes (if no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (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 x	No	**Is the Sampled Area within a Wetland?** Yes ____ No x
Hydric Soil Present?	Yes x	No	
Wetland Hydrology Present?	Yes	No x	

Remarks: (Explain alternative procedures here or in a separate report)

This point was determined not to be within a wetland due to the lack of all three wetland criteria. Upland point for W-TPT-2 and W-TPT-3.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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 x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No x

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: **W-TPT-2/3, UPL**

Tree Stratum (Plot size: 20 ft.)	Absolute % cover	Dominant Species?	Indicator Status
1. *prunus serotina*	45	Yes	FACU
2. *acer rubrum*	15	Yes	FAC
3. *tsuga canadensis*	15	Yes	FAC
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		

Sapling/Shrub Stratum (Plot size: 10 ft.)			
1. *amelanchier arborea*	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20 = Total Cover		

Herb Stratum (Plot size: 5 ft.)			
1. *pteridium aquilinum*	30		FACU
2. *theylpteris noveboracensis*	30	Yes	FAC
3. *rubus trivialis*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		

Woody Vine Stratum (Plot size: 5 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**80**	x 3 =	**240**
FACU species	**85**	x 4 =	**340**
UPL species	**0**	x 5 =	**0**
Column Totals:	**165** (A)		**580** (B)

Prevalence Index = B/A = **3.52**

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 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 Five Vegetation Strata:

Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants, excluding woody vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

The hydrophytic vegetation criterion has been met.

SOIL

Sampling Point: **W-TPT-2/3, UPL**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Organic	
6-16	10YR 3/1	90	10YR 5/6	10	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators:

____Histosol (A1)
____Histic Epipedon (A2)
____Black Histic (A3)
____Hydrogen Sulfide (A4)
____Stratified Layers (A5)
____2 cm Muck (A10) **(LRR N)**
____Depleted Below Dark Surface (A11)
__x__Thick Dark Surface (A12)
____Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
____Sandy Gleyed Matrix (S4)
____Sandy Redox (S5)
____Stripped Matrix (S6)
____Dark Surface (S7)
____Polyvalue Below Surface (S8) **(MLRA 147, 148)**
____Thin Dark Surface (S9) **(MLRA 147, 148)**
____Loamy Gleyed Matrix (F2)
____Depleted Matrix (F3)
____Redox Dark Surface (F6)
____Depleted Dark Surface (F7)
____Redox Depressions (F8)
____Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
____Umbric Surface (F13) **(MLRA 136, 122)**
____Piedmont Floodplain Soils (F19) **(MLRA 148)**
____Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

____2 cm Muck (A10) **(MLRA 147)**
____Coast Prairie Redox (A16) **(MLRA 147, 148)**
____Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
____Very Shallow Dark Surface (TF12)
____Other (Explain in Remarks)

[3]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 __X__ No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-03
Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-02_PFO-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Depression **Local relief (concave, convex, none):** Concave **Slope (%):** 10 to 20
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6730942624 **Long:** -78.5652544723 **Datum:** WGS84
Soil Map Unit Name: BxB—Buchanan silt loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes _✓_ No ____		
Wetland Hydrology Present?	Yes _✓_ No ____	**Is the Sampled Area within a Wetland?**	**Yes _✓_ No ____**

Remarks:

Covertype is PFO. Area is wetland, all three wetland parameters are present. Historic Logging Disturbance .

W-WH-02 was merged with W-SRC-14 after a sampling point was collected. This sampling point should be considered supplementary to the original W-SRC-14 sampling point data.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- _✓_ 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 capillary 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:

The criterion for wetland hydrology is met.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-02_PFO-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga canadensis*	90	Yes	FACU
2. *Acer rubrum*	15	No	FAC
3. *Fagus grandifolia*	5	No	FACU
4.			
5.			
6.			
7.			
	110	= Total Cover	
50% of total cover: 55	20% of total cover:	22	

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Herb Stratum (Plot size: ___)			
1. *Veratrum viride*	60	Yes	FACW
2. *Viola cucullata*	20	No	FACW
3. *Hydrilla verticillata*	20	No	OBL
4. *Thelypteris palustris*	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110	= Total Cover	
50% of total cover: 55	20% of total cover:	22	

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	20	x 1 =	20
FACW species	90	x 2 =	180
FAC species	15	x 3 =	45
FACU species	95	x 4 =	380
UPL species	0	x 5 =	0
Column Totals	220	(A)	625 (B)
Prevalence Index = B/A =	2.8		

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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes __✓__ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-02_PFO-1

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[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 2/2	100					Org matter Silt Loam	
4 - 18	2.5Y 5/1	90	7.5YR 5/8	10	C	M	Clay Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
_✓ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rocks
Depth (inches): 18

Hydric Soil Present? Yes _✓_ No ____

Remarks:

The criterion for hydric soil is met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-03

Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-02_UPL-1

Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**

Landform (hillslope, terrace, etc.): Hillslope **Local relief (concave, convex, none):** Convex **Slope (%):** 1 to 10

Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6729797237 **Long:** -78.5652465095 **Datum:** WGS84

Soil Map Unit Name: BxB—Buchanan silt loam **NWI classification:**

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 problematic? (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 Soil Present?	Yes ____ No ✓		
Wetland Hydrology Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?**	**Yes ____ No ✓**

Remarks:

Covertype is UPL. Area is upland, not all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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):	**Wetland Hydrology Present?** Yes ____ No ✓
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches):	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-02_UPL-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga canadensis*	50	Yes	FACU
2. *Fagus grandifolia*	50	Yes	FACU
3. *Acer rubrum*	15	No	FAC
4.			
5.			
6.			
7.			
	115	= Total Cover	

50% of total cover: 57.5 20% of total cover: 23

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: ___)			
1. *Medeola virginiana*	5	Yes	FAC
2. *Dendrolycopodium dendroideum*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	105	x 4 =	420
UPL species	0	x 5 =	0
Column Totals	125	(A)	480 (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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-02_UPL-1

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[1]	Loc[2]	Texture	Remarks
0 - 3	7.5YR 2.5/1	100					Org matter Peat	
3 - 4	2.5YR 2.5/1	100					Loam	
4 - 6	10YR 3/4	100					Loam	
6 - 16	10YR 4/6	100					Clay Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes ____ No ✓

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-03

Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-03_PFO-1

Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**

Landform (hillslope, terrace, etc.): Channel **Local relief (concave, convex, none):** Concave **Slope (%):** 1 to 10

Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6737653176 **Long:** -78.5651482736 **Datum:** WGS84

Soil Map Unit Name: BxB—Buchanan silt loam **NWI classification:**

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 problematic? (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 Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?**	**Yes ✓ No ____**

Remarks:

Covertype is PFO. Area is wetland, all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ✓ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ 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):	1	
Water Table Present?	Yes ✓ No ____	Depth (inches):	6	**Wetland Hydrology Present?** Yes ✓ No ____
Saturation Present? (includes capillary fringe)	Yes ✓ No ____	Depth (inches):	0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The criterion for wetland hydrology is met.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-03_PFO-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga canadensis*	70	Yes	FACU
2. *Betula alleghaniensis*	20	No	FAC
3. *Fagus grandifolia*	15	No	FACU
4. *Acer pensylvanicum*	8	No	FACU
5.			
6.			
7.			
	113	= Total Cover	
50% of total cover: 56.5	20% of total cover:	22.6	

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Herb Stratum (Plot size: ___)			
1. *Thelypteris palustris*	20	Yes	FACW
2. *Microstegium vimineum*	10	Yes	FAC
3. *Viola cucullata*	8	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	38	= Total Cover	
50% of total cover: 19	20% of total cover:	7.5999999999999996	

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	0	x 1 =	0
FACW species	28	x 2 =	56
FAC species	30	x 3 =	90
FACU species	93	x 4 =	372
UPL species	0	x 5 =	0
Column Totals	151	(A)	518 (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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _✓_ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-03_PFO-1

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[1]	Loc[2]	Texture	Remarks
0 - 3	10YR 2/1	100					Org matter Mucky Peat	
3 - 7	2.5Y 5/2	100					Gravelly Sand	
7 - 18	10YR 3/1	100					Gravelly Sandy Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
_✓ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes _✓_ No ____

Remarks:

The criterion for hydric soil is met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-03

Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-03_UPL-1

Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**

Landform (hillslope, terrace, etc.): Hillslope **Local relief (concave, convex, none):** Convex **Slope (%):** 1 to 10

Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6737513617 **Long:** -78.5651373771 **Datum:** WGS84

Soil Map Unit Name: BxB—Buchanan silt loam **NWI classification:**

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 problematic? (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 Soil Present?	Yes ____ No ✓		
Wetland Hydrology Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?**	**Yes ____ No ✓**

Remarks:

Covertype is UPL. Area is upland, not all three wetland parameters are present. Historic Logging.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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):	**Wetland Hydrology Present?** Yes ____ No ✓
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches):	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-03_UPL-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga canadensis*	60	Yes	FACU
2. *Fagus grandifolia*	50	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	110	= Total Cover	
50% of total cover: 55	20% of total cover:	22	
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	
Herb Stratum (Plot size: ___)			
1. *Medeola virginiana*	8	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	8	= Total Cover	
50% of total cover: 4	20% of total cover:	1.6	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(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	x 1 =	0
FACW species	0	x 2 =	0
FAC species	8	x 3 =	24
FACU species	110	x 4 =	440
UPL species	0	x 5 =	0
Column Totals	118	(A)	464 (B)
Prevalence Index = B/A =	3.9		

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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-03_UPL-1

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[1]	Loc[2]	Texture	Remarks
0 - 3	7.5YR 2.5/1	100					Org matter Loam	
3 - 5	5Y 2.5/1	100					Org matter Loam	
5 - 11	7.5YR 5/2	100					Sand	
11 - 18	7.5YR 3/2	95	7.5YR 5/8	5	C	M	Sandy Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes ____ No ✓

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-03
Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-04_PEM-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Depression **Local relief (concave, convex, none):** Concave **Slope (%):** 1 to 10
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6740082251 **Long:** -78.5604359676 **Datum:** WGS84
Soil Map Unit Name: CpD—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?**	**Yes ✓ No ____**

Remarks:

Covertype is PEM. Area is wetland, all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ 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):	1	
Water Table Present?	Yes ✓ No ____	Depth (inches):	0	**Wetland Hydrology Present?** Yes ✓ No ____
Saturation Present? (includes capillary fringe)	Yes ✓ No ____	Depth (inches):	0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The criterion for wetland hydrology is met.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-04_PEM-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: ___)			
1. *Veratrum viride*	20	Yes	FACW
2. *Carex sp.*		Bad	NI
3. *Impatiens capensis*	15	Yes	FACW
4. *Rubus hispidus*	10	Yes	FACW
5. *Osmundastrum cinnamomeum*	5	Bad	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	50 (A)		100 (B)
Prevalence Index = B/A =	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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _✓_ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-04_PEM-1

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[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 2/2	100					Silt Loam	
4 - 20	2.5Y 6/1	93	7.5YR 5/6	7	C	M	Sand	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
_✓ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes _✓_ No ____

Remarks:

The criterion for hydric soil is met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-03
Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-04_UPL-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** Undulating **Slope (%):** 1 to 3
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6737074405 **Long:** -78.5607057811 **Datum:** WGS84
Soil Map Unit Name: CpD—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes ____ No ✓		
Wetland Hydrology Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?**	**Yes ____ No ✓**

Remarks:

Covertype is UPL. Area is upland, not all three wetland parameters are present. Historic Logging.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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):	**Wetland Hydrology Present?** Yes ____ No ✓
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches):	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-04_UPL-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: ___)			
1. *Dichanthelium clandestinum*	100	Yes	FAC
2. *Solidago canadensis*	10	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
50% of total cover: 55	20% of total cover: 22		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals	110	(A)	340 (B)
Prevalence Index = B/A =	3.1		

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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _✓_ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-04_UPL-1

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[1]	Loc[2]	Texture	Remarks
0 - 18	10YR 4/4	100					Sandy Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes ____ No ✓

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-04
Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-05_PFO-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Channel **Local relief (concave, convex, none):** Concave **Slope (%):** 1 to 10
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6693012836 **Long:** -78.5669726786 **Datum:** WGS84
Soil Map Unit Name: CpB—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?**	**Yes ✓ No ____**

Remarks:

Covertype is PFO. Area is wetland, all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ✓ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ 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):	1
Water Table Present?	Yes ✓ No ____	Depth (inches):	4
Saturation Present? (includes capillary 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:

The criterion for wetland hydrology is met.

