# Exhibit A

**Environmental Studies** 



## Jurisdictional Waters of the U.S.

## Assessment

Fleming Solar Project Fleming County, Kentucky

April 2021



Prepared for: Fleming Solar, LLC

Prepared by: Energy Renewal Partners, LLC 1221 South MoPac Expressway, Suite 225 Austin, Texas 78746

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Daniel Roberts, PWS, QHP-IT Senior Biologist

Jennifer Loeffler Director of Natural Resources



### **Table of Contents**

1.0	Executive Summary1
2.0	Project Background2
2.1	Project Location and Site Description2
2.2	Regulatory Considerations
3.0	Methodology4
4.0	Results
4.1	Desktop Review6
4.2	Field Assessment
5.0	Conclusion24
6.0	References

#### Tables

Table 1	Potentially Jurisdictional Aquatic Resources for the Fleming Solar Project, Fleming County,
	Kentucky
Table 2	Potentially Non-Jurisdictional (Excluded) Aquatic Resources for the Fleming Solar Project,
	Fleming County, Kentucky

#### Figures

Figure 1	Regional Topography
Figure 2	Desktop-Identified Waters
Figure 3	Hydric Rating by Soil Map Unit
Figure 4	Field-Identified Waters (Index)
Figures 4A-4D	Field-Identified Waters

#### Appendices

Appendix A	Photo Log
Appendix B	Wetland Determination Data Forms – Eastern Mountain and Piedmont Region
Appendix C	Antecedent Precipitation Tool
Appendix D	Historic Aerial Imagery



#### **1.0** Executive Summary

Energy Renewal Partners, LLC (ERP) is pleased to present Fleming Solar, LLC, on behalf of Core Solar LLC, with the results of a study of jurisdictional waters of the U.S. (WoUS), including wetlands, within the proposed boundaries of the Fleming Solar Project (the "Project"). The Project is a proposed solar energy facility located on approximately 831 acres in northern Fleming County, Kentucky approximately 0.4 miles northwest of the town of Flemingsburg, Kentucky (the "Site" or "project area") (Figure 1).

The Jurisdictional Waters of the U.S. Assessment included conducting a desktop review of relevant literature and database sources and subsequent field study (detailed in Sections 4.1 and 4.2, below). During the field study, ERP identified 48 channels, 24 features, and 11 ponds (Table 1 and Table 2). The findings of this study do not reflect the official findings or opinion of the USACE and are not to be interpreted as such prior to receiving USACE verification.



### 2.0 Project Background

The Site consists of approximately 831 acres located in the northern portion of Fleming County approximately 0.4 miles northwest of the town of Flemingsburg, Kentucky (Figure 1). The Site is generally bound by the Kentucky Route 11 (KY 11, also known as Maysville Road) along the northeastern boundary and Kentucky Route (KY) 559 (also known as Convict Pike or Convict Hill Road) along the southern boundary. KY 1200 (also known as Helena Road) bisects the central portion of the Site, oriented southeast to northwest.

Preliminary desktop review reveals that the Site's acreage consists primarily of cultivated cropland used for row crops, pastureland used for livestock grazing, and fragmented forested areas, primarily located along fencerows, property lines, riparian zones, or adjacent to an abandoned railroad right-of-way. The Site is relatively flat with gently rolling hills and several drainage features and water bodies located onsite. The Site is situated in a relatively rural area of Fleming County. Adjacent properties similarly consist of cultivated cropland, pastureland, and rural residences, and much of the Site directly abuts transportation corridors (KY 11, KY 559, KY 1200); some residential development adjacent to KY 559 and KY 1200 is located just outside project area boundaries (Figure 1 and Figure 2).

The Site is being developed as a solar energy facility. Although the final Project boundaries and design layout of the solar facility has not been completed, the Project will likely entail the installation of photovoltaic modules, inverters, an underground electrical collection system, internal project roads, security fencing, operation and maintenance structures, and temporary parking and laydown areas. Clearing of onsite vegetation and grading, if necessary, will occur before the installation of project infrastructure.

#### 2.1 Project Location and Site Description

The Site consists of approximately 831 acres located in the northern portion of Fleming County approximately 0.4 miles northwest of the town of Flemingsburg, Kentucky (Figure 1). The Site is generally bound by KY 11 along the northeastern boundary and KY 559 along the southern boundary. KY 1200 bisects the central portion of the Site, oriented southeast to northwest.

The climate of Fleming County can be characterized as humid subtropical. For the nearby town of Maysville, Kentucky, the average annual rainfall is 46.02 inches (US Climate Data 2020).

#### 2.2 Regulatory Considerations

The federal Clean Water Act (CWA) affords protections to waters of the U.S. (WoUS). The Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE) are the federal agencies that regulate the CWA as described in 33 CFR 328.3. The EPA's codification of the definition of WoUS has changed multiple times since it was first defined in 1977 and is found at 40 CFR 110.1, 112.2, 116.3, 117.1, 122.2, 230.3, 232.2, 300.5, 302.3, 401.11, and Appendix E to Part 300. The latest rule to define a WoUS is the Navigable Waters Protection Rule (NWPR) which was finalized on April 21, 2020 and effective as of June 22, 2020. The NWPR also codifies the definition of WoUS in a new section, 40 CFR 120.2. Should the NWPR go under litigation, the rule may become 'stayed' and the previous definitions and guidance of WoUS, known simply as the Rapanos Guidance, would become re-enacted. The USACE regulates the



discharge of dredged or fill materials into WoUS, including wetlands. Should impacts to WoUS be proposed, a Section 404 permit from the USACE may be required. The duration, volume, type, and location of specific proposed impacts will determine what permit type may be required.

Section 401 of the CWA also extends regulatory authority to individual states and the pertinent regulatory agency so designated by each state. The Kentucky Division of Water (KDOW) serves as the Section 401 Certification program for federal Section 404 permits issued under the CWA in Kentucky. The KDOW regulates waters of the commonwealth through the state's Water Quality Certification Program and Special Use Designations. The KDOW is responsible for performing Section 401 Certification reviews for any Section 404 USACE permit application for the discharge of dredged or fill material into national waters, including wetlands.



#### 3.0 Methodology

During the desktop review, ERP scientists reviewed relevant, supporting information including the appropriate portion of the 2019 Elizaville, KY and 2019 Flemingsburg, KY 7.5-minute Series U.S. Geological Survey (USGS) Topographic Quadrangles (Figure 1); USGS National Hydrography Dataset (NHD) (Figure 2), the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (Figure 2), representative aerial imagery (Figure 2), the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel depicting the project area (Figure 2), the University of Kentucky Speleological Survey of Sinkhole Coverage for the Karst Areas of Kentucky (Figure 2); the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Fleming County Web Soil Survey (NRCS 2020) and USDA publication Hydric Soils of the U.S. (Figure 3); and 1983 and 1995 historical aerial imagery obtained from Environmental Data Resources, Inc. ERP consulted these sources to assist in the characterization of field conditions present within the project area, as well as to identify discrepancies between data obtained during the desktop review and the field study.

Subsequent to the desktop review, ERP conducted an on-site waters delineation within the project area. During the waters delineation, ERP scientists utilized a sub-meter accurate global positioning system Arrow Unit and an ESRI Collector web map application to delineate all surface waters within the Site including streams, wetlands, ponds, lakes, and ditches.

Wetlands are identified by utilizing a three (3)-parameter approach that requires positive evidence of 1) wetland hydrology; 2) hydrophytic vegetation; and 3) hydric soils. Wetlands were delineated following the guidance of the Routine Onsite Determination Method, as defined in the USACE Wetlands Delineation Manual (1987) and appropriate regional supplemental guides. The Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) (USACE 2012) applies for the project area.

Streams are linear water features with evidence of a continuous bed and bank and an ordinary high-water mark (OHWM). ERP assessed and delineated streams with OHWM and continuous bed and bank utilizing the USACE Regulatory Guidance Letter No. 05-05, Ordinary High Water Mark Identification, the 2011 EPA Draft Guidance on Identifying Waters Protected by the CWA, and the definition of a tributary as described in the 2020 Navigable Waters Protection Rule, Section 120.2. ERP designated a flow regime (perennial, intermittent, or ephemeral) to streams based on the NWPR definitions and best professional judgement.

All surface waters that were identified and delineated within the assessed project area were evaluated for potential jurisdiction pursuant to Section 404 of the CWA, under the NWPR. Though best professional judgement was utilized to identify jurisdictional waters, implementation of federal regulatory authority over jurisdictional waters is administered by the USACE. Unless an Approved Jurisdictional Determination is issued by the USACE, all surface waters identified within the project area are considered to be potentially jurisdictional waters and federal regulatory authority should be assumed.

From December 14 to 16, 2020 and March 17-18, 2021, ERP scientists Daniel Roberts, Professional Wetland Scientist (PWS) and Qualified Hydrologic Professional In-Training (QHP-IT), and Sean Martin conducted a wetland delineation to evaluate the presence of aquatic resources within the Site. The USACE Antecedent Precipitation Tool (APT) (Deters 2020) was utilized to determine the wetness condition of the



Site based on the daily total, 30-day rolling total, and 30-year normal range of National Oceanic and Atmospheric Administration's daily global historical climatology network (Appendix C). This information can reveal reasons for certain hydrological characteristics observed within the Site. The APT was created by the USACE to determine field conditions during a delineation compared to a 'typical year' as defined in the NWPR.



#### 4.0 Results

#### 4.1 Desktop Review

According to the USGS Topographic Map (Figure 1) there are four (4) streams and five (5) open water bodies located in the project area (Figure 1). According to the NHD and NWI (Figure 2), five (5) streams are located within the Site, four (4) of which directly coincide with the features depicted on the USGS National Map. The NWI dataset depicts eight (8) wetland features within the Site. The NHD depicts nine (9) waterbodies, and eight (8) of the NWI wetland features coincide with the NHD ponds. The Site drains in multiple directions and three (3) distinct watersheds are located with the project area (Figure 2). The northern most portion of the Site drains north and is located in the Mill Creek-North Fork Licking River watershed (12-digit hydrologic unit code (HUC) #051001011003). The eastern and southeastern portions of the Site drain southeast and are located in the Allison Creek-Fleming Creek watershed (HUC #051001010903). The central, western, northwestern, and southwestern portions of the Site drain north to northwest and are located in the Upper Johnson Creek watershed (HUC #051001011103).

Available aerial imagery (Google Earth 2019) depicts the project area as cultivated cropland used for row crops, pastureland used for livestock grazing, and fragmented forested areas, primarily located along fencerows, property lines, riparian zones, or adjacent to an abandoned railroad right-of-way (Figure 2). Based on a review of the FEMA website, the Site does not contain flood hazard areas.

Hydric soils are defined as soils which are saturated or inundated with water long enough during the growing season to support wetland plant communities if not drained. The USDA Web Soil Survey (2020) revealed nine (9) soil types on-site. Of the on-site soils, one (1), Nolin silt loam, 0 to 3 percent slopes, occasionally flooded, is considered partially hydric or containing hydric inclusions (Figure 3). The remainder of the soils onsite are not considered to be hydric. Site-specific soils information is provided in Figure 3, attached. A custom NRCS soil resource report for the project area is available upon request.

The University of Kentucky's Speleological Survey of Sinkhole Coverage for the Karst Areas of Kentucky database was reviewed for sinkholes and subterranean streams. According to the database no sinkholes or subterranean streams are located within the project area (Figure 2). The database depicts the nearest sinkhole is located approximately 0.45 miles southeast of the project area and west of KY 11/57 (also known as Bypass Road) (Figure 2).

#### 4.2 Field Assessment

Following the desktop review, ERP scientists Daniel Roberts, PWS and QHP-IT, and Sean Martin conducted a delineation for potentially jurisdictional surface waters within the Fleming Solar project area. The delineation was completed between December 14-16, 2020 and March 17-18, 2021. Weather conditions during the December delineation consisted of temperatures between approximately 24-39° F with approximately 0.34 inches of precipitation. Weather conditions at the time of the March delineation included temperatures of approximately 41-65° Fahrenheit with mostly cloudy skies, light precipitation, and winds of approximately 3 to 21 miles per hour. According to the APT, both delineations took place during the wet season and had a drought index of severe wetness. Conditions were considered slightly drier than normal during the December delineation and were considered much wetter than normal during the March delineation and were considered much wetter than normal during the March delineation.



Based on the results of the delineation, there are potentially jurisdictional WoUS located partially or wholly within the project area (Figures 4A-4D) consisting of 14 potentially jurisdictional stream channels, 11 potentially jurisdictional wetlands, and two (2) potentially jurisdictional ponds (Table 1). ERP also identified 34 channels, 13 features, and nine (9) ponds that are likely excluded from jurisdictional under Section 404 of the CWA (Table 2). On-site aquatic resources flow either north to Johnson Creek or Mill Creek, or southeast to Town Branch. Summaries of feature size, location, and description can be found in the Potentially Jurisdictional Aquatic Resources Table (Table 1) and Potentially Non-Jurisdictional (Excluded) Aquatic Resources Table (Table 2). Descriptive narratives of distinct reaches and aquatic resource features can be found in Sections 4.2.1 to 4.2.4. Representative photographs of the Site and identified surface waters are included in Appendix A. USACE Wetland Determination Data Forms – Eastern Mountain and Piedmont Region (Data Points or DP) were used to identify the wetland/upland boundary of delineated areas. Representative data points of all potential wetlands and upland areas found throughout the Site are included in Appendix B. The locations of all collected data points are depicted in Figures 4A-4D. A list of wetlands with their corresponding wetland/upland boundary data points can be found in Tables 1 and 2.



## Table 1: Potentially Jurisdictional Aquatic Resources for the Fleming Solar Project, Fleming County, Kentucky

Name	Flow Regime Or Resource Type	Measurement	Units	Latitude	Longitude	Figure Index	Data Points
Channel 10	Perennial Flow	1,409	Linear Feet	38.44911	-83.83140	4B	N/A
Channel 11	Perennial Flow	2,239	Linear Feet	38.44746	-83.77234	4B	N/A
Channel 12	Intermittent Flow	1,180	Linear Feet	38.44742	-83.76831	4B	N/A
Channel 16	Intermittent Flow	113	Linear Feet	38.44594	-83.76739	4B	N/A
Channel 20	Perennial Flow	3,079	Linear Feet	38.44542	-83.77865	4A	N/A
Channel 21	Intermittent Flow	263	Linear Feet	38.44677	-83.77883	4A	N/A
Channel 22	Intermittent Flow	588	Linear Feet	38.44544	-83.77975	4A	N/A
Channel 23	Intermittent Flow	676	Linear Feet	38.44400	-83.77980	4A	N/A
Channel 26	Intermittent Flow	67	Linear Feet	38.45123	-83.75970	4C	N/A
Channel 27	Intermittent Flow	8	Linear Feet	38.45119	-83.75970	4C	N/A
Channel 28	Intermittent Flow	305	Linear Feet	38.45448	-83.75261	4C	N/A
Channel 29	Intermittent Flow	59	Linear Feet	38.45453	-83.75255	4C	N/A
Channel 30	Intermittent Flow	117	Linear Feet	38.45893	-83.75579	4C	N/A
Channel 34	Intermittent Flow	65	Linear Feet	38.45787	-83.75115	4C	N/A
Pond 5	Pond	1.78	Acres	38.44120	-83.77409	4B	N/A
Pond 8	Pond	0.42	Acres	38.44636	-83.76697	4B	N/A
Feature 8	Forested Wetland	1.96	Acres	38.44634	-83.76455	4B	DP8-W, DP8-U
Feature 9	Emergent Wetland	0.15	Acres	38.44743	-83.76354	4B	DP8-W, DP8-U
Feature 10	Forested Wetland	0.67	Acres	38.44504	-83.76768	4B	DP10-W, DP10-U
Feature 11	Emergent Wetland	0.06	Acres	38.44293	-83.76811	4B	DP10-W, DP10-U



Name	Flow Regime Or Resource Type	Measurement	Units	Latitude	Longitude	Figure Index	Data Points
Feature 12	Emergent Wetland, Cow altered	0.16	Acres	38.44021	-83.83117	4B	DP12-W, DP12-U
Feature 13	Forested Wetland	1.69	Acres	38.44341	-83.77367	4B	DP13-W, DP13-U
Feature 16	Emergent Wetland	0.09	Acres	38.44599	-83.77826	4A	DP16-W, DP16-U
Feature 18	Emergent Wetland	0.02	Acres	38.44917	-83.77722	4A	DP16-W, DP16-U
Feature 20	Forested Wetland	0.43	Acres	38.45630	-83.75908	4C	DP20-W, DP20-U
Feature 21	Emergent Wetland	0.10	Acres	38.45811	-83.75107	4C	DP21-W, DP21-U
Totals	Channels	10,168	Linear Feet				
	Ponds	2.20	Acres				
	Wetland Features	5.33	Acres				



#### Table 2: Potentially Non-Jurisdictional (Excluded) Aquatic Resources for the Fleming Solar Project, Fleming County, Kentucky

Name	Flow Regime Or Resource Type	Measurement	Units	Latitude	Longitude	Figure Index	Data Points
Channel 1	Intermittent Flow	652	Linear Feet	38.43956	-83.75420	4B	N/A
Channel 1E	Ephemeral Flow	170	Linear Feet	38.44064	-83.75453	4B	N/A
Channel 2	Intermittent Flow	818	Linear Feet	38.43870	-83.75926	4B	N/A
Channel 2E	Ephemeral Flow	391	Linear Feet	38.43890	-83.75815	4B	N/A
Channel 3	Intermittent Flow	119	Linear Feet	38.43872	-83.76168	4B	N/A
Channel 3E	Ephemeral Flow	172	Linear Feet	38.43909	-83.76181	4B	N/A
Channel 4	Ephemeral Flow	140	Linear Feet	38.44113	-83.76282	4B	N/A
Channel 5	Ephemeral Flow	122	Linear Feet	38.44159	-83.76247	4B	N/A
Channel 6	Intermittent Flow	1,574	Linear Feet	38.44118	-83.75947	4B	N/A
Channel 7	Intermittent Flow	728	Linear Feet	38.44596	-83.76060	4B	N/A
Channel 8	Ephemeral Flow	125	Linear Feet	38.44701	-83.76379	4B	N/A
Channel 9	Ephemeral Flow	170	Linear Feet	38.44835	-83.76287	4B	N/A
Channel 13	Ephemeral Flow	191	Linear Feet	38.44826	-83.76886	4B	N/A
Channel 14	Ephemeral Flow	61	Linear Feet	38.44677	-83.76689	4B	N/A
Channel 15	Ephemeral Flow	97	Linear Feet	38.44668	-83.76659	4B	N/A
Channel 17	Ephemeral Flow	213	Linear Feet	38.44336	-83.76824	4B	N/A
Channel 18	Ephemeral Flow	331	Linear Feet	38.44562	-83.76857	4B	N/A
Channel 19	Ephemeral Flow	65	Linear Feet	38.44036	-83.77470	4B	N/A
Channel 21E	Ephemeral Flow	217	Linear Feet	38.44672	-83.78042	4A	N/A
Channel 24	Ephemeral Flow	229	Linear Feet	38.44283	-83.77780	4B	N/A



Name	Flow Regime Or Resource Type	Measurement	Units	Latitude	Longitude	Figure Index	Data Points
Channel 25	Ephemeral Flow	104	Linear Feet	38.44103	-83.77785	4A	N/A
Channel 27E	Ephemeral Flow	34	Linear Feet	38.45114	-83.75967	4C	N/A
Channel 29E	Ephemeral Flow	68	Linear Feet	38.45468	-83.75244	4C	N/A
Channel 30E	Ephemeral Flow	222	Linear Feet	38.45845	-83.75578	4C	N/A
Channel 31	Ephemeral Flow	192	Linear Feet	38.45849	-83.75587	4C	N/A
Channel 32	Ephemeral Flow	242	Linear Feet	38.45879	-83.75610	4C	N/A
Channel 33	Ephemeral Flow	72	Linear Feet	38.45839	-83.75752	4C	N/A
Channel 34E	Ephemeral Flow	50	Linear Feet	38.45774	-83.75126	4C	N/A
Channel 35	Ephemeral Flow	139	Linear Feet	38.44364	-83.77783	4A	N/A
Channel 36	Ephemeral Flow	643	Linear Feet	38.44460	-83.77654	4A	N/A
Channel 37	Ephemeral Flow	764	Linear Feet	38.44778	-83.78757	4D	N/A
Channel 38	Ephemeral Flow	61	Linear Feet	38.44982	-83.78498	4D	N/A
Channel 39	Ephemeral Flow	30	Linear Feet	38.44974	-83.78495	4D	N/A
Channel 40	Ephemeral Flow	185	Linear Feet	38.44895	-83.78364	4D	N/A
Pond 1	Pond	0.15	Acres	38.44255	-83.75567	4C	N/A
Pond 2	Pond	0.89	Acres	38.44197	-83.75971	4B	N/A
Pond 3	Pond	0.34	Acres	38.44071	-83.76427	4B	N/A
Pond 4	Pond	0.30	Acres	38.43984	-83.76743	4B	N/A
Pond 6	Pond	0.24	Acres	38.44341	-83.77998	4A	N/A
Pond 7	Pond	0.20	Acres	38.44671	-83.78179	4A	N/A
Pond 9	Pond	0.37	Acres	38.44795	-83.76327	4C	N/A





Name	Flow Regime Or Resource Type	Measurement	Units	Latitude	Longitude	Figure Index	Data Points
Pond 10	Pond	0.85	Acres	38.45557	-83.75328	4C	N/A
Pond 11	Pond	0.57	Acres	38.45869	-83.75683	4C	N/A
Feature 1	Emergent Wetland	0.23	Acres	38.44142	-83.75483	4B	DP1-W, DP1-U
Feature 2	Scrub/Shrub Wetland	0.09	Acres	38.43932	-83.75393	4B	DP2-W, DP2-U
Feature 3	Emergent Wetland	0.01	Acres	38.44119	-83.75938	4B	DP4-W, DP4-U
Feature 4	Emergent Wetland	0.09	Acres	38.44135	-83.75954	4B	DP4-W, DP4-U
Feature 5	Emergent Wetland	0.12	Acres	38.44201	-83.76021	4B	DP4-W, DP4-U
Feature 6	Emergent Wetland	0.23	Acres	38.44269	-83.75979	4B	DP4-W, DP4-U
Feature 7	Linear Ditch	0.08	Acres	38.44541	-83.76142	4B	DP4-W, DP4-U
Feature 14	Emergent Wetland	0.10	Acres	38.44090	-83.77730	4A	DP15-W, DP15-U
Feature 15	Emergent Wetland	0.18	Acres	38.44125	-83.77836	4A	DP15-W, DP15-U
Feature 17	Emergent Wetland	0.08	Acres	38.44768	-83.77742	4A	DP17-W, DP17-U
Feature 19	Emergent Wetland	0.27	Acres	38.45260	-83.75937	4B	DP19-W, DP19-U
Feature 22	Emergent Wetland	0.10	Acres	38.44060	-83.76230	4B	DP22-W, DP22-U
Feature 23	Emergent Wetland	0.45	Acres	38.44991	-83.78785	4D	DP23-W, DP23-U
Feature 24	Emergent Wetland	0.07	Acres	38.44959	-83.78475	4D	DP24-W, DP24-U
	Channels	9,391	Linear Feet				
Totals	Ponds	3.91	Acres				
	Wetland Features	2.10	Acres				



#### 4.2.1 Southeastern Reach

Channel 1E flows south for approximately 170 linear feet to Channel 1 (Figure 4B). Channel 1E exhibits ephemeral flow and a non-contiguous OHWM and bed and bank (Appendix A, Photo 1). Channel 1E transitions to Channel 1 at a headcut where OHWM and bed and bank become contiguous, and flow becomes intermittent (Figure 4B). Channel 1 flows south for approximately 652 linear feet where it exits the southern Site boundary and continues offsite. Channel 1 exhibits intermittent flow with continuous OHWM and bed and bank (Appendix A, Photo 2). Based on aerial imagery, observations from public roadways along Convict Pike, and offsite observations made from the Site boundary, Channel 1 flows offsite and dissipates into sheetflow prior to crossing Convict Pike (Appendix A, Photos 53 and 54). Historical aerial imagery and Google Earth Street View were reviewed and no evidence of Channel 1 continuing to, or beyond, Convict Pike was observed (Appendix D). During the March 17-18, 2021 delineation, ERP observed no evidence of a surface connection from Channel 1 to downstream waters. According to the APT, this observation took place during the wet season, in wetter than normal conditions for a typical year (Appendix C). Channel 1E is excluded from jurisdiction based on flow regime under the NWPR. Channel 1 is also excluded from jurisdiction under the NWPR because the system does not contribute surface water directly to a WOUS.

Pond 1 is a farm pond constructed in an upland within the southeastern portion of the project area, upgradient of Channel 1 and Channel 1E (Figure 4B). Pond 1 has earthen berms on all sides with no outlet pipes (Appendix A, Photo 3, and Photo 4). As Pond 1 was constructed in an upland, it is excluded from jurisdiction under the NWPR. Feature 1 is an approximately 0.23-acre unconfined linear feature that flows south until the valley confines flow and Channel 1E is formed (Appendix A, Photo 5). Feature 1 originates onsite in a valley in the southeastern portion of the project area (Figure 4B). Feature 1 exhibits depleted soils, primary hydrology indicators, and is comprised of typical hydrophytic vegetation including soft rush (*Juncus effusus*), littleleaf buttercup (*Ranunculus abortivus*), Frank's sedge (*Carex frankii*), and green bulrush (*Scirpus atrovirens*) (Appendix B, DP1-W). Data sheets representative of the wetland and upland boundary for Feature 1 are in Appendix B, DP1-W and DP1-U, respectively. While Feature 1 meets the three (3) parameters of a wetland, it is considered excluded from jurisdiction because Channel 1 flows underground directly to groundwater and does not contribute surface water directly to a WOUS.

Feature 2 is an approximately 0.09-acre area located along the left bank of Channel 1 in the southeastern portion of the project area (Figure 4B). Feature 2 exhibits depleted soils with multiple primary hydrology indicators including standing water and saturation at the surface and are comprised of woody and herbaceous vegetation typical of wetlands including black willow (*Salix nigra*), narrow-leaf cattails (*Typha angustifolia*), Frank's sedge, and green bulrush (Appendix A, Photo 6). Data sheets representative of the wetland and upland boundary for Feature 2 are in Appendix B, DP2-W and DP2-U, respectively. While Feature 2 meets the three (3) parameters of a wetland, it is considered excluded from jurisdiction because Channel 1 flows underground directly to groundwater and does not contribute surface water directly to a WOUS.

Pond 2, depicted on NWI and NHD, is an impoundment of Channel 6, and is approximately 0.89 acres in size (Figure 4B; Appendix A, Photos 7 and 8). Feature 3 (0.01 acres) and Feature 4 (0.09 acres) are



constructed wet basins located downgradient of Pond 2 along the left bank of Channel 6 (Figure 4B; Appendix A, Photo 9). Feature 5 (0.12 acres) and Feature 6 (0.23 acres) are representative of the fringe portions of Pond 2 that are not inundated enough to be open water (Appendix A, Photo 10). Features 3, 4, 5, and 6 exhibit depleted soils with multiple primary hydrology indicators including standing water and saturation at the surface and are comprised of woody and herbaceous vegetation typical of wetlands including black willow, narrow-leaf cattails, Frank's sedge, and green bulrush (Appendix B, DP4-W). Data sheets representative of the wetland and upland boundary for Features 3, 4, 5, and 6 are in Appendix B, DP4-W and DP4-U, respectively. These five (5) features meet the three (3) parameters of a wetland but are considered excluded from jurisdiction; these features flow to Pond 2 and Channel 6, which flow underground directly to groundwater and do not contribute directly to a WoUS (Appendix B, Photos 13-16).

Feature 7 originates onsite within the central portion of the project area at the toe-of-slope of the abandoned railroad right-of-way (Figure 4B). Feature 7 is located at the boundary of the Allison Creek-Fleming Creek watershed and flows southeast to the confluence of Channel 6 and Channel 7 (Figure 4B). Feature 7 is an approximately 0.08-acre linear ditch displaying evidence of depleted soils, saturated soils, and wetland vegetation including black willow and green bulrush (Appendix B, DP4-W). Channel 7 originates onsite in the central-eastern portion of the project area and flows intermittently southwest for approximately 728 linear feet to its confluence with Channel 6 (Figure 4B). Channel 7 exhibits continuous OHWM and bed and bank (Appendix A, Photo 11). Channel 6 originates onsite at the confluence of Feature 7 and Channel 7, and Channel 6 flows intermittently along the toe-of-slope of the berm from the abandoned railroad for approximately 1,574 linear feet before going subsurface to groundwater (Figure 4B). Wooden debris has accumulated over the hole in which Channel 6 goes underground (Appendix B, Photos 13-16). While Pond 2, an impoundment of Channel 6, is depicted on NWI and NHD, no other portions or features of Channel 6 are depicted on desktop resources (Figure 2). Field observations found no evidence of Channel 6 returning to the surface after it flows underground (Appendix A, Photos 13-14, 53-54). Based on a review of current and historical aerial imagery and the University of Kentucky's Speleological Survey of Sinkhole Coverage for the Karst Areas of Kentucky, Channel 6 remains underground until it intercepts groundwater (Figure 2; Appendix D). Feature 7, Channel 7, and Channel 6 are considered excluded from jurisdiction as they do not contribute surface water to downstream WoUS.

Channel 2 originates onsite in the southern portion of the project area. Channel 2 flows east intermittently from its onsite origin for approximately 518 linear feet where it exits the project area and continues offsite for approximately 400 feet prior to re-entering the project area and continues to flow intermittently east-northeast for approximately 300 linear feet (Figure 4B; Appendix A, Photo 12). Due to the natural geology of the Site, ground water from Channel 2 is no longer able to reach the surface and the flow regime changes from intermittent to ephemeral. Channel 2E is depicted at this flow break and continues to flow ephemerally for approximately 391 linear feet where it goes subsurface to groundwater (Figure 4B). Wooden debris accumulated over the hole in which Channel 2E goes underground and erosion has caused the channel to over-widen (Appendix B, Photos 13-16). Channel 2 and Channel 2E are depicted on USGS, NWI, and NHD desktop sources (Figure 2). Field observations found no evidence of the channels returning to the surface after they flow underground (Appendix A, Photos 13-14, 53-54). Based on a review of



current and historical aerial imagery and the University of Kentucky's Speleological Survey of Sinkhole Coverage for the Karst Areas of Kentucky, Channel 2, and Channel 2E remain underground until they intercept groundwater (Figure 2; Appendix D). Channel 3 and Channel 3E originate onsite in a valley in the southern portion of the project area and flow south to Channel 2 (Figure 4B). Channel 3E originates as an erosional channel with ephemeral flow for approximately 172 linear feet and exhibits non-continuous OHWM and bed and bank. As flow continues down slope the channel intercepts ground water and begins to flow south intermittently as Channel 3 for approximately 119 linear feet to its confluence with Channel 2 (Figure 4B). Channel 3E and Channel 2E are considered excluded from jurisdiction under the NWPR as they do not meet the flow criteria of WOUS. Channel 2 and Channel 3 meet the flow requirements of a WOUS but are considered excluded from jurisdiction because they flow underground directly to groundwater.

Channel 4 and Channel 5 are ditches located on hillslopes in the southern portion of the project area (Figure 4B). Channel 4 is an approximately 140 linear foot ditch on a hillside with no OHWM or bed and bank (Appendix A, Photo 17). Channel 4 is an excavated ditch in an upland with ephemeral flow that drains southeast and dissipates into sheet flow. Channel 5 is an approximately 122 linear foot ditch with ephemeral flow on a hillside located approximately 180 feet northeast of Channel 4 (Figure 4B). Channel 5 appears to have been created by erosional process from cattle activity and is absent of OHWM or bed and banks (Appendix A, Photo 18). Channel 4 and Channel 5 are considered excluded from jurisdiction under the NWPR.

Feature 22 originates onsite in the southern portion of the project area approximately 120 feet downgradient from Channel 4 (Figure 4B). Feature 22 exhibits depleted soils, primary hydrology indicators and is comprised of hydrophytic vegetation including Frank's sedge and green bulrush (Appendix B, DP22-W). Feature 22 is located in a depression in the hillslope approximately 400 feet upgradient of Channel 3E. The hillslope between Feature 22 and Channel 3E lacks all three (3) wetland indicators and is generally comprised of upland vegetation including orchard grass (*Dactylis glomerata*), Canadian goldenrod (*Solidago canadensis*), and teasel (*Dipsacus fullonum*) (Appendix B, DP22-U). Even though Feature 22 meets all three (3) wetland parameters it is considered excluded from jurisdiction under the NWPR as it is not adjacent to downstream waters.

Pond 3 is an approximately 0.34-acre pond located in a valley in the central-southern portion of the project area (Figure 4B). Pond 4 is a constructed farm pond in a cattle field that is depicted on USGS, NHD, and NWI (Figure 1 and Figure 2). There are no regulated outlets or overflow channels to the pond. As Pond 3 was constructed in an upland, it is excluded from jurisdiction under the NWPR.

Pond 4 is an approximately 0.30-acre pond located in the south-central portion of the project area approximately 40 feet north of Convict Pike (Figure 4B). Pond 4 is a constructed farm pond in a cattle field that is depicted on USGS, NHD, and NWI (Figure 1 and Figure 2). There are no constructed outlets for the pond. A swale conveys overflow water to a roadside ditch and culvert which flow south under Convict Pike outside of the project area. As Pond 4 was constructed in an upland, it is excluded from jurisdiction under the NWPR.



Feature 12 originates onsite at a concrete box well within a cattle field in the southern portion of the project area (Figure 4B). Feature 12 flows south into a culvert on Convict Pike where it flows offsite. Feature 12 is situated within a valley and exhibits intermittent surface water flow, however the bed and banks and OHWM are not present due to alterations from cattle activity (Appendix A, Photos 19 and 20). In addition to the presence of saturated soils and surface water, Feature 12 displays evidence of depleted soils and hydrophytic vegetation and meets all three (3) wetland parameters (Appendix B, DP12-W and DP12-U). Feature 12 is jurisdictional under the NWPR as it contributes directly to downstream waters and meets the NWPR requirements of a tributary and all three (3) parameters of a wetland.

#### 4.2.2 Central Reach

ERP observed several reaches and wetland complexes in the central portions of the Site. Feature 8 originates onsite within the central portion of the project area at the toe-of-slope of the abandoned railroad right-of-way (Figure 4B). Feature 8 is located at the boundary of the Upper Johnson Creek watershed and flows northwest to Channel 12. Feature 8 is approximately 1.96-acres and displayed evidence of depleted soils, wetland hydrology in the form of saturated soils, and typical wetland vegetation including black willow, green ash (*Fraxinus pennsylvanica*), Frank's sedge, and green bulrush (Appendix A, Photos 27 and 28; Appendix B, DP8-W). Data sheets representative of the wetland and upland boundary of Feature 8 are in Appendix B, DP8-W and DP8-U, respectively. Feature 8 is considered jurisdictional under the NWPR as it meets the three (3) wetland parameters of a WOUS and abuts downstream jurisdictional waters.

Channel 9 originates onsite within the northern-central portion of the project area and exhibits ephemeral flow for approximately 170 linear feet to Pond 9 (Figure 4B). Channel 9 exhibits a non-continuous OHWM and bed and bank typical of ephemeral conveyances (Appendix B, Photo 29). Pond 9 is an approximately 0.37-acre constructed pond in an upland identified on USGS, NHD, and NWI. A berm with an earthen driveway is located on the downgradient portion of the pond with no constructed outlet (Appendix B, Photo 30). Channel 9 is excluded from jurisdiction under the NWPR based on flow regime. Pond 9 is excluded from jurisdiction under the NWPR based on flow regime.

Feature 9 is located in a valley downgradient from Pond 9 (Figure 4B). Feature 9 is comprised of typical hydrophytic vegetation, depleted soils, and saturated soils. Data sheets representative of the wetland and upland boundary were collected (Appendix B, DP8-W and DP8-U). A concrete cistern or well is located in the central portion of Feature 9 (Appendix A, Photo 51). Feature 9 flows southwest toward Feature 8. As the valley narrows, Feature 9 narrows and transitions into Channel 8 which flows from Feature 9 by means of a culvert (Appendix A, Photo 52). Channel 8 exhibits ephemeral flow for approximately 125 linear feet with non-continuous OHWM and bed and banks. Feature 9 is jurisdictional under the NWPR as it is adjacent to jurisdictional waters. Channel 8 is excluded under the NWPR as it exhibits ephemeral flow.

Channel 12 originates onsite in the central-northern portion of the project area and flows northwest for approximately 1,180 linear feet to its confluence with Channel 10 (Figure 4B). Channel 12 exhibits intermittent flow with continuous OWHM and bed and banks (Appendix A, Photo 23). Channel 13



originates onsite in the central-northern portion of the project area and exhibits ephemeral flow northeastward for approximately 191 linear feet to its confluence with Channel 12 (Figure 4B). Channel 13 is a typical erosional feature absent of OHWM and bed and bank that is commonly found within the project area (Appendix A, Photo 24). Channel 12 is considered jurisdictional under the NWPR as it abuts other jurisdictional waters and exhibits intermittent flow. Channel 13 is excluded from jurisdiction under the NWPR as it ephemeral flow.

Channel 10 originates offsite and enters the project area in the central-northern portion of the Site flowing southwest toward Channel 12 and then northwest where it exits the project area and continues offsite (Figure 4B). Channel 10 is depicted on the USGS and NHD as a tributary to Johnson Creek (Figures 1 and 2). Channel 10 exhibits perennial flow with continuous OHWM and bed and bank for approximately 1,409 linear feet within the project area (Appendix A, Photo 21). Channel 10 is considered jurisdictional under the NWPR as it exhibits perennial flow and abuts other jurisdictional waters.

Feature 11 originates onsite in the central portion of the project area and flows north to Channel 17. Channel 17 continues to flow north to Feature 10 which flows north and abuts both Channel 16 and Pond 8 (Figure 4B). Features 10 and 11 are comprised of herbaceous vegetation typical of wetlands such as Frank's sedge, saw-toothed sunflower (Helianthus grosseserratus), and green bulrush (Appendix A, Photos 25 and 26). Features 10 and 11 also exhibit depleted soils and primary hydrology indicators. Data sheets representative of the upland and wetland boundary for Features 10 and 11 can be found in Appendix B, DP10-W and DP10-U. Channel 17 flows north for approximately 213 linear feet from Feature 11 to Feature 10 and exhibits ephemeral flow. Channel 16 flows north for approximately 113 linear feet with intermittent flow from Feature 10 to Pond 8 (Figure 4B). Pond 8 is an impoundment of Channel 16 and Channel 14. Channel 14 originates onsite from an outlet pipe of Pond 8 and exhibits ephemeral flow north to Channel 12 (Figure 4B). Channel 15 is a constructed overflow outlet channel from Pond 8 that exhibits ephemeral flow with no OHWM or bed and banks. Pond 8 is jurisdictional under the NWPR as it is an impoundment of waters and has a direct surface connection to Channel 12. Features 10 and 11 are also jurisdictional under the NWPR as they meet all three (3) wetland parameters and are adjacent to Pond 8. Channel 16 is jurisdictional as it exhibits intermittent flow. Channels 14, 15, and 17 are excluded from jurisdiction under the NWPR as they exhibit ephemeral flow.

Channel 18 is a constructed ditch along a hillside west of Feature 10 (Figure 4B). Channel 18 flows east for approximately 331 linear feet and does not display a continuous OHWM or bed and bank. Channel 18 dissipates into sheet flow on the hillside approximately 68 feet from Feature 10 (Figure 4B). Feature 18 is excluded from jurisdiction as it exhibits ephemeral flow and does not connect to downstream waters.

Channel 19 enters the project area from a culvert on Convict Pike and flows north for approximately 65 linear feet to Pond 5 (Figure 4B). Channel 19 is a ditched feature that connects a constructed offsite pond with Pond 5, a constructed pond within the project area. ERP observed standing water within Channel 19 at the time of the delineation likely due to precipitation within the previous 24 hours (Appendix B, Photo 31). Channel 19 exhibits ephemeral flow with non-contiguous OHWM. Channel 19 is excluded from jurisdiction under the NWPR as it exhibits ephemeral flow.



Pond 5 is an approximately 1.78 acre constructed pond in the southwest portion of the Site (Figure 4B). Pond 5 is depicted on USGS, NWI, and NHD as an impoundment of Channel 11. An outlet pipe connects Pond 5 to Feature 13. Feature 13 originates onsite at the overflow pipe outlet and toe-of-slope of Pond 5, and Feature 13 is located within a confined valley that connects to Channel 11 to the north (Figure 4B). Feature 13 is comprised of depleted and saturated soils with primary hydrology indicators and typical hydrophytic herbaceous and woody vegetation including black willow, green ash, Frank's sedge, and green bulrush (Appendix A, Photos 33 and 34). Data sheets representative of the wetland and upland boundary for Feature 13 are attached in Appendix B, DP13-W and DP13-U, respectively. A concrete cistern or well is located in the central portion of Feature 13. Channel 11 originates as wetland drainage patterns within Feature 13 as the valley narrows northward (Figure 4B). Channel 11 is depicted on USGS, NHD, and NWI and was field identified as flowing north for approximately 2,239 linear feet from its origin at Feature 13 to the confluence with Channel 10 (Figure 4B). Channel 11 exhibits perennial flow with well-defined bed and banks with continuous OHWM (Appendix A, Photo 22). Pond 5, Feature 13, and Channel 11 are considered jurisdictional under the NWPR as they contribute surface water directly to other jurisdictional waters.

#### 4.2.3 Western Reach

Channel 20 originates offsite southwest of the project area and enters the project area from a culvert on Convict Pike in the southwestern portion of the Site (Figure 4A). Channel 20 flows north bisecting the western portion of the Site for approximately 3,079 linear feet where it continues to flow off-site toward Johnson Creek (Figure 4A). Channel 20 is depicted on the USGS, NWI, and NHD and exhibits intermittent to perennial flow. The bed and banks of the southern upstream portion of Channel 20 have been degraded by cattle activity, however ERP observed continuous OHWM and bed and banks throughout the northern portions of the Site (Appendix A, Photo 32). Feature 18 is a wetland located along the stream inner berm that abuts the northern portion of Channel 20 (Figure 4A). Feature 18 is comprised of herbaceous vegetation typical of wetlands, depleted soils, and is hydrologically connected to Channel 20. Channel 20 is considered jurisdictional under the NWPR as it exhibits perennial flow and abuts other jurisdictional waters.

Feature 16 is comprised of herbaceous vegetation and depleted saturated soils in the western portion of the project area (Appendix A, Photo 35). Feature 16 is approximately 0.09 acres and abuts the right bank of Channel 20 (Figure 4A). Feature 16 is jurisdictional under the NWPR as it meets all three (3) wetland parameters and abuts Channel 20 (Appendix B, DP16-W and DP16-U). Feature 17 is located approximately 25 feet east of Channel 20 and is entirely within the project area (Figure 4A). Feature 17 is comprised of typical wetland vegetation and depleted soils that dissipate into upland sheet flow (Appendix A, Photos 36; Appendix B, DP17-W and DP17-U). Though Feature 17 meets all three (3) wetland parameters, Feature 17 is excluded from jurisdiction under the NWPR as it does not meet the definition of adjacent.

Though no tributaries to Channel 20 are depicted on USGS, NWI, or NHD, the field delineation identified three (3) tributaries to Channel 20 (Channels 21, 22, and 23). Channel 21 originates onsite in the western portion of the project area where groundwater discharges to the surface and forms a continuous OHWM and bed and bank. Channel 21 exhibits intermittent flow eastward for approximately 263 linear feet until



its confluence with Channel 20 (Figure 4A). Channel 21E originates onsite within the same topographic draw as Channel 21 and flows east for approximately 217 linear feet (Figure 4A). Channel 21E exhibits ephemeral flow in an eroded channel with no OHWM or bed and bank and dissipates into sheet flow approximately 243 feet west from the origin point of Channel 21. Therefore, Channel 21E is excluded from jurisdiction under the NWPR.

Channel 22 originates offsite and enters the western portion of the project area where it flows east towards Channel 20 (Figure 4A). Channel 22 exhibits intermittent flow with a continuous OHWM and bed and bank for approximately 588 linear feet to a pipe approximately 30 feet west of Channel 20 (Appendix A, Photo 37). The pipe serves an unpaved farm road and appears to be reinforced with natural stones from the surrounding area (Appendix A, Photo 38). The pipe is crushed at the outlet and surface water, bed and bank, and OHWM do not continue downslope of the pipe. Surface water from Channel 22 is separated from downstream waters by the pipe, an artificial structure, and approximately 20 feet of non-jurisdictional sheet flow. Though Channel 22 exhibits intermittent flow, it is exempt from jurisdictional under the NWPR as it dissipates into sheet flow and does not directly contribute surface water to Channel 20.

Channel 23 originates offsite and enters the southwest project area north of Convict Pike where it flows for approximately 676 linear feet to its confluence with Channel 20 (Figure 4A). Cattle activity has altered the substrate material of the channel bed; however, ERP observed a continuous OWHM throughout the incised and eroded channel. Channel 23 exhibits intermittent flow within the project area and is considered jurisdictional under the NWPR.

Pond 6 is a farm pond constructed in an upland in the southwest portion of the project area (Figure 4A). Pond 6 is used by cattle and has a berm on all sides with no outlet structure. As this pond was constructed in an upland, it is excluded from jurisdiction under the NWPR.

Pond 7 was constructed in an upland for farm use located in the western portion of the Site, approximately 212 feet west of Channel 21E (Figure 4A). Pond 7 has an overflow outlet pipe that contributes water to Channel 21 and Channel 21E. As this pond was constructed in an upland, it is excluded from jurisdiction under the NWPR.

Channel 24 is an erosional ditch located along a hillslope in the western portion of the project area approximately 154 feet east of Channel 20 (Figure 4A). Channel 24 exhibits ephemeral flow, and no evidence of a OHWM or bed and bank was observed. Channel 24 flows west for approximately 229 linear feet towards Channel 20 but dissipates into sheet flow on the upland hillside. Channel 24 is excluded from jurisdiction under the NWPR due to its flow regime and because it does not contribute surface water directly to a WoUS.

Channel 25 originates onsite and connects Feature 14 with Feature 15 (Figure 4A). Channel 25 exhibits ephemeral flow in a narrowly eroded crenulation (Appendix A, Photo 40). Vegetation dominates the bed of Channel 25, and ERP did not observe a continuous OHWM. Features 14 and 15 are emergent wetlands that exhibit depleted soils, hydrophytic vegetation, and wetland hydrology (Appendix B, DP15-W and



DP15-U). Channel 25 and Features 14 and 15 are located in the southwestern portion of the Site, east of Channel 20, and are entirely within the project area. Due to its ephemeral flow regime and lack of OHWM, Channel 25 is excluded from jurisdiction under the NWPR. Feature 14 flows west to Feature 15 which continues to flow west and dissipates into sheet flow approximately 100 feet east of Channel 20 (Appendix A, Photo 39). Under the NWPR, Features 14 and 15 are excluded from jurisdiction as they are not considered adjacent to downstream waters.

Channel 35 is an erosional ditch located on a hillslope in the western portion of the project area approximately 164 feet east of Channel 20 (Figure 4A). Channel 35 exhibits ephemeral flow, and ERP did not observe evidence of OHWM or bed and bank. Channel 35 flows west for approximately 139 linear feet towards Channel 20 but dissipates into sheet flow on the upland hillside. Channel 35 is excluded from jurisdiction under the NWPR due to its flow regime and because it does not contribute surface water directly to a WoUS.

Channel 36 is an erosional ditch located on a hillslope in the western portion of the project area approximately 129 feet east of Channel 20 (Figure 4A). Channel 36 exhibits ephemeral flow, and ERP did not observe evidence of OHWM or bed and bank. Channel 36 flows west for approximately 643 linear feet towards Channel 20 before dissipating into sheet flow on the upland hillside. Channel 36 is excluded from jurisdiction under the NWPR due to its flow regime and because it does not contribute surface water directly to a WoUS.

Channel 37 originates onsite as an erosional feature and flows northwest to the Project boundary where it has been artificially straightened along a manmade berm. Channel 37 flows north along the inner Project boundary before dissipating into Feature 23 (Figure 4D; Appendix A, Photos 57, 58, and 59). Feature 23 is located in the northwestern corner of the Project area. Feature 23 is comprised of wetland vegetation and soils within oxidized rhizospheres which indicate hydric soils and wetland hydrology are present (Appendix B, DP23-W). During the March delineation, ERP observed that Channel 37 and Feature 23 are confined by a berm on the western Project area boundary (Appendix A, Photo 60; Appendix B, DP23-U). This observation of confinement took place in the wet season and during conditions of severe wetness (Appendix C). Channel 37 and Feature 23 are excluded from jurisdiction under the NWPR as they do not contribute surface water to a WOUS and are not inundated by surface water from a WOUS in a typical year.

Channels 38, 39, and 40 are erosional features that originate onsite in the northwest portion of the project area (Figure 4D). Channel 40 is an earthen swale that exhibits ephemeral flow, lacks an OHWM and bed and bank, and flows west for approximately 185 linear feet to Feature 24 (Appendix A, Photo 64). Feature 24 exhibits partial wetland conditions. Feature 24 is comprised of soils with iron-manganese masses and oxidized rhizospheres, which indicate hydric soils and wetland hydrology are present. The vegetation community of Feature 24 is comprised of mostly non-wetland plants (Appendix A, Photos 61 and 62). Feature 24 flows northwest as flow concentrates into Channels 38 and 39, which flow north, intersect with each other, and continue off site (Figure 4D; Appendix A, Photo 63). Channels 38 and 39 exhibit ephemeral flow with observable bed and bank but inconsistent OHWM. Channels 38 and 39 exhibit both high



matrix and high chroma values, indicative of long term non-saturated soil conditions. Channel 38 continues off site until its intersection with Channel 12. Channels 38, 39, and 40 are excluded from jurisdiction under the NWPR as they do not meet flow regime requirements of a water of the U.S. Feature 24 is separated from the nearest WOUS by non-jurisdictional Channel 38. Feature 24 is excluded from jurisdiction under the NWPR as it does not meet all three (3) wetland criteria and is not adjacent to a WOUS.

#### 4.2.4 Northern Reach

Feature 19 is located entirely onsite in a closed depression along the western boundary of the northern portion of the project area (Figure 4C). Cattle and farming activity has altered a majority of the vegetation and top four (4) inches of soil within this closed depression (Appendix A, Photo 41). The identifiable vegetation within Feature 19 is predominately narrow leaf cattails; soils are saturated at the surface and meet the criteria for redox depressions (Appendix B, DP19-W, DP19-U). Feature 19 meets all three (3) wetland parameters, but it is considered excluded under the NWPR as it is not adjacent to downstream waters.

Feature 20 originates onsite in a crenulation flowing west in the northern portion of the project area and continues to flow offsite (Figure 4C). While adjacent parcels were not evaluated as a part of this assessment, aerial imagery suggests Feature 20 may flow to a ditch which connects it to downstream waters (Figure 2). Feature 20 is a forested system comprised primarily of American sycamore (*Platanus occidentalis*) and green ash with saturated, depleted soils above a high-water table (Appendix A, Photo 42; Appendix B, DP20-W). Adjacent upland areas are comprised of a variety of elm trees (*Ulmus spp.*) and hackberry trees (*Celtis occidentalis*) that lack depleted soils and hydrology indicators (Appendix B, DP20-U). Feature 20 meets all three (3) wetland parameters and is considered jurisdictional under the NWPR due to its likely offsite surface connectivity to downstream waters.

Channel 34E originates onsite in the northeastern corner of the project area and flows northeast for approximately 50 linear feet to Channel 34 (Figure 4C). Channel 34E is an erosional feature that lacks OHWM and bed and bank, which conveys surface water to a concrete spring box (Appendix A, Photo 43). Channel 34 originates onsite at the spring with a concrete box in the northeastern project area and flows for approximately 65 linear feet into Feature 21 (Appendix A, Photo 44). Channel 34 flows intermittently with defined OHWM and bed and banks. Feature 21 is an emergent system comprised primarily of narrow-leaf cattail with visible saturation at the surface, a high-water table, and depleted soils (Appendix B, DP21-W). Feature 21 originates onsite and flows northeast out of the project area (Figure 4C). Data forms representative of the wetland and upland boundary of Feature 21 are included in Appendix B as DP21-W and DP21-U. Feature 21 meets all three (3) wetland parameters and is considered jurisdictional under the NWPR as it connects offsite to downstream waters. Based on the flow regimes displayed at the time of the delineation, Channel 34 is considered jurisdictional while Channel 34E is not considered jurisdictional under the NWPR.

Pond 10 is an approximately 0.85-acre pond located in the northeast project area (Figure 4C). Pond 10 is a constructed farm pond and is depicted as a constructed pond on the USGS topographic map (Figure 1). While Pond 10 has a spill way for controlling overflow events, it does not have an outlet that connects



flow to downstream waters. Pond 10 does not contribute surface water during a typical year, and it is therefore considered excluded from jurisdiction under the NWPR (Appendix A, Photos 45 and 46).

Channel 29 and Channel 29E originate within a single drainage onsite east of Channel 28 and flow southwest to a confluence with Channel 28 within the northern project area (Figure 4C). Channel 29E is an erosional feature that lacks OHWM and exhibits ephemeral flow for approximately 68 linear feet to Channel 29. Channel 29 originates at a headcut that intercepts ground water. Channel 29 flows intermittently exhibiting a continuous OHWM and bed and bank for approximately 59 linear feet to its confluence with Channel 28 (Figure 4C). Channel 28 exhibited a continuous OHWM and bed and banks flowing intermittently south for 305 linear feet and offsite (Appendix A, Photo 48). Based on the observed channel characteristics, flow regime, and connection to downstream waters, Channel 28 and Channel 29 are considered jurisdictional under the NWPR. Channel 29E is considered excluded from jurisdiction under the NWPR due to its ephemeral flow regime.

Channel 26 originates onsite in the southwestern portion of the northern project area at concrete box and spring (Figure 4C). Channel 26 flows west intermittently for 67 linear feet where it flows offsite and into an offsite pond. Cattle have altered this feature, and OHWM and bed and bank were not visible at the time of the delineation. However, flowing surface water was observed within Channel 26 (Appendix B, Photo 47). Channel 27E and Channel 27 originate onsite as a tributary to Channel 26 (Figure 4C). Channel 27E exhibited ephemeral flow northwest for approximately 34 linear feet to a headcut. Below the headcut, Channel 27 forms and displayed intermittent flow for approximately eight (8) linear feet to its confluence with Channel 26. Though cattle have altered their natural conditions, Channel 26 and Channel 27 are considered jurisdictional under the NWPR due to the channelized intermittent flow observed and connection to downstream WOUS. Channel 27E displays ephemeral flow and is not considered jurisdictional under the NWPR.

Pond 11 is an approximately 0.57-acre constructed pond depicted on NHD located in the northern project area (Figure 4C; Appendix A, Photo 49). Channel 33 flows northeast for approximately 72 linear feet into Pond 11 (Figure 4C). Channel 33 exhibits ephemeral flow and lacks OHWM. Channel 32 is an earthen overflow outlet structure of Pond 11 that flows west for approximately 242 linear feet to an onsite confluence with Channel 30 (Figure 4C). Channel 32 is an erosional feature that exhibits ephemeral flow and lacks OHWM and bed and banks (Appendix A, Photo 50). Channel 31 and Channel 30E are erosional features located in the northern project area that exhibit non-continuous OHWM and bed and banks with ephemeral flow to their confluence with Channel 30 (Figure 4C). Channel 31 flows north for approximately 192 linear feet to its confluence with Channel 30. Channel 30E flows north for approximately 222 linear feet to its confluence with Channel 30. Channel 30 originates onsite in the northern portion of the project area at a headcut where Channel 30E and Channel 31 confluence (Figure 4C). Channel 30 exhibits intermittent flow northeast for approximately 117 linear feet to the project boundary with continuous OHWM and bed and banks where it continues to flow offsite (Figure 4C). Channel 30 is jurisdictional under the NWPR as it displays intermittent flow and is connected to downstream surface waters. Channels 30E, 31, 32, and 33 display ephemeral flow and are excluded from jurisdiction under the NWPR. Pond 11 is a constructed farm pond in an upland and is excluded from jurisdiction under the NWPR.



A small, wooded area north of Helena Road was reviewed for potential surface waters in the centralnorthern portion of the project area. A representative data point was collected in this wooded area (Appendix B, DPA-U). This wooded area is comprised mostly of hackberry, black walnut (*Junglans nigra*), and honeysuckle bush (*Lonicera maacki*) and is absent of wetland soils and wetland hydrology indicators (Appendix A, Photos 55, 56). DPA-U is representative for all of the small pockets of wooded areas scattered throughout the Site.



#### 5.0 Conclusion

This report reflects the findings of ERP's Jurisdictional Waters of the U.S. Assessment, performed on behalf of Fleming Solar, LLC for the Fleming Solar Project. ERP conducted the jurisdictional waters study within the proposed boundaries of the Project, pursuant to the objectives of Fleming Solar, LLC and the CWA. During the field study, ERP identified 14 potentially jurisdictional stream channels, 10 potentially jurisdictional wetlands, and two (2) potentially jurisdictional ponds (Table 1). ERP also identified 34 channels, 14 features, and nine (9) ponds that are excluded from jurisdiction under Section 404 of the CWA (Table 2).

Pending regulatory verification from the USACE, all determinations made by ERP should be considered preliminary. Unless an Approved Jurisdictional Determination is issued by the USACE, all surface waters identified within the project area, including non-jurisdictional and excluded surface waters, are considered to be potentially jurisdictional waters and federal regulatory authority should be assumed. The findings of this study do not reflect the official findings or opinion of the USACE and are not to be interpreted as such prior to receiving USACE verification.



#### 6.0 References

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Figures







Prepared by: L. Kauffman

Date: 2021-03-31












Appendix A Photo Log



**Photo 1:** Typical view of channel bed with ephemeral and noncontiguous ordinary high-water mark and bed and bank. View of Channel 1E from the southeast portion of the Site.



**Photo 2:** Typical view of a channel with intermittent flow and continuous ordinary high-water mark and bed and bank. View from Channel 1, facing south.



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**Photo 3:** Typical view of a constructed pond within the Site. View from Pond 1, facing north.



**Photo 4:** View of the upland area below Pond 1 with no overflow outlet. View from DP1-U, facing north.





**Photo 5:** View of unconfined linear wetland feature with typical herbaceous vegetation. View of Feature 1 at DP1-W, facing south.



**Photo 6:** View of wetland feature with typical herbaceous and woody vegetation. View of Feature 2 at DP2-W, facing northeast.





**Photo 7:** View of Pond 2 with forested railroad berm along its east bank. View from the southern portion of Pond 2, facing north.



**Photo 8:** View of a now-overgrown railroad berm within the project area, crossing the Site from southeast to northwest. View from east of DP4-U, facing southeast.



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**Photo 9:** View of a constructed wet basin typical of Features 3 and 4. View from DP4-W, facing northeast.



**Photo 10:** View of typical wetland fringe along the banks of a pond. View from the east bank of Feature 6, facing west.





**Photo 11:** View of typical headwater stream with intermittent flow. View from the beginning of Channel 7, facing southwest.



**Photo 12:** View of typical stream with intermittent flow. View of Channel 2 entering the project boundary, facing southwest.





**Photo 13:** Landscape view of riparian buffers ending where Channel 2E and Channel 6 go underground. View from the southeast project boundary, facing northwest.



**Photo 14:** View of Channel 2E widening and hole where system goes underground. View from the end of Channel 2E in the southeastern portion of the Site.



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**Photo 15:** View of Channel 6 entering hole in ground. View from the end of Channel 6, facing north.



**Photo 16:** View of wooden debris pile covering the hole that Channel 6 flows in too. View from the end of Channel 6, facing south.





**Photo 17:** View of a typical excavated hillside ditch. View from Channel 4, facing west-northwest.



**Photo 18:** View of a typical eroded hillside ditch in a cattle field. View of Channel 5, facing northwest.





**Photo 19:** View of cattle disturbed feature with wetland characteristics. View from DP12-W, facing south.



**Photo 20:** View of the well and cistern at the headwater of Feature 12. View from the northern portion of Feature 12, facing south.





**Photo 21:** Typical view of a second order or greater stream with perennial flow. View of Channel 10 east of its confluence with Channel 12, facing southwest.



**Photo 22:** Typical view of first order stream with perennial flow. View from the norther portion of Channel 11, facing southwest.





**Photo 23:** Typical view of intermittent stream with forested and herbaceous riparian buffer. View of Channel 12 downstream of its confluence with Channel 14, facing northwest.



**Photo 24:** View of typical channelized swale along fenced tree line with ephemeral flow. View from the top of Channel 13, facing northwest.



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**Photo 25:** Typical view of an herbaceous wetland with adjacent farm field uplands. View from Data Point 10-W, facing northeast.



**Photo 26:** Representative wetland soil found throughout the project area displaying a depleted matrix with prominent redox concentrations and oxidized rhizospheres on livings roots. View of soil at DP10-W.





**Photo 27:** View of typical wetland complex. View from DP8-W, facing southeast.



**Photo 28:** View of typical upland boundary on hillslope. View from DP8-U, facing northwest.



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**Photo 29:** Typical view of a channel with ephemeral flow in a forested area. View of Channel 9, facing northeast.



**Photo 30:** View of earthen road and Pond 9 berm with no outlet. View from Feature 9, facing northwest.





**Photo 31:** View of linear channel within incontiguous ordinary highwater mark and standing stagnate water from recent precipitation. View of Channel 19 from Pond 5, facing south.



**Photo 32:** View of cattle degraded stream with perennial flow. View from the mid-point of Channel 20, facing south.





**Photo 33:** View typical wetland complex. View of Feature 13 from Data Point 13-W, facing west.



**Photo 34:** View of typical upland vegetation on hillslopes. View from Data Point 13-U, facing north.





**Photo 35:** View of herbaceous wetland with Channel 20 depicted in the background. View from the north portion of Feature 16, facing west.



**Photo 36:** View of a wetland depression within a hillslope. View from DP17-W, facing east.





**Photo 37:** View of intermittent stream entering the project boundary from a forested area to a cattle field. View from the western end of Channel 22, facing west.



**Photo 38:** View of Channel 22 ending at a pipe. View from the terrace of Channel 20, facing west.



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**Photo 39:** View of general onsite cattle pasture with wetland dissipating to sheet flow. View from the end of Feature 15, facing west.



**Photo 40:** View of confined valley with ephemeral flow becoming unconfined and exhibiting wetland characteristics. View from DP15-W, facing east.



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**Photo 41:** View of upland and wetland boundary of a closed depression within a cattle field. View from DP19-W, facing west.



**Photo 42:** View of forested wetland altered by cattle. View from DP20-W, facing west.





**Photo 43:** View of Channel 34E with a lack of ordinary high-water mark. Located in the northeast portion of the project area, facing southwest.



**Photo 44:** View of a typical spring with concrete box found within the project area. View from Channel 34 in northeast portion of the Site, facing southwest.





**Photo 45:** View of a typical pond within the project area. View from Pond 10, facing northwest.



**Photo 46:** View of Pond 10 berm from the lowest downgradient position with no evidence of a channelized structure. View from Pond 10, facing northwest.





**Photo 47:** View of stream with intermittent flow altered by cattle. View from Channel 26, facing west.



**Photo 48:** View of typical intermittent streams. View from the confluence of Channels 28 and 29, facing south.





Photo 49: View of Pond 11 from the northern project area, facing north.



**Photo 50:** View of outlet structure from Pond 11 that lacks ordinary high-waters and bed banks. View from Channel 32, facing west.





**Photo 51:** View of cistern or well within Feature 9. View from the eastern portion of Feature 9, facing west.



**Photo 52:** View of culvert connecting Feature 9 to Channel 8. View from the southern portion of Feature 9, facing southeast.





**Photo 53:** View of offsite upland drainage downgradient from Channels 1, 2E, and 6. View from Convict Pike facing west towards Channel 1 circled in blue. Photo taken on March 17, 2021.



**Photo 54:** Continued view of offsite upland area and the offsite termination point of Channel 1, circled in blue. View from Site boundary, facing southeast towards Convict Pike.



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**Photo 55:** Typical view of wooded upland area north of Helena Road. View from DPA-U, facing west.



**Photo 56:** Typical view of upland soils within forested, non-agricultural areas of the Site. View from DPA-U.



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**Photo 57:** Typical view of Channel 37 and valley. View from southern portion of the channel, facing downstream and northwest. Photo taken on March 17, 2021.



**Photo 58:** Typical view of channelized portion of Channel 37. View from end of Channel 37, facing upstream, south. Photo taken on March 17, 2021.



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**Photo 59:** Typical view of Feature 23 from its southern end, facing north. Photo taken on March 17, 2021.



**Photo 60:** Typical view of berm separating Feature 23 and Channel 37 from offsite WoUS. View from DP23-W facing DP23-U. Photo taken on March 17, 2021.



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**Photo 61:** Typical view of Feature 24 boundary with adjacent cropland. View from Feature 24 facing northeast towards DP24-U. Photo taken on March 17, 2021.



**Photo 62:** Typical view of Feature 24 within the valley. View from DP24-W facing northwest. Photo taken on March 17, 2021.





**Photo 63:** Typical view of Channel 38 and Channel 39. View from Channel 38 facing southeast towards Feature 24. Photo taken on March 17, 2021.



**Photo 64:** Typical view of Channel 40, from its headwater facing west. Photo taken on March 17, 2021.



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Appendix B Wetland Determination Data Forms – Eastern Mountain and Piedmont Region
U.S. Arm WETLAND DETERMINATION DATA S See ERDC/EL TR-07-24;	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)		
Project/Site: Fleming Solar Project		City/County: Fleming Count	y Sampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC			State: KY Sampling Point: DPA-U
Investigator(s): DR and SM	mingsburg		
Landform (billside terrace etc.): Hillslope	$\sim$ Slope (%): 4		
Subragian (LRP or MLRA): LRP N	Lot: 29 45095646		
Soil Man Unit Name: Towell-Faywood silt Id	Lai. <u>30.43003040</u>	LUNG. <u>+03.73</u>	NWL classification: N/A
Are elimetia / hydrologia conditions on the el	to tunical for this time of vo		
Are climatic / hydrologic conditions on the si	te typical for this time of ye	$\operatorname{ar}_{2}^{2}$ $\operatorname{Yes}_{X}$ $\operatorname{Yes}_{X}$	
Are Vegetation, Soil, or Hydr	ologysignificantly di	sturbed? Are "Normal Circun	nstances" present? Yes X No
Are Vegetation, Soil, or Hydr	ologynaturally probl	ematic? (If needed, explain	any answers in Remarks.)
SUMMARY OF FINDINGS – Attack	n site map showing s	sampling point locations	, transects, important features, etc.
	Vac Na V	In the Compled Area	
Hydrophytic Vegetation Present?	Yes No X	Is the Sampled Area	Yes No Y
Wetland Hydrology Present?	Yes No X		
Wetland Hydrology Indicators:		Ser	condary Indicators (minimum of two required)
Primary Indicators (minimum of one is requ	ired check all that apply)		Surface Soil Cracks (B6)
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	Hydrogen Sulfide Od	dor (C1)	Drainage Patterns (B10)
Saturation (A3)	Oxidized Rhizospher	res on Living Roots (C3)	Moss Trim Lines (B16)
Water Marks (B1)	Presence of Reduce	d Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Recent Iron Reduction	on in Tilled Soils (C6)	Crayfish Burrows (C8)
Drift Deposits (B3)	Thin Muck Surface (	C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Re	marks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)			Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (E	37)		Shallow Aquitard (D3)
Water-Stained Leaves (B9)			Microtopographic Relief (D4)
Aquatic Fauna (B13)			FAC-Neutral Test (D5)
Field Observations:			
Surface Water Present? Yes	No X Depth (inch	es):	
Water Table Present? Yes	No X Depth (inch	es):	
Saturation Present? Yes	No X Depth (inch	es): Wetland Hydr	ology Present? Yes No X
(includes capillary Iringe)	onitoring well serial photo	nrevious inspections) if availab	
Describe Necolded Data (Stream gauge, m	onitoring wen, aeriai priotos	s, previous inspections), il avallat	л <del>с</del> .
Remarks:			
Indicators of wetland hydrology are not pre-	sent.		

Sampling Point: DPA-U

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:
1. Celtis occidentalis	40	Yes	FACU	Number of Deminant Species
2 Juglans nigra	40	Yes	FACU	That Are OBL_EACW_or EAC: 1 (A)
3 Illmus rubra	40	Ves	FAC	
	40	163	TAC	Total Number of Dominant
4				Species Across All Strata. 6 (B)
5				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC:16.7% (A/B)
7				Prevalence Index worksheet:
	120	=Total Cover		Total % Cover of: Multiply by:
50% of total cover: 6	0 20%	of total cover:	24	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1. Lonicera maackii	40	Yes	UPL	FAC species x 3 =
2. Callicarpa americana	25	Yes	FACU	FACU species x 4 =
3				
				Colump Totolo: (A) (B)
4				
5				Prevalence Index = B/A =
6.				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8.				2 - Dominance Test is >50%
9.				3 - Prevalence Index is ≤3.0 <sup>1</sup>
	65	=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover: 3	3 20%	of total cover:	13	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1 Pop protensis	35	Voc	EACU	
		Tes	FACU	Indicators of hydric soil and wetland hydrology must be
2.				present, unless disturbed or problematic.
3				Definitions of Four Vegetation Strata:
4.				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
5				more in diameter at breast height (DBH), regardless of
6.				height.
7.				Sapling/Shrub – Woody plants, excluding vines, less
8.				than 3 in. DBH and greater than or equal to 3.28 ft
9				(1 m) tall.
10				Harb All borbassays (non weady) plants, regardless
				of size, and woody plants less than 3 28 ft tall
11				
	35	=Total Cover		<b>Woody Vine</b> – All woody vines greater than 3.28 ft in
50% of total cover:1	8 20%	of total cover:	7	neight.
Woody Vine Stratum (Plot size: 30 )				
1.				
2.				
3				
4				
5				Hydrophytic
		= I otal Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes <u>No X</u>
Remarks: (Include photo numbers here or on a sepa Indicators of hydrophytic vegetation are not present.	irate sheet.)			

SOIL

Profile Desci	ription: (Describe	to the dep	oth needed to doc	ument t	he indica	ator or co	onfirm the absen	ce of ind	icators.)		
Depth	Matrix		Redo	x Featur	es						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Re	emarks	
0-6	10YR 4/3	100					Loamy/Clayey				
6-20	10YR 5/4	100					Loamy/Clayey				
					·						
		<u> </u>									
·											
	noontration D-Don	otion PM	-Poducod Matrix	18-Maa	kod Son		2L_000	tion: DI =	Poro Lining	M-Motrix	
Hydric Soil I	ncentration, D-Depi			10-11185	Keu Sano	i Grains.	LUCA	dicators		natic Hvd	ric Soils <sup>3.</sup>
Histosol (	A1)		Polyvalue Br	-low Sur	face (S8		 147 148)	2 cm N		MI RA 147	') ')
Histic Eni	nedon ( $\Delta$ 2)		Thin Dark Si	Inface (S	(00)	$\Delta 147 12$	18) <u>–</u>	Coast	Prairie Redo	$\Delta 16$	,
Black His	tic (A3)			Winor	al (E1) <b>(N</b>	II DA 136			<b>7</b> 1/7 1/8	)	
Hydrogen	n Sulfide (A4)		Loamy Glev	ed Matri	ar (F2)		,	Piedm	ont Floodola	<i>I</i> in Soils (F	19)
Stratified	Lavers (A5)		Depleted Ma	trix (E3)	x (1 2)			(MI F	RA 136 147	) 6000 (I	10)
2 cm Mur	ck (A10) <b>(I RR N)</b>		Bedox Dark	Surface	(F6)			Red P	arent Materi	, al (F21)	
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	(F7)		_	(out	side MLRA	127. 147. <sup>.</sup>	148)
Thick Da	k Surface (A12)	()	Redox Depre	essions	(F8)			Verv S	hallow Dark	Surface (F	=22)
Sandy Mu	uckv Mineral (S1)		Iron-Mandar	ese Ma	sses (F12	2) (LRR N	<u> </u>	 Other (	Explain in F	(emarks)	/
Sandy Gl	eved Matrix (S4)			5)	,	/ (	,	_		,	
Sandy Re	edox (S5)		Umbric Surfa	ace (F13	3) (MLRA	122. 136	3) <sup>3</sup>	ndicators	of hydrophy	tic vegetat	ion and
Stripped	Matrix (S6)		Piedmont Fl	nialqboc	Soils (F	19) <b>(MLR</b>	, A 148)	wetlan	d hvdroloav	must be p	resent.
Dark Surf	ace (S7)		Red Parent	Material	(F21) <b>(</b>	LRA 127	, 147, 148)	unless	disturbed o	, r problema	tic.
Restrictive L	ayer (if observed):										
Type:	- ·										
Depth (in	ches):						Hydric Soil Pr	esent?	Yes	No	Х
Remarks:											

U.S. Army Con WETLAND DETERMINATION DATA SHEET See ERDC/EL TR-07-24; the p	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)			
Project/Site: Fleming Solar Project Applicant/Owner: Fleming Solar, LLC	City/	County: Fleming Count	y Sampling Date: <u>12-16-2020</u> State: <u>KY</u> Sampling Point: <u>DP1-U</u>	
Investigator(s): DR and SM	Section,	Township, Range: Flei	mingsburg	
Landform (hillside, terrace, etc.): Valley	Local relief	concave, convex, none	e): <u>Concave</u> Slope (%): <u>3</u>	
Subregion (LRR or MLRA): LRR N	Lat: 38.44219299	Long: <u>-</u> 83.75	5530118 Datum: NAD 83	
Soil Map Unit Name: Lowell-Faywood silt loams, (	6 to 12 percent slopes		NWI classification: N/A	
Are climatic / hydrologic conditions on the site typic	cal for this time of vear?	Yes X N	lo (If no. explain in Remarks.)	
Are Vegetation Soil or Hydrology	significantly disturbed?	Are "Normal Circun	nstances" present? Yes X No	
Are Vegetation, coll, or Hydrology		(If pooded, explain		
		(il needed, explain	any answers in Remarks.)	
SUMMARY OF FINDINGS – Attach site	map showing samplin	g point locations	, transects, important features, etc.	
Hydrophytic Vegetation Present?YesHydric Soil Present?YesWetland Hydrology Present?YesRemarks:Yes	No         X         Is the s           No         X         within           No         X	Sampled Area a Wetland?	Yes No_X	
HYDROLOGY				
Wetland Hydrology Indicators:		Sec	condary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; c	neck all that apply)		Surface Soil Cracks (B6)	
Surface Water (A1)	True Aquatic Plants (B14)		Sparsely Vegetated Concave Surface (B8)	
Saturation (A3)	Ovidized Rhizospheres on Liv	ing Roots (C3)	Moss Trim Lines (B16)	
Water Marks (B1)	Presence of Reduced Iron (C/		Dry-Season Water Table (C2)	
Sediment Denosits (B2)	Recent Iron Reduction in Tille	r) d Soils (C6)	Cravitish Burrows (C8)	
Drift Deposits (B3)	Thin Muck Surface (C7)		Saturation Visible on Aerial Imagery (C9)	
Algal Mat or Crust (B4)	Other (Explain in Remarks)		Stunted or Stressed Plants (D1)	
Iron Deposits (B5)		X	Geomorphic Position (D2)	
Inundation Visible on Aerial Imagery (B7)			Shallow Aquitard (D3)	
Water-Stained Leaves (B9)			Microtopographic Relief (D4)	
Aquatic Fauna (B13)			FAC-Neutral Test (D5)	
Field Observations:				
Surface Water Present? Yes No	X Depth (inches):			
Water Table Present? Yes No	X Depth (inches):			
Saturation Present? Yes No	X Depth (inches):	Wetland Hydr	ology Present? Yes <u>No X</u>	
(includes capillary fringe)				
Describe Recorded Data (stream gauge, monitori	ng well, aerial photos, previous	s inspections), if availat	ole:	

Indicators of wetland hydrology are not present.

Sampling Point: DP1-U

	Absolute	Dominant	Indicator	
<u>Tree Stratum</u> (Plot size: <u>30</u> )	% Cover	Species?	Status	Dominance Test worksheet:
1				Number of Dominant Species
2.				
3				Total Number of Dominant
4				Species Across All Strata:(B)
5				Percent of Dominant Species
0				That Are OBL, FACW, of FAC: 33.3% (A/B)
<i>I</i>		-Total Cavar		Tetel % Cover of:
E0% of total action	200/			
Solv of total cover.	20%	or lotar cover.		
<u>Saping/Shiub Stratum</u> (Flot size)				
1				
2.				HDL species x4 -
3.				$\begin{array}{c} \text{OPL species} \\ \text{Colump Tatalax} \\ \text{(A)} \\ \end{array} $
4				Column Totals: (A) (B)
5.				Prevalence index = B/A =
0				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				
9				3 - Prevalence Index is ≤3.0
		= I otal Cover		4 - Morphological Adaptations (Provide supporting
50% of total cover:	20%	of total cover:		
Herb Stratum (Plot size: 5)			54014	Problematic Hydrophytic Vegetation (Explain)
1. Bidens frondosa	20	No	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Ranunculus abortivus	20	No	FACW	present, unless disturbed or problematic.
3. Carex frankli	30	Yes	OBL	Definitions of Four Vegetation Strata:
4. Dactylis glomerata	45	Yes	FACU	<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Dipsacus fullonum	20	No	FACU	more in diameter at breast height (DBH), regardless of height
6. Solanum carolinense	15	No	FACU	
7. Solidago canadensis	30	Yes	FACU	Sapling/Shrub – Woody plants, excluding vines, less
8.				than 3 ln. DBH and greater than or equal to 3.28 ft (1 m) tall
9				
10				<b>Herb</b> – All herbaceous (non-woody) plants, regardless
11				or size, and woody plants less than 5.20 it tail.
	180	=Total Cover		<b>Woody Vine</b> – All woody vines greater than 3.28 ft in
50% of total cover: 90	20%	of total cover:	36	neight.
Woody Vine Stratum (Plot size: 30 )				
1				
2.				
3				
4.				
5				Hydrophytic
	:	=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes No X
Remarks: (Include photo numbers here or on a separ Indicators of hydrophytic vegetation are not present.	rate sheet.)			
1				

Profile Desc	ription: (Describe	to the dep	oth needed to doci	ument ti	he indica	tor or co	onfirm the absend	ce of indicators.)
Depth	Matrix		Redo	x Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-8	10YR 4/3	100					Loamy/Clayey	
8-12	10YR 4/3	95	10YR 6/6	5	С	М	Loamy/Clayey	Distinct redox concentrations
12-20	10YR 5/3	95	10YR 6/6	5	С	М	Loamy/Clayey	Distinct redox concentrations
<sup>1</sup> Type: C=Co Hydric Soil I	ncentration, D=Depl ndicators:	letion, RM	=Reduced Matrix, N	/S=Mas	ked Sand	Grains.	<sup>2</sup> Locat	ion: PL=Pore Lining, M=Matrix. dicators for Problematic Hydric Soils <sup>3</sup> :
- Histosol (	(A1)		Polyvalue Be	elow Sur	face (S8)	(MLRA	147, 148)	2 cm Muck (A10) <b>(MLRA 147)</b>
Histic Ep	ipedon (A2)		Thin Dark S	urface (S	39) <b>(MLR</b>	A 147, 14	48)	Coast Prairie Redox (A16)
Black His	tic (A3)		Loamy Muck	v Miner	⊿. al (F1) <b>(M</b>	LRA 136	6)	(MLRA 147, 148)
Hydroger	1 Sulfide (A4)		Loamy Gley	ed Matrix	x (F2)		,	Piedmont Floodplain Soils (F19)
Stratified	Layers (A5)		Depleted Ma	atrix (F3)				(MLRA 136, 147)
2 cm Mu	ck (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)			Red Parent Material (F21)
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)			 (outside MLRA 127, 147, 148)
Thick Da	rk Surface (A12)	<b>、</b> ,	Redox Depre	essions	(F8)			Verv Shallow Dark Surface (F22)
Sandy M <sup>r</sup>	ucky Mineral (S1)		Iron-Mangar	iese Ma	sses (F12	2) (LRR M	N	Other (Explain in Remarks)
Sandy G	eved Matrix (S4)		MLRA 136	ð)		, ,		_ `` `
Sandy Re	edox (S5)		Umbric Surf:	, ace (F13	3) <b>(MLRA</b>	122, 136	6) <sup>3</sup> Ir	ndicators of hydrophytic vegetation and
Stripped	Matrix (S6)		Piedmont Fl	oodplain	Soils (F	19) <b>(MLR</b>	, RA 148)	wetland hydrology must be present,
Dark Sur	face (S7)		Red Parent I	Material	(F21) <b>(M</b>	LRA 127	, 147, 148 <b>)</b>	unless disturbed or problematic.
Restrictive L Type:	ayer (if observed):							
Depth (in	ches):						Hydric Soil Pre	esent? Yes No X
Remarks:							<u> </u>	

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mounta See ERDC/EL TR-07-24; the proponent agency	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)	
Project/Site: Fleming Solar Project	City/County: Fleming Count	sy Sampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC		State: KY Sampling Point: DP1-W
Investigator(s): DR and SM	Section, Township, Range: Fle	
Landform (billside terrace etc.): Valley	cal relief (concave, convex, none	a): Concave Slope (%): 3
Subregion (LRB or MLRA): LRB N Lat: 38 44125536	Long: -83.7	5946304 Datum: NAD 83
Soil Man Linit Name: Lowell-Eawyood silt loams 6 to 12 percent slope	Long00.73	NW/L classification: N/A
Are alimetia / hydrologia conditions on the site typical for this time of yo		
Are climatic / hydrologic conditions on the site typical for this time of ye	at $res \Lambda$	
Are Vegetation, Soil, or Hydrologysignificantly di	sturbed? Are Normal Circur	nstances present? Yes X No
Are Vegetation, Soil, or Hydrologynaturally probl	ematic? (If needed, explain	any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing s	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 <u>X</u> No
HYDROLOGY		
Wetland Hydrology Indicators:	Sec	condary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		Surface Soil Cracks (B6)
Surface Water (A1)True Aquatic Plants	(B14)	Sparsely Vegetated Concave Surface (B8)
X High Water Table (A2) Hydrogen Sulfide Oc	dor (C1) X	Drainage Patterns (B10)
X Saturation (A3) X Oxidized Rhizospher	res on Living Roots (C3)	Moss Trim Lines (B16)
Water Marks (B1)     Presence of Reduce     Sediment Deposite (B2)     Presence of Reduce	a Iron (C4)	Dry-Season Water Table (C2)
Drift Deposits (B3)	C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Re	marks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	X	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)
Water-Stained Leaves (B9)		Microtopographic Relief (D4)
Aquatic Fauna (B13)	<u>X</u>	FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes No X Depth (inch	es):	
Water Lable Present? Yes X No Depth (Inch	es): 8 Wetland Hydr	
(includes capillary fringe)	es). <u>5</u> weitand Hydr	ology Present? fes <u>A</u> No
Describe Recorded Data (stream gauge, monitoring well, aerial photos	s, previous inspections), if availat	ole:
Remarks: Indicators of wetland hydrology are present.		

Sampling Point: DP1-W

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1				Number of Dominant Species
2				That Are OBL, FACW, or FAC: 2 (A)
3				Total Number of Dominant
4				Species Across All Strata: 2 (B)
5				Percent of Dominant Species
6				That Are OBL, FACW, or FAC: 100.0% (A/B)
7.				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1.				FAC species x 3 =
2.				FACU species x 4 =
3.				UPL species x 5 =
4				Column Totals (A) (B)
···				Prevalence Index = B/A =
· · · · · · · · · · · · · · · · · · ·		·		
7				1 - Ranid Test for Hydronhytic Vegetation
·				
o				$\times$ 2 - Dominance Test is >50%
9				$3 - Prevalence index is \leq 3.0$
		= I otal Cover		4 - Morphological Adaptations (Provide supporting
50% of total cover:	20%	of total cover:		
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation' (Explain)
1. Juncus effusus	55	Yes	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Ranunculus abortivus	20	No	FACW	present, unless disturbed or problematic.
3. Carex frankii	45	Yes	OBL	Definitions of Four Vegetation Strata:
4. Scirpus atrovirens	10	No	OBL	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Persicaria pensylvanica	20	No	FACW	more in diameter at breast height (DBH), regardless of
6. Carex vulpinoidea	30	No	OBL	neight.
7				Sapling/Shrub – Woody plants, excluding vines, less
8				than 3 in. DBH and greater than or equal to 3.28 ft
9				(1 m) tall.
10.				Herb – All herbaceous (non-woody) plants, regardless
11.				of size, and woody plants less than 3.28 ft tall.
	180	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover: 90	20%	of total cover:	36	height.
Woody Vine Stratum (Plot size: 30 )				
1				
2				
3				
· · · · · · · · · · · · · · · · · · ·		. <u> </u>		
o		-Tatal Causer		Hydrophytic
50% 64.4.4	000/			Vegetation
50% of total cover:	20%	of total cover:		Present? Yes <u>X</u> No
Remarks: (Include photo numbers here or on a separ	ate sheet.)			
Indicators of hydrophytic vegetation are present.				

Profile Desc	ription: (Describe	to the de	pth needed to doc	ument tl	he indica	tor or c	onfirm the absend	e of indicators.)
Depth	Matrix		Redo	x Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 4/3	95	7.5YR 4/6	5	С	М	Loamy/Clayey	Prominent redox concentrations
4-12	10YR 4/2	85	7.5YR 4/6	5	С	PL	Loamy/Clayey	Prominent redox concentrations
12-20	10YR 5/2	75	10YR 4/6	25	С	Μ	Loamy/Clayey	Prominent redox concentrations
<sup>1</sup> Type: C=Cc Hydric Soil I	ncentration, D=Depl	etion, RN	Reduced Matrix, N	/IS=Mas	ked Sand	Grains.	<sup>2</sup> Locati	ion: PL=Pore Lining, M=Matrix. dicators for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Polyvalue B	elow Sur	face (S8)	(MLRA	147, 148)	2 cm Muck (A10) (MLRA 147)
Histic Ep	ipedon (A2)		Thin Dark S	urface (S	69) <b>(MLR</b>	A 147, 1	48)	Coast Prairie Redox (A16)
Black His	stic (A3)		Loamy Much	ky Minera	al (F1) <b>(N</b>	ILRA 13	6)	(MLRA 147, 148)
Hydroger	n Sulfide (A4)		Loamy Gley	ed Matrix	x (F2)			Piedmont Floodplain Soils (F19)
Stratified	Layers (A5)		X Depleted Ma	atrix (F3)				(MLRA 136, 147)
2 cm Mu	ck (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)			Red Parent Material (F21)
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)			
Thick Da	rk Surface (A12)	. ,	Redox Depr	essions	(F8)			Very Shallow Dark Surface (F22)
Sandy M	ucky Mineral (S1)		Iron-Mangar	iese Ma	sses (F12	2) (LRR I	N,	Other (Explain in Remarks)
Sandy G	eved Matrix (S4)		MLRA 130	6)	,	<i>,</i> , ,		_ 、 , ,
Sandy R	edox (S5)		Umbric Surf	ace (F13	3) (MLRA	122. 13	6) <sup>3</sup> ln	dicators of hydrophytic vegetation and
Stripped	Matrix (S6)		Piedmont Fl	oodplain	Soils (F	19) <b>(MLF</b>	RA 148)	wetland hydrology must be present
Dark Sur	face (S7)		Red Parent	Material	(F21) <b>(M</b>	LRA 127	, 147, 148)	unless disturbed or problematic.
Restrictive L Type: Depth (in	ayer (if observed):						Hydric Soil Pre	esent? Yes <u>X</u> No
Remarks:								

U.S. Arn WETLAND DETERMINATION DATA See ERDC/EL TR-07-24	OMB Control #: 0 Dn Requirement Co (Authority: AR 3	0710-xxxx, Exp: Pending ontrol Symbol EXEMPT: 335-15, paragraph 5-2a)		
Project/Site: Fleming Solar Project		City/County: Fleming (	County S	Sampling Date: <u>12-16-2020</u>
Applicant/Owner: Fleming Solar, LLC	State: KY S	Sampling Point: DP2-U		
Investigator(s): DR and SM		Section, Township, Range	: Flemingsburg	
Landform (hillside, terrace, etc.): Valley	L	_ ocal relief (concave. convex.	none): Concave	Slope (%): 3
Subregion (I RR or MI RA): I RR N	Lat: 38 43938625	l ong.	-83 75392816	Datum: NAD 83
Soil Man Unit Name: Lowell-Favwood silt	loams 6 to 12 percent slop		NWI classificatio	n: N/A
Are elimetia / hydrologia conditions on the	pita typical for this time of y	aar? Vaa V	No (If no ovr	lain in Romarka
Are chimatic / hydrologic conditions on the s		ear? Yes <u>x</u>		Dialin in Remarks.)
Are Vegetation, Soil, or Hyd	trologysignificantly of	disturbed? Are "Normal C	Sircumstances" present?	Yes X No
Are Vegetation, Soil, or Hyd	Irologynaturally prob	blematic? (If needed, ex	plain any answers in Rem	arks.)
SUMMARY OF FINDINGS – Attac	ch site map showing	sampling point locati	ions, transects, impo	ortant features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes         No         X           Yes         No         X           Yes         No         X	Is the Sampled Area within a Wetland?	Yes I	No <u>X</u>
Remarks: This data sheet is representative of the up	oland area surrounding Fea	ture 2.		
Remarks: This data sheet is representative of the up	oland area surrounding Fea	ture 2.		
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:	bland area surrounding Fea	ture 2.	Secondary Indicators (m	inimum of two required)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is required)	pland area surrounding Fea juired; check all that apply)	ture 2.	Secondary Indicators (m Surface Soil Cracks	inimum of two required) (B6)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is req         Surface Water (A1)         High Water Table (A2)	uired; check all that apply)	ture 2.	Secondary Indicators (m Surface Soil Cracks Sparsely Vegetated	<u>inimum of two required)</u> (B6) Concave Surface (B8)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is req	uired; check all that apply) True Aquatic Plants Hydrogen Sulfide C	ture 2.	Secondary Indicators (m Surface Soil Cracks Sparsely Vegetated Drainage Patterns (f Moss Trim Lines (f)	inimum of two required) (B6) Concave Surface (B8) 310)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is req         Surface Water (A1)         High Water Table (A2)         Saturation (A3)         Water Marks (B1)	uired; check all that apply)True Aquatic PlantsHydrogen Sulfide COxidized Rhizosphe	ture 2. s (B14) odor (C1) eres on Living Roots (C3) ed Iron (C4)	Secondary Indicators (m Surface Soil Cracks Sparsely Vegetated Drainage Patterns (f Moss Trim Lines (B' Drv-Season Water 1	inimum of two required) (B6) Concave Surface (B8) 310) 16) Fable (C2)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is req         Surface Water (A1)         High Water Table (A2)         Saturation (A3)         Water Marks (B1)         Sediment Deposits (B2)	uired; check all that apply) True Aquatic Plants Hydrogen Sulfide C Oxidized Rhizosphe Recent Iron Reduct	ture 2. s (B14) odor (C1) eres on Living Roots (C3) ed Iron (C4) tion in Tilled Soils (C6)	Secondary Indicators (m Surface Soil Cracks Sparsely Vegetated Drainage Patterns (f Moss Trim Lines (B' Dry-Season Water T Cravfish Burrows (C	inimum of two required) (B6) Concave Surface (B8) 310) 16) Fable (C2) 8)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is req         Surface Water (A1)         High Water Table (A2)         Saturation (A3)         Water Marks (B1)         Sediment Deposits (B2)         Drift Deposits (B3)	uired; check all that apply) uired; check all that apply) True Aquatic Plants Hydrogen Sulfide C Oxidized Rhizosphe Presence of Reduc Recent Iron Reduct Thin Muck Surface	ture 2. s (B14) bdor (C1) eres on Living Roots (C3) ed Iron (C4) tion in Tilled Soils (C6) (C7)	Secondary Indicators (m Surface Soil Cracks Sparsely Vegetated Drainage Patterns (f Moss Trim Lines (B Dry-Season Water T Crayfish Burrows (C Saturation Visible or	inimum of two required) (B6) Concave Surface (B8) 310) 16) Fable (C2) 8) n Aerial Imagery (C9)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is req         Surface Water (A1)         High Water Table (A2)         Saturation (A3)         Water Marks (B1)         Sediment Deposits (B2)         Drift Deposits (B3)         Algal Mat or Crust (B4)	uired; check all that apply) True Aquatic Plants Tydrogen Sulfide C Oxidized Rhizosphe Presence of Reduct Recent Iron Reduct Thin Muck Surface Other (Explain in Reduct	ture 2. s (B14) Odor (C1) eres on Living Roots (C3) ed Iron (C4) tion in Tilled Soils (C6) (C7) emarks)	Secondary Indicators (m Surface Soil Cracks Sparsely Vegetated Drainage Patterns (f Moss Trim Lines (B' Dry-Season Water T Crayfish Burrows (C Saturation Visible or Stunted or Stressed	inimum of two required) (B6) Concave Surface (B8) 310) 16) Fable (C2) 8) n Aerial Imagery (C9) Plants (D1)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is req         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)	aland area surrounding Feat auired; check all that apply) True Aquatic Plants Hydrogen Sulfide C Oxidized Rhizosphe Presence of Reduct Recent Iron Reduct Thin Muck Surface Other (Explain in Reduct	ture 2. s (B14) Odor (C1) eres on Living Roots (C3) ed Iron (C4) tion in Tilled Soils (C6) (C7) emarks)	Secondary Indicators (m Surface Soil Cracks Sparsely Vegetated Drainage Patterns (f Moss Trim Lines (B' Dry-Season Water T Crayfish Burrows (C Saturation Visible or Stunted or Stressed X Geomorphic Position	inimum of two required) (B6) Concave Surface (B8) 310) 16) Table (C2) 8) n Aerial Imagery (C9) Plants (D1) n (D2)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is req         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 (	uired; check all that apply) True Aquatic Plants True Aquatic Plants Hydrogen Sulfide C Oxidized Rhizosphe Presence of Reduc Recent Iron Reduct Thin Muck Surface Other (Explain in Red B7)	ture 2. s (B14) odor (C1) eres on Living Roots (C3) ed Iron (C4) tion in Tilled Soils (C6) (C7) emarks)	Secondary Indicators (m Surface Soil Cracks Sparsely Vegetated Drainage Patterns (f Moss Trim Lines (B' Dry-Season Water T Crayfish Burrows (C Saturation Visible or Stunted or Stressed X Geomorphic Position Shallow Aquitard (D	inimum of two required) (B6) Concave Surface (B8) 310) 16) Fable (C2) 8) n Aerial Imagery (C9) Plants (D1) n (D2) 3)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is req         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 (Water-Stained Leaves (B9)	uired; check all that apply) True Aquatic Plants Hydrogen Sulfide C Oxidized Rhizosphe Presence of Reduc Recent Iron Reduct Thin Muck Surface Other (Explain in Red	ture 2. s (B14) bdor (C1) eres on Living Roots (C3) ed Iron (C4) tion in Tilled Soils (C6) (C7) emarks)	Secondary Indicators (m Surface Soil Cracks Sparsely Vegetated Drainage Patterns (f Moss Trim Lines (B' Dry-Season Water T Crayfish Burrows (C Saturation Visible or Stunted or Stressed X Geomorphic Position Shallow Aquitard (D Microtopographic Re	inimum of two required) (B6) Concave Surface (B8) 310) 16) Fable (C2) 8) n Aerial Imagery (C9) Plants (D1) n (D2) 3) elief (D4)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is req         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 (Water-Stained Leaves (B9)         Aquatic Fauna (B13)	Juired; check all that apply) True Aquatic Plants True Aquatic Plants Urogen Sulfide C Oxidized Rhizosphe Presence of Reduct Recent Iron Reduct Thin Muck Surface Other (Explain in Reduct Other (Explain in Reduct )	ture 2. s (B14) Odor (C1) eres on Living Roots (C3) ed Iron (C4) tion in Tilled Soils (C6) (C7) emarks)	Secondary Indicators (m Surface Soil Cracks Sparsely Vegetated Drainage Patterns (f Moss Trim Lines (B' Crayfish Burrows (C Saturation Visible or Stunted or Stressed X Geomorphic Position Shallow Aquitard (D Microtopographic Re FAC-Neutral Test (E	inimum of two required) (B6) Concave Surface (B8) 310) 16) Table (C2) 8) n Aerial Imagery (C9) Plants (D1) n (D2) 3) elief (D4) 05)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is req         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 (Water-Stained Leaves (B9)         Aquatic Fauna (B13)	uired; check all that apply) True Aquatic Plants True Aquatic Plants Hydrogen Sulfide C Oxidized Rhizosphe Presence of Reduc Recent Iron Reduct Thin Muck Surface Other (Explain in Re B7)	ture 2. s (B14) odor (C1) eres on Living Roots (C3) ed Iron (C4) tion in Tilled Soils (C6) (C7) emarks)	Secondary Indicators (m Surface Soil Cracks Sparsely Vegetated Drainage Patterns (f Moss Trim Lines (B' Dry-Season Water T Crayfish Burrows (C Saturation Visible or Stunted or Stressed X Geomorphic Position Shallow Aquitard (D Microtopographic Re FAC-Neutral Test (D	inimum of two required) (B6) Concave Surface (B8) 310) 16) Fable (C2) 8) n Aerial Imagery (C9) Plants (D1) n (D2) 3) elief (D4) 25)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is req         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 (Water-Stained Leaves (B9)         Aquatic Fauna (B13)         Field Observations:         Surface Water Present?	uired; check all that apply) True Aquatic Plants Hydrogen Sulfide C Oxidized Rhizosphe Presence of Reduc Recent Iron Reduct Thin Muck Surface Other (Explain in Re B7) NoX Depth (inc	ture 2. s (B14) bdor (C1) eres on Living Roots (C3) ed Iron (C4) tion in Tilled Soils (C6) (C7) emarks) hes):	Secondary Indicators (m Surface Soil Cracks Sparsely Vegetated Drainage Patterns (f Moss Trim Lines (B' Dry-Season Water T Crayfish Burrows (C Saturation Visible or Stunted or Stressed X Geomorphic Position Shallow Aquitard (D Microtopographic Re FAC-Neutral Test (D	inimum of two required) (B6) Concave Surface (B8) 310) 16) Fable (C2) 8) n Aerial Imagery (C9) Plants (D1) n (D2) 3) elief (D4) 05)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is req         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 (Water-Stained Leaves (B9)         Aquatic Fauna (B13)         Field Observations:         Surface Water Present?         Yes	Juired; check all that apply)	ture 2. s (B14) Odor (C1) eres on Living Roots (C3) ed Iron (C4) tion in Tilled Soils (C6) (C7) emarks) hes):	Secondary Indicators (m Surface Soil Cracks Sparsely Vegetated Drainage Patterns (f Moss Trim Lines (B' Dry-Season Water T Crayfish Burrows (C Saturation Visible or Stunted or Stressed X Geomorphic Position Shallow Aquitard (D Microtopographic Re FAC-Neutral Test (D	inimum of two required) (B6) Concave Surface (B8) 310) 16) Fable (C2) 8) n Aerial Imagery (C9) Plants (D1) n (D2) 3) elief (D4) 05)
Remarks:         This data sheet is representative of the up         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is req         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 (Water-Stained Leaves (B9)         Aquatic Fauna (B13)         Field Observations:         Surface Water Present?       Yes         Water Table Present?       Yes         Saturation Present?       Yes	Juired; check all that apply)	ture 2.	Secondary Indicators (m Surface Soil Cracks Sparsely Vegetated Drainage Patterns (f Moss Trim Lines (B' Crayfish Burrows (C Saturation Visible or Stunted or Stressed X Geomorphic Position Shallow Aquitard (D Microtopographic Re FAC-Neutral Test (C	inimum of two required) (B6) Concave Surface (B8) 310) 16) Table (C2) 8) n Aerial Imagery (C9) Plants (D1) n (D2) 3) elief (D4) 05) YesNoX

Indicators of wetland hydrology are not present.

Sampling Point: DP2-U

	Absolute	Dominant	Indicator	
<u>Tree Stratum</u> (Plot size: <u>30</u> )	% Cover	Species?	Status	Dominance Test worksheet:
1				Number of Dominant Species
2.				That Are OBL, FACW, or FAC: 0 (A)
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
5.				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 0.0% (A/B)
7				Prevalence Index worksheet:
		= I otal Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1				FAC species x 3 =
2.				
3.				
4				Column Totals:(A)(B)
5.				Prevalence Index = B/A =
6.				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0'
		=Total Cover		4 - Morphological Adaptations' (Provide supporting
50% of total cover:	20%	of total cover:		
Herb Stratum (Plot size: 5)				Problematic Hydrophytic Vegetation' (Explain)
1. Bidens frondosa	20	No	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Rubus argutus	40	Yes	FACU	present, unless disturbed or problematic.
3. <u>Rosa multiflora</u>	30	No	FACU	Definitions of Four Vegetation Strata:
4. Dactylis glomerata	45	Yes	FACU	<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. <u>Dipsacus fullonum</u>	20	No	FACU	more in diameter at breast height (DBH), regardless of height
6. Solanum carolinense	15	No	FACU	noight.
7. Solidago canadensis	45	Yes	FACU	Sapling/Shrub – Woody plants, excluding vines, less
8				than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall
9				
10				<b>Herb</b> – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.26 it tail.
	215	=Total Cover		<b>Woody Vine</b> – All woody vines greater than 3.28 ft in
50% of total cover:10	8 20%	of total cover:	43	neight.
Woody Vine Stratum (Plot size: 30 )				
1				
2				
3				
4				
5				Hydrophytic
	:	=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes No X
Remarks: (Include photo numbers here or on a separ Indicators of hydrophytic vegetation are not present.	rate sheet.)			

Profile Desc	ription: (Describe	to the dep	oth needed to doci	ument ti	he indica	tor or co	onfirm the absen	ce of indicators.)
Depth	Matrix		Redo	x Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-8	10YR 4/3	100					Loamy/Clayey	
8-12	10YR 4/3	95	10YR 6/6	5	С	М	Loamy/Clayey	Distinct redox concentrations
12-20	10YR 5/3	95	10YR 6/6	5	С	М	Loamy/Clayey	Distinct redox concentrations
<sup>1</sup> Type: C=Co	ncentration, D=Depl	letion, RM	=Reduced Matrix, N	/IS=Mas	ked Sand	Grains.	²Locat	tion: PL=Pore Lining, M=Matrix.
Histosol (	A1)		Polvvalue Be	elow Sur	face (S8)	(MLRA	147. 148)	2 cm Muck (A10) (MLRA 147)
Histic Epi	ipedon (A2)		Thin Dark S	urface (S	39) (MLR	A 147. 14	48)	Coast Prairie Redox (A16)
Black His	tic (A3)		Loamv Muck	v Miner	al (F1) <b>(N</b>	LRA 136	6) <u> </u>	(MLRA 147, 148)
Hvdroaer	n Sulfide (A4)		Loamv Glev	ed Matrix	x (F2)		-)	Piedmont Floodplain Soils (F19)
Stratified	Lavers (A5)		Depleted Ma	atrix (F3)	. (,		—	(MLRA 136, 147)
2 cm Mu	ck (A10) (LRR N)		Redox Dark	Surface	(F6)			Red Parent Material (F21)
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)			(outside MLRA 127, 147, 148)
Thick Da	rk Surface (A12)	- (- )	Redox Depre	essions	(F8)			Verv Shallow Dark Surface (F22)
Sandy M	uckv Mineral (S1)		Iron-Mangar	ese Ma	sses (F12		N	Other (Explain in Remarks)
Sandy Gl	eved Matrix (S4)		 MLRA 136	6)				,
Sandy Re	edox (S5)		Umbric Surfa	ace (F13	3) (MLRA	122, 136	6) <sup>3</sup> lı	ndicators of hydrophytic vegetation and
Stripped	Matrix (S6)		Piedmont Fl	oodplain	Soils (F	9) <b>(MLR</b>	-, RA 148)	wetland hydrology must be present.
Dark Sur	face (S7)		Red Parent	Material	(F21) (M	LRA 127	, 147, 148)	unless disturbed or problematic.
Restrictive L Type:	ayer (if observed):							
Depth (in	ches):						Hydric Soil Pre	esent? Yes No X
Remarks:								

U.S. Army Corps of Engineer WETLAND DETERMINATION DATA SHEET – Eastern Mount See ERDC/EL TR-07-24; the proponent agency	s ains and Piedmont Region / is CECW-CO-R	OMB Control #: 0710-x Requirement Control (Authority: AR 335-15	xxx, Exp: Pending Symbol EXEMPT: 5, paragraph 5-2a)				
Project/Site: Fleming Solar Project	City/County: Fleming Count	ty Sampl	ling Date: 12-16-2020				
Applicant/Owner: Fleming Solar, LLC		State: KY Sampl	ling Point: DP2-W				
nvestigator(s): DR and SM Section, Township, Range: Flemingsburg							
Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 3							
Subregion (LRR or MLRA): LRR N Lat: 38 43926504 Long: F83 75404065 Datum: NAD 83							
Soil Map Unit Name: Nolin silt loam 0 to 3 percent slopes occasiona	llv flooded	NWI classification: N	/A				
Are climatic / hydrologic conditions on the site typical for this time of ye	aar? Ves X N		n Remarks )				
Are Vegetation Soil or Hydrology significantly d	isturbed? Are "Normal Circur	nstances" present?	Ves X No				
Are Vegetation, Soil, or Hydrologysignificantly of	lematic? (If needed, evoluin	any answers in Remarks					
			, <b>, ,</b> , ,				
SUMMARY OF FINDINGS – Attach site map showing	sampling point locations	, transects, importai	nt features, etc.				
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area						
Hydric Soil Present? Yes X No	within a Wetland?	Yes X No					
Wetland Hydrology Present? Yes X No							
This data sheet is representative of Feature 2.							
HYDROLOGY							
Wetland Hydrology Indicators:	Sec	condary Indicators (minimu	um of two required)				
Primary Indicators (minimum of one is required; check all that apply)	(044)	Surface Soil Cracks (B6)					
Surface Water (AT) True Aquatic Plans	(B14)	Drainage Patterns (B10)	ave Sunace (B8)				
X Saturation (A3) X Oxidized Rhizosphe	$\frac{1}{2}$	Moss Trim Lines (B16)					
Water Marks (B1) Presence of Reduce	ed Iron (C4)	Drv-Season Water Table	(C2)				
Sediment Deposits (B2) Recent Iron Reducti	on in Tilled Soils (C6)	Crayfish Burrows (C8)					
Drift Deposits (B3) Thin Muck Surface (	(C7)	Saturation Visible on Aeri	al Imagery (C9)				
Algal Mat or Crust (B4) Other (Explain in Re	emarks)	Stunted or Stressed Plant	ts (D1)				
Iron Deposits (B5)	X	Geomorphic Position (D2	)				
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)					
Water-Stained Leaves (B9)		Microtopographic Relief (	D4)				
Aquatic Fauna (B13)	<u>X</u>	FAC-Neutral Test (D5)					
Field Observations:							
Surface Water Present? Yes X No Depth (inch	nes): <u>2</u>						
Vater Table Present? Yes X No Depth (Incr	165): <u>8</u> Notland Hydr	vology Drocont?					
(includes capillary fringe)		ology Present?					
Describe Recorded Data (stream gauge, monitoring well, aerial photo	s, previous inspections). if availal	ole:					
	, ,						
Remarks:							
Indicators of wetland hydrology are present.							