Sampling Point: W-WH-05_PFO-1

VEGETATION (Four Strata) -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula lenta*	50	Yes	FACU
2. *Acer rubrum*	20	Yes	FAC
3. *Magnolia acuminata*	5	No	FACU
4.			
5.			
6.			
7.			
	75	= Total Cover	

50% of total cover: 37.5 20% of total cover: 15

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: ___)			
1. *Rubus hispidus*	60	Yes	FACW
2. *Carex folliculata*	15	No	OBL
3. *Juncus effusus*	10	No	FACW
4. *Carex crinita*	10	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95	= Total Cover	

50% of total cover: 47.5 20% of total cover: 19

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66.7	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	25	x 1 =	25
FACW species	70	x 2 =	140
FAC species	20	x 3 =	60
FACU species	55	x 4 =	220
UPL species	0	x 5 =	0
Column Totals	170	(A)	445 (B)

Prevalence Index = B/A = 2.6

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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes __✓__ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-05_PFO-1

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[1]	Loc[2]	Texture	Remarks
0 - 2	10YR 3/2	100					Org matter Silt Loam	
2 - 10	10YR 5/1	85	7.5YR 5/8	15	C	M/PL	Gravelly Sandy Clay Loam	
10 - 20	10YR 5/2	100					Sandy Clay Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
_✓ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes _✓_ No ____

Remarks:

The criterion for hydric soil is met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-04
Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-05_UPL-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Hillslope **Local relief (concave, convex, none):** Convex **Slope (%):** 1 to 3
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6692900099 **Long:** -78.5671280791 **Datum:** WGS84
Soil Map Unit Name: CpB—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes ____ No ✓		
Wetland Hydrology Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?**	**Yes ____ No ✓**

Remarks:

Covertype is UPL. Area is upland, not all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ 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)
___ Sparsely Vegetated Concave Surface (B8)
___ 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):	**Wetland Hydrology Present?** Yes ____ No ✓
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches):	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-05_UPL-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	100	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	100	= Total Cover	
50% of total cover: 50	20% of total cover:	20	

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Herb Stratum (Plot size: ___)			
1. *Dendrolycopodium obscurum*	3	No	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	3	= Total Cover	
50% of total cover: 1.5	20% of total cover:	0.6	

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Dominance Test 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	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	103	x 4 =	412
UPL species	0	x 5 =	0
Column Totals	103	(A)	412 (B)

Prevalence Index = B/A = 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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-05_UPL-1

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[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 2/2	100					Org matter Loam	
4 - 8	10YR 4/4	100					Gravelly Sandy Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots/Rocks
Depth (inches): 8

Hydric Soil Present? Yes ____ No ✓

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-04
Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-06_PFO-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Depression **Local relief (concave, convex, none):** Undulating **Slope (%):** 1 to 3
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6684244946 **Long:** -78.5664700159 **Datum:** WGS84
Soil Map Unit Name: CpB—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?**	**Yes ✓ No ____**

Remarks:

Covertype is PFO. Area is wetland, all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ 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):	1
Water Table Present?	Yes ✓ No ____	Depth (inches):	0
Saturation Present? (includes capillary 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:

The criterion for wetland hydrology is met.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-06_PFO-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	50	Yes	FAC
2. *Fagus grandifolia*	40	Yes	FACU
3. *Betula alleghaniensis*	10	No	FAC
4. *Tsuga canadensis*	10	No	FACU
5.			
6.			
7.			
	110	= Total Cover	
50% of total cover: 55	20% of total cover:	22	

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Herb Stratum (Plot size: ___)			
1. *Medeola virginiana*	25	Yes	FAC
2. *Maianthemum canadense*	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40	= Total Cover	
50% of total cover: 20	20% of total cover:	8	

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals	150	(A)	500 (B)

Prevalence Index = B/A = 3.3

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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _✓_ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-06_PFO-1

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[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 2/1	100					Org matter Loam	
4 - 18	7.5YR 5/1	100					Sand	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)

_✓ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes _✓_ No ____

Remarks:

The criterion for hydric soil is met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-04

Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-06_UPL-1

Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** Undulating **Slope (%):** 1 to 10

Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6684824136 **Long:** -78.5663664155 **Datum:** WGS84

Soil Map Unit Name: CpB—Cookport loam **NWI classification:**

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 problematic? (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 Soil Present?	Yes ____ No ✓		
Wetland Hydrology Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?**	**Yes ____ No ✓**

Remarks:

Covertype is UPL. Area is upland, not all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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):	**Wetland Hydrology Present?** Yes ____ No ✓
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches):	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-06_UPL-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	75	Yes	FACU
2. *Acer rubrum*	20	No	FAC
3. *Betula alleghaniensis*	10	No	FAC
4.			
5.			
6.			
7.			
	105	= Total Cover	
50% of total cover: 52.5	20% of total cover:	21	
Sapling/Shrub Stratum (Plot size: __)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	
Herb Stratum (Plot size: __)			
1. *Medeola virginiana*	15	Yes	FAC
2. *Coptis trifolia*	10	Yes	FACW
3. *Cypripedium acaule*	3	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	28	= Total Cover	
50% of total cover: 14	20% of total cover:	5.6	
Woody Vine Stratum (Plot size: __)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66.7	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	45	x 3 =	135
FACU species	78	x 4 =	312
UPL species	0	x 5 =	0
Column Totals	133	(A)	467 (B)
Prevalence Index = B/A =	3.5		

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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes __✓__ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-06_UPL-1

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[1]	Loc[2]	Texture	Remarks
0 - 2	10YR 2/1	100					Org matter Loam	
2 - 16	10YR 6/1	100					Rocky Sand	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes ____ No ✓

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-05
Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-07_PFO-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Depression **Local relief (concave, convex, none):** Concave **Slope (%):** 1 to 3
Subregion (LRR or MLRA): **Lat:** 41.6662847205 **Long:** -78.5673948751 **Datum:** WGS84
Soil Map Unit Name: CpB—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes _✓_ No ____		
Wetland Hydrology Present?	Yes _✓_ No ____	**Is the Sampled Area within a Wetland?**	**Yes _✓_ No ____**

Remarks:

Covertype is PFO. Area is wetland, all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- _✓_ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- _✓_ 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):	2
Water Table Present?	Yes _✓_ No ____	Depth (inches):	0
Saturation Present? (includes capillary 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:

The criterion for wetland hydrology is met.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-07_PFO-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	60	Yes	FAC
2. *Betula lenta*	20	Yes	FACU
3. *Tsuga canadensis*	15	No	FACU
4.			
5.			
6.			
7.			
	95	= Total Cover	

50% of total cover: 47.5 20% of total cover: 19

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: ___)			
1. *Carex debilis*	25	Yes	FAC
2. *Bidens tripartita*	15	Yes	FACW
3. *Dennstaedtia punctilobula*	10	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50	= Total Cover	

50% of total cover: 25 20% of total cover: 10

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	85	x 3 =	255
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals	145	(A)	465 (B)

Prevalence Index = B/A = 3.2

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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes __✓__ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-07_PFO-1

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[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 2/2	100					Org matter Silt Loam	
4 - 18	10YR 3/1	65					Silty Clay Loam	
4 - 18	10YR 6/1	30	10YR 5/6	5	C	M/PL	Clay	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
_✓ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes _✓_ No ____

Remarks:

The criterion for hydric soil is met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-05
Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-07_UPL-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** Convex **Slope (%):** 1 to 3
Subregion (LRR or MLRA): **Lat:** 41.6668327293 **Long:** -78.5684790742 **Datum:** WGS84
Soil Map Unit Name: CpB—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes ____ No ✓		
Wetland Hydrology Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?**	**Yes ____ No ✓**