Sampling Point: DP2-W

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1. Salix nigra	15	Yes	OBL	Number of Dominant Species
2.				That Are OBL, FACW, or FAC: 6 (A)
3.				Total Number of Dominant
4				Species Across All Strata: 6 (B)
5				
·				Percent of Dominant Species
0.				That Are OBL, FACW, of FAC. 100.0% (A/B)
7				Prevalence index worksneet:
	15	=Total Cover		Total % Cover of: Multiply by:
50% of total cover: 8	20%	of total cover:	3	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1. <u>Salix nigra</u>	10	Yes	OBL	FAC species x 3 =
2.				FACU species x 4 =
3.				UPL species x 5 =
4.				Column Totals: (A) (B)
5				Prevalence Index = B/A =
6				
0				1 Danid Test for Underschutig Verstetier
7				1 - Rapid Test for Hydrophytic Vegetation
8				X 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
	10	=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover: 5	20%	of total cover:	2	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Typha angustifolia	30	Yes	OBL	<sup>1</sup> Indicators of hydric coil and watland hydrology must be
2 Ranunculus abortivus	20	No	FACW	present unless disturbed or problematic
3 Carey frankii	45	Ves		Definitions of Four Vegetation Strata:
		Vea		
		<u>res</u>	FACW	<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Persicaria pensylvanica	20	No	FACW	height
6. Carex vulpinoidea	30	Yes	OBL	
7. Scirpus atrovirens	25	No	OBL	Sapling/Shrub – Woody plants, excluding vines, less
8				than 3 in. DBH and greater than or equal to 3.28 ft
9				(Tm) tall.
10				Herb – All herbaceous (non-woody) plants, regardless
11.				of size, and woody plants less than 3.28 ft tall.
	205	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover: 10	3 20%	of total cover	41	height.
Woody Vine Stratum (Plot size: 30 )				
(1 101 3120)				
2				
3.				
4.				
5				Hydrophytic
		=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes X No
Remarks: (Include photo numbers here or on a sepa	rate sheet )			
Indicators of hydrophytic vegetation are present.				
, p,				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redo	x Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 4/3	95	7.5YR 4/6	5	С	М	Loamy/Clayey	Prominent redox concentrations
4-12	10YR 4/2	85	7.5YR 4/6	5	С	PL	Loamy/Clayey	Prominent redox concentrations
12-20	10YR 5/2	75	10YR 4/6	25	С	М	Loamy/Clayey	Prominent redox concentrations
<sup>1</sup> Type: C=Co	ncentration, D=Depl	etion, RM	=Reduced Matrix, N	IS=Mas	ked Sanc	l Grains.	<sup>2</sup> Locatior	: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators:						India	cators for Problematic Hydric Soils <sup>3</sup> :
Histosol (	(A1)		Polyvalue Be	elow Sur	face (S8)	(MLRA	147, 148)	2 cm Muck (A10) <b>(MLRA 147)</b>
Histic Ep	ipedon (A2)		Thin Dark Su	urface (S	9) <b>(MLR</b>	A 147, 14	48)	Coast Prairie Redox (A16)
Black His	tic (A3)		Loamy Muck	y Minera	al (F1) <b>(N</b>	ILRA 136	5)	(MLRA 147, 148)
Hydroger	n Sulfide (A4)		Loamy Gleye	ed Matrix	x (F2)		I	Piedmont Floodplain Soils (F19)
Stratified	Layers (A5)		X Depleted Ma	trix (F3)				(MLRA 136, 147)
2 cm Muo	ck (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)		I	Red Parent Material (F21)
Depleted	Below Dark Surface	(A11)	Depleted Da	rk Surfa	ce (F7)			(outside MLRA 127, 147, 148)
Thick Da	rk Surface (A12)		Redox Depre	essions	(F8)		,	Very Shallow Dark Surface (F22)
Sandy M	ucky Mineral (S1)		Iron-Mangan	ese Ma	sses (F12	2) (LRR N	۹,	Other (Explain in Remarks)
Sandy Gl	eyed Matrix (S4)			5)	,	, ,	·	
Sandy Re	edox (S5)		Umbric Surfa	ace (F13	) (MLRA	122, 136	3) <sup>3</sup> Indi	cators of hydrophytic vegetation and
Stripped	Matrix (S6)		Piedmont Flo	odplain	Soils (F	19) <b>(MLR</b>	, A 148)	wetland hydrology must be present.
Dark Sur	face (S7)		Red Parent I	Material	(F21) <b>(M</b>	LRA 127	, 147, 148) u	unless disturbed or problematic.
Restrictive L	ayer (if observed):							
Туре:								
Depth (in	ches):						Hydric Soil Prese	ent? Yes <u>X</u> No
- ·								

U.S. An WETLAND DETERMINATION DAT See ERDC/EL TR-07-2	<b>TMY Corps</b> A SHEET – B 4; the prop	of Engineer Eastern Mount onent agency	<b>'s</b> tains and Pied y is CECW-C	Imont Region CO-R	OMB Contr Requireme (Authority	rol #: 0710-xxxx, Exp: Pending ent Control Symbol EXEMPT: r: AR 335-15, paragraph 5-2a)		
Project/Site: Fleming Solar Project			City/Coun	nty: Fleming Cou	inty	Sampling Date: 12-16-2020		
Applicant/Owner: Fleming Solar, LLC	cant/Owner: Fleming Solar, LLC							
Investigator(s): DR and SM	Investigator(s): DR and SM Section Township Range: Elemingsburg							
Landform (hillside terrace etc.): Hillside	le	L	- ocal relief (conc	ave convex no	ne) <sup>.</sup> None	Slope (%): 3		
Subregion (I BB or MI BA): I BB N	Lat	38 44135992		Long: 583	75934728	Datum: NAD 83		
Soil Man Unit Name: Lowell-Eavyood si	ilt loams 6 to	12 percent slop	05	2011g00	NWI classif	ication: N/A		
An alimentia (hadrada nia ana ditiana an di		12 percent slop	<del>cs</del>	Mar M				
Are climatic / hydrologic conditions on the	e site typical fo	or this time of ye	ear?	Yes <u>X</u>	No (If n	o, explain in Remarks.)		
Are Vegetation, Soil, or H	ydrology	_significantly d	listurbed? A	Are "Normal Circ	umstances" prese	ent? Yes X No		
SUMMARY OF FINDINGS – Atta	ach site ma	ap showing	sampling po	oint location	is, transects,	important features, etc.		
Hydrophytic Vegetation Present?	Yes	No X	Is the Samp	oled Area				
Hydric Soil Present?	Yes	No X	within a We	etland?	Yes	No X		
Wetland Hydrology Present?	Yes	No X						
Remarks: This data sheet is representative of the	upland area s	urrounding Feat	tures 3, 4, 5, 6,	and 7.				
Remarks: This data sheet is representative of the P	upland area s	urrounding Feat	ures 3, 4, 5, 6,	and 7.				
Remarks:         This data sheet is representative of the representative of	upland area s	urrounding Feat	ures 3, 4, 5, 6,	and 7. 	econdary Indicato	ors (minimum of two required)		
Remarks:         This data sheet is representative of the is         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is represented)	upland area s	urrounding Feat	ures 3, 4, 5, 6,	and 7. <u>S</u>	iecondary Indicato	o <u>rs (minimum of two required)</u> racks (B6)		
Remarks:         This data sheet is representative of the restance         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is restance)         Surface Water (A1)	upland area s	urrounding Feat	tures 3, 4, 5, 6,	and 7. S	econdary Indicato Surface Soil C Sparsely Vege	ors (minimum of two required) racks (B6) tated Concave Surface (B8)		
Remarks:         This data sheet is representative of the representative of	equired; checl	urrounding Feat	eures 3, 4, 5, 6, (B14) dor (C1)	and 7.	iecondary Indicato Surface Soil C Sparsely Vege Drainage Patte	ors (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10)		
Remarks:         This data sheet is representative of the restance         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is restance         Surface Water (A1)         High Water Table (A2)         Saturation (A3)         Water Marks (B1)	equired; checl True Tyd Oxic Pres	urrounding Feat <u>k all that apply)</u> e Aquatic Plants rogen Sulfide O dized Rhizosphe	eures 3, 4, 5, 6, (B14) dor (C1) eres on Living R	and 7.	econdary Indicato Surface Soil C Sparsely Vege Drainage Patte Moss Trim Line Drv-Season W	ors (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) es (B16) ater Table (C2)		
Remarks:         This data sheet is representative of the restance         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is restance)         Surface Water (A1)         High Water Table (A2)         Saturation (A3)         Water Marks (B1)         Sediment Deposits (B2)	equired; checl True True Hyd Oxic Pres Rec	k all that apply) Aquatic Plants rogen Sulfide O dized Rhizosphe sence of Reduce ent Iron Reduct	ures 3, 4, 5, 6, (B14) dor (C1) eres on Living R ed Iron (C4) ion in Tilled Soi	and 7.	econdary Indicato Surface Soil C Sparsely Vege Drainage Patte Moss Trim Line Dry-Season W Cravfish Burro	o <u>rs (minimum of two required)</u> racks (B6) tated Concave Surface (B8) erns (B10) es (B16) ater Table (C2) ws (C8)		
Remarks:         This data sheet is representative of the restance         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is restance         Surface Water (A1)         High Water Table (A2)         Saturation (A3)         Water Marks (B1)         Sediment Deposits (B2)         Drift Deposits (B3)	equired; checl equired; checl True Hyd Oxic Pres Rec Thir	k all that apply) Aquatic Plants rogen Sulfide O dized Rhizosphe sence of Reduce ent Iron Reduction	tures 3, 4, 5, 6, (B14) dor (C1) eres on Living R ed Iron (C4) ion in Tilled Soi (C7)	and 7.	Surface Soil C Surface Soil C Sparsely Vege Drainage Patte Moss Trim Line Dry-Season W Crayfish Burro Saturation Visi	ors (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) es (B16) ater Table (C2) ws (C8) ble on Aerial Imagery (C9)		
Remarks:         This data sheet is representative of the marks:         This data sheet is representative of the marks         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is regression)         Surface Water (A1)         High Water Table (A2)         Saturation (A3)         Water Marks (B1)         Sediment Deposits (B2)         Drift Deposits (B3)         Algal Mat or Crust (B4)	equired; checl equired; checl True Hyd Oxio Pres Rec Thir Otho	k all that apply) Aquatic Plants rogen Sulfide O dized Rhizosphe sence of Reduce ent Iron Reduction Muck Surface er (Explain in Re	eures 3, 4, 5, 6, (B14) (dor (C1) (C1) (C1) (C1) (C4) (C7) (C7) (C7) (cmarks)	and 7.	econdary Indicato Surface Soil C Sparsely Vege Drainage Patte Moss Trim Line Dry-Season W Crayfish Burro Saturation Visi Stunted or Stre	ors (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) es (B16) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1)		
Remarks:         This data sheet is representative of the restance         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is restance)         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)	equired; checl True Hyd Oxic Rec Thir Othe	k all that apply) e Aquatic Plants rogen Sulfide O dized Rhizosphe sence of Reduce ent Iron Reduct n Muck Surface er (Explain in Re	tures 3, 4, 5, 6, (B14) (dor (C1) eres on Living R ed Iron (C4) ion in Tilled Soi (C7) emarks)	and 7.	econdary Indicato Surface Soil C Sparsely Vege Drainage Patte Moss Trim Line Dry-Season W Crayfish Burro Saturation Visi Stunted or Stre Geomorphic P	ors (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) es (B16) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2)		
Remarks:         This data sheet is representative of the restance         HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is regressing 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	equired; checl equired; checl True Hyd Oxic Pres Rec Thir Othe y (B7)	k all that apply) Aquatic Plants rogen Sulfide O dized Rhizosphe sence of Reduce ent Iron Reduct Muck Surface er (Explain in Re	tures 3, 4, 5, 6, (B14) dor (C1) eres on Living R ed Iron (C4) ion in Tilled Soi (C7) emarks)	and 7.	econdary Indicato Surface Soil C Sparsely Vege Drainage Patte Moss Trim Line Dry-Season W Crayfish Burro Saturation Visi Stunted or Stre Geomorphic P Shallow Aquita	ors (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) es (B16) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2) rrd (D3)		
Remarks:         This data sheet is representative of the infinite data sheet is represented as the infinite data sheet data shee	equired; checl equired; checl True Hyd Oxic Pres Rec Thir Other y (B7)	urrounding Feat k all that apply) e Aquatic Plants rogen Sulfide O dized Rhizosphe sence of Reduce ent Iron Reduction Muck Surface er (Explain in Re	tures 3, 4, 5, 6, (B14) dor (C1) eres on Living R ed Iron (C4) ion in Tilled Soi (C7) emarks)	and 7.	econdary Indicato Surface Soil C Sparsely Vege Drainage Patte Moss Trim Line Dry-Season W Crayfish Burro Saturation Visi Stunted or Stre Geomorphic P Shallow Aquita Microtopograpi	ors (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) es (B16) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2) ard (D3) hic Relief (D4)		
Remarks:         This data sheet is representative of the restance of	equired; checl True Hyd Oxio Rec Rec Thir Otho y (B7)	k all that apply) e Aquatic Plants rogen Sulfide O dized Rhizosphe sence of Reduce ent Iron Reduction Muck Surface er (Explain in Re	tures 3, 4, 5, 6, (B14) dor (C1) eres on Living R ed Iron (C4) ion in Tilled Soi (C7) emarks)	and 7.	econdary Indicato Surface Soil C Sparsely Vege Drainage Patte Moss Trim Line Dry-Season W Crayfish Burro Saturation Visi Stunted or Stre Geomorphic P Shallow Aquita Microtopograpl FAC-Neutral T	ors (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) es (B16) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2) rrd (D3) hic Relief (D4) est (D5)		
Remarks:         This data sheet is representative of the restance of	equired; checl True True Yd Oxio Pres Rec Thir Othe y (B7)	k all that apply) Aquatic Plants rogen Sulfide O dized Rhizosphe sence of Reduce ent Iron Reduct Muck Surface er (Explain in Re	tures 3, 4, 5, 6, (B14) dor (C1) eres on Living R ed Iron (C4) ion in Tilled Soi (C7) emarks)	and 7.	econdary Indicato Surface Soil C Sparsely Vege Drainage Patte Moss Trim Line Dry-Season W Crayfish Burro Saturation Visi Stunted or Stre Geomorphic P Shallow Aquita Microtopograp FAC-Neutral T	ors (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) es (B16) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2) ard (D3) hic Relief (D4) est (D5)		
Remarks:         This data sheet is representative of the infinite data sheet is represented at the infinite data sheet data sheet at the infinite data sheet at the	equired; checl equired; checl True Hyd Oxic Pres Rec Thir Other y (B7)	k all that apply) Aquatic Plants rogen Sulfide O dized Rhizosphe sence of Reduce ent Iron Reduction Muck Surface er (Explain in Re	tures 3, 4, 5, 6, (B14) (dor (C1) eres on Living R ed Iron (C4) ion in Tilled Soi (C7) emarks)	and 7.	econdary Indicato Surface Soil C Sparsely Vege Drainage Patte Moss Trim Line Dry-Season W Crayfish Burro Saturation Visi Stunted or Stre Geomorphic P Shallow Aquita Microtopograpi FAC-Neutral T	ors (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) es (B16) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2) ard (D3) hic Relief (D4) est (D5)		
Remarks:         This data sheet is representative of the restance of	equired; checl equired; checl True Hyd Oxic Pres Rec Thir Othe y (B7)	k all that apply) Aquatic Plants rogen Sulfide O dized Rhizosphe sence of Reduce ent Iron Reduction Muck Surface er (Explain in Ref Depth (inch Depth (inch	eures 3, 4, 5, 6, (B14) dor (C1) eres on Living R ed Iron (C4) ion in Tilled Soi (C7) emarks) mes):	and 7.	econdary Indicato Surface Soil C Sparsely Vege Drainage Patte Moss Trim Line Dry-Season W Crayfish Burro Saturation Visi Stunted or Stre Geomorphic P Shallow Aquita Microtopograp FAC-Neutral T	ors (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) es (B16) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2) rrd (D3) hic Relief (D4) est (D5)		
Remarks:         This data sheet is representative of the restance of	equired; checl equired; checl True Hyd Oxic Pres Rec Thir Othe y (B7) No X No X	k all that apply) Aquatic Plants rogen Sulfide O dized Rhizosphe sence of Reduct ent Iron Reduct n Muck Surface er (Explain in Ref Depth (inch Depth (inch Depth (inch	eures 3, 4, 5, 6, (B14) (dor (C1) eres on Living R ed Iron (C4) ion in Tilled Soi (C7) emarks) mes): nes):	and 7.	econdary Indicato Surface Soil C Sparsely Vege Drainage Patte Moss Trim Line Dry-Season W Crayfish Burro Saturation Visi Stunted or Stre Geomorphic P Shallow Aquita Microtopograpi FAC-Neutral T	racks (B6) tated Concave Surface (B8) erns (B10) es (B16) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2) rd (D3) hic Relief (D4) est (D5)		

Indicators of wetland hydrology are not present.

Sampling Point: DP4-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1.	<i>/// 00101</i>	000000		Number of Dominant Species
2.				That Are OBL, FACW, or FAC:(A)
3				Total Number of Dominant
4				Species Across All Strata: 2 (B)
5				Percent of Dominant Species
6				That Are OBL, FACW, or FAC: 0.0% (A/B)
7				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species 0 x 2 = 0
1				FAC species x 3 =
2				FACU species <u>160</u> x 4 = <u>640</u>
3				UPL species 0 x 5 = 0
4				Column Totals: <u>160</u> (A) <u>640</u> (B)
5				Prevalence Index = B/A = 4.00
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
		=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Solidago canadensis	45	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Solidago altissima	45	Yes	FACU	present, unless disturbed or problematic.
				Definitions of Four Venetation Churches
3. Dipsacus fullonum	30	No	FACU	Definitions of Four vegetation Strata:
<ol> <li>Dipsacus fullonum</li> <li>Arctium minus</li> </ol>	30 20	No No	FACU FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
<ol> <li>Dipsacus fullonum</li> <li>Arctium minus</li> <li>Rosa multiflora</li> </ol>	30 20 20	No No No	FACU FACU FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of baint
<ol> <li>Dipsacus fullonum</li> <li>Arctium minus</li> <li>Rosa multiflora</li> <li>6.</li> </ol>	30 20 20	No No No	FACU FACU FACU	<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
<ol> <li>Dipsacus fullonum</li> <li>Arctium minus</li> <li>Rosa multiflora</li> <li>7.</li> </ol>	30 20 20	No No No	FACU FACU FACU	<ul> <li>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding vines, less</li> </ul>
3. Dipsacus fullonum         4. Arctium minus         5. Rosa multiflora         6	30 20 20	No No No	FACU FACU FACU	<ul> <li>Definitions of Four vegetation Strata:</li> <li>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall</li> </ul>
<ol> <li>Dipsacus fullonum</li> <li>Arctium minus</li> <li>Rosa multiflora</li> <li>7.</li> <li>8.</li> <li>9.</li> </ol>	30 20 20	<u>No</u> <u>No</u> 	FACU FACU FACU	<ul> <li>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.</li> </ul>
3. Dipsacus fullonum         4. Arctium minus         5. Rosa multiflora         6.         7.         8.         9.         10.	30 20 20	No No No	FACU FACU FACU	<ul> <li>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.</li> <li>Herb – All herbaceous (non-woody) plants, regardless</li> </ul>
3. Dipsacus fullonum         4. Arctium minus         5. Rosa multiflora         6.         7.         8.         9.         10.         11.	30 20 20	No No No	FACU FACU FACU	<ul> <li>Definitions of Four vegetation Strata:</li> <li>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.</li> <li>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</li> </ul>
3. Dipsacus fullonum         4. Arctium minus         5. Rosa multiflora         6.         7.         8.         9.         10.         11.	30 20 20 	No No No 	FACU FACU FACU	<ul> <li>Definitions of Four Vegetation Strata:</li> <li>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.</li> <li>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</li> <li>Woody Vine – All woody vines greater than 3.28 ft in</li> </ul>
3. Dipsacus fullonum         4. Arctium minus         5. Rosa multiflora         6.         7.         8.         9.         10.         11.         50% of total cover:         80	30 20 20 	No No No Total Cover of total cover:	FACU FACU FACU 32	<ul> <li>Definitions of Four Vegetation Strata:</li> <li>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.</li> <li>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</li> <li>Woody Vine – All woody vines greater than 3.28 ft in height.</li> </ul>
3. Dipsacus fullonum         4. Arctium minus         5. Rosa multiflora         6.         7.         8.         9.         10.         11.         50% of total cover:         80         Woody Vine Stratum (Plot size:         30	30 20 20 160 20%	No No No Total Cover of total cover:	FACU FACU FACU 32	<ul> <li>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.</li> <li>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</li> <li>Woody Vine – All woody vines greater than 3.28 ft in height.</li> </ul>
3. Dipsacus fullonum         4. Arctium minus         5. Rosa multiflora         6.         7.         8.         9.         10.         11.         50% of total cover:         80         Woody Vine Stratum (Plot size:         30         1.	30 20 20 160 20%	No No No 	FACU FACU FACU 32	<ul> <li>Definitions of Four Vegetation Strata:</li> <li>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.</li> <li>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</li> <li>Woody Vine – All woody vines greater than 3.28 ft in height.</li> </ul>
3. Dipsacus fullonum         4. Arctium minus         5. Rosa multiflora         6.         7.         8.         9.         10.         11.         50% of total cover:         80         Woody Vine Stratum (Plot size:         30         1.         2.	30 20 20 160 20%	No No No Total Cover of total cover:	FACU           FACU           FACU           32	<ul> <li>Definitions of Four Vegetation Strata:</li> <li>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.</li> <li>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</li> <li>Woody Vine – All woody vines greater than 3.28 ft in height.</li> </ul>
3. Dipsacus fullonum         4. Arctium minus         5. Rosa multiflora         6.         7.         8.         9.         10.         11.         50% of total cover:         80         Woody Vine Stratum (Plot size:         3.	30 20 20 160 20%	No No No Total Cover of total cover:	FACU           FACU           FACU           32	<ul> <li>Definitions of Four Vegetation Strata:</li> <li>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.</li> <li>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</li> <li>Woody Vine – All woody vines greater than 3.28 ft in height.</li> </ul>
3. Dipsacus fullonum         4. Arctium minus         5. Rosa multiflora         6.         7.         8.         9.         10.         11.         50% of total cover:         80         Woody Vine Stratum (Plot size:         3.         4.	30 20 20 160 20%	No No No Total Cover of total cover:	FACU           FACU           FACU           32	<ul> <li>Definitions of Four Vegetation Strata:</li> <li>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.</li> <li>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</li> <li>Woody Vine – All woody vines greater than 3.28 ft in height.</li> </ul>
3. Dipsacus fullonum         4. Arctium minus         5. Rosa multiflora         6.         7.         8.         9.         10.         11.         50% of total cover:         80         Woody Vine Stratum (Plot size:         3.         4.         5.	30 20 20 160 20%	No No No Total Cover of total cover:	FACU           FACU           FACU           32	<ul> <li>Definitions of Four Vegetation Strata:</li> <li>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.</li> <li>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</li> <li>Woody Vine – All woody vines greater than 3.28 ft in height.</li> </ul>
3. Dipsacus fullonum         4. Arctium minus         5. Rosa multiflora         6.         7.         8.         9.         10.         11.         50% of total cover:         80         Woody Vine Stratum (Plot size:         3.         4.         5.	30 20 20 160 20%	No No No = Total Cover of total cover: = Total Cover	FACU           FACU           FACU           32	<ul> <li>Definitions of Four Vegetation Strata:</li> <li>Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.</li> <li>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</li> <li>Woody Vine – All woody vines greater than 3.28 ft in height.</li> <li>Hydrophytic Vegetation</li> </ul>
3. Dipsacus fullonum         4. Arctium minus         5. Rosa multiflora         6.         7.         8.         9.         10.         11.         50% of total cover:         80         Woody Vine Stratum (Plot size:         3.         4.         5.         50% of total cover:	30 20 20 160 20%	No No No 	FACU           FACU           FACU           32	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 Vine – All woody vines greater than 3.28 ft in height.         Hydrophytic         Yegetation         Present?       Yes No _X
3. Dipsacus fullonum         4. Arctium minus         5. Rosa multiflora         6.         7.         8.         9.         10.         11.         50% of total cover:         80         Woody Vine Stratum (Plot size:         3.         4.         5.         50% of total cover:         80         Woody Vine Stratum (Plot size:         3.         4.         5.         50% of total cover:         50% of total cover:         80         Solw of total cover:         80         9.         9.         9.         10.         11.         2.         3.         4.         5.         50% of total cover:         10.         11.         12.         13.         14.         5.         50% of total cover:         10.         11.         12.         13.         14.         5	30 20 20 160 20% 20% 20% 20%	No No No Total Cover of total cover:	FACU           FACU           FACU           32	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 Vine – All woody vines greater than 3.28 ft in height.         Hydrophytic         Vegetation         Present?       Yes         No       X

Profile Desc	ription: (Describe f	to the de	oth needed to doc	ument tl	he indica	tor or co	onfirm the absen	ice of indicators.)			
Depth	Matrix		Redo	x Featur	es						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks			
0-4	2.5Y 5/3	100					Loamy/Clayey				
4-8	2.5Y 4/4	80	2.5Y 5/6	20	С	М	Loamy/Clayey	Distinct redox concentrations			
8-20	2.5Y 6/4	75	2.5Y 8/6	25	С	М	Loamy/Clayey	Distinct redox concentrations			
<sup>1</sup> Type: C=Co	ncentration, D=Depl	etion, RM	=Reduced Matrix, N	/IS=Mas	ked Sand	l Grains.	<sup>2</sup> Loca	ation: PL=Pore Lining, M=Matrix.			
Hydric Soil I	ndicators:						Ir	ndicators for Problematic Hydric Soils <sup>3</sup> :			
Histosol	(A1)		Polyvalue Be	elow Sur	face (S8)	(MLRA	147, 148)	8) 2 cm Muck (A10) (MLRA 147)			
Histic Ep	ipedon (A2)		Thin Dark S	urface (S	69) <b>(MLR</b>	A 147, 14	48)	Coast Prairie Redox (A16)			
Black His	tic (A3)		Loamy Muck	y Minera	al (F1) <b>(N</b>	ILRA 136	6)	(MLRA 147, 148)			
Hydroger	n Sulfide (A4)		Loamy Gley	ed Matrix	x (F2)			Piedmont Floodplain Soils (F19)			
Stratified	Layers (A5)		Depleted Ma	ıtrix (F3)	( )		_	(MLRA 136, 147)			
2 cm Mu	ck (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)			Red Parent Material (F21)			
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)			(outside MLRA 127, 147, 148)			
Thick Da	rk Surface (A12)	. ,	Redox Depre	essions	(F8)			Very Shallow Dark Surface (F22)			
Sandy M	ucky Mineral (S1)		Iron-Mangar	iese Mas	sses (F12	2) (LRR N	N,	Other (Explain in Remarks)			
Sandy G	eyed Matrix (S4)		MLRA 130	5)		, .					
Sandy Re	edox (S5)		Umbric Surfa	ace (F13	B) (MLRA	122, 136	5) <sup>3</sup> l	Indicators of hydrophytic vegetation and			
Stripped	Matrix (S6)		Piedmont Fl	, nislaboc	Soils (F	19) <b>(MLR</b>	, A 148)	wetland hydrology must be present.			
Dark Sur	face (S7)		Red Parent	Material	(F21) <b>(</b>	LRA 127	, 147, 148)	unless disturbed or problematic.			
Restrictive L	ayer (if observed):										
Type:											
Depth (in	ches):						Hydric Soil Pr	resent? Yes No X			
Remarks:											

U.S. Arm WETLAND DETERMINATION DATA See ERDC/EL TR-07-24	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)							
Project/Site: Fleming Solar Project	Project/Site: Fleming Solar Project Sampling Date: 12-16-							
Applicant/Owner: Fleming Solar, LLC			State: KY Sampling Point: DP4-W					
Investigator(s): DR and SM Section Township Range: Elemingsburg								
Landform (hillside, terrace, etc.); Valley Local relief (concave, convex none); Concave Slope (%); 3								
Subregion (LRR or MLRA): LRR N		Long: -83.7	5946304 Datum: NAD 83					
Soil Map Unit Name: Lowell-Faywood silt	loams 6 to 12 percent slope		NWI classification: N/A					
Are climatic / bydrologic conditions on the	ite typical for this time of ye	ar? Ves X N						
Are Variate / Hydrologic conditions on the	nie typical for tills tille of ye	at $1 = 1 = 3 = 1$						
Are vegetation, Soll, or Hyd	rologysignificantly di		instances present? Yes X No					
Are Vegetation, Soil, or Hyd	rology naturally probl	ematic? (If needed, explain	any answers in Remarks.)					
SUMMARY OF FINDINGS – Attac	h site map showing	sampling point locations	, transects, important features, etc.					
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes X No Yes X No Yes X No	Is the Sampled Area within a Wetland?	Yes <u>X</u> No					
HYDROLOGY Wetland Hydrology Indicators:		Sec	condary Indicators (minimum of two required)					
Primary Indicators (minimum of one is req	uired; check all that apply)		Surface Soil Cracks (B6)					
X Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegetated Concave Surface (B8)					
X High Water Table (A2)	Hydrogen Sulfide Oo	dor (C1) X	Drainage Patterns (B10)					
X Saturation (A3)	X Oxidized Rhizosphe	res on Living Roots (C3)	Moss Trim Lines (B16)					
Water Marks (B1)	Presence of Reduce	d Iron (C4)	Dry-Season Water Table (C2)					
Sediment Deposits (B2)	Thin Muck Surface (		Crayfish Burrows (C8)					
Algal Mat or Crust (B4)	Other (Explain in Re	() () () () () () () () () () () () () (	Saturation Visible on Aerial Imagery (C9)					
Iron Deposits (B5)		X	Geomorphic Position (D2)					
Inundation Visible on Aerial Imagery (	B7)		Shallow Aquitard (D3)					
Water-Stained Leaves (B9)			Microtopographic Relief (D4)					
Aquatic Fauna (B13)		X	FAC-Neutral Test (D5)					
Field Observations:								
Surface Water Present? Yes X	No Depth (inch	es): 2						
Water Table Present? Yes X	No Depth (inch	es): <u>8</u>						
Saturation Present? Yes X	No Depth (inch	es): 3 Wetland Hydr	rology Present? Yes X No					
(includes capillary fringe)								
Describe Recorded Data (stream gauge, r	nonitoring well, aerial photo:	s, previous inspections), if availal	ble:					
Remarks: Indicators of wetland hydrology are preser	it.							

Sampling Point: DP4-W

Ifee statum       (Pot size:		Absolute	Dominant	Indicator	
1       Salit Migra       15       Yes       OBL       Number of Dominant Species         3.	<u>Tree Stratum</u> (Plot size: <u>30</u> )	% Cover	Species?	Status	Dominance Test worksheet:
2	1. Salix nigra	15	res	OBL	Number of Dominant Species
	2.				$\frac{11}{11} = \frac{11}{10} = 11$
**	S				Total Number of Dominant
O         Percent of Dominant Species           The Are OBL, FACW, or FAC:         100.0% (AVB)           7.	4				
0.	6				Percent of Dominant Species
15       =Total Cover         50% of total cover:       8       20% of total cover:       3         Sapling/Shrub Stratum (Plot size:       15       )       FACW species       x 2 =         2.           FACW species       x 2 =         3.                3.                4.                5.   <	7				Prevalence Index worksheet:
S0% of total cover:     8     20% of total cover:     3       Sabing/Shrub Stratum (Plot size:     15     )       1.     Salx rigre     10     Yes       2.	/·	15	=Total Cover		Total % Cover of Multiply by:
Saping/Shrub_Stratum         Plot size:         10         Yes         OBL           1.         Salk nigra         10         Yes         OBL           2.	50% of total cover: 8	20%	of total cover	3	OBL species x1 =
Salt vigra         10         Yes         OBL         FACU species         X 3 =           2.         10         Yes         OBL         FACU species         X 3 =	Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
2	1 Salix nigra	10	Yes	OBI	FAC species x 3 =
3.	2.				FACU species x 4 =
4.	3.				UPL species x 5 =
5.	4.				Column Totals: (A) (B)
6.	5.				Prevalence Index = B/A =
7.	6.				Hydrophytic Vegetation Indicators:
8.	7.				1 - Rapid Test for Hydrophytic Vegetation
9.	8.				X 2 - Dominance Test is >50%
10       =Total Cover         50% of total cover:       5         20% of total cover:       2         Herb Stratum       (Plot size:         5       20% of total cover:         2       7         2       No         5       7         9       20         10       FACW         9       20         10       7         11       Typha angustifolia         20       No         FACW       Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)         1       1ndicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         20       No         FACW       FACW         10       5         10.       7         9       9         10.       10.         11.       160         12.       160         14.       160         15.       11.         20       10         11.       160         12.       30         13.       10.         14.       160         20% of total cover:       32	9.				3 - Prevalence Index is ≤3.0 <sup>1</sup>
50% of total cover:       5       20% of total cover:       2         Herb Stratum       (Plot size:       5       Yes       OBL         1.       Typha angustifolia       55       Yes       OBL         2.       Ranunculus abortivus       20       No       FACW         3.       Carex frankii       30       Yes       OBL         4.       Dipsacus fullonum       5       No       FACW         7.       Seares frankii       20       No       FACW         8.       OBL       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.         7.       Sapling/Shrub – Woody plants, excluding vines, 28 ft (1)       10.         10.		10	=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
Herb Stratum       (Plot size:5_)	50% of total cover: 5	20%	of total cover:	2	data in Remarks or on a separate sheet)
1. Typha angustifolia       55       Yes       OBL       'Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         2. Ranunculus abortivus       20       No       FACW       'Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         3. Carex trankli       30       Yes       OBL       Definitions of Four Vegetation Strata:         4. Dipsacus fullonum       5       No       FACW       Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.         7.	Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2.       Ranunculus abortivus       20       No       FACW         3.       Carex frankii       30       Yes       OBL         4.       Dipsacus fullonum       5       No       FACW         5.       Persicaria pensylvanica       20       No       FACW         6.       Carex vulpinoidea       30       Yes       OBL         7.	1. Typha angustifolia	55	Yes	OBL	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
3.       Carex frankli       30       Yes       OBL       Definitions of Four Vegetation Strata:         4.       Dipsacus fullonum       5       No       FACU       Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.         5.       Persicaria pensylvanica       30       Yes       OBL         7.	2. Ranunculus abortivus	20	No	FACW	present, unless disturbed or problematic.
4.       Dipsacus fullonum       5       No       FACU         5.       Persicaria pensylvanica       20       No       FACW         6.       Carex vulpinoidea       30       Yes       OBL         7.	3. Carex frankii	30	Yes	OBL	Definitions of Four Vegetation Strata:
5.       Persicaria pensylvanica       20       No       FACW         6.       Carex vulpinoidea       30       Yes       OBL         7.	4. Dipsacus fullonum	5	No	FACU	<b>Tree</b> – Woody plants excluding vines 3 in (7.6 cm) or
6.       Carex vulpinoidea       30       Yes       OBL       height.         7.	5. Persicaria pensylvanica	20	No	FACW	more in diameter at breast height (DBH), regardless of
7.	6. Carex vulpinoidea	30	Yes	OBL	height.
8.	7.				Sapling/Shrub – Woody plants, excluding vines, less
9.	8.				than 3 in. DBH and greater than or equal to 3.28 ft
10.	9.				(1 m) tall.
11.	10.				Herb – All herbaceous (non-woody) plants, regardless
Image: 160 = Total Cover       Woody Vine – All woody vines greater than 3.28 ft in height.         Woody Vine Stratum (Plot size: 30 )       30 )         1.	11.				of size, and woody plants less than 3.28 ft tall.
50% of total cover:       80       20% of total cover:       32       height.         Woody Vine Stratum (Plot size:       30       )       .       .       .         2.       .       .       .       .       .       .         3.       .       .       .       .       .       .         4.       .       .       .       .       .       .         5.       .       .       .       .       .       .         50% of total cover:       .       .       .       .       .         50% of total cover:       .       .       .       .       .         .       .       .       .       .       .       .         .       .       .       .       .       .       .         .       .       .       .       .       .       .         .       .       .       .       .       .       .       .         .       .       .       .       .       .       .       .       .         .       .       .       .       .       .       .       .       . <td></td> <td>160</td> <td>=Total Cover</td> <td></td> <td>Woody Vine - All woody vines greater than 3.28 ft in</td>		160	=Total Cover		Woody Vine - All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:	50% of total cover: 8	20%	of total cover:	32	height.
1.	Woody Vine Stratum (Plot size: 30 )				
2.	1				
3.	2.				
4	3				
5.      =Total Cover       Hydrophytic         50% of total cover:       20% of total cover:       Present?         Yes       X       No         Remarks: (Include photo numbers here or on a separate sheet.)       Indicators of hydrophytic vegetation are present.	4				
=Total Cover     Vegetation       50% of total cover:     20% of total cover:       Present?     Yes       X     No	5				Hydrophytic
50% of total cover:       20% of total cover:       Present?       Yes X       No         Remarks: (Include photo numbers here or on a separate sheet.)       Indicators of hydrophytic vegetation are present.       Ves X       Ves X       Ves X			=Total Cover		Vegetation
Remarks: (Include photo numbers here or on a separate sheet.) Indicators of hydrophytic vegetation are present.	50% of total cover:	20%	of total cover:		Present? Yes X No
Indicators of hydrophytic vegetation are present.	Remarks: (Include photo numbers here or on a sepa	rate sheet.)			•
	Indicators of hydrophytic vegetation are present.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)										
Depth	Matrix		Redo	x Featur	es					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
0-3	10YR 4/3	80	10YR 5/6	20	С	М	Loamy/Clayey	Distinct redox concentrations		
3-8	10YR 5/1	80	5YR 4/6	20	С	PL	Loamy/Clayey	Prominent redox concentrations		
8-14	10YR 4/1	75	5YR 4/6	25	С	М	Loamy/Clayey	Prominent redox concentrations		
14-20	N 2.5/	75	5YR 4/6	25	C	M	Mucky Loam/Clay	Prominent redox concentrations		
<sup>1</sup> Type: C=Co	ncentration, D=Depl	etion, RN	=Reduced Matrix, N	/IS=Masl	ked Sand	Grains.	<sup>2</sup> Location	n: PL=Pore Lining, M=Matrix.		
Hydric Soil I	ndicators:						Indi	cators for Problematic Hydric Soils <sup>3</sup> :		
Histosol (	(A1)		Polyvalue Be	elow Sur	face (S8)	) (MLRA	. 147, 148)	2 cm Muck (A10) <b>(MLRA 147)</b>		
Histic Epi	ipedon (A2)		Thin Dark S	urface (S	9) <b>(MLR</b>	A 147, 1	48)	Coast Prairie Redox (A16)		
Black His	tic (A3)		Loamy Muck	y Minera	al (F1) <b>(N</b>	ILRA 13	6)	(MLRA 147, 148)		
Hydroger	n Sulfide (A4)		Loamy Gley	ed Matrix	(F2)			Piedmont Floodplain Soils (F19)		
Stratified	Layers (A5)		X Depleted Ma	trix (F3)				(MLRA 136, 147)		
2 cm Muo	ck (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)			Red Parent Material (F21)		
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)			(outside MLRA 127, 147, 148)		
Thick Da	rk Surface (A12)		Redox Depre	essions	(F8)			Very Shallow Dark Surface (F22)		
Sandy M	ucky Mineral (S1)		Iron-Mangar	iese Mas	ses (F12	2) (LRR	N,	Other (Explain in Remarks)		
Sandy Gl	eyed Matrix (S4)		MLRA 130	5)		, ,	·			
Sandy Re	edox (S5)		Umbric Surfa	ace (F13	) (MLRA	122, 13	6) <sup>3</sup> Indi	cators of hydrophytic vegetation and		
Stripped	Matrix (S6)		Piedmont Fl	oodplain	Soils (F	19) <b>(MLF</b>	, RA 148)	wetland hydrology must be present.		
Dark Sur	face (S7)		Red Parent	Material	(F21) <b>(M</b>	LRA 127	, 147, 148)	unless disturbed or problematic.		
Restrictive L	ayer (if observed):									
Type:	,									
Depth (in	ches):						Hydric Soil Pres	ent? Yes <u>X</u> No		

U.S. Army C WETLAND DETERMINATION DATA SHE See ERDC/EL TR-07-24; the	OMB Control #. Requirement ( (Authority: AR	: 0710-xxxx, Exp: Penc Control Symbol EXEMI ? 335-15, paragraph 5-2	ling PT: 2a)			
Project/Site: Fleming Solar Project Applicant/Owner: Fleming Solar, LLC Investigator(s): DR and SM	City/Cou	nty: <u>Fleming Count</u> nship. Range: Fler	yState:KY	Sampling Date: <u>12-</u> Sampling Point: <u> </u>	-16-2020 )P8-W	
Landform (hillside, terrace, etc.): Valley Subregion (LRR or MLRA): LRR N Soil Map Unit Name: Fowell-Sandview silt loam						
Are climatic / hydrologic conditions on the site ty Are Vegetation, Soil, or Hydrolog Are Vegetation, Soil, or Hydrolog SUMMARY OF FINDINGS – Attach si	pical for this time of year? y significantly disturbed? y naturally problematic? te map showing sampling p	Yes X N Are "Normal Circun (If needed, explain point locations	lo (If no, e. nstances" present? any answers in Rer , <b>transects, im</b>	xplain in Remarks.) Yes <u>X</u> No narks.)	。 s, etc.	
Hydrophytic Vegetation Present?YeHydric Soil Present?YeWetland Hydrology Present?Ye	s X No Is the Sam s X No within a W s X No	pled Area etland?	Yes X	No		
HYDROLOGY						
Wetland Hydrology Indicators:         Primary Indicators (minimum of one is required         X       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)	<ul> <li><u>check all that apply</u></li> <li>True Aquatic Plants (B14)</li> <li>Hydrogen Sulfide Odor (C1)</li> <li>Oxidized Rhizospheres on Living R</li> <li>Presence of Reduced Iron (C4)</li> <li>Recent Iron Reduction in Tilled Sc</li> <li>Thin Muck Surface (C7)</li> <li>Other (Explain in Remarks)</li> </ul>	Sec           X           Roots (C3)           ills (C6)           X           X           X	sondary Indicators ( Surface Soil Crack Sparsely Vegetate Drainage Patterns Moss Trim Lines (f Dry-Season Water Crayfish Burrows ( Saturation Visible Stunted or Stresse Geomorphic Positi Shallow Aquitard (f Microtopographic F FAC-Neutral Test	minimum of two requ s (B6) d Concave Surface ( (B10) 316) Table (C2) C8) on Aerial Imagery (C d Plants (D1) on (D2) D3) Relief (D4) (D5)	<u>iired)</u> (B8) :9)	
Surface Water Present?       Yes       X       N         Water Table Present?       Yes       N         Saturation Present?       Yes       X       N	o Depth (inches): 3 o X Depth (inches): 0 o Depth (inches): 8	Wetland Hydr	ology Present?	Yes X No	D	

(includes capillary fringe)

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

Remarks:

Indicators of wetland hydrology are present.

Sampling Point: DP8-W

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1. Acer rubrum	45	Yes	FAC	Number of Dominant Species
2. Fraxinus pennsylvanica	45	Yes	FACW	That Are OBL, FACW, or FAC: 8 (A)
3.				Total Number of Deminent
4				Species Across All Strata: 9 (B)
5				
5				Percent of Dominant Species
б				That Are OBL, FACW, or FAC: 88.9% (A/B)
7				Prevalence Index worksheet:
	90 =	=Total Cover		Total % Cover of: Multiply by:
50% of total cover: 45	5 20%	of total cover:	18	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1. Acer rubrum	40	Yes	FAC	FAC species x 3 =
2. Salix nigra	25	Yes	OBL	FACU species x 4 =
3.				UPL species x 5 =
4				Column Totals: (A) (B)
5				$\frac{1}{2} = \frac{1}{2} $
5.				
6.				Hydrophytic Vegetation Indicators:
7.				1 - Rapid Test for Hydrophytic Vegetation
8				X 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
	65	=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover: 33	3 20%	of total cover:	13	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5)				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1 Carex frankii	45	Yes	OBI	
2 Carex Jaevivaginata	40	Ves		Indicators of hydric soil and wetland hydrology must be
	20	Vee		Present, unless disturbed of problematic.
		res		Demnitions of Four vegetation Strata:
4. Xanthium strumarium	20	Yes	FAC	<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Dichanthelium clandestinum	15	No	FAC	more in diameter at breast height (DBH), regardless of
6. Helianthus grosseserratus	15	No	FACW	neight.
7. Rubus argutus	20	Yes	FACU	Sapling/Shrub – Woody plants, excluding vines, less
8.				than 3 in. DBH and greater than or equal to 3.28 ft
9.				(1 m) tall.
10.				Herb – All herbaceous (non-woody) plants, regardless
11.				of size, and woody plants less than 3.28 ft tall.
	175	=Total Cover		<b>Woody Vine</b> – All woody vines greater than 3 28 ft in
50% of total cover:	3 20%	of total covor:	35	height.
Weady Vine Stratum (Dist size) 20	2070	or total cover.		
Woody vine Stratum (Flot size. 30)				
1				
2.				
3.				
4.				
5.				He where where the
		=Total Cover		Hydrophytic
50% of total cover:	20%	of total cover:		Present? Yes X No
			·	
Remarks: (Include photo numbers here or on a sepa	rate sheet.)			
mulcators of hydrophytic vegetation are present.				

Profile Descr	iption: (Describe	to the dep	oth needed to doc	ument t	he indica	ator or co	onfirm the absence	e of indicators.)
Depth	Matrix		Redo	x Featur	res	<u> </u>		
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-10	10YR 4/1	75	10YR 5/8	25	С	Μ	Loamy/Clayey	Prominent redox concentrations
10-20	10YR 5/2	70	10YR 5/8	30	С	Μ	Loamy/Clayey	Prominent redox concentrations
·								·
	ncentration D=Depl	etion RM	=Reduced Matrix N	/S=Mas	ked Sand	Grains	<sup>2</sup> Locatio	on: PI =Pore Lining M=Matrix
Hydric Soil Ir	dicators:						Ind	licators for Problematic Hydric Soils <sup>3</sup>
Histosol (	A1)		Polyvalue Be	elow Su	face (S8		147, 148)	2 cm Muck (A10) (MLRA 147)
Histic Epi	pedon (A2)		Thin Dark S	urface (S	59) (MLR	A 147. 1	48)	Coast Prairie Redox (A16)
Black His	tic (A3)		Loamy Muck	v Miner	al (F1) <b>(N</b>	ILRA 13	6)	(MLRA 147, 148)
Hydrogen Sulfide (A4)			Loamy Gleve	ed Matri	x (F2)		-,	Piedmont Floodplain Soils (F19)
Stratified	Lavers (A5)		X Depleted Ma	trix (F3)				(MLRA 136, 147)
2 cm Muc	:k (A10) (LRR N)		Redox Dark	Surface	(F6)			Red Parent Material (F21)
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)			(outside MLRA 127, 147, 148)
Thick Dar	k Surface (A12)	( )	Redox Depre	essions	(F8)			Very Shallow Dark Surface (F22)
Sandy Mu	uckv Mineral (S1)		Iron-Mandar	ese Ma	sses (F12	2) (LRR	N	Other (Explain in Remarks)
Sandy Gl	eved Matrix (S4)			5)	,	/ (	·	
Sandy Re	edox (S5)		Umbric Surfa	ace (F13	3) (MLRA	122. 13	6) <sup>3</sup> Inc	dicators of hydrophytic vegetation and
Stripped I	Matrix (S6)		Piedmont Fl	oodplain	Soils (F	19) <b>(MLF</b>	RA 148)	wetland hydrology must be present.
Dark Surf	ace (S7)		Red Parent	Material	(F21) <b>(M</b>	LRA 127	, 147, 148)	unless disturbed or problematic.
Restrictive L	ayer (if observed):							
Type:	· ·							
Depth (in	ches):						Hydric Soil Pres	sent? Yes <u>X</u> No
Developed								

U.S. Army WETLAND DETERMINATION DATA SH See ERDC/EL TR-07-24; th	Corps of Engineers HEET – Eastern Mountai ne proponent agency i	ns and Piedmont Region s CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
Project/Site: Fleming Solar Project		City/County: Fleming Count	ySampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC			State:KYSampling Point:DP8-U
Investigator(s): DR and SM		Section, Township, Range: Fle	ningsburg
Landform (hillside, terrace, etc.): Hillside	Loca	al relief (concave, convex, none	: <u>None</u> Slope (%): 2
Subregion (LRR or MLRA): LRR N	Lat: <u>38.44652433</u>	Long: <u>-8</u> 3.76	0469182 Datum: NAD 83
Soil Map Unit Name: <u>Eowell-Sandview silt loa</u>	ams, 2 to 6 percent slopes		NWI classification: None
Are climatic / hydrologic conditions on the site	typical for this time of year	? Yes X N	lo (If no, explain in Remarks.)
Are Vegetation , Soil , or Hydrol	ogy significantly dist	urbed? Are "Normal Circun	nstances" present? Yes X No
Are Vegetation , Soil , or Hydrol	ogy naturally problem	matic? (If needed, explain	any answers in Remarks.)
SUMMARY OF FINDINGS – Attach	site map showing sa	ampling point locations	, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes         No         X           Yes         No         X           Yes         No         X	Is the Sampled Area within a Wetland?	Yes No_X
HYDROLOGY			
Wetland Hydrology Indicators:		Sec	condary Indicators (minimum of two required)
Primary Indicators (minimum of one is require Surface Water (A1)	ed; check all that apply)	214)	Surface Soli Cracks (B6)
High Water Table (A2)	Hydrogen Sulfide Odo	r (C1)	Drainage Patterns (B10)
Saturation (A3)	Oxidized Rhizosphere	s on Living Roots (C3)	Moss Trim Lines (B16)
Water Marks (B1)	Presence of Reduced	Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Recent Iron Reduction	n in Tilled Soils (C6)	Crayfish Burrows (C8)
Drift Deposits (B3)	Thin Muck Surface (C	7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Rem	arks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	,		Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7	)		Shallow Aquitard (D3)
Aquatic Fauna (B13)			FAC-Neutral Test (D5)
Field Observations:			√ - /
Surface Water Present? Yes	No X Depth (inches	s):	
Water Table Present? Yes	No X Depth (inches	s):	
Saturation Present? Yes	No X Depth (inches	s): Wetland Hydr	ology Present? Yes <u>No X</u>
(includes capillary fringe)			
Describe Recorded Data (stream gauge, mo	nitoring well, aerial photos,	previous inspections), if availat	ole:

Indicators of wetland hydrology are not present.

Sampling Point: DP8-U

	Absolute	Dominant	Indicator	
<u>Tree Stratum</u> (Plot size: <u>30</u> )	% Cover	Species?	Status	Dominance Test worksheet:
1. 2.				Number of Dominant Species           That Are OBL, FACW, or FAC:         0         (A)
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
5 6.				Percent of Dominant Species That Are OBL. FACW, or FAC: 0.0% (A/B)
7.				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15	)			FACW species x 2 =
· 1.				FAC species x 3 =
2.				FACU species x 4 =
3.				UPL species x 5 =
Δ				Column Totals: (A) (B)
				Prevalence Index = B/A =
о				Hydrophytic Vagetation Indicators:
0				A penid Test for Hydrophytic Vegetation
<i>I</i>				
8				2 - Dominance Test is >50%
9				$3$ - Prevalence Index is $\leq 3.0^{\circ}$
		=Total Cover		4 - Morphological Adaptations' (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks or on a separate sneet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Solidago canadensis	65	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Digitaria ischaemum	45	Yes	UPL	present, unless disturbed or problematic.
3. Symphyotrichum ericoides	65	Yes	FACU	Definitions of Four Vegetation Strata:
4. Daucus carota	25	No	UPL	<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Asclepias syriaca	15	No	FACU	more in diameter at breast height (DBH), regardless of
6.				height.
7.				Sanling/Shrub – Woody plants excluding vines, less
8.				than 3 in. DBH and greater than or equal to 3.28 ft
9				(1 m) tall.
10				Herb – All herbaceous (non-woody) plants, regardless
10				of size, and woody plants less than 3.28 ft tall.
	215	=Total Cover		Woody Vine – All woody vines greater than 3 28 ft in
50% of total cover: 1	08 20%	of total cover:	43	height.
Woody Vine Stratum (Plot size: 30 )	2070		40	
Z				
3.				
4				
5				Hydrophytic
		=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes <u>No X</u>
Remarks: (Include photo numbers here or on a sepa Indicators of hydrophytic vegetation are not present.	arate sheet.)			

SOIL

Profile Desc	ription: (Describe	to the dep	oth needed to doci	ument t	he indica	ator or co	onfirm the abser	ce of ind	icators.)		
Depth	Matrix		Redo	x Featur	es						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Re	emarks	
0-5	10YR 5/3	100					Loamy/Clayey				
5-20	2.5Y 5/4	100					Loamy/Clayey				
		·									
		·				·					
		·				·					
<sup>1</sup> Type: C=Co	ncentration, D=Dep	letion, RM	=Reduced Matrix, N	IS=Mas	ked Sand	d Grains.	<sup>2</sup> Loca	tion: PL=	Pore Lining	, M=Matrix	ί.
Hydric Soil I	ndicators:						l	ndicators	for Proble	matic Hyd	ric Soils <sup>3</sup> :
Histosol	(A1)		Polyvalue Be	elow Su	face (S8	) (MLRA	147, 148)	2 cm N	/luck (A10) (	MLRA 147	7)
Histic Ep	ipedon (A2)		Thin Dark Su	urface (S	59) <b>(MLR</b>	A 147, 14	18) <u> </u>	Coast	Prairie Redo	ox (A16)	
Black His	tic (A3)		Loamy Muck	y Miner	al (F1) <b>(N</b>	ILRA 136		(MLI	RA 147, 148	3)	
Hvdroger	n Sulfide (A4)		Loamv Gleve	ed Matri	x (F2)			Piedm	ont Floodpla	<i>.</i> ain Soils (F	:19)
Stratified	Lavers (A5)		Depleted Ma	trix (F3)			_	 (MLI	RA 136. 147	') `	,
2 cm Mu	ck (A10) (LRR N)		' Redox Dark	Surface	(F6)			Red Pa	arent Materi	, al (F21)	
 Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)		-	(out	side MLRA	127. 147.	148)
Thick Da	rk Surface (A12)	()	Redox Depre	essions	(F8)			Verv S	hallow Dark	Surface (	F22)
Sandy M	ucky Mineral (S1)		Iron-Mangan	ese Ma	(F1)	2) <b>(I RR N</b>	· –	Other	(Explain in F	(Pemarks)	)
Sandy G	eved Matrix (S4)		MI RA 136	3)	0000 (1 1)		-			ternantoj	
Sandy R	dox (S5)		Limbric Surf	7) 200 (E1?		122 136	3	Indicators	of hydrophy	tic vegetat	tion and
Oaindy No	Matrix (S6)		Diadmont El		Soile (E	10) <b>(MI P</b>	// A 148)	wotlan	d hydrology	must he n	recent
Ourpped	faco (S7)		Pod Parant I	Votorial	(E21) <b>(M</b>		147 149)	unloss	disturbed o	r problom	neseni,
				viateriai	(121) (14		, 147, 140)	uniess	distuibed 0		10.
	ayer (if observed):										
i ype:	-h ).								Vec	N -	V
Depth (in	cnes):						Hyaric Soil P	resent?	res	<u> </u>	<u> </u>
Remarks:											

U.S. Arm WETLAND DETERMINATION DATA See ERDC/EL TR-07-24	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)					
Project/Site: Fleming Solar Project		City/County: Fleming Cou	nty Sampling Date: 12-16-2020			
Applicant/Owner: Fleming Solar, LLC			State: KY Sampling Point: DP10-U			
Investigator(s): DR and SM		Section. Township. Range: F	leminasbura			
Landform (hillside terrace etc.): Hillside	l	cal relief (concave, convex, no	ne): None Slope (%): 2			
Subregion (I BR or MI BA): I BR N	Lat: 38 44583886	Long: F83	76734647 Datum: NAD 83			
Soil Map Unit Name: Lowell-Faywood silt	loams 6 to 12 percent slop	2ong	NWI classification: None			
Are climatic / bydrologic conditions on the	site typical for this time of ye	ar? Ves X	No (If no explain in Remarks )			
Are Variated / Hydrologic conditions on the		$a_1$ : $1 \in S$ $\land$				
Are vegetation, Soll, or Hyd			instances present? Yes X No			
Are Vegetation, Soil, or Hyd	irology naturally prob	lematic? (If needed, explai	n any answers in Remarks.)			
SUMMARY OF FINDINGS – Attac	ch site map showing	sampling point location	s, transects, important features, etc.			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes         No         X           Yes         No         X           Yes         No         X	Is the Sampled Area within a Wetland?	YesNoX			
HYDROLOGY Wetland Hydrology Indicators:		<u>S</u>	econdary Indicators (minimum of two required)			
Primary Indicators (minimum of one is rec	uired; check all that apply)		Surface Soil Cracks (B6)			
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegetated Concave Surface (B8)			
High Water Table (A2)	Hydrogen Sulfide O	aor (C1)	Drainage Patterns (B10)			
Water Marks (B1)		$\frac{1}{2} d \operatorname{Iron} (C4)$	)Moss Trim Lines (B16) Dru-Season Water Table (C2)			
Sediment Deposits (B2)	Recent Iron Reducti	on in Tilled Soils (C6)	Cravfish Burrows (C8)			
Drift Deposits (B3)	Thin Muck Surface	(C7)	Saturation Visible on Aerial Imagery (C9)			
Algal Mat or Crust (B4)	Other (Explain in Re	emarks)	Stunted or Stressed Plants (D1)			
Iron Deposits (B5)		_	Geomorphic Position (D2)			
Inundation Visible on Aerial Imagery (	B7)	_	Shallow Aquitard (D3)			
Water-Stained Leaves (B9)		_	Microtopographic Relief (D4)			
Aquatic Fauna (B13)			FAC-Neutral Test (D5)			
Field Observations:						
Surface Water Present? Yes	No X Depth (inch	nes):				
vvater Lable Present? Yes	No X Depth (inch					
Saturation Present / Yes	INO X Depth (Inch	wetland Hy	arology Present? Yes NO X			
(includes capillary infige)	monitoring well porial photo	e previous inspections) if qual	able:			
Describe Recorded Data (stream gauge, I	nomonny wen, aenai photo	s, previous inspections), il avail	aure.			
Remarks:						

Indicators of wetland hydrology are not present.

Sampling Point: DP10-U

	Absolute	Dominant	Indicator	
<u>Tree Stratum</u> (Plot size: <u>30</u> )	% Cover	Species?	Status	Dominance Test worksheet:
1 2				Number of Dominant Species           That Are OBL, FACW, or FAC:         0         (A)
3 4				Total Number of Dominant Species Across All Strata: 3 (B)
5				Percent of Dominant Species
7.				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
<u> </u>				FAC species x 3 =
2.				FACU species x 4 =
3	,			LIPI species x 5 =
4	<u> </u>			Column Totals: (A) (B)
				$\frac{1}{2} Prevalence Index = B/A = $
G				Hydrophytic Vocatation Indicators:
0. 				1 Panid Test for Hydrophytic Vegetation
/ ·				
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0
		=Total Cover		4 - Morphological Adaptations (Provide supporting
50% of total cover:	20%	of total cover:		
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Solidago canadensis	45	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Symphyotrichum ericoides	40	Yes	FACU	present, unless disturbed or problematic.
3. Daucus carota	40	Yes	UPL	Definitions of Four Vegetation Strata:
4. Xanthium strumarium	20	No	FAC	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Conium maculatum	30	No	FACW	more in diameter at breast height (DBH), regardless of
6. Rubus argutus	30	No	FACU	height.
7. Rosa multiflora	20	No	FACU	Sapling/Shrub – Woody plants, excluding vines, less
8.				than 3 in. DBH and greater than or equal to 3.28 ft
9.				(1 m) tall.
10.				Herb – All herbaceous (non-woody) plants, regardless
11.				of size, and woody plants less than 3.28 ft tall.
	225	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover: 113	3 20%	of total cover:	45	height.
Woodv Vine Stratum (Plot size: 30 )				
, 1				
··				
2				
4				
5				Hydrophytic
		=Total Cover		Vegetation
50% of total cover:	20%	of total cover:	<u> </u>	Present? Yes <u>No X</u>
Remarks: (Include photo numbers here or on a separ Indicators of hydrophytic vegetation are not present.	ate sheet.)			

Profile Descri	ption: (Describe t	to the dep	oth needed to doc	ument t	he indica	ator or co	onfirm the abse	nce of indicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-10	10YR 5/3	100					Loamy/Claye	/
10-15	10YR 5/2	95	10YR 4/6	5	С	PL		Prominent redox concentrations
						<u> </u>		
15-20	10YR 5/2	80	7.5YR 5/8	20	C	M		Prominent redox concentrations
<sup>1</sup> Type: C=Con	centration. D=Depl	etion. RM	=Reduced Matrix.	//S=Mas	ked Sand	d Grains.	<sup>2</sup> Loc	ation: PL=Pore Lining, M=Matrix.
Hydric Soil In	dicators:	,	,			-		ndicators for Problematic Hydric Soils <sup>3</sup> :
Histosol (A	A1)		Polyvalue B	elow Su	face (S8	) (MLRA	147, 148)	2 cm Muck (A10) <b>(MLRA 147)</b>
Histic Epip	edon (A2)		Thin Dark S	urface (S	59) <b>(MLR</b>	A 147, 1	48)	Coast Prairie Redox (A16)
Black Histi	ic (A3)		Loamy Mucl	ky Miner	al (F1) <b>(N</b>	ILRA 130		(MLRA 147, 148)
Hydrogen	Sulfide (A4)		Loamy Gley	ed Matri	x (F2)		_	Piedmont Floodplain Soils (F19)
Stratified L	ayers (A5)		Depleted Ma	atrix (F3)	1		_	(MLRA 136, 147)
2 cm Muck	< (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)			Red Parent Material (F21)
Depleted E	Below Dark Surface	e (A11)	Depleted Da	irk Surfa	ce (F7)		_	(outside MLRA 127, 147, 148)
Thick Dark	surface (A12)		Redox Depr	essions	(F8)			Very Shallow Dark Surface (F22)
Sandy Mu	cky Mineral (S1)		Iron-Mangar	nese Ma	sses (F12	2) (LRR N	N, –	Other (Explain in Remarks)
Sandy Gle	eyed Matrix (S4)		MLRA 13	6)			-	
Sandy Red	dox (S5)		Umbric Surf	ace (F13	B) <b>(MLRA</b>	122, 130	6) <sup>3</sup>	Indicators of hydrophytic vegetation and
Stripped N	latrix (S6)		Piedmont Fl	oodplain	Soils (F	19) <b>(MLR</b>	RA 148)	wetland hydrology must be present,
Dark Surfa	ace (S7)		Red Parent	Material	(F21) <b>(M</b>	LRA 127	′, 147, 148)	unless disturbed or problematic.
Restrictive La	yer (if observed):							
Туре:								
Depth (inc	hes):						Hydric Soil P	resent? Yes No X

	ny Corps of Engineer SHEET – Eastern Moun ; the proponent agenc	rs tains and Piedmont Region y is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
Project/Site: Fleming Solar Project		City/County: Fleming Cou	untySampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC			State: KY Sampling Point: DP10-W
Investigator(s): DR and SM		Section, Township, Range: F	lemingsburg
Landform (hillside, terrace, etc.): Valley	L	 .ocal relief (concave, convex, no	ne): None Slope (%): 1
Subregion (LRR or MLRA): LRR N	Lat: 38.44590562	2 Lona: <del>1</del> 83	.76736579 Datum: NAD 83
Soil Map Unit Name: Lowell-Faywood silt	loams 6 to 12 percent slor	)es	NWI classification None
Are climatic / hydrologic conditions on the	site typical for this time of y	year? Ves X	
	dralagy a significantly	diaturbad? Are "Normal Circ	
Are vegetation, Soli, or Hyd			
SUMMARY OF FINDINGS – Attac	ch site map showing	sampling point locatior	ns, transects, important features, etc.
Hydrophytic Vegetation Present?	Yes X No	Is the Sampled Area	
Hydric Soil Present?	Yes X No	within a Wetland?	Yes <u>X</u> No
Wettand Hydrology Fresent:			
HYDROLOGY			
HYDROLOGY Wetland Hydrology Indicators:		<u><u>s</u></u>	Secondary Indicators (minimum of two required)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is rec	juired; check all that apply)	<u></u>	Secondary Indicators (minimum of two required) Surface Soil Cracks (B6)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is rec Surface Water (A1)	<u>uired; check all that apply)</u> True Aquatic Plants	s (B14)	Secondary Indicators (minimum of two required) Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is rec Surface Water (A1) High Water Table (A2) Saturation (A3)	<u>juired; check all that apply)</u> True Aquatic Plants Hydrogen Sulfide C	s (B14)	Secondary Indicators (minimum of two required) Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) X Drainage Patterns (B10) Moss Trim Lines (B16)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is rec Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	<u>quired; check all that apply)</u> True Aquatic Plants Hydrogen Sulfide C X Oxidized Rhizosphe Presence of Reduc	s (B14) Dodor (C1) eres on Living Roots (C3) ered Iron (C4)	Secondary Indicators (minimum of two required) Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) X Drainage Patterns (B10) Moss Trim Lines (B16) Drv-Season Water Table (C2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is rec Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	<u>quired; check all that apply)</u> True Aquatic Plants Hydrogen Sulfide C X Oxidized Rhizosphe Presence of Reduc Recent Iron Reduct	s (B14) Ddor (C1) eres on Living Roots (C3) ed Iron (C4) tion in Tilled Soils (C6)	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)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is rec Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	<u>quired; check all that apply)</u> True Aquatic Plants Hydrogen Sulfide C A Oxidized Rhizosphe Presence of Reduc Recent Iron Reduct Thin Muck Surface	s (B14) Ddor (C1) eres on Living Roots (C3) ced Iron (C4) tion in Tilled Soils (C6) (C7)	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)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is rec Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	<u>quired; check all that apply)</u> True Aquatic Plants Hydrogen Sulfide C X Oxidized Rhizosphe Presence of Reduct Recent Iron Reduct Thin Muck Surface Other (Explain in Reduct)	s (B14) Dodor (C1) eres on Living Roots (C3) red Iron (C4) tion in Tilled Soils (C6) (C7) emarks)	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)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is rec 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)	<u>quired; check all that apply)</u> True Aquatic Plants Hydrogen Sulfide C X Oxidized Rhizosphe Presence of Reduc Recent Iron Reduct Thin Muck Surface Other (Explain in Re	s (B14) Ddor (C1) eres on Living Roots (C3) ed Iron (C4) tion in Tilled Soils (C6) (C7) emarks)	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)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is rec 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 (	guired; check all that apply) True Aquatic Plants Hydrogen Sulfide C X Oxidized Rhizosphe Presence of Reduc Recent Iron Reduct Thin Muck Surface Other (Explain in Re	s (B14) Dodor (C1) eres on Living Roots (C3) ced Iron (C4) tion in Tilled Soils (C6) (C7) emarks)	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)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is rec 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 ( Water-Stained Leaves (B9)	<u>quired; check all that apply)</u> True Aquatic Plants Hydrogen Sulfide C X Oxidized Rhizosphe Presence of Reduc Recent Iron Reduct Thin Muck Surface Other (Explain in Reduct 	s (B14) Dodor (C1) eres on Living Roots (C3) tion in Tilled Soils (C6) (C7) emarks)	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)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is red 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 ( Water-Stained Leaves (B9) Aquatic Fauna (B13)	<u>quired; check all that apply)</u> True Aquatic PlantsHydrogen Sulfide C X Oxidized RhizosphePresence of ReducRecent Iron ReductThin Muck SurfaceOther (Explain in Re	s (B14) Ddor (C1) eres on Living Roots (C3) eed Iron (C4) tion in Tilled Soils (C6) (C7) emarks)	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) X FAC-Neutral Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is rec 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 ( Water-Stained Leaves (B9) Aquatic Fauna (B13) Field Observations: Curface Water Deposit2	<u>quired; check all that apply)</u> True Aquatic PlantsHydrogen Sulfide COxidized RhizosphePresence of ReducRecent Iron ReductThin Muck SurfaceOther (Explain in Reduct (B7)	s (B14) Ddor (C1) eres on Living Roots (C3) ered Iron (C4) tion in Tilled Soils (C6) (C7) emarks)	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) X FAC-Neutral Test (D5)
HYDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is recomposited of the second of the s	<u>quired; check all that apply)</u> True Aquatic Plants Hydrogen Sulfide C X Oxidized Rhizosphe Presence of Reduc Recent Iron Reducl Thin Muck Surface Other (Explain in Re (B7) No X Depth (inc)	s (B14) Dodor (C1) eres on Living Roots (C3) red Iron (C4) tion in Tilled Soils (C6) (C7) emarks)	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) X FAC-Neutral Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is rec 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 ( Water-Stained Leaves (B9) Aquatic Fauna (B13) Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes	<u>quired; check all that apply</u> )        True Aquatic Plants        Hydrogen Sulfide C         X       Oxidized Rhizosphe        Presence of Reduc        Recent Iron Reducl        Thin Muck Surface        Other (Explain in Reduct)        Other (Explain in Reduct)	s (B14) Dodor (C1) eres on Living Roots (C3) red Iron (C4) tion in Tilled Soils (C6) (C7) emarks) 	Surface Soil Cracks (B6) 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) X FAC-Neutral Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is rec 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 ( Water-Stained Leaves (B9) Aquatic Fauna (B13) Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe)	guired; check all that apply)	s (B14) Ddor (C1) eres on Living Roots (C3) ition in Tilled Soils (C6) (C7) (C7) emarks) thes): thes): thes): thes): thes): thes): thes): thes): thes):	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)         X       FAC-Neutral Test (D5)

Indicators of wetland hydrology are present.

Sampling Point: DP10-W

[	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1				Number of Dominant Species
2.				That Are OBL, FACW, or FAC:3 (A)
3.				Total Number of Dominant
4.				Species Across All Strata: 4 (B)
5.				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 75.0% (A/B)
7.				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
<u> </u>				FAC species x 3 =
2		·		
3				
3				
4				Column Totals: (A) (B)
5		<u> </u>		Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				X 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
		=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Carex frankii	45	Yes	OBL	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Helianthus grosseserratus	30	Yes	FACW	present, unless disturbed or problematic.
3. Scirpus atrovirens	20	No	OBL	Definitions of Four Vegetation Strata:
4. Xanthium strumarium	20	No	FAC	<b>Tree</b> – Woody plants, excluding vines 3 in (7.6 cm) or
5. Conium maculatum	30	Yes	FACW	more in diameter at breast height (DBH), regardless of
6 Solidado canadensis	30	Yes	FACU	height.
7 Rosa multiflora	10	No	FACU	Sanling/Shruh Weady planta evaluding vince loss
8			17100	than 3 in DBH and greater than or equal to 3.28 ft
0		·		(1 m) tall.
3 10				Harb All borbassous (non woody) planta, regardlaga
				of size, and woody plants less than 3 28 ft tall
11				
	185	= I otal Cover		Woody Vine – All woody vines greater than 3.28 ft in beight
50% of total cover: 93	820%	of total cover:	37	
Woody Vine Stratum (Plot size: 30 )				
1				
2.				
3.				
4.				
5.				I hadron hatin
		=Total Cover		Hydrophytic Vegetation
50% of total cover:	20%	of total cover:		Present? Yes X No
Remarks: (Include photo numbers here or on a separ	rate sheet.)			
indicators of hydrophytic vegetation are present.				

Profile Desc	ription: (Describe	to the dep	oth needed to doc	ument ti	ne indica	tor or co	onfirm the absen	ce of indicators.)		
Depth	Matrix		Redo	x Featur	es					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
0-5	10YR 5/3	100					Loamy/Clayey			
5-15	10YR 5/2	95	10YR 4/6	5	С	PL	Loamy/Clayey	Prominent redox concentrations		
15-20	10YR 5/2	80	7.5YR 5/8	20	С	М	Loamy/Clayey	Prominent redox concentrations		
<sup>1</sup> Type: C=Co	ncentration, D=Depl	etion, RM	=Reduced Matrix, N	/IS=Mas	ked Sand	l Grains.	<sup>2</sup> Loca	tion: PL=Pore Lining, M=Matrix.		
Hydric Soil I	ndicators:						Ir	ndicators for Problematic Hydric Soils <sup>3</sup> :		
Histosol (	A1)		Polyvalue Be	elow Sur	face (S8)	(MLRA	147, 148)	2 cm Muck (A10) (MLRA 147)		
Histic Ep	pedon (A2)		Thin Dark S	urface (S	9) <b>(MLR</b>	A 147, 14	48)	Coast Prairie Redox (A16)		
Black His	tic (A3)		Loamy Muck	y Minera	al (F1) <b>(N</b>	ILRA 136	6)	(MLRA 147, 148)		
Hydroger	n Sulfide (A4)		Loamy Gley	ed Matrix	(F2)			Piedmont Floodplain Soils (F19)		
Stratified	Layers (A5)		X Depleted Ma	ıtrix (F3)						
2 cm Mu	:k (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)			Red Parent Material (F21)		
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)			(outside MLRA 127, 147, 148)		
Thick Da	k Surface (A12)	. ,	Redox Depre	essions	(F8)			Very Shallow Dark Surface (F22)		
Sandy M	ucky Mineral (S1)		Iron-Manganese Masses (F12) (LRR N. Other (Explain in Remarks)			Other (Explain in Remarks)				
Sandy Gl	eved Matrix (S4)		MLRA 130	5)	,	<i>,</i> ,	· -			
Sandy Re	edox (S5)		Umbric Surfa	ace (F13	) (MLRA	122, 136	5) <sup>3</sup> l	ndicators of hydrophytic vegetation and		
Stripped	Matrix (S6)		Piedmont Fl	oodplain	Soils (F	19) <b>(MLR</b>	, A 148)	wetland hydrology must be present.		
Dark Sur	ace (S7)		Red Parent	Material	(F21) <b>(M</b>	LRA 127	, 147, 148)	unless disturbed or problematic.		
Restrictive L	ayer (if observed):									
Туре:										
Depth (in	ches):						Hydric Soil Pr	esent? Yes <u>X</u> No		
Pomorko:										

U.S. A WETLAND DETERMINATION DAT See ERDC/EL TR-07-2	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)		
Project/Site: Fleming Solar Project		City/County: Fleming Cour	ntySampling Date: 12-16-202
Applicant/Owner: Fleming Solar, LL	С		State: KY Sampling Point: DP12-L
Investigator(s): DR and SM		Section, Township, Range: Fle	emingsburg
Landform (hillside, terrace, etc.): Valle	y Lo	ocal relief (concave, convex, non	ne): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR N	Lat: 38.44026669	Long: -83.7	76899212 Datum: NAD 83
Soil Map Unit Name: Lowell-Faywood s	ilt loams, 12 to 20 percent slo	0	NWI classification: N/A
Are climatic / hvdrologic conditions on th	e site typical for this time of ve	ear? Yes X	No (If no. explain in Remarks.)
Are Vegetation X Soil or H	vdrology significantly d	isturbed? Are "Normal Circu	umstances" present? Yes X No
Are Vegetation Soil or H	vdrology naturally prob	lematic? (If needed explain	n any answers in Remarks )
SUMMARY OF FINDINGS – Att Hydrophytic Vegetation Present?	ach site map showing YesNoX	sampling point locations	s, transects, important features, etc
Hydric Soil Present?	Yes No X	within a Wetland?	Yes NoX
Wetland Hydrology Present?	Yes No X		
Remarks: This data sheet is representative of the grazed.	upland area surrounding Feat	ure 12. This area is located withi	in a cattle pasture. Vegetation is regularly
HYDROLOGY			
Wetland Hydrology Indicators:		Se	econdary Indicators (minimum of two required)
Primary Indicators (minimum of one is r	equired; check all that apply)		Surface Soil Cracks (B6)
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegetated Concave Surface (B8)

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)			
Primary Indicators (minimum of one is required	Surface Soil Cracks (B6)			
Surface Water (A1)	Sparsely Vegetated Concave Surface (B8)			
High Water Table (A2)	Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)		
Saturation (A3)	Oxidized Rhizospheres on Living Roots	(C3) Moss Trim Lines (B16)		
Water Marks (B1)	Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)		
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C	Crayfish Burrows (C8)		
Drift Deposits (B3)	Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)		
Algal Mat or Crust (B4)	Other (Explain in Remarks)	Stunted or Stressed Plants (D1)		
Iron Deposits (B5)		Geomorphic Position (D2)		
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)		
Water-Stained Leaves (B9)		Microtopographic Relief (D4)		
Aquatic Fauna (B13)		FAC-Neutral Test (D5)		
Field Observations:				
Surface Water Present? Yes	No X Depth (inches):			
Water Table Present? Yes	No X Depth (inches):			
Saturation Present? Yes	No X Depth (inches):	Wetland Hydrology Present?         Yes NoX		
(includes capillary fringe)				
Describe Recorded Data (stream gauge, monit	toring well, aerial photos, previous inspecti	ons), if available:		
Remarks:				
Indicators of wetland hydrology are not present	t.			

Sampling Point: DP12-U

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:
2.				Number of Dominant Species           That Are OBL, FACW, or FAC:         0         (A)
3				Total Number of Dominant Species Across All Strata: 1 (B)
5.				Percent of Dominant Species
7.				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1.				FAC species x 3 =
2.				FACU species x 4 =
3.				UPL species x 5 =
4.				Column Totals: (A) (B)
5.				Prevalence Index = B/A =
6.				Hydrophytic Vegetation Indicators:
7.				1 - Rapid Test for Hydrophytic Vegetation
8.				2 - Dominance Test is >50%
9.				3 - Prevalence Index is ≤3.0 <sup>1</sup>
		=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Poa pratensis	95	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2				present, unless disturbed or problematic.
3				Definitions of Four Vegetation Strata:
4				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
5				more in diameter at breast height (DBH), regardless of height
6				
7				<b>Sapling/Shrub</b> – Woody plants, excluding vines, less
8				(1 m) tall.
10.				Herb – All herbaceous (non-woody) plants, regardless
11.				of size, and woody plants less than 3.28 ft tall.
	95	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover:4	3 20%	of total cover:	19	height.
Woody Vine Stratum (Plot size: 30 )				
1				
2				
3				
4				
5				Hydrophytic
	:	=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes No X
Remarks: (Include photo numbers here or on a sepa	rate sheet.)			•
Indicators of hydrophytic vegetation are not present.	Vegetation i	s regularly gra	zed by cattle.	

SOIL

Depth	Matrix		Redox Features								
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		F	Remarks	
0-20	10YR 5/4 100						Loamy/Claye	ey			
1							2				
Type: C=Co	oncentration, D=Depl	etion, RM	Reduced Matrix, N	/IS=Mas	ked Sand	l Grains.	<sup>2</sup> Lo	cation: PL=	Pore Linin	g, M=Matri	X.
Hydric Soil Indicators:							Indicators for F			ematic Hyd	dric Soils'
Histosol (A1)			Polyvalue Below Surface (S8) (MLRA 14)				147, 148)	2 cm Muck (A10) <b>(MLRA 147)</b>			
Histic Epipedon (A2)			Thin Dark Surface (S9) (MLRA 147, 148)				8)	Coast Prairie Redox (A16)			
Black Histic (A3)			Loamy Mucky Mineral (F1) (MLRA 136)					(MLRA 147, 148)			
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)					Piedmont Floodplain Soils (F19)			
Stratified Layers (A5)			Depleted Matrix (F3)					(MLRA 136, 147)			
2 cm Muck (A10) <b>(LRR N)</b>			Redox Dark Surface (F6)					Red Parent Material (F21)			
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)					(outside MLRA 127, 147, 148)			
Thick Dark Surface (A12)			Redox Depressions (F8)					Very Shallow Dark Surface (F22)			
Sandy Mucky Mineral (S1)			Iron-Manganese Masses (F12) (LRR N,					Other (Explain in Remarks)			
 Sandy G	leved Matrix (S4)		MLRA 13	5)	,	, (			<b>、</b> 1	,	
Sandy R	edox (S5)	Umbric Surface (F13) (MLRA 122, 136)					<sup>3</sup> Indicators of hydrophytic vegetation and				
Stripped Matrix (S6)			Piedmont Floodplain Soils (F19) (MLRA 148)					wetland hydrology must be present.			
Dark Sur	face (S7)	Red Parent Material (F21) (MLRA 127, 147, 148					unless disturbed or problematic.				
Restrictive I	_ayer (if observed):										
Type:											
Depth (inches):							Hydric Soil	Drocont?	Vos	No	X
U.S. Army Corps of Engineers											
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WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region											
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R											

OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)

Project/Site:	Fleming	Solar	Projec	xt			City	/County: Fle	ming Co	ounty			Sampling Date:	12-16-2020
Applicant/Own	er:	Flemin	g Sola	ar, LLC							State:	KY S	Sampling Point:	DP12-W
Investigator(s)	DR an	d SM					Section,	Township, I	Range:	Flemir	ngsburg			
Landform (hills	ide, terra	ace, et	c.):	Valley		L	ocal relief	(concave, co	onvex, r	none):	Concave		Slope (%):	2
Subregion (LR	R or MLI	RA): <u>I</u>		1	Lat:	38.44012361	1	I	Long: <u>-</u> 8	3.7690	4805		Datum:	NAD 83
Soil Map Unit I	Name: I	Lowell-	Fayw	ood silt loams,	12 to	20 percent slo	opes				NWI cla	ssificatio	on: N/A	
Are climatic / h	nydrologi	c cond	itions	on the site typi	cal for	this time of y	/ear?	Yes	Х	No		(If no, ex	plain in Remark	s.)
Are Vegetation	п <u>Х</u> ,	, Soil	Х	, or Hydrology		significantly	disturbed?	Are "No	ormal Ci	rcumst	ances" p	resent?	Yes X	No
Are Vegetation	۱ <u> </u>	, Soil		, or Hydrology		naturally pro	blematic?	(If need	led, exp	lain an	y answer	s in Rem	narks.)	
				• · · · • • · ·										

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

Wetland Hydrology Present? Yes X No	Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	x x x	No No No	Is the Sampled Area within a Wetland?	Yes	x	No
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#### Remarks:

This data sheet is representative of Feature 12. This area is located within a cattle pasture. Vegetation is regularly grazed and soils are disturbed for the top 4 inches. Feature begins at a well and exhibits intermittent flow. Bed and banks and OHWM are altered by cattle activity. System would likely naturally be an intermittent stream.

#### **HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)				
Primary Indicators (minimum of one is requi	red; check all that apply)	Surface Soil Cracks (B6)				
X Surface Water (A1)	True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)				
X High Water Table (A2)	Hydrogen Sulfide Odor (C1)	X Drainage Patterns (B10)				
X Saturation (A3)	3) Moss Trim Lines (B16)					
Water Marks (B1)	Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)				
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C	Crayfish Burrows (C8)				
Drift Deposits (B3)	Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)				
Algal Mat or Crust (B4)	Stunted or Stressed Plants (D1)					
Iron Deposits (B5)	X Geomorphic Position (D2)					
Inundation Visible on Aerial Imagery (B	Shallow Aquitard (D3)					
Water-Stained Leaves (B9)	Microtopographic Relief (D4)					
Aquatic Fauna (B13)	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? Yes X	No Depth (inches): 0	Vetland Hydrology Present?         Yes X         No				
(includes capillary fringe)						
Describe Recorded Data (stream gauge, mo	onitoring well, aerial photos, previous inspection	ons), if available:				
Remarks:						
Indicators of wetland hydrology are present.	Feature begins at a well and exhibits intermit	ttent flow. Bed and banks and OHWM are altered by cattle				
activity. System would likely naturally be an	intermittent stream.					

Sampling Point: DP12-W

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1.       2.				Number of Dominant Species That Are OBL, FACW, or FAC:2 (A)
3				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
5				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)
/		-Total Covar		Total % Cover of:
50% of total cover:	20%	of total cover:		OBL species x1 =
Sapling/Shrub Stratum (Plot size: 15 )	2070			FACW species x 2 =
<u></u>				FAC species x 3 =
2.				FACU species x 4 =
3.				UPL species x 5 =
4.				Column Totals: (A) (B)
5.				Prevalence Index = B/A =
6.				Hydrophytic Vegetation Indicators:
7.				1 - Rapid Test for Hydrophytic Vegetation
8.				X 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
	:	=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5)				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Poa pratensis	80	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Ranunculus abortivus	50	Yes	FACW	present, unless disturbed or problematic.
3. Xanthium strumarium	35	Yes	FAC	Definitions of Four Vegetation Strata:
4 5				<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
7.				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft
9				(1 m) tall.
10				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
	165	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover: 8	3 20%	of total cover:	33	height.
Woody Vine Stratum (Plot size: 30 )				
1.				
2.				
3.				
4.				
5.				Hydrophytic
	:	=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes X No
Remarks: (Include photo numbers here or on a sepa	rate sheet.)			
Indicators of hydrophytic vegetation are present. Veg	etation is re	gularly grazed	by cattle.	

Profile Desc	ription: (Describe	to the dep	oth needed to doc	ator or co	onfirm the absen	ce of indicators.)					
Depth	Matrix		Redo	x Featur	es						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks			
0-4	10YR 4/2	100					Loamy/Clayey Altered by cattle				
4-20	10YR 4/1	95	10YR 5/8	5	С	PL	Loamy/Clayey	Prominent redox concentrations			
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.											
Hydric Soil Indicators: Indicators for Problematic Hydric Soil											
Histosol (A1) Polyvalue Below Surface (S8) (MLR/						) (MLRA	147, 148)	2 cm Muck (A10) <b>(MLRA 147)</b>			
Histic Ep	ipedon (A2)		Thin Dark S	urface (S	69) <b>(MLR</b>	A 147, 14	8) Coast Prairie Redox (A16)				
Black His	stic (A3)		Loamy Mucl	ky Miner	al (F1) <b>(N</b>	ILRA 136	) (MLRA 147, 148)				
Hydroger	n Sulfide (A4)		Loamy Gley	ed Matri	x (F2)		Piedmont Floodplain Soils (F19)				
Stratified	Layers (A5)		X Depleted Ma	atrix (F3)			(MLRA 136, 147)				
2 cm Mu	ck (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)		Red Parent Material (F21)				
Depleted	Below Dark Surface	e (A11)	Depleted Da	ark Surfa	ce (F7)		(outside MLRA 127, 147, 148)				
 Thick Da	rk Surface (A12)	. ,	Redox Depr	essions	(F8)		Verv Shallow Dark Surface (F22)				
Sandv M	uckv Mineral (S1)		Iron-Mangar	nese Ma	, sses (F12	2) (LRR N	Other (Explain in Remarks)				
Sandy G	eved Matrix (S4)			6)	,	, (	· _				
Sandy Re	edox (S5)		Umbric Surf	ace (F13	3) (MLRA	122. 136	6) <sup>3</sup> I	ndicators of hydrophytic vegetation and			
Stripped	Matrix (S6)		Piedmont Fl	oodplain	Soils (F	19) <b>(MLR</b>	A 148)	wetland hydrology must be present			
Dark Sur	face (S7)		Red Parent	Material	(F21) <b>(M</b>	LRA 127	, 147, 148)	unless disturbed or problematic.			
Restrictive L	ayer (if observed):										
Type:											
Depth (in	ches):						Hydric Soil Pr	esent? Yes <u>X</u> No			
Remarks:											

U.S. Arr WETLAND DETERMINATION DATA See ERDC/EL TR-07-24	ny Corps of Engineers SHEET – Eastern Mounta ; the proponent agency	ins and Piedmont Region is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)						
Project/Site: Fleming Solar Project		City/County: Fleming Count	ySampling Date: 12-16-2020						
Applicant/Owner: Fleming Solar, LLC			State: KY Sampling Point: DP13-W						
Investigator(s): DR and SM		Section, Township, Range: Flei	ningsburg						
Landform (hillside, terrace, etc.): Valley	Loc	al relief (concave, convex, none	): <u>None</u> Slope (%): <u>1</u>						
Subregion (LRR or MLRA): LRR N	Lat: 38.44375480	Long: <u>+8</u> 3.77	7352199 Datum: NAD 83						
Soil Map Unit Name: Lowell-Faywood silt	loams, 6 to 12 percent slopes	8	NWI classification: Riverine						
Are climatic / hydrologic conditions on the	site typical for this time of yea	r? Yes <u>X</u> N	lo (If no, explain in Remarks.)						
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Ye									
Are Vegetation , Soil , or Hyd	drology naturally proble	ematic? (If needed, explain	any answers in Remarks.)						
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.									
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks:	Yes         X         No           Yes         X         No           Yes         X         No           Yes         X         No	Is the Sampled Area within a Wetland?	Yes <u>X</u> No						
HYDROLOGY		0							
Primary Indicators (minimum of one is red	nuired: check all that apply)	<u>Sec</u>	Surface Soil Cracks (B6)						
X Surface Water (A1)	True Aquatic Plants (	B14)	Surface Soli Cracks (66) Sparsely Vegetated Concave Surface (88)						
High Water Table (A2)	Hydrogen Sulfide Od	or (C1) X	X Drainage Patterns (B10)						
Saturation (A3)	X Oxidized Rhizosphere	es on Living Roots (C3)	Moss Trim Lines (B16)						
Water Marks (B1)	Presence of Reduced	l Iron (C4)	Dry-Season Water Table (C2)						
Sediment Deposits (B2)	Recent Iron Reductio	n in Tilled Soils (C6)	Crayfish Burrows (C8)						
Algal Mat or Crust (B4)	Other (Explain in Ren	,/) narks)	Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1)						
Iron Deposits (B5)		X	Geomorphic Position (D2)						
Inundation Visible on Aerial Imagery	(B7)		Shallow Aquitard (D3)						
Water-Stained Leaves (B9)			Microtopographic Relief (D4)						
Aquatic Fauna (B13)		<u>X</u>	FAC-Neutral Test (D5)						
Field Observations:									
Surface Water Present? Yes X	No Depth (inche	es): <u>3</u>							
water Lable Present?     Yes       Saturation Present?     Yas	No X Depth (inche	es): Wotland User	ology Prosont? Voc. V No						
(includes capillary fringe)									
Describe Recorded Data (stream gauge,	monitoring well, aerial photos	, previous inspections), if availab	le:						

Remarks:

Indicators of wetland hydrology are present.

Sampling Point: DP13-W

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:
1 Salix nigra	25	Ves	OBI	
		<u> </u>		Number of Dominant Species
2. Fraxinus pennsylvanica	45	Yes	FACW	That Are OBL, FACW, or FAC:(A)
3.				Total Number of Dominant
4				Species Across All Strata: 7 (B)
5.				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 100.0% (A/B)
7				Brevalence Index worksheet:
/				
	70	= I otal Cover		I otal % Cover of: Multiply by:
50% of total cover: 3	5 20%	of total cover:	14	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1. Salix nigra	15	Yes	OBL	FAC species x 3 =
2				FACIL species x 4 =
3.				
4.				Column Totals:(A)(B)
5				Prevalence Index = B/A =
6.				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
···				
δ				
9.				3 - Prevalence Index is ≤3.0'
	15	=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover: 8	3 20%	of total cover:	3	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1 Corov frankij	45	Vaa		
	45	res		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Carex laevivaginata	40	Yes	OBL	present, unless disturbed or problematic.
3. Scirpus atrovirens	35	Yes	OBL	Definitions of Four Vegetation Strata:
4. Xanthium strumarium	35	Yes	FAC	<b>Tree</b> – Woody plants, excluding vines, 3 in, (7.6 cm) or
5 Dichanthelium clandestinum	30	No	FAC	more in diameter at breast height (DBH), regardless of
6 Heliopthus grossosseretus	15	No	EACW/	height.
	10	INO	FACW	
1.				Sapling/Shrub – Woody plants, excluding vines, less
8				than 3 in. DBH and greater than or equal to 3.28 ft
9				(1 m) tall.
10.				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
	200	-Tatal Causer		We add Wine All we add using a machine them 2, 20, ft in
	200	= I otal Cover		woody vine – All woody vines greater than 3.28 it in boight
50% of total cover: 10	0 20%	of total cover:	40	
Woody Vine Stratum (Plot size: 30 )				
1.				
2				
2				
3.				
4.				
5				Hydrophytic
		=Total Cover		Aydrophytic Vegetation
50% of total cover	20%	of total cover		Present? Yes X No
	2070			
Remarks: (Include photo numbers here or on a sepa	arate sheet.)			
Indicators of hydrophytic vegetation are present.				

Profile Desc	ription: (Describe	nce of indicators.)									
Depth	Matrix		Redo	x Featur	es						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks			
0-3	10YR 3/3	100					Loamy/Clayey	<u> </u>			
3-15	10YR 5/1	80	10YR 4/6	20	С	PL	Loamy/Clayey	Prominent redox concentrations			
15-20	10YR 6/1	85	10YR 4/6	15	С	PL/M	Loamy/Clayey	Prominent redox concentrations			
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.											
Hydric Soil Indicators: Indicators for Problematic Hydric Soils <sup>3</sup>											
Histosol (A1) Polyvalue Below Surface (S8) (MLRA							147, 148)	2 cm Muck (A10) (MLRA 147)			
Histic Ep	pedon (A2)		Thin Dark S	urface (S	9) <b>(MLR</b>	A 147, 14	48) Coast Prairie Redox (A16)				
Black His	tic (A3)		Loamy Muck	y Minera	al (F1) <b>(N</b>	ILRA 136	i) (MLRA 147, 148)				
Hydroger	n Sulfide (A4)		Loamy Gley	ed Matrix	(F2)		Piedmont Floodplain Soils (F19)				
Stratified	Layers (A5)		X Depleted Ma	trix (F3)			(MLRA 136, 147)				
2 cm Mu	k (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)		Red Parent Material (F21)				
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)		(outside MLRA 127, 147, 148)				
Thick Da	k Surface (A12)	. ,	Redox Depre	essions	(F8)		Very Shallow Dark Surface (F22)				
Sandy M	ucky Mineral (S1)		Iron-Mangar	ese Ma	sses (F12	2) (LRR N	• Other (Explain in Remarks)				
Sandy Gl	eved Matrix (S4)		MLRA 130	5)	,	<i>,</i> , ,	· _				
Sandy Re	edox (S5)		Umbric Surfa	, ace (F13	) (MLRA	122. 136	<b>3</b> ) <sup>3</sup>	Indicators of hydrophytic vegetation and			
Stripped	Matrix (S6)		Piedmont Fl	, nislaboc	Soils (F	19) <b>(MLR</b>	, A 148)	wetland hydrology must be present.			
Dark Sur	ace (S7)		Red Parent	Material	(F21) <b>(</b> M	LRA 127	, 147, 148)	unless disturbed or problematic.			
Restrictive L	ayer (if observed):										
Туре:											
Depth (in	ches):						Hydric Soil Present? Yes X No				
Pomorko:											

Remarks:

U.S. Army C WETLAND DETERMINATION DATA SHE See ERDC/EL TR-07-24; the	ns and Piedmont Region s CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)						
Project/Site: Fleming Solar Project Applicant/Owner: Fleming Solar, LLC		City/County: Fleming Count	y Sampling Date: <u>12-16-2020</u> State: <u>KY</u> Sampling Point: <u>DP13-U</u>					
Investigator(s): DR and SM		Section, Township, Range: Flei	mingsburg					
Landform (hillside, terrace, etc.): Hillside	Loca	al relief (concave, convex, none	e): None Slope (%): 2					
Subregion (LRR or MLRA): LRR N	Lat: <u>38.44374878</u>	Long: <u>-</u> 83.77	7337947 Datum: NAD 83					
Soil Map Unit Name: Lowell-Faywood silt loam	s, 6 to 12 percent slopes		NWI classification: None					
Are climatic / hydrologic conditions on the site ty	pical for this time of year	? Yes <u>X</u> N	No (If no, explain in Remarks.)					
Are Vegetation , Soil , or Hydrolog	y significantly dist	urbed? Are "Normal Circun	nstances" present? Yes X No					
Are Vegetation , Soil , or Hydrolog	v naturally problem	matic? (If needed, explain	any answers in Remarks.)					
SUMMARY OF EINDINGS - Attach s	to man showing s	maling point locations	transacts important features ato					
Hydrophytic Vegetation Present? Ye Hydric Soil Present? Ye Wetland Hydrology Present? Ye Remarks: This data sheet is representative of the upland	area surrounding Feature	e 13.	Yes No <u>_X_</u>					
HYDROLOGY								
Wetland Hydrology Indicators:	, check all that apply)	Sec	condary Indicators (minimum of two required)					
Primary Indicators (minimum of one is required	; cneck all that apply)	214)	Surface Soil Cracks (B6)					
High Water Table (A2)	Hydrogen Sulfide Odo	r (C1)	Drainage Patterns (B10)					
Saturation (A3)	Oxidized Rhizosphere	s on Living Roots (C3)	(C3) Moss Trim Lines (B16)					
Water Marks (B1)	Presence of Reduced	Iron (C4)	Dry-Season Water Table (C2)					
Sediment Deposits (B2)	Recent Iron Reduction	n in Tilled Soils (C6)	Crayfish Burrows (C8)					
Drift Deposits (B3)	Thin Muck Surface (C	7)	Saturation Visible on Aerial Imagery (C9)					
Algal Mat or Crust (B4)	Other (Explain in Rem	arks)	Stunted or Stressed Plants (D1)					
Iron Deposits (B5)			Geomorphic Position (D2)					
Inundation Visible on Aerial Imagery (B7)			Shallow Aquitard (D3)					
Aquatic Fauna (B13)			FAC-Neutral Test (D5)					
Field Observations:								
Surface Water Present? Yes N	lo X Depth (inches	s):						
Water Table Present? Yes N	Io X Depth (inches	s):						
Saturation Present? Yes N	lo X Depth (inches	s): Wetland Hydr	ology Present? Yes No X					
(includes capillary fringe)								
Describe Recorded Data (stream gauge, monit	oring well, aerial photos,	previous inspections), if availat	ble:					

Remarks: Indicators of wetland hydrology are not present.

Sampling Point: DP13-U

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1.				Number of Dominant Species
2.				That Are OBL, FACW, or FAC: 1 (A)
3.				Total Number of Dominant
4				Species Across All Strata: 4 (B)
5				
·				Percent of Dominant Species
0				That Ale OBL, FACW, OF FAC. 23.0% (A/B)
/				Prevalence index worksneet:
-		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1. Celtis occidentalis	30	Yes	FACU	FAC species x 3 =
2. Acer rubrum	15	Yes	FAC	FACU species x 4 =
3.				UPL species x 5 =
4				Column Totals: (A) (B)
T				$\frac{1}{2} = \frac{1}{2} $
5				Prevalence index = B/A =
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9.				3 - Prevalence Index is ≤3.0 <sup>1</sup>
	45	=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover: 23	20%	of total cover:	9	data in Remarks or on a separate sheet)
Horh Stratum (Plot size: 5 )		0, 1010. 01.1		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Melb Stratum</u> (Fill Size)	45	Yaa		
	40			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Digitaria ischaemum	45	Yes	UPL	present, unless disturbed or problematic.
3. Phytolacca americana	30	No	FACU	Definitions of Four Vegetation Strata:
4. Helianthus grosseserratus	20	No	FACW	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Asclepias syriaca	15	No	FACU	more in diameter at breast height (DBH), regardless of
6.				height.
7.				Sanling/Shrub – Woody plants, excluding vines, less
8				than 3 in. DBH and greater than or equal to 3.28 ft
a				(1 m) tall.
10				Harb All borbassays (non weady) planta, regardless
10				of size, and woody plants less than 3 28 ft tall
11				
	155	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover: 78	20%	of total cover:	31	height.
Woody Vine Stratum (Plot size: 30 )				
1.				
2.				
3				
4.				
5				Hydrophytic
		=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes <u>No X</u>
Remarks: (Include photo numbers here or on a separa Indicators of hydrophytic vegetation are not present.	ate sheet.)			