Remarks:

Covertype is UPL. Area is upland, not all three wetland parameters are present. Historic Logging.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ 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)
___ Sparsely Vegetated Concave Surface (B8)
___ 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):	**Wetland Hydrology Present?** Yes ____ No ✓
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches):	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Sampling Point: W-WH-07_UPL-1

VEGETATION (Four Strata) -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	60	Yes	FACU
2. *Acer rubrum*	20	No	FAC
3. *Acer pensylvanicum*	15	No	FACU
4. *Betula lenta*	15	No	FACU
5.			
6.			
7.			
	110	= Total Cover	
50% of total cover: 55	20% of total cover:	22	

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Herb Stratum (Plot size: ___)			
1. *Dennstaedtia punctilobula*	20	Yes	FACU
2. *Dichanthelium clandestinum*	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35	= Total Cover	
50% of total cover: 17.5	20% of total cover:	7	

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(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	x 1 =	0
FACW species	0	x 2 =	0
FAC species	35	x 3 =	105
FACU species	110	x 4 =	440
UPL species	0	x 5 =	0
Column Totals	145	(A)	545 (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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-07_UPL-1

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[1]	Loc[2]	Texture	Remarks
0 - 3	10YR 4/3	93					Silt Loam	
0 - 3	10YR 3/1	7					Silt Loam	
3 - 16	10YR 5/3	95	7.5YR 4/6	5	C	M/PL	Clay Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes ____ No ✓

Remarks:

The criterion for hydric soil is not met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** **Sampling Date:** 2020-June-06
Applicant/Owner: Walden Renewables Development LLC **State:** **Sampling Point:** W-WH-08_PFO-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Depression **Local relief (concave, convex, none):** Undulating **Slope (%):** 1 to 3
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6658577463 **Long:** -78.5670899414 **Datum:** WGS84
Soil Map Unit Name: CpB—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes _✓_ No ____		
Wetland Hydrology Present?	Yes _✓_ No ____	**Is the Sampled Area within a Wetland?**	**Yes _✓_ No ____**

Remarks:

Covertype is PFO. Area is wetland, all three wetland parameters are present. Historic Logging.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ 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)
___ Sparsely Vegetated Concave Surface (B8)
_✓_ 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):	1	
Water Table Present?	Yes _✓_ No ____	Depth (inches):	9	**Wetland Hydrology Present?** Yes _✓_ No ____
Saturation Present? (includes capillary fringe)	Yes _✓_ No ____	Depth (inches):	1	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The criterion for wetland hydrology is met.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-08_PFO-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	20	Yes	FAC
2. *Betula lenta*	20	Yes	FACU
3. *Prunus serotina*	15	Yes	FACU
4.			
5.			
6.			
7.			
	55	= Total Cover	

50% of total cover: 27.5 20% of total cover: 11

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: ___)			
1. *Veratrum viride*	50	Yes	FACW
2. *Dennstaedtia punctilobula*	15	Yes	FACU
3. *Osmunda claytoniana*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70	= Total Cover	

50% of total cover: 35 20% of total cover: 14

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	40	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	25	x 3 =	75
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals	125	(A)	375 (B)

Prevalence Index = B/A = 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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _✓_ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-08_PFO-1

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[1]	Loc[2]	Texture	Remarks
0 - 3	7.5YR 2.5/2	100					Org matter Silt Loam	
3 - 5	10YR 3/2	100					Org matter Silt Loam	
5 - 20	10YR 4/1	95	5YR 4/6	5	C	M/PL	Silty Clay Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
_✓ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes _✓_ No ____

Remarks:

The criterion for hydric soil is met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** **Sampling Date:** 2020-June-06
Applicant/Owner: Walden Renewables Development LLC **State:** **Sampling Point:** W-WH-08_UPL-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Hillslope **Local relief (concave, convex, none):** Convex **Slope (%):** 5
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6658225423 **Long:** -78.5670647119 **Datum:** WGS84
Soil Map Unit Name: CpB—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes _✓_ No ____		
Wetland Hydrology Present?	Yes ____ No _✓_	**Is the Sampled Area within a Wetland?**	**Yes ____ No _✓_**

Remarks:

Covertype is UPL. Area is upland, not all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ 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)
___ Sparsely Vegetated Concave Surface (B8)
___ 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):	18	**Wetland Hydrology Present?** Yes ____ No _✓_
Saturation Present? (includes capillary fringe)	Yes ____ No _✓_	Depth (inches):		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The criterion for wetland hydrology is not met.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-08_UPL-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	60	Yes	FACU
2. *Prunus serotina*	25	Yes	FACU
3. *Acer rubrum*	20	No	FAC
4. *Betula lenta*	20	No	FACU
5.			
6.			
7.			
	125	= Total Cover	
50% of total cover: 62.5	20% of total cover:	25	

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Herb Stratum (Plot size: ___)			
1. *Dennstaedtia punctilobula*	45	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45	= Total Cover	
50% of total cover: 22.5	20% of total cover:	9	

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	150	x 4 =	600
UPL species	0	x 5 =	0
Column Totals	170	(A)	660 (B)
Prevalence Index = B/A =	3.9		

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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-08_UPL-1

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[1]	Loc[2]	Texture	Remarks
0 - 1	7.5YR 2.5/2	100					Org matter Silt Loam	
1 - 4	10YR 2/1	100					Silt Loam	
4 - 18	10YR 5/3	80	7.5YR 5/6	20	C	M/PL	Gravelly Clay Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
_✓ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes _✓_ No ____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** **Sampling Date:** 2020-June-06
Applicant/Owner: Walden Renewables Development LLC **State:** **Sampling Point:** W-WH-09_PFO-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Depression **Local relief (concave, convex, none):** Concave **Slope (%):** 8
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6642014822 **Long:** -78.5663857777 **Datum:** WGS84
Soil Map Unit Name: CpB—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?**	**Yes ✓ No ____**

Remarks:

Covertype is PFO. Area is wetland, all three wetland parameters are present. Historic Logging Road .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ 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):	2
Water Table Present?	Yes ✓ No ____	Depth (inches):	4
Saturation Present? (includes capillary 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:

Organic sheen on surface water.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-09_PFO-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	25	Yes	FAC
2. *Betula lenta*	20	Yes	FACU
3. *Tsuga canadensis*	10	No	FACU
4. *Fagus grandifolia*	10	No	FACU
5.			
6.			
7.			
	65	= Total Cover	
50% of total cover: 32.5	20% of total cover:	13	

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Herb Stratum (Plot size: ___)			
1. *Rubus hispidus*	25	Yes	FACW
2. *Eleocharis equisetoides*	15	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40	= Total Cover	
50% of total cover: 20	20% of total cover:	8	

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	15	x 1 =	15
FACW species	25	x 2 =	50
FAC species	25	x 3 =	75
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals	105	(A)	300 (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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _✓_ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity. Sphagnum moss present.