Depin       Matrix       Redox Features         (inches)       Color (moist)       %       Type <sup>1</sup> Loc <sup>2</sup> Texture       Remarks         0-5       10YR 5/3       100	Profile Desc	ription: (Describe	to the dep	th needed to docu	ator or co	onfirm the absen	ce of ind	licators.)						
Indicates       Cold (Indist)       %       Type       Loc       Texture       Retinans         0-5       10YR 5/3       100       Loamy/Clayey	Deptn (inchoo)		0/	Color (moiot)		Turne <sup>1</sup>	1 2 2	Taxtura		Demorko				
0-5       10YR 5/3       100       Loamy/Clayey         5-20       2.5Y 5/4       100       Loamy/Lagoed         5-20       2.5Y 5/4       100       Loamy/Lagoed         5-20       2.5Y 5/4       100       Loamy/Lagoed         5-20       2.5Y 5/4       100       Loamy/Lagoed Sand Grains.         *       *       *       *       *         149dric Soil Indicators:       *       *       *         Histosol (A1)       Polyvalue Below Surface (S9) (MLRA 147, 148)       *       Coast Prairie Redox (A16)	(inches)		70		70	Туре	LOC	Texture		ĸ	emarks			
5-20       2.5Y 5/4       100       Loamy/Clayey	0-5	10YR 5/3	100					Loamy/Clayey						
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.         Hydric Soil Indicators:       Indicators for Problematic Hydric Sc         Histosol (A1)       Polyvalue Below Surface (S8) (MLRA 147, 148)       2 cm Muck (A10) (MLRA 147)         Histosol (A2)       Thin Dark Surface (S9) (MLRA 147, 148)       2 coast Prairie Redox (A16)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)       (MLRA 147, 148)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 147, 148)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation an wetland hydrology must be presen unless disturbed or problematic.         Sandy Redox (S5)       Piedmont Floodplain Soils (F19) (MLRA 127, 147, 148) <sup>3</sup> Indicators of nydrophytic vegetation an wetland hydrology must be presen unless disturbed or problematic.         Type:       Type:       Type: <sup>3</sup> Indicators of nydrophytic vegetation an wetlan	5-20	2.5Y 5/4	100					Loamy/Clayey						
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.         Hydric Soil Indicators:       Indicators for Problematic Hydric SC         Histosol (A1)       Polyvalue Below Surface (S8) (MLRA 147, 148)       2 cm Muck (A10) (MLRA 147)         Histic Epipedon (A2)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)       (MLRA 147, 148)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       Redox Depressions (F8)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation an wetland hydrology must be presen unless disturbed or problematic.         Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.														
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.         Hydric Soil Indicators:       Indicators for Problematic Hydric Sc         Histosol (A1)       Polyvalue Below Surface (S8) (MLRA 147, 148)       2 cm Muck (A10) (MLRA 147)         Histic Epipedon (A2)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)       (MLRA 147, 148)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Opeleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation an wetland hydrology must be presen unless disturbed or problematic.         Bark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.         Type:       Trype:       Piedmont Floodp														
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.         Hydric Soil Indicators:       Indicators for Problematic Hydric So:         Histosol (A1)       Polyvalue Below Surface (S8) (MLRA 147, 148)       2 cm Muck (A10) (MLRA 147)         Histosol (A2)       Thin Dark Surface (S9) (MLRA 147, 148)       2 const Prairie Redox (A16)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)       (MLRA 147, 148)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation an wetland hydrology must be present unless disturbed or problematic.         Bark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.				<u> </u>										
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.         Hydric Soil Indicators:       Indicators for Problematic Hydric So         Histosol (A1)       Polyvalue Below Surface (S8) (MLRA 147, 148)       2 cm Muck (A10) (MLRA 147)         Histic Epipedon (A2)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)       (MLRA 147, 148)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation an wetland hydrology must be presen unless disturbed or problematic.         Bark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.         Restrictive Layer (if observed):       Type:														
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.         Hydric Soil Indicators:       Indicators for Problematic Hydric So         Histosol (A1)       Polyvalue Below Surface (S8) (MLRA 147, 148)       2 cm Muck (A10) (MLRA 147)         Histosol (A2)       Thin Dark Surface (S9) (MLRA 147, 148)       2 cost Prairie Redox (A16)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)       (MLRA 147, 148)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 147, 148)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Mick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation an wetland hydrology must be presen unless disturbed or problematic.         Restrictive Layer (if observed):       Type:       Type:       Thin Pare Material (F21) (MLRA 127, 147, 148)														
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.         Hydric Soil Indicators:       Indicators for Problematic Hydric So         — Histosol (A1)       — Polyvalue Below Surface (S8) (MLRA 147, 148)       2 cm Muck (A10) (MLRA 147)         — Histos Epipedon (A2)       — Thin Dark Surface (S9) (MLRA 147, 148)       2 coast Prairie Redox (A16)         — Black Histic (A3)       — Loamy Mucky Mineral (F1) (MLRA 136)       — Coast Prairie Redox (A16)         — Hydrogen Sulfide (A4)       — Loamy Gleyed Matrix (F2)       — Piedmont Floodplain Soils (F19)         — Stratified Layers (A5)       — Depleted Matrix (F3)       — Piedmont Floodplain Soils (F12)         — Thick Dark Surface (A11)       — Depleted Dark Surface (F7)       — Red ox Derressions (F8)       Very Shallow Dark Surface (F22)         — Sandy Mucky Mineral (S1)       — Iron-Manganese Masses (F12) (LRR N,       — Other (Explain in Remarks)       3         — Sandy Redox (S5)       — Umbric Surface (F13) (MLRA 122, 136)       3       Indicators of hydrophytic vegetation and wetland hydrology must be presen unless disturbed or problematic.         — Dark Surface (S7)       — Red Parent Material (F21) (MLRA 127, 147, 148)       wetland hydrology must be presen unless disturbed or problematic.         — Thick Dark Surface (S7)       — Red Parent Material (F21) (MLRA 127, 147, 148)       — Other (Explain in Remarks)														
Hydric Soil Indicators:       Indicators for Problematic Hydric Soi         Histosol (A1)       Polyvalue Below Surface (S8) (MLRA 147, 148)       2 cm Muck (A10) (MLRA 147)         Histic Epipedon (A2)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)       (MLRA 147, 148)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation an wetland hydrology must be presen unless disturbed or problematic.         Restrictive Layer (if observed):       Type:       Type:	<sup>1</sup> Tvpe: C=Co	ncentration. D=Dep	letion. RM=	Reduced Matrix. N	1S=Mas	ked Sand	d Grains.	<sup>2</sup> Loca	tion: PL=	Pore Lining	ı. M=Matr	rix.		
Histosol (A1)       Polyvalue Below Surface (S8) (MLRA 147, 148)       2 cm Muck (A10) (MLRA 147)         Histic Epipedon (A2)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)       (MLRA 147, 148)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       Redox Depressions (F8)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation an wetland hydrology must be presen unless disturbed or problematic.         Restrictive Layer (if observed):       Type:       Red Parent Material (F21) (MLRA 127, 147, 148)	Hydric Soil I	ndicators:	,						ndicators	for Proble	matic Hy	/dric Soils <sup>3</sup> :		
Histic Epipedon (A2)Thin Dark Surface (S9) (MLRA 147, 148)Coast Prairie Redox (A16)Black Histic (A3)Loamy Mucky Mineral (F1) (MLRA 136)(MLRA 147, 148)Hydrogen Sulfide (A4)Loamy Gleyed Matrix (F2)Piedmont Floodplain Soils (F19)Stratified Layers (A5)Depleted Matrix (F3)(MLRA 136, 147)2 cm Muck (A10) (LRR N)Redox Dark Surface (F6)Red Parent Material (F21)Depleted Below Dark Surface (A11)Depleted Dark Surface (F7)Red Parent Material (F21)Thick Dark Surface (A12)Redox Depressions (F8)Very Shallow Dark Surface (F22)Sandy Mucky Mineral (S1)Iron-Manganese Masses (F12) (LRR N, Sandy Gleyed Matrix (S4)Other (Explain in Remarks)Sandy Redox (S5)Umbric Surface (F13) (MLRA 122, 136)³Indicators of hydrophytic vegetation at wetland hydrology must be presen unless disturbed or problematic.Restrictive Layer (if observed): 	Histosol (A1) Polyvalue Below Surface (S8) (MLF						) (MLRA	147, 148)	2 cm I	Muck (A10)	(MLRA 1	47)		
Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)       (MLRA 147, 148)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Gleyed Matrix (S4)       MLRA 136)       wetland hydrology must be presen         Stripped Matrix (S6)       Piedmont Floodplain Soils (F19) (MLRA 127, 147, 148)       wetland hydrology must be presen         Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.         Restrictive Layer (if observed):       Type:       Type:       1	Histic Ep	pedon (A2)		Thin Dark Su	urface (S	59) <b>(MLR</b>	A 147, 14	48) Coast Prairie Redox (A16)						
Hydrogen Sulfide (A4)Loamy Gleyed Matrix (F2)Piedmont Floodplain Soils (F19)Stratified Layers (A5)Depleted Matrix (F3)(MLRA 136, 147)2 cm Muck (A10) (LRR N)Redox Dark Surface (F6)Red Parent Material (F21)Depleted Below Dark Surface (A11)Depleted Dark Surface (F7)(outside MLRA 127, 147, 148)Thick Dark Surface (A12)Redox Depressions (F8)Very Shallow Dark Surface (F22)Sandy Mucky Mineral (S1)Iron-Manganese Masses (F12) (LRR N, Sandy Gleyed Matrix (S4)Other (Explain in Remarks)Sandy Redox (S5)Umbric Surface (F13) (MLRA 122, 136)³Indicators of hydrophytic vegetation an wetland hydrology must be presen unless disturbed or problematic.Restrictive Layer (if observed): Type:Type:Type:If observed):	 Black His	tic (A3)		Loamv Muck	v Miner	al (F1) <b>(N</b>	ILRA 136	δ) (MLRA 147, 148)						
Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Gleyed Matrix (S4)       MLRA 136)       3Indicators of hydrophytic vegetation at wetland hydrology must be presen         Stripped Matrix (S6)       Piedmont Floodplain Soils (F19) (MLRA 127, 147, 148)       wetland hydrology must be presen         Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.	Hvdroaer	n Sulfide (A4)		Loamv Gleve	ed Matri	x (F2)		Piedmont Floodplain Soils (F19)						
2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Gleyed Matrix (S4)       MLRA 136)       Other (Explain in Remarks)         Stripped Matrix (S6)       Diedmont Floodplain Soils (F19) (MLRA 148)       wetland hydrology must be presen         Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.         Restrictive Layer (if observed):         Type:       Type:       Type:	Stratified	Lavers (A5)		Depleted Ma	trix (F3)	)		(MLRA 136, 147)				( )		
Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136)       Other (Explain in Remarks)         Stripped Matrix (S6)       Piedmont Floodplain Soils (F19) (MLRA 148)       wetland hydrology must be presen         Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.         Type:	2 cm Mu	ck (A10) (LRR N)		 Redox Dark	Surface	(F6)		Red Parent Material (F21)						
	Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	(F7)		(outside MI RA 127, 147, 148)				7, 148)		
	Thick Da	rk Surface (A12)		Bedox Depre	essions	(F8)		Very Shallow Dark Surface (E22)				(F22)		
Sandy Gleyed Matrix (S4)       MLRA 136)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136)         Stripped Matrix (S6)       Piedmont Floodplain Soils (F19) (MLRA 148)         Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)         Restrictive Layer (if observed):       Type:	Sandy M	ucky Mineral (S1)		Iron-Mangan	ese Ma	(1 0) sses (F1)	2) <b>(I RR N</b>	N Other (Evplain in Remarks)				)		
Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation and the present of the present material (F21) (MLRA 148)         Stripped Matrix (S6)       Piedmont Floodplain Soils (F19) (MLRA 148)       wetland hydrology must be present unless disturbed or problematic.         Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.         Restrictive Layer (if observed):       Type:       Type:       Type:	Sandy G	eved Matrix (S4)		MIRA 136	000 Ma	0000 (1 1)		-,			(onlanco)	)		
	Sandy R	dox (S5)		Limbric Surf	7 200 (E1)		122 136	<sup>3</sup> Indicators of hydrophytic vegetation and				tation and		
	Sandy Redox (55) Umbric Surface (F13) (MLRA 122, 1						10) <b>(MI D</b>	b) Indicators of hydrophytic vegetation and				procont		
Bark Surface (S7)     Red Parent Material (P21) (MLKA 127, 147, 146)     Unless disturbed of problematic.       Restrictive Layer (if observed):     Type:     Type:	Suipped	Stripped Matrix (S6)Piedmont Floodplain Soils (F19) (ML						<b>RA 148)</b> wetland hydrology must be present,				present,		
Restrictive Layer (if observed): Type:					vialeriai		LNA 127	, 147, 140)	uniess			nauc.		
Туре:	Restrictive L	ayer (if observed):												
	Туре:													
Depth (inches): No X	Depth (in	ches):						Hydric Soil Pi	resent?	Yes_	N	o <u>X</u>		

U.S. Army C WETLAND DETERMINATION DATA SHE See ERDC/EL TR-07-24; the	Corps of Engineers EET – Eastern Mountains Proponent agency is C	and Piedmont Region CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)				
Project/Site: Fleming Solar Project City/County: Fleming County Sample							
Applicant/Owner: Fleming Solar, LLC		·	State: KY Sampling Point: DP15-U				
Investigator(s): DR and SM	Sect	tion. Township, Range: Fle	minasburg				
Landform (hillside, terrace, etc.); Hillside	Local re	lief (concave, convex, none	a): None Slope (%): 3				
Subregion (LRR or MLRA): LRR N	Lat: 88 4414156	Long: #83.7	7842501 Datum: NAD 83				
Soil Man Linit Name: Lowell-Faywood silt loam	$\sim$ 12 to 20 percent slopes	Long	NWI classification: N/A				
Are climatic / hydrologic conditions on the site t	unical for this time of year?	Ves X N	Vo (If no evolain in Remarks )				
Are Venetation Soil or Hydrolog	ypical for this time of year.	ad? Are "Normal Circur	no (ii no, explain in remarks.)				
Are Vegetation, or nyurolog							
	jy naturally proplemati	IC? (If needed, explain	any answers in Remarks.)				
SUMMARY OF FINDINGS – Attach s	ite map showing sam	pling point locations	, transects, important features, etc.				
Hydrophytic Vegetation Present?	es No X Is	the Sampled Area					
Hydric Soil Present? Y	es No X wit	thin a Wetland?	Yes No X				
Wetland Hydrology Present? Y	es No X						
HYDROLOGY							
Wetland Hydrology Indicators:	d shade all that apply)	Sec	condary Indicators (minimum of two required)				
Surface Water (A1)	<u>rue Aquatic Plants (B14)</u>	<u> </u>	Surface Soil Cracks (D0) Sparsely Vegetated Concave Surface (B8)				
High Water Table (A2)	Hydrogen Sulfide Odor (C	) (1)	Drainage Patterns (B10)				
Saturation (A3)	Oxidized Rhizospheres or	n Living Roots (C3)	C3) Moss Trim Lines (B16)				
Water Marks (B1)	Presence of Reduced Iror	n (C4)	Dry-Season Water Table (C2)				
Sediment Deposits (B2)	Recent Iron Reduction in	Tilled Soils (C6)	Crayfish Burrows (C8)				
Drift Deposits (B3)	Thin Muck Surface (C7)		Saturation Visible on Aerial Imagery (C9)				
Algal Mat or Crust (B4)	Other (Explain in Remarks	s)	Stunted or Stressed Plants (D1)				
Iron Deposits (B5)		<u></u>	Geomorphic Position (D2)				
Water-Stained Leaves (B9)			Microtopographic Relief (D4)				
Aquatic Fauna (B13)			FAC-Neutral Test (D5)				
Field Observations:			- · · · · ·				
Surface Water Present? Yes N	No X Depth (inches):						
Water Table Present? Yes	No X Depth (inches):						
Saturation Present? Yes N	No X Depth (inches):	Wetland Hydr	ology Present? Yes <u>No X</u>				
(includes capillary fringe)	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · ·					
Describe Recorded Data (stream gauge, monit	toring well, aerial photos, pre	vious inspections), if availat	Die:				
Remarks: Indicators of wetland hydrology are not presen	t.						

Sampling Point: DP15-U

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1				Number of Dominant Species
2				That Are OBL, FACW, or FAC: 0 (A)
3				Total Number of Dominant
4				Species Across All Strata: <u>3</u> (B)
5				Percent of Dominant Species
6				That Are OBL, FACW, or FAC: 0.0% (A/B)
7				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1				FAC species x 3 =
2				FACU species x 4 =
3.				UPL species x 5 =
4.				Column Totals: (A) (B)
5.				Prevalence Index = B/A =
6.				Hydrophytic Vegetation Indicators:
7.				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
0				$3 - \text{Prevalence Index is } \leq 30^1$
· · · · · · · · · · · · · · · · · · ·		-Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
				data in Remarks or on a senarate sheet)
50% of total cover:	20%	of total cover:		
Herb Stratum (Plot size: 5)				Problematic Hydrophytic Vegetation' (Explain)
1. Solidago canadensis	50	No	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Digitaria ischaemum	60	Yes		present, unless disturbed or problematic.
3. <u>Poa pratensis</u>	60	Yes	FACU	Definitions of Four Vegetation Strata:
4. Dipsacus fullonum	70	Yes	FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Arctium minus	10	No	FACU	more in diameter at breast height (DBH), regardless of
6. Symphyotrichum ericoides	45	No	FACU	neight.
7. Solanum carolinense	20	No	FACU	Sapling/Shrub – Woody plants, excluding vines, less
8				than 3 in. DBH and greater than or equal to 3.28 ft
9				(1 m) tall.
10				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
	315	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover: 15	8 20%	of total cover:	63	height.
Woody Vine Stratum (Plot size: 30 )				
<u> </u>				
2				
2				
3				
4.		. <u></u>		
5				Hydrophytic
		=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes <u>No X</u>
Remarks: (Include photo numbers here or on a sepa Indicators of hydrophytic vegetation are not present.	rate sheet.)			

Profile Desci	ription: (Describe	to the dep	th needed to doc	ument t	he indica	ator or co	onfirm the abse	nce of indicators.)		
Depth	Matrix		Redo	x Featur	es					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
0-10	7.5YR 4/4	100					Loamy/Claye	ý		
10-20	10YR 4/4	100					Loamy/Claye	у		
						······				
<sup>1</sup> Type: C=Co	ncentration, D=Dep	etion, RM=	Reduced Matrix, N	/IS=Mas	ked Sand	d Grains.	<sup>2</sup> Loc	ation: PL=Pore Lining, M=Matrix.		
Hydric Soil II	ndicators:							Indicators for Problematic Hydric Soils <sup>3</sup> :		
Histosol (	A1)		Polyvalue Be	elow Su	face (S8	) (MLRA	147, 148)	2 cm Muck (A10) <b>(MLRA 147)</b>		
Histic Epi	pedon (A2)		Thin Dark Su	urface (S	69) <b>(MLR</b>	A 147, 14	48)	Coast Prairie Redox (A16)		
Black His	tic (A3)		Loamy Muck	y Miner	al (F1) <b>(N</b>	ILRA 136		(MLRA 147, 148)		
Hydrogen	Sulfide (A4)		Loamy Gleye	ed Matri	x (F2)			Piedmont Floodplain Soils (F19)		
Stratified	Layers (A5)		Depleted Ma	trix (F3)			-	(MLRA 136, 147)		
2 cm Muc	k (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)			Red Parent Material (F21)		
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)		-	(outside MLRA 127, 147, 148)		
Thick Da	k Surface (A12)	. ,	Redox Depre	essions	(F8)			Very Shallow Dark Surface (F22)		
Sandy Mu	ucky Mineral (S1)		Iron-Mangan	iese Ma	sses (F12	2) (LRR N	I. Other (Explain in Remarks)			
Sandy Gl	eyed Matrix (S4)		MLRA 136	5)		, .	-			
Sandy Re	edox (S5)		Umbric Surfa	ace (F13	B) (MLRA	122, 136	5)	Indicators of hydrophytic vegetation and		
Stripped	Matrix (S6)		Piedmont Floodplain Soils (F19) (MLRA 148)			19) <b>(MLR</b>	A 148)	wetland hydrology must be present,		
Dark Surf	ace (S7)		Red Parent I	Material	(F21) <b>(M</b>	LRA 127	, 147, 148)	unless disturbed or problematic.		
Restrictive L	ayer (if observed):									
Туре:										
Depth (in	ches):						Hydric Soil P	resent? Yes No X		
Demenden										

Remarks:

U.S. Ari WETLAND DETERMINATION DATA See ERDC/EL TR-07-24	my Corps of Engineer A SHEET – Eastern Mount I; the proponent agency	s ains and Piedmon is CECW-CO-F	nt Region २	OMB Control #: ( Requirement Co (Authority: AR )	0710-xxxx, Exp: Pending ontrol Symbol EXEMPT: 335-15, paragraph 5-2a)			
Project/Site: Fleming Solar Project		City/County: F	leming Count	yS	Sampling Date: 1 <u>2-16-2020</u>			
Applicant/Owner: Fleming Solar, LLC			-	State: KY S	Sampling Point: DP15-W			
Investigator(s): DR and SM		Section Township	Range: Fler	minashura				
Londform (hillside torrace etc.): Hillside			convoy none		Slope $(0/2)$ 2			
Cuther stars (LDD as MLDA); LDD N								
	Lat: <u>38.44120073</u>		Long: <u>+ø3.77</u>	829030	Datum: <u>NAD 85</u>			
Soil Map Unit Name: Lowell-Faywood sin	loams, 12 to 20 percent slop	pes		NWI classificaud	n: N/A			
Are climatic / hydrologic conditions on the	site typical for this time of ye	ear? Yes		lo (If no, ex	plain in Remarks.)			
Are Vegetation, Soil, or Hy	drologysignificantly d	isturbed? Are "N	Iormal Circun	nstances" present?	Yes X No			
Are Vegetation, Soil, or Hy	drology naturally prob	lematic? (If nee	eded, explain	any answers in Rem	arks.)			
SUMMARY OF FINDINGS – Atta	ch site map showing	sampling point	locations,	transects, imp	ortant features, etc.			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes X No Yes X No Yes X No	Is the Sampled A within a Wetland	Area 1?	Yes <u>X</u>	No			
HYDROLOGY			Sec	ondary Indicators (m	vinimum of two required)			
Primary Indicators (minimum of one is re	quired; check all that apply)		<u></u>	Surface Soil Cracks	(B6)			
Surface Water (A1)	True Aquatic Plants	(B14)		Sparsely Vegetated	Concave Surface (B8)			
X High Water Table (A2)	Hydrogen Sulfide O	dor (C1)	Х	X Drainage Patterns (B10)				
X Saturation (A3)	Oxidized Rhizosphe	eres on Living Roots	(C3)	Moss Trim Lines (B16)				
Water Marks (B1)	Presence of Reduce	ed Iron (C4)		Dry-Season Water	Table (C2)			
Sediment Deposits (B2)	Recent Iron Reducti	ion in Tilled Soils (C6	6)	Crayfish Burrows (C	(8)			
Drift Deposits (B3)	Thin Muck Surface	(C7)		Saturation Visible o	n Aerial Imagery (C9)			
Algal Mat or Crust (B4)	Other (Explain in Re	emarks)		Stunted or Stressed	l Plants (D1)			
Iron Deposits (B5)	/		_ λ	Geomorphic Positio	n (D2)			
Mater Steined Leaves (B0)	(87)			Microtopographic R	oliof (DA)			
Aduatic Fauna (B13)			X	FAC-Neutral Test (	)5)			
Field Observations:					50)			
Surface Water Present? Yes	No X Depth (incl	160).						
Water Table Present? Yes X	No Depth (inch	nes): 11						
Saturation Present? Yes X	No Depth (inch	nes): 10 <b>W</b>	etland Hydro	ology Present?	Yes X No			
(includes capillary fringe)		·	-					
Describe Recorded Data (stream gauge,	monitoring well, aerial photo	s, previous inspectio	ons), if availab	le:				
Remarks:								
Indicators of wetland hydrology are prese	ent. Precipitation in last 24 ho	ours. Anticedent prec	pitation tool i	indicates drier than r	normal conditions.			

Sampling Point: DP15-W

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1				Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
3.				Total Number of Dominant
4				Species Across All Strata:(B)
5				Percent of Dominant Species
7				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1. <u> </u>				FAC species x 3 =
2.				FACU species x 4 =
3.				UPL species x 5 =
4.				Column Totals: (A) (B)
5.				Prevalence Index = B/A =
6.				Hydrophytic Vegetation Indicators:
7.				1 - Rapid Test for Hydrophytic Vegetation
8.				X 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
		=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Setaria pumila	70	Yes	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. <u>Carex frankii</u>	50	Yes	OBL	present, unless disturbed or problematic.
3. Persicaria bicornis	30	No	FACW	Definitions of Four Vegetation Strata:
4. Ranunculus abortivus	10	No	FACW	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Arctium minus	10	No	FACU	more in diameter at breast height (DBH), regardless of height
6. Symphyotrichum ericoides	20	No	FACU	in sign.
7. Poa pratensis	30	No	FACU	<b>Sapling/Shrub</b> – Woody plants, excluding vines, less
8		. <u> </u>		(1 m) tall.
9				
10				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
	220	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover: 11	0 20%	of total cover:	44	height.
Woody Vine Stratum (Plot size: 30 )				
1.				
2.				
3.				
4.				
5.				Undronhutio
		=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes X No
Remarks: (Include photo numbers here or on a sepa	rate sheet.)			•
Indicators of hydrophytic vegetation are present.	,			

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								ce of indicators.)		
Depth	Matrix		Redo	x Featur	es					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
0-12	2.5Y 5/2	90	10YR 2/2	10	С	M	Loamy/Clayey	Prominent redox concentrations		
12-20	10YR 5/2	85	10YR 4/6	15	С	М	Loamy/Clayey	Prominent redox concentrations		
İ ———										
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.										
Hydric Soil Indicators: Indicators for Problematic Hydric So								dicators for Problematic Hydric Soils <sup>3</sup> :		
Histosol	Histosol (A1) Polyvalue Below Surface (S8) (MLR/					(MLRA	147, 148)	147, 148) 2 cm Muck (A10) (MLRA 147)		
Histic Ep	ipedon (A2)		Thin Dark S	urface (S	9) <b>(MLR</b>	A 147, 1	48)	Coast Prairie Redox (A16)		
Black His	stic (A3)		Loamy Muck	(y Minera	al (F1) <b>(N</b>	ILRA 13	6)	(MLRA 147, 148)		
Hydroger	n Sulfide (A4)		Loamy Gley	ed Matrix	(F2)			Piedmont Floodplain Soils (F19)		
Stratified	Layers (A5)		X Depleted Ma	atrix (F3)	. ,		_	(MLRA 136, 147)		
2 cm Mu	ck (A10) (LRR N)		Redox Dark	Surface	(F6)			Red Parent Material (F21)		
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)		_	(outside MLRA 127, 147, 148)		
 Thick Da	rk Surface (A12)	<b>、</b> ,	Redox Depre	essions (	(F8)			Very Shallow Dark Surface (F22)		
Sandy M	ucky Mineral (S1)		Iron-Mangar	iese Mas	ses (F12	2) (LRR I	N,	Other (Explain in Remarks)		
Sandy G	leved Matrix (S4)			3)	,	<i>,</i> , ,	· _	_ 、、 ,		
Sandy R	edox (S5)		Umbric Surfa	, ace (F13	) (MLRA	122. 13	6) <sup>3</sup> lı	ndicators of hydrophytic vegetation and		
Stripped	Matrix (S6)		Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology n					wetland hydrology must be present.		
Dark Sur	face (S7)		Red Parent Material (F21) (MLRA 127, 147, 148) unless disturbed o				unless disturbed or problematic.			
Restrictive L	ayer (if observed):									
Type:										
Depth (inches):						Hydric Soil Pr	esent? Yes_X_No_			
Remarks:							-			

U.S. Army WETLAND DETERMINATION DATA S See ERDC/EL TR-07-24; t	s ains and Piedmont Region v is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)				
Project/Site: Fleming Solar Project		City/County: Fleming Count	y Sampling Date: 12-16-2020			
Applicant/Owner: Fleming Solar, LLC			State: KY Sampling Point: DP16-U			
Investigator(s): DR and SM		Section Township Range <sup>-</sup> Fler				
Landform (hillside terrace etc.): Hillsione		cal relief (concave, convex, none	): None Slope (%): 3			
Subragion (I BB or MI BA): LBB N	Lot: 29.4450		7905 Detum: NAD 92			
Soil Man Linit Name: Lawall Sandview ailt la	Lat. <u>50.4459</u>	LOng. <u>+63.77</u>	NIMU elegeification: N/A			
Soil Map Onit Name. <u>Lowell-Sandview sitt in</u>	ams, 2 to 6 percent slope	s 	N/A			
Are climatic / nydrologic conditions on the site	e typical for this time of ye	ar? Yes <u>X</u> M	lo (If no, explain in Remarks.)			
Are Vegetation, Soil, or Hydro	logy significantly di	sturbed? Are "Normal Circun	nstances" present? Yes X No			
Are Vegetation, Soil, or Hydro	logynaturally probl	ematic? (If needed, explain	any answers in Remarks.)			
SUMMARY OF FINDINGS – Attach	site map showing	sampling point locations	transects, important features, etc.			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes         No         X           Yes         No         X           Yes         No         X	Is the Sampled Area within a Wetland?	Yes No_X			
HYDROLOGY						
Wetland Hydrology Indicators:		Sec	ondary Indicators (minimum of two required)			
Primary Indicators (minimum of one is require	red; check all that apply)		Surface Soil Cracks (B6)			
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegetated Concave Surface (B8)			
High Water Table (A2)	Hydrogen Sulfide Oo	dor (C1)	Drainage Patterns (B10)			
Saturation (A3)	Oxidized Rhizosphe	res on Living Roots (C3)	Moss Trim Lines (B16)			
Water Marks (B1)	Presence of Reduce	a Iron (C4)	Dry-Season Water Table (C2)			
Drift Deposits (B3)	Thin Muck Surface (	C7)	Saturation Visible on Aerial Imagery (C9)			
Algal Mat or Crust (B4)	Other (Explain in Re	marks)	Stunted or Stressed Plants (D1)			
Iron Deposits (B5)		, <u>X</u>	Geomorphic Position (D2)			
Inundation Visible on Aerial Imagery (B7	7)		Shallow Aquitard (D3)			
Water-Stained Leaves (B9)			Microtopographic Relief (D4)			
Aquatic Fauna (B13)			FAC-Neutral Test (D5)			
Field Observations:						
Surface Water Present? Yes	No X Depth (inch	es):				
Water Table Present? Yes	No X Depth (inch	les):				
Saturation Present? Yes No X Depth (inches): Wetland Hydrology Present? Yes No X						
Describe Recorded Data (stream gauge, mc	nitoring well, aerial photos	s, previous inspections), if availab	le:			
Remarks: Indicators of wetland hydrology are not prese	ent.					

Sampling Point: DP16-U

	Absolute	Dominant	Indicator	Demission Texture laborat
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
2.				Number of Dominant Species         That Are OBL, FACW, or FAC:       0         (A)
3				Total Number of Dominant Species Across All Strata: 5 (B)
5.				Percent of Dominant Species
0 7				Provalence Index worksheet:
· · ·		=Total Cover		Total % Cover of Multiply by
50% of total cover	20%	of total cover		ORI species x1=
Sanling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1 Rubus aroutus	30	Yes	FACU	FAC species x 3 =
2 Celtis occidentalis	25	Yes	FACU	FACU species x4 =
3				UPI species x5 =
Δ				Column Totals: (A) (B)
т Б				Prevalence Index = B/A =
				Hydronhytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
γ Ω				2 - Dominance Test is >50%
0				2 = Dominance results = 00.76
	55	-Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover: 28	20%	of total cover	11	data in Remarks or on a separate sheet)
Useh Stratum (Dist size: 5 )	2070			Problematic Hydrophytic Vagatation <sup>1</sup> (Evaluation)
Herb Stratum (Mot size)	50	Vaa		
1. Solidago canadensis	00	Vec		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Digitaria iscnaemum	60	Yes		present, unless disturbed or problematic.
3. Poa praterisis	10	<u>res</u>		
4. Solanum carolinense	10			<b>Tree</b> – Woody plants, excluding vines, 3 in. ( <i>1.</i> 6 cm) or
5. Arctium minus	25	No		height.
6. Symphyotrichum ericoldes	35 E			
	5		FACIN	<b>Sapling/Shrub</b> – Woody plants, excluding vines, less
8				(1 m) tall.
9				Usek All borbassaus (non woody) plants regardless
10				of size. and woody plants less than 3.28 ft tall.
· · · · · · · · · · · · · · · · · · ·	220			
500/ aftetel aguar 115	230		46	height.
50% of total cover: 11	20%	of total cover:	40	
<u>Woody Vine Stratum</u> (Plot size: <u>30</u> )				
1				
2				
3.				
4				
5				Hydrophytic
		=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes <u>No X</u>
Remarks: (Include photo numbers here or on a separ	ate sheet.)			
Indicators of hydrophytic vegetation are not present.				

SOIL

Profile Desc	ription: (Describe	to the dep	th needed to doc	ument t	he indica	ator or co	onfirm the abser	ce of ind	icators.)		
Depth	Matrix		Redo	x Featur	es						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Re	emarks	
0-10	10YR 4/3	100					Loamy/Clayey	,			
10-20	10YR 4/4	100					Loamy/Clayey				
							-				
		otion BM	-Roducod Motrix	19-Maa	kod Son	Craina	21.000	tion: DI =	Doro Lining	M-Motrix	,
Hydric Soil I	ndicators:			10-11185	keu Sano	i Giallis.				natic Hyd	Iric Soile <sup>3</sup> :
Histosol	(A 1)		Polyvaluo B		faco (88		147 148)	2 cm M			7)
	(AI)						<u> </u>		Drairia Dad		")
Histic Ep	atia (AQ)					A 147, 14	+o)	Coasi		) (A 10)	
Black His	stic (A3)		Loamy Muck	y Miner	al (F1) <b>(N</b>	ILRA 136	5)		KA 147, 148	)	
Hydroge	n Sulfide (A4)		Loamy Gley	ed Matri	x (F2)		_	Piedmont Floodplain Soils (F19)			-19)
Stratified	l Layers (A5)		Depleted Ma	trix (F3)	)		(MLRA 136, 147)				
2 cm Mu	ck (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)			Red Parent Material (F21)			
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)			(out	side MLRA	127, 147,	148)
Thick Da	irk Surface (A12)		Redox Depre	essions	(F8)			Very S	hallow Dark	Surface (	F22)
Sandv M	luckv Mineral (S1)		Iron-Mangar	ese Ma	sses (F12	2) (LRR N	۰. –	Other	Explain in F	Remarks)	
Sandy G	leved Matrix (S4)			5)	,	, (	-			,	
Sandy R	edox (S5)		Umbric Surf	-, ace (E13		122 136	3) <sup>3</sup>	Indicators	of hydrophy	tic veneta	tion and
Stripped	Matrix (S6)		Diedmont Floodplain Soils (E10) (ML DA 149)				~/ ^ 1/8)				
Ourpped	feee (87)		Red Parent Material (E21) (MI DA 127 147 148)				nust be p	otio			
				vialeriai		LNA 127	, 147, 140)	uniess	uistui beu u		alic.
Restrictive L	_ayer (if observed):										
Туре:											
Depth (ir	nches):						Hydric Soil P	resent?	Yes_	No	Х
Remarks:											

U.S. Army Corps of E WETLAND DETERMINATION DATA SHEET – Easte See ERDC/EL TR-07-24; the proponen	ngineers rn Mountains and Piedmont Region t agency is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)				
Project/Site:       Fleming Solar Project         Applicant/Owner:       Fleming Solar, LLC         Investigator(s):       DR and SM	City/County: <u>Fleming Count</u> Section, Township, Range: <u>Fler</u>	ySampling Date: 12-16-2020 State: KYSampling Point: DP16-W ningsburg				
Landform (hillside, terrace, etc.): Hillside	Local relief (concave, convex, none	): <u>Concave</u> Slope (%): <u>2</u>				
Subregion (LRR or MLRA): LRR N Lat: 38.4	44601100 Long: -83.77	819867 Datum: NAD 83				
Soil Map Unit Name: Lowell-Sandview silt loams, 2 to 6 per	cent slopes	NWI classification: N/A				
Are climatic / hydrologic conditions on the site typical for this	time of year? Yes X	lo (If no, explain in Remarks.)				
Are Vegetation, Soil, or Hydrologysign	nificantly disturbed? Are "Normal Circum	nstances" present? Yes X No				
Are Vegetation, Soil, or Hydrologynatu	urally problematic? (If needed, explain	any answers in Remarks.)				
SUMMARY OF FINDINGS – Attach site map sh	nowing 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         Remarks:       No       No	Is the Sampled Area       within a Wetland?	Yes X No				
HYDROLOGY						
Wetland Hydrology Indicators:	Sec	ondary Indicators (minimum of two required)				
Primary Indicators (minimum of one is required; check all th	at apply)	Surface Soil Cracks (B6)				
Surface Water (A1) True Aqua	atic Plants (B14)	Sparsely Vegetated Concave Surface (B8)				
High Water Table (A2) Hydrogen	Suilide Odor (CT) <u>X</u>	Drainage Patterns (B10) Moss Trim Lines (B16)				
Water Marks (B1)	of Reduced Iron (C4)	Dry-Season Water Table (C2)				
Sediment Deposits (B2)	on Reduction in Tilled Soils (C6)	uils (C6) Cravfish Burrows (C8)				
Drift Deposits (B3)	s Surface (C7)	Saturation Visible on Aerial Imagery (C9)				
Algal Mat or Crust (B4) Other (Ex	plain in Remarks)	Stunted or Stressed Plants (D1)				
Iron Deposits (B5)	Х	Geomorphic Position (D2)				
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)				
Water-Stained Leaves (B9)		Microtopographic Relief (D4)				
Aquatic Fauna (B13)	<u>X</u>	FAC-Neutral Test (D5)				
Field Observations:						
Surface Water Present? Yes No X L	Depth (inches):					
Water Table Present? Yes No X L	Depth (inches):					
(includes capillary fringe)		blogy Present? fes <u>A</u> No				
Describe Recorded Data (stream gauge monitoring well a	erial photos, previous inspections) if availab	le:				
Remarks:						
Indicators of wetland hydrology are present.						

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1. 2.				Number of Dominant Species That Are OBL, FACW, or FAC:3 (A)
3				Total Number of Dominant Species Across All Strata: 3 (B)
5.				Percent of Dominant Species
7				Provalence Index worksheet:
1.		-Total Cover		Tetal % Cover of:
	200/			
So% of total cover.	20%	or total cover.		
<u>Sapling/Shrub Stratum</u> (Piot size: 15)				
1				FAC species x 3 =
2.				FACU species x 4 =
3				UPL species x 5 =
4.				Column Totals: (A) (B)
5				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8.				X 2 - Dominance Test is >50%
9.				3 - Prevalence Index is ≤3.0 <sup>1</sup>
		=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5)				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Setaria pumila	60	Yes	FAC	<sup>1</sup> Indiactors of hydric coil and watland hydrology must be
2. Carex frankij	40	Yes	OBL	present, unless disturbed or problematic.
3. Persicaria bicornis	30	No	FACW	Definitions of Four Vegetation Strata:
4 Ranunculus abortivus	10	No	FACW	<b>Trop</b> Weedy plants, excluding vines, 3 in (7.6 cm) or
5 Bidens frondose	40	Ves	FACW	more in diameter at breast height (DBH), regardless of
6			17.00	height.
7.				Sapling/Shrub – Woody plants, excluding vines, less
8.				than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
10				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
50% (1.1.1.	180	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in beight
50% of total cover: 90	20%	of total cover:	36	
Woody Vine Stratum (Plot size: 30 )				
1				
2				
3.				
4.				
5				Hydrophytic
	:	=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes X No
Remarks: (Include photo numbers here or on a sepa Indicators of hydrophytic vegetation are present.	rate sheet.)			

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)										
Depth	Matrix		Redo	x Featur	es					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
0-12	10YR 5/2	75	10YR 4/6	25	С	М	Loamy/Clayey	Prominent redox concentrations		
12-20	10YR 5/2	60	10YR 2/2	10	С	М	Loamy/Clayey	Distinct redox concentrations		
		—								
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								tion: PL=Pore Lining, M=Matrix.		
Hydric Soil I	Indicators:						Ir	ndicators for Problematic Hydric Soils <sup>3</sup> :		
Histosol	(A1)		Polyvalue Be	elow Sur	face (S8)	(MLRA	. 147, 148)	2 cm Muck (A10) <b>(MLRA 147)</b>		
Histic Ep	oipedon (A2)		Thin Dark S	urface (S	69) <b>(MLR</b>	A 147, 1	48)	48) Coast Prairie Redox (A16)		
Black His	stic (A3)		Loamy Muck	<y minera<="" td=""><td>al (F1) <b>(N</b></td><td>ILRA 13</td><td>6)</td><td colspan="3">) (MLRA 147, 148)</td></y>	al (F1) <b>(N</b>	ILRA 13	6)	) (MLRA 147, 148)		
Hydroge	n Sulfide (A4)		Loamy Gley	ed Matrix	x (F2)		Piedmont Floodplain Soils (F19)			
Stratified	d Layers (A5)		X Depleted Ma	atrix (F3)			(MLRA 136, 147)			
2 cm Mu	uck (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)		Red Parent Material (F21)			
Depleted	Below Dark Surface	e (A11)	Depleted Da	ark Surfa	ce (F7)		(outside MLRA 127, 147, 148)			
Thick Da	ark Surface (A12)		Redox Depr	essions (	(F8)			Verv Shallow Dark Surface (F22)		
Sandy M	lucky Mineral (S1)		Iron-Mangar	iese Ma	sses (F12	2) (LRR	N	Other (Explain in Remarks)		
Sandy G	leved Matrix (S4)			6)	``	<i>,</i> .	· _	_ 、 、 ,		
Sandy R	ledox (S5)		Umbric Surf	ace (F13	) (MLRA	122, 13	6) <sup>3</sup> I	ndicators of hydrophytic vegetation and		
Stripped Matrix (S6) Piedmont Floodplain Soils (F19) (M					19) <b>(MLF</b>	-, RA 148)	wetland hydrology must be present,			
Dark Surface (S7) Red Parent Material (F21) (MLRA 127, 14					, 147, 148)	unless disturbed or problematic.				
Restrictive I	Layer (if observed):									
Type:										
Depth (inches):						Hydric Soil Pr	resent? Yes X No			
Remarks:							-			

U.S. Army WETLAND DETERMINATION DATA S See ERDC/EL TR-07-24; t	<b>s</b> ains and Piedmont Region / is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)					
Project/Site: Fleming Solar Project	Project/Site: Fleming Solar Project City/County: Fleming C						
Applicant/Owner: Fleming Solar, LLC			State: KY Sampling Point: DP17-U				
Investigator(s): DR and SM		Section, Township, Range: Fle					
Landform (hillside terrace etc.): Terrace		ocal relief (concave, convex, none	): None Slope (%): 1				
Subregion (LRR or MLRA): LRR N	Lat: 38 44773800	Long: -83.77	759842 Datum: NAD 83				
Soil Man Unit Name: Nolin silt loam 0 to 3 to	ublegion (LRR of MLRA). LRR in Lat. 30.44173000 Long						
Are elimetic / hydrologic conditions on the sit	a typical for this time of yo						
Are climatic / hydrologic conditions on the sit		$\operatorname{res} \Lambda$					
Are vegetation, Soll, or Hydro	significantiy d		istances present? Yes X No				
Are Vegetation, Soil, or Hydro	blogy naturally prob	lematic? (If needed, explain	any answers in Remarks.)				
SUMMARY OF FINDINGS – Attach	site map showing	sampling point locations	transects, important features, etc.				
Hydronhytic Vegetation Present?	Yes No Y	Is the Sampled Area					
Hydric Soil Present?	Yes No X	within a Wetland?	Yes No X				
Wetland Hydrology Present?	Yes No X						
HYDROLOGY							
Wetland Hydrology Indicators:		Sec	condary Indicators (minimum of two required)				
Primary Indicators (minimum of one is requi	ired; check all that apply)		Surface Soil Cracks (B6)				
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegetated Concave Surface (B8)				
High Water Table (A2)	Hydrogen Sulfide O	dor (C1)	Drainage Patterns (B10)				
Saturation (A3)	Oxidized Rhizosphe	res on Living Roots (C3)	Moss Trim Lines (B16)				
Water Marks (B1)	Presence of Reduce	ed Iron (C4)	Dry-Season Water Table (C2)				
Sediment Deposits (B2)	Recent Iron Reducti		Crayfish Burrows (C8)				
Algal Mat or Crust (B4)	Other (Explain in Re	(C7)	Stunted or Stressed Plants (D1)				
Iron Deposits (B5)		X	Geomorphic Position (D2)				
Inundation Visible on Aerial Imagery (B	7)		Shallow Aguitard (D3)				
Water-Stained Leaves (B9)	,		Microtopographic Relief (D4)				
Aquatic Fauna (B13)			FAC-Neutral Test (D5)				
Field Observations:							
Surface Water Present? Yes	No X Depth (inch	nes):					
Water Table Present? Yes	No X Depth (inch	nes):					
Saturation Present? Yes	No X Depth (inch	nes): Wetland Hydr	ology Present? Yes <u>No X</u>				
(includes capillary fringe)		· · · · · · · · · · · ·					
Describe Recorded Data (stream gauge, mo	onitoring well, aerial photo	s, previous inspections), if availat	DIE:				
Remarks: Indicators of wetland hydrology are not pres	ent.						

Sampling Point: DP17-U

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1.				Number of Dominant Species
2.				That Are OBL, FACW, or FAC: 0 (A)
3.				Total Number of Deminent
4				Species Across All Strata: 2 (B)
5				
5				Percent of Dominant Species
0				That Are OBL, FACW, or FAC: 0.0% (A/B)
7				Prevalence Index worksheet:
	:	=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1				FAC species x 3 =
2.				FACU species x 4 =
3.				UPL species x 5 =
4.				Column Totals: (A) (B)
5				Prevalence Index = B/A =
6				
7				1 Denid Test for Lludrenbutic Verstation
7				
8				2 - Dominance Test is >50%
9.				3 - Prevalence Index is ≤3.0'
	:	=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5)				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Solidago canadensis	40	No	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Digitaria ischaemum	60	Yes	UPL	present, unless disturbed or problematic.
3 Poa pratensis	60	Yes	FACU	Definitions of Four Vegetation Strata:
4 Solanum carolinense	10	No	FACU	
Arotium minus	10	No	EACU	more in diameter at breast height (DBH) regardless of
5. Arcuum minus	10	<u></u>	FACU	height.
6. Symphyotricnum ericoides	20		FACU	
7. Agrostis gigantea	20	NO	FACW	Sapling/Shrub – Woody plants, excluding vines, less
8				than 3 in. DBH and greater than or equal to 3.28 ft
9				
10				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
	220	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover: 11	0 20%	of total cover:	44	height.
Woody Vine Stratum (Plot size: 30)				
<u></u> ,				
2				
2.				
3.				
4				
5				Hydrophytic
		=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes <u>No X</u>
Remarks: (Include photo numbers here or on a separ Indicators of hydrophytic vegetation are not present.	rate sheet.)			

SOIL

Profile Desc	ription: (Describe Matrix	to the dep	th needed to doc	ument t	he indica	ator or co	onfirm the abse	nce of indicators.)	
(inches)	Color (moist)	%	Color (moist)	% N Calu	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
0.10	10VP 4/2	100	· · · ·						
0-10	10TR 4/3	100					Loamy/Claye	<u>y</u>	
10-20	10YR 4/4	100					Loamy/Claye	у	
		<u> </u>							
<sup>1</sup> Type: C=Co	oncentration, D=Depl	etion, RM	Reduced Matrix, N	/IS=Mas	ked Sano	d Grains.	<sup>2</sup> Loc	ation: PL=Pore Lining, M=Matrix.	
Hydric Soil I	ndicators:							Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histosol (A1)			Polyvalue B	elow Su	face (S8	) (MLRA	147, 148)	2 cm Muck (A10) <b>(MLRA 147)</b>	
Histic Ep	ipedon (A2)		Thin Dark S	urface (S	69) <b>(MLR</b>	A 147, 14	(A16) Coast Prairie Redox (A16)		
Black His	stic (A3)		Loamy Mucł	ky Miner	al (F1) <b>(N</b>	ILRA 136	6)	(MLRA 147, 148)	
Hydroge	n Sulfide (A4)		Loamy Gley	ed Matri	x (F2)		-	Piedmont Floodplain Soils (F19)	
Stratified	l Layers (A5)		Depleted Ma	atrix (F3)	1			(MLRA 136, 147)	
2 cm Mu	ck (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)		_	Red Parent Material (F21)	
Depleted	Below Dark Surface	e (A11)	Depleted Da	irk Surfa	ce (F7)		-	(outside MLRA 127, 147, 148)	
Thick Da	irk Surface (A12)		Redox Depr	essions	(F8)			Very Shallow Dark Surface (F22)	
Sandy M	lucky Mineral (S1)		Iron-Mangar	nese Ma	sses (F1	2) (LRR N	۰ ۱,	Other (Explain in Remarks)	
Sandy G	leyed Matrix (S4)		MLRA 13	6)			-		
Sandy Redox (S5) Umbric Surface (F13) (MLRA 122, 13)			<b>6)</b> <sup>3</sup> Indicators of hydrophytic vegetation and						
Stripped	Matrix (S6)	(S6) Piedmont Floodplain Soils (F19) (MLRA			A 148)	wetland hydrology must be present,			
Dark Sur	face (S7)		Red Parent	Red Parent Material (F21) (MLRA 127, 147, 148)				unless disturbed or problematic.	
Restrictive L	ayer (if observed):								
Type:									
Depth (inches):							Hydric Soil F	Present? Yes <u>No X</u>	
Pomorko:									

Remarks:

U.S. Army WETLAND DETERMINATION DATA S See ERDC/EL TR-07-24; t	<b>Corps of Engineer</b> HEET – Eastern Mount he proponent agency	s ains and Piedmont Region r is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)			
Project/Site: Fleming Solar Project		City/County: Fleming Count	State: KX Sampling Date: 12-16-2020			
Applicant/Owner: Fleming Solar, LLC			State: KY Sampling Point: DP17-W			
Investigator(s): DR and SM		Section, Township, Range: Fle	mingsburg			
Landform (hillside, terrace, etc.): Hillside	Lo	cal relief (concave, convex, none	e): <u>Concave</u> Slope (%): <u>2</u>			
Subregion (LRR or MLRA): LRR N	Lat: <u>38.44763631</u>	Long: <u>-8</u> 3.7	7741203 Datum: <u>NAD 83</u>			
Soil Map Unit Name: Lowell-Sandview silt lo	ams, 2 to 6 percent slope	S	NWI classification: N/A			
Are climatic / hydrologic conditions on the site	e typical for this time of ye	ar? Yes X N	No (If no, explain in Remarks.)			
Are Vegetation Soil or Hydro	loav significantly di	sturbed? Are "Normal Circur	nstances" present? Yes X No			
Are Vegetation Soil or Hydro	logy e.geur.ing a	ematic? (If needed evoluin	any answers in Remarks )			
SUMMARY OF FINDINGS – Attach	site map showing s	sampling point locations	, transects, important features, etc.			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes X No Yes X No Yes X No	Is the Sampled Area within a Wetland?	Yes <u>X</u> No			
HYDROLOGY						
Wetland Hydrology Indicators:		Sec	condary Indicators (minimum of two required)			
Primary Indicators (minimum of one is require	red; check all that apply)		Surface Soil Cracks (B6)			
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegetated Concave Surface (B8)			
High Water Table (A2)	Hydrogen Sulfide Od	dor (C1) X	X Drainage Patterns (B10)			
Saturation (A3)	Oxidized Rhizospher	res on Living Roots (C3)	Moss Trim Lines (B16)			
Water Marks (B1)	Presence of Reduce	d Iron (C4)	Dry-Season Water Table (C2)			
Sediment Deposits (B2)	Recent Iron Reduction	on in Tilled Soils (C6)	Crayfish Burrows (C8)			
Drift Deposits (B3)	Thin Muck Surface (	C7)	Saturation Visible on Aerial Imagery (C9)			
Algal Mat or Crust (B4)	Other (Explain in Re	marks)	Stunted or Stressed Plants (D1)			
Iron Deposits (B5)		<u></u> X	Geomorphic Position (D2)			
Inundation Visible on Aerial Imagery (B7	")		Shallow Aquitard (D3)			
Water-Stained Leaves (B9)			Microtopographic Relief (D4)			
Aquatic Fauna (B13)			FAC-Neutral Test (D5)			
Field Observations:						
Surface Water Present? Yes	No X Depth (inch	es):				
Water Table Present? Yes	No X Depth (inch	es):				
Saturation Present? Yes	NO X Depth (inch	es): Wetland Hydr	ology Present? Yes X No			
(Includes capillary fringe)	nitoring wall parial shate	p provious inspections) if suchtable				
Describe Recorded Data (stream gauge, mo	moning wen, aenai priotos	s, אופעוסטא וואשפכווסווא), וו availat	אוס.			

Remarks:

Indicators of wetland hydrology are present.

Sampling Point: DP17-W

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1				Number of Dominant Species
2.				That Are OBL, FACW, or FAC:3(A)
3				Total Number of Dominant
4.				Species Across All Strata: 5 (B)
5				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 60.0% (A/B)
7.				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1. <u> </u>				FAC species x 3 =
2.				FACU species x 4 =
3				UPL species x 5 =
4				Column Totals: (A) (B)
5				Prevalence Index = B/A =
5				
0				A Denid Test for Undershutis Venetation
7.				
8				X 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0'
		=Total Cover		4 - Morphological Adaptations' (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Setaria pumila	60	Yes	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Carex frankii	30	Yes	OBL	present, unless disturbed or problematic.
3. Persicaria bicornis	30	Yes	FACW	Definitions of Four Vegetation Strata:
4. Ranunculus abortivus	10	No	FACW	<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Arctium minus	10	No	FACU	more in diameter at breast height (DBH), regardless of
6. Symphyotrichum ericoides	20	No	FACU	height.
7. Poa pratensis	30	Yes	FACU	Sapling/Shrub – Woody plants, excluding vines, less
8. Digitaria ischaemum	30	Yes	UPL	than 3 in. DBH and greater than or equal to 3.28 ft
9.				(1 m) tall.
10.				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
	220	=Total Cover		Woody Vine – All woody vines greater than 3 28 ft in
50% of total cover: 11	0 20%	of total cover:	44	height.
Woody Vine Stratum (Plot size: 30 )	2070	of total cover.		
1				
2.				
3.				
4.				
5.				Hydrophytic
		=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes X No
Remarks: (Include photo numbers here or on a separ Indicators of hydrophytic vegetation are present.	rate sheet.)			