SOIL

Sampling Point: W-WH-09_PFO-1

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[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 4/1	100					Org matter Silt Loam	Sphagnum moss mixed in
4 - 12	10YR 4/2	100					Other Sand	Old logging road bed

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
_✓ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rocks on old logging road
Depth (inches): 12

Hydric Soil Present? Yes _✓_ No ____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** **Sampling Date:** 2020-June-06
Applicant/Owner: Walden Renewables Development LLC **State:** **Sampling Point:** W-WH-09_UPL-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** Undulating **Slope (%):** 1 to 3
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6644268716 **Long:** -78.5669642129 **Datum:** WGS84
Soil Map Unit Name: CpB—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes ____ No ✓		
Wetland Hydrology Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?**	**Yes ____ No ✓**

Remarks:

Covertype is UPL. Area is upland, not all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ 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)
___ Sparsely Vegetated Concave Surface (B8)
___ 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):	**Wetland Hydrology Present?** Yes ____ No ✓
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches):	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-09_UPL-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula lenta*	40	Yes	FACU
2. *Prunus serotina*	20	Yes	FACU
3. *Acer rubrum*	20	Yes	FAC
4.			
5.			
6.			
7.			
	80	= Total Cover	

50% of total cover: 40 20% of total cover: 16

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: ___)			
1. *Dennstaedtia punctilobula*	15	Yes	FACU
2. *Rubus allegheniensis*	8	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	23	= Total Cover	

50% of total cover: 11.5 20% of total cover: 4.6

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	83	x 4 =	332
UPL species	0	x 5 =	0
Column Totals	103	(A)	392 (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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-09_UPL-1

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[1]	Loc[2]	Texture	Remarks
0 - 3	10YR 4/2	100					Org matter Loam	
3 - 12	10YR 4/4	100					Sandy Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Roots & rock
Depth (inches): 12

Hydric Soil Present? Yes ____ No ✓

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** **Sampling Date:** 2020-June-06
Applicant/Owner: Walden Renewables Development LLC **State:** **Sampling Point:** W-WH-10_PFO-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Depression **Local relief (concave, convex, none):** Concave **Slope (%):** 1 to 3
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6636955087 **Long:** -78.5693719984 **Datum:** WGS84
Soil Map Unit Name: HdD—Hazleton channery loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?**	**Yes ✓ No ____**

Remarks:

Covertype is PFO. Area is wetland, all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ 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):	1
Water Table Present?	Yes ____ No ✓	Depth (inches):	
Saturation Present? (includes capillary 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:

The criterion for wetland hydrology is met.

Sampling Point: W-WH-10_PFO-1

VEGETATION (Four Strata) -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga canadensis*	40	Yes	FACU
2. *Betula lenta*	20	Yes	FACU
3. *Fagus grandifolia*	20	Yes	FACU
4.			
5.			
6.			
7.			
	80	= Total Cover	

50% of total cover: 40 20% of total cover: 16

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: ___)			
1. *Carex crinita*	50	Yes	OBL
2. *Onoclea sensibilis*	15	Yes	FACW
3. *Veratrum viride*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75	= Total Cover	

50% of total cover: 37.5 20% of total cover: 15

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	40	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	50	x 1 =	50
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	80	x 4 =	320
UPL species	0	x 5 =	0
Column Totals	155	(A)	420 (B)
Prevalence Index = B/A =	2.7		

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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes __✓__ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity. Historic logging road .

SOIL

Sampling Point: W-WH-10_PFO-1

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[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 4/1	100					Org matter Clay Loam	
4 - 20	10YR 6/1	60	10YR 5/6	40	C	M	Rocky Clay	Mixed

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
_✓ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes _✓_ No ____

Remarks:

The criterion for hydric soil is met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** **Sampling Date:** 2020-June-06
Applicant/Owner: Walden Renewables Development LLC **State:** **Sampling Point:** W-WH-10_UPL-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** Undulating **Slope (%):** 1 to 3
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6635915731 **Long:** -78.5693937913 **Datum:** WGS84
Soil Map Unit Name: HdD—Hazleton channery loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?**	**Yes ____ No ✓**

Remarks:

Covertype is UPL. Area is upland, not all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ 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)
___ Sparsely Vegetated Concave Surface (B8)
___ 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):	**Wetland Hydrology Present?** Yes ____ No ✓
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches):	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-10_UPL-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	50	Yes	FACU
2. *Betula lenta*	40	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	90	= Total Cover	
50% of total cover: 45	20% of total cover:	18	
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	
Herb Stratum (Plot size: ___)			
1. *Dennstaedtia punctilobula*	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10	= Total Cover	
50% of total cover: 5	20% of total cover:	2	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals	100	(A)	400 (B)

Prevalence Index = B/A = 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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-10_UPL-1

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[1]	Loc[2]	Texture	Remarks
0 - 3	7.5YR 2.5/2	100					Org matter Loam	
3 - 10	10YR 6/1	55	10YR 6/6	45	C		Gravelly Clay	
10 - 20	10YR 5/2	80	10YR 6/6	20	C	M	Gravelly Sandy Clay	Mixed

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
_✓ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes _✓_ No ____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** **Sampling Date:** 2020-June-06
Applicant/Owner: Walden Renewables Development LLC **State:** **Sampling Point:** W-WH-11_PEM-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Depression **Local relief (concave, convex, none):** Concave **Slope (%):** 1 to 3
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6633078037 **Long:** -78.5659759865 **Datum:** WGS84
Soil Map Unit Name: CpB—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes _✓_ No ____		
Wetland Hydrology Present?	Yes _✓_ No ____	**Is the Sampled Area within a Wetland?**	**Yes _✓_ No ____**

Remarks:

Covertype is PEM. Area is wetland, all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- _✓_ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- _✓_ 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):	1
Water Table Present?	Yes _✓_ No ____	Depth (inches):	5
Saturation Present? (includes capillary 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:

The criterion for wetland hydrology is met.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-11_PEM-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	10	Yes	FACU
2. *Acer rubrum*	8	Yes	FAC
3. *Fagus grandifolia*	8	Yes	FACU
4.			
5.			
6.			
7.			
	26	= Total Cover	
50% of total cover: 13	20% of total cover:	5.2	
Sapling/Shrub Stratum (Plot size: __)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	
Herb Stratum (Plot size: __)			
1. *Rubus hispidus*	40	Yes	FACW
2. *Carex diandra*	25	Yes	OBL
3. *Juncus effusus*	15	No	FACW
4. *Osmundastrum cinnamomeum*	5	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85	= Total Cover	
50% of total cover: 42.5	20% of total cover:	17	
Woody Vine Stratum (Plot size: __)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	60	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	25	x 1 =	25
FACW species	60	x 2 =	120
FAC species	8	x 3 =	24
FACU species	18	x 4 =	72
UPL species	0	x 5 =	0
Column Totals	111	(A)	241 (B)
Prevalence Index = B/A =	2.2		