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth	Matrix		Redo	x <u>Featur</u>	es				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
0-12	10YR 5/2	75	10YR 4/6	25	С	M	Loamy/Clayey	Prominent redox concentrations	
12-20	10YR 5/2	60	10YR 2/2	10	С	М	Loamy/Clayey	Distinct redox concentrations	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.									
Hydric Soil I	ndicators:						Ir	ndicators for Problematic Hydric Soils <sup>3</sup> :	
Histosol (A1) Polyvalue Below Surface (S8) (MLR					(MLRA	147, 148)	2 cm Muck (A10) (MLRA 147)		
Histic Ep	ipedon (A2)		Thin Dark Su	urface (S	9) <b>(MLR</b>	A 147, 1	8) Coast Prairie Redox (A16)		
Black His	stic (A3)		Loamy Muck	y Minera	al (F1) <b>(N</b>	ILRA 13	) (MLRA 147, 148)		
Hydroger	າ Sulfide (A4)		Loamy Gleye	ed Matrix	k (F2)		Piedmont Floodplain Soils (F19)		
Stratified	Layers (A5)		X Depleted Ma	ıtrix (F3)			(MLRA 136, 147)		
2 cm Mu	ck (A10) (LRR N)		Redox Dark	Surface	(F6)		Red Parent Material (F21)		
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)		(outside MLRA 127, 147, 148)		
 Thick Da	rk Surface (A12)	<b>、</b> ,	Redox Depre	essions (	(F8)			Very Shallow Dark Surface (F22)	
Sandy M	ucky Mineral (S1)		Iron-Mangar	ese Mas	sses (F12	2) (LRR I	N, —	Other (Explain in Remarks)	
Sandy G	eved Matrix (S4)			3)	,	, (	-		
Sandy R	edox (S5)		Umbric Surfa	, ace (F13	) (MLRA	122. 13	6) <sup>3</sup> I	ndicators of hydrophytic vegetation and	
Stripped Matrix (S6) Piedmont Floodplain Soils (F19) (MILINE 122, 1					19) (MLF	-, RA 148)	wetland hydrology must be present		
Dark Surface (S7) Red Parent Material (F21) (MLRA 127, 147, 148) unless distu					unless disturbed or problematic.				
Restrictive L	ayer (if observed):								
Type:									
Depth (inches):						Hydric Soil Pr	esent? Yes X No		
Remarks:							-		

U.S. Army WETLAND DETERMINATION DATA S See ERDC/EL TR-07-24; t	s ains and Piedmont Region / is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)							
Project/Site: Fleming Solar Project		City/County: Fleming Count	sy Sampling Date: 12-16-2020						
Applicant/Owner: Fleming Solar, LLC			State: KY Sampling Point: DP20-U						
Investigator(s): DR and SM		Section, Township, Range: Flei	mingsburg						
Landform (hillside, terrace, etc.): Hillside	Lc	ocal relief (concave, convex, none	a): None Slope (%): 3						
Subregion (I BB or MI BA): I BB N	Lat: 38 45270	Long: -83.7!	595888 Datum: NAD 83						
Soil Man Unit Name: Cynthiana-Eawwood complex, very rocky, 12 to 35 percent slopes, eroded NW/L classification: N/A									
Are climatic / hydrologic conditions on the sit	te typical for this time of ve	ear? Yes X	(If no explain in Remarks )						
Are Vegetation Soil or Hydro	ology significantly d	isturbed? Are "Normal Circun	nstances" present? Yes X No						
Are Vegetation Soil or Hydro	plogy olgrinidentity of	lematic? (If needed, explain	any answers in Remarks )						
SUMMARY OF FINDINGS – Attach	i site map showing	sampling point locations	, transects, important features, etc.						
Hydrophytic Vegetation Present?	Yes No X	Is the Sampled Area							
Hydric Soil Present?	Yes No X	within a Wetland?	Yes NoX						
Wetland Hydrology Present?	Yes No X								
Remarks: This data sheet is representative of the upland area surrounding Feature 19.									
Primary Indicators (minimum of one is requ	ired <sup>.</sup> check all that apply)	Sec	Surface Soil Cracks (B6)						
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegetated Concave Surface (B8)						
High Water Table (A2)	Hydrogen Sulfide Od	dor (C1)	Drainage Patterns (B10)						
Saturation (A3)	Oxidized Rhizosphe	res on Living Roots (C3)	Moss Trim Lines (B16)						
Water Marks (B1)	Presence of Reduce	ed Iron (C4)	Dry-Season Water Table (C2)						
Sediment Deposits (B2)	Recent Iron Reduction	n in Tilled Soils (C6) Crayfish Burrows (C8)							
Drift Deposits (B3)	Thin Muck Surface (	C7) Saturation Visible on Aerial Imagery (C9)							
Aigal Mat or Crust (B4)		marks)	(s) Stunted or Stressed Plants (D1)						
Inundation Visible on Aerial Imagery (B	.7)		Shallow Aquitard (D3)						
Water-Stained Leaves (B9)	• )		Microtopographic Relief (D4)						
Aquatic Fauna (B13)			FAC-Neutral Test (D5)						
Field Observations:			-						
Surface Water Present? Yes	No <u>X</u> Depth (inch	nes):							
Water Table Present? Yes	No X Depth (inch	nes):							
Saturation Present? Yes	No X Depth (inch	mes): Wetland Hydr	ology Present? Yes <u>No X</u>						
(includes capillary fringe)									
Describe Recorded Data (stream gauge, m	onitoring well, aerial photos	s, previous inspections), if availar	Die:						
Remarks:									
Indicators of wetland hydrology are not pres	;ent.								

Sampling Point: DP20-U

、 <i>、</i>				
	Absolute	Dominant	Indicator	Deminent Testuredebest
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksneet:
1. Ulmus rubra	40	Yes	FAC	Number of Dominant Species
2. Celtis occidentalis	40	Yes	FACU	That Are OBL, FACW, or FAC: (A)
3. Acer rubrum	40	Yes	FAC	Total Number of Dominant
4.				Species Across All Strata: 11 (B)
5.				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 36.4% (A/B)
7				Prevalence Index worksheet:
	120	=Total Cover		Total % Cover of Multiply by:
E0% of total acyan	2001/		24	
	20%	or lotal cover.	24	
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1. Ulmus rubra	40	Yes	FAC	FAC species x 3 =
2. Ulmus alata	20	Yes	FACU	FACU species x 4 =
3. Juniperus virginiana	10	No	FACU	UPL species x 5 =
4.				Column Totals: (A) (B)
5.				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators
7				1 Papid Tast for Hydrophytic Vagatation
7				
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0'
	70	=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover: 3	5 20%	of total cover:	14	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Solidago canadensis	40	Yes	FACU	<sup>1</sup> Indicators of bydric soil and wotland bydrology must be
2 Solidago altissima	40	Yes	FACU	present unless disturbed or problematic
3 Symphystrichum ericsides	30	Ves	FACU	Definitions of Four Vegetation Strata:
A Arctium minue		Ne		
4. Arctium minus	20		FACU	<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Rubus argutus	30	Yes	FACU	height
6. Lonicera maackii	30	Yes	UPL	noight.
7				Sapling/Shrub – Woody plants, excluding vines, less
8				than 3 in. DBH and greater than or equal to 3.28 ft
9.				(1 m) tall.
10.				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
	100	-Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
	130		20	height.
	20%	or total cover:	30	
Woody Vine Stratum (Plot size: 30 )				
1. Toxicodendron radicans	30	Yes	FAC	
2.				
3.				
4.				
5.				
	30	=Total Cover		Hydrophytic
50% of total cover: 1	5 20%	of total cover:	6	Present? Yes No X
	2070			
Remarks: (Include photo numbers here or on a sepa	rate sheet.)			
Indicators of hydrophytic vegetation are not present.				

Profile Desci	ription: (Describe	to the dep	oth needed to doc	ument t	he indica	ator or co	onfirm the abse	nce of indicators.)		
Depth	Matrix		Redox Features							
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
0-4	10YR 4/2	100					Loamy/Clayey			
4-20	10YR 4/3	90	10YR 5/8	10	С	Μ	Loamy/Claye	y Prominent redox concentrations		
<sup>1</sup> Type: C=Co	ncentration, D=Depl	etion, RM	=Reduced Matrix, N	//S=Mas	ked Sand	Grains.	<sup>2</sup> Loc	ation: PL=Pore Lining, M=Matrix.		
Hydric Soil In	ndicators:							Indicators for Problematic Hydric Soils		
Histosol (	(A1)		Polyvalue B	elow Sur	face (S8	) (MLRA	147, 148)	<b>147, 148)</b> 2 cm Muck (A10) (MLRA 147)		
Histic Epi	pedon (A2)		Thin Dark S	urface (S	69) <b>(MLR</b>	A 147, 14	(A16) Coast Prairie Redox (A16)			
Black His	tic (A3)		Loamy Muc	ky Miner	al (F1) <b>(N</b>	ILRA 136	) (MLRA 147, 148)			
Hydrogen	n Sulfide (A4)		Loamy Gley	ed Matrix	x (F2)		Piedmont Floodplain Soils (F19)			
Stratified	Layers (A5)		Depleted Ma	atrix (F3)	. ,		(MLRA 136, 147)			
2 cm Muo	ck (A10) (LRR N)		 Redox Dark	Surface	(F6)		Red Parent Material (F21)			
Depleted	Below Dark Surface	e (A11)	Depleted Da	ark Surfa	ce (F7)		(outside MLRA 127, 147, 148)			
Thick Da	rk Surface (A12)	( )	Redox Depr	essions	(F8)		Very Shallow Dark Surface (F22)			
Sandy Mu	ucky Mineral (S1)		Iron-Mangar	nese Ma	sses (F12	2) (LRR N		Other (Explain in Remarks)		
Sandy Gl	eved Matrix (S4)			6)	,	/ (	-			
Sandy Re	edox (S5)		Umbric Surf	-, ace (F13		122, 136	6) <sup>3</sup> Indicators of hydrophytic vegetation and			
Stripped Matrix (S6) Piedmont Eloodplain Soils (E19) (ML					19) (MI R	24 148) wetland hydrology must be present				
Dark Surf	face (S7)	Red Parent Material (F21) (MLRA 127, 147, 148) unless disturbed or problematic					unless disturbed or problematic.			
Restrictive L	ayer (if observed):						-	·		
Type:	- , ,									
Depth (inches):						Hydric Soil P	Present? Yes No X			
Remarks:							-			

U.S. WETLAND DETERMINATION DA See ERDC/EL TR-07	ns and Piedmont Region s CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)			
Project/Site: Fleming Solar Project		City/County: Fleming Cour	ity	Sampling Date: 12-16-202	
Applicant/Owner: Fleming Solar, L	LC		State: KY	Sampling Point: DP19-W	
Investigator(s): DR and SM	S	Section, Township, Range: Fle	emingsburg		
Landform (hillside terrace etc.)	vression loca	al relief (concave, convex, non	e). Concave	Slope (%) <sup>.</sup> 0	
Subragion (LPP or MLPA): LPP N	L at: 38 45242032	Long: 192.7	25030447		
		LONG. ±03.7	5959447		
Soil Map Unit Name: Lowell-Faywood	silt loams, 6 to 12 percent slopes		NVVI classific	ation: PEM	
Are climatic / hydrologic conditions on	he site typical for this time of year	? Yes X	No (If no,	explain in Remarks.)	
Are Vegetation <u>X</u> , Soil <u>X</u> , or	Hydrologysignificantly dist	urbed? Are "Normal Circu	mstances" presen	t? Yes X No	
Are Vegetation, Soil, or	Hydrology naturally problem	matic? (If needed, explair	any answers in R	emarks.)	
SUMMARY OF FINDINGS – A	tach site map showing sa	ampling point locations	s, transects, in	nportant features, etc.	
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes X No Yes X No Yes X No	Is the Sampled Area within a Wetland?	Yes X	No	
This data sheet is representative of Fo	eature 19. Area is a bermed close	d depression located on the ed	lge of a farm field.	Area is disturbed by cattle.	
Wetland Hydrology Indicators:		Se	condary Indicators	s (minimum of two required)	
Primary Indicators (minimum of one is	required; check all that apply)		Surface Soil Cra	cks (B6)	
X Surface Water (A1)	True Aquatic Plants (E	314)	Sparsely Vegeta	ted Concave Surface (B8)	
X High Water Table (A2)	Hydrogen Sulfide Odo	r (C1)	Drainage Patterr	ns (B10)	
X Saturation (A3)	X Oxidized Rhizosphere	s on Living Roots (C3)	Moss Trim Lines	(B16)	
Water Marks (B1)	Presence of Reduced	Iron (C4)	_Dry-Season Wat	er Table (C2)	
Sediment Deposits (B2)	Recent Iron Reduction	n in Tilled Soils (C6)	Crayfish Burrows	s (C8)	
Drift Deposits (B3)	Thin Muck Surface (C	7)	_Saturation Visibl	e on Aerial Imagery (C9)	
Algal Mat or Crust (B4)	Other (Explain in Rem	arks)	Stunted or Stres	sed Plants (D1)	

Remarks:

Indicators of wetland hydrology are present.

Inundation Visible on Aerial Imagery (B7)

Yes X

Yes X

Х

Yes

No

No

No

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

Depth (inches):

Depth (inches):

Depth (inches):

2

12

0

Iron Deposits (B5)

Aquatic Fauna (B13)

Field Observations: Surface Water Present?

Water Table Present?

(includes capillary fringe)

Saturation Present?

Water-Stained Leaves (B9)

Yes X No

Geomorphic Position (D2)

Microtopographic Relief (D4)

Shallow Aquitard (D3)

X FAC-Neutral Test (D5)

Wetland Hydrology Present?

Sampling Point: DP19-W

	Absolute	Dominant	Indicator	
<u>Tree Stratum</u> (Plot size: <u>30</u> )	% Cover	Species?	Status	Dominance Test worksheet:
1				Number of Dominant Species
3				
4.				Species Across All Strata: 1 (B)
5.				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 100.0% (A/B)
7.				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1.				FAC species x 3 =
2.				FACU species x 4 =
3.				UPL species x 5 =
4.				Column Totals: (A) (B)
5.				Prevalence Index = B/A =
6.				Hydrophytic Vegetation Indicators:
7.				1 - Rapid Test for Hydrophytic Vegetation
8.				X 2 - Dominance Test is >50%
9.				 3 - Prevalence Index is ≤3.0 <sup>1</sup>
		=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Tvpha angustifolia	30	Yes	OBL	<sup>1</sup> Indicators of hydric call and watland hydralogy must be
2.				present, unless disturbed or problematic.
3.				Definitions of Four Vegetation Strata:
4.				<b>Tree</b> – Woody plants, excluding vines 3 in (7.6 cm) or
5.				more in diameter at breast height (DBH), regardless of
6.				height.
7.				Sanling/Shrub - Woody plants, excluding vines, less
8.				than 3 in. DBH and greater than or equal to 3.28 ft
9.				(1 m) tall.
10.				Herb – All herbaceous (non-woody) plants, regardless
11.				of size, and woody plants less than 3.28 ft tall.
	30	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover: 1	5 20%	of total cover:	6	height.
Woody Vine Stratum (Plot size: 30 )				
<u> </u>				
2.				
3.				
4.				
5				
	:	=Total Cover		Hydrophytic Venetation
50% of total cover	20%	of total cover		Present? Yes X No
Remarks: (Include photo numbers here or on a sepa	irate sheet.)			

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)											
Depth Matrix			Redo	x Featur	es						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks			
0-20	2.5YR 4/4	80	2.5YR 5/8	20	С	М	Loamy/Claye	Prominent redox concentrations			
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains, <sup>2</sup> l ocation; PL=Pore Lining, M=I											
Hvdric Soil I	ndicators:	,	,	-		Indicators for Problematic Hydric Soils <sup>3</sup> :					
Histosol (	A1)		Polvvalue Be	elow Sur	face (S8)	(MLRA	<b>147, 148)</b> 2 cm Muck (A10) (MLRA 147)				
Histic Epi	pedon (A2)		Thin Dark Su	urface (S	69) <b>(MLR</b>	A 147. 14	48) Coast Prairie Redox (A16)				
Black His	tic (A3)		Loamv Muck	v Minera	al (F1) <b>(N</b>	ILRA 136	(MLRA 147, 148)				
Hydrogen Sulfide (A4)						Piedmont Floodplain Soils (F19)					
Stratified	Lavers (A5)	Depleted Matrix (F3)					(MLRA 136, 147)				
2 cm Mu	k (A10) (LRR N)	Redox Dark Surface (F6)					Red Parent Material (F21)				
Depleted	Depleted Da	rk Surfa	(F7)			(outside MLRA 127, 147, 148)					
Thick Dark Surface (A12)						Very Shallow Dark Surface (F22)					
Sandy Mucky Mineral (S1)						• Other (Explain in Remarks)					
Sandy Gleved Matrix (S4) MI RA 136)						-, (	-,				
Sandy Bedox (S5)						122, 136	5)	<sup>3</sup> Indicators of hydrophytic vegetation and			
Stripped Matrix (S6) Piedmont Floodplain Soils (F19) (M					19) (MI R	(A 148) wetland hydrology must be present					
Dark Surface (S7) Red Parent Material (F21) (MLRA 12					LRA 127	(, 147, 148) unless disturbed or problematic.					
Restrictive I	aver (if observed):				, ,,		, , <b>,</b>	·· • • • • • • • • • • • • • • • • • •			
Denth (inches):						Hydric Soil Present? Yes X No					
Remarks:											

U.S. Arm WETLAND DETERMINATION DATA S See ERDC/EL TR-07-24;	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)							
Project/Site: Fleming Solar Project		City/County: Fleming Count	ty Sampling Date: 12-16-2020					
Applicant/Owner: Fleming Solar, LLC			State: KY Sampling Point: DP20-U					
Investigator(s): DR and SM		Section, Township, Range: Fle	mingsburg					
Landform (hillside, terrace, etc.): Hillside	Lo	ocal relief (concave, convex, none	e): None Slope (%): 3					
Subregion (LRR or MLRA): LRR N	Lat: 38.45812126	Lona: <del>-</del> 83.7	5095120 Datum: NAD 83					
Soil Map Unit Name: Cynthiana-Faywood complex very rocky 12 to 35 percent slopes eroded NWI classification: N/A								
Are climatic / hydrologic conditions on the sit	te typical for this time of ye	ear? Yes X N	No (If no, explain in Remarks.)					
Are Vegetation . Soil . or Hydro	ology significantly d	listurbed? Are "Normal Circumstances" present? Yes X No						
Are Vegetation Soil or Hydro	ology naturally prob	blematic? (If needed, explain any answers in Remarks.)						
	natarany pros	sampling point locations	transacts important factures ato					
SUMMART OF FINDINGS - Allaci	i site map showing	sampling point locations	, transects, important leatures, etc.					
Hydrophytic Vegetation Present?	Yes No X	Is the Sampled Area						
Hydric Soil Present?	Yes No X	within a Wetland?	Yes NoX					
Wetland Hydrology Present?	Yes <u>No X</u>							
Remarks: This data sheet is representative of the upla	and area surrounding Feat	ure 20.						
HYDROLOGY								
Wetland Hydrology Indicators:		Sec	condary Indicators (minimum of two required)					
Primary Indicators (minimum of one is requ	ired; check all that apply)	Surface Soil Cracks (B6)						
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegetated Concave Surface (B8)					
High Water Table (A2)	Hydrogen Sulfide O	dor (C1)	Drainage Patterns (B10)					
Saturation (A3)	Oxidized Rhizosphe	eres on Living Roots (C3)	_Moss Trim Lines (B16)					
Water Marks (B1)	Presence of Reduce	ed Iron (C4)	_ Dry-Season Water Lable (C2)					
Sediment Deposits (B2)	Recent Iron Reducti	ion in Tilled Soils (C6)	_ Crayfish Burrows (C8)					
Drift Deposits (B3)	Other (Evaluation in De	(C7)	Stunted or Stressed Plants (D1)					
Aigal Mat of Crust (B4)		emarks)	Signieg of Stressed Fiams (DT)					
IIOII Deposits (B5)	7)		Shallow Aquitard (D2)					
Water-Stained Leaves (B9)	()		Microtonographic Relief (D4)					
Aquatic Fauna (B13)			FAC-Neutral Test (D5)					
Field Observations:								
Surface Water Present? Yes	No X Depth (incl	nes):						
Water Table Present? Yes	No X Depth (inch	nes):						
Saturation Present? Yes	No X Depth (inch	nes): Wetland Hydrology Present? Yes No						
(includes capillary fringe)	<u> </u>							
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:								
Remarks:								
Indicators of wetland hydrology are not pres	sent.							

Sampling Point: DP20-U

	Absolute	Dominant	Indicator	Deminente Tratanada ha st				
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksneet:				
1. Ulmus rubra	40	Yes	FAC	Number of Dominant Species				
2. Celtis occidentalis	40	Yes	FACU	That Are OBL, FACW, or FAC: (A)				
3. Acer rubrum	40	Yes	FAC	Total Number of Dominant				
4.				Species Across All Strata: 11 (B)				
5.				Percent of Dominant Species				
6.				That Are OBL. FACW. or FAC: 36.4% (A/B)				
7				Prevalence Index worksheet:				
	120	-Total Cover		Total % Cover of: Multiply by:				
E0% of total acyan	2001/		24					
	20%	or lotal cover.	24					
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =				
1. Ulmus rubra	40	Yes	FAC	FAC species x 3 =				
2. Ulmus alata	20	Yes	FACU	FACU species x 4 =				
3. Juniperus virginiana	10	No	FACU	UPL species x 5 =				
4.				Column Totals: (A) (B)				
5.				Prevalence Index = B/A =				
6				Hydrophytic Vegetation Indicators:				
7				1 Papid Test for Hydrophytic Vegetation				
7								
8				2 - Dominance Test is >50%				
9				3 - Prevalence Index is ≤3.0'				
	70	=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting				
50% of total cover: 3	5 20%	of total cover:	14	data in Remarks or on a separate sheet)				
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
1. Solidago canadensis	40	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wotland hydrology must be				
2 Solidago altissima	40	Yes	FACU	present unless disturbed or problematic				
3 Symphystrichum ericsides	30	Ves	FACU	Definitions of Four Vegetation Strata:				
A Arctium minue		Ne						
4. Arctium minus	20		FACU	<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or				
5. Rubus argutus	30	Yes	FACU	height				
6. Lonicera maackii	30	Yes	UPL	noight.				
7				Sapling/Shrub – Woody plants, excluding vines, less				
8				than 3 in. DBH and greater than or equal to 3.28 ft				
9.				(1 m) tall.				
10.				Herb – All herbaceous (non-woody) plants, regardless				
11				of size, and woody plants less than 3.28 ft tall.				
	100	-Total Cover		Woody Vine – All woody vines greater than 3 28 ft in				
	130		20	height.				
	20%	or total cover:	30					
Woody Vine Stratum (Plot size: 30 )								
1. Toxicodendron radicans	30	Yes	FAC					
2								
3.								
4.								
5.								
	30	=Total Cover		Hydrophytic				
50% of total cover	20%	of total covor:	6	Present? Ves No Y				
	20%		0					
Remarks: (Include photo numbers here or on a sepa	rate sheet.)							
Indicators of hydrophytic vegetation are not present.								

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redo	es								
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks			
0-4	10YR 4/2	100					Loamy/Claye	y				
4-20	10YR 4/3	90	10YR 5/8	10	С	Μ	Loamy/Clayey Prominen			lox concentra	ations	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.								ation: PL=F	Pore Lining,	M=Matrix.		
Hydric Soil In	ndicators:							Indicators f	for Probler	natic Hydric	; Soils <sup>3</sup> :	
Histosol (	(A1)		Polyvalue B	elow Sur	face (S8	) (MLRA	147, 148)	7, 148) 2 cm Muck (A10) (MLRA 147)				
Histic Epipedon (A2) Thin Dark Surface (S9) (MLRA 147, 1						A 147, 14	8) Coast Prairie Redox (A16)					
Black Histic (A3)					al (F1) <b>(N</b>	ILRA 136	) (MLRA 147, 148)					
Hydrogen	Loamy Gley	oamy Gleyed Matrix (F2)					Piedmont Floodplain Soils (F19)					
Stratified	Layers (A5)	Depleted Matrix (F3)					(MLRA 136, 147)					
2 cm Muo	ck (A10) (LRR N)		 Redox Dark	Surface	(F6)		Red Parent Material (F21)					
Depleted	Below Dark Surface	e (A11)	Depleted Da	ark Surfa	ce (F7)		(outside MLRA 127, 147, 148)					
Thick Dark Surface (A12) Redox Depressions (F8)						Very Shallow Dark Surface (F22)						
Sandy Mucky Mineral (S1)					2) (LRR N	N. Other (Explain in Remarks)						
Sandy Gleved Matrix (S4) MI RA 136)						/ (	-		•	,		
Sandy Bedox (S5)						122, 136	6) <sup>3</sup> Indicators of hydrophytic vegetation and					
Stripped Matrix (S6) Piedmont Floodplain Soils (F19) (MLKA 122, 13						(A 148) wetland hydrology must be present						
Dark Surface (S7) Red Parent Material (F21) (MLRA 12						(, 147, 148) unless disturbed or problematic.						
Restrictive L	ayer (if observed):						-					
Type:	- , ,											
Depth (inches):					Hydric Soil Present? Yes No X							
Remarks:							-					
U.S. Army Corps of Engineer WETLAND DETERMINATION DATA SHEET – Eastern Moun See ERDC/EL TR-07-24; the proponent agenc	rs tains and Piedmont Region y is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)										
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Project/Site: Fleming Solar Project	City/County: Fleming Count	y Sampling Date: 12-16-2020										
Applicant/Owner: Fleming Solar, LLC		State: KY Sampling Point: DP20-W										
Investigator(s): DR and SM	Section, Township, Range: Fler	minasbura										
Landform (hillside terrace etc.): Valley	ocal relief (concave, convex, none	e): Concave Slope (%): 1										
Subregion (LRR or MLRA): LRR N Lat: 38.45612312	l ong: #83.76	5887992 Datum: NAD 83										
Soil Man Unit Name: Exwell Exwed silt loams 6 to 12 percent slor		NWU classification: N/A										
Are elimetic / hydrologic conditions on the site typical for this time of y	aar? Vaa V N											
Are climate / hydrologic conditions on the site typical for this time of y	$\operatorname{del} : \operatorname{tes} $											
Are vegetation, Soll, or Hydrologysignificantly of		nstances present? Yes X No										
Are Vegetation, Soil, or Hydrologynaturally prot	olematic? (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 <u>X</u> No										
HYDROLOGY												
Wetland Hydrology Indicators:	Sec	condary Indicators (minimum of two required)										
Primary Indicators (minimum of one is required; check all that apply)	(B14)	Surface Soil Cracks (B6)										
X High Water Table (A2) Hvdrogen Sulfide C	(D14)	Drainage Patterns (B10)										
X Saturation (A3) X Oxidized Rhizosph	eres on Living Roots (C3)	Moss Trim Lines (B16)										
Water Marks (B1) Presence of Reduc	ed Iron (C4)	Dry-Season Water Table (C2)										
Sediment Deposits (B2) Recent Iron Reduct	tion in Tilled Soils (C6)	Crayfish Burrows (C8)										
Drift Deposits (B3) Thin Muck Surface	(C7)	Saturation Visible on Aerial Imagery (C9)										
Algal Mat or Crust (B4)Other (Explain in Re	emarks)	Stunted or Stressed Plants (D1)										
Iron Deposits (B5)		Shallow Aquitard (D3)										
Water-Stained Leaves (B9)		Microtopographic Relief (D4)										
		(-1)										
Aquatic Fauna (B13)	Х	FAC-Neutral Test (D5)										
Aquatic Fauna (B13)	<u>X</u>	FAC-Neutral Lest (D5)										
Aquatic Fauna (B13)         Field Observations:         Surface Water Present?       Yes X No Depth (inclusion)		FAC-Neutral Test (D5)										
Aquatic Fauna (B13)         Field Observations:         Surface Water Present?       Yes X       No       Depth (inclusion)         Water Table Present?       Yes X       No       Depth (inclusion)	X hes):	FAC-Neutral Test (D5)										
Aquatic Fauna (B13)         Field Observations:         Surface Water Present?       Yes X       No       Depth (inc         Water Table Present?       Yes X       No       Depth (inc         Saturation Present?       Yes X       No       Depth (inc	X           hes):         3           hes):         12           hes):         0	ology Present? Yes X No										
Aquatic Fauna (B13)         Field Observations:         Surface Water Present?       Yes X       No       Depth (inc         Water Table Present?       Yes X       No       Depth (inc         Saturation Present?       Yes X       No       Depth (inc         (includes capillary fringe)       Depth (includes capillary fringe)       Depth (includes capillary fringe)		ology Present? Yes X No										
Aquatic Fauna (B13)         Field Observations:         Surface Water Present?       Yes       X       No       Depth (inc         Water Table Present?       Yes       X       No       Depth (inc         Saturation Present?       Yes       X       No       Depth (inc         (includes capillary fringe)       Describe Recorded Data (stream gauge, monitoring well, aerial photon		ology Present? Yes X No										

Sampling Point: DP20-W

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1. Platanus occidentalis	40	Yes	FACW	Number of Dominant Species
2. Fraxinus pennsylvanica	30	Yes	FACW	That Are OBL, FACW, or FAC: 7 (A)
3. Ulmus rubra	20	No	FAC	Total Number of Dominant
4. Liquidambar styraciflua	20	No	FAC	Species Across All Strata: 7 (B)
5.				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 100.0% (A/B)
7.				Prevalence Index worksheet:
	110	=Total Cover		Total % Cover of: Multiply by:
50% of total cover: 55	20%	of total cover	22	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1 Platanus occidentalis	30	Yes	FACW	FAC species x 3 =
2 Fraxinus pennsylvanica	30	Yes	FACW	FACU species x4 =
	30	Vos	EAC	
	30	165	TAC	Column Tatala:
4				Column Totals. (A) (B)
5				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				X 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
	90	=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover: 45	20%	of total cover:	18	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Dichanthelium clandestinum	40	Yes	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Andropogon glomeratus	30	Yes	FACW	present, unless disturbed or problematic.
3.				Definitions of Four Vegetation Strata:
4.				<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or
5.				more in diameter at breast height (DBH), regardless of
6.				height.
7.				Sanling/Shrub - Woody plants, excluding vines, less
8				than 3 in. DBH and greater than or equal to 3.28 ft
9				(1 m) tall.
10				Herb - All berbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
	70			Woody Vine All woody vince greater than 2.28 ft in
50% of total accuracy 25	70		14	height.
50% of total cover: <u>35</u>	20%	or total cover:	14	
Woody Vine Stratum (Plot size: 30 )				
1				
2				
3				
4				
5				Hydrophytic
		=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes X No
Remarks: (Include photo numbers here or on a separ	ate sheet.)			
Indicators of hydrophytic vegetation are present.				

Profile Desc	ription: (Describe	to the dep	oth needed to doc	ument t	he indica	ator or co	onfirm the abser	nce of indicators.)
Depth	Matrix		Redo	x Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-3	2.5YR 4/3	100					Loamy/Clayey	<u> </u>
3-20	2.5YR 4/2	90	10YR 5/8	10	С	М	Loamy/Clayey	Prominent redox concentrations
		·						
		·						
<sup>1</sup> Type: C=Co	ncentration, D=Depl	letion, RM	=Reduced Matrix, N	//S=Mas	ked Sand	d Grains.	<sup>2</sup> Loca	ation: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators:						l	ndicators for Problematic Hydric Soils <sup>3</sup> :
Histosol (	(A1)		Polyvalue B	elow Sur	face (S8	) <b>(MLRA</b>	147, 148)	2 cm Muck (A10) <b>(MLRA 147)</b>
Histic Epi	ipedon (A2)		Thin Dark S	urface (S	69) <b>(MLR</b>	A 147, 14	48)	Coast Prairie Redox (A16)
Black His	tic (A3)		Loamy Mucl	ky Miner	al (F1) <b>(N</b>	ILRA 136	6)	(MLRA 147, 148)
Hydroger	n Sulfide (A4)		Loamy Gley	ed Matri	x (F2)			Piedmont Floodplain Soils (F19)
Stratified	Layers (A5)		X Depleted Ma	atrix (F3)			_	(MLRA 136, 147)
2 cm Muo	ck (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)			Red Parent Material (F21)
Depleted	Below Dark Surface	e (A11)	Depleted Da	ırk Surfa	ce (F7)		-	(outside MLRA 127, 147, 148)
Thick Da	rk Surface (A12)	<b>、</b> ,	Redox Depr	essions	(F8)			Very Shallow Dark Surface (F22)
Sandy M	uckv Mineral (S1)		Iron-Mangar	nese Ma	、 sses (F1;	2) (LRR N	N. –	Other (Explain in Remarks)
Sandy Gl	eved Matrix (S4)		MLRA 13	6)	,	<i>,</i> <b>, ,</b>	· _	
Sandy Re	edox (S5)		Umbric Surf	, ace (F13	B) (MLRA	122. 136	<b>6)</b> <sup>3</sup>	Indicators of hydrophytic vegetation and
Stripped	Matrix (S6)		Piedmont FI	oodplain	Soils (F	19) <b>(MLR</b>	A 148)	wetland hydrology must be present.
Dark Sur	face (S7)		Red Parent	, Material	(F21) (M	LRA 127	, 147, 148)	unless disturbed or problematic.
Restrictive L	ayer (if observed):							
Type:	- , , ,							
Depth (in	ches):						Hydric Soil P	resent? Yes X No
Remarks:							-	

Indicators of hydric soils are present.

U.S. Army WETLAND DETERMINATION DATA S See ERDC/EL TR-07-24; 1	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)		
Project/Site: Fleming Solar Project		City/County: Fleming Count	y Sampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC			State: KY Sampling Point: DP21-U
Investigator(s): DR and SM		Section, Township, Range: Fle	mingsburg
Landform (hillside, terrace, etc.): Hillside	l	ocal relief (concave, convex, none	a): None Slope (%): 3
Subragion (I BP or MI BA): I BP N	Lat: 39 45912126	Long: 192.7	5005120 Datum: NAD 83
Soil Map Unit Name: Cynthiana-Faywood c	omplex_verv_rocky_12 to 3	35 percent slopes eroded	NWI classification: N/A
Are climatic / hydrologic conditions on the sit	e typical for this time of ve	ar? Ves X M	lo (If no explain in Remarks )
Are Vegetation Soil or Hydro	alogy significantly d	isturbed? Are "Normal Circur	nstances" nresent? Ves X No
Are Vegetation, Soil, or Hydro	significantiy d	lomatic? (If needed avalation	
	naturally prob	iematic? (if needed, explain	any answers in Remarks.)
SUMMARY OF FINDINGS – Attach	n site map showing	sampling point locations	, transects, important features, etc.
Hydrophytic Vegetation Present?	Yes No X	Is the Sampled Area	
Hydric Soil Present?	Yes No X	within a Wetland?	Yes No X
Wetland Hydrology Present?	Yes No X		
This data sheet is representative of the upla	and area surrounding Feat	ure 21.	
HYDROLOGY			
Wetland Hydrology Indicators:		Sec	condary Indicators (minimum of two required)
Primary Indicators (minimum of one is requi	ired; check all that apply)		Surface Soil Cracks (B6)
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	Hydrogen Sulfide O	dor (C1)	Drainage Patterns (B10)
Saturation (A3)		res on Living Roots (U3) $\underline{\qquad}$	Moss Trim Lines (BTo)
Sediment Deposits (B2)	Presence of Reduce	on in Tilled Soils (C6)	Cravitsh Burrows (C8)
Drift Deposits (B3)	Thin Muck Surface (	(C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Re	emarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	、	,	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B	7)		Shallow Aquitard (D3)
Water-Stained Leaves (B9)			Microtopographic Relief (D4)
Aquatic Fauna (B13)			FAC-Neutral Test (D5)
Field Observations:			
Surface Water Present? Yes	No X Depth (inch	nes):	
Water Table Present? Yes	No X Depth (inch	nes):	-laws Baraando - Maraan Na M
(includes capillary fringe)	No X Depin (Incr		ology Present? Yes No X
Describe Recorded Data (stream dauge mo	onitoring well, aerial photo	s, previous inspections). if availab	ble:
		,	
Remarks <sup>.</sup>			
Indicators of wetland hydrology are not pres	sent.		

Sampling Point: DP21-U

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1 2				Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
3		<u> </u>		Total Number of Dominant Species Across All Strata:3(B)
5				Percent of Dominant Species That Are OBL. FACW. or FAC: 0.0% (A/B)
7.				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Saplin <u>g/Shrub Stratum</u> (Plot size: 15 )				FACW species x 2 =
1. ····································				FAC species x 3 =
2.				FACU species x 4 =
3.				UPL species x 5 =
4				Column Totals: (A) (B)
				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
·				2 Dominance Test is \$50%
8				2 - Dominance results > 50%
9				3 - Prevalence Index Is ≥3.0
		=1 otal Cover		4 - Morphological Adaptations (Provide supporting
50% of total cover:	20%	of total cover:		
Herb Stratum (Plot size: 5)				Problematic Hydrophytic Vegetation' (Explain)
1. Solidago canadensis	55	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Solidago altissima	55	Yes	FACU	present, unless disturbed or problematic.
3. Dipsacus fullonum	45	Yes	FACU	Definitions of Four Vegetation Strata:
4. Arctium minus	20	No	FACU	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Rosa multiflora	20	No	FACU	more in diameter at breast height (DBH), regardless of
6. Vernonia gigantea	20	No	FAC	height.
7. Artemisia vulgaris	30	No	UPL	Sapling/Shrub – Woody plants, excluding vines, less
8.				than 3 in. DBH and greater than or equal to 3.28 ft
9.				(1 m) tall.
10.				Herb – All herbaceous (non-woody) plants, regardless
11.				of size, and woody plants less than 3.28 ft tall.
	245	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover: 12	3 20%	of total cover:	49	height.
Woody Vine Stratum (Plot size: 30 )				
, 1				
2				
3				
о				
4				
5.		-Tatal Causer		Hydrophytic
		= I otal Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes <u>No X</u>
Remarks: (Include photo numbers here or on a separ	rate sheet.)			
Indicators of hydrophytic vegetation are not present.				

SOIL

Profile Desci	ription: (Describe	to the dep	oth needed to doc	ument t	he indica	ator or co	onfirm the abse	nce of ind	icators.)		
Depth	Matrix		Redo	x Featur	es						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		R	emarks	
0-4	10YR 4/2	100					Loamy/Clayey	<u> </u>			
4-20	10YR 4/3	100					Loamy/Clayev	,			
						<u> </u>					
<sup>1</sup> Type: C=Co	ncentration, D=Depl	etion, RM	=Reduced Matrix, N	/IS=Mas	ked Sand	Grains.	<sup>2</sup> Loca	ation: PL=	Pore Lining	, M=Matr	ix.
Hydric Soil I	ndicators:	,						ndicators	for Proble	matic Hy	dric Soils <sup>3</sup> :
Histosol (	A1)		Polyvalue Be	elow Sur	face (S8	) (MLRA	147, 148)	2 cm N	luck (A10)	(MLRA 1	47)
Histic Epi	pedon (A2)		Thin Dark S	urface (S	69) <b>(MLR</b>	A 147, 14		Coast	Prairie Red	ox (A16)	
Black His	tic (A3)		Loamy Muck	xy Miner	al (F1) <b>(N</b>	ILRA 136	5) –	(MLI	RA 147, 148	3)	
Hydrogen	n Sulfide (A4)		Loamy Gley	ed Matrix	x (F2)		_	Piedm	ont Floodpla	ain Soils (	(F19)
Stratified	Layers (A5)		Depleted Ma	ıtrix (F3)			_	(MLI	RA 136, 147	7)	
2 cm Muc	ck (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)		_	Red Pa	arent Mater	ial (F21)	
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)			(out	side MLRA	127, 147	, 148)
Thick Da	rk Surface (A12)		Redox Depre	essions	(F8)		_	Very S	hallow Dark	surface	(F22)
Sandy Mu	ucky Mineral (S1)		Iron-Mangar	iese Ma	sses (F12	2) (LRR N	I,	Other	Explain in F	Remarks)	
Sandy Gl	eyed Matrix (S4)		MLRA 13	5)							
Sandy Re	edox (S5)		Umbric Surfa	ace (F13	3) <b>(MLRA</b>	122, 136	5) <sup>3</sup>	Indicators	of hydrophy	ytic veget	ation and
Stripped	Matrix (S6)		Piedmont Fl	oodplain	Soils (F	19) <b>(MLR</b>	A 148)	wetlan	d hydrology	must be	present,
Dark Surf	ace (S7)		Red Parent	Material	(F21) <b>(M</b>	LRA 127	, 147, 148)	unless	disturbed c	or problem	natic.
Restrictive L	ayer (if observed):										
Туре:											
Depth (in	ches):						Hydric Soil P	resent?	Yes	N	o <u>X</u>
Remarks:											

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mounta See ERDC/EL TR-07-24; the proponent agency	SOMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
Project/Site: Fleming Solar Project	City/County: Fleming County Sampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC	State: KY Sampling Point: DP21-W
Investigator(s): DR and SM	Section. Township. Range: Flemingsburg
Landform (billside terrace etc.): Valley	cal relief (concave, convex, none): Concave, Slope (%): 1
Subrogion (LPB or MLPA): LPP N Lot: 39.45914332	Long: 123 75101145
Sublegion (LINK of MEINA). LINK N Lat. 30.43014332	
Son Map Onit Name. Cynthiana-Faywood complex, very rocky, 12 to 3	
Are climatic / hydrologic conditions on the site typical for this time of year	ar? Yes X No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrologysignificantly dis	sturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrologynaturally proble	ematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing s	ampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydric Soil Present? Yes X No	within a Wetland? Yes X No
Wetland Hydrology Present? Yes X No	
Remarks: This data sheet is representative of Feature 21.	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
X Surface Water (A1) True Aquatic Plants	(B14) Sparsely Vegetated Concave Surface (B8)
X High Water Lable (A2) Hydrogen Sulfide Od	lor (C1) <u>X</u> Drainage Patterns (B10)
Water Marks (B1)	d Iron (C4) Dry-Season Water Table (C2)
Sediment Deposits (B2)	on in Tilled Soils (C6) Cravfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (	C7) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Rei	marks) Stunted or Stressed Plants (D1)
Iron Deposits (B5)	X Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes X No Depth (inche	es): 2
Vater Table Present? Yes X No Depth (Inchi Saturation Present? Yes X No Donth (inchi	es): <u>8</u> wotland Hydrology Procent? Vec V No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos	, previous inspections), if available:
Remarks:	
Remarks: Indicators of wetland hydrology are present.	

Sampling Point: DP21-W

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1. Salix nigra	15	Yes	OBL	Number of Dominant Species
2.				That Are OBL, FACW, or FAC: (A)
3.				Total Number of Dominant
4.				Species Across All Strata: 4 (B)
5.				Percent of Dominant Species
6.	Absolute       Dominant       Indicator         ix nigra       15       Yes       OBL         15       Yes       OBL         15       Yes       OBL         Tat Aro OBL, FACW, or FAC:       4         Protent of Dominant Species       4         Tat Aro OBL, FACW, or FAC:       4         Protent of Dominant Species       4         S0% of total cover:       8         20% of total cover:       8         20% of total cover:       10         Yes       OBL         S0% of total cover:       8         20% of total cover:       3         FACU species       x 3 =         FACU species       x 4 =         UPL species       x 5 =         50% of total cover:       5         20       No         FACW species       x 3 =         Frevelence Index is 530°       -         3       Prevelence Index is 530°	That Are OBL, FACW, or FAC: 100.0% (A/B)		
Absolute       Dominant       Indicator         I       Salix rigra       15       Yes       OBL         1.       Salix rigra       15       Yes       OBL         3.       Image: Salix rigra       15       Yes       OBL         4.       Image: Salix rigra       15       Yes       OBL         5.       Image: Salix rigra       15       Total Number of Dominant Species         7.       Image: Salix rigra       10       Yes       Total Xin OBL, FACW, or FAC:       100.000         60% of total cover:       8       20% of total cover:       3       FAC species       x 1 =         50% of total cover:       10       Yes       OBL       FAC species       x 3 =       FAC species       x 3 =	Prevalence Index worksheet:			
	15	=Total Cover		Total % Cover of: Multiply by:
50% of total cover: 8	20%	of total cover	3	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				
1 Salix nigra	10	Ves	OBI	FAC species x 3 =
	10	163		
2.				
S				
4.				Column Totals: (A) (B)
5				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				X 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
	10	=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover: 5	20%	of total cover:	2	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5)				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Typha angustifolia	70	Yes	OBL	<sup>1</sup> Indiactors of hydric coll and watered hydrology must be
2 Ranunculus abortivus	40	Yes	FACW	present unless disturbed or problematic
3 Carey frankii	20	No	OBI	Definitions of Four Vegetation Strata:
	20	No		Tere Westwelerts webstiensites 0 in (7.0 m) and
	20	110	TACW	Iree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH) regardless of
5				height.
6				ů –
7				<b>Sapling/Shrub</b> – Woody plants, excluding vines, less
8				than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall
9				
10				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
	150	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover: 75	5 20%	of total cover:	30	height.
Woody Vine Stratum (Plot size: 30 )				
1.				
2.				
3				
A.				
J		-Tatal Causer		Hydrophytic
		= Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes X No
Remarks: (Include photo numbers here or on a sepa	rate sheet.)			
Indicators of hydrophytic vegetation are present.				

Profile Desc	ription: (Describe t	o the dep	oth needed to docu	ument t	he indica	tor or co	onfirm the absen	ce of indicators.)
Depth	Matrix		Redo	x Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 4/2	95	7.5YR 4/6	5	С	М	Loamy/Clayey	Prominent redox concentrations
4-20	10YR 5/1	95	7.5YR 4/6	5	С	PL	Loamy/Clayey	Prominent redox concentrations
	ncentration D-Denl	etion RM	-Reduced Matrix		ked Sand	Grains	2l oca	tion: PL-Pore Lining M-Matrix
Hydric Soil I	ndicators:			10-11183	Keu Gand	orains.	LUCA	ndicators for Problematic Hydric Soils <sup>3</sup>
Histosol	(A1)		Polyvalue Be	Now Sur	face (S8		147 148)	2 cm Muck (A10) (MI RA 147)
Histic En	$(\Delta 2)$		Thin Dark St	Inface (S	(00)		48)	Coast Prairie Redox (A16)
Black His	tic $(A3)$			Winor	al (E1) <b>(N</b>	II DA 130		(MI PA 147, 148)
Black This	$\Delta Sulfide (\Delta A)$			ad Matri	ai(ii) <b>(ii</b> v (E2)		0)	Piedmont Floodplain Soils (F10)
Tryatogen			Loaniy Cleye	triv (E2)	× (i ∠)		-	
				Surface	(E6)			(MERA 130, 147) Red Derent Meterial (E21)
	Rolow Dark Surface	(11)			(F0)		—	
		(ATT)						(outside MERA 127, 147, 148)
	ik Sullace (A12)				(FO) (F4)			Very Shallow Dark Sunace (F22)
	ucky Mineral (ST)			iese ivia:	sses (F12		N,	Other (Explain in Remarks)
Sandy G	eyed Matrix (S4)		MLRA 13	<b>)</b>			- 31	
Sandy R	edox (S5)			ace (F13	3) (MLRA	122, 130	6) ·	indicators of hydrophytic vegetation and
Stripped	Matrix (S6)		Piedmont Fle	oodplain	Solls (F	19) (MLR	(A 148)	wetland hydrology must be present,
Dark Sur	face (S7)		Red Parent I	Material	(F21) <b>(M</b>	LRA 127	′, 147, 148) 	unless disturbed or problematic.
Restrictive L	ayer (if observed):							
Туре:								
Depth (in	ches):		<u></u>				Hydric Soil Pr	resent? Yes <u>X</u> No
Remarks								

Indicators of hydric soils are present.

U.S. Arm WETLAND DETERMINATION DATA See ERDC/EL TR-07-24	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)						
Project/Site: Fleming Solar Project Applicant/Owner: Fleming Solar, LLC		City/County: Fleming Cour	ty Sampling Date: 12-16-2020 State: KY Sampling Point: DP22-U				
Investigator(s): DR and SM		Section, Township, Range: Fle	emingsburg				
Landform (hillside, terrace, etc.): Valley	Lc	ocal relief (concave, convex, non	e): <u>Concave</u> Slope (%): <u>3</u>				
Subregion (LRR or MLRA): LRR N	Lat: 38.44031882	Long: <del>I</del> 83.7	76226228 Datum: NAD 83				
Soil Map Unit Name: Lowell-Faywood silt	loams, 6 to 12 percent slope	es	NWI classification: N/A				
Are climatic / hydrologic conditions on the	ite typical for this time of ye	ar? Yes X	No (If no, explain in Remarks.)				
Are Vegetation Soil or Hvd	rology significantly di	sturbed? Are "Normal Circu	mstances" present? Yes X No				
Are Vegetation Soil or Hyd	rology naturally prob	ematic? (If needed, explain	any answers in Remarks )				
SUMMARY OF FINDINGS – Attac	ch site map showing	sampling point locations	s, transects, important features, etc.				
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No X Yes No X Yes No X	Is the Sampled Area within a Wetland?	Yes No X				
HYDROLOGY Wetland Hydrology Indicators:		<u>Se</u>	condary Indicators (minimum of two required)				
Primary Indicators (minimum of one is req	uired; check all that apply)		Surface Soil Cracks (B6)				
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegetated Concave Surface (B8)				
High Water Table (A2)	Hydrogen Sulfide O	dor (C1)	Drainage Patterns (B10)				
Saturation (A3)		res on Living Roots (C3)	Moss_Trim Lines (B16)				
Sediment Deposits (B2)	Presence of Reduce	on in Tilled Soils (C6)	Cravitish Burrows (C8)				
Drift Deposits (B3)	Thin Muck Surface (	C7)	Saturation Visible on Aerial Imagery (C9)				
Algal Mat or Crust (B4)	Other (Explain in Re	marks)	Stunted or Stressed Plants (D1)				
Iron Deposits (B5)	、 、	X	Geomorphic Position (D2)				
Inundation Visible on Aerial Imagery (	B7)		Shallow Aquitard (D3)				
Water-Stained Leaves (B9)			Microtopographic Relief (D4)				
Aquatic Fauna (B13)			FAC-Neutral Test (D5)				
Field Observations:							
Surface Water Present? Yes	No X Depth (inch	les):					
Water Table Present? Yes	No X Depth (inch	es):					
Saturation Present? Yes		wetland Hyd	rology Present? Yes NO X				
Describe Recorded Data (stream dauge in	nonitoring well aerial photos	s, previous inspections) if availa	ble:				
Remarks:							

Indicators of wetland hydrology are not present.

Sampling Point: DP22-U

	Absolute	Dominant	Indicator	
<u>Tree Stratum</u> (Plot size: <u>30</u> )	% Cover	Species?	Status	Dominance Test worksheet:
1				Number of Dominant Species That Are OBL EACW or EAC: $1$ (A)
2				
4				Total Number of Dominant Species Across All Strata: 3 (B)
5.				Porcent of Dominant Species
6.				That Are OBL, FACW, or FAC: 33.3% (A/B)
7.				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
1				FAC species x 3 =
2.				FACU species x 4 =
3.				UPL species x 5 =
4.				Column Totals: (A) (B)
5.				Prevalence Index = B/A =
6.				Hydrophytic Vegetation Indicators:
7.				1 - Rapid Test for Hydrophytic Vegetation
8.				2 - Dominance Test is >50%
9.				3 - Prevalence Index is ≤3.0 <sup>1</sup>
		=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks or on a separate sheet)
Herb St <u>ratum</u> (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Conium maculatum	55	Yes	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Jacobaea vulgaris	40	No	UPL	present, unless disturbed or problematic.
3. Dipsacus fullonum	40	No	FACU	Definitions of Four Vegetation Strata:
4. Dactylis glomerata	45	Yes	FACU	Tree – Woody plants, excluding vines, 3 in, (7.6 cm) or
5. Solidago canadensis	55	Yes	FACU	more in diameter at breast height (DBH), regardless of
6. Solanum carolinense	5	No	FACU	height.
7.				Sanling/Shrub – Woodv plants. excluding vines, less
8.				than 3 in. DBH and greater than or equal to 3.28 ft
9.				(1 m) tall.
10.				Herb – All herbaceous (non-woody) plants, regardless
11.				of size, and woody plants less than 3.28 ft tall.
	240	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover: 12	0 20%	of total cover:	48	height.
Woody <u>Vine Stratum</u> (Plot size: 30 )				
1.				
2.				
3.				
4.				
5.				
		=Total Cover		Hydrophytic Vegetation
50% of total cover:	20%	of total cover:		Present? Yes No X
Remarks: (Include photo numbers here or on a separ	ate sheet )			
Indicators of hydrophytic vegetation are not present.	,			

SOIL

Depth	Matrix		Redo	x Featur	es						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		F	Remarks	
0-20	10YR 4/3	100					Loamy/Claye	ey			
							0				
<sup>1</sup> Type: C=Co	oncentration, D=Depl	etion, RM	=Reduced Matrix, N	/IS=Mas	ked Sand	l Grains.	<sup>2</sup> Lo	cation: PL=	Pore Linin	g, M=Matri	X.
Hydric Soil I	Indicators:							Indicators	for Proble	ematic Hy	dric Soils'
Histosol	(A1)		Polyvalue B	elow Su	face (S8)	) <b>(MLRA</b> 1	147, 148)	2 cm I	Muck (A10)	(MLRA 14	17)
Histic Ep	oipedon (A2)		Thin Dark S	urface (S	69) <b>(MLR</b>	A 147, 14	8)	Coast	Prairie Rec	lox (A16)	
Black Hi	stic (A3)		Loamy Mucl	ky Miner	al (F1) <b>(N</b>	ILRA 136	)	(ML	RA 147, 14	8)	
Hydroge	n Sulfide (A4)		Loamy Gley	ed Matri	x (F2)			Piedm	ont Floodp	ain Soils (	F19)
Stratified	l Layers (A5)		Depleted Ma	atrix (F3)				(ML	RA 136, 14	7)	
2 cm Mu	ck (A10) <b>(LRR N)</b>		Redox Dark	Surface	(F6)			Red P	arent Mate	rial (F21)	
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)			(out	side MLRA	127, 147,	, 148)
Thick Da	ark Surface (A12)	. ,	Redox Depr	essions	(F8)			Very S	Shallow Dar	k Surface	(F22)
Sandy M	lucky Mineral (S1)		Iron-Mangar	ese Ma	sses (F12	2) (LRR N		Other	(Explain in	Remarks)	
 Sandy G	ileved Matrix (S4)		MLRA 13	6)	,	<i>,</i> , ,			<b>、</b> 1	,	
Sandy R	edox (S5)		Umbric Surf	-, ace (F13	3) (MLRA	122. 136	)	<sup>3</sup> Indicators	of hydroph	vtic vegeta	ation and
Stripped	Matrix (S6)		Piedmont Fl	oodplain	Soils (F	19) <b>(MLR</b>	, A 148)	wetlan	d hydrolog	/ must be	present
Dark Sur	face (S7)		Red Parent	Material	(F21) <b>(M</b>	LRA 127,	147, 148)	unless	disturbed	or problem	atic.
Restrictive L	_ayer (if observed):										
Type:											
							Hydria Sail	Drocont?	Vac	No	• •

Indicators of hydric soils are not present.

U.S. A WETLAND DETERMINATION DAT See ERDC/EL TR-07-2	rmy Corps of Engineer A SHEET – Eastern Mount 4; the proponent agency	s ains and Piedmont Re / is CECW-CO-R	egion	OMB Control # Requirement ( (Authority: AF	: 0710-xxxx, Exp: Pendir Control Symbol EXEMP1 R 335-15, paragraph 5-2a	ng F: I)
Project/Site: Fleming Solar Project		City/County: Flemi	ng County	y	Sampling Date: 12-1	6-2020
Applicant/Owner: Fleming Solar, LL	С			State: KY	Sampling Point: DP	22-W
Investigator(s): DR and SM	-	Section, Township, Ra	nge: Fler	ningsburg		
Landform (billside terrace etc.): Valle	v I c	- cal relief (concave, conv	vex none	). Concave	Slope (%)	3
Subregion (LRR or MLRA): LRR N	Lat: 38 //06507/		ng: 183 76	230718		183
Soil Man Unit Name: Lowell-Faywood s	ilt loams 6 to 12 percent slope		ng. <u>+00.70</u>	NWI classificati	Datum. <u>NA</u>	/ 00
Are climatic / bydrologic conditions on th	e site typical for this time of ye	ar? Vec X	< N		volain in Remarks )	
Are Vegetation Soil or L		isturbod? Are "Norm				
Are Vegetation, Soll, or F	lydrologysignificantiy d	Isturbed? Are Norm		istances present?	Yes X INO	
Are Vegetation, Soil, or F	lydrology naturally prob	lematic? (If needed	i, explain a	any answers in Rer	marks.)	
SUMMARY OF FINDINGS – Att	ach site map showing	sampling point loo	ations,	transects, imp	portant features,	etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes X No Yes X No Yes X No	Is the Sampled Area within a Wetland?	1	Yes X	No	
HYDROLOGY			Sec.	ondanı Indicatora (	minimum of two requir	red)
Primary Indicators (minimum of one is	equired: check all that apply)		000	Surface Soil Crack	(B6)	<u>eu</u> j
Surface Water (A1)	True Aquatic Plants	(B14)		Sparsely Vegetate	d Concave Surface (B	8)
X High Water Table (A2)	Hydrogen Sulfide O	dor (C1)	X	Drainage Patterns	(B10)	- /
X Saturation (A3)	X Oxidized Rhizosphe	res on Living Roots (C3)	)	Moss Trim Lines (I	B16)	
Water Marks (B1)	Presence of Reduce	ed Iron (C4)		Dry-Season Water	Table (C2)	
Sediment Deposits (B2)	Recent Iron Reducti	on in Tilled Soils (C6)		Crayfish Burrows (	C8)	
Drift Deposits (B3)	Thin Muck Surface	(C7)		Saturation Visible	on Aerial Imagery (C9	)
Algal Mat or Crust (B4)	Other (Explain in Re	emarks)		Stunted or Stresse	ed Plants (D1)	
Iron Deposits (B5)			<u></u>	Geomorphic Positi	on (D2)	
Motor Steined Leeves (P0)	у (В7)			Shallow Aquitard (	D3) Poliof (D4)	
Aquatic Fauna (B13)			X	FAC-Neutral Test	(D5)	
Field Observations:					( )	
Surface Water Present? Yes	No X Depth (inch	nes): 2				
Water Table Present? Yes X	No Depth (inch	nes): 8				
Saturation Present? Yes X	No Depth (inch	nes): 3 Wetla	and Hydro	ology Present?	Yes X No	
(includes capillary fringe)						
Describe Recorded Data (stream gauge	e, monitoring well, aerial photo	s, previous inspections),	if availab	le:		
Remarks:						
Indicators of wetland hydrology are pre-	sent.					

Sampling Point: DP22-W

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: <u>30</u> )	% Cover	Species?	Status	Dominance Test worksheet:
2.				Number of Dominant Species           That Are OBL, FACW, or FAC:         2         (A)
3 4.				Total Number of Dominant Species Across All Strata: 2 (B)
5.				Percent of Dominant Species
7				Prevalence Index worksheet:
		=Total Cover		Total % Cover of Multiply by:
50% of total cover	20%	of total cover		OBL species x1 =
Sapling/Shrub Stratum (Plot size: 15 )				EACW species x 2 =
<u></u>				FAC species x 3 =
2				FACU species x 4 =
3				
4				Column Totals: (A) (B)
 5				$\frac{1}{2} = \frac{1}{2} = \frac{1}$
5				Hydrophytic Vegetation Indicators:
0				A paniel Test for Lludraphytic Vegetation
/				
8.		<u> </u>		X 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0
		=Total Cover		4 - Morphological Adaptations (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks of on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation (Explain)
1. Juncus effusus	35	Yes	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Ranunculus abortivus	20	No	FACW	present, unless disturbed or problematic.
3. Carex frankii	55	Yes	OBL	Definitions of Four Vegetation Strata:
4. Scirpus atrovirens	20	No	OBL	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Persicaria pensylvanica	10	No	FACW	more in diameter at breast height (DBH), regardless of
6. Carex vulpinoidea	30	No	OBL	neight.
7				Sapling/Shrub – Woody plants, excluding vines, less
8				than 3 in. DBH and greater than or equal to 3.28 ft
9				(1 m) tall.
10				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
	170	-Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total covor:	5 20%	of total cover	34	height.
Woody Vine Stratum (Plot size: 30	2070		- 54	
1				
2.		<u> </u>		
3.				
4				
5				Hydrophytic
		=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present?
Remarks: (Include photo numbers here or on a sepa Indicators of hydrophytic vegetation are present.	rate sheet.)			

Profile Desc	ription: (Describe f	to the dep	pth needed to docu	ument th	ne indica	tor or co	onfirm the absence	e of indicators.)		
Depth	Matrix		Redo	x Featur	es					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
0-4	10YR 4/2	95	7.5YR 4/6	5	С	М	Loamy/Clayey	Prominent redox concentrations		
4-12	10YR 5/1	95	7.5YR 4/6	5	С	PL	Loamy/Clayey	Prominent redox concentrations		
12-20	10YR 7/1	95	10YR 4/6	5	С	М	Loamy/Clayey	Prominent redox concentrations		
<sup>1</sup> Type: C=Co Hydric Soil I	ncentration, D=Depl	etion, RM	Reduced Matrix, N	/S=Masl	ked Sand	Grains.	2Locatio	on: PL=Pore Lining, M=Matrix. licators for Problematic Hydric Soils <sup>3</sup> :		
Histosol	(A1)		Polyvalue Be	elow Sur	face (S8)	(MLRA	147, 148)	2 cm Muck (A10) <b>(MLRA 147)</b>		
Histic Ep	ipedon (A2)		Thin Dark Su	urface (S	9) <b>(MLR</b>	A 147, 14	48)	Coast Prairie Redox (A16)		
Black His	stic (A3)		Loamy Muck	y Minera	al (F1) <b>(N</b>	ILRA 13	6)	- (MLRA 147, 148)		
Hydroger	1 Sulfide (A4)		Loamy Gleye	ed Matrix	(F2)		Piedmont Floodplain Soils (F19)			
Stratified	Lavers (A5)		X Depleted Ma	ıtrix (F3)	<b>、</b> ,		(MLRA 136, 147)			
2 cm Mu	ck (A10) (LRR N)		 Redox Dark	Surface	(F6)		Red Parent Material (F21)			
Depleted	Below Dark Surface	e (A11)	Depleted Da	rk Surfa	ce (F7)		(outside MLRA 127, 147, 148)			
 Thick Da	rk Surface (A12)	( )	Redox Depre	essions (	(F8)			Very Shallow Dark Surface (F22)		
Sandy M	ucky Mineral (S1)		Iron-Mangan	iese Mas	ses (F12	2) (LRR 1	N,	Other (Explain in Remarks)		
Sandy G	eved Matrix (S4)			5)	,	<i>,</i> ,				
Sandy R	edox (S5)		Umbric Surfa	, ace (F13	) ( <b>MLRA</b>	122. 130	6) <sup>3</sup> Inc	dicators of hydrophytic vegetation and		
Stripped	Matrix (S6)		Piedmont Fl	oodplain	Soils (F	19) <b>(MLR</b>	, RA 148)	wetland hydrology must be present,		
Dark Sur	face (S7)		Red Parent I	Material	(F21) <b>(M</b>	LRA 127	, 147, 148)	unless disturbed or problematic.		
Restrictive L Type: Depth (in	ayer (if observed):						Hydric Soil Pres	sent? Yes <u>X</u> No		
Remarks:										

Indicators of hydric soils are present.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R								
Project/Site: Fleming Solar Project		City/County: Fleming Count	ySampling Date: 03-17-21					
Applicant/Owner: Fleming Solar, LLC			State: KY Sampling Point: DP23-U					
Investigator(s): DR		Section Township, Range: Fler	minashura					
Landform (hillside terrace etc.): Berm	lo		$\therefore$ Concave Slope (%): 2					
Subragion (LPD or MLPA): LPD N	Lot: 38 //0038	Long: -83.75	Dotum: NAD 83					
		LUNU03.70	NAU closeffection: N/A					
Soll Map Unit Name: Lowen-Faywood Sitt in	ams, 6 to 12 percent slope							
Are climatic / hydrologic conditions on the sit	e typical for this time of ye	ar? YesՒ	lo X (If no, explain in Remarks.)					
Are Vegetation, Soil, or Hydro	blogysignificantly di	sturbed? Are "Normal Circun	nstances" present? Yes X No					
Are Vegetation, Soil, or Hydro	ologynaturally probl	ematic? (If needed, explain	any answers in Remarks.)					
SUMMARY OF FINDINGS – Attach	site map showing s	sampling point locations	transects, important features, etc.					
Hydrophytic Vegetation Present?	Yes No X	Is the Sampled Area	N- V					
Hydric Soll Present?	Yes <u>No X</u>	within a wetiand?						
HYDROLOGY								
Wetland Hydrology Indicators:		Sec	condary Indicators (minimum of two required)					
Primary Indicators (minimum of one is requi	red; check all that apply)		Surface Soil Cracks (B6)					
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegetated Concave Surface (B8)					
High Water Table (A2)	Hydrogen Sulfide Od	dor (C1)	Drainage Patterns (B10)					
Saturation (A3)	Oxidized Rhizosphere	es on Living Roots (C3) Moss Trim Lines (B16)						
Water Marks (B1)	Presence of Reduce	ed Iron (C4)	Dry-Season Water Table (C2)					
Sediment Deposits (B2)	Recent Iron Reduction	on in Tilled Soils (C6)	Crayfish Burrows (C8)					
Drift Deposits (B3)	Thin Muck Surface (	<u>(</u> C7)	Saturation Visible on Aerial Imagery (C9)					
Algal Mat or Crust (B4)	Other (Explain in Re	marks)	Stunted or Stressed Plants (D1)					
Iron Deposits (B5)	7)		Shallow Aquitard (D3)					
Water-Stained Leaves (B9)	()		Microtopographic Relief (D4)					
Aquatic Fauna (B13)			FAC-Neutral Test (D5)					
Field Observations:			- ( - )					
Surface Water Present?       Yes         Water Table Present?       Yes         Saturation Present?       Yes         (includes capillary fringe)	No X Depth (inch No X Depth (inch No X Depth (inch	es): es): es): Wetland Hydr	ology Present? Yes <u>No X</u>					
Describe Recorded Data (stream gauge, mo	onitoring well, aerial photos	s, previous inspections), if availat	ole:					

Indicators of surface hydrology are from active precipitation. No water table present.

Sampling Point: DP23-U

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1				Number of Dominant Species
2				That Are OBL, FACW, or FAC: 0 (A)
3				Total Number of Dominant
4				Species Across All Strata: 3 (B)
5				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 0.0% (A/B)
7.				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15 )				FACW species x 2 =
, 1.				FAC species x 3 =
2.				FACU species x 4 =
3				LIPL species x 5 =
4				Column Totals: (A) (B)
				$\frac{B}{B} = \frac{B}{A} = \frac{B}{A}$
0				A Denid Test for Undershutic Venetation
/				
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0'
-		=Total Cover		4 - Morphological Adaptations' (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Xanthium strumarium	30	No	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Lamium amplexicaule	60	Yes	UPL	present, unless disturbed or problematic.
3. Solidago canadensis	50	Yes	FACU	Definitions of Four Vegetation Strata:
4. Veronica persica	45	Yes	UPL	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Rubus argutus	35	No	FACU	more in diameter at breast height (DBH), regardless of
6. Daucus carota	35	No	UPL	height.
7. Apocynum cannabinum	35	No	FACU	Sapling/Shrub – Woody plants, excluding vines, less
8.				than 3 in. DBH and greater than or equal to 3.28 ft
9.				(1 m) tall.
10.				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
	290	=Total Cover		<b>Woody Vine</b> – All woody vines greater than 3 28 ft in
50% of total cover: 145	200	of total cover:	58	height.
Woody Vine Stratum (Plot size: 30 )	2070			
1				
··				
2				
3				
4.				
5				Hydrophytic
-		=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes <u>No X</u>
Remarks: (Include photo numbers here or on a separa	ate sheet.)			
Indicators of hydrophytic vegetation are not present.				

Depth	Matrix		Redo	x Featur	es						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		R	emarks	
0-20	7.5YR 4/3	95	7.5YR 4/2	5	RM	Μ	Loamy/Claye	/			
	. <u></u>										
<sup>1</sup> Type: C=Co	oncentration, D=Deple	etion, RM	I=Reduced Matrix, N	/IS=Mas	ked Sand	d Grains.	<sup>2</sup> Loc	ation: PL=	Pore Lining	, M=Matrix.	
Hydric Soil	Indicators:							ndicators	for Proble	matic Hydr	ic Soils <sup>3</sup>
Histosol	(A1)		Polyvalue B	elow Sur	face (S8)	) <b>(MLRA</b>	147, 148)	2 cm N	luck (A10)	(MLRA 147	)
Histic Ep	pipedon (A2)		Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (					ox (A16)			
Black Hi	stic (A3)		Loamy Mucł	y Miner	al (F1) <b>(N</b>	ILRA 136	5)	(MLF	RA 147, 148	3)	
Hydroge	n Sulfide (A4)		Loamy Gley	ed Matri:	x (F2)			Piedm	ont Floodpla	ain Soils (F	19)
Stratified	d Layers (A5)		Depleted Ma	trix (F3)			-	(MLF	RA 136, 147	7)	
2 cm Mu	uck (A10) (LRR N)		Redox Dark	Surface	(F6)			Red Parent Material (F21)			
Depleted	d Below Dark Surface	(A11)	Depleted Da	rk Surfa	ce (F7)		-	(out	ide MLRA	127, 147, 1	48)
Thick Da	ark Surface (A12)	, ,	Redox Depr	essions	(F8)			Very S	hallow Dark	surface (F	22)
Sandy M	lucky Mineral (S1)		Iron-Mangar	ese Ma	sses (F12	2) (LRR N	- -	Other (	Explain in F	Remarks)	,
Sandy G	Bleved Matrix (S4)		MLRA 130	3)	,	, ,	· -		•	,	
Sandy R	Redox (S5)		Umbric Surf	, ace (F13	B) (MLRA	122. 136	s) <sup>3</sup>	Indicators	of hydrophy	vtic vegetati	ion and
Stripped	Matrix (S6)		Piedmont Floodplain Soils (F19) (MI RA 148) wetland hydrology must					must be pr	esent.		
Dark Su	rface (S7)		Red Parent	Material	(F21) <b>(</b>	LRA 127	, 147, 148)	unless	disturbed o	, or problemat	tic.
Restrictive I	Layer (if observed):										
Type:											
Depth (ir	nches):						Hydric Soil P	resent?	Yes	No	Х

Indicators of hydric soils are not present.

U.S. Arm WETLAND DETERMINATION DATA S See ERDC/EL TR-07-24;	y Corps of Engineers SHEET – Eastern Mounta the proponent agency	s ains and Piedmont Regions is CECW-CO-R	OMB Contro Requiremer (Authority:	l #: 0710-xxxx, Exp: Pending nt Control Symbol EXEMPT: AR 335-15, paragraph 5-2a)
Project/Site: Fleming Solar Project		City/County: Fleming	County	Sampling Date: 03-17-21
Applicant/Owner: Fleming Solar, LLC			State: KY	Sampling Point: DP23-W
Investigator(s): DR		Section Township Range	Eleminashura	
Landform (hillside torrace etc.): Valley		cal raliaf (concava, convex		Slope (%): 1
Culture size (LDD as MLDA) LDD N	Lot_ 00.44004			
Subregion (LRR or MLRA): LRR N	Lat: <u>38.44991</u>	Long:	±83.78785	Datum: NAD 83
Soli Map Unit Name: Lowell-Faywood slit id	barns, 6 to 12 percent slope			
Are climatic / hydrologic conditions on the si	te typical for this time of yea	ar? Yes	No <u>X</u> (If no	, explain in Remarks.)
Are Vegetation, Soil, or Hydr	ologysignificantly di	sturbed? Are "Normal (	Circumstances" presen	t? Yes X No
Are Vegetation, Soil, or Hydr	ology naturally probl	ematic? (If needed, ex	plain any answers in F	Remarks.)
SUMMARY OF FINDINGS – Attack	n site map showing s	ampling point locat	ions, transects, ir	mportant features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes         X         No           Yes         X         No           Yes         X         No	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No
Wetland Hydrology Indicators:			Socondan/Indicator	c (minimum of two roquired)
Primary Indicators (minimum of one is requ	ired: check all that apply)		Surface Soil Cra	icks (B6)
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegeta	ated Concave Surface (B8)
X High Water Table (A2)	Hydrogen Sulfide Oc	lor (C1)	X Drainage Patter	ns (B10)
X Saturation (A3)	X Oxidized Rhizospher	es on Living Roots (C3)	Moss Trim Lines	s (B16)
Water Marks (B1)	Presence of Reduce	d Iron (C4)	Dry-Season Wa	ter Table (C2)
Sediment Deposits (B2)	Recent Iron Reduction	on in Tilled Soils (C6)	Crayfish Burrow	s (C8)
Drift Deposits (B3)	Thin Muck Surface (	C7)	Saturation Visib	e on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Re	marks)	Stunted or Stres	sed Plants (D1)
Iron Deposits (B5)			X Geomorphic Pos	sition (D2)
Inundation Visible on Aerial Imagery (B	57)		Shallow Aquitare	d (D3)
(B9)				c Relief (D4)
				st (D5)
Field Ubservations:	No V Darth (back			
Water Table Present? Yes	No X Depth (Inch	es).		
Saturation Present? Ves $Y$	No Depth (inch	es): 3 Watland	Hydrology Present?	Yes X No
(includes capillary fringe)			injuloiogy riesellt?	
Describe Recorded Data (stroom gauge m				
Describe Recorded Data (Stream gauge, m	onitoring well, aerial photos	, previous inspections), if a	available:	
Describe Neorded Data (stream yauye, m	onitoring well, aerial photos	s, previous inspections), if a	available:	

Indicators of wetland hydrology are present. Saturation and water table are present due to recent precipitation and may not be indicators of long term hydrology.

Sampling Point: DP23-W

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1.				Number of Dominant Species
2.				That Are OBL, FACW, or FAC: 4 (A)
3				Total Newsham of Deminerat
4				Total Number of Dominant Species Across All Strata: 6 (B)
5				Percent of Dominant Species
6.		<u> </u>		That Are OBL, FACW, or FAC: 66.7% (A/B)
<i>1.</i>		. <u> </u>		Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species 25 x 1 = 25
Sapling/Shrub Stratum (Plot size: 15 )				FACW species 60 x 2 = 120
1				FAC species 30 x 3 = 90
2.				FACU species 50 x 4 = 200
3.				UPL species 45 x 5 = 225
4.				Column Totals: 210 (A) 660 (B)
5				$\frac{1}{2} = \frac{1}{2} = \frac{1}$
6				
0				1 Danid Test for Underschutig Verstetier
7		<u> </u>		1 - Rapid Test for Hydrophytic Vegetation
8				X 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
		=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5)				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Xanthium strumarium	30	Yes	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Vernonia noveboracensis	25	Yes	FACW	present, unless disturbed or problematic.
3 Lamium amplexicaule	30	Yes	UPI	Definitions of Four Vegetation Strata
	10	No	FACW	
F. Verenice percise	15	No		more in diameter at breast height (DBH) regardless of
	10			height.
	30	Yes	FACU	
7. Phalaris arundinacea	25	Yes	FACW	Sapling/Shrub – Woody plants, excluding vines, less
8. Apocynum cannabinum	20	No	FACU	than 3 in. DBH and greater than or equal to 3.28 ft
9. Typha angustifolia	25	Yes	OBL	
10				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
	210	=Total Cover		Woody Vine – All woody vines greater than 3.28 ft in
50% of total cover: 10	5 20%	of total cover:	42	height.
Woody Vine Stratum (Plot size: 30 )				
<u> </u>				
2				
2.				
3				
4				
5				Hydrophytic
	:	=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes X No
Remarks: (Include photo numbers here or on a sena	rate sheet )			
Indicators of hydrophytic vegetation are present.				

Denth	Matrice							of maloutors.)			
Deptn (inches)	Color (moist)	%	Color (moist)	x Featur %	es Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks			
0-6	7.5YR 4/3	95	7.5YR 4/6	5	С	М	Loamy/Clayey	Distinct redox concentrations			
6-14	7.5YR 4/2	90	7.5YR 4/6	5	С	PL	Loamy/Clayey	Prominent redox concentrations			
14-20	7.5YR 3/2	75	10YR 4/6	25	С	М	Loamy/Clayey	Prominent redox concentrations			
<sup>1</sup> Type: C=Cc	ncentration, D=Depl	etion, RM	I=Reduced Matrix, N	//S=Mas	ked Sand	l Grains.	<sup>2</sup> Locatio	n: PL=Pore Lining, M=Matrix.			
Histosol			Polyvalue B	elow Sur	face (S8)		147 148)	2 cm Muck (A10) (MI RA 147)			
Histic En	ic Eninedon (A2) Thin Dark Surface (S9) (MLR 147				Δ 147. 1	48)	Coast Prairie Redox (A16)				
Black His	stic (A3)		Loamy Muc	v Minera	al (F1) <b>(N</b>	ILRA 130	6)	(MLRA 147, 148)			
Hydroger	n Sulfide (A4)		Loamy Gley	ed Matrix	(F2)		Piedmont Floodplain Soils (F19)				
Stratified	Layers (A5)		Depleted Ma	atrix (F3)	( )		(MLRA 136, 147)				
2 cm Mu	ck (A10) (LRR N)		Redox Dark	Surface	(F6)		Red Parent Material (F21)				
Depleted	Below Dark Surface	e (A11)	Depleted Da	ark Surfa	ce (F7)		(outside MLRA 127, 147, 148)				
Thick Da	rk Surface (A12)		Redox Depr	essions	(F8)			Very Shallow Dark Surface (F22)			
Sandy M	ucky Mineral (S1)		X Iron-Mangar	nese Ma	sses (F12	2) (LRR N	N,	Other (Explain in Remarks)			
Sandy G	leyed Matrix (S4)		MLRA 13	6)							
Sandy R	edox (S5)		Umbric Surf	ace (F13	) (MLRA	122, 130	6) <sup>3</sup> Ind	icators of hydrophytic vegetation and			
Stripped	Matrix (S6)		Piedmont Fl	oodplain	Soils (F	19) <b>(MLR</b>	RA 148)	wetland hydrology must be present,			
Dark Sur	face (S7)		Red Parent	Material	(F21) <b>(M</b>	LRA 127	<sup>,</sup> 147, 148)	unless disturbed or problematic.			
Restrictive L	ayer (if observed):										
Type:											
Denth (ir	ches):						Hydric Soil Pres	ent? Yes X No			

Indicators of hydric soils are present; 5% manganese masses occuring in the 6-14 inch layer.

U.S. Ar WETLAND DETERMINATION DAT See ERDC/EL TR-07-2	s ains and Piedmont Region / is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)							
Project/Site: Fleming Solar Project Sampling Date: 03-17-									
Applicant/Owner: Fleming Solar, LLC			State: KY Sampling Point: DP24						
Investigator(s): DR	stigator(s): DR Section, Township, Range: Flemingsburg								
Landform (hillside, terrace, etc.): Hillslo	pe Lo	ocal relief (concave, convex, none	e): Concave Slope (%): 2						
Subregion (I RR or MI RA) I RR N	Lat: 38 44906912	Long: -83.78	8415548 Datum: NAD 8						
Soil Map Unit Name: Lowell Environdesi	t loams 6 to 12 porcent close		NW/L classification: N/A						
Are climatic / hydrologic conditions on the	site typical for this time of ye	ear? Yes	No X (If no, explain in Remarks.)						
Are Vegetation, Soil, or Hy	/drologysignificantly di	isturbed? Are "Normal Circun	mstances" present? Yes X No						
Are Vegetation, Soil, or Hy	/drology naturally probl	lematic? (If needed, explain	any answers in Remarks.)						
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.									
Hydric Soil Present? Wetland Hydrology Present? Remarks: This data sheet is representative of the u experiencing severe wetness at the time	Hydrophytic Vegetation Present?       Yes       No       X       Is the Sampled Area         Hydric Soil Present?       Yes       No       X       within a Wetland?       Yes       No       X         Wetland Hydrology Present?       Yes       No       X       within a Wetland?       Yes       No       X         Remarks:       This data sheet is representative of the upland area adjacent to Feature 24. The antecedent precipitation tool indicates that the area was experiencing severe wetness at the time of the delineation.       Yes       Yes								
HYDROLOGY									
Wetland Hydrology Indicators:		Sec	condary Indicators (minimum of two required						
Primary Indicators (minimum of one is re	equired; check all that apply)		Surface Soil Cracks (B6)						
Surface Water (A1)	True Aquatic Plants	(B14)	Sparsely Vegetated Concave Surface (B8)						
High Water Table (A2)	Hydrogen Sulfide Oo	dor (C1)	Drainage Patterns (B10)						
Saturation (A3)	Oxidized Rhizosphe	res on Living Roots (C3)	Moss Trim Lines (B16)						
vVater Marks (B1)	Presence of Reduce	ed Iron (C4)	Dry-Season Water Table (C2)						
Sealment Deposits (B2)	This Muck Surface (		Craylish Burrows (C8)						
Algol Mot or Crist (P4)	Other (Eveloin in De	(U/)	Saturation Visible on Aerial Imagery (C9)						
			Geomorphic Position (D2)						

High Water Table (A2)		Hydro	gen Sulfide Odor (C1)		Drainage Patterns (B10)				
Saturation (A3)		Oxidiz	ed Rhizospheres on Livi	ing Roots (C3)	Moss Trim Lines (B <sup>2</sup>	16)			
Water Marks (B1)		Prese	nce of Reduced Iron (C4	1)	Dry-Season Water Table (C2) Crayfish Burrows (C8)				
Sediment Deposits (B2	)	Recen	t Iron Reduction in Tille	d Soils (C6)					
Drift Deposits (B3)		Thin M	luck Surface (C7)		Saturation Visible or	n Aerial Image	ery (C9)		
Algal Mat or Crust (B4)		Other	(Explain in Remarks)		Stunted or Stressed	l Plants (D1)			
Iron Deposits (B5)					Geomorphic Position	n (D2)			
Inundation Visible on A	erial Imagery (	B7)			Shallow Aquitard (D3)				
Water-Stained Leaves	(B9)				Microtopographic Re	elief (D4)			
Aquatic Fauna (B13)					FAC-Neutral Test (D	D5)			
Field Observations:									
Surface Water Present?	Yes	No X	Depth (inches):						
Water Table Present?	Yes	No X	Depth (inches):						
Saturation Present?	Yes X	No X	Depth (inches): 2	lydrology Present?	Yes	No X			
(includes capillary fringe)									
Describe Recorded Data (s	tream gauge, r	monitoring wel	l, aerial photos, previous	s inspections), if av	ailable:				
Remarks:									
Indicators of surface hydrol	ogy are from a	ctive precipita	tion. No water table pres	sent.					

Sampling Point: DP24-U

Trace Otratium (Diataira) 20	Absolute	Dominant	Indicator	Deminance Test workshopt
$\frac{1 \text{ ree Stratum}}{1} (\text{Piot size:} 30)$	% Cover	Species?	Status	Dominance lest worksneet:
2				Number of Dominant Species           That Are OBL, FACW, or FAC:         1 (A)
3				Total Number of Dominant
5				Species Across All Strata. <u>3</u>
6				Percent of Dominant Species
7				Prevalence Index worksheet:
/·· ·		=Total Cover		Total % Cover of Multiply by:
50% of total cover:	20%	of total cover:		OBI species $x_1 =$
Sapling/Shrub Stratum (Plot size: 15 )	==			FACW species x 2 =
<u>oupmig.c</u> , 1				FAC species x3 =
2.				FACU species x 4 =
3				LIPI species x 5 =
4				Column Totals: (A) (B)
				Prevalence Index = B/A =
6				Hydronhytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
۲ R		·		2 - Dominance Test is >50%
a .				3 - Prevalence Index is <3 01
· · · · · · · · · · · · · · · · · · ·		-Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover	20%	of total cover		data in Remarks or on a separate sheet)
Horb Stratum (Diat size: 5)	2070			Problematic Hydrophytic Vegetation <sup>1</sup> (Evplain)
<u>     Held Stratum</u> (Flot Size	80	Vec	FAC	
	60	Vec		Indicators of hydric soil and wetland hydrology must be
2. Caliliano canadensis	50	Vee		Definitions of Four Vegetation Strata
	45	No		
5 Public aroutus	35	No		more in diameter at breast height (DBH), regardless of
6 Zea mave	35	No		height.
7	55			O
γ		·		than 3 in DBH and greater than or equal to 3.28 ft
a				(1 m) tall.
3 10				Herb – All berbaceous (non-woody) plants, regardless
10				of size, and woody plants less than 3.28 ft tall.
	305	-Total Cover		Woody Vine – All woody vines greater than 3 28 ft in
50% of total cover: 15	200	of total cover	61	height.
Woody Vine Stratum (Plot size: 30 )	2070		01	
1				
I		. <u> </u>		
2				
3				
4				
o		-Tatal Causer		Hydrophytic
	200/			Vegetation
	20%	or total cover:		
Remarks: (Include photo numbers here or on a separ	ate sheet.)			
Indicators of hydrophytic vegetation are not present.				

Depth       Matrix       Redox Features         (inches)       Color (moist)       %       Type1       Loc <sup>2</sup> Texture       Remarks         0-8       7.5YR 4/3       100       Loamy/Clayey       Manganese concentrations         14-20       7.5YR 4/3       98       10YR 2/1       2       C       M       Loamy/Clayey       Manganese concentrations         14-20       7.5YR 4/3       60       7.5YR 4/2       40       RM       M       Loamy/Clayey	Profile Desc	ription: (Describe	to the dep	oth needed to doc	ument t	he indica	ator or co	onfirm the abser	nce of indicators.)
(inches)       Color (moist)       %       Color (moist)       %       Type1       Loc <sup>2</sup> Texture       Remarks         0-8       7.5YR 4/3       100	Depth	Matrix		Redo	x Featur	es			
0-8         7.5YR 4/3         100         Loamy/Clayey           8-14         7.5YR 4/3         98         10YR 2/1         2         C         M         Loamy/Clayey         Manganese concentrations           14-20         7.5YR 4/3         60         7.5YR 4/2         40         RM         M         Loamy/Clayey	(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
8-14       7.5YR 4/3       98       10YR 2/1       2       C       M       Loamy/Clayey       Manganese concentrations         14-20       7.5YR 4/3       60       7.5YR 4/2       40       RM       M       Loamy/Clayey	0-8	7.5YR 4/3	100					Loamy/Clayey	
14-20       7.5YR 4/3       60       7.5YR 4/2       40       RM       M       Loamy/Clayey	8-14	7.5YR 4/3	98	10YR 2/1	2	С	Μ	Loamy/Clayey	Manganese concentrations
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.         Hydric Soil Indicators:       Indicators for Problematic Hydric Soils <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (MLRA 147, 148)         Histosol (A2)       Thin Dark Surface (S9) (MLRA 147, 148)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)         Strattified Layers (A5)       Depleted Matrix (F3)         Com Muck (A10) (LRR N)       Redox Dark Surface (F6)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)         Thick Dark Surface (A12)       Redox Depressions (F8)         Sandy Mucky Mineral (S1)       Ioron-Manganese Masses (F12) (LRR N,         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 127, 147, 148)         Dark Surface (S7)       Red Parent Material (F21) (MLRA 128, 147)         Restrictive Layer (if observed):       Type:         Type:       There for the material (F21) (MLRA 127, 147, 148)	14-20	7.5YR 4/3	60	7.5YR 4/2	40	RM	Μ	Loamy/Clayey	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.         Hydric Soil Indicators:       Indicators for Problematic Hydric Soils <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (MLRA 147, 148)       2 cm Muck (A10) (MLRA 147)         Histosol (A2)       Thin Dark Surface (S9) (MLRA 147, 148)       2 cm Muck (A10) (MLRA 147, 148)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)       (MLRA 147, 148)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (ILRR N,       Other (Explain in Remarks)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 127, 147, 148) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Restrictive Layer (if observed):       Type:       Type:       Yery       No. X         Type:       Depleted Dians Soils (F21) (MLRA 1									
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.         Hydric Soil Indicators:       Indicators for Problematic Hydric Soils <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (MLRA 147, 148)         Histic Epipedon (A2)       Thin Dark Surface (S9) (MLRA 147, 148)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)         Stratified Layers (A5)       Depleted Matrix (F3)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)         Thick Dark Surface (A12)       Redox Depressions (F8)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,         Sandy Gleyed Matrix (S6)       Piedmont Floodplain Soils (F19) (MLRA 148)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136)         Sandy Redox (S7)       Red Parent Material (F21) (MLRA 148)         Dark Surface (S7)       Red Parent Material (F21) (MLRA 148)         Bark Surface (S7)       Red Parent Material (F21) (MLRA 148)         Dark Surface (S7)       Red Parent Material (F21) (MLRA 148)         Type:       Type:         Type:       Depleted Dark Surface (F13) (MLRA 127, 147, 148)									
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.         Hydric Soil Indicators:       Indicators for Problematic Hydric Soils <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (MLRA 147, 148)         Histic Epipedon (A2)       Thin Dark Surface (S9) (MLRA 147, 148)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)         Stratified Layers (A5)       Depleted Matrix (F3)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)         Thick Dark Surface (A11)       Depleted Dark Surface (F7)         Thick Dark Surface (A12)       Redox Depressions (F8)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136)         Stripped Matrix (S6)       Piedmont Floodplain Soils (F19) (MLRA 148)         Dark Surface (S7)       Red Parent Material (F21) (unless)         Dark Surface (S7)       Red Parent Material (F21) (unless)         Type:       Red Parent Material (F21) (MLRA 148)         Dark Surface (S7)       Red Parent Material (F21) (MLRA 148)         Muck (Mineral (S6)       Piedmont Floodplain Soils (F19) (MLRA 148)         Dark Surface (S7)       Red Parent Material (F21) (MLRA 148)									
Hydric Soil Indicators:       Indicators:       Indicators for Problematic Hydric Soils <sup>3</sup> :         Histosol (A1)       Polyvalue Below Surface (S8) (MLRA 147, 148)       2 cm Muck (A10) (MLRA 147)         Histic Epipedon (A2)       Thin Dark Surface (S9) (MLRA 147, 148)       2 cm Muck (A10) (MLRA 147)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)       Coast Prairie Redox (A16)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       Redox Dark Surface (F6)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F7)       Red Parent Material (F21)         (outside MLRA 127, 147, 148)       Iron-Manganese Masses (F12) (LRR N,       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (MLRA 122, 136)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 127, 147, 148)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Type:       Type:       Indicators Soil Present?       Yes       No. X	<sup>1</sup> Type: C=Co	ncentration, D=Depl	etion, RM	=Reduced Matrix, N	∕IS=Mas	ked Sand	d Grains.	²Loca	ation: PL=Pore Lining, M=Matrix.
Histosol (A1)       Polyvalue Below Surface (S8) (MLRA 147, 148)       2 cm Muck (A10) (MLRA 147)         Histos Epipedon (A2)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)       (MLRA 147, 148)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Restrictive Layer (if observed):       Type:	Hydric Soil I	ndicators:						l	ndicators for Problematic Hydric Soils <sup>3</sup> :
Histic Epipedon (A2)       Thin Dark Surface (S9) (MLRA 147, 148)       Coast Prairie Redox (A16)         Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)       (MLRA 147, 148)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Restrictive Layer (if observed):       Type:	Histosol	(A1)		Polyvalue B	elow Su	face (S8	) (MLRA	147, 148)	2 cm Muck (A10) <b>(MLRA 147)</b>
Black Histic (A3)       Loamy Mucky Mineral (F1) (MLRA 136)       (MLRA 147, 148)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Restrictive Layer (if observed):       Type:	Histic Ep	ipedon (A2)		Thin Dark S	urface (S	59) <b>(MLR</b>	A 147, 14	48)	Coast Prairie Redox (A16)
Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Piedmont Floodplain Soils (F19)         Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Gleyed Matrix (S4)       MLRA 136)       Other (Explain in Remarks)         Stripped Matrix (S6)       Piedmont Floodplain Soils (F19) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Restrictive Layer (if observed):       Type:       Perth (inches):       Very Soil Present?       Yes       No. X	Black His	stic (A3)		Loamy Mucl	ky Miner	al (F1) <b>(N</b>	ILRA 136	6) <u> </u>	(MLRA 147, 148)
Stratified Layers (A5)       Depleted Matrix (F3)       (MLRA 136, 147)         2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Gleyed Matrix (S4)       MLRA 136)       Other (Explain in Remarks)         Stripped Matrix (S6)       Piedmont Floodplain Soils (F19) (MLRA 148)       wetland hydrology must be present,         Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.         Restrictive Layer (if observed):         Type:	Hydroger	n Sulfide (A4)		Loamy Gley	ed Matri	x (F2)			Piedmont Floodplain Soils (F19)
2 cm Muck (A10) (LRR N)       Redox Dark Surface (F6)       Red Parent Material (F21)         Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Gleyed Matrix (S4)       MLRA 136)       Other (Explain in Remarks)         Stripped Matrix (S6)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Restrictive Layer (if observed):       Type:	Stratified	Layers (A5)		Depleted Ma	atrix (F3)			_	(MLRA 136, 147)
Depleted Below Dark Surface (A11)       Depleted Dark Surface (F7)       (outside MLRA 127, 147, 148)         Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Gleyed Matrix (S4)       MLRA 136)       Other (Explain in Remarks)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.         Restrictive Layer (if observed):         Type:	2 cm Mu	ck (A10) (LRR N)		Redox Dark	Surface	(F6)			Red Parent Material (F21)
Thick Dark Surface (A12)       Redox Depressions (F8)       Very Shallow Dark Surface (F22)         Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Gleyed Matrix (S4)       MLRA 136)       Indicators of hydrophytic vegetation and         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136)       Indicators of hydrophytic vegetation and         Stripped Matrix (S6)       Piedmont Floodplain Soils (F19) (MLRA 148)       wetland hydrology must be present,         Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.         Type:         Denth (inches):       Hydric Soil Present?       Yes	Depleted	Below Dark Surface	e (A11)	Depleted Da	irk Surfa	ce (F7)		_	(outside MLRA 127, 147, 148)
Sandy Mucky Mineral (S1)       Iron-Manganese Masses (F12) (LRR N,       Other (Explain in Remarks)         Sandy Gleyed Matrix (S4)       MLRA 136) <sup>3</sup> Indicators of hydrophytic vegetation and         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation and         Stripped Matrix (S6)       Piedmont Floodplain Soils (F19) (MLRA 148)       wetland hydrology must be present,         Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.         Type:         Denth (inches):       Peeth (inches):	Thick Da	rk Surface (A12)	. ,	Redox Depr	essions	(F8)			Very Shallow Dark Surface (F22)
Sandy Gleyed Matrix (S4)       MLRA 136)         Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136)         Stripped Matrix (S6)       Piedmont Floodplain Soils (F19) (MLRA 148)         Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)         Restrictive Layer (if observed):       Type:         Denth (inches):       Hydric Soil Present?	Sandy M	ucky Mineral (S1)		Iron-Mangar	nese Ma	sses (F12	2) (LRR N	N, —	Other (Explain in Remarks)
Sandy Redox (S5)       Umbric Surface (F13) (MLRA 122, 136) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Stripped Matrix (S6)       Piedmont Floodplain Soils (F19) (MLRA 148)       wetland hydrology must be present, unless disturbed or problematic.         Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.         Restrictive Layer (if observed):       Type:	Sandy G	leyed Matrix (S4)		MLRA 13	6)		, .		
Stripped Matrix (S6)       Piedmont Floodplain Soils (F19) (MLRA 148)       wetland hydrology must be present, unless disturbed or problematic.         Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.         Restrictive Layer (if observed):       Type:	Sandy Re	edox (S5)		Umbric Surf	ace (F13	B) (MLRA	122, 136	5) <sup>3</sup>	Indicators of hydrophytic vegetation and
Dark Surface (S7)       Red Parent Material (F21) (MLRA 127, 147, 148)       unless disturbed or problematic.         Restrictive Layer (if observed):       Type:	Stripped	Matrix (S6)		Piedmont FI	oodplain	Soils (F	19) <b>(MLR</b>	A 148)	wetland hydrology must be present,
Restrictive Layer (if observed):       Type:       Depth (inches):	Dark Sur	face (S7)		Red Parent	Material	(F21) <b>(M</b>	LRA 127	, 147, 148)	unless disturbed or problematic.
Type:	Restrictive L	ayer (if observed):							
Depth (inches): Hydric Soil Present? Ves No X	Type:								
	Depth (in	ches):						Hydric Soil P	resent? Yes <u>No X</u>

Remarks:

Indicators of hydric soils are not present.

U.S. Army WETLAND DETERMINATION DATA SI See ERDC/EL TR-07-24; ti	U.S. Army Corps of Engineers ETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R								
Project/Site: Fleming Solar Project Applicant/Owner: Fleming Solar, LLC Investigator(s): DR	Project/Site:       Fleming Solar Project       City/County:       Fleming County         upplicant/Owner:       Fleming Solar, LLC       State:       KY         uvestigator(s):       DR       Section, Township, Range:       Flemingsburg         andform (hillside, terrace, etc.):       Valley       Local relief (concave, convex, none):       Concave								
Landform (hillside, terrace, etc.): Valley Subregion (LRR or MLRA): LRR N Soil Map Unit Name: Lowell-Faywood silt loa Are climatic / hydrologic conditions on the site Are Vegetation, Soil, or Hydro Are Vegetation, Soil, or Hydro SUMMARY OF FINDINGS – Attach	Local relief (concave, convex, non         Lat:       38.449596         Long:       #83.7         ams, 6 to 12 percent slopes         e typical for this time of year?       Yes         logy	concave         Slope (%):         1           7847588         Datum:         NAD 83           NWI classification:         N/A           No         X         (If no, explain in Remarks.)           mstances" present?         Yes         X           No         x         No							
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: This data sheet is representative of Feature of the delineation.	Yes       No       X       Is the Sampled Area within a Wetland?         Yes       X       No       within a Wetland?         24. The antecedent precipitation tool indicates that the area       No       No	Yes No X							
Wetland Hydrology Indicators:         Primary Indicators (minimum of one is required in the second	Set         Set	Condary 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)							
Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7 Water-Stained Leaves (B9) Aquatic Fauna (B13)	Other (Explain in Remarks)X )	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	Х	Depth (inches):				
Water Table Present?	Yes	Х	No		Depth (inches):	8			
Saturation Present?	Yes	Х	No		Depth (inches):	3	Wetland Hydrology Present?	Yes X N	lo
(includes capillary fringe)									
Describe Recorded Data (	stream g	auge, i	monitorin	ıg wel	l, aerial photos, prev	vious ins	pections), if available:		

Remarks:

Indicators of wetland hydrology are present. Saturation and water table are present due to recent precipitation and may not be indicators of long term hydrology.

Sampling Point: DP24-W

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1				Number of Dominant Species
2.				That Are OBL, FACW, or FAC: 1 (A)
3.				Total Number of Dominant
4				Species Across All Strata: 3 (B)
5				Percent of Dominant Species
6				That Are OBL, FACW, or FAC: <u>33.3%</u> (A/B)
7				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species 0 x 1 = 0
Sapling/Shrub Stratum (Plot size: 15 )				FACW species 60 x 2 = 120
1				FAC species X 3 = 90
2.				FACU species <u>50</u> x 4 = <u>200</u>
3.				UPL species <u>55</u> x 5 = <u>275</u>
4				Column Totals: <u>195</u> (A) <u>685</u> (B)
5				Prevalence Index = B/A = 3.51
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 <sup>1</sup>
		=Total Cover		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover:	20%	of total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5 )				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Xanthium strumarium	30	Yes	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be
2. Vernonia noveboracensis	25	No	FACW	present, unless disturbed or problematic.
3. Lamium amplexicaule	40	Yes	UPL	Definitions of Four Vegetation Strata:
4. Juncus effusus	10	No	FACW	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
5. Veronica persica	15	No	UPL	more in diameter at breast height (DBH), regardless of height
6. Dactylis glomerata	30	Yes	FACU	neight.
7. Phalaris arundinacea	25	No	FACW	Sapling/Shrub – Woody plants, excluding vines, less
8. Apocynum cannabinum	20	No	FACU	than 3 in. DBH and greater than or equal to 3.28 ft
9				
10				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 it tall.
	195	=Total Cover		<b>Woody Vine</b> – All woody vines greater than 3.28 ft in
50% of total cover: 98	20%	of total cover:	39	neight.
Woody Vine Stratum (Plot size: 30 )				
1				
2				
3.				
4.				
5				Hydrophytic
		=Total Cover		Vegetation
50% of total cover:	20%	of total cover:		Present? Yes <u>No X</u>
Remarks: (Include photo numbers here or on a separ	ate sheet.)			
Indicators of hydrophytic vegetation are present.				

Depth	Matrix		Redo	x Featur	es			
inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-6	7.5YR 4/3	95	7.5YR 4/6	5	С	М	Loamy/Clayey	Distinct redox concentrations
6-14	7.5YR 4/2	90	7.5YR 4/6	5	С	PL	Loamy/Clayey	Prominent redox concentrations
14-20	7.5YR 3/2	75	10YR 4/6	25	С	М	Loamy/Clayey	Prominent redox concentrations
Type: C=C	oncentration, D=Depl	etion, RM	I=Reduced Matrix, I	/IS=Mas	ked Sand	Grains.	<sup>2</sup> Locati	on: PL=Pore Lining, M=Matrix.
Iyaric Soli	Indicators:		Dehavelue P		faaa (60)		In(	alcators for Problematic Hydric Solis
	(A1)		Polyvalue B	elow Sur		(WILRA	147, 148)	_2 cm Muck (AT0) (MLRA 147)
	(A2)					A 147, 14	40 <i>)</i>	
Hydroge	an Sulfide ( $\Delta 4$ )		Loamy Glev	ed Matri	x (F2)		<i></i>	Piedmont Floodplain Soils (F19)
Stratified	d Lavers (A5)		Depleted M:	atrix (F3)	x (i 2)			(MLRA 136 147)
2 cm Mi	uck (A10) (LRR N)		Bedox Dark	Surface	(F6)			Red Parent Material (F21)
 Deplete	d Below Dark Surface	e (A11)	Depleted Da	rk Surfa	(F7)			(outside MLRA 127, 147, 148)
Thick Da	ark Surface (A12)	()	Redox Depr	essions	(F8)			Verv Shallow Dark Surface (F22)
Sandy N	/ucky Mineral (S1)		X Iron-Mangar	nese Ma	sses (F12	2) (LRR 1	N,	Other (Explain in Remarks)
Sandy G	Bleyed Matrix (S4)		MLRA 13	6)	,	<i>,</i> ,		_
Sandy F	Redox (S5)		Umbric Surf	ace (F13	B) (MLRA	122, 130	6) <sup>3</sup> ln	dicators of hydrophytic vegetation and
Stripped	Matrix (S6)		Piedmont Fl	oodplain	Soils (F	19) <b>(MLR</b>	A 148)	wetland hydrology must be present,
Dark Su	rface (S7)		Red Parent	Material	(F21) <b>(M</b>	LRA 127	, 147, 148)	unless disturbed or problematic.
estrictive	Layer (if observed):							
Type:								

Indicators of hydric soils are present; 5% manganese masses occuring in the 6-14 inch layer.



Appendix C Antecedent Precipitation Tool





Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation $\Delta$	Weighted $\Delta$	Days (Normal)	Days (Antecedent)
CAVE RUN LAKE	38.1228, -83.5328	839.895	26.101	99.895	14.353	11298	89
FLEMINGSBURG 2 N	38.4503, -83.7355	939.961	2.443	0.171	1.1	52	0
MAYSVILLE 6.8 SSE	38.5324, -83.7547	834.974	6.081	104.816	3.374	1	1
BLUE LICK SPRINGS	38.4233, -83.9983	609.908	11.903	329.882	9.283	2	0

F 20	eb )21 2	Mar Apr 2021 2021
ondition Value	Month Weight	Product
1	3	3
2	2	4
2	1	2
		Drier than Normal - 9





Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation $\Delta$	Weighted $\Delta$	Days (Normal)	Days (Antecedent)
CAVE RUN LAKE	38.1228, -83.5328	839.895	26.101	99.895	14.353	11298	89
FLEMINGSBURG 2 N	38.4503, -83.7355	939.961	2.443	0.171	1.1	52	0
MAYSVILLE 6.8 SSE	38.5324, -83.7547	834.974	6.081	104.816	3.374	1	1
BLUE LICK SPRINGS	38.4233, -83.9983	609.908	11.903	329.882	9.283	2	0

F 20	eb )21 2	Mar Apr 2021 2021
ondition Value	Month Weight	Product
1	3	3
2	2	4
2	1	2
		Drier than Normal - 9





Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation $\Delta$	Weighted $\Delta$	Days (Normal)	Days (Antecedent)
CAVE RUN LAKE	38.1228, -83.5328	839.895	26.101	99.895	14.353	11298	89
FLEMINGSBURG 2 N	38.4503, -83.7355	939.961	2.443	0.171	1.1	52	0
MAYSVILLE 6.8 SSE	38.5324, -83.7547	834.974	6.081	104.816	3.374	1	1
BLUE LICK SPRINGS	38.4233, -83.9983	609.908	11.903	329.882	9.283	2	0

F 20	eb )21 2	Mar Apr 2021 2021
ondition Value	Month Weight	Product
1	3	3
2	2	4
2	1	2
		Drier than Normal - 9





Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation $\Delta$	Weighted $\Delta$	Days (Normal)	Days (Antecedent)
CAVE RUN LAKE	38.1228, -83.5328	839.895	26.501	67.035	13.702	11298	89
FLEMINGSBURG 2 N	38.4503, -83.7355	939.961	2.835	33.031	1.369	52	0
MAYSVILLE 6.8 SSE	38.5324, -83.7547	834.974	5.973	71.956	3.118	1	1
BLUE LICK SPRINGS	38.4233, -83.9983	609.908	11.536	297.022	8.617	2	0

<ul> <li>Daily Total</li> <li>30-Day Rolling Total</li> <li>30-Year Normal Range</li> </ul>

202	1 2	2021 2021
ondition Value	Month Weight	Product
3	3	9
3	2	6
2	1	2
		Wetter than Normal - 17





Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation $\Delta$	Weighted $\Delta$	Days (Normal)	Days (Antecedent)
CAVE RUN LAKE	38.1228, -83.5328	839.895	26.501	67.035	13.702	11298	89
FLEMINGSBURG 2 N	38.4503, -83.7355	939.961	2.835	33.031	1.369	52	0
MAYSVILLE 6.8 SSE	38.5324, -83.7547	834.974	5.973	71.956	3.118	1	1
BLUE LICK SPRINGS	38.4233, -83.9983	609.908	11.536	297.022	8.618	2	0

Year Normal Range

202	1 2	2021 2021
ondition Value	Month Weight	Product
3	3	9
3	2	6
2	1	2
		Wetter than Normal - 17



Appendix D Historic Aerial Imagery






## **Protected Species Habitat Assessment**

Fleming Solar Project Fleming County, Kentucky

April 2021



Prepared for: Fleming Solar, LLC

Prepared by: Energy Renewal Partners, LLC 1221 S. Mopac Expressway, Suite 225 Austin, Texas 78746

April 28, 2021

Daniel Roberts Senior Biologist

Sean Maiti

Sean Martin Project Scientist



## **Table of Contents**

1.0	Executive Summary1
2.0	Introduction2
2.1	Purpose2
2.2	Project Background2
2.3	Regulatory Considerations2
3.0	Methodology4
3.1	Site-Specific Habitat Characterization
3.2	Species Accounts
4.0	Site-Specific Habitat Characterization5
4.1	Literature and Database Review5
4.2	Field Assessment
5.0	Species Accounts
5.1	IPaC Federally Listed Species7
5.1.1	Gray Bat ( <i>Myotis grisescens</i> )7
5.1.2	Indiana Bat ( <i>Myotis sodalis</i> )7
5.1.3	Northern Long-eared Bat (Myotis septentrionalis)8
5.1.4	Snuffbox Mussel ( <i>Epioblasma triquetra</i> )9
5.1.5	Running buffalo clover ( <i>Trifolium stoloniferum</i> )9
5.1.6	Short's goldenrod (Solidago shortii)9
5.2	State-listed Species10
5.3	Additional Federally Protected Species10
5.3.1	Fanshell (Cyprogenia stegaria)10
5.3.2	Northern riffleshell ( <i>Epioblasma rangiana</i> )10
5.3.3	Sheepnose (Plethobasus cyphyus)11
5.3.4	Bald Eagle (Haliaeetus leucocephalus)11
5.3.5	Golden Eagle (Aquila chrysaetos)11
6.0	Conclusion and Recommendations15
7.0	References17



## **Table of Contents Continued**

#### Tables

Table 1	USGS National Land Cover Database Categories Within Project Area
Table 2	State and Federally Protected Species Habitat Requirements and Investigation Findings

#### Figures

- Figure 1 Regional Topography
- Figure 2 Land Cover
- Figure 3 Desktop Findings

#### Appendices

- Appendix A USFWS Information for Planning and Consultation Resource List
- Appendix B KDFWR State Threatened, Endangered, and Special Concern Species
- Appendix C Photo Log



### 1.0 Executive Summary

Energy Renewal Partners, LLC (ERP) completed a protected species habitat assessment for the proposed Fleming Solar Project (the "Project") located approximately 0.4 miles northwest of the city of Flemingsburg, Kentucky, in northern Fleming County (the "Site" or "project area") (Figure 1). In preparation for development of the Project, Fleming Solar, LLC, on behalf of Core Solar LLC, requested that ERP perform an assessment to determine if habitat for state or federally protected species has the potential to occur within the project area and if that habitat is likely to support the presence of protected species. The objectives of this assessment included identifying, evaluating, and addressing potential impacts to species protected by state and/or federal regulations by determining the likely presence of preferred habitat for those species and the likelihood of their presence within the proposed project area.