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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _✓_ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-11_PEM-1

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[1]	Loc[2]	Texture	Remarks
0 - 2	7.5YR 2.5/2	100					Org matter Silt Loam	
2 - 5	10YR 2/2	100					Org matter Silt Loam	
5 - 11	10YR 4/1	95	7.5YR 5/6	5	C	M/PL	Silty Clay Loam	
11 - 20	7.5YR 5/1	90	7.5YR 5/8	10	C	M	Sandy Clay Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
_✓ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes _✓_ No ____

Remarks:

The criterion for hydric soil is met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-06
Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-11_UPL-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** Undulating **Slope (%):** 1 to 3
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6634419561 **Long:** -78.5659075063 **Datum:** WGS84
Soil Map Unit Name: CpB—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?**	**Yes ____ No ✓**

Remarks:

Covertype is UPL. Area is upland, not all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ 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)
___ Sparsely Vegetated Concave Surface (B8)
___ 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):	**Wetland Hydrology Present?** Yes ____ No ✓
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches):	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-11_UPL-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	35	Yes	FAC
2. *Prunus serotina*	35	Yes	FACU
3. *Fagus grandifolia*	25	Yes	FACU
4.			
5.			
6.			
7.			
	95	= Total Cover	

50% of total cover: 47.5 20% of total cover: 19

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: ___)			
1. *Osmundastrum cinnamomeum*	15	Yes	FACW
2. *Dennstaedtia punctilobula*	15	Yes	FACU
3. *Rubus allegheniensis*	10	Yes	FACU
4. *Carex debilis*	10	Yes	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50	= Total Cover	

50% of total cover: 25 20% of total cover: 10

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	42.9	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	45	x 3 =	135
FACU species	85	x 4 =	340
UPL species	0	x 5 =	0
Column Totals	145	(A)	505 (B)

Prevalence Index = B/A = 3.5

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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-11_UPL-1

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[1]	Loc[2]	Texture	Remarks
0 - 2	7.5YR 2.5/2	100					Org matter Silt Loam	
2 - 5	10YR 2/2	100					Org matter Silty Clay Loam	
5 - 9	7.5YR 6/2	100					Clay Loam	
9 - 16	10YR 5/2	50	10YR 5/6	50	C	M	Clay Loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
_✓ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 16

Hydric Soil Present? Yes _✓_ No ____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-07
Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-12_PFO-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Depression **Local relief (concave, convex, none):** Concave **Slope (%):** 1 to 3
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6639385419 **Long:** -78.5654007365 **Datum:** WGS84
Soil Map Unit Name: CpB—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes _✓_ No ____		
Wetland Hydrology Present?	Yes _✓_ No ____	**Is the Sampled Area within a Wetland?**	**Yes _✓_ No ____**

Remarks:

Covertype is PFO. Area is wetland, all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
- _✓_ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- _✓_ 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):	1
Water Table Present?	Yes _✓_ No ____	Depth (inches):	6
Saturation Present? (includes capillary 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:

The criterion for wetland hydrology is met.

Sampling Point: W-WH-12_PFO-1

VEGETATION (Four Strata) -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	25	Yes	FAC
2. *Betula lenta*	20	Yes	FACU
3. *Tsuga canadensis*	10	No	FACU
4. *Amelanchier canadensis*	8	No	FAC
5.			
6.			
7.			
	63	= Total Cover	
50% of total cover: 31.5	20% of total cover:	12.6	

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Herb Stratum (Plot size: ___)			
1. *Osmundastrum cinnamomeum*	20	Yes	FACW
2. *Eleocharis baldwinii*	15	Yes	OBL
3. *Carex aquatilis*	10	No	OBL
4. *Rubus allegheniensis*	10	No	FACU
5. *Microstegium vimineum*	5	No	FAC
6. *Carex intumescens*	5	No	FACW
7.			
8.			
9.			
10.			
11.			
	65	= Total Cover	
50% of total cover: 32.5	20% of total cover:	13	

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	25	x 1 =	25
FACW species	25	x 2 =	50
FAC species	38	x 3 =	114
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals	128	(A)	349 (B)
Prevalence Index = B/A =	2.7		

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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _✓_ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-12_PFO-1

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[1]	Loc[2]	Texture	Remarks
0 - 5	10YR 2/2	100					Org matter Silt Loam	
5 - 10	10YR 5/2	100					Gravelly Sand	
10 - 20	10YR 6/2	95	10YR 6/6	5	C	M/PL	Sand	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) **(LRR N)**
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
_✓ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes _✓_ No ____

Remarks:

The criterion for hydric soil is met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Ridgeway Solar **City/County:** Wilcox, McKean **Sampling Date:** 2020-June-07
Applicant/Owner: Walden Renewables Development LLC **State:** PA **Sampling Point:** W-WH-12_UPL-1
Investigator(s): Weston Hillegas, Alyssa Hessler **Section, Township, Range:**
Landform (hillslope, terrace, etc.): Hillslope **Local relief (concave, convex, none):** Undulating **Slope (%):** 1 to 3
Subregion (LRR or MLRA): MLRA 127 of LRR N **Lat:** 41.6640871112 **Long:** -78.5647741054 **Datum:** WGS84
Soil Map Unit Name: CpB—Cookport loam **NWI classification:**
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 problematic? (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 Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?**	**Yes ____ No ✓**

Remarks:

Covertype is UPL. Area is upland, not all three wetland parameters are present. Historic Logging .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check 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)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ 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)
___ Sparsely Vegetated Concave Surface (B8)
___ 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):	20	**Wetland Hydrology Present?** Yes ✓ No ____
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches):		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The criterion for wetland hydrology is met.

VEGETATION (Four Strata) -- Use scientific names of plants.

Sampling Point: W-WH-12_UPL-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	15	Yes	FAC
2. *Prunus serotina*	15	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	30	= Total Cover	
50% of total cover: 15	20% of total cover:	6	

Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Herb Stratum (Plot size: ___)			
1. *Rubus hispidus*	30	Yes	FACW
2. *Pteridium aquilinum*	20	Yes	FACU
3. *Rubus allegheniensis*	15	Yes	FACU
4. *Osmundastrum cinnamomeum*	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75	= Total Cover	
50% of total cover: 37.5	20% of total cover:	15	

Woody Vine Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover:	0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	40	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply By:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	15	x 3 =	45
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals	105	(A)	325 (B)
Prevalence Index = B/A =	3.1		

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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Recent logging activity.

SOIL

Sampling Point: W-WH-12_UPL-1

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[1]	Loc[2]	Texture	Remarks
0 - 2	7.5YR 2.5/2	100					Org matter Loam	
2 - 4	10YR 2/1	100					Loam	
4 - 6	10YR 5/2	90	5YR 3/4	10	C	M/PL	Clay Loam	
6 - 20	10YR 6/2	85	7.5YR 5/8	15	C	M/PL	Clay	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
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__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
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__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
__ Thin Dark Surface (S9) **(MLRA 147, 148)**
__ Loamy Gleyed Matrix (F2)
_✓ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
__ Umbric Surface (F13) **(MLRA 136, 122)**
__ Piedmont Floodplain Soils (F19) **(MLRA 148)**
__ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(MLRA 147)**
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___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: None
Depth (inches):

Hydric Soil Present? Yes _✓_ No ____

Remarks:

A positive indication of hydric soil was observed.

Exhibit 6

1. PROJECT INFORMATION

EXHIBIT 6

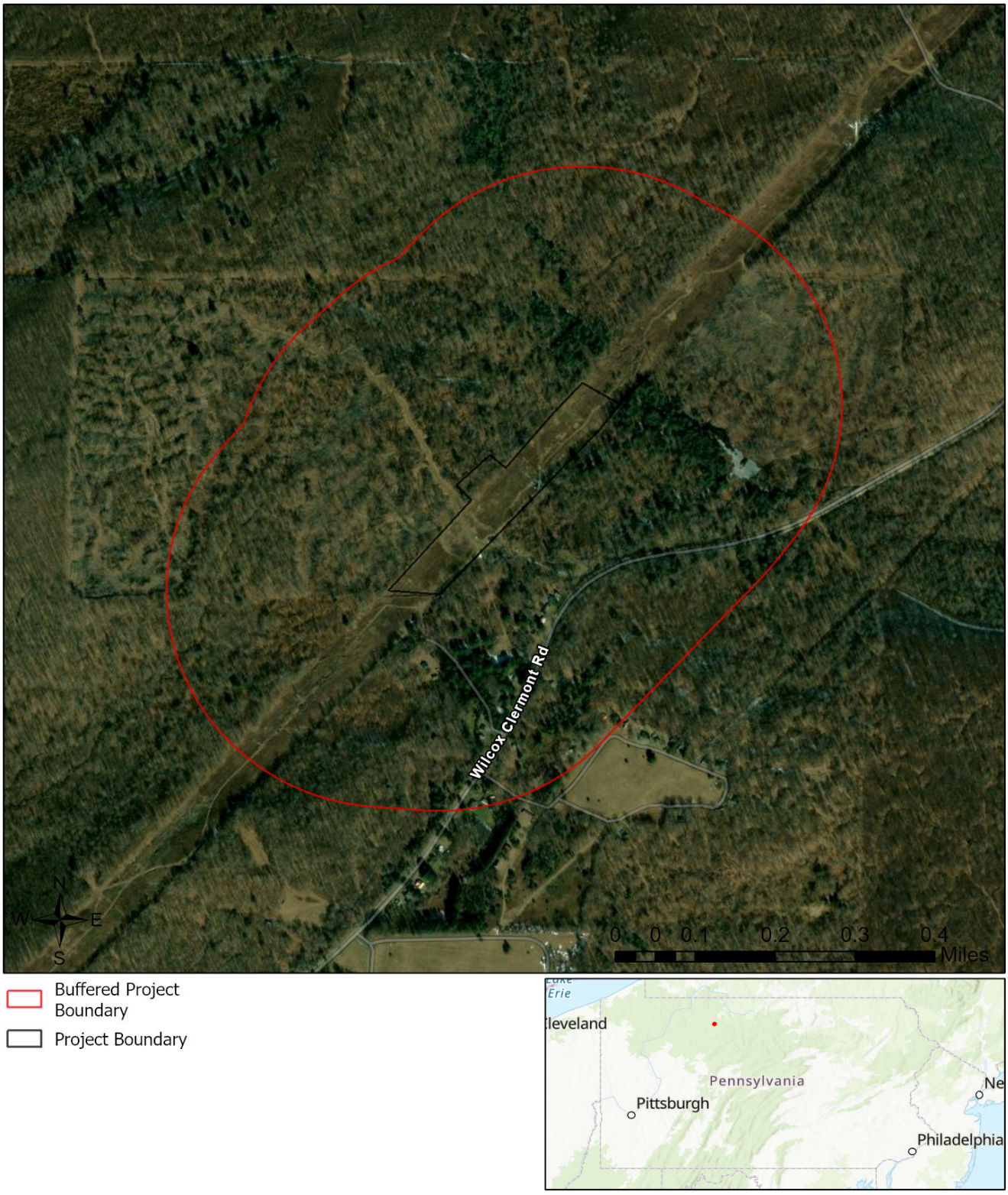
Project Name: **AE2-113 interconnect tap line**
Date of Review: **12/16/2025 10:55:24 AM**
Project Category: **Energy Storage, Production, and Transfer, Energy Transfer, Power/electric line - New (new location for above/under-ground line)**
Project Area: **10.41 acres**
County(s): **McKean**
Township/Municipality(s): **Sergeant Township**
ZIP Code:
Quadrangle Name(s): **HAZEL HURST**
Watersheds HUC 8: **Clarion**
Watersheds HUC 12: **East Branch Clarion River-East Branch Lake Dam**
Decimal Degrees: **41.655469, -78.565820**
Degrees Minutes Seconds: **41° 39' 19.6898" N, 78° 33' 56.9512" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	**Conservation Measure**	**No Further Review Required, See Agency Comments**
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