Based on desktop database and literature review and field observations, the project area consists predominantly of cultivated cropland and pastureland, with small areas of fragmented deciduous and mixed forest, as well as low density residential and agricultural development (Figure 2). Roadways and electrical transmission and distribution infrastructure bisect the project area (Figure 3). No named streams are located within the project area, however, three (3) unnamed tributaries to Johnson Creek are located in the western portion, one (1) unnamed tributary to Town Branch is located in the southeastern portion, and one (1) unnamed tributary to Mill Creek is located within the northeastern portion of the Site.

Desktop review found that the Site includes habitat elements supportive of five (5) federally protected species: the Indiana bat (Myotis sodalis), northern long-eared bat ([NLEB], Myotis septentrionalis), snuffbox mussel (Epioblasma triquetra), golden eagle (Aquila chrysaetos), and running buffalo clover (Trifolium stoloniferum). While suitable habitat may exist onsite, there are no publicly available records of known populations of these species existing within or in close proximity to the project area. Potential foraging habitat exists onsite for the Indiana bat within forested stream corridors, upland and bottomland forests, forested wetlands, and along wooded edges of agriculture fields, pastures, and ponds. Potential summer roosting habitat is available onsite in living, dead, or dying trees that have regular sun exposure and where exfoliating bark allows the bats to roost between the bark and bole of the tree. Potential summer roosting habitat for the NLEB, including dead or living trees of various sizes, stumps, fences, barns, etc., with a consistent source of sun exposure, also exists onsite. Potential preferred habitat for the snuffbox mussel has the potential to occur onsite within perennial tributaries to Johnson Creek. The Site has the potential to provide marginal foraging habitat for the golden eagle, although this species is more likely to utilize higher quality offsite habitats associated with the Licking River located approximately eight (8) miles south-southwest of the project area as well as the Ohio River located approximately 12.2 miles north of the project area. Additionally, potential suitable habitat for the running buffalo clover may exist onsite within transitional vegetation zones areas where the plant community changes between open forest and prairie.



### 2.0 Introduction

### 2.1 Purpose

This report describes the results of the protected species habitat assessment completed for the Fleming Solar Project in the northern portion of Fleming County, Kentucky (Figure 1). In Kentucky, animal or plant species may be listed as threatened or endangered under the authority of state law and/or under the federal Endangered Species Act (ESA). Assessment objectives included identifying, evaluating, and addressing potential impacts to Kentucky natural resources of conservation concern by determining the likely presence of habitat for federal and/or state listed species and their potential presence within habitat observed within the project area.

### 2.2 Project Background

The Site consists of approximately 831 acres located in the northern portion of Fleming County approximately 0.4 miles northwest of the town of Flemingsburg, Kentucky (Figure 1). The Site is generally bound by the Kentucky Route 11 (KY 11, also known as Maysville Road) along the northeastern boundary and Kentucky Route (KY) 559 (also known as Convict Pike or Convict Hill Road) along the southern boundary. KY 1200 (also known as Helena Road) bisects the central portion of the Site, oriented southeast to northwest.

Most of the Site's acreage consists of cultivated cropland used for row crops, pastureland used for livestock grazing, and fragmented forested areas that are primarily located along fencerows, property lines, riparian zones, or adjacent to an abandoned railroad right-of-way. Several structures are located throughout the Site, including single-family rural residences and associated farming structures. The former Flemingsburg & Northern Railroad, a standard-gauge railroad abandoned in 1955, bisects the Site meandering northwest to southeast along the central project area. The Flemingsburg to Spurlock 138-kilovolt (kV) transmission line crosses the western portion of the Site, and an electric distribution line crosses the central portion towards the city of Flemingsburg (Figure 3).

Adjacent properties similarly consist of cultivated cropland, pastureland, and rural residences, and much of the Site directly abuts transportation corridors (KY 11, KY 559, KY 1200); some residential development adjacent to KY 559 and KY 1200 is located just outside project area boundaries (Figure 3).

The Site is being developed as a solar energy facility. Although the final design of the solar facility has not been completed, the Project will likely entail the installation of photovoltaic (PV) modules, inverters, an underground electrical collection system, internal project roads, security fencing, operation, and maintenance (O&M) structures, and temporary parking and laydown areas. Clearing of onsite vegetation and grading, if necessary, will occur before the installation of project infrastructure.

### 2.3 Regulatory Considerations

The federal ESA provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range and the conservation of the ecosystems on which they depend. The ESA is administered by the U.S. Fish and Wildlife Service (USFWS) for terrestrial and freshwater species and serves several functions, including authorizing the determination and listing of species as endangered or threatened and prohibiting unauthorized take, possession, sale, and transport of these species. The



ESA also authorizes the assessment of civil and criminal penalties for violations of the Act or regulations. Under the ESA, taking a listed species without a permit is unlawful. The definition of "take" under the ESA is "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." Within this regulation, the definition of the term "harm" includes significant modification or degradation of habitat. Additionally, federally listed plant species are not protected from "take" on private lands if there is no federal nexus.

The Migratory Bird Treaty Act (MBTA) protects more than 1,000 bird species that occur in the U.S. Under the MBTA, it is unlawful to take any migratory bird, or any part, nest, or egg of any such bird, unless a permit is acquired from the Secretary of the Interior. The definition of take under the MBTA matches that of the ESA. Per a recent revision to the MBTA, published January 5, 2021, incidental take of migratory birds is not considered to be in violation of the MBTA. Regulatory definitions determining if incidental take violates the MBTA can change with new federal administrations. Therefore, it is possible that liability for incidental take of migratory birds could be in flux with the new administration. The MBTA does not extend protection to game birds and non-native bird species of the U.S.

The Bald and Golden Eagle Protection Act (BGEPA) prohibits the unauthorized take of bald eagles and golden eagles, including their parts, nests, or eggs. The definition of take under the BGEPA varies slightly from the ESA and MBTA in that it includes restrictions on "disturbing" a bald or golden eagle. "Disturb" is defined as to agitate or bother a bald or golden eagle to the degree that causes, or is likely to cause, injury to an eagle, a decrease in its productivity, or nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior (USFWS 2018).

The Lacey Act was passed in 1900 and protects bald eagles by making it a federal offense to take, possess, transport, sell, import, or export their nests, eggs and parts that are taken in violation of any state, tribal or U.S. law. It also prohibits false records, labels, or identification of the wildlife shipped, prohibits importation of injurious species, and prohibits shipment of fish or wildlife in an inhumane manner.

Kentucky has no equivalent state law to the Federal ESA. The State monitors biodiversity and maintains a list of state endangered, threatened, and special concern species, but the state designations convey no legal protection for species which are only listed by the state and not listed by the federal ESA. The Kentucky legislature has authorized regulations pertaining to the management, regulation, and protection of endangered fish and wildlife listed within the federal ESA by the U.S. Department of the Interior. As outlined in Chapter 301 of the Kentucky Administrative Regulations (KAR) Chapter 3, Article 61, State law prohibits the import, transport, possession, sale or offer of endangered fish and wildlife listed within the federal ESA, or parts thereof without the issuance of a permit. The State defines endangered species as any species or subspecies listed as endangered within the federal ESA. Consequently, any animal or plant species that are only state listed (and not federally listed) do not pose a concern regarding Project development and are not discussed further herein.



### 3.0 Methodology

### 3.1 Site-Specific Habitat Characterization

ERP conducted a literature and database review to characterize the landcover, land use, and habitats which occur within the project area.

An ERP scientist reviewed available literature and relevant, supporting information, including the 2019 Elizaville, KY and 2019 Flemingsburg, KY 7.5-minute Series U.S. Geological Survey (USGS) Topographic Quadrangles (Figure 1), the USGS National Land Cover Database (NLCD) (Yang et al. 2018) (Figure 2), and representative aerial imagery (Figure 3). ERP personnel also reviewed the USGS National Hydrography Dataset (NHD), the USFWS National Wetlands Inventory (NWI) map, and the Federal Emergency Management Agency (FEMA) flood hazard data (Figure 3). ERP consulted these sources to assist in the characterization of landcover, land use, and habitat conditions present within the project area.

### **3.2** Species Accounts

ERP obtained information for Fleming County and the project area from the USFWS Information for Planning and Consultation (IPaC) Resource List (USFWS 2020a) (Appendix A) and the Kentucky Department of Fish and Wildlife Resources (KDFWR) Fleming County State Threatened, Endangered, and Special Concern Species list (KDFWR 2020) (Appendix B). These sources were used to determine which species should be considered in an effects analysis of the proposed Project.



### 4.0 Site-Specific Habitat Characterization

### 4.1 Literature and Database Review

The 2019 Elizaville, KY and 2019 Flemingsburg, KY 7.5-minute Series USGS Topographic Quadrangles depict areas of higher elevation within the central portions of the project area, near Helena Road. Johnson Creek bisects the central portion of the Site and flows west-northwest outside of the project area (Figure 1 and Figure 3). ERP reviewed the NWI and identified approximately nine (9) acres of wetlands within the Site boundary, composed of pond features utilized for livestock (approximately 3.9 acres), riverine wetlands consistent with NHD data and parallel with onsite drainages (4.8 acres), and less than 0.3 acres of freshwater palustrine emergent wetlands (Figure 3).

According to the USGS NLCD (Yang et al. 2018), the Site consists primarily of cultivated cropland and pasture/hay land cover, with fragmented areas of deciduous forest, mixed forest, and several natural drainages, and ponds (Figure 2). Developed open space, developed low intensity, medium intensity, and developed high intensity are depicted and are associated with KY 11 and KY 1200 (project area boundaries), KY 1200, and scattered residences and agricultural structures. A review of recent available aerial imagery generally confirms the land cover onsite (Google Earth 2016) (Figure 3). Table 1, below, categorizes the NLCD land uses within the project area by acreage and overall percent coverage.

Land Cover Type	Acres within Project Area	Percent of Project Area
Pasture/Hay	412.9	49.6
Cultivated Crops	371.6	44.8
Deciduous Forest	22.1	2.6
Developed, Open Space	11.7	1.5
Mixed Forest	10.1	1.3
Developed, Low Intensity	1.0	0.1
Open Water	0.7	0.1
Developed, Medium Intensity	0.1	0.0

 Table 1: USGS National Land Cover Database Categories Within Project Area

Source: USGS National Land Cover Database (Yang et al. 2018)

A review of the Protected Areas Database of the U.S. revealed no protected areas within the project area or within a five (5) mile radius of the project area. Immediately southeast of the project area, on the east side of KY 11, resides a golf course owned by Fleming County, a 9-hole public golf course in operation since 1965 (Fleming County Golf Association, n.d.), and the Fleming County Recreation Park is located approximately 0.5 mile east of the project area (City of Flemingsburg 2017).

According to the U.S. Environmental Protection Agency (EPA), the project area is within the Interior Plateau Level III Ecoregion (EPA 2020). The Interior Plateau is characterized as having hilly and rolling topography with areas of swampy, alluvial valleys, deeply entrenched rivers and streams, and expansive karst plains (The Nature Conservancy n.d.). The project area is underlain by the Bull Rock Formation, comprised of Ordovician-age shale and limestone (Kentucky Geological Survey 1971). Annual precipitation in nearby Maysville, Kentucky is 46.02 inches (U.S. Climate Data 2020).



#### 4.2 Field Assessment

Following the desktop review, two (2) qualified ERP scientists, Sean Martin and Daniel Roberts, conducted a field assessment within the project area on December 14-16, 2020 and on March 17 and 18, 2021. Weather conditions at the time of the December site visit included temperatures of approximately 24-39° Fahrenheit with mostly cloudy skies, light precipitation, and winds of approximately 0 to 16 miles per hour (Weather Underground 2020). Weather conditions at the time of the March site visit included temperatures of approximately 41-65° Fahrenheit with mostly cloudy skies, light precipitation, and winds of approximately 3 to 21 miles per hour (Weather Underground 2021).

ERP confirmed the project area consists of cultivated cropland used for row crops, pasture areas utilized for cattle grazing, and with fragmented deciduous and mixed forested areas. Several existing structures are located throughout the Site, including single-family rural residences and associated farming structures. Multiple ponds and drainages were identified within the project area. Photographs taken during the field assessment are included in Appendix C.



### 5.0 Species Accounts

The following are brief descriptions of protected species and their preferred habitats listed within the USFWS IPaC Resources List (USWFS 2020a) and KDFWR Fleming County State Threatened, Endangered, and Special Concern Species list (KDFWR 2020). Regarding federally listed species, species which are only federally listed (endangered, threated, proposed, or candidate) in the USFWS IPaC Official Species List were considered in an effects analysis; additional federally listed species were reviewed from the KDFWR county list. Kentucky law defines endangered species as any species or subspecies listed as endangered within the ESA. Consequently, any animal or plant species that are only state listed (and not federally listed) do not pose a concern regarding Project development and are not discussed further herein. A complete list of federal and state protected species reviewed is included in Appendix A and Appendix B, respectively.

Table 2 depicts each species described below and includes the species' state and/or federal listing, preferred habitat description, whether preferred habitat was observed onsite, and an effects determination.

### 5.1 IPaC Federally Listed Species

### 5.1.1 Gray Bat (Myotis grisescens)

The federal endangered gray bat is a cave obligate species and occupies caves year-round within limestone karst areas of the southeastern United States. During the summer, this species will occupy caves in close proximity to rivers and forage within large tracts of continuous, forested habitat utilizing river corridors to travel from roosting sites to foraging sites. During the winter, this species prefers deep, vertical caves with particular temperature ranges where they roost in large numbers (USFWS 2019a). Gray bats, restricted to caves or cave-like habitats with deep vertical passages, have been documented traveling as far as 26 miles from their colony to feed. Because of the specific roosting habitat of the gray bat, 95 percent of the known populations hibernate in less than 20 caves. Fleming County does not have these hibernaculum records nor maternity/reproductive records, but Rowan County approximately 15 miles to the southeast has maternity/reproductive records known to KDFWR (KDFWR 2017).

According to the IPaC Resource List, no critical habitat has been designated for this species (USWFS 2020a). The project area only contains narrow strips of riparian woodlands and is not connected to offsite large tracts of forest, due to similar agricultural uses on adjacent tracts outside of the Site. As the project area is comprised of small areas of fragmented forest, foraging habitat for the gray bat does not occur onsite. The project area is located within an ecoregion that is characterized as having expansive limestone karst plains, which can provide conditions suitable for caves. However, no known gray bat cave roosts are located within Fleming County, and it is unlikely a cave roost meeting the species' rare cave conditions requirements would be located onsite. Therefore, the species is unlikely to be located onsite.

#### 5.1.2 Indiana Bat (*Myotis sodalis*)

The federally endangered Indiana bat prefers habitat consisting of deciduous forests, typically near a river or stream where this species can easily travel from roosting sites to foraging sites. The Indiana bat roosts during the summer in living, dead, and dying trees under sloughing bark with consistent sun exposure.



Females roost in groups of up to 300 bats, while males roost individually or in small groups. Female Indiana bats have high roost fidelity, meaning they will return to the same primary roost tree each year. Indiana bats forage in forested stream corridors, upland and bottomland forests, forested wetlands, and along wooded edges of agriculture fields, pastures, and ponds. The Indiana bat migrates to hibernacula in the fall and hibernates during the winter in caves and mines in large clusters on cave ceilings. This species requires cool, humid hibernacula with stable temperatures (USFWS 2008).

According to the IPaC Resource List, final critical habitat has been designated, however, no critical habitat occurs within the project area (USWFS 2020a). The Office of Kentucky Nature Preserves provides spatial data depicting areas of known critical habitat (OKNP 2020). The database does not identify Fleming County to be a critical habitat area for the Indiana bat; however, the three counties directly to the east (Carter, Lewis, and Greenup) are designated as critical habitat areas for the Indiana bat by the USFWS (OKNP 2020). The boundary of Lewis County is approximately 7.4 miles northeast of the Site at the closest point and the boundary of Carter County (the next closest county with USFWS-designated critical habitat) is approximately 23.8 miles southeast of the Site. Areas within the project area that are depicted as being deciduous or mixed forest land cover adjacent to stream features constitute suitable roosting and foraging habitat for the Indiana bat (Figure 2).

#### 5.1.3 Northern Long-eared Bat (Myotis septentrionalis)

The federally threatened and state endangered NLEB, also known as the northern myotis, prefers habitat consisting of deciduous forests near riparian corridors where this species can easily travel from roosting sites to foraging sites. The NLEB selects for a variety of summer roosting structures including dead or living trees of various sizes, stumps, fences, barns, etc., all of which must have a consistent source of sun exposure. The NLEB hibernates throughout the winter in caves and abandoned mines of various sizes that must have constant temperatures, high humidity, and no air current (USFWS 2015).

The USFWS published a final 4(d) rule authorizing incidental take of the NLEB under specific circumstances. According to the final 4(d) rule, incidental take caused by tree removal outside a 0.25-mile radius of a known hibernacula and a 150-foot radius of known maternity roost trees during pup season (June 1 – July 31) is not prohibited without an Incidental Take Permit. However, on January 28, 2020, a district court remanded the USFWS's April 2015 decision to list the NLEB as threatened. According to this district court, the USFWS did not adequately explain why threats facing the NLEB warranted a listing as threatened rather than endangered. The district court did not vacate the threatened listing and 4(d) rule. Therefore, the NLEB remains federally listed as threatened with the 4(d) rule in place until the USFWS reconsiders and provides more evidence for a new listing determination (United States District Court for the District of Columbia, 2020). It is possible that the USFWS will relist the NLEB as endangered in the near future. The timeline of the new listing decision is unknown.

The USFWS's Kentucky Ecological Services Field Office (KYFO) has incorporated site-specific information for NLEB hibernacula and maternity roost tree locations into the IPaC database. The IPaC Resource List does not indicate that the Project is located within 0.25 mile of a known northern long-eared bat hibernaculum or within 150 feet of a known maternity roost tree. The project area includes suitable roosting and foraging areas for the NLEB, including barn structures and forested areas near streams



located throughout the project area. Potential roosting and foraging habitat has the potential to occur onsite, and therefore, this species may occur onsite.

### 5.1.4 Snuffbox Mussel (Epioblasma triquetra)

The federal and state endangered snuffbox is a freshwater mussel which prefers habitat consisting of small- to medium-sized streams with a swift current and gravel, sand, and cobble substrates. Additionally, this species will occasionally occur within large lakes and rivers (USFWS 2019b).

A tributary to Johnson Creek with a likely perennial (year-round) flow regime is located within the northcentral portion of the project area containing segments with gravel, sand, and cobble substrate that could potentially serve as habitat for the snuffbox mussel. Therefore, it is possible that this species occurs onsite.

### 5.1.5 Running buffalo clover (*Trifolium stoloniferum*)

The running buffalo clover (*Trifolium stoloniferum*) is a federally endangered, perennial, herbaceous plant with leaves divided into three (3) leaflets, one (1)-inch wide white flowers blooming in late spring and early summer. The species occurs in rich soils in the transition zone between open forest and prairie, and this species depends on disturbance events to disperse seeds and create open habitat. With the absence of bison and habitat loss and fragmentation, it now most commonly occurs in mowed areas (lawns, cemeteries, and parks), along streams and trails, and in partially shaded open areas (USFWS 2019e).

The project area contains numerous unnamed drainages to Johnson Creek, Mill Creek, and Town Branch that each contain narrow riparian woodland areas that abut open pastures. Therefore, small areas containing transition zones between forest and open prairies, as well as partially shaded open areas, which provide optimal habitat for the running buffalo clover may exist onsite.

#### 5.1.6 Short's goldenrod (Solidago shortii)

A member of the sunflower family, Short's goldenrod is a federally endangered plant species typically about two (2) feet tall with bright yellow flowers blooming from August to October, and occurs in a variety of dry, mostly open habitats with clayey soils and occasional natural disturbances, like grazing, trampling by bison, deer and elk, and wildfire (USFWS 2012).

No critical habitat has been designated by USFWS for this species, however, short's goldenrod occurs in only two (2) known populations in Kentucky and Indiana. The first is found in a two (2)-square mile radius in and around Blue Licks Battlefield State Park approximately 11.3 miles west of the project area, at the conjunction of Fleming, Nicholas, and Robertson counties along the Licking River (USFWS 2012). The second occurs within a 210-acre preserve outside of the Blue Licks Battlefield State Park, the Short's Goldenrod State Nature Preserve, which has been protecting this eastern population since 2004 (Commonwealth of Kentucky 2019). The distance between this known population of short's goldenrod and the project area would make any natural establishment of the species onsite unlikely, and the lack of clayey soils within the Site, which is comprised almost exclusively of silt loams, would furthermore make it unlikely that the species would successfully propagate within the project area boundaries. Therefore, the short's goldenrod is not anticipated to occur within the project area.



### 5.2 State-listed Species

Kentucky has no equivalent state law to the federal ESA. The State monitors biodiversity and maintains a list of state endangered, threatened, and special concern species, but the state designations convey no legal protection to species which are only listed by the state and not listed by the federal ESA. As such, a list of state endangered, threatened, and special concern species known to occur in Fleming County is attached (Appendix B) and additional species listed under the federal ESA, but not included in the IPaC Resource list, are described in Section 5.3 below.

### 5.3 Additional Federally Protected Species

The sections below detail species that are federally listed under the ESA but were not included in the IPaC Resource list; their potential occurrences within the project area were provided by KDFWR, or in the case of the bald eagle (Section 5.3.4) and golden eagle (Section 5.3.5), they are protected under the BGEPA.

### 5.3.1 Fanshell (Cyprogenia stegaria)

The KDFWR Fleming County List of State Threatened, Endangered, and Special Concern Species includes the fanshell as both state and federally endangered. This species prefers habitat consisting of medium to large-sized rivers, primarily found in relatively deep water with gravel substrate and moderate current (KDFWR 2019).

Fanshell mussels historically occurred in the Ohio River and many of its large tributaries from Pennsylvania to Alabama, including those within Kentucky (KDFWR 2019). According to the KDFWR, it is believed the only viable reproducing populations of fanshell mussels within Kentucky exist in the Green River within Hart and Edmonson counties, and the Licking River within Kenton, Campbell, and Pendleton counties. Johnson Creek serves as a tributary to the Licking River, but its confluence exists along the Harrison/Robertson county line; with its tributaries within the project area nearing their headwaters, they would not sustain the necessary depth and flow for the fanshell mussel to occur. Therefore, this species is not anticipated to occur onsite.

### 5.3.2 Northern riffleshell (Epioblasma rangiana)

The KDFWR Fleming County List of State Threatened, Endangered and Special Concern Species includes the northern riffleshell as being both federally and state endangered. This species, only found in approximately five (5) percent of its original habitat largely due to the construction of reservoirs, is known to occur in large streams and small rivers, with firmly packed sand or gravel of riffle areas, as well as in Lake Erie. It requires a stable environment with sufficient populations of host fish to complete the mussel's larval development (USFWS 2019c).

According to the USFWS Midwest Region Ohio Field Office (USFWS 2019c), the only remaining habitat for the northern riffleshell within Kentucky is within certain short stretches of the Green River, a separate watershed more than 80 miles to the southwest. Therefore, the northern riffleshell is not anticipated to occur onsite.



### 5.3.3 Sheepnose (*Plethobasus cyphyus*)

The KDFWR Fleming County List of State Threatened, Endangered and Special Concern Species includes the sheepnose as being both federally and state endangered. Found across the Midwest and Southeast, it is now only found in a third of the original number of streams (25 of 76) in which it was historically known. The sheepnose prefers larger rivers and streams, in shallower areas with moderate to swift currents flowing over coarse sand and gravel. Being suspension feeders, sheepnose mussels require consistent water to siphon and feed on algae, bacteria, detritus, and microscopic animals, and they depend on fish to move up or downstream (USFWS 2019d).

Although small perennial, intermittent and ephemeral tributaries exist within the project area, these waterways do not contain the volume or consistency of flow regime to support habitat or sufficient food and reproductive opportunities for the sheepnose mussel, and it is not anticipated to occur onsite.

### 5.3.4 Bald Eagle (Haliaeetus leucocephalus)

Bald eagles are federally protected under the BGEPA, MBTA, and are listed as state threatened. The bald eagle utilizes large, super-canopy trees located in close proximity to rivers, lakes, marshes, or other large waterbodies where fish are abundant. The bald eagle is an opportunistic forager and will consume carrion of fish, birds, and mammals. The bald eagle prefers large trees that provide high perches used to locate prey and provide branches that afford the strength required to support the weight of their nest. Bald eagles are known to reuse their nests year after year, especially if the parents successfully raise young from that nest and prey density remains static (USFWS 2020b).

According to the eBird database, the nearest observation of the bald eagle was in February 2017 approximately 5.8 miles southeast of the project area (eBird 2020). There are no large lakes or rivers within the project area, or immediately adjacent to it, that could provide optimal nesting or foraging habitat for the bald eagle. Additionally, this species is more likely to utilize higher quality offsite habitats associated with the Licking River located approximately eight (8) miles south-southwest of the project area, the Ohio River located approximately 12.2 miles north of the project area, and dense forested areas located approximately five (5) miles west and six (6) miles east of the Site. Therefore, it is unlikely that this species will utilize the Site.

### 5.3.5 Golden Eagle (Aquila chrysaetos)

The golden eagle is protected under the BGEPA, MBTA, and Lacey Act. This species can be found in habitats consisting of grassland, forests, brushlands, and arid deserts. The golden eagle prefers to forage in open habitat where it can easily hunt for small to mid-sized animals including reptiles, birds, and mammals. This species prefers nesting habitat consisting of large trees within forest stands and cliffs that provide an unobstructed view of the surrounding habitat (USFWS 2011).

According to the eBird database, the nearest observation of the golden eagle occurred approximately 12.5 miles north-northeast of the project area in December 2016, on the Ohio side of the Ohio-Kentucky border, across the Ohio River (eBird 2020). Uncommon in Kentucky compared to bald eagles, golden eagles do migrate through and winter in Kentucky; the species is not known to occur within Fleming County during the breeding season and there are no known current or historic breeding sites for the



golden eagle within Kentucky (KDFWR n.d.). Therefore, suitable nesting habitat does not occur onsite. Marginally suitable foraging habitat may occur within the open, cultivated cropland areas of the project area, as well as its pasture areas. This species is more likely to utilize higher quality habitats associated with the Licking River located approximately eight (8) miles south-southwest of the project area, the Ohio River located approximately 12.2 miles north of the project area, however, marginal foraging habitat has the potential to exist onsite.



### Table 2: State and Federally Protected Species Habitat Requirements and Investigation Findings

Common Name (Scientific Name)	Federal Status	State Status	Preferred Habitat Description	Preferred Habitat Observed Onsite?	Effects Determination <sup>1</sup> (Federally listed Species Only)	
Gray Bat (Myotis grisescens)	Endangered	-	Inhabit caves year-round; large, forages in continuous tracts of deciduous forest near rivers	No	No Effect	
Indiana Bat ( <i>Myotis sodalis</i> )	Endangered	-	During the winter hibernates in cool, humid caves; summer roosts in wooded areas under loose tree bark or in dead or dying trees		May affect, but not likely to adversely affect	
Northern Long-eared Bat (Myotis septentrionalis)	Threatened	Endangered	Hibernates in caves and mines during the winter; roosts in dead or living trees of various sizes, stumps, fences, barns in the summer	es in caves and mines during ; roosts in dead or living trees sizes, stumps, fences, barns in the summer foraging		
Snuffbox Mussel (Epioblasma triquetra)	Endangered	Endangered	Inhabit small- to medium-sized creeks with a swift current with sand, gravel, or cobble substrates	Yes	May affect, but not likely to adversely affect	
Fanshell (Cyprogenia stegaria)	Endangered	Endangered	Medium- to large-sized rivers with gravel substrates, relatively deep water with moderate current	No	No Effect	
Northern riffleshell (Epioblasma rangiana)	Endangered	Endangered	Large streams and small rivers, with firmly packed sand or gravel of riffle areas	No	No Effect	
Sheepnose (Plethobasus cyphyus)	Endangered	Endangered	Larger rivers and streams, in shallower areas with moderate to swift currents flowing over coarse sand and gravel	No	No Effect	



Common Name (Scientific Name)	Common NameFederalScientific Name)Status		Preferred Habitat Description	Preferred Habitat Observed Onsite?	Effects Determination <sup>1</sup> (Federally listed Species Only)
Bald Eagle (Haliaeetus leucocephalus)	BEGPA	Threatened	Large, super-canopy trees located in close proximity to rivers, lakes, marshes or other large waterbodies	No	-
Golden Eagle (Aquila chrysaetos)	BGEPA	-	Grassland, forests, brushlands, and arid deserts; nesting habitat consisting of large trees within dense forest stands and cliffs	Yes; potential foraging	-
Running buffalo clover ( <i>Trifolium stoloniferum</i> )	Endangered	-	Ecotone between forest and open prairies; not overly sunny or canopied; areas prone to natural disturbance	Yes	May affect, but not likely to adversely affect
Short's goldenrod (Solidago shortii)	Endangered	-	Clayey soils, in open sunny areas prone to natural disturbance	No	No Effect

1. In an effects analysis of the Project, the following terms, used by the USFWS, were employed for species listed under the ESA:

• "No Effect"- no impacts, positive or negative, to listed or proposed resources

• "May affect, but not likely to adversely affect"- all effects are beneficial, insignificant, or discountable

• "May affect, and is likely to adversely affect"- listed resources are likely to be exposed to the action or its environmental consequences and will respond in a negative manner to the exposure



### 6.0 Conclusion and Recommendations

For this Protected Species Habitat Assessment for the Fleming Solar Project, ERP conducted a desktop database and literature review as well as a site visit to assess the habitat types present within the project area and determine if preferred habitat for federally protected species exists onsite.

ERP conducted a review of the Site for protected species and their respective habitats and concluded that the Site has the potential to provide suitable habitat for federally protected species (Table 2). The Site consists primarily of cultivated cropland, open pastures used for livestock grazing, and with small areas of fragmented forests throughout the project area. Tributaries to Johnson Creek bisect the central portions of the Site.

ERP found that the Site provides suitable habitat for five (5) federally protected species: the Indiana bat, NLEB, snuffbox mussel, golden eagle, and running buffalo clover. The project area is located within an ecoregion that is characterized as having expansive limestone karst plains, which can provide conditions suitable for caves. However, no known gray bat cave roosts are located within Fleming County, and it is unlikely a cave roost meeting the species' rare cave conditions requirements would be located onsite. Therefore, the species is unlikely to be located onsite. The fragmented forested areas within the project area provide potential suitable habitat for the Indiana bat and NLEB, while small perennial portions to Johnson Creek, near the north-central portion of the Site, may provide suitable habitat for the snuffbox mussel. The Site has the potential to provide marginal foraging habitat for the golden eagle, although this species is more likely to utilize higher quality habitats associated with Licking River located approximately eight (8) miles south-southwest of the project area, and the Ohio River located approximately 12.2 miles north of the project area. Additionally, fringe areas of forest-prairie transition zones, where riparian woodlands along natural drainages abut open pastures, and other partially shaded, open areas may exist that would provide suitable habitat for the running buffalo clover.

The federally and state endangered Indiana bat and the federally threatened and state endangered NLEB have the potential to occur onsite. ERP recommends implementing best management practices (BMPs) during design, construction, and operations to reduce the likelihood of impacting these species. BMPs for protected bats include avoidance of tree clearing, if possible, and clearing trees outside of the bat maternity season (May 15 – August 15). If tree clearing during the maternity season cannot be avoided, ERP recommends completing presence/absence surveys to determine if these species are present or likely absent from the project area.

The federal and state endangered snuffbox mussel has the potential to occur onsite. ERP recommends implementing BMPs that include developing sediment and erosion control plans for construction that will prevent sedimentation into onsite and offsite aquatic features that may provide habitat for these protected species.

The Site also has the potential to provide habitat for avian species protected under the MBTA. BMPs to protect these species include clearing vegetation outside of their primary nesting season, which occurs March through August. If tree clearing during the primary nesting season cannot be avoided, ERP recommends completing a survey for active nests prior to clearing.



ERP recommends coordinating with the USFWS and the KDFWR to obtain concurrence with the onsite habitat assessment.



### 7.0 References

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FIGURES









Appendix A USFWS Information for Planning and Consultation Resource List

# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section. ONSUL

## Location

Fleming County, Kentucky Fieminosburg

# Local office

Kentucky Ecological Services Field Office

**\$** (502) 695-0468 (502) 695-1024

| C Watts Federal Building, Room 265 330 West Broadway Frankfort, KY 40601-8670

http://www.fws.gov/frankfort/

# Endangered species

# This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

- 1. Draw the project location and click CONTINUE.
- 2. Click DEFINE PROJECT.
- 3. Log in (if directed to do so).
- 4. Provide a name and description for your project.
- 5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the <u>Ecological Services Program</u> of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact <u>NOAA Fisheries</u> for <u>species under their jurisdiction</u>.

- Species listed under the <u>Endangered Species Act</u> are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the <u>listing status page</u> for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
- 2. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

# Mammals

NAME

### Gray Bat Myotis grisescens

Wherever found

This species only needs to be considered if the following condition applies:

• The project area includes potential gray bat habitat.

No critical habitat has been designated for this species. <u>https://ecos.fws.gov/ecp/species/6329</u>

### Indiana Bat Myotis sodalis

Wherever found

This species only needs to be considered if the following condition applies:

• The project area includes 'potential' habitat. All activities in this location should consider possible effects to this species.

There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/5949

### Northern Long-eared Bat Myotis septentrionalis

Wherever found

This species only needs to be considered if the following condition applies:

• The specified area includes areas in which incidental take would not be prohibited under the 4(d) rule. For reporting purposes, please use the "streamlined consultation form," linked to in the "general project design guidelines" for the species.

No critical habitat has been designated for this species. <u>https://ecos.fws.gov/ecp/species/9045</u>

## Clams

NAME

Snuffbox Mussel Epioblasma triquetra

Wherever found

No critical habitat has been designated for this species. <u>https://ecos.fws.gov/ecp/species/4135</u>

# **Flowering Plants**

NAME

Running Buffalo Clover Trifolium stoloniferum No critical habitat has been designated for this species. <u>https://ecos.fws.gov/ecp/species/2529</u> Endangered

Endangered

Threatened

V/

STATUS

Endangered

STATUS

Endangered

Endangered

Short's Goldenrod Solidago shortii Wherever found No critical habitat has been designated for this species. <u>https://ecos.fws.gov/ecp/species/5367</u>

# **Critical habitats**

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

# Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described <u>below</u>.

- 1. The <u>Migratory Birds Treaty Act</u> of 1918.
- 2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <u>http://www.fws.gov/birds/management/managed-species/</u> <u>birds-of-conservation-concern.php</u>
- Measures for avoiding and minimizing impacts to birds <u>http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/</u> <u>conservation-measures.php</u>
- Nationwide conservation measures for birds <u>http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf</u>

The birds listed below are birds of particular concern either because they occur on the <u>USFWS Birds</u> of <u>Conservation Concern</u> (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ <u>below</u>. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the <u>E-bird data mapping tool</u> (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found <u>below</u>.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Breeds elsewhere

Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9679</u>

# **Probability of Presence Summary**

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

- 1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
- 2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any

week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

### No Data (–)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

			pro	bability o	of presen	ce 📕 b	reeding	season	survey	effort	— no data
SPECIES	JAN	FEB	MAR APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Lesser Yellowlegs BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)	5	F	3	- 8				8			

#### Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

<u>Nationwide Conservation Measures</u> describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. <u>Additional measures</u> or <u>permits</u> may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

### What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS <u>Birds of Conservation Concern (BCC)</u> and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the <u>Avian Knowledge Network</u> (<u>AKN</u>). The AKN data is based on a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen science datasets</u> and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (<u>Eagle Act</u> requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the <u>AKN Phenology Tool</u>.

# What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the <u>Avian Knowledge Network (AKN)</u>. This data is derived from a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen</u> <u>science datasets</u>.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

### How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: <u>The Cornell Lab of Ornithology All About Birds Bird Guide</u>, or (if you are unsuccessful in locating the bird of interest there), the <u>Cornell Lab of Ornithology Neotropical Birds</u> <u>guide</u>. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

- 1. "BCC Rangewide" birds are <u>Birds of Conservation Concern</u> (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
- 2. "BCC BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
- 3. "Non-BCC Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the <u>Eagle Act</u> requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

#### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the <u>Northeast Ocean Data Portal</u>. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the <u>NOAA NCCOS</u> <u>Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf</u> project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the <u>Diving Bird Study</u> and the <u>nanotag studies</u> or contact <u>Caleb Spiegel</u> or <u>Pam</u> <u>Loring</u>.

#### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to <u>obtain a permit</u> to avoid violating the Eagle Act should such impacts occur.

#### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

# Facilities

# National Wildlife Refuge lands

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

# Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

# Wetlands in the National Wetlands Inventory
Impacts to <u>NWI wetlands</u> and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local <u>U.S. Army Corps of</u> <u>Engineers District</u>.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND
PEM1Fh
FRESHWATER POND

<u>PUBHh</u>

RIVERINE

R5UBH R4SBC

A full description for each wetland code can be found at the National Wetlands Inventory website

### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal,

### 4/1/2021

### IPaC: Explore Location resources

state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOTFORCONSULTATION

https://ecos.fws.gov/ipac/location/FWEVPLOICFEBTMSY3PA57KIQWY/resources#endangered-species



Appendix B KDFWR State Threatened, Endangered, and Special Concern Species



## State Threatened, Endangered, and Special Concern Species observations for selected counties

Linked life history provided courtesy of NatureServe Explorer . **Records may include both recent and historical observations.** US Status Definitions Kentucky Status Definitions

List State Threatened, Endangered, and Special Concern Species observations in 1 selected county. Selected county is: Fleming.

Scientific Name and Life History	Common Name and Pictures	Class	County	US Status	KY Status	WAP	Reference
Accipiter striatus	Sharp-shinned Hawk	Aves	Fleming	N	S	Yes	Reference
Alasmidonta marginata	Elktoe	Bivalvia	Fleming	Ν	т	Yes	Reference
Circus hudsonius	Northern Harrier	Aves	Fleming	Ν	Т	Yes	Reference
Cryptobranchus alleganiensis alleganiensis	Eastern Hellbender	Amphibia	Fleming	N	E	Yes	Reference
Cyprogenia stegaria	Fanshell	Bivalvia	Fleming	E	E	Yes	Reference
Dryobius sexnotatus	Sixbanded Longhorn Beetle	Insecta	Fleming	N	т		Reference
Epioblasma rangiana	Northern Riffleshell	Bivalvia	Fleming	E	E	Yes	Reference
Epioblasma triquetra	Snuffbox	Bivalvia	Fleming	E	E	Yes	Reference
Fulica americana	American Coot	Aves	Fleming	Ν	E		Reference
Junco hyemalis	Dark-eyed Junco	Aves	Fleming	Ν	S		Reference
Mustela nivalis	Least Weasel	Mammalia	Fleming	N	S		Reference
Myotis septentrionalis	Northern Myotis	Mammalia	Fleming	Т	E		Reference
Noturus stigmosus	Northern Madtom	Actinopterygii	Fleming	Ν	S	Yes	Reference
Phalacrocorax auritus	Double-crested Cormorant	Aves	Fleming	N	т		Reference

Plethobasus cyphyus	Sheepnose	Bivalvia	Fleming	E	E	Yes	Reference
Rana pipiens	Northern Leopard Frog	Amphibia	Fleming	Ν	S	Yes	Reference
Spatula clypeata	Northern Shoveler	Aves	Fleming	Ν	E		Reference
Spatula discors	Blue-winged Teal	Aves	Fleming	N	т		Reference
Tyto alba	Barn Owl	Aves	Fleming	N	S	Yes	Reference
Ursus americanus	American Black Bear	Mammalia	Fleming	Ν	S	Yes	Reference

20 species are listed



Appendix C Photo Log



**Photo 1:** View of undulating fallow corn fields and large pond, with riparian vegetation surrounding drainages in the northern portion of the project area, facing south.



**Photo 2:** View looking north of a tributary to Johnson Creek within the project area, flowing north.



Fleming Solar, LLC Fleming Solar Project Photo Log Location: Fleming County, KY



**Photo 3:** View of a fallow corn field and barn along the project area's western boundary.



**Photo 4:** View of a NWI wetland located within a large swale in the southern portion of the project area, looking south.



Fleming Solar, LLC Fleming Solar Project Photo Log Location: Fleming County, KY



**Photo 5:** View of a pond located adjacent to residential and agricultural structures in the north-central portion of the project area.



**Photo 6:** View of a now-overgrown railroad berm within the project area, crossing the Site from southeast to northwest; photo taken in the southeastern portion.



Fleming Solar, LLC Fleming Solar Project Photo Log Location: Fleming County, KY



**Photo 7:** View of general onsite cattle pasture, with residential and agricultural infrastructure in the background. View in the southwestern portion of the project area, facing west.



**Photo 8:** View of riparian woodlands surrounding an unnamed drainage in the southeastern portion of the project area.



Fleming Solar, LLC Fleming Solar Project Photo Log Location: Fleming County, KY



**Photo 9:** View of a tributary to Johnson Creek located within the eastern portion of the project area, facing upstream (east).



**Photo 10:** View of a NWI wetland complex in the north-central portion of the project area, facing southeast.



Fleming Solar, LLC Fleming Solar Project Photo Log Location: Fleming County, KY



**Photo 11:** Typical view of western most project area with riparian forest, facing west.



Photo 12: View of a western most project area, facing north.



Fleming Solar, LLC Fleming Solar Project Photo Log Location: Fleming County, KY



# United States Department of the Interior

FISH AND WILDLIFE SERVICE Kentucky Ecological Services Field Office 330 West Broadway, Suite 265 Frankfort, Kentucky 40601 (502) 695-0468

July 9, 2021

Sean Martin Energy Renewal Partners, LLC 1221 S. Mopac Expressway, Suite 225 Austin, Texas 78746

Subject: FWS 2021-B-0341; Fleming Solar Project; Fleming County, Kentucky

Dear Sean Martin:

The U.S. Fish and Wildlife Service's Kentucky Field Office (KFO) has reviewed the abovereferenced project information received by our office on May 18, 2021. The Fleming Solar Project proposes to develop a solar farm on 831 acres in Fleming County, Kentucky. Based on the information provided, the KFO offers the following comments.

## **Project Description**

The final design of the solar facility has not been completed; however, the project will likely involve the installation of photovoltaic modules, inverters, an underground electrical collection system, internal project roads, security fencing, operation and maintenance structures, and temporary parking and laydown areas. The project area primarily consist of cultivated cropland, pasture, and fragmented forested areas. Clearing of onsite vegetation and grading, if necessary, will occur before the installation of project infrastructure. At this time, the project is a private commercial development and may or may not require federal permitting. If the final project involves a federal action, consultation under section 7 of the Endangered Species Act will be required. If there is no federal action, the applicant must evaluate the project and determine if it is likely to result in prohibited take of a federally listed species. Guidance on making this determination can be found in the <u>2018 Guidance Memo</u>. Additionally, the KFO stands ready to provide additional assistance as requested.

## **Federally Listed Species**

On behalf of Fleming Solar, LLC (Fleming Solar), Energy Renewal Partners, LLC (ERP) evaluated the potential for the project to affect the gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), Snuffbox (*Epioblasma triquetra*), Fanshell (*Cyprogenia stegaria*), Northern Riffleshell (*Epioblasma torulosa rangiana*), Sheepnose (*Plethobasus cyphyus*), Short's goldenrod (*Solidago shortii*), and running buffalo clover (*Trifolium stoloniferum*).

<u>Gray Bat (*Myotis grisescens*)</u>: The Protected Species Habitat Assessment (assessment) included with the submittal states that gray bats are unlikely to occur within the project area because no known gray bat cave roosts are located within Fleming County, and it is unlikely a cave roost meeting the species' rare cave conditions requirements occur onsite. However, the assessment also states that the project area is located within an ecoregion that is characterized as having expansive limestone karst plains, which can provide conditions suitable for caves. Therefore, we recommend that that applicant survey the site to determine if caves or cave-like features that could be used as gray bat summer or winter roosts occur within the project area.

<u>Indiana Bat and Northern Long-eared Bat (NLEB)</u>: The proposed project occurs in "potential" habitat for both species. As stated in the assessment, the project area is located within an ecoregion that is characterized as having expansive limestone karst plains, which can provide conditions suitable for caves. Therefore, we recommend that that applicant survey the site to determine if caves or cave-like features occur within the project area that could be uses as Indiana bat or NLEB winter roosts. The assessment determined that forested habitat onsite is suitable Indiana bat and NLEB roosting and foraging habitat and may need to be removed.

The assessment states that if trees need to be removed, they will be removed during the unoccupied timeframe (October 15 to March 31) to avoid impacts to the Indiana bat and NLEB. However, adverse effects to these species could still occur if roosting, foraging, and commuting habitat is modified/degraded to an extent that results in significant impairment of behavioral patterns. If the proposed project will involve the removal of suitable Indiana bat or NLEB habitat, we recommend coordinating with our office regarding options to address potential adverse effects to these species.

<u>Snuffbox</u>: ERP has determined that one unnamed tributary within the project area has the potential to support the Snuffbox. In the assessment, ERP recommends that Fleming Solar implement Best Management Practices (BMPs) to avoid potential impacts to the Snuffbox. At this time, it is unclear if stream impacts are proposed. Therefore, we recommend providing our office with an evaluation of potential aquatic impacts that could occur within the project area and additional information regarding the design and implementation of BMPs for additional review.

<u>Fanshell, Sheepnose, and Northern Riffleshell</u>: ERP has determined that the three unnamed tributaries within the project area do not provide the size or flow regime necessary to support the Fanshell, Sheepnose, and Northern Riffleshell. Because these species typically inhabit larger streams and rivers and the streams within the project area are small, we agree that these species are not likely to be present within the project area.

<u>Short's Goldenrod</u>: There are no prohibitions on impacting plants as a result of nonfederal projects on private land. According to the assessment, Short's goldenrod is unlikely to occur within the project area due to the distance from the nearest known location (11.3 miles) and lack of clay soils within the project area. However, the KFO believes that given the size of the project area and significant amount of open area within the project area, the species could be present. If the proposed project does have a federal nexus in the future, we recommend a more extensive habitat assessment and/or species survey to determine the likelihood of the project impacting this species.

<u>Running Buffalo Clover (RBC)</u>: There are no prohibitions on impacting plants as a result of nonfederal projects on private land. According to the assessment, the project area contains "optimal" RBC habitat. We recommend that Fleming Solar avoid impacts to these areas, if feasible. If these areas cannot be avoided and the project does have a federal nexus in the future, we recommend a more extensive habitat assessment and/or species survey to determine the likelihood of the project impacting this species.

### The Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the take of bird species listed under the four international migratory bird treaties signed by the U.S. (50 CFR 10.13). Your correspondence indicates that the project proponent intends to avoid and/or minimize impacts to migratory birds. The KFO appreciates your commitment to protect migratory birds and has no additional comment regarding the MBTA.

### **Pollinator Habitat**

Pollinators play vital roles in our ecosystems, helping to pollinate over 75% of flowering plants and nearly 75% of crops. The main threats facing pollinators are habitat loss, degradation, and fragmentation. As native vegetation is replaced by roadways, manicured lawns, crops and non-native gardens, pollinators lose the habitat necessary for their survival. We recommend that Fleming Solar consider landscaping that would promote pollinators at this proposed facility. The Center for Pollinators in Energy (https://fresh-energy.org/beeslovesolar/) maintains a national clearinghouse of pollinator- friendly solar information, standards, best practices, and state-based initiatives.

We appreciate the opportunity to review the proposed project. If you have any questions, please contact Carrie Allison of my staff at 502-695-0468, extension 46103.

Sincerely,

for Virgil Lee Andrews, Jr. Field Supervisor



### DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, LOUISVILLE DISTRICT 600 DR. MARTIN LUTHER KING JR PL LOUISVILLE, KY 40202

August 2, 2021

Regulatory Division South Branch ID No. LRL-2021-00511-mad

Daniel Roberts Energy Renewal Partners, LLC 1221 South MoPac Expressway, Suite 225 Austin, Texas 78746

Dear Ms. Ilnick:

This is regarding your request dated June 2, 2021 for an approved jurisdictional determination on the 830-acre Fleming Solar Project property in Fleming County, Kentucky (Lat: 38.4438°, Long: -83.7647°).

The U. S. Army Corps of Engineers exercises regulatory authority under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344) for certain activities in "waters of the United States (U.S.)". These waters include all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce.

Jurisdictional features within the review area include three perennial streams, ten intermittent streams, two open water features, and eight wetlands. In addition, sixty features within the review area do not appear to be used or be susceptible to use in interstate or foreign commerce. As such, that resource is not considered to be a "water of the U.S.". This jurisdictional determination is valid for a period of five years from the date of this letter unless new information warrants revision of the determination before the expiration date. However, this determination does not relieve you of the responsibility to comply with applicable state law. We urge you to contact the Kentucky Division of Water, 300 Sower Boulevard, Frankfort, Kentucky 40601 to determine the applicability of state law to your project.

This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination, you must submit a completed RFA form to the Lakes and Rivers Division Office at the following address:

> Regulatory Appeal Review Officer ATTN: Ms. Suzanne Chubb U.S. Army Engineer Division, CELRD-PD-REG 550 Main Street - Room 10-714 Cincinnati, Ohio 45202-3222

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by October 1, 2021.

It is not necessary to submit an RFA form to the Division office if you do not object to the determination in this letter.

If we can be of any further assistance, please contact us by writing to the above address, ATTN: CELRL-RDS, or contact me directly at 502-315-6689 or matt.a.dennis@usace.army.mil. Any correspondence on this matter should refer to our ID Number LRL-2021-00511-mad.

Sincerely,

Mathematic Date: 2021.08.02 13:05:51 -04'00'

Matt Dennis Senior Project Manager Regulatory Division