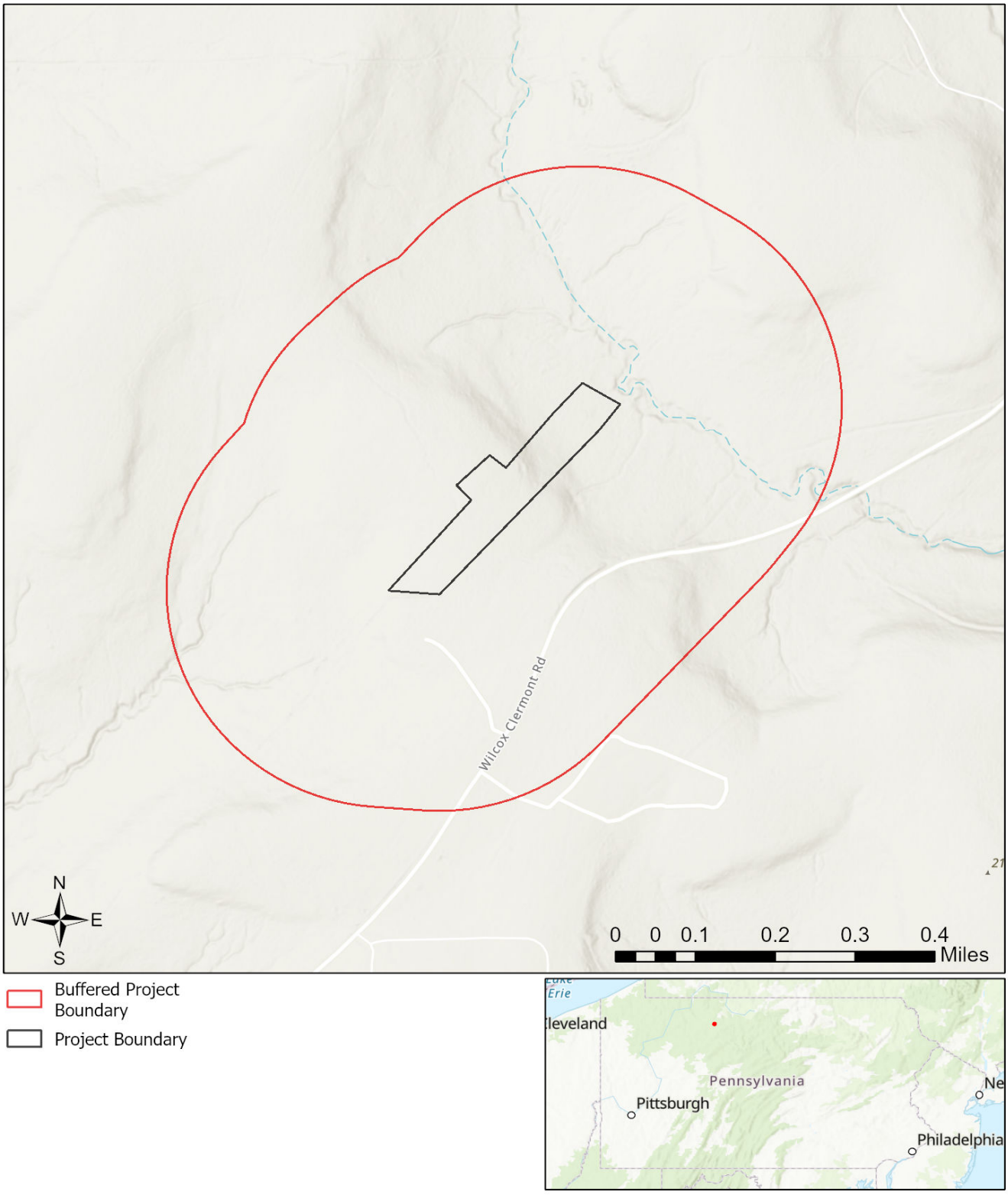
Pennsylvania Natural Diversity Inventory (PNDI) records indicate that while threatened and endangered and/or special concern species and resources are in the project vicinity and that recommended Conservation Measures should be implemented in their entirety to avoid and minimize impacts to these species, no further coordination is required with the jurisdictional agencies. If a DEP permit is required for this project, DEP has the discretion to incorporate one or more Conservation Measures into its permit. This response does not reflect potential agency concerns regarding potential impacts to other ecological resources, such as wetlands.

AE2-113 interconnect tap line



Sources: Esri, Vantor, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user community

AE2-113 interconnect tap line



Sources: Esri, Vantor, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user community

RESPONSE TO QUESTION(S) ASKED

Q1: Will the action include disturbance to trees such as tree cutting (or other means of knocking down, or bringing down trees, tree topping. or tree trimming), pesticide/herbicide application or prescribed fire?
Your answer is: No

Q2: Does the action area contain any caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, culverts, or tunnels that could provide habitat for hibernating bats?
Your answer is: No

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jursidictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission
RESPONSE:

Conservation Measure: Potential impacts to state and federally listed species which are under the jurisdiction of both the Pennsylvania Game Commission (PGC) and the U.S. Fish and Wildlife Service may occur as a result of this project. As a result, the PGC defers comments on potential impacts to federally listed species to the U.S. Fish and Wildlife Service. No further coordination with the Pennsylvania Game Commission is required at this time.

PA Department of Conservation and Natural Resources
RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission
RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service
RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at https://conservationexplorer.dcnr.pa.gov/content/resources.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service
Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
Email: IR1_ESPenn@fws.gov
NO Faxes Please

PA Fish and Boat Commission
Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

PA Game Commission
Bureau of Wildlife Management
Division of Environmental Review
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: Amy Ruszala
Company/Business Name: Pennsylvania Electric Compnany
Address: 341 White Pond Drive
City, State, Zip: Akron, OH 44320
Phone: (330)-714-8155 Fax:( )
Email: aruszala@firstenergycorp.com

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

Amy Ruszala 12/16/2025

applicant/project proponent signature date

Exhibit 7

Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

March 24, 2025

Sent Via PA-SHARE

RE: ER Project # 2025PR01499.001, AE2-113 RV (Farmers Valley-Ridgway) 115kV Loop Interconnect Project, PA Utility Commission, Sergeant Township, McKean County

Dear Submitter,

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Above Ground Resources
No Above Ground Concerns - Environmental Review - No Effect - Above Ground

Based on the information received and available within our files, it is our opinion that the proposed project will have No Effect on above ground historic properties, including historic buildings, districts, structures, and/or objects, should they exist. Should the scope of the project change and/or should you be made aware of historic property concerns, you will need to reinitiate consultation with our office using PA-SHARE.

For questions concerning above ground resources, please contact Sara-Ladd Manley at samanley@pa.gov.

Archaeological Resources
No Archaeological Concerns - Environmental Review - No Effect - Archaeological

Based on the information received and available in our files, in our opinion, the proposed project should have No Effect on archaeological resources. Should the scope of the project be amended to include additional ground-disturbing activity and/or should you be made aware of historic property concerns regarding archaeological resources, you will need to reinitiate consultation with our office using PA-SHARE.

For questions concerning archaeological resources, please contact Sara-Ladd Manley at samanley@pa.gov.

Sincerely,

Barbara Frederick
Environmental Review Division Manager

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

LETTER OF NOTIFICATION OF MID-ATLANTIC INTERSTATE TRANSMISSION, LLC FOR APPROVAL OF THE FARMERS VALLEY-RIDGWAY 115 KILOVOLT INTERCONNECTION PROJECT IN SERGEANT TOWNSHIP, MCKEAN COUNTY, PENNSYLVANIA	:	**Docket No. _____**

VERIFICATION

I, Anthony Oberhauser, state that I am a Transmission Specialist for FirstEnergy Service Company; that I am authorized to make this Verification on behalf of Mid-Atlantic Interstate Transmission, LLC; and that the facts set forth in the Letter of Notification are true and correct to the best of my knowledge, information, and belief. I understand that the statements herein are subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: February 17, 2026

Anthony Oberhauser